Operable Unit E
Remedial Investigation
Report

April 2004

CH2MHILL

Fort Richardson, Alaska
Contract No. DACA85-02-D-003
Delivery Order 2

prepared for

United States Army Corps of Engineers
Alaska District

United States Army
Directorate of Public Works

United States Army
Installation Management Agency

Report

Remedial Investigation Report
Operable Unit E
Fort Richardson, Alaska

Prepared for

U.S. Army Corps of Engineers

April 2004

CH2MHILL
301 West Northern Lights Boulevard, Suite 601
Anchorage, Alaska 99503-2662
(907) 278-2551

Contents

Section **Page**

Abbreviations ..... **ix**

Executive Summary **ES-1**

1 Introduction **1-1**
1.1 Report Organization 1-1
1.2 Remedial Investigation Purpose and Overview 1-2
1.3 Fort Richardson Background 1-3
1.3.1 Location 1-3
1.3.2 Mission 1-4
1.3.3 History of Contamination 1-4
1.3.4 Environmental Response Actions 1-5
1.3.5 Institutional Controls 1-7
1.4 History of Contamination and Previous Investigations at OUE 1-8
1.4.1 Building 35-752 Area 1-8
1.4.2 Armored Vehicle Maintenance Area 1-12

2 Physical and Environmental Characteristics of Fort Richardson and the Operable Unit E Source Areas **2-1**
2.1 Demography and Land Use 2-1
2.1.1 Fort Richardson 2-1
2.1.2 Operable Unit E 2-2
2.2 Climate 2-3
2.3 Geologic Setting 2-4
2.4 Geology 2-5
2.4.1 Fort Richardson 2-5
2.5 Hydrology and Hydrogeology 2-8
2.5.1 Fort Richardson 2-8
2.5.2 Operable Unit E 2-10
2.6 Ecology 2-11
2.6.1 Fort Richardson 2-11
2.6.2 Operable Unit E 2-12

3 Source Area Investigation Activities **3-1**
3.1 Source Areas Investigated 3-1
3.1.1 Building 35-752 Area 3-1
3.1.2 Armored Vehicle Maintenance Area 3-4
3.2 Field Investigation Methods 3-5
3.2.1 Surveying 3-6
3.2.2 Soil Sampling Procedures 3-6
3.2.3 Groundwater Sampling Procedures 3-8

3.3 Decontamination Procedures 3-10
3.4 Field Documentation 3-11
3.5 Waste Management Practices 3-11
3.5.1 Characterization of Waste 3-11
3.5.2 Management of Waste Streams 3-12
3.5.3 Fort Richardson Environmental Staging Facility Procedures 3-12
3.6 Analytical Program 3-13
3.6.1 Building 35-752 Area Samples 3-13
3.6.2 AVMA Samples 3-14
3.6.3 Timeline of Field Investigations 3-16
3.6.4 Analytical Methods 3-18
3.7 Deviations from the Operable Unit E Management Plan 3-19

4 Nature and Extent of Contamination 4-1
4.1 Evaluation Approach 4-1
4.1.1 Analytical Data 4-1
4.1.2 Screening values 4-2
4.1.3 Calculations 4-3
4.2 Results of Previous Investigations 4-3
4.2.1 Building 35-752 Area 4-3
4.2.2 Armored Vehicle Maintenance Area Groundwater 4-4
4.3 Nature and Extent of Chemicals by Source Area and Media 4-4
4.3.1 Building 35-752 Area 4-4
4.3.2 Armored Vehicle Maintenance Area 4-12
4.4 Data Quality Procedures 4-20
4.4.1 Data Validation 4-20
4.4.2 Chain of Custody 4-21
4.4.3 Holding Time Compliance 4-21
4.4.4 Required Quality Control 4-21
4.4.5 Method Blanks 4-22
4.4.6 Laboratory Control Samples 4-22
4.4.7 Surrogates 4-22
4.4.8 Matrix Spikes 4-22
4.4.9 Calibrations 4-23
4.4.10 Field Duplicates 4-23

5 Fate and Transport of Contamination 5-1
5.1 Transformation Processes 5-1
5.1.1 Biodegradation 5-1
5.1.2 Abiotic Mechanisms 5-2
5.2 Transport of Contaminants 5-2
5.2.1 Hydrostratigraphy 5-2
5.2.2 Groundwater Flow Characteristics 5-3
5.2.3 Contaminant Transport, Dilution, and Attenuation 5-3
5.3 Fate and Transport of Contamination in the Source Areas 5-3
5.3.1 Building 35-752 5-3
5.3.2 Armored Vehicle Maintenance Area 5-4

5.4 Conclusions 5-5

6 Baseline Risk Assessments 6-1
6.1 Conceptual Site Models for Potential Human and Ecological Exposures 6-1
6.1.1 Site Characteristics Influencing Exposure Potential 6-1
6.1.2 Conceptual Exposure Models for Human and Ecological Receptors 6-2
6.2 Human Health Risk Assessment 6-7
6.2.1 Summary of Risk Estimates by Exposure Scenario 6-7
6.2.2 Uncertainties Associated with this Human Health Risk Assessment 6-10
6.3 Ecological Risk Assessment 6-10
6.3.1 Summary of Ecological Risk Characterization 6-10
6.3.2 Ecological Risk Assessment Conclusions 6-12
6.3.3 Uncertainties Associated with this Ecological Risk Assessment 6-15

7 Summary, Conclusions, and Recommendations 7-1
7.1 Summary of Findings from the Remedial Investigation 7-1
7.1.1 Nature and Extent of Contamination 7-1
7.1.2 Baseline Risk Assessments 7-3
7.2 Conclusions 7-4
7.2.1 Operable Unit E 7-4
7.2.2 The Building 35-752 Area 7-5
7.2.3 Armored Vehicle Maintenance Area 7-6
7.2.4 Data Limitations 7-6
7.3 Recommendations 7-6

8 References 8-1

Appendix

A Building 35-752 Area Analytical Data Summary Tables
B Armored Vehicle Maintenance Area Analytical Data Summary Tables
C Building 35-752 Area Soil Boring Logs
D Armored Vehicle Maintenance Area Trench Diagrams and Logs
E Armored Vehicle Maintenance Area Monitoring Well Boring Logs and Well Diagrams
F Field Forms and Sample Logs
G Detailed Sampling Location and Analysis Tables
H Geotechnical Analysis Results
I Chemical Quality Assurance Report
J Review Comments and Responses

Table (Section 4 tables under separate tab)

3-1 Summary of Waste Disposal Practices 3-1
3-2 Summary of Analytical Targets for Soil and Groundwater Samples Collected at the Building 35-752 Area 3-15
3-3 Summary of Analytical Targets for Soil and Groundwater Samples Collected at the Armored Vehicle Maintenance Area 3-17
3-4 Sample Analysis and Associated Laboratories 3-19
3-5 Deviations from the OUE Management Plan 3-20

4-1 Summary of Soil and Sediment Contamination at Building 35-752 from OUD RI
4-2 Summary of Groundwater Contamination at Building 35-752 from OUD RI
4-3 Summary of Groundwater Contamination at Building 45-590 from OUD RI
4-4 Summary of Building 35-752 Transformer Mounting and Oil Discharge Areas Soil Analytical Results
4-5 Summary of Building 35-752 Burn Pit Area Soil Analytical Results
4-6 Summary of Building 35-752 Peripheral Road Area Soil Analytical Results
4-7 Summary of Building 35-752 Soil Stockpile Footprint Area Soil Analytical Results
4-8 Summary of Building 35-752 Area Groundwater Analytical Results
4-9 Building 35-752 Groundwater Monitoring Well Total Metals (Aluminum and Manganese) and Field Parameter Comparison
4-10 Summary of AVMA Trench T1 Soil Analytical Results
4-11 Summary of AVMA Trench T2 Soil Analytical Results
4-12 Summary of AVMA Trench T3 Soil Analytical Results
4-13 Summary of AVMA Trench T4 Soil Analytical Results
4-14 Summary of AVMA Trench T5 Soil Analytical Results
4-15 Summary of AVMA Trench T6 Soil Analytical Results
4-16 Summary of AVMA Trench T7 Soil Analytical Results
4-17 Summary of AVMA Trench T8 Soil Analytical Results
4-18 Summary of AVMA Trench T9 Soil Analytical Results
4-19 Summary of AVMA Monitoring Well Borings Soil Analytical Results
4-20 Summary of AVMA Groundwater Analytical Results
4-21 AVMA Groundwater Metals Data and Turbidity Comparison for Metals Exceeding Screening Values
4-22 AVMA Groundwater Monitoring Wells Detected Concentrations of Carbon Tetrachloride and Tetrachlorethylene (PCE)

6-1 List of Species Potentially Occurring in Habitats at or near OUE Sites 6-3
6-2 Summary of Risk Estimates for Soils at the Armored Vehicle Maintenance Area 6-9
6-3 Uncertainties Associated with Human Health Risk Estimations 6-11

Figure (all figures located at the end of their sections)

ES-1 Location of OUE Sites

1-1 Location of Fort Richardson
1-2 Location of OUE Sites

2-1 Unconfined Aquifer Groundwater Elevations
2-2 Geologic Cross Section Locations
2-3 A-A' Cross Section
2-4 B-B' Cross Section
2-5 C-C' Cross Section

3-1 Building 35-752 Area Sample Locations

4-1 Building 35-752 Area Transformer Mounting Area Soil Analytical Results
4-2 Building 35-752 Area Burn Pit Area Soil Analytical Results
4-3 Building 35-752 Area Peripheral Road Area Soil Analytical Results
4-4 Building 35-752 Area Soil Stockpile Soil Analytical Results
4-5 Building 35-752 Area Groundwater Analytical Results
4-6 AVMA Trenches Soil Analytical Results
4-7 AVMA Monitoring Well Borings Soil Analytical Results
4-8 AVME Groundwater Analytical Results
4-9 AVMA Metals Exceedances

6-1 Conceptual Site Model for Potential Human Exposures, Building 35-752 Area
6-2 Conceptual Site Model for Potential Human Exposures, Armored Vehicle Maintenance Area
6-3 Conceptual Site Model for Potential Ecological Exposures, Building 35-752 Area
6-4 Conceptual Site Model for Potential Ecological Exposures, Armored Vehicle Maintenance Area

Abbreviations

AAC	Alaska Administrative Code
ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
AFB	Air Force Base
AMSL	above mean sea level
ARAR	applicable or relevant and appropriate requirements
Army	U.S. Department of the Army
ASTM	American Society for Testing and Materials
AVMA	Armored Vehicle Maintenance Area
BAF	bioaccumulation factor
BCF	bioconcentration factor
BEHP	bis(2-ethylhexyl)phthalate
bgs	below ground surface
BLM	Bureau of Land Management
BRAC	base realignment and closure
BTEX	benzene, toluene, ethylbenzene, and xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFR	Code of Federal Regulations
cis-1,2-DCE	cis-1,2-dichloroethylene
COC	chemical of concern
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
CRREL	Cold Regions Research and Engineering Laboratory
DDT	dichlorodiphenyltrichloroethane
DNAPL	dense nonaqueous phase liquid

DPW	U.S. Army Alaska, Directorate of Public Works
DRO	diesel-range organic
E&E	Ecology & Environment, Inc.
ELCR	excess lifetime cancer risk
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
eV	electron volt
°F	degrees Fahrenheit
FFA	Federal Facility Agreement
FFCA	Federal Facility Compliance Agreement
FS	feasibility study
ft/ft	feet per feet
GIS	geographic information system
GPS	global positioning system
GRO	gasoline-range organic
HHRA	human health risk assessment
HI	hazard index
HLA	Harding Lawson Associates
HOC	hydrophobic organic compounds
HQ	hazard quotient
IC	institutional control
ID	identifier
IDW	investigation-derived waste
IRP	Installation Restoration Program
kVA	kilovolt-ampere
LOAEL	lowest observed adverse effects level
LTM	long-term monitoring
µg/L	micrograms per liter
MCL	maximum contaminant level
MDL	method detection limit

MEK	methyl ethyl ketone
mg/kg	milligrams per kilogram
MOD	modification
MRL	method reporting limit
MS	matrix spike
MSD	matrix spike duplicate
MSL	mean sea level
NA	not analyzed
NAPL	nonaqueous phase liquid
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NPL	National Priorities List
NTU	nephelometric turbidity unit
O&M	operation and maintenance
OUA	Operable Unit A
OUB	Operable Unit B
OUC	Operable Unit C
OUD	Operable Unit D
OUE	Operable Unit E
ORP	oxidation reduction potential
OSWER	Office of Solid Waste and Emergency Response
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethylene
pg/g	picograms per gram
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
PRG	Preliminary Remediation Goal
PSE	Preliminary Source Evaluation
PVC	polyvinyl chloride

QA	quality assurance
QC	quality control
RA	remedial action
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RD	remedial design
RfD	reference dose
RI	remedial investigation
ROD	record of decision
RPD	relative percent difference
RPM	Remedial Project Manager
RRO	residual-range organic
SARA	Superfund Amendments and Reauthorization Act
SOP	standard operating procedure
Superfund	Superfund Amendments and Reauthorization Act
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TCDD	tetrachlorodibenzodioxin
TCE	trichloroethene
TEF	toxicity equivalent factor
TEQ	toxicity equivalent quotient
TPH	total petroleum hydrocarbon
TRV	toxicity reference value
TSCA	Toxic Substances Control Act
USACE	U.S. Army Corps of Engineers
USAF	U.S. Air Force
UST	underground storage tank
VC	vinyl chloride
VOC	volatile organic compound
WCC	Woodward Clyde Consultants

Executive Summary

This report documents the remedial investigation (RI) activities at Operable Unit E (OUE), Fort Richardson, near Anchorage, Alaska. OUE, the fifth and final operable unit to be investigated at Fort Richardson, was created because the Operable Unit D (OUD) Record of Decision (ROD) identified two new potential hazardous-substance source areas. The overall objective of the report is to provide sufficient information for the U.S. Department of the Army (Army), the Alaska Department of Environmental Conservation (ADEC), and the U.S. Environmental Protection Agency (EPA) to determine whether the source areas at OUE: (1) are eligible for No Further Action designations or (2) pose potentially unacceptable risks to human health and/or the environment and require further remedial action.

If it is determined that remedial action is required, a feasibility study (FS) will be conducted. The FS would develop and evaluate a range of remedial alternatives to support the selection of a remedy that will eliminate, reduce, and/or control these risks. The results of the RI and FS reports would be used to develop a proposed plan and a ROD regarding the cleanup and/or resolution of the status of OUE.

The RI study area includes soil and groundwater in two source areas, the Building 35-752 Area and the Armored Vehicle Maintenance Area (AVMA).

Building 35-752 Area

The Building 35-752 Area is located approximately one-third of a mile south of Richardson Drive and is within one mile of Elmendorf Air Force Base. It is in a relatively undeveloped part of Fort Richardson covering approximately 270 acres that includes high-frequency transmitter antennas. Investigations completed as part of the OUE RI took place within approximately six acres of that area.

The OUD RI (ENSR, 1998a) identified prior activities at Building 35-752 that may have contributed to releases of contaminants to the environment. These activities included temporary storage of soil contaminated with polychlorinated biphenyls (PCBs) within Building 35-752, on-site fueling operations for underground storage tanks (USTs) used to operate diesel generators, and drum storage in an unlined outdoor area. In addition, starting in 1982, groundwater was circulated through the adjacent building (Building 35-750) for use in a cooling system and eventually discharged to a man-made pond, referred to informally as the "cooling pond."

As a result of the minimal levels of contamination found during the OUD RI, the concrete floor in Building 35-752, the former UST areas south of Building 35-752, the former drum accumulation area east of Building 35-752, the former cooling pond southwest of Building 35-752, and the former UST 1102 north of Building 35-752 were considered for No Further Action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Therefore, those sites are not part of OUE.

The Army, ADEC, and EPA obtained new information after issuing the OUD Proposed Plan (ENSR, 1999). Because of this, they identified additional potential hazardous source areas at Fort Richardson related to: transformer maintenance and operation, the discharge and burning of transformer cooling oil containing PCBs, the use of PCB-contaminated soil as a base for the peripheral road, and remaining contamination in an area where soil containing PCBs had been stockpiled. In addition, since the OUD RI found that groundwater at Building 35-752 was contaminated with benzene, trichloroethylene (TCE), and metals (primarily aluminum, iron, and manganese), they determined that the OUE RI would also investigate groundwater in the Building 35-752 Area.

Armored Vehicle Maintenance Area

The AVMA is located in the western region of the cantonment area of Fort Richardson. The area is mostly open fields, grasslands, and woods. The original AVMA area was approximately 56 acres, but has since been expanded to approximately 140 acres. The AVMA was expanded to include the additional area following the discovery of a dissolved PCE plume in groundwater upgradient of Building 732.

The OUD RI (ENSR, 1998a) investigated groundwater contamination under former Building 45-590 (which was demolished and removed in 1995). The OUD RI found that the groundwater under former Building 45-590 was contaminated with carbon tetrachloride and tetrachloroethylene (PCE). Previous activities at the site that were considered during the OUD RI to have contributed to a release of hazardous substances to the environment included auto-craft work, vehicle repair, and other practices associated with vehicle maintenance. Other potential sources that were considered included a former waste accumulation area, a former waste oil UST, and a former dry well/sewer line.

Because of new information obtained after issuing the OUD Proposed Plan, the Army, EPA, and ADEC identified an area used for field maintenance for armored vehicles (tanks) with disposal of oil and other waste material as a possible source of the groundwater contamination beneath and upgradient of former Building 45-590. They referred to this upgradient source of the contamination as the AVMA. In the OUD ROD, considering the additional information, it was determined that former Building 45-590 was not the source of groundwater contamination. It was determined to be a No Further Action site under CERCLA. Therefore, that site is not part of OUE.

The suspected potentially hazardous source areas within the AVMA include areas of buried debris, drainage ditches near the former vehicle wash area, and other ditches east of former Building 45-590 identified on historic aerial photographs. Other potential sources include vehicle maintenance and laundry operations.

Figure ES-1 contains the locations of the Building 35-752 Area and the AVMA.

Screening Criteria

Concentrations of chemicals detected in the samples were compared to various criteria, referred to as screening values. These screening values included the following:

- **Soil**
  - EPA Region 9 Industrial Preliminary Remediation Goal (PRG) values for soil (EPA, 2002) in milligrams per kilogram (mg/kg) for all but total petroleum hydrocarbons (TPH) and dioxin/furan concentrations
  - EPA Region 9 Industrial PRG values for 2,3,7,8-tetrachlorodibenzo-p-dioxin in soil (EPA, 2002) in picograms per gram for dioxin/furan toxicity equivalent quotients (Section 4.1.3)
  - Alaska underground storage tank values for soil (ADEC, 1999) in mg/kg for TPH concentrations
- **Groundwater**
  - EPA Region 9 Tap Water PRG values for groundwater (EPA, 2002) in micrograms per liter (µg/L) for all but TPH concentrations
  - Alaska Water Quality Standards values for groundwater (ADEC, 1997) in µg/L for TPH concentrations

Comparisons of detected concentrations to these screening values were used to define the nature and extent of contamination within the source areas.

Conclusions

An RI was conducted at OUE in 2002 and 2003 to evaluate the presence, nature, and extent of potential contaminants in soil and groundwater and to identify whether potential human health and/or ecological risks posed by contamination in OUE are high enough to require further response action. The conclusions reached following an interpretation of the results of the sampling efforts are discussed below in relationship to the objectives for the RI.

General

- In the Building 35-752 Area, 67 borings were drilled and soil was sampled in the Transformer Mounting and Oil Discharge Areas, the Burn Pit Area, the Peripheral Road Area, and the Soil Stockpile Footprint Area. Seven existing groundwater monitoring wells were also sampled. In the AVMA, 9 trenches were excavated and soil samples were collected, 14 groundwater monitoring wells were installed and soil and groundwater samples were collected, and 27 existing groundwater monitoring wells were sampled. Laboratory analyses were performed on all the samples collected.
- Potential human and ecological receptors in the Building 35-752 Area and the AVMA were identified and evaluated in the risk assessment (CH2M HILL, 2004a).

- Under the current land use scenario, no potential human health risks related to soil and groundwater in the Building 35-752 Area and the AVMA are indicated.
- Potential human health risks for the hypothetical future residential scenario related to groundwater in the 35-752 area and AVMA exceed the applicable regulatory values and require further response action.
- Potential ecological risks posed by contamination related to soil and groundwater in the Building 35-752 Area and the AVMA do not exceed the applicable regulatory values and do not require further response action.
- There is no need for interim remedial action since institutional controls are already in place restricting access to the OUE source areas. The FS will recommend suitable remedial actions.
- The RI complied with federal and state applicable or relevant and appropriate requirements (ARARs).
- Wastes generated during field investigation activities were carefully controlled and properly disposed of.

The Building 35-752 Area

Soil

- New chemicals of potential concern (COPCs) were investigated in the Building 35-752 Area, including dioxins/furans. The RI found detectable concentrations of dioxins/furans in three of four areas evaluated. However, only two sampling locations exceeded screening values.
- The lateral and vertical limits of contamination were established through collection and analysis of surface soil samples.
- The subsurface stratigraphy in the Burn Pit Area is gravel fill overlying a silty sand to a depth of about five feet where a well-graded gravel is encountered.
- Extended areas of potential PCB contamination were investigated. The conclusions are that:
  - Transformer cooling oil containing PCBs was discharged in the field east of Building 35-752.
  - Either the Burn Pit Area was not used for the burning of a mixture containing PCBs or contaminated soils from the burning event have been removed from the area.
  - PCB-contaminated soil from the Burn Pit Area was graded into the roadway of the Peripheral Road Area before the asphalt was placed. PCBs were detected in 28 of 30 sampling locations. Seven locations contained concentrations of PCBs greater than the screening value.

  - Some soil contaminated with low-level concentrations of PCBs remains at the Soil Stockpile Footprint Area.

Groundwater

- Groundwater quality was assessed at the seven existing monitoring wells (AP-2982, AP-2983, AP-2987, AP-3231, AP-3232, AP-3458, and AP-3503). Concentrations of several VOCs exceeded screening values in samples from all wells. The most often observed contaminants were TCE, trimethylbenzene compounds, and BTEX compounds.
- No specific source for the groundwater contamination in the Building 35-752 Area was identified.

AVMA

Soil

- The disturbed area east of former Building 45-590, where historic photographs show potential areas of contamination, was characterized. No significant source of contamination was identified during the trench excavations.
- The principal contaminants in samples from soil borings advanced for the installation of monitoring wells were low-level concentrations of total petroleum hydrocarbons (TPHs; diesel-range organic [DRO] and gasoline-range organic [GRO] compounds) and volatile organic compounds (VOCs). No source areas for PCE and other contaminants in groundwater were identified at the AVMA.

Groundwater

- The extent of the dissolved PCE plume was determined. The plume, when encountered, extends from upgradient of building 732 to slightly past the junction of the confined and unconfined aquifers north of the Davis Highway. The plume is not encountered in upgradient portions of the confined aquifer. Concentrations of PCE decrease in the merged, deep aquifer north of the Davis Highway.
- Data collected showed that the confining layer is 37 feet thick at the well AP-4412/ AP-4413 location and 30 feet thick at the well AP-4415/AP-4416 location. The northern extent of the confining unit is adjacent to the Davis Highway, northwest of Building 732.
- The lithology encountered above the confining unit consists primarily of gravel and cobbles. Interbedded silty and sandy units are also observed.
- Ongoing groundwater monitoring in the area determined that plume degradation is occurring and there is a reduction in COPC concentrations.
- COPCs in the groundwater at the AVMA were identified. They include PCE and carbon tetrachloride.

Data Limitations

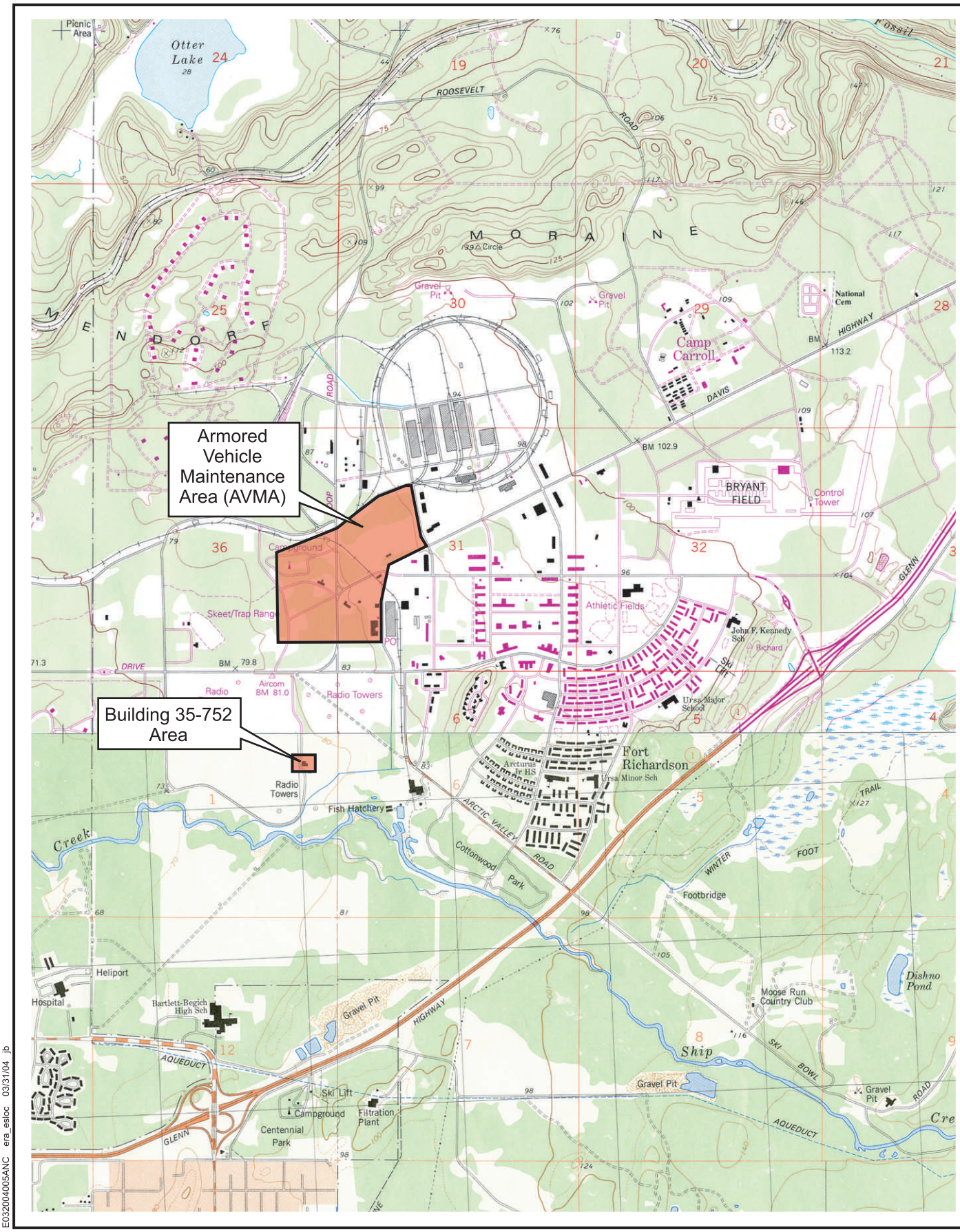
No data limitations have been identified.

Recommendations

On the basis of the results of the RI activities conducted, the following recommendations are presented:

OUE

No further work in support of the RI beyond completion of the planned feasibility study is recommended at this time. An FS is recommended to address potential future residential risk at AVMA and Building 35-752 and exceedances of ARARs at Building 35-752.



E032004005ANC era_esloc 03/31/04 jb

CH2MHILL

Figure ES-1
Location of OUE Sites
Operable Unit E Remedial Investigation
Fort Richardson, Alaska

SECTION 1

Introduction

This report documents the remedial investigation (RI) activities at Operable Unit E (OUE), Fort Richardson, near Anchorage, Alaska. OUE, the fifth and final operable unit to be investigated at Fort Richardson, was created because the Operable Unit D (OUD) Record of Decision (ROD) identified two new potential hazardous-substance source areas. The RI was performed by CH2M HILL for the U.S. Army Corps of Engineers (USACE) and U.S. Army Alaska, Directorate of Public Works (DPW), as authorized under contract DAPA85-02-D-0003, Delivery Order Number 2.

Section 1.1 outlines the organization of this RI Report. Section 1.2 describes the purpose and provides an overview of the RI. Section 1.3 describes background information about Fort Richardson and its history of contamination. Section 1.4 summarizes the history of contamination and identifies past investigations of OUE.

1.1 Report Organization

The report is presented in three volumes. Volume I consists of the following parts:

- **Executive Summary** provides an overview of the RI report.
- **Section 1, Introduction,** outlines how the report is organized; describes the purpose and provides an overview of the RI; identifies the location, mission, history of contamination, environmental response actions, and institutional controls at Fort Richardson; and describes the history of contamination and previous investigations at the two OUE source areas.
- **Section 2, Physical and Environmental Characteristics of Fort Richardson and the OUE Source Areas,** describes the demography and land use, climate, geologic setting, geology, hydrology and hydrogeology, and ecology of Fort Richardson and OUE.
- **Section 3, Source Area Investigation Activities**, summarizes the source areas investigated, field investigation methods, decontamination procedures, field documentation, waste management practices, the analytical program, and deviations from the OUE Management Plan.
- **Section 4, Nature and Extent of Contamination**, describes the evaluation approach, the results of previous investigations, the nature and extent of chemicals in soil and groundwater in the two OUE source areas, and data quality procedures.
- **Section 5, Fate and Transport of Contamination**, describes the processes that are related to the transformation and movement of contaminants in the environment and specifically in the OUE source areas.
- **Section 6, Baseline Risk Assessments**, estimates the risks posed by chemicals of potential concern (COPCs) in OUE to potential human and ecological receptors. The

section is divided into three parts, conceptual site models for potential human and ecological exposures, a human health risk assessment, and an ecological risk assessment. Each assessment reviews the COPCs and their toxicity; describes the potential exposure pathways for these chemicals and their potential receptors; and assesses the risks potentially posed to these receptors by the COPCs.

- **Section 7: Summary, Conclusions, and Recommendations**, summarizes the findings from the RI, presents the conclusions, and provides recommendations.
- **Section 8: References**, lists in full the references cited in the above sections.
- **Figures and tables** are presented within each section in which they are initially referenced except for Section 4, where they are presented at the end of the section.
- **Appendices** provide supplemental information and data:
  - Appendix A, Building 35-752 Analytical Data Summary Tables
  - Appendix B, Armored Vehicle Maintenance Area Analytical Data Summary Tables
  - Appendix C, Building 35-752 Area Soil Boring Logs
  - Appendix D, Armored Vehicle Maintenance Area Trench Diagrams
  - Appendix E, Armored Vehicle Maintenance Area Monitoring Well Boring Logs and Well Diagrams
  - Appendix F, Field Forms and Sample Logs
  - Appendix G, Detailed Sampling Location and Analysis Tables
  - Appendix H, Geotechnical Analysis Results
  - Appendix I, Chemical Quality Assurance Report
  - Appendix J, Review Comments and Responses

Volume II of this RI report consists of the Human Health and Ecological Risk Assessments for OUE.

1.2 Remedial Investigation Purpose and Overview

The overall objective of the RI is to provide sufficient information for the U.S. Department of the Army (Army), the Alaska Department of Environmental Conservation (ADEC), and the U.S. Environmental Protection Agency (EPA) to determine whether the source areas at OUE (1) are eligible for No Further Action designations or (2) pose potentially unacceptable risks to human health and/or the environment and require further remedial action. If it is determined that remedial action is required, a feasibility study (FS) will be conducted. The FS would develop and evaluate a range of remedial alternatives to support the selection of a remedy that would eliminate, reduce, and/or control these risks. The results of the RI and FS reports will be used to develop a proposed plan and a record of decision (ROD) regarding the cleanup and/or resolution of OUE.

This report has been prepared in accordance with guidelines set forth under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process as identified in *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA* (EPA, 1988) and *Data Quality Objectives Process of Superfund* (EPA, 1993).

Investigations completed during the RI were conducted under the general guidance of the *Final Management Plan, Operable Unit E, Remedial Investigation/Feasibility Study, Fort Richardson, Alaska* (OUE Management Plan; ENSR, 2002). A field work plan for the RI is provided in Appendix A of the OUE Management Plan. Additional investigation activities were completed in 2003 to further delineate groundwater contamination at the site (CH2M HILL, 2003a). See Section 3.7 for a summary of deviations from the OUE Management Plan.

This report describes the process for completing the RI project components and summarizes the observations and information gathered relative to the specific sites included within the OUE source areas. The objectives for the RI included the following:

- Evaluate the presence, nature, and extent of potential contaminants in soil and groundwater
- Identify and evaluate potential receptors in the area(s) of contamination
- Identify whether potential human health and/or ecological risks posed by contamination in OUE are high enough to require further response action
- Comply with federal and state applicable or relevant and appropriate requirements (ARARs)
- Carefully control and properly dispose of wastes generated during field investigation activities

A draft version of this report was published in December 2003. Comments related to the draft version, and responses to the comments, are provided in Appendix I.

1.3 Fort Richardson Background

1.3.1 Location

Fort Richardson encompasses approximately 61,376 acres. The post is located in south-central Alaska adjacent to the cities of Anchorage and Eagle River, and Elmendorf Air Force Base (AFB). (See Figure 1-1.) The Knik Arm of Cook Inlet borders the north side of the post, and Chugach State Park lies to the south and southeast. The Town of Eagle River lies along the northeast border. Anchorage and Elmendorf AFB form the western boundary.

The western boundary is approximately 11 miles long, from the Knik Arm to its terminus beside Anchorage and Chugach State Park. The eastern border is 21 miles, and also runs from the Knik Arm to Chugach State Park. Fort Richardson is approximately six miles across, from east to west. The cantonment area is situated at the base of the Chugach foothills, on the alluvial floodplain between the Chugach Mountains and the Knik Arm of Cook Inlet. Located approximately seven miles from downtown Anchorage, the cantonment area is bordered on the west by Elmendorf AFB, on the north by training areas, on the east

by the Glenn Highway, and on the south by Ship Creek, recreational areas, and training areas.

1.3.2 Mission

In 1939, increasing world tensions caused the establishment of Elmendorf Field just outside of Anchorage. One year later, the name Fort Richardson was adopted by the U.S. War Department in memory of Brigadier General Wilde P. Richardson.

Japanese aggression in the Aleutian Islands emphasized the strategic importance of Alaska. Fort Richardson's first mission was defense of southern Alaska by establishing a permanent air base, supply depot, and garrison. When the Japanese attacked Pearl Harbor in 1941, Fort Richardson was charged with defending Alaska from invasion and coordinating the Alaskan war effort. Before the outbreak of World War II, military strength in Alaska was less than 3,000. It soon grew to 7,800 troops stationed at Fort Richardson alone, including the 4th Infantry, 85th Field Artillery, and 75th Coast Artillery (Anti-Aircraft). As the war progressed, Fort Richardson's mission expanded significantly as the logistics base for numerous Army garrisons and the Air Corps.

Army troops were redesignated as the U.S. Army Alaska on November 15, 1947, and assigned to the Alaskan Command, the nation's unified command staffed jointly by Army, Navy, and Air Force officers. Headquarters for U.S. Army Alaska were established at Fort Richardson. At that time, the post was located on what is now Elmendorf AFB. After the establishment of the U.S. Air Force (USAF) as a separate service in 1947, the Army post was rebuilt on its present location in 1950.

In December 1974, as part of worldwide realignments, U.S. Army Alaska was inactivated, and the post became headquarters for the 172nd Infantry Brigade (Separate) in January 1975. As in previous years, subordinate posts were maintained at Fort Wainwright (near Fairbanks) and Fort Greely (near Delta Junction).

In a subsequent realignment in March 1986, the newly reactivated 6th Infantry Division (Light) replaced the 172nd Infantry Brigade (Separate). This marked a new mission for the Army in Alaska as a light, deployable force capable of defending U.S. interests across the globe. The division became aligned more closely with the Defense Department's forces in the Pacific when, in 1989, it began reporting to the U.S. Army Western Command in Hawaii (later redesignated U.S. Army Pacific).

Headquarters was established on Fort Richardson and remained there until 1990. In 1990, headquarters for the 6th was moved to Fort Wainwright. In 1993, as part of Army-wide downsizing, the 6th was reorganized as a light infantry brigade. The 6th Infantry Division (Light) was inactivated July 1994, and Fort Richardson became headquarters for U.S. Army Alaska when U.S. Army Alaska was restructured. In 1998, the 1st Brigade, 6th Infantry Division (Light) was deactivated, and the 172nd Infantry Brigade (Separate) was reactivated.

1.3.3 History of Contamination

Since World War II, Fort Richardson has supported combat unit training and operations (primarily light infantry) that have resulted in various hazardous substances being released

to soil and groundwater. Used oils, solvents, and fuel spills were reportedly discharged to the floor drains that drained directly to the sanitary sewer or to dry wells with discharge to subsurface soil. Spent solvents and contaminated fuels were routinely mixed with waste oils in the past. Waste oils, solvents, and contaminated fuels have been used for fire training practice at the fire burn pits. Waste oil underground storage tanks (USTs) were installed at many of the maintenance facilities in the 1940s. Current Army practices no longer allow uncontrolled or unpermitted releases of pollutants to the environment.

The primary environmental contaminants at Fort Richardson are white phosphorous, volatile organic compounds (VOCs; usually solvents and cleaners), polychlorinated biphenyls (PCBs), fuel products, and polynuclear aromatic hydrocarbons (PAHs; commonly used in wood preservatives and also given off in automobile or truck exhaust or during burning activities).

1.3.4 Environmental Response Actions

In response to increased environmental awareness nationwide, Congress passed CERCLA in 1980. It directed the EPA to investigate contaminated sites. In 1984, Congress established a separate environmental restoration program specifically for the Department of Defense (the Defense Environmental Restoration Program).

1.3.4.1 Installation Restoration Program

In 1988, EPA Region 10 placed Fort Richardson on the hazardous waste compliance docket. The Army's investigation of contaminated sites at Fort Richardson under the Installation Restoration Program (IRP) began in 1988. The objectives of the IRP are to assess sites where potentially hazardous material may exist and to develop and recommend remedial actions for those sites that pose a threat to human health and welfare or the environment. The IRP is the basis for response actions under the provisions of CERCLA.

1.3.4.2 Federal Facility Compliance Agreement

In 1991, the Army and EPA entered into a Federal Facility Compliance Agreement (FFCA) which imposed obligations on the Army regarding storage and disposal of hazardous waste. The Army conducted sampling activities at solid waste management units (SWMUs) addressed in the FFCA to establish whether or not hazardous wastes were managed at these units and, in some instances, prepared closure plans. These closure plans, developed under the Resource Conservation and Recovery Act (RCRA) program guidelines, were used as an integral part of the CERCLA cleanup actions.

SWMUs addressed under the FFCA include, but are not limited to, the following sites, with the ROD under which RCRA corrective action requirements is addressed for each SWMU in parentheses:

- Sites considered No Further Action: Circle Road Drum Site (Operable Unit D [OUD]), Building 700/718 (OUD), and Building 704 (OUD).
- Sites that will undergo administrative closure: Building 955 (OUD), Building 35-752 (OUD), Building 45-590 (OUD), the Open Burn/Open Demolition (OB/OD) Pad (Operable Unit C [OUC]), Building 755, and Building 986 (Operable Unit A [OUA]).

1.3.4.3 CERCLA National Priorities List

Because known or suspected releases of hazardous chemicals were identified on the post, Fort Richardson was proposed for placement on the CERCLA National Priorities List (NPL) of contaminated sites in need of cleanup on June 18, 1993 and listed on June 1, 1994. (The Comprehensive Environmental Response, Compensation, and Liability Information System [CERCLIS] EPA identification number for the Fort Richardson NPL site is AK6214522157.) As a result, environmental assessment and remediation activities at Fort Richardson are being performed to comply with CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986 and subsequent amendments.

Three parties direct the cleanup: the Army as the responsible party, the EPA to ensure that cleanup meets federal standards, and the ADEC to ensure that it meets state standards. CERCLA governs non-petroleum contamination, like that from solvents, dry cleaning fluids, and PCBs. At Fort Richardson, the state's cleanup process and standards are applied to petroleum contamination.

1.3.4.4 Federal Facility Agreement

The Army, EPA (Region 10), and ADEC signed a Federal Facility Agreement (FFA) for Fort Richardson on December 5, 1994. The FFA ensures that environmental impacts associated with past practices at Fort Richardson are investigated and remedial actions are completed to protect human health and the environment. This agreement establishes a procedural framework and schedule for developing, implementing, and monitoring appropriate response actions in accordance with CERCLA, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), national Superfund guidance and policy, RCRA, national RCRA guidance and policy, and applicable state law. The FFA establishes and describes the CERCLA process as applied to Fort Richardson. The FFA facilitates cooperation, exchange of information, and participation of the Army, EPA, and ADEC in these actions. It details the responsibilities and authority associated with each party pursuant to the CERCLA process and the environmental investigation and remediation requirements associated with Fort Richardson.

The FFA addresses integration of the Army's CERCLA requirements with pertinent aspects of other federal and state remedial programs such as Alaska's UST Program. The FFA integrates CERCLA and RCRA requirements at sites where both regulations apply (for example, those resulting from the FFCA). The FFA states that RCRA corrective actions required at SWMUs identified in the FFCA would be integrated with any ongoing CERCLA response actions so that duplication of effort would not occur and the Army could realize cost savings. Work performed at these SWMU sites under CERCLA was intended to meet or exceed the requirements of the RCRA corrective action program. However, the FFA also states that such integration efforts will not obviate the need for the Army to meet its RCRA closure obligations under the FFCA.

Attachment I to the FFA describes the investigation and restoration approach agreed upon by the Army and the regulatory agency parties to the agreement. The FFA identified a number of source areas based on historical uses and past investigations and initially listed 102 potential source areas at Fort Richardson. No Further Action, response complete, was selected for 70 of these source areas. An additional nine source areas were identified for No Further Action under CERCLA following the FFA. Nineteen of the remaining potentially

contaminated source areas were grouped into four operable units (OUA, Operable Unit B [OUB], OUC, and OUD). Four source areas with known or suspected petroleum (non-UST) contamination were transferred for investigation in accordance with two environmental restoration agreements (referred to as the Two Party Agreement).

Source areas were evaluated through a screening process called a Preliminary Source Evaluation (PSE). The PSE included record searches, interviews, and, if warranted, limited field investigations. During the investigations, analytical data were generated for many chemicals. The target analyte list for each source area was determined based on site history and previous investigations. A PSE leads into an RI, followed by an FS for the selection of remedies, remedial designs (RDs), remedial actions (RAs), operation and maintenance (O&M) associated with remedial actions, and long-term monitoring (LTM). Documents that record all investigation and cleanup decisions are located in the administrative record.

Under OUD, a postwide human health and ecological risk assessment was performed for the entire Fort Richardson Army post to supplement the individual risk assessments conducted for each source. The objectives of the postwide risk assessment were to evaluate potential risks to wide-ranging receptors that might be exposed to multiple source areas and to fill data gaps that became evident upon thorough review of all data collected during each RI for each operable unit. The Army, EPA, and ADEC agree that OUA and OUD do not pose unacceptable risks and therefore do not require further action under CERCLA. OUB is listed as a source area under CERCLA because the groundwater and soil are contaminated with chlorinated solvents. OUC is listed as a source area under CERCLA because the sediments at Eagle River Flats are contaminated with white phosphorus contamination (an ecological threat to waterfowl).

Information and decisions for OUA and OUB are documented in the ROD published and signed in September 1997. The cleanup decisions for OUC are documented in the ROD published and signed in September 1998. Information and decisions for OUD are documented in the ROD published and signed in September 2000.

However, while the OUD ROD was being developed, new information was discovered concerning the Building 35-752 source area. Based on that information it was determined that this source area required additional investigation to assess if other potential chemicals of concern (COCs) are present.

In the OUD ROD, former Building 45-590 was determined not to be a source for groundwater contamination and was considered No Further Action under CERCLA. Groundwater contamination was attributed to an upgradient source area referred to as the Armored Vehicle Maintenance Area (AVMA).

After reviewing the new information for the Building 35-752 Area and the AVMA, the Army, EPA, and ADEC determined that the potential contamination and human health risks had not been adequately addressed, and that it would be necessary to integrate all previous and any new sources into OUE.

1.3.5 Institutional Controls

The Army has developed standard operating procedures (SOPs) and a geographic information system (GIS)-based tracking system to ensure that land use restrictions are

enforced. The institutional control (IC) system has been incorporated into the Fort Richardson Master Plan, and compliance with ICs is reported in the annual monitoring reports for each operable unit. The IC policy applies to all U.S. Army Alaska units and activities; military and civilian support activities; tenants organizations and agencies; and government and civilian contractors. In the fall of 2001, the Institutional Control Memorandum, signed by Major General Cash and dated February 1999, was updated to require a Work Authorization Permit for all contracts involving groundwater and soils on U.S. Army Alaska lands. This revised memorandum, signed by the Commanding General, includes a section on areas with ICs mandated by a ROD and a section on areas where contamination is not suspected. Currently, all contracts that include intrusive activities require a Work Authorization Permit. Recently, the Work Authorization Permit was updated to clearly alert the user on procedures to follow when potential contamination is encountered. The SOP for ICs will include a more detailed section on the procedures and responsibilities for incidents where potential contamination is found.

Fort Richardson instituted a postwide IC policy for known or suspected contaminated source areas. Further details of the Army/Fort Richardson IC policy can be found in Appendix E of the OUB *Draft Interim Remedial Action Report* (USACE, 2003), the U.S. Army Alaska Institutional Controls Standard Operating Procedures (APVR-RPW [200-1), and a Memorandum on Institutional Controls (APVR-RPW-EV [200-1c]). IC policies include the following:

- No unauthorized intrusive actions take place at source areas
- No potable water wells are installed in source areas
- No soil excavation can take place without prior briefings on potential concerns at the source area, knowledge of the procedures for handling contaminated soils on Fort Richardson, and possession of a valid site-specific Fort Richardson Excavation Permit

The DPW maintains the GIS database with information on contaminated source areas on Fort Richardson. The DPW is responsible for ensuring that ICs on Fort Richardson are enforced. ICs will remain in place as long as hazardous substances remain on site at levels that preclude unrestricted use.

1.4 History of Contamination and Previous Investigations at OUE

The two areas of concern within OUE are the Building 35-752 Area and the AVMA (Figure 1-2).

1.4.1 Building 35-752 Area

Building 35-752 is located approximately one-third of a mile south of Richardson Drive and is within one mile of Elmendorf AFB. It is in a relatively undeveloped part of Fort Richardson that includes high-frequency transmitter antennas covering approximately 270 acres.

1.4.1.1 History of Contamination at the Building 35-752 Area

From 1953 to 1987, four diesel generators for the adjacent high-frequency transmitter site were in operation within Building 35-752. The generators were located at the east end of the building within a 4-inch-deep concrete pit. The generators were powered by diesel fuel, which was stored in seven 5,000-gallon USTs south of the building. Cooling ponds, located southwest of the building, stored water to cool the generators.

The generators were removed in 1987, and the 4-inch-deep pit was brought to grade by filling it with concrete. Since the removal of the generators, Building 35-752 has been used for general storage, including short-term use as an emergency hazardous waste storage area. In 1989, the building was used as a temporary storage location for 125 bags of PCB-contaminated soil, each weighing 2,000 pounds. The bags were removed in 1990. Dust on the floor of Building 35-752 contained levels of residual PCB contamination above risk-based concentrations.

During the 1960s and 1970s, an unlined drum storage area was located along the south end of the east side of Building 35-752. The drums, reportedly from the vehicle maintenance shops, contained fuel products and solvents. Aerial photos indicate that drums were no longer stored there after 1974 but that stained soils were evident in 1983.

Building 35-750 was and is currently used by the Air Force to operate the transmitter array at the site.

A septic system and a leach field south of Building 35-750 and north of Building 35-752 were found to service Building 35-750. By 1972, the Building 35-750 was connected to the post sewer system. However, the cooling system was not connected and continued to discharge to the cooling ponds. A man-made cooling pond southwest of Building 35-752 received water used to cool the generators and equipment in Building 35-750. The cooling pond drained to Ship Creek. The cooling pond has been drained and cooling water has been rerouted to a sanitary sewer.

1.4.1.2 Building 35-752 Area Previous Investigations and Reports

A comprehensive history of soil and groundwater investigations performed at the Building 35-752 Area, as well as analytical results from those investigations, can be found in the OUD RI (ENSR, 1998a). The following subsections summarize investigations that have been conducted at Building 35-752 since 1990.

Underground Storage Tank Remediation Sampling Program (1990)

In 1990, seven 5,000-gallon USTs were excavated and removed from the south side of Building 35-752. Soil from within the tank excavation was analyzed to assess the presence and extent of fuel contamination in the soil and groundwater (USACE, 1990). This analysis found that the soil was contaminated with total petroleum hydrocarbons (TPHs) and PCBs (such as Aroclor 1260). The removed soil was stockpiled off site. The excavated area was backfilled with soil from another area of Fort Richardson. Later, after analyzing the backfilled soil, it was determined that it was also contaminated with PCBs.

One diesel UST, which supports the emergency generator, remains at Building 35-750.

Site Assessment and Corrective Action Plan (1993)

Harding Lawson Associates (HLA) conducted an additional site assessment and completed a corrective action plan at the former UST site in 1993. This site assessment documented the presence of PCBs in the backfill and fuel in the soil and groundwater and determined that the source was not from USTs (HLA, 1994a).

Closure Plan (1994)

In 1994, ENSR developed a closure plan for Building 35-752 (ENSR, 1994b). The plan outlined closure activities for the inside of Building 35-752 and the Outside Drum Storage Area approximately 20 feet east of the building. A confirmation core sampling program was suggested for the concrete floor to assess possible PCB contamination from a spill. Confirmation soil sampling was outlined for the Outside Drum Storage Area since surface and subsurface soil may have been impacted by drummed materials formerly stored in the area.

Limited Field Investigation (1994 and 1995)

During the fall and winter of 1994 -1995, ENSR conducted a limited field investigation of the entire site. Complete results of the investigation are presented in the report *Preliminary Source Evaluation 2, Operable Unit D, Fort Richardson, Alaska* (ENSR, 1996). The objectives of this investigation were to evaluate the presence of contamination in soil and sediment, the possible downward migration of contaminants, and potential source areas for groundwater contamination.

PCBs were detected in samples collected from the floor of Building 35-752. PCBs and petroleum hydrocarbons were detected in soil and groundwater samples collected in the former UST area. PCBs and petroleum hydrocarbons were detected in subsurface soil samples collected in the drum storage area. Petroleum hydrocarbons, PCBs, pesticides, and solvents were detected in sediments collected from the cooling pond. Petroleum products and metals were detected in groundwater samples collected near the cooling pond. Petroleum products and solvents were present in groundwater samples collected from wells around the building.

OUD Remedial Investigation/Feasibility Study (1996, 1997, and 1998)

Investigations were conducted in 1996, 1997, and 1998, for the OUD RI (ENSR, 1998a). The OUD RI identified prior activities at Building 35-752 that may have contributed to releases of contaminants to the environment. The OUD RI Building 35-752 source area consisted of several sites:

- The former underground storage tank area south of Building 35-752
- The man-made cooling pond southwest of Building 35-752 (including the portion of the stormwater drainage ditch that flows southwest from the man-made cooling pond to Ship Creek)
- An unlined drum storage area used in the 1960s and 1970s at the south end of the east side of Building 35-752 (where, reportedly, the drums had contained various fuel products and solvents)

- The concrete floor in Building 35-752 (because in 1989 the building was used as a temporary storage location for bags of PCB-contaminated soil)
- A former UST north of Building 35-752 (UST 1102)

These sites were investigated to assess the presence and extent of contamination resulting from the use and storage of petroleum fuels, solvents, PCBs, pesticides, and metals. OUD RI fieldwork included wipe sampling of the floor of Building 35-752, surface and subsurface soil sampling at the former UST locations, soil sampling at the drum accumulation area, surface water and sediment sampling at the cooling pond, and groundwater sampling. In addition, a stockpile containing approximately 1,500 cubic yards of PCB-contaminated soil was located near Building 35-752.

OUD Proposed Plan (1999)

In the Proposed Plan for OUD (ENSR, 1999), the alternative proposed for soil and sediment contamination at Building 35-752 included: installing a fence, sealing Building 35-752 windows and doors, and filling in the cooling pond with clean soil.

The alternative proposed for groundwater contamination at Building 35-752 was institutional controls and monitored natural attenuation.

OUD ROD (2000)

While the OUD ROD was being developed, new information was discovered about the potential source of PCB contamination in the Building 35-752 Area. Historical disposal practices conducted in the vicinity of Building 35-752 indicated other areas of concern existed that were outside the scope of the OUD RI (ENSR, 1998a). Interviews with Fort Richardson personnel that worked at this site in 1982 indicated that oil from transformers located behind Building 35-750 was drained onto the ground and burned in a shallow pit After the transformer oil was burned, the pit was filled back in with native soil from the surrounding area. The soil that did not fit into the pit was spread between and around Building 35-750 and Building 35-752. PCB-contaminated soil may have been further distributed along the peripheral road and parking lot during grading activities prior to paving in 1997.

Because of the new information obtained after issuing the Proposed Plan, the Army, EPA, and ADEC determined that the Building 35-752 area had not been adequately characterized for PCBs and, potentially, dioxins/furans (ENSR, 2000). They identified additional potential hazardous source areas at Fort Richardson related to: transformer maintenance and operation, the discharge and burning of transformer cooling oil containing PCBs, the use of PCB-contaminated soil as a base for the peripheral road, and remaining contamination in an area where soil containing PCBs had been stockpiled. In addition, since groundwater at Building 35-752 was found to be contaminated with benzene, trichloroethene (TCE), and metals (primarily aluminum, iron, and manganese) during the OUD RI, it was determined that groundwater at Building 35-752 would be investigated as part of the OUE RI.

Significant evidence existed to suggest that the following areas posed no risk to human health and the environment: the concrete floor in Building 35-752, the former UST areas south of Building 35-752, the former drum accumulation area east of Building 35-752, the former cooling pond southwest of Building 35-752, and the former UST 1102 north of

Building 35-752. These areas were considered for No Further Action under CERCLA. Therefore, those sites were not investigated as part of this RI for OUE.

The USTs that served the generators have been removed, the unlined drum storage area is no longer in use, and the cooling water discharge system is no longer in use. Actions taken as a result of the OUD ROD included installing a fence around Building 35-752, sealing its windows and doors, filling in the cooling pond with clean soil, implementing institutional controls that prohibit access to the groundwater as a source of drinking water, and having the land use at this source area and neighboring source areas remain industrial for the foreseeable future.

Geophysical Investigations (2000)

An investigation was conducted in 2000 at the Building 35-752 OUE source area to evaluate the site-specific subsurface geology and identify areas for future sampling. The U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) completed investigations around Buildings 35-750 and 35-752 to determine the possible locations where PCB oils were drained from transformers that were previously on the site. The study was also an attempt to locate petroleum contaminated soil. Ground penetrating radar (GPR) data did not suggest any evidence for a subsurface depression associated with the burn pit in the parking lot area. The investigation concluded that the PCB oils may have flowed in a shallow trench from the transformer area to the burn pit. The northern part of the trench may have been buried beneath the garage bay addition and the rest of the trench may have been removed during parking lot excavation in 1997. GPR data did not indicate any petroleum contamination around the buildings, but the study concluded that PCB-oil contaminated soils may still exist beneath the asphalt parking lot and in areas that were not included in the investigation (Astley et al., 2000a).

Groundwater Investigation (2000)

CRREL analyzed groundwater data for the period from April 1997 to March 2000 (Astley et al., 2000b).

Soil Investigation (2000)

ENSR conducted an investigation of surface and shallow subsurface soil on the west side of Building 35-750 in 2000 (ENSR, 2001). The investigation focused on a small area of the peripheral road to be crossed by a new buried cable. Low levels of PCBs were found in several of the samples analyzed although none were above the maximum contaminant level (MCL).

1.4.1.3 Building 35-752 Area Chemicals of Potential Concern

The OUD RI/FS (ENSR, 1998a) found that, in the Building 35-752 Area, the primary COPC identified for soil was PCBs and the primary COPCs identified for groundwater included benzene, TCE, and metals (primarily aluminum, iron, and manganese.

1.4.2 Armored Vehicle Maintenance Area

The AVMA site is located in the western region of the cantonment area of Fort Richardson. While most structures have been removed, two buildings and several foundation pads remain (Astley et al., 2001a). The area, particularly the original AVMA, is mostly open fields, grasslands, and woods covering approximately 56 acres. The original area was

expanded to include the additional area highlighted on Figure 1-2 and now includes a number of buildings south of the Davis Highway and an additional wooded area and encompasses approximately 140 acres.

1.4.2.1 History of Contamination at the Armored Vehicle Maintenance Area

The AVMA was used as a gravel source in 1950 during construction of the railroad. Later, in the 1950s and 1960s, it served as a military vehicle wash area. At that time, drainage ditches and pits were excavated and later filled and graded with unknown, potentially contaminated material. Since 1973, the area has been used as a training area and obstacle course (Astley et al., 2001a). In addition, the area was used for field maintenance of tanks with disposal of oil and other waste material (ENSR, 2000).

The following subsections summarize previous investigations of the AVMA.

1.4.2.2 Building 45-590 Previous Investigations and Reports

UST Release Investigation (1994)

Groundwater contamination at Building 45-590 was discovered during a UST release investigation (EMCON, 1994).

OUD Remedial Investigation/Feasibility Study (1996, 1997, and 1998)

Groundwater contamination under former Building 45-590 was investigated as part of the OUD RI (ENSR, 1998a). Previous activities at the site that were considered during the OUD RI to have contributed to a release to the environment included auto-craft work, vehicle repair, and other practices associated with vehicle maintenance. Other potential sources that were considered included a former waste accumulation area, a former waste oil UST, and a former dry well/sewer line.

Building 45-590 was demolished and removed in 1995. Previous investigations, including a conservative residential risk screening, determined that any potential soil contamination was not a concern. Based on previous investigations, the primary medium of concern at this site was groundwater, where concentrations of carbon tetrachloride and tetrachloroethylene (PCE) were detected. The highest concentrations of carbon tetrachloride and PCE in groundwater were observed in samples from wells upgradient and/or cross gradient to the presumed former Building 45-590 source area.

OUD Proposed Plan (1999)

In the Proposed Plan for OUD (ENSR, 1999), the alternative proposed for groundwater contamination at former Building 45-590 was institutional controls and monitored natural attenuation.

OUD ROD (2000)

While the OUD ROD was being developed, new information was discovered about the potential source of the PCE in groundwater. Historic aerial photographs show a large disturbed area east of former Building 45-590. Interviews with former employees indicated that this area was used for field maintenance of tanks with disposal of oil and other waste material as a possible source of the groundwater contamination beneath and upgradient of former Building 45-590.

In the OUD ROD (ENSR, 2000), considering the additional information, it was determined that former Building 45-590 was not the source of groundwater contamination. It was determined to be a No Further Action site under CERCLA. Therefore, that site is not part of OUE.

The OUD ROD specified that an area north of Building 724 and Building 730 would be investigated as part of OUE, referring to it as the Armored Vehicle Maintenance Area. Actions taken as a result of the OUD ROD included institutional controls that prohibit access to the groundwater as a source of drinking water and having the land use at this source area and neighboring source areas remain industrial for the foreseeable future.

The suspected potentially hazardous source areas within the AVMA include areas of buried debris, drainage ditches near the former vehicle wash area, and other ditches east of former Building 45-590 identified on historic aerial photographs.

1.4.2.3 Armored Vehicle Maintenance Area Previous Investigations and Reports

The following investigations have been conducted at the AVMA since 1996.

Aerial Photograph Review and Geophysical Investigation (2001)

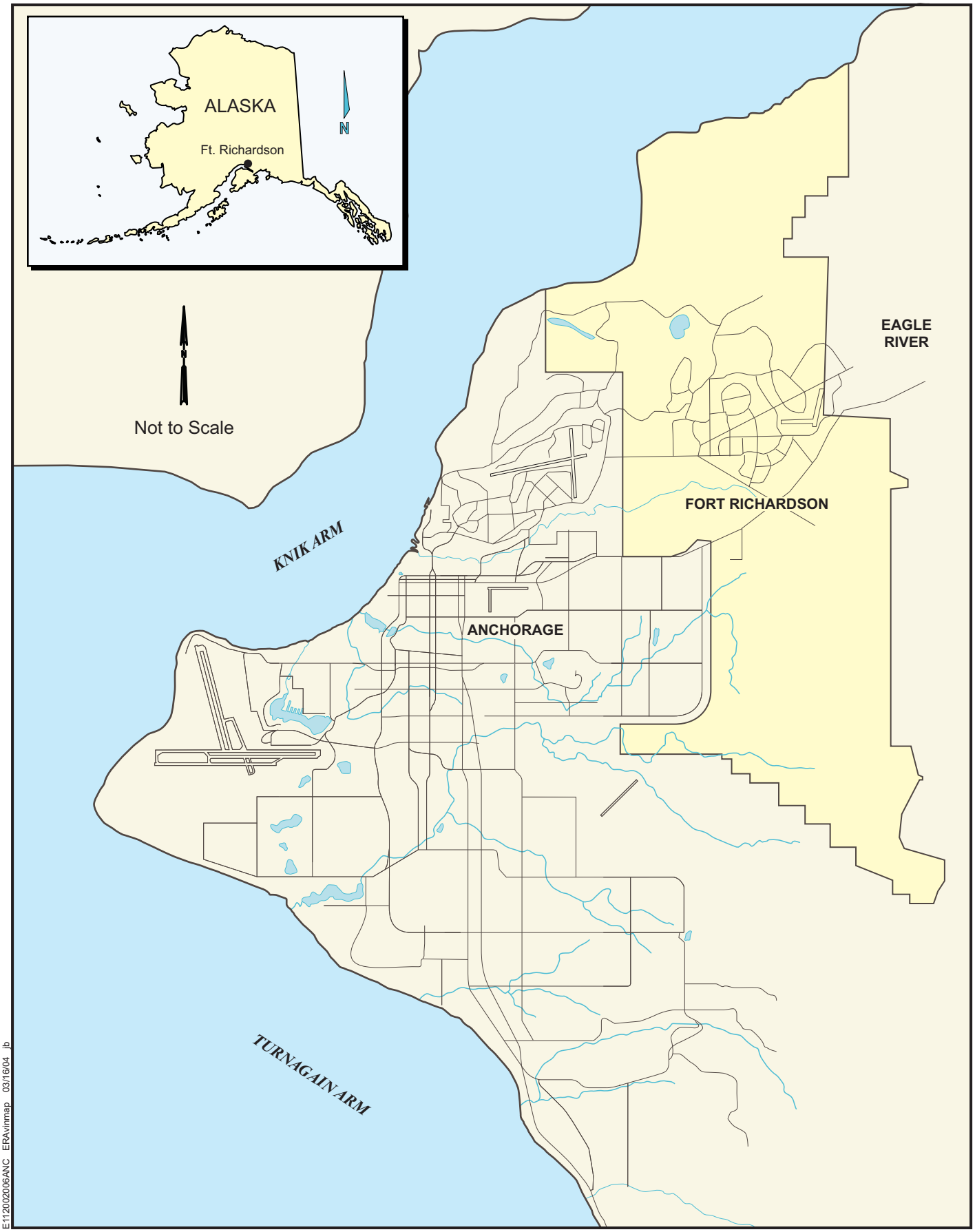
In 2001, CRREL analyzed historic aerial photographs and determined the hydrogeology of the AVMA site to help determine sampling locations for the RI (Astley et al., 2001b). Aerial photographs provided much of the information used to determine historic uses of the area, and locate potential disposal areas. The geophysical investigation employed the techniques of electromagnetics and ground-penetrating radar to identify probable locations of buried materials and debris. Near-surface seismic reflection and direct current resistivity methods were used to better define the site geology, specifically focusing on the confining unit. These studies indicated the presence of large areas of buried metallic objects at the site. As a result, installation of trenches was proposed for the OUE RI to investigate the geophysical anomalies and identify any buried wastes found.

Installation and Sampling of Soil Borings and Monitoring Wells (2001)

Work conducted in 2001 included the installation and sampling of new soil borings and monitoring wells (USACE, 2001). The result of the soil sampling was inconclusive. Two groundwater wells were installed and groundwater sample results indicated the presence of lead and mercury at levels exceeding drinking water standards. Low levels of carbon tetrachloride and 1,1,1-trichloroethane were detected in one well (AP-4155) at estimated concentrations near the method detection limit (MDL). Analytical results for these samples were used to further delineate the nature and extent of contaminants observed within the AVMA.

1.4.2.4 Armored Vehicle Maintenance Area Chemicals of Potential Concern

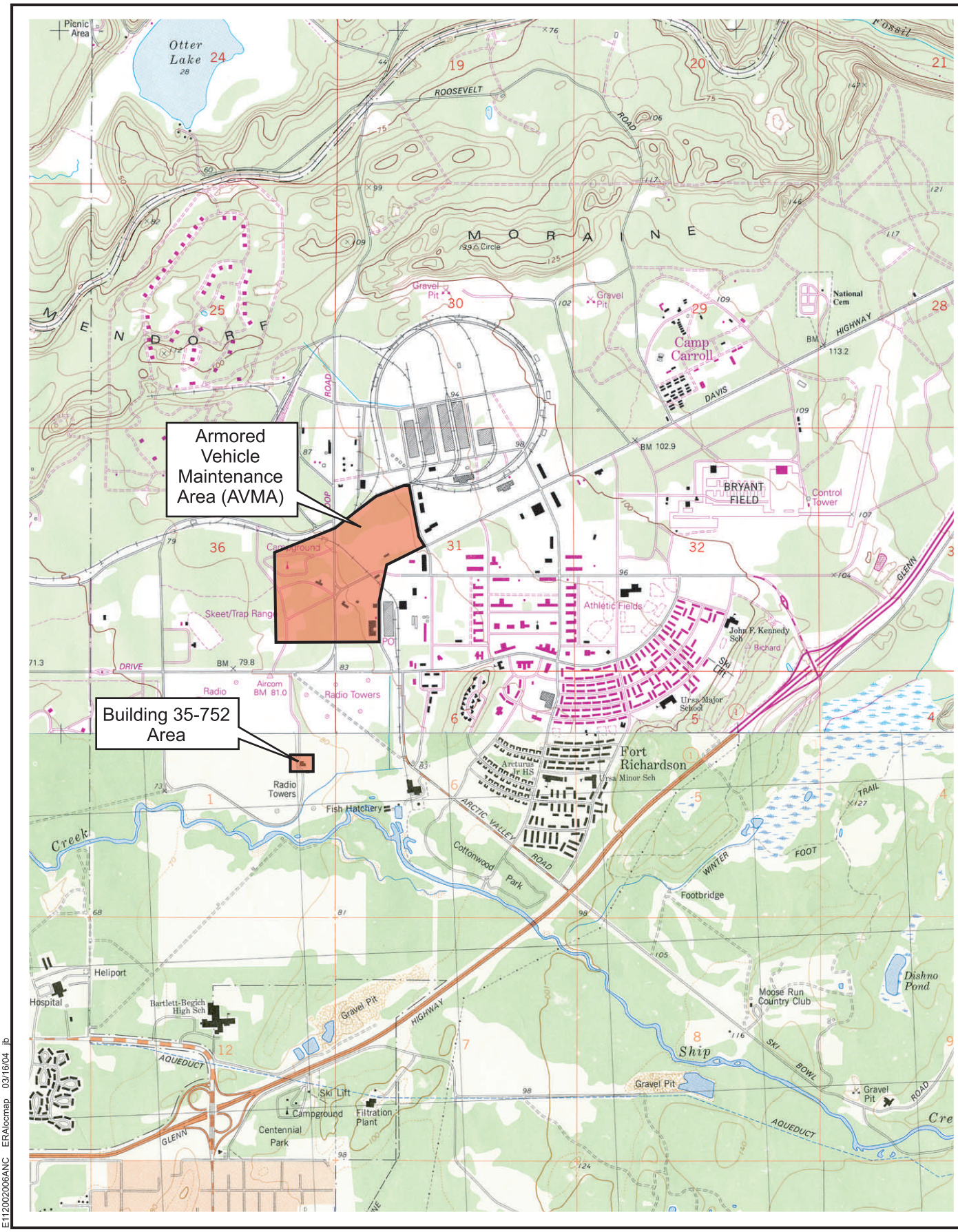
The OUD ROD (ENSR, 2000) found that, in the AVMA, the primary concerns identified for soil included practices involving the disposal of oil and other waste material and buried debris as possible sources of the groundwater contamination beneath and upgradient of former Building 45-590. The primary COPCs identified for groundwater included carbon tetrachloride and PCE.



E112002006ANC ERAvinmap 03/16/04 jb

CH2MHILL

Figure 1-1
Location of Fort Richardson
Operable Unit E Remedial Investigation
Fort Richardson, Alaska



E112002006ANC ERAlocmap 03/16/04 jb

CH2MHILL

Figure 1-2
Location of OUE Sites
Operable Unit E Remedial Investigation
Fort Richardson, Alaska

SECTION 2

Physical and Environmental Characteristics of Fort Richardson and the Operable Unit E Source Areas

This section provides a general description of the environmental setting of the Fort Richardson area and specific information about the OUE source areas. The following topics are discussed:

- Demography and land use
- Climate
- Geologic setting
- Geology
- Hydrology and hydrogeology
- Ecology

2.1 Demography and Land Use

2.1.1 Fort Richardson

The majority of the land currently used by U.S. Army Alaska is on long-term withdrawal from the public domain and was originally assigned to the Bureau of Land Management (BLM). Residual responsibility for U.S. Army Alaska withdrawn lands remains with the BLM, which retains interest in the stewardship of the transferred parcel even though the land is under the Department of Defense's long-term management.

2.1.1.1 Land Use

Land use at Fort Richardson is varied. More than 75 percent of the total land area in Fort Richardson is dedicated to ranges, combat courses, drop zones, airfields, troop loading yards, training facilities, open storage areas, and ammunition storage areas. Other industrial-type activities that take place at Fort Richardson occur mostly in the cantonment area and include the following: vehicle maintenance, general equipment and building maintenance, pest control and grounds keeping, photographic processing, printing, dry-cleaning, drinking water treatment, water quality and petroleum analysis, heat and electrical power generation, and dental and medical services. A portion of the base has been developed for troop training and support operations, including housing and recreational facilities. The remaining acreage is basically undeveloped and includes wetlands, lakes, and ponds. Fort Richardson's land use also provides the services, facilities, and infrastructure necessary to support the rapid deployment of Army forces from Alaska to the Pacific Theater. Recreational uses are permitted where consistent with the military mission.

2.1.1.2 Water Use

Eagle River and Ship Creek are the primary streams on the installation, running from east to west. Ship Creek, the primary water source for Fort Richardson and Elmendorf AFB, runs through Fort Richardson. Fort Richardson obtains drinking water from the Ship Creek Dam Reservoir. Several emergency water supply wells located south of Ship Creek in the deep aquifer serve as a secondary source for Fort Richardson when there is low stream flow (Freethey, 1976). This aquifer also serves as a secondary source for the Municipality of Anchorage and Elmendorf AFB. Groundwater used for the emergency water supply is obtained from the confined aquifer in the Knik outwash deposit. Water storage for Fort Richardson is provided by a permanent 2.5-million-gallon underground reservoir in the Elmendorf Moraine, and by the Ship Creek Dam Reservoir at the base of the Chugach Mountain Range. A water treatment plant near the dam processes the drinking water. A drinking water well is located at the Otter Lake Recreational facility, located approximately 2 miles from the cantonment area.

Areas surrounding Fort Richardson are made up of military, State of Alaska, and residential holdings. As shown in Figure 1-1, the cities of Anchorage and Eagle River constitute the major adjacent population centers and reside to the southwest and northeast, respectively. The combined population of Anchorage and Eagle River is approximately 260,283 (U.S. Bureau of Census, 2000).

2.1.2 Operable Unit E

2.1.2.1 Land Use

The land use at the Building 35-752 Area, the AVMA, and neighboring areas will remain industrial for the foreseeable future. Current land use is controlled through the Fort Richardson Master Planning process. Future residential use of OUE land is not reasonable or anticipated. Neither the Building 35-752 Area nor the AVMA fit the criteria for residential land use as outlined in Army Regulation 210-20 (AR-210-20). The only way that residential land use would be considered would be if Fort Richardson were closed under the base realignment and closure (BRAC) process. If that happened, the base would undergo additional evaluation as part of the BRAC process.

Building 35-752 Area

Access to Building 35-752 has been completely restricted. It is currently vacant, its doors and windows are sealed, it is surrounded by a fence, and warning signs have been installed at the entrance to the area, limiting access to facility personnel.

AVMA

The AVMA is mostly open fields and woods. Since 1973, the area has been used as a training area and obstacle course (Astley et al., 2001a).

2.1.2.2 Water Use

Building 35-752 Area

Groundwater associated with the Building 35-752 Area is not used as a source of drinking water. Ship Creek, located about one-third of a mile south of the Building 35-752 Area is a potential drinking water source. However, there are no current down stream water supply withdraw points located on Ship Creek. As mentioned in Section 2.1.1.2, Fort Richardson,

Elmendorf Air Force Base, and the Municipality of Anchorage withdraw water from Ship Creek from a diversion dam located about three miles upstream from the Building 35-752 area.

Fort Richardson does have groundwater supply wells located cross gradient and about one-half to one mile south of the Building 35-752 Area. These wells are screened in the deeper confined aquifer at about 160 feet below ground surface. The Bootlegger Cove formation functions as the prominent aquitard in the area underlying the Building 35-752 site and has been reported to be 75 feet thick in some areas. Because of the expansive Bootlegger Cove formation in the area, contamination in the shallow aquifer is unlikely to migrate into the deeper confined aquifer.

Due to the high turbidity and high background metals concentrations found in the shallow aquifer and the availability of potable drinking water in the deeper confined aquifer, it is unlikely that groundwater from the shallow aquifer would be developed for drinking water supply.

AVMA

Groundwater associated with the AVMA is not used as a source of drinking water. A shallow unconfined/perched aquifer exists in areas underlying the AVMA, but the aquifer is characterized by high turbidity and low flows. In general, the aquifer would not produce enough water to be used as a drinking water source.

The deeper aquifer could be used as a drinking water supply, but the aquifer does contain significant amounts of silt and is characterized by elevated metals levels. This is due to the glacial outwash (Mountain View Fan) underlying the AVMA. A drinking water supply well is located at the Otter Lake Chalet about 2 miles northwest of the AVMA. The Chalet is located in an undeveloped area of the Post with no existing utility infrastructure.

Existing infrastructure provides more than adequate potable drinking water supply to the AVMA area and it is unlikely that groundwater supply wells would be installed in the area. Additionally, institutional controls prohibit access to groundwater in the deeper aquifer as a source of drinking water.

2.2 Climate

Based on meteorological data, the yearly average temperature in Anchorage from 1952 to 2000 was 39.74 degrees Fahrenheit (°F), with summer temperatures ranging over 80°F and winter temperatures down to -30°F (Western Regional Climate Center, 2003). The yearly average precipitation is approximately 16 inches including 77 inches of snow annually. Infiltration and runoff from precipitation both occur primarily when the winter snow pack melts.

The principal factors affecting the climate of Fort Richardson include terrain, latitude, and geographic position relative to large land masses and oceans. Fort Richardson is in a transitional zone between the maritime climatic zone to the south and the interior or continental climatic zone to the north. The southern mountain ranges, St. Elias and Chugach, act as a barrier to the maritime influence of the northern Pacific Ocean. The Alaska Range to the north protects the area from the extreme cold of the arctic air masses of the

state's interior region. Cook Inlet also influences temperatures and impacts the Fort Richardson area.

Because of a lack of extremes in precipitation and temperature, Fort Richardson experiences a moderate climate. However, because of the latitudinal position, the reduction of mean annual solar radiation results in low mean annual temperatures (Black and Veatch, 1989).

2.3 Geologic Setting

Fort Richardson lies in an alluvial plain, often referred to as the Anchorage Lowland, which is bordered on the east by the Chugach Mountains and on the north, south, and west by waters of the Cook Inlet. Fort Richardson is situated in a transitional zone on the eastern edge of the Anchorage Lowland and is inundated with four major drainages that originate in the Chugach Mountains. The topography of Fort Richardson has been highly influenced by glacial activity and the effects of stream deposition and erosion.

The Chugach Mountains rise rather abruptly to more than 5,000 feet along their front facing the Anchorage lowlands. Only a small western section of the Chugach Mountains is contained within the boundaries of Fort Richardson. The peaks of the Chugach Mountains are separated by a series of steep U-shaped valleys that tend to run in a northwesterly direction. The peaks tend to be sharp-crested in the southern reaches of the Chugach Mountains, but tend to become rounded or smooth-crested in the northern reaches near the Knik Arm of the Cook Inlet (Hunter et al., 2000). The U-shaped valleys of the Chugach Mountains are occupied by major and minor drainages including Ship Creek, Eagle River, Campbell Creek, and Chester Creek.

The Anchorage Lowland is characterized by rolling hills with 50 to 250 feet of relief in eastern areas along the Chugach Mountains. Towards the west, the terrain flattens into an alluvial plain that is inundated with broad shallow channels and wetlands. This area is characteristic of glaciated terrain and contains various landforms, including moraines (accumulations of earth and stones carried and finally deposited by a glacier), esker deposits (long narrow ridges or mounds of sand, gravel, and boulders deposited by a stream flowing on, within, or beneath a stagnant glacier), outwash plains (gravel and sand carried by running water from the melting ice of a glacier and laid down in stratified deposits), and estuarine sediments (accumulated deposits of silt and fine sand that may locally include thin beds of peat).

The principal features transecting Fort Richardson are the Elmendorf moraine, the Mountain View alluvial fan, ground moraines, and the Eagle River Flats tidal marsh. The Mountain View Fan originates at the mouth of the Eagle River Valley. The fan slopes gently to the west-southwest and underlies most of the main cantonment area of Fort Richardson (Hunter et al., 1999). The fan is composed of outwash deposited by streams and floods that occurred when ice-dammed lakes in the Eagle River Valley drained. The main deposits of the Elmendorf moraine form a low-lying ridge that tends to run east to west across the region immediately north of the main cantonment area of Fort Richardson. The Elmendorf moraine is an end moraine that was formed when the Matanuska-Knik lobe of the Naptowne glacier advanced from the northeast towards modern-day Anchorage.

The ground moraines were formed by a number of physical processes that operate underneath glaciers. The ground moraine found on the northern part of Fort Richardson was probably formed at the same time as the Elmendorf moraine. The southern ground moraine lies much deeper and was likely created by a glacial event that preceded formation of the northern ground moraine. The ground moraines tend to be extensive deposits of glacial till (unsorted and unlayered rock debris carried by a glacier) with hummocky surfaces and moderately gentle slopes. Ground moraine is typically associated with landforms called drumlins (elongated and rounded hills of glacial drift) that are common in the northern part of Fort Richardson. The streamlined hills located between the post housing area and the Glenn Highway are examples of the older ground moraines protruding through younger glacial deposits of various origin (Hunter et al., 2000).

Eagle River Flats is a low-lying tidal marsh located north-northwest of the main cantonment area on Fort Richardson that was created by various estuarine processes. Modern estuarine sediments are continually deposited during spring flood events and by tidal fluctuations of up to 30 feet or more. Older estuarine deposits are found extensively in Eagle River Flats and were likely deposited during the Holocene. Estuarine deposits are generally composed of well-bedded and sorted silt and fine sands.

At the current time, no glaciers exist on any part of Fort Richardson. However, several glaciers and rock glaciers exist in protected valleys of the Chugach Mountains above 4,000 feet elevation. Many of these glaciers, such as the Eklutna Glacier, are located within 20 miles of Fort Richardson.

2.4 Geology

2.4.1 Fort Richardson

2.4.1.1 Location

Fort Richardson lies in the Cook Inlet-Susitna Lowland and Kenai-Chugach Mountain physiographic provinces (Wahrhaftig, 1965). Parts of the Anchorage Lowland and the Chugach Mountains fall within the boundaries of Fort Richardson. The Anchorage Lowland is a roughly triangular area below 500 feet in elevation, located between the Chugach Mountains to the east and waters of the Cook Inlet elsewhere (Hunter et al., 1999). The area is covered with a series of glacial, glacial-marine, and glacioalluvial deposits of Quaternary age.

2.4.1.2 Bedrock

Bedrock deposits underlying Fort Richardson, characterized as old and young, consist of rock formed during different geologic periods. The Chugach Mountains are an obvious outcrop of old bedrock that includes rocks of both Chugach and Peninsula terrains (Silberling et al., 1994) and consists of metamorphosed sedimentary and igneous rocks (Hunter et al., 2000). These rocks are Mesozoic flysch and mélange, respectively named for the Valdez Group and the McHugh Complex. The rock types vary from metavolcanic tuffs, to greywacke, chert, marble, schist, and amphibolite (Updike and Schmoll, 1985). The McHugh Complex represents most of the Chugach Mountain areas and the Valdez Group occurs near the south fork of Eagle River. Rocks of the Peninsula terrain outcrop in the

upper reaches of the Anchorage Lowland. The Chugach and Peninsula terrains are separated by the Border Ranges fault (MacKevett and Plafker, 1974; Updike and Schmoll, 1985) that is concealed beneath surficial deposits. It is suspected that this fault was active from the Cretaceous to within 300 years ago.

More recently formed tertiary sediments (the Kenai Group), such as sandstones, siltstones, and claystones that are representative of shallow marine environments, form a thick wedge that extends to the west from the Chugach Mountains. These strata underlie much of the upper Cook Inlet and are the major oil and gas producers. In the eastern reaches of the Anchorage Lowland, along the Chugach Mountains, rocks of the Kenai Group can be found at depths of 30 to 80 feet. Borings drilled east of the Glenn Highway near the small arms range indicate that 10 to 12 feet of fractured siltstone overlies the older metamorphic formation. Below the main cantonment area of Fort Richardson, bedrock can be found at depths ranging from 230 to 320 feet below the surface. The bedrock surface generally slopes to the west and bedrock is as deep as 1,000 feet in the western part of the Anchorage Lowland (Updike and Schmoll, 1985). Isolated areas of shallow bedrock can be found on Fort Richardson. An example can be found at the Poleline Road Disposal Area, located northeast of the main cantonment area, where a shallow bedrock knob located about 125 feet below the ground surface is surrounded by bedrock located about 200 feet below the surface. The claystone bedrock in this area generally slopes toward the north, defying the general characteristic. Evidence of a similar bedrock knob was encountered in borings drilled near Bryant Army Airfield.

The Aleutian and Alaska Ranges are located on the west side of Cook Inlet. Several active volcanoes are located in this area and Mount Spur erupted as recently as 1953. The Castle Mountain fault zone is located between Anchorage and the Alaska Range. The Castle Mountain fault is a recently active high-angle fault that runs northeast to southwest for over 100 miles. Three of the top ten earthquakes recorded in recent history occurred in Alaska. The earthquake of 1964 was the result of the northwestward motion of the Pacific plate (compression) over a period of tens to hundreds of years that was relieved by the sudden southeastward motion of portions of coastal Alaska as they moved back over the Pacific plate. The end result was the movement of the Pacific plate under the North American plate by about 9 meters on average. The epicenter of the earthquake was about 75 miles east of Anchorage, but the effects were far reaching.

2.4.1.3 Surficial Geology

The geology of Fort Richardson and adjacent lands has been extensively mapped. The thick sequences of unconsolidated Quaternary deposits that underlie Fort Richardson have accumulated primarily as a result of glacial and marine sedimentation. These deposits thicken westward from the base of the Chugach Mountains. Below the Fort Richardson cantonment, glacial sediments range from 230 to 320 feet thick according to well logs (Cederstrom et al., 1964; Hunter et al., 1999). They are up to 1,000 feet thick elsewhere in the Anchorage basin (Updike and Schmoll, 1985). This simplified cross section represents conditions underlying the main cantonment area, but in areas north and south of the main cantonment, deposits of the Mountain View fan are absent and the upper geologic unit is representative of the various moraine deposits. The underlying geology of Fort Richardson is complex and highly variable due to deposition that occurred during the advance and retreat of glaciers with intermittent marine incursion (marine sedimentary processes). The

following paragraphs provide descriptions of the various geologic units, but are not intended to reflect exact conditions underlying any given site on Fort Richardson.

The Mountain View fan is commonly on the order of 40 to 60 feet thick under most of the main cantonment area. The fan consists mostly of sands and gravels with a high concentration of silt and clay. The formation is highly layered and it is common to find lenses of clay and silt interbedded within the sand and gravel. Silt and clay lenses were likely deposited during floods and also could have resulted from deposition in small ponds and lakes.

The Elmendorf Moraine lies beneath the Mountain View fan in the area of the main cantonment. The Elmendorf Moraine is an end moraine and consists primarily of diamicton (poorly sorted mixtures of silt, sand, and gravel) along with coarse gravel, fine well-sorted sand, dense silt, and moderately- to well-compacted clay (Hunter, 2000). The lateral and ground moraine deposits tend to consist of diamicton of variable thickness with interbedded lenses of sand, silt, and gravel. In areas where the Mountain View fan is absent, the moraine deposits represent the upper geologic unit. The glacier that deposited the Elmendorf Moraine did not advance across the entirety of Fort Richardson and, as a result, coarse outwash deposits intermingled with diamicton deposits can be found along the front of the moraine. The older ground moraine deposits that are found in the southern part of the cantonment area are evidence that the glacier that formed the Elmendorf Moraine did not advance across the entirety of Fort Richardson.

The next geologic unit underlying the cantonment area is the Bootlegger Cove Formation. The Bootlegger Cove Formation was formed during the advance and retreat of glacial ice, with an intermittent period of marine intrusion. Marine submergence occurred when glacial ice retreated, forming a sedimentation basin that at various times contained either fresh or marine waters (Updike and Schmoll, 1985). Schmoll and Yehle describe the Bootlegger cove formation as consisting of silty clay and clayey silt with minor interbedded silt, fine sand, fine to medium sand, thin beds of diamicton, and scattered pebbles and cobbles (Schmoll and Yehle, 1986). The thickness of the Bootlegger Cove Formation is quite variable, but has been found to be almost 300 feet thick in parts of the Anchorage Lowland (Cederstrom et al., 1964). Even though the Bootlegger Cove Formation is extensive, evidence exists to suggest that the formation does not extend much further northeast than the edge of the cantonment area. The formation is likely not found north and east of the cantonment area and is suspected to be only about 30 feet thick in the south-southwest areas of the post.

The lower geologic sequences (Dishno Pond Moraines, Fort Richardson Moraines, and Rabbit Creek Moraines) all tend to be glacial diamictons (Cederstrom et al., 1964). Because of a lack of deep geologic borings and geophysical surveys, much of the descriptions of these sequences are speculative and descriptions vary. The Dishno Pond sequence appears to underlie much of the Anchorage Lowland and the diamicton should be similar to the Fort Richardson diamicton, and be five to thirty feet thick (Hunter et al., 2000). It is thought that the Fort Richardson diamicton is highly stratified with sand and gravel horizons. This description is based on the proposed glacial history of the Anchorage basin. The Rabbit Creek Moraine lies on top of the Kenai Formation (sedimentary bedrock). There is some evidence that layers of silt and clay were deposited between these moraines during periods of marine inundation.

2.4.1.4 Mineral Resources

According to the U.S. Geological Survey (USGS) Alaska Resource Data Files (http://ardf.wr.usgs.gov), there are no active mines in the local Anchorage area. Additionally, the Federal Land Policy and Management Act of 1976 prohibited location of mining claims in specific areas to include National Parks, National Monuments, Indian reservations, most reclamation projects, military reservations, scientific testing areas, most wildlife protection areas (such as federal wildlife refuges), and lands withdrawn from mineral entry for other reasons. Thus, there are no valid mining claims, nor leases, on Fort Richardson.

There could be isolated coal deposits located northeast of Eagle River Flats, but it is unlikely that these deposits would be substantial or economically viable. Tertiary sediments underlying most of Cook Inlet do produce oil and gas, but the sediments underlying Fort Richardson tend to be relatively thin and not viable producers of oil or gas. Throughout the northern areas of Fort Richardson, there are extensive sand and gravel deposits associated with glacial moraines and glacial outwash. The existence of many abandoned sand and gravel pits throughout the post attest to the availability of the resource. Presently, there are several gravel pits being mined on Fort Richardson, but the materials are only used locally on Fort Richardson.

2.5 Hydrology and Hydrogeology

2.5.1 Fort Richardson

2.5.1.1 Surface Water

Four major streams and rivers pass through sections of Fort Richardson. In addition, numerous other small streams, lakes, and wetland areas are found on Fort Richardson. Fort Richardson has 12 named lakes and ponds and multiple other unnamed surface water bodies. The combined area for the named lakes and ponds is 359 acres. Five relatively large lakes, Clunie, Otter, Gwen, Thompson, and Waldon, are managed for recreational fishing.

Eagle River is a glacial waterway that originates at the base of the Eagle Glacier in the Chugach Mountains. Eagle River meanders across Fort Richardson, where it flows over an alluvial base of glacial outwash and into Eagle River Flats, a 2,200-acre estuarine tidal marsh.

Ship Creek, a non-glacial stream, originates at Ship Lake in the Chugach Mountains and flows 25 miles to the Knik Arm. A water supply dam located at the base of the Chugach Mountains on Fort Richardson, approximately 10 miles from the mouth of the river diverts water from the stream. The watershed encompasses 90.5 square miles above the diversion dam.

Chester Creek and Campbell Creek, both non-glacial streams, are located south of Ship Creek and flow through the southwestern portion of Fort Richardson. The creeks flow into marsh wetlands at the base of the Chugach Mountains on Fort Richardson but rechannelizes near the western boundary of the post.

2.5.1.2 Groundwater

Groundwater on Fort Richardson is found in both an unconfined and a confined aquifer. Water recharges the groundwater on Fort Richardson and the Anchorage Bowl in several ways. Along the mountains, groundwater seeps from bedrock fractures into the glacial deposits. In the foothills and lowlands, water flows from streams into the unconfined aquifer where the water table is below the stream elevation. In the lowlands, rain and snowmelt percolate from the surface into the groundwater.

The hydrogeology of Fort Richardson is complicated due to deposits from multiple glacial advances through the region. There is an unconfined aquifer and multiple confined aquifers that connect in some places. The unconfined aquifer is generally composed of poorly sorted, sandy gravel with varying amounts of silt. In general, low-permeability layers containing silt and sand underlie the unconfined aquifer. The silt is present at depths ranging from 30 to 175 feet. The low-permeability silts create a lower boundary for the unconfined aquifer and an upper boundary for the confined aquifer. The hydraulic gradient of the unconfined aquifer generally trends northwesterly, following the topography of the Mountain View Fan. The overall trend in flow direction in the confined aquifer is to the northwest, except to the north of Bryant Airfield, where groundwater flow patterns are unclear.

The sources of groundwater to the unconfined aquifer are precipitation and Ship Creek. The influence of Ship Creek diminishes away from the creek bed, making precipitation and infiltration the most important contributors to the unconfined aquifer. It is also possible that portions of the unconfined aquifer receive ground water input by upward gradients from the confined aquifer, however no evidence of this has been found thus far. Over most of the cantonment area, the uppermost confining unit has the greatest control on the elevation of groundwater in the unconfined aquifer. Wells drilled into topographic highs of the upper confining unit are often dry. As groundwater drains from these topographic highs to lower elevations, ground water flow pathways are deflected in directions inconsistent with the overall gradient. In addition, contaminants may preferentially move down-gradient along topographic lows within the unconfined aquifer. The topographic lows within the unconfined aquifer contain measurable ground water continuously, but the topographic highs can drain between infiltration events. In the topographic high areas, unconfined groundwater is often not encountered during drilling.

The thin lens of water within the unconfined aquifer joins the upper confined aquifer to form the deep unconfined aquifer north of the Davis Highway where the upper confining unit pinches out. Near this boundary zone, the peizometric surfaces of the unconfined aquifer and upper confined aquifer are very similar, indicating that the upper confining unit is discontinuous or "leaky" in this zone. This phenomenon is seen in AP-3534, AP-3468, and AP-3532.

The upper confined aquifer contains multiple silt and clay lenses and discontinuous horizons that further compartmentalize it. The complex configuration of these discontinuous horizons affect ground water direction by deflecting ground water along pathways determined by the morphology of the confining unit, discontinuous clayey lenses, and preferred pathways through coarser grained material. Therefore, within the confined aquifer, flow directions are not expected to parallel the regional gradient in all areas.

Wells that are placed close together in the confined aquifer may not be screened within the same hydrologic unit. Therefore, caution must be taken when contouring the peizometric surface of the confined aquifer because of the discontinuous nature of the horizons within it (Astley, 2004 – personal communication).

Groundwater in the deep system has occurred at its shallowest depths (130 feet bgs) in the northern area of Fort Richardson. The flow in the deep system is generally towards Knik Arm in a westerly to northwesterly direction, with a gradient between 0.02 and 0.0025 foot per foot (ft/ft) (USACE, 1991). The deep system occurs under confined conditions beneath areas where the Bootlegger Cove Formation is present. Where the Bootlegger Cove Formation is intermittently present or absent, the underlying aquifer can be described as a leaky confined system.

2.5.2 Operable Unit E

2.5.2.1 Surface Water

Building 35-752 Area

In general, surface water in the vicinity of the Building 35-752 Area drains into Ship Creek. In the past, cooling water from the generators in Building 35-752 was discharged to cooling ponds southwest of the building. Historical photographs show that water in the cooling pond drained through drainage channel that discharged into Ship Creek southwest of the site. Contamination along this pathway was evaluated in the ERA for OUD (ENSR, 1998a), and is not further evaluated as part of OUE.

AVMA

No significant surface water drainage pathways from the AVMA have been identified.

2.5.2.2 Groundwater

Building 35-752 Area

The groundwater in the vicinity of the Building 35-752 Area is encountered in a shallow aquifer less than 20 feet below ground surface. However, it should be noted that Ship Creek is a losing stream near Building 35-752, in other words, Ship Creek provides water to the local groundwater system. Reported groundwater elevations ranged from +242 to +255 feet mean sea level (MSL). This shallow groundwater is not used as a potable water source.

AVMA

The groundwater in the vicinity of the AVMA is encountered in both shallow and deep aquifers separated by a confining layer. The thickness of the confining layer was determined by two sets of co-located wells installed in the shallow unconfined and upper confined aquifers. Data collected showed that the confining layer is 37 feet thick at the well AP-4412/AP-4413 location and 30 feet thick at the well AP-4415/AP-4416 location. The northern extent of the confining unit was determined to be adjacent to the Davis Highway, northwest of Building 732. This was confirmed in monitoring well AP-4414, where the confining layer was not encountered at a depth of 150 feet. Reported groundwater elevations ranged from +183 to +225 feet MSL in the shallow, unconfined aquifer, from +180 to +215 MSL in the upper confined aquifer, and were generally +180 feet MSL in the deep, unconfined aquifer.

Figure 2-1 presents the potentiometric surface map for the unconfined water-bearing zone across the OUE areas. Groundwater flow direction is generally to the northwest.

Samples collected from the groundwater monitoring wells installed in the AVMA during the OUE RI provided details about the shallow unconfined, upper confined, and deep unconfined aquifers. Seven wells installed during the 2003 field season were located in the southwestern portion of the AVMA. The other seven wells were installed during the 2002 field season, with five of the wells located in the northern, or original, portion of the AVMA. Data gathered from these wells helped define a potential contaminated solvent plume and the hydrogeologic conditions in the area.

Figure 2-2 is a location map for Figures 2-3, 2-4, and 2-5. These figures show cross sections of the geology within the AVMA. Cross section C-C' (Figure 2-5) shows that the upper surface of the confining layer slopes in a northwesterly direction.

Water-bearing zones in the shallow unconfined aquifer are discontinuous in this area and appear to occur as a result of topographical heterogeneities on the upper surface of the confining layer. Wells that are located in water-bearing zones often exhibit low water yields. For example, well AP-4410, installed to the top of the confining layer, did not contain enough water for sample collection following installation.

2.6 Ecology

2.6.1 Fort Richardson

Tundra, coniferous forests, deciduous forests, tall shrub assemblages, low shrubs and sedges/grasses, and aquatic and coastal wetlands make up the regional vegetation. Low-growing shrubs and lichen make up the alpine tundra, whereas coniferous forests are dominated by black and white spruce. Deciduous forests are a mix of balsam poplar, birch, aspen, and alder, and tall shrub assemblages are dominated by alder. The types of low shrubs and sedges or grasses change with different moisture regimes though zones of low shrub vegetation surrounding bogs and ponds and include dwarf black spruce, ericaceous shrubs, and other low scrubs. Wet meadows occupy small kettles (glacial ice pit depressions) and are dominated by bluejoint grass. Slightly wetter areas support the growth of sedges. Lake and stream vegetation consists of submerged, rooted aquatic plants, particularly pond lily, water lily, pond weeds, and marestails. Sedges and cattails line the banks of most lakes and streams. Boggy areas support mosses, cotton grass, cranberry, rosemary, and sedges (Black and Veatch, 1989). Intertidal estuarine areas dominated by narrow-leafed persistent emergent vegetation make up most of the coastal wetlands (Woodward Clyde Consultants [WCC], 1994).

Five species of Pacific salmon inhabit Cook Inlet and Knik Arm, including chinook (king), sockeye (red), coho (silver), pink, and chum. Eagle River and Ship Creek support spawning runs of chinook, coho, and pink salmon. Beluga whales are common in Turnagain Arm and Knik Arm of Cook Inlet, and are often observed off the mouth of the Eagle River. Arctic grayling and Dolly Varden are found in freshwater and estuarine aquatic habitats of Upper Cook Inlet, including Eagle River. Stickleback, which inhabit salt marshes along Knik Arm, are also common within shallow ponds and backwaters of the Eagle River (WCC, 1994).

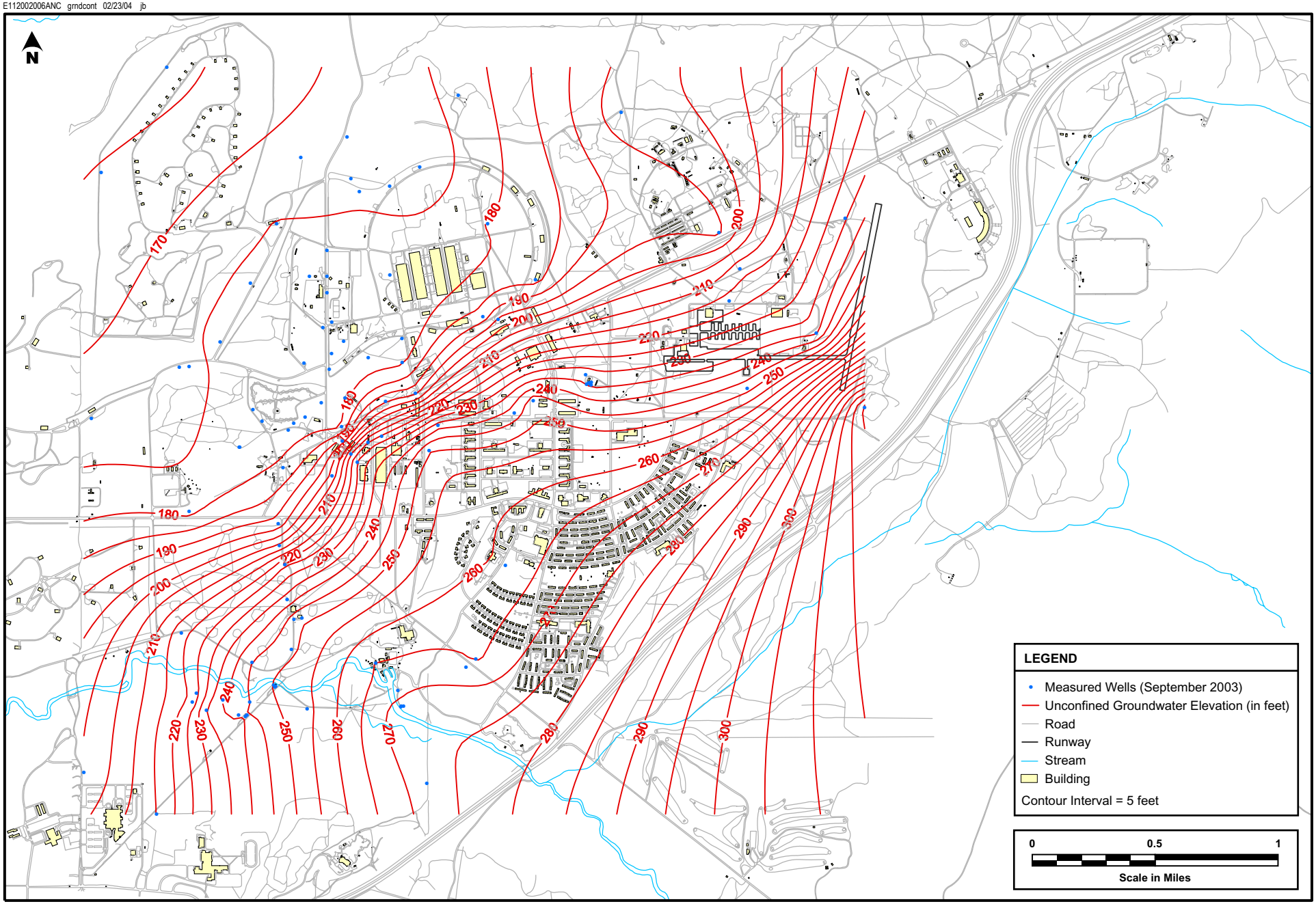
Mammals, raptors, waterfowl, shorebirds, and one amphibian (the wood frog) occur in the region surrounding Fort Richardson. Large mammals include large ungulates such as moose and Dall sheep. Small mammals such as beaver, muskrat, red squirrel, snowshoe hare, arctic ground squirrel, and red-backed vole also reside in the area. Carnivores of the region include grizzly bear, black bear, coyote, timber wolf, wolverine, river otter, and mink (WCC, 1994).

Bird life is abundant in Upper Cook Inlet as breeding and migrating species are attracted to the extensive wetland and forest habitats as well as the abundant food supply. Common species in the vicinity of Fort Richardson, especially near the Eagle River, include raptors such as bald eagle, red-tailed hawk, and northern harrier. Other common species observed in the vicinity of Fort Richardson include sandpipers, greater and lesser yellowlegs, red-necked phalarope, sandhill crane, mew gull, glaucous gull, Arctic tern, boreal chickadee, and varied thrush. During the summer, waterfowl observed include trumpeter swan, northern shoveler, tundra swan, green-winged teal, Canada goose, greater scaup, Pacific white-fronted goose, common goldeneye, mallard, Barrow's goldeneye, northern pintail, bufflehead, American widgeon, and gadwall.

2.6.2 Operable Unit E

OUE is made up of grasslands, open fields, and wooded areas. No special-status species are known to occur at the OUE sites, although the Aleutian Canada goose, a State of Alaska Species of Special Concern, may occur in the area. However, there are no surface water sources at OUE. (See Section 6.1.1.4 for additional information about the ecological setting of OUE.)

E112002006ANC grndcont 02/23/04 jb



Source: US Army Directorate of Public Works and Cold Regions Research and Engineering Laboratory. Used by permission.

Figure 2-1
Unconfined Aquifer Groundwater Elevations
OUE RI
Fort Richardson, Alaska

E112002006ANC ouegeo 11/21/03 jb

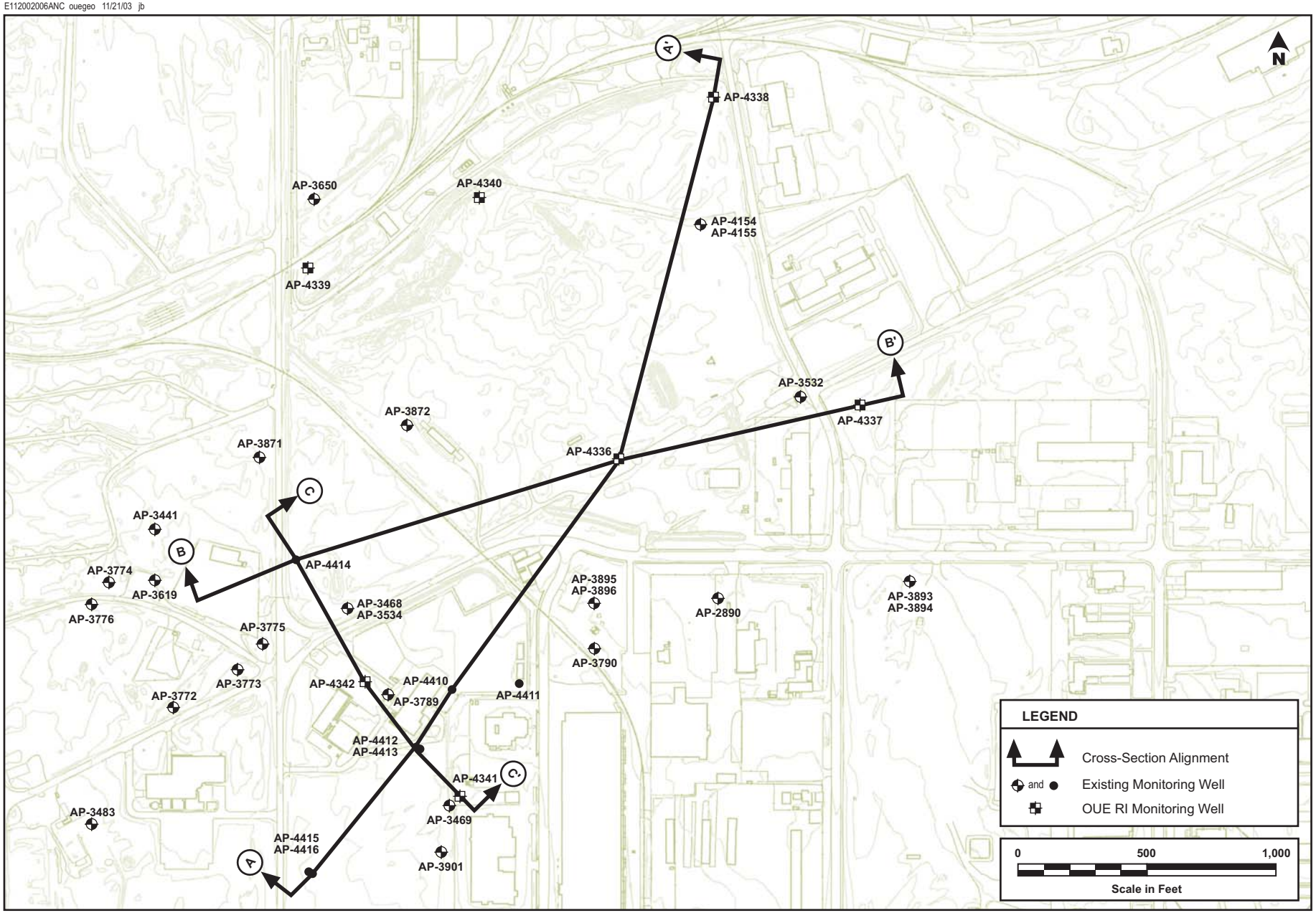


Figure 2-2
Geologic Cross Section Locations
OUE RI
Fort Richardson, Alaska

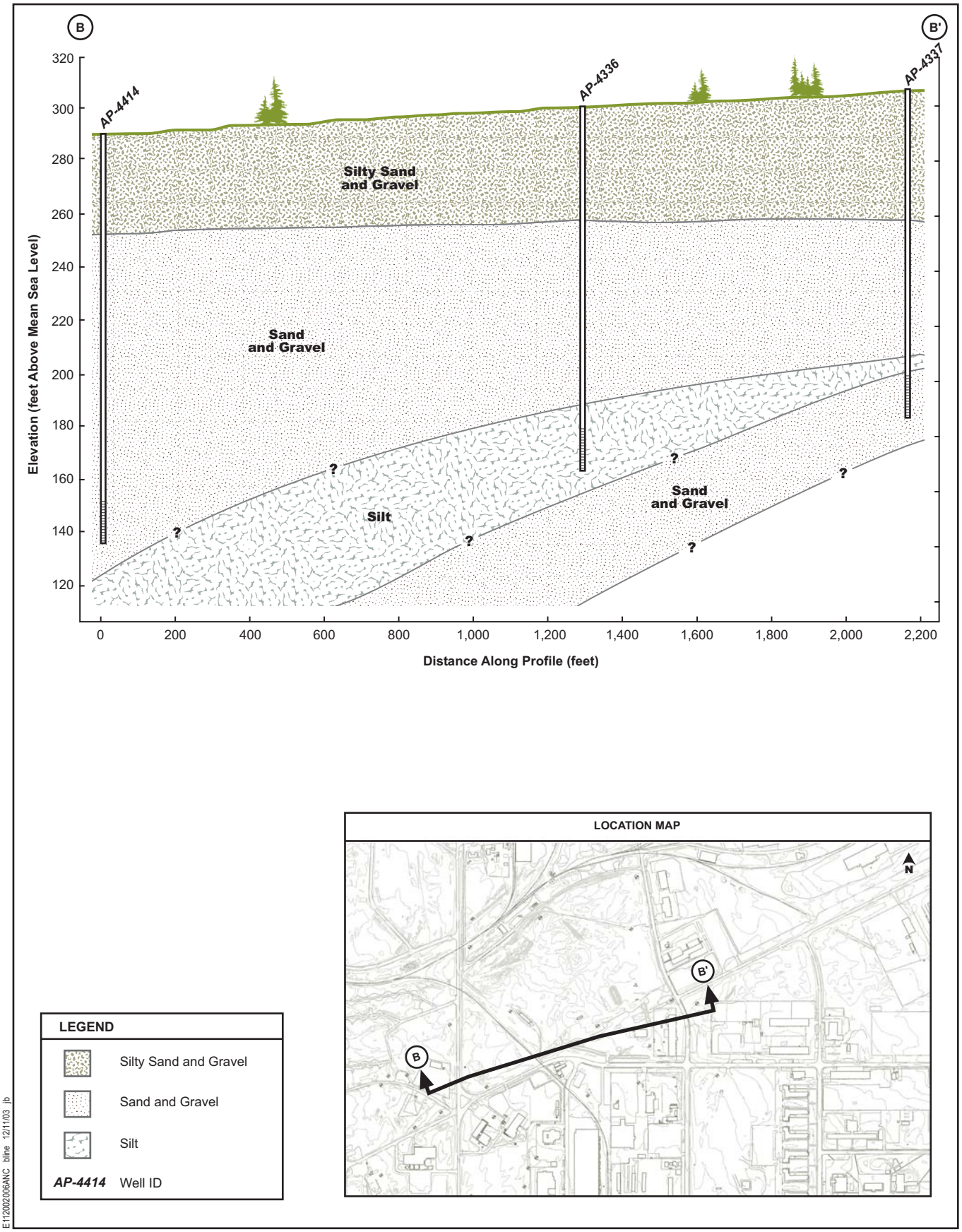
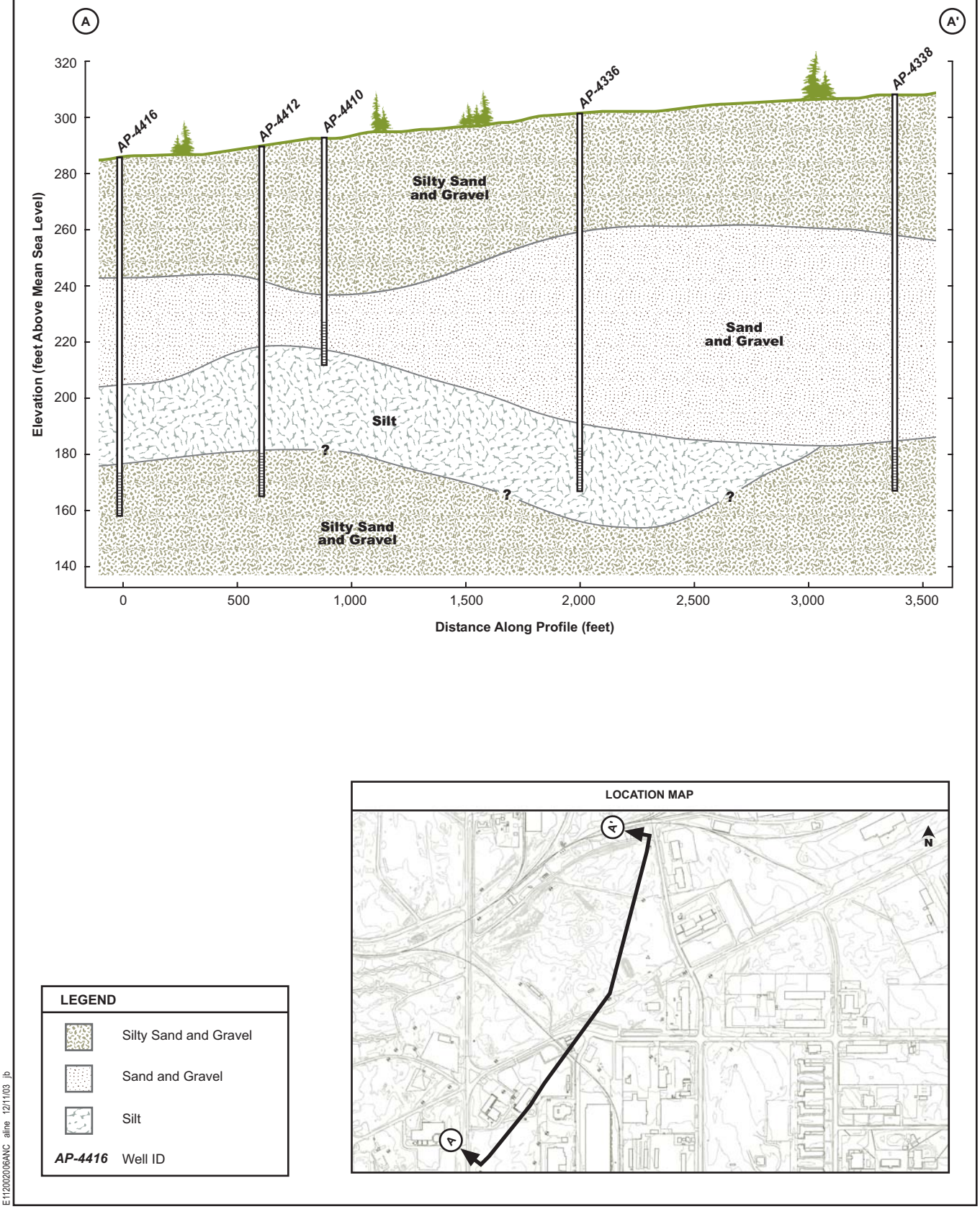
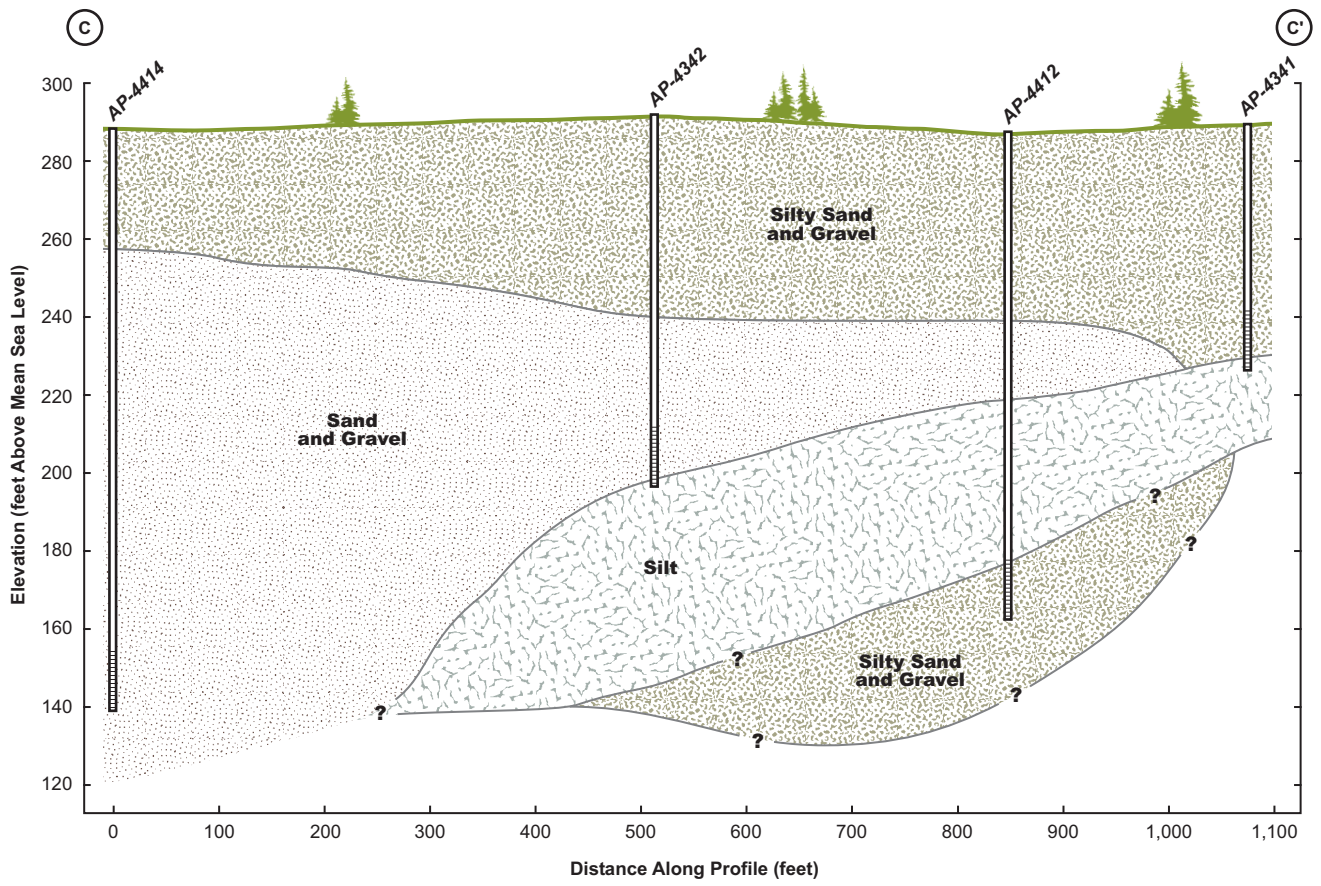


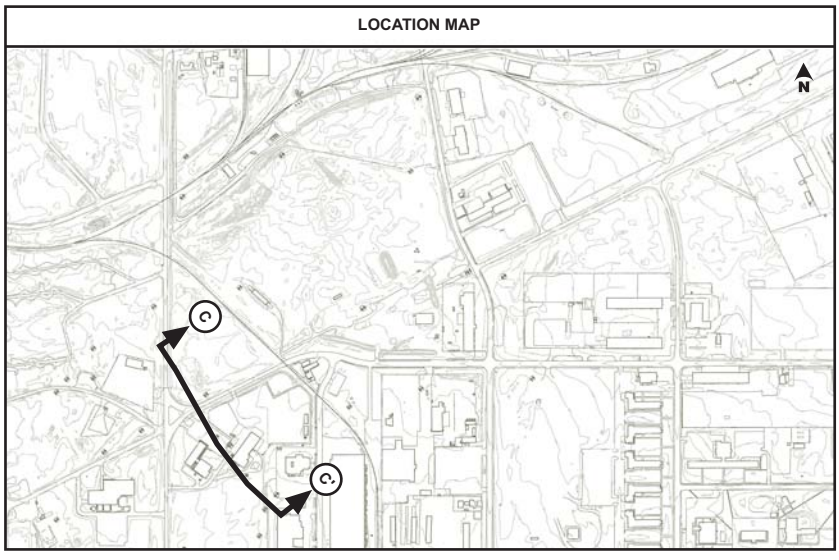
Figure 2-4
B - B' Cross Section
OUE RI Subsurface Soil Profile
Fort Richardson, Alaska

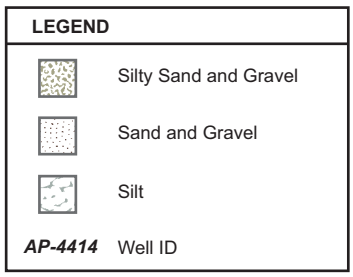


E112002006ANC aline 12/11/03 lb

Figure 2-3
A - A' Cross Section
OUE RI Subsurface Soil Profile
Fort Richardson, Alaska







E112002006ANC cline 12/11/03 jb

Figure 2-5
C - C' Cross Section
OUE RI Subsurface Soil Profile
Fort Richardson, Alaska

SECTION 3

Source Area Investigation Activities

This section summarizes the source area investigation activities conducted to support the RI for OUE. The RI fieldwork was conducted according to the OUE Management Plan (ENSR, 2002). The following topics are discussed in this section:

- Source areas investigated
- Field investigation methods
- Decontamination procedures
- Field documentation
- Waste management practices
- Analytical program
- Deviations from the OUE Management Plan

3.1 Source Areas Investigated

3.1.1 Building 35-752 Area

In the OUD ROD (ENSR, 2000), the Army, EPA, and ADEC determined that the Building 35-752 Area had not been adequately characterized for PCBs and, potentially, dioxins. They identified additional potential hazardous source areas related to transformer maintenance and operation, PCB oil burning and inadvertent discharge, the peripheral road, and stockpiled soil. In addition, since the OUD RI (ENSR, 1998a) found that groundwater at Building 35-752 was contaminated with petroleum hydrocarbons, solvents, PCBs, and metals, they determined that the OUE RI would also investigate groundwater in the Building 35-752 Area.

Objectives related to the OUE investigation of the Building 35-752 Area included the following:

- Investigate new COPCs in the Building 35-752 Area, including dioxins/furans
- Identify the location of PCB oil discharge
- Establish the lateral and vertical limits of contamination through collection and analysis of surface soil samples (ENSR, 2002)
- Document the subsurface stratigraphy in the burn pit area
- Investigate the extended areas of potential PCB contamination
- Determine if PCB-contaminated soil remained at the site after removal of a soil stockpile contaminated with PCBs (ENSR, 2002)
- Establish the possible existence of PCB contamination in the road base and, if present, delineate the area of contamination through collection and analysis of soil samples from

the margins of the paved area and borings through the pavement of the peripheral road and parking lot (ENSR, 2002)

- Assess groundwater quality by sampling the seven existing monitoring wells (AP-2982, AP-2983, AP-2987, AP-3231, AP-3232, AP-3458, and AP-3503)

Investigations at the Building 35-752 Area included sampling soil at four sites (the Transformer Mounting and Oil Discharge Areas, the Burn Pit Area, the Peripheral Road Area, and the Soil Stockpile Footprint Area) and sampling groundwater from seven wells.

3.1.1.1 Soil from the Transformer Mounting and Oil Discharge Areas

The Transformer Mounting Area and the Transformer Oil Discharge Area are located east of Building 35-750. They include the area adjacent to a former transformer mounting pad and the area immediately east of the building and the peripheral road (Figure 3-1).

Reports from Fort Richardson personnel who worked at this site in 1982 indicated that PCB-containing transformer cooling oil from four 750 kV transformers was dumped onto the ground at the transformer mounting area. The oil reportedly ran through a shallow trench to a shallow pit or pre-existing depression in the parking lot south of Building 35-750 (Figure 3-1). Other reports indicated that the oil flowed down a swale, under the peripheral road, and into the field east of the road. The exact level of PCBs in the transformers is not known, but similar transformers from the 1950s used at Fort Richardson contained high levels of PCBs.

In addition, in 1984, it is likely that a large, 150 kilovolt-ampere (kVA) transformer was drained onto the ground and flowed to the east of Building 35-750 into a natural depression east of the driveway that circles the building.

During a site visit, representatives from the Army, EPA, and ADEC identified 20 locations for sampling surface soil to assess the presence and extent of PCB contamination. Later, samples from twelve locations (T1 through T12) were collected from the swale and potential drainage paths in the field east of Building 35-750 (the Transformer Oil Discharge Area). Samples from the remaining eight locations (T13 through T20) were collected adjacent to the transformer mounting pad (the Transformer Mounting Area).

3.1.1.2 Soil from the Burn Pit Area

The Burn Pit Area is located immediately west of Building 35-752 (Figure 3-1). Interviews with Fort Richardson personnel who worked at this site in 1982 indicated that drained transformer cooling oil was burned with four drums of diesel fuel. The burn area was either a natural low area in the parking lot or a shallow burn pit. After the transformer oil was burned, the pit was filled back in with native soil from the surrounding area. The soil that did not fit into the pit was graded around the building. The pit was later regraded and the site paved as a parking lot for Building 35-752.

A geophysical study conducted in 2000 by CRREL reported a depth of 2.6 feet to the base of the disturbed soil beneath the parking lot in the vicinity of the suspected Burn Pit Area (Astley et al., 2000a). (The soil beneath the parking lot was the source for the PCB-contaminated soil previously stored in the Soil Stockpile Footprint Area described in Section 3.1.1.4.) Soil greater than 2.6 feet below the asphalt surface was described as

undisturbed with the exception of utility trenches. The burn pit surface was not delineated, most likely because of regrading and soil removal prior to the geophysical study.

In the absence of a geophysical delineation, a grid method was used to sample the general location of the former burn pit. The eastern half of the paved parking area was divided into eight 20-foot by 20-foot grid sections, and one boring was drilled in the center of each grid square (locations AP-4328 through AP-4335) to obtain soil samples below the pavement.

3.1.1.3 Soil from the Peripheral Road Area

The peripheral road provides access to Buildings 35-750 and 35-752 (Figure 3-1). During grading activities prior to the road's paving in 1997, PCB-contaminated soil associated with the Burn Pit Area might have been distributed along the peripheral road and parking area.

Soil samples were collected from 30 locations (P1 through P30) to assess the presence and distribution of contaminants around the peripheral road and parking lot. Samples were collected from 0.5, 1.0, and 1.5 feet bgs along the peripheral road around Building 35-750 and near the southwest portion of the Building 35-752 parking lot.

3.1.1.4 Soil from the Soil Stockpile Footprint Area

The Soil Stockpile Footprint Area is located approximately 75 meters west-southwest of Building 35-752 (Figure 3-1).

In 1997, approximately the top 3 feet of soil (1,500 cubic yards) was removed and stockpiled from the parking lot south of Building 35-750 before construction of an asphalt surface (ENSR, 2000). The stockpiled soil was sampled and found to contain PCBs at higher concentrations than samples collected at other locations evaluated during the OUD RI (ENSR, 1998a). Results from three previous investigations showed that PCBs are widely distributed at the site. However, a definitive source of the PCBs was not determined.

The Proposed Plan for OUD (ENSR, 1999) indicated that the soil removed during the excavation would be treated using phytoremediation. Later, however, a removal action was conducted for the PCB-contaminated soil. This soil was packaged and transported by rail for disposal at a Toxic Substances Control Act (TSCA)-permitted landfill in Idaho.

The extent of soil contamination in the Soil Stockpile Footprint Area was assessed by sampling surface and subsurface soil in the area where the stockpile had been. The area was divided into twelve 30-foot by 30-foot grid squares with one soil boring completed near the center of each grid square (borings S30 through S41).

3.1.1.5 Groundwater from the Building 35-752 Area

As early as 1990, concentrations of TPHs and PCBs were found in groundwater at the Building 35-752 Area. (See Section 1.4.1.2.) Groundwater at the site continued to be monitored in subsequent investigations occurring in 1993, 1994, and 1998 (HLA, 1994a; ENSR, 1994; and ENSR, 1998a).

According to the OUD RI (ENSR, 1998a), the shallow groundwater beneath Building 35-752 is contaminated with benzene, TCE, and metals (primarily aluminum, iron, and manganese). The benzene and TCE contamination may be related to impacts from petroleum products or solvents used on site. The source of the metals contamination is

unknown. However, possible explanations are rusting tanks, which have since been removed, or sediment entrained in unfiltered samples.

To further study the groundwater in the Building 35-752 Area, samples were collected and analyzed from seven existing groundwater wells (AP-2982, AP-2983, AP-2987, AP-3231, AP-3232, AP-3458, and AP-3503). These wells are in the shallow unconfined aquifer at depths ranging from 10 to 20 feet bgs.

3.1.2 Armored Vehicle Maintenance Area

Based on previous investigations, the primary concern at the AVMA was groundwater contaminated with carbon tetrachloride and PCE. The highest concentrations of carbon tetrachloride and PCE in groundwater were observed upgradient and/or cross gradient to the suspected former Building 45-590 source area investigated in the OUD RI (ENSR, 1998a). In the OUD ROD (ENSR, 2000), the AVMA (north of Building 724 and Building 730) was identified as a potential upgradient source for contamination in the wells. The AVMA investigation area was expanded during the OUE RI to include other areas considered to be possible sources for a potential dissolved VOC groundwater plume located near the AVMA. (Figure 1-2).

Objectives related to the OUE investigation of the AVMA included the following:

- Verify the upgradient extent of groundwater near former Building 45-590 that is contaminated with carbon tetrachloride and PCE
- Determine the northern extent and thickness of the confining layer at the base of the shallow unconfined aquifer to develop a conceptual site model for the area
- Describe the lithology of the area
- Continue groundwater monitoring in the area to predict plume degradation and reduction in COPC concentrations (ENSR, 2002).
- Evaluate the AVMA's potential as a source area for dissolved PCE and other contaminants in groundwater
- Determine if there are additional COPCs in the groundwater at the AVMA
- Characterize the disturbed area east of former Building 45-590, where historic photographs show potential areas of contamination

Investigations at the AVMA included excavating trenches to identify buried debris and sampling the soil; sampling the soil from groundwater monitoring wells installed; and sampling groundwater from 27 existing and 14 new wells.

3.1.2.1 Soil from Trench Excavations

Aerial photographs from 1957, 1960, and 1966 show a large disturbed area east of former Building 45-590. These photographs indicate trenches, drainage ditches, large cylinders, stained areas, buried debris, and other anomalies. A field geophysical investigation helped identify probable locations of buried materials, metallic objects, and other debris (Astley et al., 2001b). Nine trenches were excavated within the AVMA to investigate these anomalies,

identify any objects found, and determine if soil contamination is present. The trenches were placed near areas containing buried metallic debris (according to the electromagnetic survey results) and near ditches and former vehicle wash areas (identified in the aerial historical photographs and the geophysical surveys).

Trenches, T1 through T4, were completed first. In Trench T4, a considerable amount of debris was found and elevated PID readings were observed. Because of the findings in Trench T4, and to investigate other features indicated in historical aerial photographs, Trenches T5 through T9 were excavated to further define the extent of debris in the area.

3.1.2.2 Soil from Monitoring Well Borings

Soil samples collected from the groundwater monitoring wells installed in the AVMA during the OUE RI were used to determine the northern extent and thickness of the confining layer at the base of the shallow unconfined. Geotechnical properties were evaluated to help identify hydrogeologic conditions in the area.

In September and October of 2002, seven groundwater monitoring wells were installed (locations AP-4336 through AP-4342). In June and August of 2003, seven more groundwater monitoring wells were installed (locations AP-4410 through AP-4416).

3.1.2.3 Groundwater from the Armored Vehicle Maintenance Area

Groundwater under former Building 45-590 is contaminated with carbon tetrachloride and PCE. Interviews with former employees indicated that the AVMA area was used as a lower echelon or lowest level of field maintenance for armored vehicles (tanks), including washing them with carbon tetrachloride and disposing oil and other waste materials in the area. Historical aerial photographs also indicated a large disturbed area east of former Building 45-590. Contamination at the AVMA could have resulted from armored vehicle washing and maintenance, buried debris, backfilled trenches, leaks, and spills. These contaminant sources might have discharged chemicals into surrounding soils, where they might have been leached into soil and groundwater or transported off-site in runoff or groundwater by various release mechanisms.

To verify the upgradient extent of groundwater under former Building 45-590 that is contaminated with carbon tetrachloride and PCE; evaluate the AVMA's potential as a source area for contaminants in groundwater; predict plume degradation and reduction in COPC concentrations; and determine if there are additional COPCs in the groundwater, 27 existing monitoring wells were sampled and 14 new monitoring wells were installed and sampled. The initial five wells were installed within the original AVMA. The final nine wells were installed in the expanded AVMA, west and south of the original AVMA area.

3.2 Field Investigation Methods

The following sections describe the investigation methods applied in the field during the RI. These included:

- Surveying
- Soil sampling procedures
- Groundwater sampling procedures

The sampling techniques employed are described in detail in the *Quality Assurance Program Plan, Alaska* (CH2M HILL, 2002).

3.2.1 Surveying

Survey-grade global positioning system (GPS) equipment was used to survey sampling locations, including monitoring wells, surface-soil samples, soil borings, and trench excavations. In addition, a licensed land surveyor completed an engineering survey of 65 existing and 14 new monitoring wells. This survey (which included more wells than were investigated as part of the OUE RI) recorded the ground and top of casing elevations for the wells. Horizontal locations were provided in Alaska State Plane Coordinates, NAD83, Zone 3, in meters and feet. Elevations were provided in both NAVD88 meters and feet (new datum) and NGVD29 feet (old datum).

3.2.2 Soil Sampling Procedures

This section includes information about the following soil sampling procedures:

- Surface and near-surface soil sampling (Building 35-752 Area)
- Soil boring and logging (Building 35-752 Area and AVMA)
- Trench excavation and sampling (AVMA)
- Field screening
- Decontamination
- Field documentation

3.2.2.1 Surface and Near-Surface Soil Sampling (Building 35-752 Area)

Surface (from 0 to 0.5 foot bgs) and near-surface (from 0.5 to 1.0 foot bgs) soils were collected at the following Building 35-752 Area sites:

- Transformer Mounting and Oil Discharge Areas
- Burn Pit Area
- Peripheral Road Area
- Soil Stockpile Area

Soil samples were collected either by hand digging (with a precleaned stainless steel trowel) or using a drill rig. For example, samples from both the Peripheral Road and Burn Pit areas were collected using a hollow-stem auger drill rig capable of driving a 2.5-inch-diameter, 2-foot-long, split-spoon sampler. These samples were taken directly from decontaminated stainless steel split spoons driven into undisturbed soil.

The OUE Management Plan (ENSR, 2002) indicated that samples should be collected from 0.5, 1.0, and 1.5 feet bgs. However, utility locating crews indicated the general presence of buried electrical and data transmission lines in the transformer mounting area but were unable to determine their depth. Therefore, initially, samples were collected only from 0.5 foot bgs. After receiving the analytical results from these surface soil samples, five additional soil samples were collected from a depth of 1.0 foot bgs at locations T2, T5, T6, T11, and T15.

Soil samples collected for analysis were immediately placed in precleaned, labeled sample jars and sealed in accordance with analytical method requirements. The labeled sample

containers were placed in a cooler with gel ice for transport to the analytical laboratory. Sample containers that required shipping to a laboratory outside Alaska were wrapped in resealable plastic storage bags in addition to being placed in the cooler.

Surface and near-surface sampling locations were backfilled using excavated soil unless field screening indicated that the soil was contaminated. Potentially contaminated soil was handled as described in Section 3.5.

3.2.2.2 Soil Boring, Sampling, and Logging (Building 35-752 Area and AVMA)

Soil borings were completed at the Building 35-752 Area and the AVMA. All borings installed within the AVMA were completed as groundwater monitoring wells.

A CME 75 drill rig equipped with a 6-⅝-inch (outside diameter) hollow-stem auger was used for all soil borings. Samples were collected using a 3-inch-diameter, 2-½-foot core-barrel sampler, or a 2.5-inch-diameter, 2-foot-long, split-spoon sampler.

At the Building 35-752 Burn Pit Area, samples were collected from depths of 0.5, 2.5, 5, 7.5, and 10 feet bgs for lithologic description and field screening. Usually two soil analytical samples were collected from each boring at the AVMA. These samples were usually taken at the top of the water-bearing unit, within the water-bearing unit, or at the top of the confining layer. Soil samples for lithologic description at AVMA were collected on a continuous basis with a core-barrel sampler. At the AVMA, because of drilling difficulties and refusal, only one analytical sample was collected at locations AP-4415, AP-4416, AP-4340, and AP-4342. Analytical samples for both AP-4412 and AP-4413 were collected from AP-4412. Those wells are co-located and all soil samples were collected during the completion of AP-4412. The soil analytical samples were later analyzed for the COPCs.

At the AVMA, only 15 of the 28 planned geotechnical properties samples were collected because of drilling difficulties and refusal. The geotechnical properties samples were later analyzed for grain size, Atterburg Limits, and percent moisture.

Soil samples collected for analysis were sealed, labeled, and cooled in the same fashion as for the surface soil samples (Section 3.2.2.1).

The site geologist maintained a complete log of all geologic conditions during the drilling. Building 35-752 Area soil boring logs are presented in Appendix C. AVMA monitoring well boring logs and well diagrams are presented in Appendix D.

3.2.2.3 Trench Excavation and Soil Sampling (AVMA)

The nine trenches in the AVMA were completed with a track hoe. Each trench was approximately 50 feet long and 20 feet deep. Soil samples were gathered directly from the excavator bucket using a decontaminated hand trowel.

Soil analytical samples were collected from:

- Areas identified in the field as contaminated (by obvious olfactory or visual indicators such as changes in soil color or type)
- Areas where PID screening indicated contamination
- Representative locations

Samples for VOC analyses were collected first, followed by other analytical methods.

Five analytical samples were collected from each of the Trench T1 through T4 excavations. These samples were subsequently analyzed for concentrations of TPHs (gasoline-range organic [GRO] and DRO compounds), VOCs, SVOCs, and metals. Four analytical samples were collected from each of the Trench T5 through T9 excavations. These samples were subsequently analyzed for concentrations of TPHs (GRO and DRO compounds), VOCs, SVOCs, and metals. In addition, one in five samples was analyzed for concentrations of pesticides and PCBs. These selective samples were chosen based on field observations indicative of possible contamination.

The OUE Management Plan (ENSR, 2002) indicated that 25 samples should be collected from Trenches T5-T9. However, only 22 sampled were gathered because field conditions did not warrant the collection of the remaining samples.

The soil samples collected for analysis were sealed, labeled, and cooled in the same fashion as for the surface soil samples (Section 3.2.2.1)

Field crews documented all the waste materials encountered during the excavation in trench logs (Appendix E). None of the excavated waste materials were removed. The soil that had been excavated was later backfilled into the trenches.

3.2.2.4 Field Screening

A PID equipped with a 10.2-electron volt (eV) lamp was used on all excavated soil samples to measure organic compounds emitted from potentially contaminated soil. To screen the soil sample, it was placed inside a resealable plastic storage bag with enough air space ("headspace") above the sample to take a reading of the ambient temperature inside the bag. PID readings greater than 100 ppm indicated that the soil was potentially contaminated. The results of field screening were recorded in field logbooks (Appendix F) and on soil boring logs (Appendix C and Appendix D). Where field screening indicated that soil was potentially contaminated, the soil cuttings were handled as described in Section 3.5.

In the Building 35-752 Area, Ensys PCB field screening kits were used to indicate whether concentrations of PCBs were present. If the soil cuttings were contaminated with PCBs, the cuttings were handled following the procedures described in Section 3.5. In the Transformer Mounting and Oil Drainage Discharge Area, only 25 of the 60 samples indicated in the OUE Management Plan (ENSR, 2002) were field screened for PCBs. Buried electrical and data transmission lines prevented the collection of the additional samples. In the Peripheral Road Area, only 87 of the 90 samples indicated in the OUE Management Plan (ENSR, 2002) were field screened for PCBs because of underground electrical hazard conflicts.

3.2.3 Groundwater Sampling Procedures

This section includes information about the following groundwater sampling procedures:

- Monitoring well installation and logging (AVMA)
- Monitoring well development (AVMA)
- Water level surveying (Building 35-752 Area and AVMA)
- Monitoring well sampling (Building 35-752 Area and AVMA)
- Field screening

- Decontamination
- Field documentation

3.2.3.1 Monitoring Well Installation (AVMA)

A CME 75 drill rig equipped with a 6-⅝-inch (outside diameter) hollow-stem auger was used to install all monitoring wells. Wells were constructed of 2-inch-diameter, schedule 40, polyvinyl chloride (PVC) pipe. Each well consisted of a 15-foot pre-packed screen section, a PVC riser, and a steel outer protective surface casing. The prepack well screens consisted of 0.010-inch, machine-slotted inner and outer screens with 40/60 sand placed in the annulus. Monitoring well construction diagrams (found on the soil boring logs in Appendix D) were used to record installation details.

The site geologist supervised drilling and well construction activities and prepared field logs of the borings. (Soil boring logs are presented in Appendix D.)

3.2.3.2 Monitoring Well Development (AVMA)

Where possible, the installed wells were developed according to the *Quality Assurance Program Plan, Alaska* (CH2M HILL, 2002). The method is briefly summarized as follows:

Newly constructed wells were developed before being sampled to remove fines from the borehole, enhance the flow of formation water through the well, and provide water samples with a minimal amount of suspended solids. Wells were developed by surging and pumping using a surge block and a submersible pump. During the development process, groundwater was monitored for pH, temperature, specific conductance, dissolved oxygen (DO), and turbidity.

Wells were developed from the bottom of the screened interval upward by alternately using the surge block and the pump. Water quality parameters were recorded for each staged interval and surging and pumping continued until measurements stabilized according to the following criteria:

- pH: 0.2 standard unit
- Temperature: 1.0° Celsius (°C)
- Conductivity: 3 percent
- Turbidity: 10 percent, or 5 NTUs (nephelometric turbidity units)
- DO: 10 percent, or 0.2 milligrams per liter (mg/L)

The well was considered adequately developed when the water parameters stabilized per the criteria above.

A majority of the wells in the shallow, unconfined aquifer could not be developed using these standard approaches due to the high silt load observed in water in the wells. AP-4336, AP-4337, AP-4338, and AP-4342 were developed using a bailer because available pumps were not capable of carrying the high silt loads from the depths to water in the wells. AP-4341 was not developed prior to sampling due to very little water being present in the well (three feet) and a desire to capture what water was encountered for laboratory analysis. Generally, the wells installed in the shallow, unconfined aquifer were turbid, contained little standing water, and yielded little water.

3.2.3.3 Water Level Surveying (Building 35-752 Area and AVMA)

The depth to static groundwater from the established survey reference point was measured. Water levels in wells that are known or suspected to be least contaminated were measured first. Levels in wells that are known or suspected to have the highest contamination were measured last. A solution of Alconox and deionized water was used to decontaminate the electronic water level sounder between wells. Water level and depth measurements were estimated to the nearest 0.01 foot. Total well depths were not measured on the same day in which sampling took place to avoid possible resuspension of any solids at the bottom of the well. These measurements were documented in field logbooks.

3.2.3.4 Monitoring Well Sampling (Building 35-752 Area and AVMA)

Monitoring wells were sampled shortly after installation and development. Groundwater samples were collected using either a Fultz or Grundfos pump with disposable polyethylene tubing or a disposable bailer. (In situations where there was high turbidity, samples were taken by bailer.) Either new sample tubing or a new bailer were used for each well.

Groundwater monitoring wells were sampled according to the *Quality Assurance Program Plan, Alaska* (CH2M HILL, 2002). The sampling method is summarized as follows:

Wells were purged and sampled by use of a submersible pump, where possible. Purging began with an emphasis on maintaining as low a flow rate as the pump would support, typically from 0.1 to 0.5 liters per minute. A stable drawdown of less than 25 percent of the height of the water column above the pump intake was achieved before purging began.

During well purging parameters were monitored following the exchange of five volumes though the flow-through cell. The parameters were considered stabilized and the well ready for sample collection when the following criteria were met for three consecutive readings:

- DO varies by less than 10 percent, or 0.2 mg/L, whichever is greater
- Conductivity varies by less than 3 percent
- Temperature varies by less than 1.0°C
- pH varies by less than 0.2 pH units
- Turbidity varies by less than 10 percent, or 5 NTUs, whichever is greater

The wells that were developed using bailers due to the high silt content were also sampled using bailers. In those cases, parameters were not collected for stabilization criteria. Samples were collected prior to dewatering of the wells.

3.3 Decontamination Procedures

Sampling methods and equipment were chosen to minimize decontamination requirements and the possibility of cross-contamination. Reusable sampling equipment was decontaminated between uses. Brushes were used to scrub the equipment using an Alconox solution. The equipment was rinsed in potable water and then rinsed in deionized water. The drilling subcontractor constructed a portable decontamination pad to decontaminate the drilling rig and other heavy equipment. Decontamination water was handled as described in Section 3.5.

3.4 Field Documentation

Field documentation consisted of:

- A field activities logbook for recording the daily activities (Appendix F)
- A sampling logbook for noting sampling start and finish times, field personnel present, equipment used, instrument calibrations, and sampling details such as soil description, sample location, staining, or odor (Appendix F)
- Well purging and sampling forms (Appendix F)
- Geologic logbooks for recording geologic information and daily drilling activities, including the installation of soil borings and monitoring wells (Appendix C and Appendix D)
- Trench diagrams and logs for documenting the stratigraphy and waste materials encountered during the excavation at the AVMA in (Appendix E).

Field logbooks and other field documentation were updated on a daily basis and throughout the day.

3.5 Waste Management Practices

Wastes generated during field activities consisted of the following investigation-derived waste (IDW):

- Equipment decontamination wash and rinse water
- Monitoring well purge water
- Drill cuttings or otherwise extracted soils with field screening PID readings greater than 100 ppm
- Disposable sampling equipment, personal protective equipment (PPE) and/or other municipal-type solid wastes

Wastes were then disposed of appropriately. Waste disposal methods were documented in logs.

3.5.1 Characterization of Waste

Various methods were used to determine whether waste should be characterized as municipal, nonhazardous, or requiring treatment.

3.5.1.1 Soil

A PID was used to field screen soil. PID readings greater than 100 ppm indicated that the soil was potentially contaminated. Also, obvious olfactory or visual indicators (such as changes in soil color or type) were used to determine if soil might be contaminated. These soils were characterized as requiring treatment.

3.5.1.2 Water

It was assumed that decontamination water was contaminated. Monitoring well purge water was characterized as requiring treatment.

3.5.1.3 Other Waste Materials

Disposable sampling equipment and PPE were characterized as municipal-type solid wastes.

3.5.2 Management of Waste Streams

3.5.2.1 Soil

Uncontaminated soil cuttings (those field screened with a PID where the headspace analysis was below 100 ppm) were either spread on the ground surface near the boring or excavation from which they were collected or returned to the boring or excavation. If the PID readings were greater than 100 ppm, the cuttings were put in 55-gallon, open-top drums for temporary storage and transfer and labeled as IDW. CH2M HILL personnel appropriately labeled the drums using standardized IDW forms listing contract number, contact information, and location. The drums were then delivered to the Fort Richardson environmental staging facility.

The RI investigation generated approximately 440 gallons of IDW soil.

3.5.2.2 Water

Monitoring well purge water and equipment decontamination wash and rinse water were collected and temporarily placed in 15-gallon plastic drums. The drums were transported to the Fort Richardson environmental staging facility where the IDW water was offloaded to the water treatment system.

The RI investigation generated approximately 775 gallons of IDW water.

3.5.2.3 Other Waste Materials

Disposable sampling equipment, PPE, and other materials were considered municipal solid wastes and were transported to local dumpsters by CH2M HILL personnel for disposal in local landfills.

Table 3-1 summarizes waste disposal practices related to this project.

3.5.3 Fort Richardson Environmental Staging Facility Procedures

Appointments with facility personnel were made before transferring IDW to the Fort Richardson environmental staging facility. Upon delivery, the facility operator checked the labeling and recorded all waste materials received.

Once available, CH2M HILL provided analytical results for IDW to the environmental staging facility operator. These data provided proper characterization of the IDW for disposal or treatment.

TABLE 3-1
Summary of Waste Disposal Practices
OUE Remedial Investigation, Fort Richardson, Alaska

Disposal Facilities	Municipal Waste	Nonhazardous Waste	Waste Requiring Treatment	Disposition by Party Responsible
Local Dumpsters	✓	✓		Transported to dumpsters by drilling subcontractors and CH2M HILL personnel
Fort Richardson Environmental Staging Facility			✓	Put in containers and transported by CH2M HILL field team and drilling subcontractor

3.6 Analytical Program

Chemical samples, including project field samples and quality assurance (QA)/quality control (QC) samples, were submitted to analytical laboratories for the analyses outlined in the OUE Management Plan (ENSR, 2002). To ensure consistency and reproducibility of test results, soil and water samples were analyzed following approved ADEC and EPA methods. Modifications to the analytical program were provided by the Remedial Project Managers (RPMs), as documented during project team meetings. This section discusses the following topics:

- Building 35-752 Area samples
- AVMA samples
- Timeline of field investigations
- Analytical methods

3.6.1 Building 35-752 Area Samples

The samples collected were analyzed to determine if concentrations of various analytes could be detected. Analyses for the following target analytes were performed:

- Soil from the Transformer Mounting and Oil Discharge Areas: PCBs and dioxins/furans
- Soil from the Burn Pit Area: TPHs (DRO and GRO compounds), PCBs, VOCs, SVOCs, and dioxins/furans
- Soil from the Peripheral Road Area: TPHs (DRO and GRO compounds), PCBs, and dioxins/furans
- Soil from the Soil Stockpile Footprint Area: TPHs (DRO compounds), PCBs, and dioxins/furans
- Groundwater from monitoring wells in the vicinity of Building 35-752: TPHs (DRO, GRO, and RRO compounds), benzene, toluene, ethylbenzene, and xylenes (BTEX), PCBs, VOCs, SVOCs, PAHs, metals, and dissolved metals

Table 3-2 indicates the number of soil and groundwater samples collected at the Building 35-752 Area for the various types of analyses. Samples were collected and analyzed from the following:

- **Transformer Oil Discharge Area** (T1-T8, T10, and T11): 15 soil samples from 11 locations at 0-0.5 foot bgs (including 1 field duplicate) and 4 locations from 0.5-1 foot bgs
- **Transformer Mounting Area** (T13, T15, T16, T17, and T19): 6 soil samples from 5 locations at 0-0.5 foot bgs and 1 location at 0.5-1 foot bgs
- **Burn Pit Area** (AP-4328 through AP-4335): 17 soil samples from 4 locations at 0-0.5 foot bgs, 3 locations at 2-2.5 feet bgs, 4 locations at 5-5.5 feet bgs (including 1 field duplicate), 3 locations at 7-7.5 feet bgs (including 1 field duplicate), and 3 locations at 10-10. 5 feet bgs
- **Peripheral Road Area** (P1, P2, and P5-P30): 36 soil samples from 14 locations at 0-0.5 foot bgs (including 5 field duplicates), 13 locations at 1-1.5 feet bgs (including 2 field duplicates), and 9 locations at 1.5-2 feet bgs
- **Soil Stockpile Area** (S30, S31, S32, and S34-S41): 13 soil samples from 9 locations at 0-0.5 foot bgs (including 1 field duplicate) and 4 locations at 1-1.5 feet bgs
- **Existing groundwater monitoring wells** (AP-2982, AP-2983, AP-2987, AP-3231, AP-3232, AP-3458, and AP-3503): 24 groundwater samples on various dates (including 3 field duplicates)

Appendix G, Table G-1, "Details about Groundwater Monitoring Well Sample Locations at the Building 35-752 Area," presents information about each well sampled, including the OUE RI well type (existing), the hydrogeologic unit of the screened interval (shallow aquifer), the well identifier, when the well was sampled, the screened interval depth (in feet bgs), the ground elevation (in NGVD29 feet above MSL [AMSL]), the screened interval elevation (in NGVD29 feet AMSL), the horizontal location (in Alaska State Plane Coordinates NAD83, Zone 3), and whether there was a boring log for the well. Appendix G, Table G-3, "Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA," provides analytical information for each soil sample location, including sample identifier (ID), QA/QC sample (none or field duplicate), depth (in feet bgs), date collected, and analyses performed for various chemical analysis targets. Appendix G, Table G-4, "Details about Groundwater Sample Analyses Performed at the Building 35-752 Area and the AVMA," provides analytical information for each groundwater sample location, including sample ID, QA/QC type (none or field duplicate), depth, date collected, and analyses performed for various chemical analysis targets.

3.6.2 AVMA Samples

The samples collected were analyzed to determine if concentrations of various analytes could be detected. Analyses for the following target analytes were performed:

- Soil from Trenches T1 through T9: TPHs (DRO and GRO compounds), PCBs, VOCs, SVOCs, metals, pesticides, and geotechnical properties

TABLE 3-2
Summary of Analytical Targets for Soil and Groundwater Samples Collected at the Building 35-752 Area
OUE Remedial Investigation
Fort Richardson, Alaska

	Sample Collection Area				
Analytical Target	**Transformer Mounting and Oil Discharge Area Soil**	**Burn Pit Area Soil**	**Peripheral Road Area Soil**	**Stockpile Footprint Area Soil**	**Groundwater**
Diesel-Range Organic (DRO) Compounds (AK 102)	NA	17	11	5	14
Gasoline-Range Organic (GRO) Compounds (AK 101)	NA	17	7	NA	14
Residual-Range Organic (RRO) Compounds (AK103)	NA	NA	NA	NA	7
Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) (SW 8021B)	NA	NA	NA	NA	7
Polychlorinated Biphenyls (PCBs) (EPA 8082)	21	17	36	12	7
Volatile Organic Compounds (VOCs) (EPA 8260B)	NA	17	NA	NA	14
Semivolatile Organic Compounds (SVOCs) (EPA 8270C)	NA	17	NA	NA	14
Polynuclear Aromatic Hydrocarbons (PAHs) (EPA 8270C-SIM)	NA	NA	NA	NA	14
Metals (EPA 6010B, 7041, 7191, 7471A, 7841)	NA	NA	NA	NA	7
Dissolved Metals (EPA 6010B and 7470A)	NA	NA	NA	NA	2
Pesticides (EPA 8081A)	NA	NA	NA	NA	NA
Dioxins/Furans (EPA 8290D)	4	15	9	4	NA

Note: Quality assurance/quality control samples not included
AK = Alaska Method
EPA = U.S. Environmental Protection Agency
NA = not analyzed

- Soil from the Monitoring Well Borings: TPHs (DRO and GRO compounds), BTEX, VOCs, SVOCs, PAHs, metals and geotechnical properties
- Groundwater from monitoring wells in the AVMA: TPHs (DRO and GRO compounds), BTEX, VOCs, SVOCs, PAHs, metals, dissolved metals, and pesticides.

Table 3-3 indicates the number of soil and groundwater samples collected at the AVMA for the various types of analyses. Samples were collected and analyzed from:

- **Trench Excavations** (T1-T9): 46 soil samples in 46 locations at various depths (including 4 field duplicates)
- **Monitoring Well Borings** (AP-4336 through AP-4342, AP-4410 through AP-4412, AP-4414, AP-4415, and AP-4416): 29 soil samples in 29 locations at various depths (including 4 field duplicates)
- **Existing groundwater monitoring wells** (AP-2980, AP-3441, AP-3467, AP-3468, AP-3469, AP-3483, AP-3532, AP-3534, AP-3650, AP-3772 through AP-3776, AP-3789, AP-3790, AP-3870, AP-3871, AP-3872, AP-3893 through AP-3896, AP-3901, AP-3916, AP-4154, and AP-4155): 44 groundwater samples on various dates (including 4 field duplicates)
- **New groundwater monitoring wells** (AP-4336 through AP-4342, and AP-4411 through AP-4416): 19 groundwater samples on various dates (including 5 field duplicates)

Appendix G, Table G-2, "Details about Groundwater Monitoring Well Sample Locations at the AVMA," presents information about each well sampled, including the OUE RI well type (new or existing well), the hydrogeologic unit of the screened interval (shallow, confined, deep confined, or deep unconfined aquifer), the well identifier, when the well was sampled, the screened interval depth (in feet bgs), the ground elevation (in NGVD29 feet AMSL and NAVD88 feet AMSL), the screened interval elevation (in NGVD29 feet AMSL), and the horizontal location (in Alaska State Plane Coordinates NAD83, Zone 3). Appendix G, Table G-4, "Details about Groundwater Sample Analyses Performed at the Building 35-752 Area and the AVMA," provides analytical information for each groundwater sample location, including sample ID, QA/QC type (none or field duplicate), depth, date collected, and analyses performed for various chemical analysis targets.

Appendix G, Table G-3, "Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA," provides analytical information for each soil sample location, including sample ID, QA/QC type (none or field duplicate), depth, date collected, and analyses performed for various chemical analysis targets.

In addition, nine trenches were excavated and information about the materials found was recorded on trench diagrams.

3.6.3 Timeline of Field Investigations

Field activities for the RI were conducted between July 2002 and September 2003. Soil and groundwater samples collected from numerous sampling locations were analyzed for over 200 chemical parameters. The sampling events included:

- **July through November, 2002** (soil sampling for the Transformer Mounting and Oil Discharge Areas, the Burn Pit Area, the Peripheral Road Area, the Soil Stockpile Footprint, the AVMA Trenches, the AVMA Monitoring Well Borings and groundwater sampling for the Building 35-752 Area and the AVMA):

TABLE 3-3
Summary of Analytical Targets for Soil and Groundwater Samples Collected at the Armored Vehicle Maintenance Area
OUE Remedial Investigation, Fort Richardson, Alaska

	Sample Collection Area					
	Soil			Groundwater		
Analytical Target	Trenches T1–T9	Soil Borings/ Monitoring Well Installation (Sept. and Oct. 2002)	Soil Borings/ Monitoring Well Installation (June and Aug. 2003)	Existing Monitoring Wells	New Monitoring Wells 2002 (Sept. and Oct. 2002)	New Monitoring Wells 2003 (June and Aug. 2003)
Diesel-Range Organic (DRO) Compounds (AK 102)	46	15	14	42	8	11
Gasoline-Range Organic (GRO) Compounds (AK 101)	46	15	14	42	8	11
Residual-Range Organic (RRO) Compounds (AK103)	NA	NA	14	42	8	11
Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) (SW 8021B)	NA	NA	14	42	8	11
Polychlorinated Biphenyls (PCBs) (EPA 8082)	46	NA	NA	NA	NA	NA
Volatile Organic Compounds (EPA 8260B)	46	15	14	42	8	11
Semivolatile Organic Compounds (EPA 8270C)	46	15	14	42	8	11
Polynuclear Aromatic Hydrocarbons (PAHs) (EPA 8270C-SIM)	NA	15	14	42	8	11
Metals (EPA 6010B, 7041, 7191, 7471A, 7841)	46	15	NA	14	7	NA
Dissolved Metals (EPA 6010B and 7470A)	NA	NA	NA	4	2	NA
Pesticides (EPA 8081A)	46	NA	NA	14	7	NA
Dioxins/Furans (EPA 8290D)	NA	NA	NA	NA	NA	NA
Geotechnical Properties	1	3	12	NA	NA	NA

Note: Quality assurance/quality control samples not included
AK = Alaska Method
EPA = U.S. Environmental Protection Agency
NA = not analyzed

  - Soil sampling and analysis for dioxins/furans, PCBs, SVOCs, TPHs, VOCs (the Building 35-752 Area) and metals, PCBs, pesticides, SVOCs, TPHs, VOCs, BTEX, and PAHs (7 new well borings in the AVMA)
  - Groundwater sampling and analysis for BTEX, TPHs, metals, dissolved metals, PAHs, PCBs, SVOCs, and VOCs (7 existing wells in the Building 35-752 Area) and for BTEX, TPHs, metals, dissolved metals, PAHs, pesticides, SVOCs, and VOCs (24 existing wells and 7 new wells in the AVMA)

- **May through August, 2003** (soil sampling for AVMA Monitoring Well Borings and groundwater sampling for the AVMA as part of OUE RI Modification [MOD] 5):
  - Soil sampling and analysis for SVOCs, TPHs, VOCs, BTEX, and PAHs (7 new well borings in the AVMA)
  - Groundwater sampling and analysis for BTEX, TPHs, PAHs, SVOCs, and VOCs (2 existing wells and 6 new wells in the AVMA)
- **June 2003** (groundwater sampling for the Building 35-752 Area and the AVMA as part of the Fort Richardson Groundwater Monitoring Program):
  - Groundwater sampling and analysis for BTEX, TPHs, PAHs, SVOCs, and VOCs (3 wells in the Building 35-752 Area) and for BTEX, TPHs, PAHs, SVOCs, and VOCs (7 wells in the AVMA)
- **July 2003** (groundwater sampling for the AVMA as part of OUE RI MOD 7):
  - Groundwater sampling and analysis for BTEX, TPHs, PAHs, SVOCs, and VOCs (9 existing wells in the AVMA)
- **September 2003** (groundwater sampling for the Building 35-752 Area and the AVMA as part of the Fort Richardson Groundwater Monitoring Project):
  - Groundwater sampling and analysis for BTEX, TPHs, PAHs, PCBs, SVOCs, and VOCs (3 wells in the Building 35-752 Area) and for BTEX, TPHs, PAHs, SVOCs, and VOCs (7 wells in the AVMA)

3.6.4 Analytical Methods

Analytical methods used for this project were defined by ADEC, EPA, and the American Society for Testing and Materials (ASTM). These methods, and the analytical laboratories employed, are summarized in Table 3-4. This table presents the chemical analysis targets, the analytical methods, and the laboratories that performed the analyses. Sample tracking logs containing sample date, time, location, identification, and type of sample are provided in Appendix F.

Analytica Alaska in Anchorage, Alaska, analyzed project field samples collected for chemical analysis, except for dioxin and furan samples (which were analyzed by Triangle Laboratories in Durham, North Carolina). Terra Firma in Anchorage, Alaska, analyzed geotechnical samples.

TABLE 3-4
Sample Analysis and Associated Laboratories
OUE Remedial Investigation, Fort Richardson, Alaska

Analytical Target	Analytical Method	Laboratory
Diesel-Range Organic (DRO) Compounds	Alaska Method 102	Analytica Alaska, Inc.
Gasoline-Range Organic (GRO) Compounds	Alaska Method 101	Analytica Alaska, Inc.
Residual-Range Organic (RRO) Compounds	Alaska Method 103	Analytica Alaska, Inc.
Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX)	EPA Method 8021B	Analytica Alaska, Inc.
Polychlorinated Biphenyls (PCBs)	EPA Method 8082	Analytica Alaska, Inc.
Volatile Organic Compounds (VOCs)	EPA Method 8260B	Analytica Alaska, Inc.
Semivolatile Organic Compounds (SVOCs)	EPA Method 8270C	Analytica Alaska, Inc.
Polynuclear Aromatic Hydrocarbons (PAHs)	EPA Method 8270C-SIM	Analytica Alaska, Inc.
Total Metals	EPA Methods 6010B, 7041, 7191, 7471A, 7841	Analytica Alaska, Inc.
Dissolved Metals	EPA Methods 6010B and 7470A	Analytica Alaska, Inc.
Arsenic	EPA Method 7060	Analytica Alaska, Inc.
Mercury	EPA Method 7470	Analytica Alaska, Inc.
Pesticides and Polychlorinated Biphenyls (PCBs)	EPA Method 8081A	Analytica Alaska, Inc.
Dioxins/Furans	EPA Method 8290D	Triangle Laboratories, Inc.
Moisture	ASTM D2216	Terra Firma
Grain Size or Sieve Analyses	ASTM C136	Terra Firma
Atterberg Limits	ASTM 4318	Terra Firma
Bulk Density	ASTM C128	Terra Firma

EPA = U.S. Environmental Protection Agency
ASTM = American Society for Testing and Materials

Information about data quality (for example, data validation, sample handling, and field QA/QC) is provided in Section 4.4.

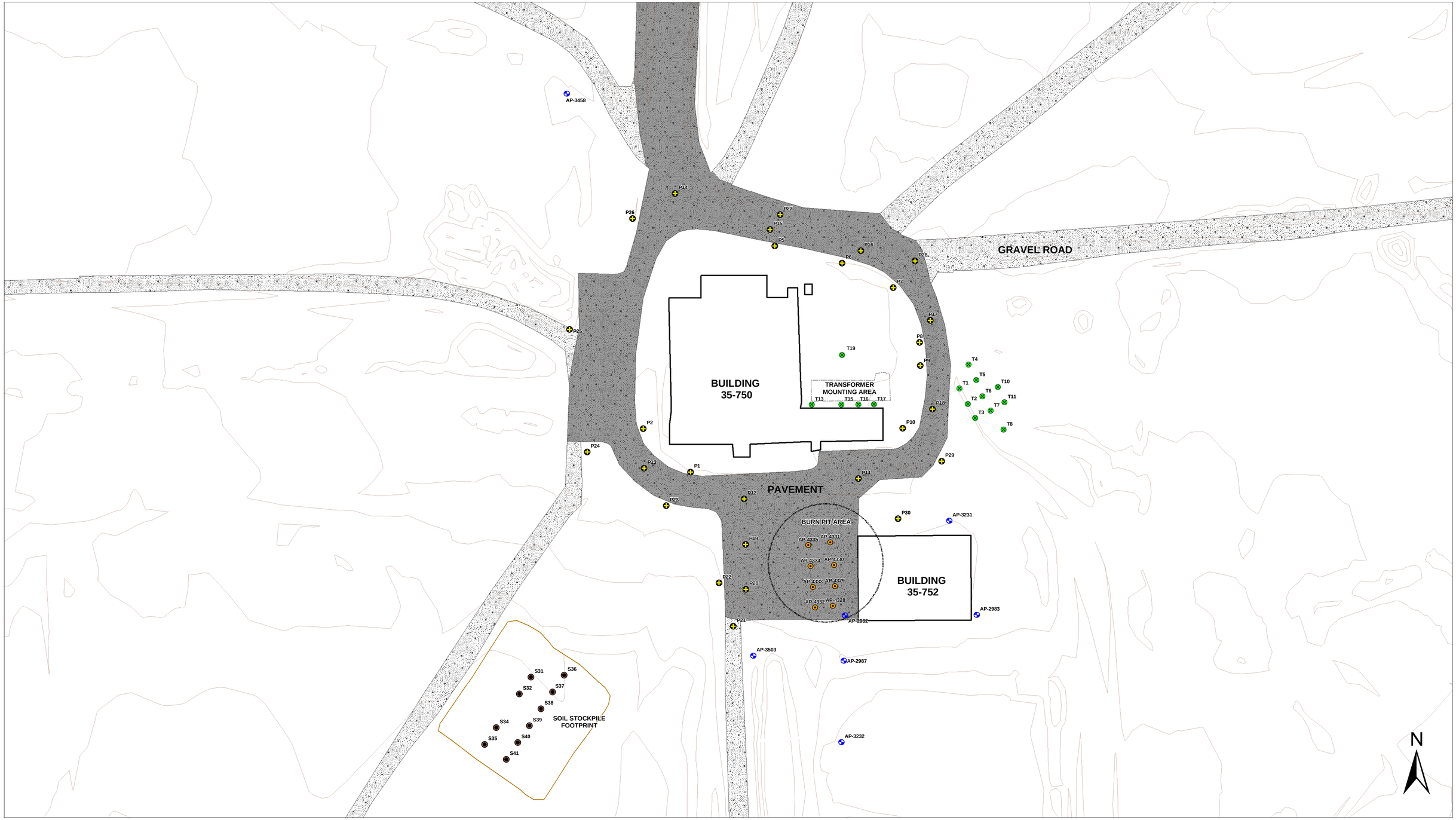
3.7 Deviations from the Operable Unit E Management Plan

Instances when the field investigations deviated from the OUE Management Plan (ENSR, 2002) are noted in the text of Section 3. Table 3-5 summarizes these deviations.

TABLE 3-5
Deviations from the OUE Management Plan
OUE Remedial Investigation, Fort Richardson, Alaska

Sampling Location and Analysis	Scoped Samples	Project Samples	Comments
Building 35-752			
Transformer Mounting and Oil Drainage Discharge Areas			
PCB Ensys Kit Field Screening	60	25	Only shallow samples were collected because of buried electrical and data transmission lines.
Peripheral Road			
PCB Ensys Kit Field Screening	90	87	Underground electrical hazard conflicts limited the number of samples collected.
Armored Vehicle Maintenance Area			
Trenches T5-T9			
Analytical	25	22	Field conditions did not warrant the collection of the remaining samples.
Soil Borings–September and October 2002			
Analytical	14	12	Original plan called for two samples from each boring. Due to field and drilling conditions, only one sample was collected from wells AP-4342 and AP-4340.
Geotechnical	14	3	Drilling difficulties and refusal did not allow for the collection of all planned samples.
Soil Borings–June and August 2003			
Analytical	14	13	Original plan called for two samples from each boring. Due to difficult drilling conditions, only one sample was collected from wells AP-4415 and AP-4416. One extra sample was collected from the well AP-4412/AP-4413 location. Overall, one sample less than planned was collected.
Geotechnical	14	12	Due to difficult drilling conditions, only 12 of 14 samples were collected.
Groundwater Wells–September and October 2002			
New Monitoring Wells	7	7	A bailer was used to develop and sample these wells due to heavy suspended silts in the groundwater. Development of well AP-4341 was not completed because of limited groundwater, poor well recharge, and the desire to collect a sample of what water was present.
Groundwater Wells–June and August 2003			
New Wells	7	6	Well AP-4410 did not contain adequate water for sample collection at the time of installation.

AVMA = Armored Vehicle Maintenance Area
PCB = polychlorinated biphenyl



Legend

- Soil Stockpile Footprint Soil Sample Location
- Peripheral Road Sample Location
- Transformer Mounting Area Soil borings
- Transformer Oil Burn Pit Soil Sample Location
- Existing Monitoring Well

0 12.5 25 50 75 100 Meters

CH2MHILL

Figure 3-1
Building 35-752 Area
Sample Locations
Fort Richardson, OUE
Fort Richardson, Alaska

SECTION 4

Nature and Extent of Contamination

This section presents the results of the evaluation of the nature and extent of chemical concentrations present in soil and groundwater in the Building 35-752 Area and the AVMA during the OUE RI. It is organized into the following subsections:

- Evaluation approach
- Results of previous investigations
- Nature and extent of chemicals by source area and media
- Data quality

All relevant figures and tables are located at the end of this section.

4.1 Evaluation Approach

4.1.1 Analytical Data

Analyses of samples collected during the Building 35-752 Area and the AVMA investigations were used to characterize OUE. The data are presented in several ways.

4.1.1.1 Appendix A and Appendix B Tables

Appendix A provides tables of validated analytical data from the Building 35-752 Area investigation. Appendix B provides tables of validated analytical data from the AVMA investigation. In the Appendix A and Appendix B tables, detected chemical concentrations are indicated in boldfaced type. In these tables, detected chemical concentrations that exceeded the screening values (see Section 4.1.2) are shaded.

4.1.1.2 Summary of Analytical Results Tables

To describe the nature of chemicals present in the source areas, statistical summary tables of chemicals that were detected were prepared and are presented in this section for each medium and each sampling location. These tables (Tables 4-4 through 4-8 and 4-10 through 4-20) include the screening value, the number of times the chemical was detected, the number of samples analyzed for that chemical, the minimum and maximum concentration levels detected, and the number of times the concentrations detected exceeded the screening value.

Data in these tables are grouped by the target analytes, which include TPHs, Metals, BTEX, PAHs, PCBs, SVOCs, VOCs, and pesticides. The laboratory methods used for testing differ based on the type of target analyte (See Section 3.6.4.). Some chemicals were detected in more than one target analyte group. For example, the laboratory methods used for both BTEX and VOCs look for concentrations of benzene, toluene, ethylbenzene, and xylenes. The laboratory methods used for both PAHs and SVOCs look for concentrations of such things as dibenzo(a,h)anthracene and fluorene. The laboratory methods used for PAHs, SVOCs, and VOCs look for concentrations of such things as naphthalene. The chemicals

detected using each method are presented under each target analyte group. Because different methods are used, the concentrations of specific chemicals detected may differ based on which target analyte method was used.

4.1.1.3 Figures 4-1 through 4-8

The positions of the sampling locations in each area are shown on the maps in Figures 4-1 through 4-8. The figures also include tables for each sampling location that summarize the chemical concentrations detected, sampling data (such as sampling event or month sampled), and the depth or groundwater elevation. For samples that included field duplicates, the larger detected concentration of the chemical in the sample or the field duplicate was listed. For chemicals that were detected in more than one target analyte group (see Section 4.1.1.2), the larger detected concentration of the chemical was listed.

If concentrations of metals exceeded screening values, they were listed on Figures 4-1 to 4-8 in the table for that sample location. Concentrations of metals that were detected but did not exceed screening values are included in Appendix A or Appendix B but are not listed in the tables on the figures. On most figures, concentrations of pesticides that were detected but did not exceed screening values are included in Appendix A or Appendix B but are not listed in the tables on the figures.

4.1.1.4 Discussion

Discussions of soil and groundwater samples are presented for the various groups of sampling locations in the Building 35-752 Area and the AVMA.

The chemical concentrations that were detected in the samples are discussed by chemical group (for example, TPHs, PCBs, VOCs, etc.). To describe the extent of chemicals in the Building 35-752 Area and the AVMA, the results for representative chemicals (for example, aluminum for metals), or results summed by chemical group (for example, total PAHs), are discussed in terms of their distribution in the Building 35-752 Area and the AVMA.

4.1.2 Screening values

Concentrations of chemicals detected in the samples were compared to various criteria. In this report, these criteria are referred to as screening values. These screening values included:

- **Soil**
  - EPA Region 9 Industrial Preliminary Remediation Goal (PRG) values for soil (EPA, 2002) in milligrams per kilogram (mg/kg) for all but TPH and dioxin/furan concentrations
  - EPA Region 9 Industrial PRG values for 2,3,7,8-tetrachlorodibenzo-p-dioxin in soil (EPA, 2002) in picograms per gram (pg/g) for dioxin/furan toxicity equivalent quotients (TEQs; see discussion in Section 4.1.3)
  - Alaska Underground Storage Tank values for soil (ADEC, 1999) in mg/kg for TPH concentrations

- **Groundwater**
  - EPA Region 9 Tap Water PRG values for groundwater (EPA, 2002) in micrograms per liter (µg/L) for all but TPH concentrations
  - Alaska Water Quality Standards values for groundwater (ADEC, 1997) in µg/L for TPH concentrations

Comparisons of detected concentrations to these screening values are used to define the nature and extent of contamination within the source areas.

4.1.3 Calculations

Concentrations of individual dioxin/furan detected in a sample were used to calculate total tetrachlorodibenzodioxin (TCDD) TEQ for the sample. To calculate a TEQ, the concentration of each congener was multiplied against a toxicity equivalence factor (TEF) to get a congener-specific TEQ. All the TEQs were then summed to get a sample-specific total TEQ. The TEFs used for calculating TEQs for dioxins/furans were as proposed by the World Health Organization (Van den Berg et al., 1998). A sample TEQ calculation is presented in Appendix A, Table A-21.

4.2 Results of Previous Investigations

As discussed in Section 1.4, there have been a number of past investigations of the Building 35-752 Area and the AVMA. These results are summarized in the following sections.

4.2.1 Building 35-752 Area

4.2.1.1 Soil

The OUD RI found that soil and sediment at Building 35-752 were contaminated with PCBs (ENSR, 1998a). Table 4-1 summarizes the screening value, the number of times concentrations of PCBs were detected, the number of samples, and the minimum and maximum detected concentration values for PCBs within surface soil, subsurface soil, sediment, and the stockpiled soil at the site.

4.2.1.2 Groundwater

The OUD RI found that the shallow groundwater beneath Building 35-752 was contaminated with benzene, TCE, and metals (primarily aluminum, iron, and manganese). Table 4-2 summarizes the screening value, the number of times the chemical concentration was detected, the number of samples, and the minimum and maximum detected concentration values for these chemicals in the groundwater at the site.

Other contaminants that have been identified in groundwater include ethylbenzene, 1,1-dichloroethane, 1,1,1-trichloroethane, 1,2,4-trimethylbenzene, and chromium.

4.2.2 Armored Vehicle Maintenance Area Groundwater

The OUD RI found that groundwater in the former Building 45-590 area was contaminated with carbon tetrachloride and PCE. Table 4-3 summarizes the screening value, the number of times the chemical was detected, the number of samples, and the minimum and maximum detected concentration values for these chemicals in groundwater at the site.

4.3 Nature and Extent of Chemicals by Source Area and Media

Sections 4.3.1.1 and 4.3.1.2 describe the nature and extent of chemicals detected in soil and groundwater, respectively, in the Building 35-752 Area. Sections 4.3.2.1 and 4.3.2.2 describe the nature and extent of chemicals detected in soil and groundwater, respectively, in the AVMA. These sections discuss only that data collected during the 2002 and 2003 field seasons.

4.3.1 Building 35-752 Area

Background descriptions of the soil and groundwater sampling locations within the Building 35-752 Area were provided in Section 3.1.2. The map in Figure 3-1 shows the position of each of the sampling locations. The following sections discuss the analytical results related to soil and groundwater samples from these locations.

4.3.1.1 Soil

Transformer Mounting and Oil Discharge Areas

As described in section 3.1.1.1, the main concern at the Transformer Mounting and Oil Discharge Areas is potential contamination by transformer cooling oil containing PCBs. Soil samples were collected from these areas during the RI field investigation. All samples were tested for PCB concentrations, and one quarter of the samples were tested for dioxin/furan concentrations (see Section 3.6.1). Table 4-4 summarizes the analytical results for the soil samples collected at the Transformer Mounting and Oil Discharge Areas.

Soil sample locations, labeled T1 through T20, are identified on the map in Figure 4-1. That figure also includes tables for each soil sample location that summarize the chemical concentrations detected. Appendix A contains the validated analytical data tables for dioxins/furans (Table A-1) and PCBs (Table A-2).

The analytical results are summarized by chemical group as follows:

- **PCBs.** The PCB Aroclor 1260 was detected in all soil samples collected and analyzed from the Transformer Mounting Area adjacent to Building 35-750. In 12 of the 20 samples analyzed, concentrations of Aroclor 1260 exceeded the 0.74 mg/kg screening value. Concentrations of Aroclor 1260 ranged from 0.049 mg/kg at T19 to 99.9 mg/kg at T16 (Figure 4-1). Multiple depth samples (0.5 foot bgs and 1.0 foot bgs) were collected from locations T2, T5, T6, and T11.
- **Dioxins/furans**. Samples collected at four surface soil locations (T6, T10, T13, and T15) and one subsurface soil location (T11) were analyzed for dioxin/furan concentrations. In all samples, dioxin/furan concentrations were detected. TEQs ranged from 0.79 pg/g at location T11 to 17 pg/g at location T13. The TEQs for dioxin/furan concentrations were

compared to the cleanup value for 2,3,7,8-tetrachlorodibenzo-p-dioxin (16 pg/g). The TEQ in a surface sample (0.5 foot bgs) from location T13 exceeded the screening value (Figure 4-1). Location T13 is positioned immediately south of the transformer mounting pad. TEQ concentrations from the remaining surface soil sample locations and the subsurface soil sample from location T11 (1.0 foot bgs) were below the screening value.

The following conclusions may be drawn regarding chemical distributions and potential sources:

- The elevated PCB concentration in a sample from location T16 (99.9 mg/kg) indicates a potential location of initial PCB discharge from the transformer mounting area. However, PCB concentrations in the sample from location T17 do not directly support this observation. Witnesses reported that transformer oil flowed down the swale, under the peripheral road, and into the field east of the road. This investigation supports that conclusion since PCBs were detected in samples from all sites within the drainage swale. Generally, samples from surface soil locations (0.5 foot bgs) with PCB concentrations exceeding the screening value for Aroclor 1260 were found in the center of the sampled area. However, a radial concentration gradient with a distinct center is not apparent. A radial concentration gradient centered on location T6 exists for deeper surface sample sites (1.0 foot bgs), indicating that this may be a local low elevation point and the preferential depositional area for the released transformer oil.

- A decrease in PCB concentrations with depth was found in samples from locations T2, T5, T11, and T15. In samples from those sites, concentrations decreased from 6.67 to 3.1 mg/kg, 0.89 to 0.68 mg/kg, 14 to 1 mg/kg, and 3.48 to 1.2 mg/kg, respectively. This indicates a downward PCB concentration gradient with depth. However, in samples from one location (T6), there was an increase in PCB concentrations with depth, with concentrations increasing from 0.9 to an estimated 38 mg/kg. Due to the presence of high-voltage buried electrical lines, samples from depths below 1.0 foot bgs were not collected, and the vertical extent of contamination could not be thoroughly characterized.

- TEQs for dioxins/furan concentrations exceeded screening values in a sample from location T13, south of the transformer mounting pad.

Burn Pit Area

As described in section 3.1.1.2, the main concern at the Burn Pit Area is potential contamination by PCBs, TPHs, and dioxins/furans associated with the burning of transformer cooling oil mixed with diesel fuel. Soil samples collected from this area during the RI field investigation were analyzed for PCBs, dioxins/furans, TPHs, SVOCs, and VOCs (see Section 3.6.1). Table 4-5 summarizes the analytical results for the soil samples collected at the Burn Pit Area.

The soil boring locations, labeled AP-4328 through AP-4335, are identified on the map in Figure 4-2. That figure also includes tables for each soil boring location that summarize the chemical concentrations detected. Boring logs are provided in Appendix C. Samples were collected from depths of 0.5, 2.5, 5, 7.5, and 10 feet bgs for lithologic description and field screening. A subset of those samples was analyzed for concentrations of PCBs, dioxins/furans, TPHs (DRO and GRO compounds), VOCs, and SVOCs. Appendix A

contains the validated analytical data tables for dioxins/furans (Table A-3), PCBs (Table A-4), SVOCs, (Table A-5), TPHs (Table A-6), and VOCs (Table A-7).

The analytical results are summarized by chemical group as follows:

- **PCBs**. Concentrations of Aroclor 1260 were detected in 9 of 15 analyzed soil samples (Figure 4-2). No concentrations of other PCBs were detected above laboratory reporting limits in samples from the Burn Pit Area. At location AP-4328, in the southeast corner of the sample grid, concentrations of Aroclor 1260 ranged from 0.013 mg/kg in the surface soil sample (0.5 foot bgs) to 0.69 mg/kg in the sample from 5 feet bgs. No concentrations of Aroclor 1260 in samples exceeded the 0.74 mg/kg screening value.

- **Dioxins/Furans**. Concentrations of dioxin/furan isomers were detected in all samples in the Burn Pit Area. Each sample, however, contained a different suite of detected isomer concentrations. All but two samples had detectable concentrations of dioxin/furan isomers that allowed for calculation of a TEQ for the sample. (Dioxin/furan isomer concentrations were not detected in the 0.5 foot bgs sample at location AP-4330 and the 7 feet bgs sample at location AP-4335.) No dioxin/furan TEQs in samples exceeded the screening value of 16 pg/g.

- **TPHs**. DRO compound concentrations were detected in the Burn Pit Area in 11 of 15 samples. These concentrations ranged from 2.2 to 81 mg/kg. None of the DRO compound concentrations detected exceeded the screening value of 250 mg/kg.

  GRO compound concentrations were detected in the Burn Pit Area in 4 of 15 samples. These concentrations ranged from 0.41 to 0.71 mg/kg. None of the GRO compound concentrations detected exceeded the screening value of 300 mg/kg.

- **SVOCs.** Di-n-butyl phthalate was detected in all 15 of the samples at concentrations ranging from 0.044 to 0.8 mg/kg. None of the sample concentrations exceeded the screening value of 61,561 mg/kg.

- **VOCs**. TCE concentrations in samples ranged from 0.028 mg/kg (2 feet bgs at location AP-4329) to 1.1 mg/kg (7 feet bgs at locations AP-4329 and AP-4325). TCE was the only VOC chemical concentration detected above its screening value of 0.11 mg/kg. Concentrations of TCE in samples between 2 and 10 feet bgs at seven locations (7 feet bgs at AP-4329, 10 feet bgs at AP-4330, 5 feet bgs at AP-4331, 10 feet bgs at AP-4332, 2 and 10 feet bgs at AP-4334, and 7 feet bgs at AP-4335) exceeded the screening value. Concentrations of TCE in these samples ranged from 0.21 to 1.1 mg/kg.

The following conclusions may be drawn regarding chemical distributions and potential sources:

- Dioxin/furan isomer concentrations were detected in samples from the Burn Pit Area at concentrations that allowed for calculation of TEQs. However, none of the samples exceeded the TEQ screening value of 16 pg/g. Based on the lack of significant dioxin/furan TEQ concentrations in the area, dioxins/furans are not considered a significant contaminant suite associated with the Burn Pit Area. However, Aroclor 1260 concentrations were detected in only 9 of 15 samples, and they were not detected above the screening value. Therefore, the transformer cooling oil burning event might not have

been located under the east side of the Building 35-752 parking lot or burn pit soils might have been removed from the area.

- In general, concentrations of TCE, the only VOC detected in samples above its screening value (0.11 mg/kg), decreased with sample depth at individual boring locations. Comparing concentrations over all sample locations, TCE concentrations increased to their highest levels in samples from the 7.5-foot-bgs depth horizon and then decreased to lower levels in samples from the 10-foot-bgs depth horizon. An explicit source of TCE contamination has not been identified.

Peripheral Road Area

As described in section 3.1.1.3, the main concern at the Peripheral Road Area is potential contamination associated with PCB-contaminated soil from the transformer oil Burn Pit Area that might have been distributed along the peripheral road and parking area. Soil samples collected from this area during the RI field investigation were analyzed for PCBs, dioxins/furans, and TPHs (see Section 3.6.1). Table 4-6 summarizes the analytical results for the soil samples collected at the Peripheral Road Area.

The soil sample locations, labeled P1 through P30, are identified on the map in Figure 4-3. That figure also includes tables for each soil sample location that summarize the chemical concentrations detected. Samples were taken from 0.5, 1.5, and 2 feet bgs. All 29 analyzed samples were tested for PCB concentrations. Nine of the samples (P1, P10, P12, P16, P24, P26, P28, P29, and P30) were analyzed for concentrations of dioxins/furans and TPHs. Appendix A contains the validated analytical data tables for dioxins/furans (Table A-8), PCBs (Table A-9), and TPHs (Table A-10).

The analytical results are summarized by chemical group as follows:

- **PCBs**. Concentrations of Aroclor 1260 were detected in all but two soil samples collected and analyzed from the Peripheral Road Area. No concentrations of other PCBs were detected above laboratory reporting limits from samples in this area. Detected concentrations of Aroclor 1260 ranged from 0.0047 mg/kg (in a sample from 1 foot bgs at location P2) to 3.7 mg/kg (in a sample from 0.5 foot bgs at location P29). The screening value of 0.74 mg/kg was exceeded in samples from seven locations (P7, P11, P12, P17, P19, P21, and P29) representing all three sample depths (Figure 4-3).

- **Dioxins/furans**. Concentrations of dioxin/furan isomers were detected above laboratory reporting limits in all but one soil sample (P12) for which they were analyzed. Twenty-two of 25 dioxin/furan isomer concentrations were detected. However, each sample contained a different suite of detected isomer concentrations. TEQs ranged from $1x10^{-4}$ pg/g in a sample from location P28 to 32 pg/g in a sample from location P16. The only sample that exceeded the screening value of 16 pg/g was the surface soil sample (0.5 foot bgs) from location P16 (Figure 4-3).

- **TPHs**. Generally, concentrations of DRO and GRO compounds were detected at low levels in surface soil samples from the Peripheral Road Area (Figure 4-3). Concentrations of DRO compounds were detected in all soil samples tested for such concentrations. DRO compound concentrations ranged from 1.4 mg/kg (1 foot bgs at location P30) to 310 mg/kg (1.5 feet bgs at location P28). The only sample that exceeded screening values

for TPHs was the 310 mg/kg concentration of DRO compounds collected at location P28 (the screening value is 250 mg/kg).

Concentrations of GRO compounds were detected in half of the soil samples tested for such concentrations. Detected GRO compound concentrations ranged from 0.27 mg/kg (1.5 feet bgs at location P1) to 0.47 mg/kg (0.5 feet bgs at location P10). Concentrations of GRO compounds did not exceed the screening value of 300 mg/kg.

The following conclusions may be drawn regarding chemical distributions and potential sources:

- Concentrations of PCBs that exceeded screening values were found in samples from the Building 35-752 parking lot (locations P12, P19, and P21) and locations immediately east of the parking area (locations P11 and P29) (Figure 4-3). The observed distribution of PCB concentrations supports the hypothesis that PCB-contaminated soil from the transformer oil burn pit area was distributed along the peripheral road and parking area.
- The TEQ calculated from the concentration of dioxin/furan isomers in a sample that exceeded the screening value was found at a location on the periphery in the northern portion of the Peripheral Road Area opposite the presumed source area at the transformer oil burn pit.
- The low-level concentrations of DRO and GRO compounds detected in surface soil throughout the Peripheral Road Area is to be expected from an area covered with a petroleum-based surface (asphalt).

Soil Stockpile Footprint Area

As described in section 3.1.1.4, the main concern at the Soil Stockpile Footprint Area is potential contamination associated with PCB-contaminated soil that was stored in the area and later removed. Soil samples collected from this area during the RI field investigation were analyzed for PCBs, dioxins/furans, and TPHs (see Section 3.6.1). Table 4-7 summarizes the analytical results for the soil samples collected at the Soil Stockpile Footprint Area.

The soil sample locations, labeled S30 through S41, are identified on the map in Figure 4-4. That figure also includes tables for each soil sample location that summarize the chemical concentrations detected. Samples were taken from 0 to 0.5 and 1 to 1.5 feet bgs. Appendix A contains the validated analytical data tables for dioxins/furans (Table A-11), PCBs (Table A-12), and TPHs (Table A-13).

The analytical results are summarized by chemical group as follows:

- **PCBs**. Concentrations of PCB Aroclor 1260 were detected in all but three soil samples collected and analyzed from the Soil Stockpile Footprint Area. No concentrations of other PCBs were detected above laboratory reporting limits in this area. Detected concentrations of Aroclor 1260 ranged from 0.02 mg/kg (1 foot bgs at location S31) to 0.79 mg/kg (1 foot bgs at location S37). The concentration of PCB Aroclor 1260 exceeded the screening value of 0.74 mg/kg in the sample collected from 1 foot bgs at location S37 (Figure 4-4).

- **Dioxins/furans**. None of the samples had detectable concentrations of dioxin/furan isomers that exceeded the screening value.
- **TPHs**. Concentrations of DRO compounds were detected in all soil samples tested for such concentrations. DRO compound concentrations ranged from 5.2 mg/kg (in a sample from 1 foot bgs at location S31) to 29 mg/kg (in a sample from 0.5 foot bgs at location S38). These concentrations did not exceed the DRO compound concentration screening value of 250 mg/kg.

The following conclusions may be drawn regarding chemical distributions and potential sources:

- In previous investigations (Section 4.2.1.1), concentrations of PCBs were detected in all 30 samples of the stockpiled soil that had been stored at this site. Concentrations of PCBs ranged from 0.37 to 78 mg/kg. During the OUE RI, no PCB, dioxin/furan, or TPH concentrations were detected above their respective screening values in samples collected from 0.5 foot bgs. However, since low-level concentrations of PCBs, dioxins/furans, and TPHs (DRO compounds) were detected in surface soil samples throughout the Soil Stockpile Footprint Area, PCB-contaminated soil remains at the site.
- The concentration of PCB Aroclor 1260 detected above its screening value at 1 foot bgs in a sample from location S37 indicates the possibility of increasing PCB concentrations with depth. Since only one sample from 1 foot bgs was analyzed, data are not available on the lateral extent of contamination at this depth horizon.

4.3.1.2 Groundwater

As described in section 3.1.1.5, the main concern related to the groundwater in the Building 35-752 Area is contamination from benzene, TCE, metals (primarily aluminum, iron, and manganese), TPHs, and PCBs. Groundwater samples were collected from seven existing wells during the RI field investigation. Samples were analyzed for concentrations of TPHs, metals, dissolved metals, BTEX, PAHs, PCBs, SVOCs, and VOCs (see Section 3.6.1). Table 4-8 summarizes the analytical results for the groundwater samples collected at the Building 35-752 Area.

The groundwater monitoring wells, labeled AP-2982, AP-2983, AP-2987, AP-3231, AP-3232, AP-3458, and AP-3503, are identified on the map in Figure 4-5. That figure also includes tables for each well that summarize the chemical concentrations detected. Samples were taken on several dates. (See Appendix G, Table G-1, "Details about Groundwater Monitoring Well Sample Locations at the Building 35-752 Area" and Table G-4, "Details about Groundwater Sample Analyses Performed at the Building 35-752 Area and the AVMA.") Appendix A contains the validated analytical data tables for BTEX and TPHs (Table A-14), metals (Table A-15), dissolved metals (Table A-16), PAHs (Table A17), PCBs (Table A-18), SVOCs, (Table A-19), and VOCs (Table A-20).

- **TPHs**. In a sample from well AP-2982 in August of 2002, a concentration of GRO compounds was detected above the screening value of 1,300 µg/L. Concentrations decreased in the next two sampling events at well AP-2982. The concentration of GRO compounds in the June 2003 sample was 910 µg/L and the concentration in the September 2003 sample was 190 µg/L.

- **Metals**. In samples from all wells except well AP-2983, concentrations of total aluminum exceeded the screening level of 36 µg/L. In samples from wells AP-2982 and AP-3458, concentrations of total manganese exceeded the screening level of 876 µg/L. Analyses from the 2003 sampling events did not include metal concentrations for any wells. Therefore, concentration trends at these locations are not available.

  Table 4-10 presents information about field parameter turbidity and ORP and the total metal aluminum and manganese concentrations in samples. There is a high correlation between total metal concentrations and the turbidity of the samples collected. Because of the poorly sorted nature of the aquifer and the short water column in the well (typically less than the screened interval), obtaining a clear, sediment-free sample was difficult.

  Analyses of dissolved metal concentrations from samples at two wells (wells AP-2983 and AP-3503, Table A-16) did not reveal any dissolved metals concentrations above screening levels, providing evidence that the observed metals concentrations are a result of sediments entrained in the samples.

- **BTEX**. In all three sampling events, concentrations of benzene and ethylbenzene were detected above their respective screening values (0.34 µg/L and 2.9 µg/L) in a sample from well AP-2982. In an August of 2002 sample at well AP-2982, a concentration of benzene also exceeded the screening value of 0.34 µg/L. In samples from well AP-2982, ethylbenzene concentrations declined from 110 µg/L (August 2002) to 67 µg/L (June 2003) then to 25 µg/L. However, these concentrations remained above the screening value of 2.9 µg/L.

  In samples from well AP-2982, benzene concentrations declined from 12 µg/L (August 2002) to 3.8 µg/L (June 2003) then to 1.6 µg/L. However, these concentrations remained above the screening value of 0.34 µg/L.

  In Appendix A, both Tables A-14 (BTEX and TPH) and A-20 (VOC) contain validated analytical data for benzene, ethylbenzene, toluene, and xylenes.

- **PAHs**. The only PAH concentrations detected above screening values were concentrations of naphthalene. In a sample from well AP-2982 in August 2002, a naphthalene concentration of 6.5 µg/L was detected. (The naphthalene concentration screening value is 6.2 µg/L.) In June 2003, the naphthalene concentration in a sample from well AP-2982 was 8.8 µg/L, more than it had been in August of 2002. Then, in the September 2003, a naphthalene concentration was not detected above laboratory reporting limits. (See also discussion of naphthalene concentrations at well AP-2982 in the VOCs section below.)

- **PCBs**. In an August 2002 sample from well AP-2987, the Aroclor 1260 was detected above the screening value of 0.034 µg/L at a concentration of 0.061 µg/L. No

concentrations of other PCBs were detected above laboratory reporting limits in samples from this area. Samples were not collected from Well AP-2987 in 2003. Therefore, concentration trends at this location are not available.

- **SVOCs**. Dibenzo(a,h)anthracene was detected in samples from all seven wells in at least one sampling event with concentrations exceeding the 0.0092 µg/L screening value. These concentrations ranged from 1.2 µg/L at well AP-2982 (in a September 2003 sample) to 4.7 µg/L at well AP-3503 (in an August 2002 sample).

  Concentrations of two other SVOCs were detected over their respective screening values. In a June 2003 sample from well AP-2983, a 6.8 µg/L concentration of bis(2-ethylhexyl)phthalate (BEHP) was detected (the screening value is 4.8 µg/L), over the screening value of 0.0096 µg/L.

  In general, SVOC concentrations were static or decreasing in samples from wells that were monitored during both the 2002 and 2003 events.

- **VOCs**. Concentrations of TCE were detected in samples more frequently than concentrations of any other VOC. TCE concentrations were detected above the 0.028 µg/L TCE concentration screening value in all but one sample (well AP-3503 in September 2003). TCE concentrations were detected from 0.38 µg/L (in an August 2002 sample from well AP-3232) to 8.60 µg/L (in an August 2002 sample from well AP-3231). In samples from downgradient well AP-3458, concentrations of TCE exceeded the screening value in August 2002 (1.8 µg/L) and July 2003 (1.9 µg/L). Also in samples from well AP-3458, concentrations of vinyl chloride (VC) exceeded the screening value of 0.02 µg/L in August 2002 (0.13 µg/L) and July 2003 (0.38 µg/L). Samples from well AP-3458 were the only samples with increasing concentrations of this chemical. VC is a daughter product of TCE degradation.

  Concentrations of several VOCs exceeded screening values in samples from wells AP-2982, AP-2987, and AP-3231, which are immediately adjacent to Building 35-752. Concentrations of the following VOCs exceeded their screening values: 1,2,4-trimethylbenzene (12 µg/L screening value), 1,3,5-trimethylbenzene (12 µg/L screening value), benzene (0.34 µg/L screening value), ethylbenzene (2.9 µg/L screening value), and naphthalene (6.2 µg/L screening value). For example, in an August 2002 sample from well AP-2982, a naphthalene concentration of 26 µg/L was detected. In a June 2003 sample from the same well, the naphthalene concentration had decreased to 12 µg/L. Then, in a September 2003 sample, the concentration decreased to 11 µg/L. (See also discussion of naphthalene concentrations at well AP-2982 in the PAHs section above.)

  Samples from wells in the vicinity of Building 35-752 that were monitored during the 2002 and 2003 events displayed decreasing or roughly steady concentrations of VOCs.

The following conclusions may be drawn regarding chemical distributions and potential sources:

- The OUD RI found that the shallow groundwater beneath Building 35-752 was contaminated with benzene, TCE, and metals (primarily aluminum, iron, and manganese) (Section 4.2.1.1). The OUE RI identified the same constituents.

- In general, concentrations of these chemicals have decreased or remained static in samples from wells in the immediate vicinity of Building 35-752. Historical data from the OUD RI was reviewed and concentrations were observed to be similar to those observed during the OUE RI, dating back to sampling events in 1995 through 1997.
- Chemical concentrations of some VOCs have increased slightly in samples from downgradient well AP-3458, indicating degradation of TCE. Concentrations of TCE, cis-1,2-dichloroethylene (cis-1,2-DCE), and VC were detected in samples from well AP-3458. Cis-1,2-DCE, a daughter product of TCE, was detected in samples from well AP-2987, located upgradient of well AP-3458, at concentrations an order of magnitude less than those found in samples from downgradient well AP-3458. (Concentrations of Cis-1,2-DCE in an August 2002 sample from well AP-2987 were 0.24µg/L and in samples from well AP-3458 concentrations were 7.2µg/L [August 2002] and 9.6µg/L [July 2003]. The screening value is 61µg/L.) The concentrations of TCE have been observed to be fairly constant across the site for a number of years, dating back to 1996. The increase in concentrations of the daughter products, VC and cis-1,2-DCE, coupled with relatively constant concentrations of TCE, indicate that degradation of the TCE plume is occurring in the general direction of regional groundwater flow. The observed concentration changes in well AP-3458 are more a function of different constituents making up the plume as it is degraded, rather than overall migration of the plume in that direction.
- Since analyses of dissolved metals concentrations from samples at wells AP-2983 and AP-3503 did not reveal any dissolved metals concentrations above screening values, concentrations of total metals that exceeded screening values for aluminum and manganese in other samples could be due, in part, to turbidity within the samples.
- No specific source for the groundwater contamination in the Building 35-752 Area was identified, but contamination is assumed to have originated from past industrial activities (i.e. operation of generators and USTs) at the site.

4.3.2 Armored Vehicle Maintenance Area

Background descriptions of the soil and groundwater sampling locations within the AVMA were provided in Section 3.1.2. The following sections discuss the analytical results related to soil and groundwater samples from these locations.

4.3.2.1 Soil

Trench Excavations

As described in section 3.1.2.1, trenches were excavated east of former Building 45-590 to investigate geophysical anomalies, identify any objects found, and determine if the soil is contaminated. The soil samples collected from these trenches during the RI field investigation were analyzed for TPHs, metals, PCBs, SVOCs, VOCs, and pesticides (see Section 3.6.1). Tables 4-10 through 4-18 summarize the analytical results for the soil samples collected at the AVMA trench excavations.

The trench excavations, labeled T1 through T9, are identified on the map in Figure 4-6. That figure also includes tables for each trench that summarize the chemical concentrations detected. Concentrations of arsenic detected are included for all sampling locations because

arsenic concentrations exceeded its screening value of 1.6 mg/kg in at least two samples within the area. Concentrations of metals that were detected but did not exceed screening values are included in the data tables in Appendix B but are not listed in the tables on Figure 4-6. Appendix B contains the validated analytical data tables for:

- Trench T1 (Tables B-1: Metals, B-2: PCBs, B-3: Pesticides, B-4: SVOCs, B-5: TPHs, and B-6: VOCs)
- Trench T2 (Tables B-7: Metals, B-8: PCBs, B-9: Pesticides, B-10: SVOCs, B-11: TPHs, and B-12: VOCs)
- Trench T3 (Tables B-13: Metals, B-14: PCBs, B-15: Pesticides, B-16: SVOCs, B-17: TPHs, and B-18: VOCs)
- Trench T4 (Tables B-19: Metals, B-20: PCBs, B-21: Pesticides, B-22: SVOCs, B-23: TPHs, and B-24: VOCs)
- Trench T5 (Tables B-25: Metals, B-26: PCBs, B-27: Pesticides, B-28: SVOCs, B-29: TPHs, and B-30: VOCs)
- Trench T6 (Tables B-31: Metals, B-32: PCBs, B-33: Pesticides, B-34: SVOCs, B-35: TPHs, and B-36: VOCs)
- Trench T7 (Tables B-37: Metals, B-38: PCBs, B-39: Pesticides, B-40: SVOCs, B-41: TPHs, and B-42: VOCs)
- Trench T8 (Tables B-43: Metals, B-44: PCBs, B-45: Pesticides, B-46: SVOCs, B-47: TPHs, and B-48: VOCs)
- Trench T9 (Tables B-49: Metals, B-50: PCBs, B-51: Pesticides, B-52: SVOCs, B-53: TPHs, and B-54: VOCs).

The analytical results for all nine trench excavations are summarized by type of material found and chemical group as follows:

- **Debris**. Debris encountered in Trenches T1, T2, and T3 included construction debris, wood debris, cables, ammunition boxes, and canvas. In Trench T4, soil samples produced elevated PID readings (greater than 2,000 ppm) of VOCs in the first 10 feet bgs. No debris or elevated PID readings (greater than 100 ppm) were encountered in Trenches T5, T6, T7, or T8. Trench T9 contained an asphalt/lumber mix from 0 to 2 feet bgs. (Appendix E, Figures E-1 through E-9).
- **TPHs**. Concentrations of DRO and GRO compounds were detected in samples from all trenches. The highest concentrations were in samples from Trench T9. One 3,800 mg/kg concentration of DRO compounds detected in a sample from horizontal quadrant 4 at 15 feet bgs exceeded the screening value of 250 mg/kg. This area contains asphalt. A 6.0 mg/kg concentration of GRO compounds was detected in the same sample (the screening value is 300 mg/kg). The only other detected concentration of TPHs that exceeded the screening value was a 370 mg/kg concentration of DRO compounds found in a sample from Trench T2 in horizontal quadrant 16 at 0.5 feet bgs.

- **Metals**. Concentrations of arsenic equaled or exceeded the screening value of 1.6 mg/kg, ranging from 1.6 to 25 mg/kg in samples from all trenches. (The 25 mg/kg concentration of arsenic was detected in a sample from Trench T2, horizontal distance 26 at 13 feet bgs.)

  All detected concentrations of other metals in trench samples were less than the screening values.

- **PCBs**. No concentrations of PCBs were detected in any trench samples.

- **SVOCs**. In samples from Trench T3, concentrations of the PAHs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene were detected above screening values. In a sample from horizontal distance 12 at 15 feet bgs, a 5.3 mg/kg concentration of benzo(a)anthracene was detected (the screening value is 2.1 mg/kg), a 4.1 mg/kg concentration of benzo(a)pyrene was detected (the screening value is 0.21 mg/kg), a 3.2 mg/kg concentration of benzo(b)fluoranthene was detected (the screening value is 2.1 mg/kg), and a 0.61 mg/kg concentration of dibenzo(a,h)anthracene was detected (the screening value is 0.21 mg/kg). In a sample from horizontal distance 45 at 20 feet bgs, a 0.52 mg/kg concentration of benzo(a)pyrene was detected (the screening value is 0.21 mg/kg).

  In a sample from horizontal distance 6 at 0.5 feet bgs at Trench T1, the 1.10 mg/kg concentration of benzo(a)pyrene detected was above the screening value of 0.21 mg/kg.

- **VOCs**. All detected concentrations of VOCs in trench samples were less than the screening values.

- **Pesticides**. All detected concentrations of pesticides in trench samples were less than the screening values.

The following conclusions may be drawn regarding chemical distributions and potential sources:

- Subsurface debris was limited to Trenches T1, T2, and T3, located northwest of Building 743. Elevated PID readings were limited to Trench T4. The 3,800 mg/kg concentration of DRO compounds detected in Trench T9 was due to an area of asphalt.

- No significant source of contamination was identified during the trench excavations.

Monitoring Well Borings

As described in section 3.1.2.2, soil samples collected from the groundwater monitoring wells installed in the AVMA were used to determine the northern extent and thickness of the confining layer at the base of the shallow unconfined aquifer and further delineate the dissolved VOC plume. Geotechnical properties were analyzed to help identify hydrogeologic conditions in the area. The soil samples collected from this area were analyzed for TPHs, metals, BTEX, PAHs, SVOCs, and VOCs (see Section 3.6.1). Table 4-19 summarizes the analytical results for the soil samples collected at the Monitoring Well Borings.

The soil borings, labeled AP-4336 through AP-4342 and AP-4410 through AP-4416, are identified on the map in Figure 4-6. That figure also includes tables for each soil boring that

summarize the chemical concentrations detected. Concentrations of arsenic detected are included for all sampling locations because arsenic concentrations exceeded the screening value of 1.6 mg/kg in at least two samples within the area. Concentrations of metals that were detected but did not exceed screening values are included in the data tables in Appendix B but are not listed in the tables on Figure 4-7. Appendix B contains the validated analytical data tables for BTEX and TPH (Table B-55), metals (Table B-56), PAHs (Table B-57), SVOCs (Table B-58), and VOCs (Table B-59).

The analytical results are summarized by chemical group as follows:

- **TPHs**. All detected concentrations of TPHs in monitoring well boring samples were less than the screening values.
- **Metals**. Concentrations of arsenic exceeded the screening value of 1.6 mg/kg in eight samples at concentrations ranging from 1.7 to 75 mg/kg. The 75 mg/kg concentration of arsenic was detected in a sample from boring AP-4342 at 95 feet bgs. All the other concentrations of arsenic detected in samples that exceeded the screening value were less than 9.1 mg/kg.

  All concentrations of other metals detected in samples were less than the screening values.
- **BTEX**. All concentrations of benzene, toluene, ethylbenzene, and xylenes detected in samples were less than the screening values.
- **PAHs**. All concentrations of PAHs other than dibenz(a,h)anthracene in samples were less than the screening values. (See discussion of dibenz(a,h)anthracene in the SVOCs section below.)
- **SVOCs**. Concentrations of dibenzo(a,h)anthracene were detected above the screening value of 0.21 mg/kg in 10 samples, with concentrations ranging from 0.24 to 0.50 mg/kg. However, the chemical was also detected in the laboratory blank associated with these samples, indicating possible laboratory contamination. All other concentrations of SVOCs detected in samples were less than the screening values.
- **VOCs**. Concentrations of PCE were detected at low levels in samples from four borings (AP-4412, AP-4414, AP-4341, and AP-4342) at concentrations ranging from 0.0089 to 0.36 mg/kg. All of these concentrations were below the screening value of 3.4 mg/kg.
- **Geotechnical Properties**. Geotechnical properties investigated included moisture, bulk density, and Atterberg limits. Appendix H provides the results of the geotechnical analyses.

The following conclusions may be drawn regarding chemical distributions and potential sources:

- Low-level concentrations of TPHs and arsenic were detected in soil samples in the vicinity of Buildings 732 and 726. Concentrations of arsenic above the screening value were found in samples from five of the seven borings monitored in 2002. (These borings were dispersed around the area.) The arsenic concentrations in all but the soil sample at boring AP-4342 were below or close to the background concentration of 5.9 to 6.9 mg/kg

for arsenic (E&E, 1996). The 75 mg/kg concentration of arsenic detected in a sample from boring AP-4342, west of Building 732, was significantly higher than arsenic concentrations in samples from the other soil borings. However, this result was not reproduced in the field duplicate sample taken at the same location. (The concentration of arsenic detected in that sample was 2.5 mg/kg.) No widespread source of arsenic could be identified from the soil data.

4.3.2.2 Groundwater

As described in section 3.1.2.3, the main concern related to the groundwater in the AVMA is contamination from carbon tetrachloride and PCE. Groundwater samples were collected from 27 existing monitoring wells and 14 new monitoring wells during the RI field investigation. Samples were monitored for concentrations of TPHs, metals, dissolved metals, BTEX, PAHs, SVOCs, VOCs, and pesticides (see Section 3.6.1). Table 4-20 summarizes the analytical results for the groundwater samples collected at the AVMA.

The groundwater monitoring wells are identified on the map in Figure 4-8. The existing monitoring wells are labeled AP-2980, AP-3441, AP-3467, AP-3468, AP-3469, AP-3483, AP-3532, AP-3534, AP-3650, AP-3772, AP-3773, AP-3774, AP-3775, AP-3776, AP-3789, AP-3790, AP-3870, AP-3871, AP-3872, AP-3893, AP-3894, AP-3895, AP-3896, AP-3901, AP-3916, AP-4154, and AP-4155. The new monitoring wells are labeled AP-4336 through AP-4342 and AP-4410 through AP-4416. (Note that well AP-4410 did not contain adequate water for sample collection.) Figure 4-8 also includes tables for each well that summarize the chemical concentrations detected. Samples were taken on several dates. (See Appendix G, Table G-2, "Details about Groundwater Monitoring Well Sample Locations at the AVMA" and Table G-4, "Details about Groundwater Sample Analyses Performed at the Building 35-752 Area and the AVMA.") If concentrations of metals exceeded screening values in at least two samples within the area (for example, aluminum, arsenic, antimony, chromium, iron, lead, and manganese), the concentrations of those metals detected at a well were reported for that well. Appendix B contains the validated analytical data tables for BTEX and TPH (Table B-60), metals (Table B-61), dissolved metals (Table B-62), PAHs (Table B-63), pesticides (Table B-64), SVOCs (Table B-65),and VOCs (Table B-66).

The analytical results are summarized by chemical group as follows:

- **TPHs**. Low concentrations of TPHs were detected in samples from select wells throughout the area. For example, concentrations of DRO compounds in samples ranged from 38 to 1,800 µg/L (the screening value is 1,500 µg/L). Concentrations of GRO compounds in samples ranged from 4.1 to 35 µg/L (the screening value is 1,300 µg/L). Concentrations of RRO compounds in samples ranged from 73 to 230 µg/L (the screening value is 1,100 µg/L). The only sample that had a concentration exceeding a TPH screening value was from well AP-4338, where a 1,800 µg/L concentration of DRO compounds exceeded the screening value of 1,500 µg/L. This sample was screened in the deep unconfined zone and the well is located downgradient of Trenches T8 and T9.
- **Metals**. In samples from 11 wells, concentrations of total metals exceeded screening values. Concentrations of the following metals exceeded screening values in samples from more than two wells: aluminum, antimony, arsenic, chromium, iron, lead, and manganese.

The elevated total metals concentrations in groundwater samples from the AVMA wells are attributed to two major factors. Elevated background concentrations of metals have been observed in the Anchorage area. Also, the wells with elevated metals concentrations often were very turbid and contained large quantities of sediment. This is especially the case for wells installed as part of this RI, which account for six of the 11 wells where metals concentrations exceed screening values. Proper development of wells was difficult because of the discontinuous nature of the shallow unconfined aquifer and the observed low yield of wells installed in that aquifer.

Figure 4-9 shows the wells with elevated metals concentrations and their relative location in the AVMA. Of the 11 wells where metals concentrations exceeded the screening value, five are located in an arc that coincides with the edge of the confining layer. These wells are installed above that confining layer in an area that was characterized by interbedded silt and water-bearing units during well installation. An additional two wells were installed upgradient in the shallow, unconfined aquifer where little groundwater is encountered.

Table 4-21 presents the turbidity data for those samples where concentrations of metals exceeded the screening values. Turbidity in the samples ranged from 9 to greater than 999 nephelometric turbidity units (NTUs). Samples with lower turbidity (from well AP-3871, an unconfined well, and well AP-3896, a confined well, with 9 and 13 NTUs, respectively) did contain metal concentrations that exceeded screening values. However, the estimated concentrations of metals in the samples were close to the laboratory method detection limits. Samples with high turbidity contained higher metals concentrations. The sample from well AP-4338 contained the highest concentrations of metals and the highest turbidity measured (over 999 NTUs).

- **Dissolved metals**. Dissolved arsenic was detected in only one sample from the six wells sampled. The concentration of 59 μg/L of arsenic (in a sample from well AP-3896, screened in the confined zone) exceeded the screening value of 0.045 μg/L. In general, in sampling locations where dissolved metals analyses were completed in conjunction with total metals, the dissolved concentrations were much lower, as would be expected. Since dissolved metals samples were only collected from 10 sampling locations, in-depth comparisons could not be made. Additionally, only one of the sample locations in AVMA where dissolved metals were collected was of the more turbid variety. The data from that location, AP-4342, is summarized below:

  – Aluminum
    - Total: 86,000 μg/L
    - Dissolved: Not Detected

  – Iron
    - Total: 150,000 μg/L
    - Dissolved: 130 μg/L

  As seen by the large reduction in concentrations between total and dissolved metals, it is reasonable to suggest that the bulk of the observed metals concentrations, particularly in the wells with high silt content, is entrained in the sediment.

- **BTEX**. Benzene was detected in only one groundwater sample. The concentration of 0.38 μg/L of benzene (in a sample from well AP-4416, screened in the confined zone) exceeded the screening value of 0.34 μg/L.
- **PAHs**. Concentrations of four PAHs in samples from two wells screened in the deep confined zone exceeded screening values as follows:
  - Well AP-3893 for benzo(a)pyrene (with a concentration of 0.17 μg/L and a screening value of 0.0092 μg/L), benzo(b)fluoranthene (with a concentration of 0.22 μg/L and a screening value of 0.092 μg/L), dibenzo(a,h)anthracene (with a concentration of 0.24 μg/L and a screening value of 0.0092 μg/L), and indeno(1,2,3-c,d)pyrene (with a concentration of 0.22 μg/L and a screening value of 0.092 μg/L)
  - Well AP-3483 for dibenzo(a,h)anthracene (with a concentration of 0.056 μg/L and a screening value of 0.0092 μg/L)
- **SVOCs**. All concentrations of SVOCs detected in samples were less than the screening values.
- **VOCs**. Concentrations of carbon tetrachloride exceeded the screening value of 0.17 μg/L in samples from 3 shallow unconfined zone wells (AP-3468, AP-4342, AP-4411, and AP-4413), 8 deep unconfined zone wells (AP-3532, AP-3650, AP-3776, AP-3870, AP-3871, AP-4337, AP-4340, and AP-4341), and 1 deep confined zone well (AP-3534). The concentrations of carbon tetrachloride in these samples ranged from 0.18 to 1.5 μg/L. (See Table 4-23.)

  Concentrations of chloromethane exceeded the screening value of 1.5 μg/L in samples from six wells (AP-3534, AP-3772, AP-3894, AP-3895, AP-4340, and AP-4342), with concentrations ranging from 1.8 to 5.9 μg/L.

  In an October 2002 sample from well AP-4336 (screened within the deep unconfined zone), concentrations of three VOCs exceeded screening values. A 0.42 μg/L concentration of bromodichloromethane exceeded the screening value of 0.18 μg/L, a 7.0 μg/L concentration of chloroform exceeded the screening value of 6.2 μg/L, and a 0.16 μg/L concentration of TCE exceeded the screening value of 0.028 μg/L. Concentrations of these compounds were not detected in the subsequent July 2003 sample from well AP-4336.

  Concentrations of PCE were detected above the screening value of 0.66 μg/L in samples from four unconfined groundwater wells located in the vicinity of Buildings 732 and 726 (wells AP-4341, AP-4342, AP-4413, and AP-4411) at concentrations ranging from 9.8 μg/L (in a June 2003 sample from well AP-4411) to 120 μg/L (in a June 2003 sample from well AP-4413). An 8.3 μg/L concentration of PCE detected in a sample from one confined well (AP-3789) in the same area exceeded the screening value. Concentrations of PCE were not detected in samples from the other confined wells in this area (wells AP-3467, AP-3469, AP-3901, AP-4412, and AP-4416). In the area northwest of Davis Highway, concentrations of PCE that exceeded the screening value were detected in samples from two wells. In samples from both wells of the shallow/deep well pair AP-3468/AP-3534, concentrations of PCE that exceeded the screening value were

detected at 30 and 21 μg/L, respectively (in August 2002), and 69 and 28 μg/L, respectively (in June 2003). (A 19 μg/L concentration of PCE was detected in the September 2003 sample from well AP-3534, but there was no detected concentration of PCE up to the laboratory reporting limit in the September 2003 sample from well AP-3468.) (See Table 4-22.)

Concentrations of methylene chloride exceeded the screening value of 4.3 μg/L in samples from two wells. In the August 2002 sample from well AP-3441, a 6.0 μg/L concentration of methylene chloride was detected. In the August 2002 sample from well AP-3772, a 4.8 μg/L concentration of methylene chloride was detected.

- **Pesticides**. All concentrations of pesticides detected in samples were less than the screening values.

The following conclusions may be drawn regarding chemical distributions and potential sources:

- The OUD RI found that groundwater in the former Building 45-590 area was contaminated with carbon tetrachloride and PCE (Section 4.2.2.2).
- Concentrations of PCE that exceeded the screening value were limited to groundwater samples from five wells in the vicinity of Buildings 732 and 726 and two wells north of Davis Highway. Four of the five wells in the vicinity of Buildings 732 and 726 are in the unconfined water-bearing zone and the other well is in the underlying confined aquifer. Northwest of Davis Highway, one of the wells is shallow and the other is deep (in the underlying confined aquifer). As discussed in Section 2.5.2.2, a silt confining unit with a thickness of 30 to 37 feet separates the unconfined and the locally confined water bearing zones in the area south of Davis Highway. Analysis of PCE concentration data from samples collected from the confined zone suggests that this silt unit acts as an aquitard, limiting the downward migration of dissolved PCE concentrations to the locally confined aquifer.
- The extent of the dissolved PCE plume contamination in the unconfined aquifer is defined by low concentrations of PCE detected or no concentrations of PCE detected at the laboratory reporting limits in samples from wells near well AP-4414 on the northern edge, well AP-3775 on the western edge, well AP-4415 on the southern edge, and well AP-3790 on the eastern edge. The highest PCE concentrations were observed along a general line between wells AP-4341, AP-4413, and AP-4342.
- The silt layer pinches out to the northwest, and the locally confined unit is not present in well AP-4414, which is located northwest of Davis Highway. A sample from well AP-4414 had a PCE concentration of 9.8 μg/L (which exceeded the screening value of 0.66 μg/L).
- Concentrations of carbon tetrachloride that exceeded the screening value of 0.17 μg/L were detected sporadically in samples from wells throughout the unconfined zone and in a sample from one deep confined zone well (AP-3534). Well AP-3534 is located close to the northern extent of the silt aquitard separating the unconfined and confined zones. The spatial distribution of concentrations of carbon tetrachloride detected in samples from various wells does not indicate a specific source area.

- A 1,800 µg/L concentration of DRO compounds, exceeding the 1,500 µg/L screening value was detected in a sample from well AP-4338. This well is located along the northern boundary of the AVMA, north of Trenches T8 and T9. (The 3,800 mg/kg concentration of DRO compounds detected in a sample from 1 foot bgs at Trench T9 exceeded the screening value of 300 mg/kg). A soil sample taken from the depth of the screened interval well AP-4338 also contained a 17 mg/kg concentration of DRO compounds.

4.4 Data Quality Procedures

The QA/QC criteria used to evaluate laboratory data were obtained from the *Statement of Work, Operable Unit E, Remedial Investigation at Fort Richardson Alaska* (USACE, 2002) or from ADEC methods when not provided by the Statement of Work. The data quality review process used for this RI focused on the following QA/QC criteria:

- Data validation
- Chain-of-custody
- Holding time compliance
- Required Quality Control
- Method blanks
- Laboratory Control Samples
- Surrogates (organic compounds)
- Matrix Spikes
- Calibrations
- Field duplicates

Each of these criteria is addressed separately below.

4.4.1 Data Validation

CH2M HILL performed the data validation procedures to check the accuracy of the reported results. These procedures included data verification and data review. The data verification process included ensuring that data for all samples submitted to the laboratory had been provided, all relevant laboratory internal QC data had been provided, and the specified analytical methods had been used by the laboratory. Data review involved examining the primary and QA laboratory data and the internal QC and QA sample results to ascertain the effects on the primary laboratory's data. The Statement of Work (USACE, 2002) outlined the detailed methodology used to conduct the data review. Results of the data assessment were reported in the Chemical Quality Assurance Reports (CH2M HILL, 2003b and 2003c) which are provided electronically in this document (Appendix I).

Overall, the data met the acceptance criteria and are useable for the purposes of the remedial investigation as outlined in the Statement of Work (USACE, 2002).

The quality assurance/quality control (QA/QC) criteria used to evaluate laboratory data were obtained from the *U.S. Army, Alaska Quality Assurance Project Plan* (January 2002) (OUE RI QAPP), *USEPA National Functional Guidelines for Organic Data Review* (October 1999), *USEPA National Functional Guidelines for Inorganic Data Review* (July 2002), or from ADEC

methods when not provided by the OUE RI QAPP or National Functional Guidelines (NFG).

The assessment of data included a review of: (1) the chain of custody (CoC) documentation; (2) holding time compliance; (3) the required QC samples at the specified frequencies; (4) flagging for method blanks; (5) laboratory control spiking (LCS) samples; (6) surrogate spike recoveries for organic analyses; (7) matrix spike/matrix spike duplicate (MS/MSD) samples on a site/location basis; and (8) initial and continuing calibration information and other method-specific criteria as defined by the OUE RI QAPP. Each of these criteria is addressed separately in the following sections.

Field samples were also reviewed to ascertain field compliance and data quality issues. This included the review of trip blanks and field duplicates.

Data flags were assigned according to the NFG criteria as specified in the OUE RI QAPP. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will be only one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flags also include matrix and blank sample impacts.

The data flags are those listed in NFG criteria and are defined below:

J = Analyte is present but the reported value may not be accurate or precise (estimated).

R = Analyte is rejected for use.

U = Analyte was not detected at the specified detection limit.

UJ = Analyte was not detected at the specified detection limit but the reporting limit may not be accurate or precise (estimated).

4.4.2 Chain of Custody

The CoC forms and laboratory case narratives were reviewed to determine whether any sampling procedures might affect the integrity of the samples and the quality of the resulting data.

Samples were shipped in coolers containing ice. Temperatures in the coolers upon receipt by the laboratories were recorded on the CoC and sample receipt forms. The CoCs are included in the body of the Chemical Quality Assurance Reports (CQAR).

4.4.3 Holding Time Compliance

All samples were reviewed for holding time compliance. Samples analyzed outside of holding time were flagged accordingly. Sample analyzed outside of holding time by more than a factor of two times the holding time were rejected for project use. Specific holding time discussions are included in the body of the CQARs.

4.4.4 Required Quality Control

All sample delivery groups (SDGs) were reviewed to ensure the required QC was analyzed at the frequency specified in the OUE RI QAPP. CoCs were also reviewed to ensure that the required field QC were collected.

Field duplicates are required to be collected at the frequency of one every 10 samples. MS/MSD are required to be collected at the frequency of one set every 20 samples. One trip blank is required per shipment of volatiles. Equipment blanks are required to be collected at the frequency of one every 10 field samples, unless dedicated or disposable sampling equipment is used.

4.4.5 Method Blanks

Method blank criteria monitor the existence and magnitude of contamination resulting from sample handling processes and instrument carryover. Method blanks are prepared and analyzed with each set of 20 or fewer samples of like matrix. Method blanks should not contain compounds of interest above the method detection limit (MDL).

Any analyte detected in a method blank is reviewed and compared to associated samples. The results in the field samples that are detected at a concentration less than five times the concentration in the blank are considered non-detected and flagged as such.

Specific method blank discussions are contained in the body and tables of the CQARs.

4.4.6 Laboratory Control Samples

The LCS consists of analyte-free matrix spiked with known amounts of analytes that come from a source different than that used for the calibration. The LCS and LCS duplicate monitor the laboratory precision and accuracy. Precision monitors analytical reproducibility and accuracy monitors analytical agreement with a known value.

A low LCS recovery would indicate associated sample results are possibly biased low and these results would be flagged as estimated. Similarly, a high LCS recovery would indicate associated sample results are possibly biased high and these results would be flagged as estimated.

Specific LCS discussions are contained in the body and tables of the CQARs.

4.4.7 Surrogates

Surrogates are organic analytes that behave similarly as the analytes of interest but that are not expected to occur naturally in the samples. Surrogates are spiked into the standards, and into the samples and QC samples prior to sample preparation. Recoveries of surrogates are sued as an indicator of accuracy, method performance, and extraction efficiency.

A low surrogate recovery would indicate associated sample results are possibly biased low and these results would be flagged as estimated. Similarly, a high surrogate recovery would indicate associated sample results are possibly biased high and these results would be flagged as estimated.

Specific surrogate discussions are contained in the body and tables of the CQARs.

4.4.8 Matrix Spikes

A matrix spike (MS) is a sample matrix fortified with known quantities of specific compounds. MS recoveries are used to evaluate the effect of sample matrix on the recovery

of the analytes of interest. The relative percent difference between a MS and a MS duplicate measures the precision of sample results.

A low MS recovery would indicate associated sample results are possibly biased low and these results would be flagged as estimated. Similarly, a high MS recovery would indicate associated sample results are possibly biased high and these results would be flagged as estimated.

Specific MS discussions are contained in the body and tables of the CQARs.

4.4.9 Calibrations

Calibrations were reviewed to ensure proper technique and frequency. Issues relating to calibration are contained in the body and text of the CQARs.

4.4.10 Field Duplicates

Field duplicates (FD)demonstrate the precision in field collection techniques. Field duplicates were reviewed for RPD criteria. Specific FD discussions are contained in the body and tables of the CQARs.

TABLE 4-1
Summary of Soil and Sediment Contamination at Building 35-752 from OUD RI
OUE Remedial Investigation
Fort Richardson

Chemical	Matrix/Media	Cleanup Level[1] (ppb)	Number of Detections	Number of Samples	Minimum Detected Concentration (ppb)	Maximum Detected Concentration (ppb)
PCB-1260	Surface Soil[2] 0-3 feet	744	13	17	30	27,000
PCB	Subsurface Soil[2] 3-20 feet					
PCB-1260		744	3	7	70	1,900
PCB-1254		744	5	12	50	100
PCB-1260	Sediment	744	11	11	110	3,100
PCB-1260	Stockpiled Soil	744	4	4	200	300

Notes:

[1] EPA Region 9 PRGs based on industrial use.
[2] In addition to the results of samples collected for the OUD RI, soil samples were collected in November 1998 to better define the extent of PCB contamination. These results are included.

OUD = Operable Unit D
ppb = parts per billion
PCB = polychlorinated biphenyl
RI = Remedial Investigation
PRG = Preliminary Remediation Goal

Source: ENSR. 1998. Final RI/FS Operable Unit D, Fort Richardson, Alaska

TABLE 4-2
Summary of Groundwater Contamination at Building 35-752 from OUD RI
OUE Remedial Investigation
Fort Richardson

Chemical	Cleanup Level[1] (ppb)	Number of Detections	Number of Samples	Minimum Detected Concentration (ppb)	Maximum Detected Concentration (ppb)
Benzene	0.3	7	25	0.2	100
Ethylbenzene	2.9	8	26	0.3	280
1,1-Dichloroethane	811	7	25	0.2	1.8
1,1,1-Trichloroethane	3,172	10	25	0.2	30
1,2,4-Trimethylbenzene	12	8	25	1	150
Chromium (dissolved)	109	1	23	8	8
Chromium	109	7	23	8	235
Trichlorethene (TCE)	0.03	22	25	0.2	11
Aluminum	36,499	14	20	30	93,100
Iron	10,950	19	20	20	116,700
Manganese	876	18	20	2	4,580

Notes:

[1] EPA Region 9 PRGs

ppb = parts per billion
OUD = Operable Unit D
RI = Remedial Investigation
PRG = Preliminary Remediation Goal

Sources:
ENSR. 1998. Final RI/FS Operable Unit D, Fort Richardson, Alaska
ENSR. 1999. The Proposed Plan for Remedial Action at Operable Unit D, Fort Richardson, Alaska

TABLE 4-3
Summary of Groundwater Contamination at Building 45-590 from OUD RI
OUE Remedial Investigation
Fort Richardson

Chemical	Cleanup Level[1] (ppb)	Number of Detections	Number of Samples	Minimum Detected Concentration (ppb)	Maximum Detected Concentration (ppb)
Tetrachloroethene (PCE)	0.66	24	34	0.3	100
Carbon Tetrachloride	0.17	12	30	0.1	1

Notes:
[1] EPA Region 9 PRGs

ppb = parts per billion
OUD = Operable Unit D
RI = Remedial Investigation
PRG = Preliminary Remediation Goal

Source: ENSR. 1998. *Final RI/FS Operable Unit D, Fort Richardson, Alaska*

TABLE 4-4
Summary of Building 35-752 Transformer Mounting and Oil Discharge Areas Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)[2]	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)[2]	Maximum Detected Concentration (mg/kg)[2]	Number of Detections that Exceeded Cleanup
PCBs						
PCB-1260 (AROCHLOR 1260)	0.74	20	20	0.0485	99.9	12
DIOXINS/FURANS						
Total TCDD (TEQ)[2]	16	5	5	0.78556	17	1

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002)
[2] All concentrations are measured in mg/kg except for dioxin/furan concentrations, which are measured in pg/g

mg/kg = milligrams per kilogram
PCBs = polychlorinated biphenyls
pg/g = picograms per gram
TCDD = tetrachlorodibenzodioxin
TEQ = toxicity equivalent quotient

TABLE 4-5
Summary of Building 35-752 Burn Pit Area Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)[2]	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)[2]	Maximum Detected Concentration (mg/kg)[2]	Number of Detections that Exceeded Cleanup
PCBs						
PCB-1260 (AROCHLOR 1260)	0.74	9	15	0.013	0.69	
DIOXINS/FURANS						
Total TCDD (TEQ)[2]	16	13	15	0.012019	5.43118	
TPHs						
DIESEL RANGE ORGANICS	250	11	15	2.2	81	
GASOLINE RANGE ORGANICS	300	4	15	0.41	0.71	
SVOCs						
1,2,4-TRICHLOROBENZENE	3,000	1	15	0.24	0.24	
BENZYL BUTYL PHTHALATE	100,000	1	15	0.039	0.039	
bis(2-ETHYLHEXYL) PHTHALATE	123	6	15	0.043	1.1	
DI-n-BUTYL PHTHALATE	61,561	15	15	0.044	0.8	
DI-n-OCTYLPHTHALATE	24,624	1	15	0.054	0.054	
PYRENE	29,126	1	15	0.04	0.04	
VOCs						
1,1,1-TRICHLOROETHANE	1,200	1	15	0.012	0.012	
1,2,4-TRICHLOROBENZENE	3,000	1	15	0.047	0.047	
ACETONE	6,036	5	15	0.014	0.035	
cis-1,2-DICHLOROETHYLENE	146	7	15	0.0078	0.87	
METHYL ETHYL KETONE (2-BUTAN	27,102	5	15	0.016	0.12	
METHYLENE CHLORIDE	21	15	15	0.016	0.072	
P-CYMENE (p-ISOPROPYLTOLUEN	--	1	15	0.0047	0.0047	
TOLUENE	520	3	15	0.0047	0.0091	
trans-1,2-DICHLOROETHENE	235	1	15	0.071	0.071	
TRICHLOROETHYLENE (TCE)	0.11	9	15	0.028	1.1	7
XYLENES, m & p	420	5	15	0.0048	0.014	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)
[2] All concentrations are measured in mg/kg except for dioxin/furan concentrations, which are measured in pg/g

mg/kg = milligrams per kilogram
PCBs = polychlorinated biphenyls
pg/g = picograms per gram
SVOCs = semivolatile organic compounds
TCDD = tetrachlorodibenzodioxin
TEQ = toxicity equivalent quotient
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-6
Summary of Building 35-752 Peripheral Road Area Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)[2]	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)[2]	Maximum Detected Concentration (mg/kg)[2]	Number of Detections that Exceeded Cleanup
PCBs						
PCB-1260 (AROCHLOR 1260)	0.74	27	29	0.00473	3.7	8
DIOXINS/FURANS						
Total TCDD (TEQ)[2]	16	8	9	0.0001	32	1
TPHs						
DIESEL RANGE ORGANICS	250	9	9	1.4	310	1
GASOLINE RANGE ORGANICS	300	3	6	0.27	0.465	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)
[2] All concentrations are measured in mg/kg except for dioxin/furan concentrations, which are measured in pg/g

mg/kg = milligrams per kilogram
PCBs = polychlorinated biphenyls
pg/g = picograms per gram
TCDD = tetrachlorodibenzodioxin

TABLE 4-7
Summary of Building 35-752 Soil Stockpile Footprint Area Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)[2]	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)[2]	Maximum Detected Concentration (mg/kg)[2]	Number of Detections that Exceeded Cleanup
PCBs						
PCB-1260 (AROCHLOR 1260)	0.74	9	12	0.02	0.79	1
DIOXINS/FURANS						
Total TCDD (TEQ)[2]	16	4	4	0.17	1.74	
TPHs						
DIESEL RANGE ORGANICS	250	4	4	5.2	29	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)
[2] All concentrations are measured in mg/kg except for dioxin/furan concentrations, which are measured in pg/g

mg/kg = milligrams per kilogram
PCBs = polychlorinated biphenyls

TABLE 4-8

Summary of Building 35-752 Area Groundwater Analytical Results

OUE Remedial Investigation

Fort Richardson, Alaska

Chemical	Cleanup Level[1] (ug/L)	Number of Detections	Number of Samples	Minimum Detected Concentration (ug/L)	Maximum Detected Concentration (ug/L)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	1,500	10	14	53	870	
GASOLINE RANGE ORGANICS	1,300	11	14	8.4	1700	1
RESIDUAL RANGE ORGANICS	1,100	3	7	110	120	
METALS						
ALUMINUM	36	7	7	22	2300	7
BARIUM	2,555	7	7	2.5	24	
CALCIUM	--	7	7	8200	44000	
CHROMIUM, TOTAL	109	4	7	2.6	6	
COBALT	730	3	7	1.5	2.8	
COPPER	1,460	6	7	2	26	
IRON	10,950	7	7	39	7600	
MAGNESIUM	--	7	7	1800	12000	
MANGANESE	876	7	7	0.84	3100	2
MERCURY	11	6	7	0.045	0.084	
POTASSIUM	--	7	7	820	1500	
SODIUM	--	7	7	8200	11000	
ZINC	10,950	6	7	3.3	23	
METALS-DISSOLVED						
BARIUM	2,555	2	2	2.8	10	
CALCIUM	--	2	2	8800	27000	
COPPER	1,460	2	2	2.5	19	
IRON	10,950	2	2	5.1	11	
MAGNESIUM	--	2	2	1800	4800	
MANGANESE	876	1	2	0.62	0.62	
MERCURY	11	2	2	0.053	0.056	
POTASSIUM	--	2	2	460	1100	
SODIUM	--	2	2	8300	9900	
ZINC	10,950	2	2	4.4	17	
BTEX						
BENZENE	0.34	3	8	1.6	8.2	3
ETHYLBENZENE	2.9	2	8	21	61	2
TOLUENE	723	1	8	13	13	
XYLENES, TOTAL	210	3	8	0.0087	160	
PAHs						
2-METHYLNAPHTHALENE	--	5	14	0.056	4.8	
ACENAPHTHENE	365	2	14	0.067	0.24	
ACENAPHTHYLENE	--	1	14	0.081	0.081	
FLUORENE	243	5	14	0.033	0.71	
NAPHTHALENE	6.2	6	14	0.065	8.8	2
PHENANTHRENE	--	1	14	0.13	0.13	
PCBs						
PCB-1260 (AROCHLOR 1260)	0.034	1	7	0.061	0.061	1
SVOCs						
2-METHYLNAPHTHALENE	--	2	14	5.7	6.2	
bis(2-ETHYLHEXYL) PHTHALATE	4.8	1	14	6.8	6.8	1
DIBENZ(a,h)ANTHRACENE	0.0092	7	14	1.2	4.7	7
N-NITROSODI-n-PROPYLAMINE	0.0096	3	14	2.5	19	3

TABLE 4-8

Summary of Building 35-752 Area Groundwater Analytical Results

OUE Remedial Investigation

Fort Richardson, Alaska

Chemical	Cleanup Level[1] (ug/L)	Number of Detections	Number of Samples	Minimum Detected Concentration (ug/L)	Maximum Detected Concentration (ug/L)	Number of Detections that Exceeded Cleanup Level
VOCs						
1,1,1-TRICHLOROETHANE	3,172	5	14	0.68	4	
1,1-DICHLOROETHANE	811	3	14	0.12	0.39	
1,2,4-TRIMETHYLBENZENE	12	4	14	16	70	4
1,3,5-TRIMETHYLBENZENE	12	3	14	4.8	44	1
ACETONE	608	2	14	4.8	11	
BENZENE	0.34	7	14	0.1	12	4
CHLOROETHANE	4.6	2	14	0.12	0.14	
CHLOROFORM	6.2	4	14	0.17	0.22	
CHLOROMETHANE	1.5	7	14	0.12	4	1
cis-1,2-DICHLOROETHYLENE	61	3	14	0.24	9.6	
ETHYLBENZENE	2.9	5	14	0.12	110	4
ISOPROPYLBENZENE (CUMENE)	658	6	14	0.26	8.2	
METHYLENE CHLORIDE	4.3	6	14	1.7	2.5	
NAPHTHALENE	6.2	4	14	5.2	26	3
n-BUTYLBENZENE	243	3	14	0.71	3.8	
n-PROPYLBENZENE	243	4	14	1.8	15	
O-XYLENE	210	4	14	2.1	140	
P-CYMENE	--	2	14	1	1	
SEC-BUTYLBENZENE	243	4	14	0.52	1.4	
STYRENE	1,641	1	14	1.9	1.9	
t-BUTYLBENZENE	243	1	14	0.19	0.19	
tert-BUTYL METHYL ETHER	13	0	12			
TETRACHLOROETHYLENE(PCE)	0.66	4	14	0.15	0.64	
TOLUENE	723	9	14	0.44	32	
trans-1,2-DICHLOROETHENE	122	1	14	0.13	0.13	
TRICHLOROETHYLENE (TCE)	0.028	13	14	0.34	8.6	13
VINYL ACETATE	412	1	12	1.8	1.8	
VINYL CHLORIDE	0.020	2	14	0.13	0.38	2
XYLENES, m & p	210	4	14	26	150	

Notes:

[1] EPA Region 9 Tap Water Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Water Quality Standards values for groundwater (ADEC, 1997)

BTEX = benzene, toluene, ethylbenzene, and xylenes
ug/L = micrograms per liter
PAHs = polynuclear aromatic hydrocarbons

TABLE 4-9

Building 35-752 Groundwater Monitoring Wells Total Metals (Aluminum and Manganese) and Field Parameter Comparisor

OUE Remedial Investigation

Fort Richardson, Alaska

Well	Aluminum (µg/L)	Manganese (µg/L)	Turbidity (NTUs)	ORP (mV)
Cleanup Level	*36*	*876*		
AP-2982	**87**	**1,000**	4	60
AP-2983	22J	0.84J	5.6	355
AP-2987	**160**	670	5.4	222
AP-3231	**2,300**	73	23.8	310
AP-3232	**620**	16	30	240
AP-3458	**370**	**3,100**	22	41
AP-3503	**82**	15	12	266

Notes:

µg/L = micrograms per liter

mV = millivolts

NTUs = nephelometric turbidity units

ORP = oxygen reduction potential

TABLE 4-10
Summary of AVMA Trench T1 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	5	5	1.4	52	
GASOLINE RANGE ORGANICS	300	2	5	0.33	0.56	
METALS						
ALUMINUM	100,000	5	5	17000	42000	
ANTIMONY	409	5	5	0.12	0.9	
ARSENIC	1.6	3	5	1.9	17	3
BARIUM	66,577	5	5	57	240	
BERYLLIUM	1,941	5	5	0.32	1	
CADMIUM	451	5	5	0.91	2	
CALCIUM	--	5	5	4800	9500	
CHROMIUM, TOTAL	448	5	5	26	78	
COBALT	1,921	5	5	9.7	43	
COPPER	40,877	5	5	23	120	
IRON	100,000	5	5	28000	71000	
LEAD	750	5	5	3.4	50	
MAGNESIUM	--	5	5	6800	17000	
MANGANESE	19,458	5	5	490	2600	
MERCURY	307	5	5	0.06	0.33	
NICKEL	20,439	5	5	30	130	
POTASSIUM	--	5	5	640	2600	
SELENIUM	5,110	5	5	5.4	12	
SODIUM	--	5	5	120	310	
THALLIUM	67	1	5	0.094	0.094	
VANADIUM	7,154	5	5	55	120	
ZINC	100,000	5	5	61	140	
SVOCs						
2-METHYLNAPHTHALENE	--	2	5	0.083	0.28	
ACENAPHTHENE	29,219	1	5	1.2	1.2	
ANTHRACENE	100,000	2	5	0.047	1.1	
BENZO(a)ANTHRACENE	2.1	2	5	0.081	1.2	
BENZO(a)PYRENE	0.21	2	5	0.069	1.1	1
BENZO(b)FLUORANTHENE	2.1	2	5	0.049	1.1	
BENZO(g,h,i)PERYLENE	--	2	5	0.047	0.47	
BENZO(k)FLUORANTHENE	21	1	5	0.45	0.45	
bis(2-ETHYLHEXYL) PHTHALATE	123	2	5	0.048	0.079	
CHRYSENE	211	2	5	0.092	1.3	
DIBENZ(a,h)ANTHRACENE	0.21	1	5	0.18	0.18	
DIBENZOFURAN	3,127	1	5	0.77	0.77	
DI-n-BUTYL PHTHALATE	61,561	4	5	0.063	0.47	
FLUORANTHENE	22,000	2	5	0.11	2.1	
FLUORENE	26,281	2	5	0.06	1.1	

TABLE 4-10
Summary of AVMA Trench T1 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
INDENO(1,2,3-c,d)PYRENE	2.1	1	5	0.53	0.53	
NAPHTHALENE	188	2	5	0.064	0.36	
PHENANTHRENE	--	2	5	0.34	4.2	
PYRENE	29,126	2	5	0.24	3.1	
VOCs						
1,2,4-TRIMETHYLBENZENE	170	1	5	0.019	0.019	
1,3,5-TRIMETHYLBENZENE (MESITYLE	70	1	5	0.0079	0.0079	
ACETONE	6,036	5	5	0.056	0.27	
ETHYLBENZENE	20	1	5	0.0082	0.0082	
METHYLENE CHLORIDE	21	5	5	0.041	0.2	
NAPHTHALENE	188	4	5	0.026	0.83	
O-XYLENE (1,2-DIMETHYLBENZENE)	420	1	5	0.01	0.01	
P-CYMENE (p-ISOPROPYLTOLUENE)	--	1	5	0.0092	0.0092	
STYRENE	1,700	1	5	0.011	0.011	
TOLUENE	520	1	5	0.015	0.015	
XYLENES, m & p	420	2	5	0.018	0.018	
PESTICIDES						
ALPHA BHC (ALPHA HEXACHLOROCYC	0.36	5	5	0.00046	0.001	
ALPHA-CHLORDANE	6.5	2	5	0.00043	0.0054	
BETA BHC (BETA HEXACHLOROCYCLC	1.3	3	5	0.00068	0.0023	
DIELDRIN	0.11	2	5	0.00066	0.0011	
ENDOSULFAN SULFATE	--	2	5	0.0003	0.00042	
ENDRIN	185	1	5	0.0019	0.0019	
ENDRIN KETONE	--	1	5	0.00039	0.00039	
GAMMA-CHLORDANE	6.5	1	5	0.0057	0.0057	
HEPTACHLOR	0.38	1	5	0.0023	0.0023	
HEPTACHLOR EPOXIDE	0.19	1	5	0.0014	0.0014	
METHOXYCHLOR	3,078	1	5	0.0063	0.0063	
p,p'-DDD	10.0	5	5	0.00084	0.016	
p,p'-DDE	7.0	3	5	0.0013	0.013	
p,p'-DDT	7.0	4	5	0.0028	0.031	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

mg/kg = milligrams per kilogram
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-11
Summary of AVMA Trench T2 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	5	5	7.8	370	1
GASOLINE RANGE ORGANICS	300	2	5	0.43	1.3	
METALS						
ALUMINUM	100,000	5	5	16000	45000	
ANTIMONY	409	5	5	0.171	0.57	
ARSENIC	1.6	4	5	2.1	25	4
BARIUM	66,577	5	5	90	250	
BERYLLIUM	1,941	5	5	0.32	1.1	
CADMIUM	451	5	5	0.71	2	
CALCIUM	--	5	5	4100	10000	
CHROMIUM, TOTAL	448	5	5	26	84	
COBALT	1,921	5	5	7.6	46	
COPPER	40,877	5	5	18	130	
IRON	100,000	5	5	27000	83000	
LEAD	750	5	5	5.9	36	
MAGNESIUM	--	5	5	3400	19000	
MANGANESE	19,458	5	5	340	2100	
MERCURY	307	5	5	0.042	0.28	
NICKEL	20,439	5	5	16	140	
POTASSIUM	--	5	5	630	2700	
SELENIUM	5,110	5	5	4.4	11	
SODIUM	--	5	5	150	310	
THALLIUM	67	1	5	0.074	0.074	
VANADIUM	7,154	5	5	53	120	
ZINC	100,000	5	5	52	160	
SVOCs						
ACENAPHTHENE	29,219	1	5	0.057	0.057	
ANTHRACENE	100,000	1	5	0.11	0.11	
BENZO(a)ANTHRACENE	2.1	1	5	0.16	0.16	
BENZO(a)PYRENE	0.21	1	5	0.17	0.17	
BENZO(b)FLUORANTHENE	2.1	1	5	0.17	0.17	
BENZO(g,h,i)PERYLENE	--	1	5	0.088	0.088	
BENZO(k)FLUORANTHENE	21	1	5	0.085	0.085	
bis(2-ETHYLHEXYL) PHTHALATE	123	1	5	0.041	0.041	
CHRYSENE	211	1	5	0.19	0.19	
DI-n-BUTYL PHTHALATE	61,561	3	5	0.47	0.61	
DI-n-OCTYLPHTHALATE	24,624	1	5	0.1	0.1	
FLUORANTHENE	22,000	1	5	0.26	0.26	
FLUORENE	26,281	1	5	0.054	0.054	
INDENO(1,2,3-c,d)PYRENE	2.1	1	5	0.085	0.085	
PHENANTHRENE	--	1	5	0.36	0.36	

TABLE 4-11
Summary of AVMA Trench T2 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
PYRENE	29,126	1	5	0.42	0.42	
VOCs						
ACETONE	6,036	5	5	0.04	1.4	
METHYL ETHYL KETONE (2-BUTANONE	27,102	4	5	0.06	0.46	
METHYLENE CHLORIDE	21	5	5	0.039	0.1	
P-CYMENE (p-ISOPROPYLTOLUENE)	--	1	5	0.45	0.45	
TOLUENE	520	2	5	0.0097	0.047	
PESTICIDES						
ALPHA BHC (ALPHA HEXACHLOROCYC	0.36	3	5	0.00041	0.00054	
ALPHA-CHLORDANE	6.5	2	5	0.0004	0.0012	
BETA BHC (BETA HEXACHLOROCYCLC	1.3	2	5	0.00077	0.0012	
DIELDRIN	0.11	1	5	0.0021	0.0021	
ENDOSULFAN SULFATE	--	1	5	0.0006	0.0006	
ENDRIN	185	3	5	0.001	0.0013	
ENDRIN ALDEHYDE	--	1	5	0.0025	0.003	
ENDRIN KETONE	--	1	5	0.00032	0.00032	
METHOXYCHLOR	3,078	3	5	0.0025	0.0036	
p,p'-DDD	10.0	5	5	0.0015	0.023	
p,p'-DDE	7.0	5	5	0.00037	0.0071	
p,p'-DDT	7.0	5	5	0.0016	0.064	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

mg/kg = milligrams per kilogram
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-12
Summary of AVMA Trench T3 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	5	5	21	220	
GASOLINE RANGE ORGANICS	300	5	5	0.49	3.1	
METALS						
ALUMINUM	100,000	5	5	18000	22000	
ANTIMONY	409	5	5	0.171	0.441	
ARSENIC	1.6	5	5	1.1	6.7	4
BARIUM	66,577	5	5	85	120	
BERYLLIUM	1,941	5	5	0.37	0.44	
CADMIUM	451	5	5	0.79	1.2	
CALCIUM	--	5	5	5000	6800	
CHROMIUM, TOTAL	448	5	5	30	41	
COBALT	1,921	5	5	10	16	
COPPER	40,877	5	5	19	31	
IRON	100,000	5	5	27000	39000	
LEAD	750	5	5	6.9	32	
MAGNESIUM	--	5	5	6000	11000	
MANGANESE	19,458	5	5	370	2000	
MERCURY	307	5	5	0.039	0.095	
NICKEL	20,439	5	5	25	47	
POTASSIUM	--	5	5	680	1200	
SELENIUM	5,110	5	5	2.3	6.3	
SODIUM	--	5	5	130	320	
VANADIUM	7,154	5	5	62	71	
ZINC	100,000	5	5	53	160	
SVOCs						
2-METHYLNAPHTHALENE	--	3	5	0.12	1.4	
ACENAPHTHENE	29,219	2	5	0.27	2.2	
ANTHRACENE	100,000	5	5	0.059	4	
BENZO(a)ANTHRACENE	2.1	5	5	0.069	5.3	1
BENZO(a)PYRENE	0.21	5	5	0.051	4.1	2
BENZO(b)FLUORANTHENE	2.1	5	5	0.054	3.2	1
BENZO(g,h,i)PERYLENE	--	3	5	0.12	1.7	
BENZO(k)FLUORANTHENE	21	3	5	0.045	1.4	
bis(2-ETHYLHEXYL) PHTHALATE	123	1	5	0.071	0.071	
CHRYSENE	211	5	5	0.085	5.7	
DIBENZ(a,h)ANTHRACENE	0.21	1	5	0.61	0.61	1
DIBENZOFURAN	3,127	3	5	0.086	0.53	
DI-n-BUTYL PHTHALATE	61,561	5	5	0.21	0.8	
FLUORANTHENE	22,000	5	5	0.14	7	
FLUORENE	26,281	3	5	0.045	2.7	
INDENO(1,2,3-c,d)PYRENE	2.1	3	5	0.043	1.7	
NAPHTHALENE	188	3	5	0.095	0.76	

TABLE 4-12
Summary of AVMA Trench T3 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
PHENANTHRENE	--	5	5	0.23	15	
PYRENE	29,126	5	5	0.14	16	
VOCs						
1,2,4-TRIMETHYLBENZENE	170	4	5	0.0089	0.085	
1,3,5-TRIMETHYLBENZENE (MESITYLE	70	3	5	0.0088	0.018	
ACETONE	6,036	3	5	0.17	0.26	
BENZENE	1.3	1	5	0.024	0.024	
ETHYLBENZENE	20	3	5	0.0096	0.039	
ISOPROPYLBENZENE (CUMENE)	521	2	5	0.011	0.012	
METHYL ETHYL KETONE (2-BUTANON	27,102	4	5	0.086	0.16	
METHYLENE CHLORIDE	21	5	5	0.041	0.063	
NAPHTHALENE	188	5	5	0.015	0.062	
n-BUTYLBENZENE	240	1	5	0.011	0.011	
O-XYLENE (1,2-DIMETHYLBENZENE)	420	3	5	0.0093	0.097	
P-CYMENE (p-ISOPROPYLTOLUENE)	--	5	5	0.027	0.076	
TETRACHLOROETHYLENE(PCE)	3.4	3	5	0.013	0.53	
TOLUENE	520	5	5	0.0088	0.12	
TRICHLOROETHYLENE (TCE)	0.11	2	5	0.013	0.027	
XYLENES, m & p	420	5	5	0.012	0.14	
PESTICIDES						
ALDRIN	0.10	1	5	0.00066	0.00066	
ALPHA BHC (ALPHA HEXACHLOROCY(	0.36	3	5	0.00042	0.0011	
ALPHA ENDOSULFAN	3,694	1	5	0.00036	0.00036	
ALPHA-CHLORDANE	6.5	2	5	0.0011	0.0019	
BETA BHC (BETA HEXACHLOROCYCL(	1.3	5	5	0.00087	0.019	
BETA ENDOSULFAN	3,694	1	5	0.00091	0.00091	
DELTA BHC (DELTA HEXACHLOROCY(	--	1	5	0.00086	0.00086	
DIELDRIN	0.11	2	5	0.00036	0.0004	
ENDOSULFAN SULFATE	--	3	5	0.00046	0.0017	
ENDRIN	185	5	5	0.0012	0.041	
HEPTACHLOR	0.38	1	5	0.0017	0.0017	
HEPTACHLOR EPOXIDE	0.19	3	5	0.00098	0.0028	
METHOXYCHLOR	3,078	2	5	0.0021	0.0033	
p,p'-DDD	10.0	5	5	0.0028	0.061	
p,p'-DDE	7.0	5	5	0.0021	0.039	
p,p'-DDT	7.0	5	5	0.0087	0.24	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

mg/kg = milligrams per kilogram
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-13
Summary of AVMA Trench T4 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	3	5	0.78	7.8	
GASOLINE RANGE ORGANICS	300	1	5	0.39	0.39	
METALS						
ALUMINUM	100,000	5	5	16000	26000	
ANTIMONY	409	5	5	0.07	0.59	
ARSENIC	1.6	5	5	1	11	3
BARIUM	66,577	5	5	34	93	
BERYLLIUM	1,941	5	5	0.33	0.54	
CADMIUM	451	5	5	0.65	1	
CALCIUM	--	5	5	5400	9000	
CHROMIUM, TOTAL	448	5	5	24	42	
COBALT	1,921	5	5	9.7	14	
COPPER	40,877	5	5	25	32	
IRON	100,000	5	5	29000	41000	
LEAD	750	5	5	3	6	
MAGNESIUM	--	5	5	8800	13000	
MANGANESE	19,458	5	5	510	850	
MERCURY	307	5	5	0.039	0.08	
NICKEL	20,439	5	5	31	47	
POTASSIUM	--	5	5	740	1000	
SELENIUM	5,110	4	5	2.4	3.6	
SODIUM	--	5	5	82	150	
VANADIUM	7,154	5	5	57	80	
ZINC	100,000	5	5	51	67	
SVOCs						
DI-n-BUTYL PHTHALATE	61,561	5	5	0.078	0.48	
VOCs						
ACETONE	6,036	1	5	0.033	0.033	
ETHYLBENZENE	20	1	5	0.014	0.014	
HEXACHLOROBUTADIENE	22	1	5	0.024	0.024	
METHYL ETHYL KETONE (2-BUTANONE	27,102	2	5	0.058	0.065	
METHYLENE CHLORIDE	21	4	5	0.072	0.48	
TETRACHLOROETHYLENE(PCE)	3.4	1	5	0.014	0.014	
TOLUENE	520	2	5	0.017	0.031	
XYLENES, m & p	420	2	5	0.012	0.026	
PESTICIDES						
BETA BHC (BETA HEXACHLOROCYCLC	1.3	1	5	0.000567	0.000567	
ENDOSULFAN SULFATE	--	1	5	0.000232	0.000232	
ENDRIN ALDEHYDE	--	5	5	0.00128	0.00283	
p,p'-DDD	10.0	1	5	0.000764	0.000764	

TABLE 4-13
Summary of AVMA Trench T4 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
p,p'-DDE	7.0	1	5	0.00178	0.00178	
p,p'-DDT	7.0	2	5	0.000619	0.022	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

mg/kg = milligrams per kilogram
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-14
Summary of AVMA Trench T5 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	5	5	2.1	25	
GASOLINE RANGE ORGANICS	300	2	5	0.476	0.668	
METALS						
ALUMINUM	100,000	5	5	15000	21000	
ANTIMONY	409	5	5	0.23	0.53	
ARSENIC	1.6	5	5	1.9	4.1	5
BARIUM	66,577	5	5	47	540	
BERYLLIUM	1,941	5	5	0.35	0.56	
CADMIUM	451	5	5	0.78	1.1	
CALCIUM	--	5	5	6900	9700	
CHROMIUM, TOTAL	448	5	5	36	45	
COBALT	1,921	5	5	11	13	
COPPER	40,877	5	5	28	42	
IRON	100,000	5	5	30000	40000	
LEAD	750	5	5	4	11	
MAGNESIUM	--	5	5	8600	12000	
MANGANESE	19,458	5	5	480	710	
MERCURY	307	5	5	0.0566	0.0752	
NICKEL	20,439	5	5	32	47	
POTASSIUM	--	5	5	1000	1400	
SELENIUM	5,110	5	5	3.3	7.5	
SODIUM	--	5	5	85	230	
VANADIUM	7,154	5	5	55	81	
ZINC	100,000	5	5	54	72	
SVOCs						
BENZYL BUTYL PHTHALATE	100,000	1	5	0.041	0.041	
bis(2-ETHYLHEXYL) PHTHALATE	123	5	5	0.052	0.19	
DI-n-BUTYL PHTHALATE	61,561	5	5	0.21	0.67	
VOCs						
1,2,4-TRIMETHYLBENZENE	170	1	5	0.0084	0.0084	
ETHYLBENZENE	20	1	5	0.0051	0.0051	
METHYL ETHYL KETONE (2-BUTANONE	27,102	3	5	0.058	0.062	
METHYLENE CHLORIDE	21	5	5	0.02	0.042	
O-XYLENE (1,2-DIMETHYLBENZENE)	420	1	5	0.0062	0.0062	
TOLUENE	520	2	5	0.0051	0.0057	
XYLENES, m & p	420	2	5	0.0049	0.012	
PESTICIDES						
p,p'-DDT	7.0	2	5	0.00241	0.034	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

mg/kg = milligrams per kilogram
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-15
Summary of AVMA Trench T6 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	5	5	1.5	5.4	
GASOLINE RANGE ORGANICS	300	3	5	0.22	0.34	
METALS						
ALUMINUM	100,000	5	5	15800	26100	
ANTIMONY	409	5	5	0.133	0.418	
ARSENIC	1.6	5	5	1.6	5.09	5
BARIUM	66,577	5	5	54.6	103	
BERYLLIUM	1,941	5	5	0.344	0.56	
CADMIUM	451	5	5	0.783	1.17	
CALCIUM	--	5	5	5260	13300	
CHROMIUM, TOTAL	448	5	5	30.1	54.1	
COBALT	1,921	5	5	9.92	14.6	
COPPER	40,877	5	5	23.2	32.8	
IRON	100,000	5	5	29700	40600	
LEAD	750	5	5	2.86	7.77	
MAGNESIUM	--	5	5	8390	12300	
MANGANESE	19,458	5	5	505	739	
MERCURY	307	5	5	0.047	0.059	
NICKEL	20,439	5	5	30.3	47.8	
POTASSIUM	--	5	5	920	1260	
SELENIUM	5,110	5	5	2.98	8.34	
SODIUM	--	5	5	109	132	
VANADIUM	7,154	5	5	60.6	87	
ZINC	100,000	5	5	51.1	67.7	
SVOCs						
2-METHYLNAPHTHALENE	--	1	5	0.77	0.77	
bis(2-ETHYLHEXYL) PHTHALATE	123	5	5	0.049	0.19	
DI-n-BUTYL PHTHALATE	61,561	5	5	0.35	0.73	
NAPHTHALENE	188	1	5	0.34	0.34	
VOCs						
1,2,3-TRICHLOROBENZENE	--	1	5	0.0078	0.0078	
1,2,4-TRIMETHYLBENZENE	170	1	5	0.014	0.014	
ACETONE	6,036	1	5	0.036	0.036	
HEXACHLOROBUTADIENE	22	1	5	0.0071	0.0071	
IODOMETHANE (METHYL IODIDE)	--	1	5	0.085	0.085	
METHYL ETHYL KETONE (2-BUTANONE	27,102	5	5	0.013	0.048	
METHYLENE CHLORIDE	21	5	5	0.016	0.027	
NAPHTHALENE	188	1	5	0.032	0.032	
XYLENES, m & p	420	1	5	0.0062	0.0062	
PESTICIDES						

TABLE 4-15
Summary of AVMA Trench T6 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
p,p'-DDE	7.0	1	5	0.0012	0.0012	
p,p'-DDT	7.0	2	5	0.00277	0.00456	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

mg/kg = milligrams per kilogram
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-16
Summary of AVMA Trench T7 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	5	5	1.5	4.6	
GASOLINE RANGE ORGANICS	300	3	5	0.29	0.34	
METALS						
ALUMINUM	100,000	5	5	13300	19700	
ANTIMONY	409	5	5	0.165	0.36	
ARSENIC	1.6	4	5	1.49	3.65	3
BARIUM	66,577	5	5	44	75.6	
BERYLLIUM	1,941	5	5	0.277	0.44	
CADMIUM	451	5	5	0.707	0.939	
CALCIUM	--	5	5	5150	9180	
CHROMIUM, TOTAL	448	5	5	20.4	40	
COBALT	1,921	5	5	9.33	12.2	
COPPER	40,877	5	5	28.5	32.7	
IRON	100,000	5	5	28000	36400	
LEAD	750	5	5	3.13	4.04	
MAGNESIUM	--	5	5	8020	12200	
MANGANESE	19,458	5	5	489	594	
MERCURY	307	5	5	0.042	0.089	
NICKEL	20,439	5	5	26	51.2	
POTASSIUM	--	5	5	730	1260	
SELENIUM	5,110	5	5	3.51	5.64	
SODIUM	--	5	5	65.7	360	
VANADIUM	7,154	5	5	46.4	72	
ZINC	100,000	5	5	49.9	63.4	
SVOCs						
2-METHYLNAPHTHALENE	--	2	5	0.083	0.083	
bis(2-ETHYLHEXYL) PHTHALATE	123	5	5	0.062	0.086	
DI-n-BUTYL PHTHALATE	61,561	5	5	0.51	0.96	
NAPHTHALENE	188	1	5	0.038	0.038	
VOCs						
METHYL ETHYL KETONE (2-BUTANONE	27,102	4	5	0.037	0.058	
METHYLENE CHLORIDE	21	5	5	0.014	0.02	
TOLUENE	520	1	5	0.0052	0.0052	
XYLENES, m & p	420	1	5	0.0051	0.0051	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

mg/kg = milligrams per kilogram
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-17
Summary of AVMA Trench T8 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	3	3	2.2	56	
GASOLINE RANGE ORGANICS	300	2	3	0.49	0.82	
METALS						
ALUMINUM	100,000	3	3	15000	20000	
ANTIMONY	409	3	3	0.19	0.49	
ARSENIC	1.6	3	3	2.1	2.3	3
BARIUM	66,577	3	3	56	82	
BERYLLIUM	1,941	3	3	0.28	0.43	
CADMIUM	451	3	3	0.75	0.95	
CALCIUM	--	3	3	5900	8000	
CHROMIUM, TOTAL	448	3	3	24	37	
COBALT	1,921	3	3	9.7	13	
COPPER	40,877	3	3	26	30	
IRON	100,000	3	3	29000	37000	
LEAD	750	3	3	2.8	8.4	
MAGNESIUM	--	3	3	8300	11000	
MANGANESE	19,458	3	3	550	650	
MERCURY	307	3	3	0.055	0.078	
NICKEL	20,439	3	3	30	42	
POTASSIUM	--	3	3	800	900	
SELENIUM	5,110	3	3	3.4	6.9	
SODIUM	--	3	3	83	120	
VANADIUM	7,154	3	3	46	70	
ZINC	100,000	3	3	49	61	
SVOCs						
bis(2-ETHYLHEXYL) PHTHALATE	123	2	3	0.056	0.09	
DI-n-BUTYL PHTHALATE	61,561	3	3	0.26	0.5	
VOCs						
METHYL ETHYL KETONE (2-BUTANONE	27,102	3	3	0.04	0.049	
METHYLENE CHLORIDE	21	3	3	0.017	0.024	
PESTICIDES						
p,p'-DDD	10.0	1	3	0.00033	0.00033	
p,p'-DDE	7.0	1	3	0.00114	0.00114	
p,p'-DDT	7.0	2	3	0.0132	0.0447	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

mg/kg = milligrams per kilogram
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-18
Summary of AVMA Trench T9 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	4	4	1.8	3800	1
GASOLINE RANGE ORGANICS	300	3	4	0.27	6	
METALS						
ALUMINUM	100,000	4	4	17000	20000	
ANTIMONY	409	3	4	0.09	0.25	
ARSENIC	1.6	4	4	2.4	5.6	4
BARIUM	66,577	4	4	43	73	
BERYLLIUM	1,941	4	4	0.4	0.44	
CADMIUM	451	4	4	0.97	1	
CALCIUM	--	4	4	6600	9800	
CHROMIUM, TOTAL	448	4	4	27	40	
COBALT	1,921	4	4	11	15	
COPPER	40,877	4	4	26	36	
IRON	100,000	4	4	34000	35000	
LEAD	750	4	4	3.6	11	
MAGNESIUM	--	4	4	9700	13000	
MANGANESE	19,458	4	4	570	710	
MERCURY	307	4	4	0.034	0.063	
NICKEL	20,439	4	4	35	62	
POTASSIUM	--	4	4	880	1200	
SELENIUM	5,110	3	4	3.8	6.1	
SODIUM	--	4	4	93	250	
THALLIUM	67	2	4	0.27	0.36	
VANADIUM	7,154	4	4	61	74	
ZINC	100,000	4	4	57	70	
SVOCs						
2-METHYLNAPHTHALENE	--	1	4	1.5	1.5	
BENZO(a)ANTHRACENE	2.1	1	4	0.31	0.31	
bis(2-ETHYLHEXYL) PHTHALATE	123	1	4	0.039	0.047	
CHRYSENE	211	1	4	1	1	
DI-n-BUTYL PHTHALATE	61,561	4	4	0.19	0.49	
FLUORENE	26,281	1	4	0.24	0.24	
PHENANTHRENE	--	1	4	0.56	0.56	
PYRENE	29,126	1	4	0.59	0.59	
VOCs						
ACETONE	6,036	1	4	0.092	0.092	
METHYL ETHYL KETONE (2-BUTANONE	27,102	2	4	0.063	0.091	
METHYLENE CHLORIDE	21	4	4	0.022	0.034	
P-CYMENE (p-ISOPROPYLTOLUENE)	--	1	4	0.014	0.014	
PESTICIDES						

TABLE 4-18
Summary of AVMA Trench T9 Soil Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
p,p'-DDE	7.0	1	4	0.000552	0.000552	
p,p'-DDT	7.0	4	4	0.000398	0.00614	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

mg/kg = milligrams per kilogram
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-19
Summary of AVMA Monitoring Well Borings Soil Analytical Results
OUE Remedial Investigation
Fort Richardson,Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	250	21	25	1.7	17	
GASOLINE RANGE ORGANICS	300	6	25	0.38	0.73	
RESIDUAL RANGE ORGANICS	11,000	2	13	24	55.8	
METALS						
ALUMINUM	100,000	12	12	11000	20000	
ANTIMONY	409	10	12	0.13	0.82	
ARSENIC	1.6	8	12	1.5	75	8
BARIUM	66,577	12	12	26	99	
BERYLLIUM	1,941	12	12	0.16	0.48	
CADMIUM	451	12	12	0.51	1.45	
CALCIUM	--	12	12	4250	15000	
CHROMIUM, TOTAL	448	12	12	24	82	
COBALT	1,921	12	12	7.9	24.4	
COPPER	40,877	12	12	16	42	
IRON	100,000	12	12	22000	48200	
LEAD	750	10	12	2.1	5.1	
MAGNESIUM	--	12	12	7100	35900	
MANGANESE	19,458	12	12	430	1670	
MERCURY	307	10	12	0.042	0.088	
NICKEL	20,439	12	12	26	195	
POTASSIUM	--	12	12	370	1500	
SELENIUM	5,110	10	12	1.4	7.84	
SODIUM	--	11	12	57.9	370	
THALLIUM	67	3	12	0.067	0.184	
VANADIUM	7,154	12	12	39	78	
ZINC	100,000	12	12	36	68	
BTEX						
BENZENE	13	1	13	0.0057	0.0057	
PAHs						
2-METHYLNAPHTHALENE	--	1	13	0.021	0.021	
BENZO(g,h,i)PERYLENE	--	1	13	0.0024	0.0024	
CHRYSENE	211	1	13	0.0057	0.0057	
FLUORENE	26,281	1	13	0.0048	0.0048	
NAPHTHALENE	188	1	13	0.0069	0.0069	
PHENANTHRENE	--	2	13	0.00217	0.025	
PYRENE	29,126	2	13	0.00326	0.0065	
SVOCs						
2-METHYLNAPHTHALENE	--	1	25	0.25	0.27	
BENZO(a)PYRENE	0.210962292	1	25	0.052	0.052	
BENZO(b)FLUORANTHENE	2.1	1	25	0.053	0.053	
bis(2-ETHYLHEXYL) PHTHALATE	123	9	25	0.037	0.35	

TABLE 4-19
Summary of AVMA Monitoring Well Borings Soil Analytical Results
OUE Remedial Investigation
Fort Richardson,Alaska

Chemical	Cleanup Level[1] (mg/kg)	Number of Detections	Number of Samples	Minimum Detected Concentration (mg/kg)	Maximum Detected Concentration (mg/kg)	Number of Detections that Exceeded Cleanup Level
DIBENZ(a,h)ANTHRACENE	0.21	13	25	0.1	0.5	10
FLUORANTHENE	22,000	1	25	0.056	0.056	
N-NITROSODI-n-PROPYLAMINE	0.25	1	25	0.078	0.1	
PYRENE	29,126	1	25	0.067	0.067	
VOCs						
1,2,3-TRICHLOROPROPANE	0.011	1	25	0.012	0.012	
1,2,4-TRIMETHYLBENZENE	170	2	25	0.0042	0.02	
ACETONE	6,036	3	25	0.036	0.062	
BENZENE	1.3	1	25	0.0083	0.0083	
CHLOROFORM	12	1	25	0.0071	0.0071	
ETHYLBENZENE	20	4	25	0.01	0.017	
IODOMETHANE (METHYL IODIDE)	--	1	25	0.16	0.27	
METHYL ETHYL KETONE (2-BUTANONE	27,102	6	25	0.019	0.15	
METHYLENE CHLORIDE	21	11	25	0.023	0.11	
n-PROPYLBENZENE	240	1	25	0.022	0.022	
O-XYLENE (1,2-DIMETHYLBENZENE)	420	1	25	0.0073	0.0073	
tert-BUTYL METHYL ETHER	157	10	25	0.005	0.038	
TETRACHLOROETHYLENE(PCE)	3.4	11	25	0.0089	0.36	
TOLUENE	520	11	25	0.0042	0.056	
TRICHLOROETHYLENE (TCE)	0.11	1	25	0.0066	0.0066	
XYLENES, m & p	420	9	25	0.009	0.041	

Notes:

[1] EPA Region 9 Industrial Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH concentrations, which were compared to Alaska Underground Storage Tank values for soil (ADEC, 1999)

BTEX = benzene, toluene, ethylbenzene, and xylenes
mg/kg = milligrams per kilogram
PAHs = polynuclear aromatic hydrocarbons
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-20
Summary of AVMA Groundwater Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (ug/L)	Number of Detections	Number of Samples	Minimum Detected Concentration (ug/L)	Maximum Detected Concentration (ug/L)	Number of Detections that Exceeded Cleanup Level
TPHs						
DIESEL RANGE ORGANICS	1,500	13	63	38	1800	1
GASOLINE RANGE ORGANICS	1,300	37	63	4.1	73	
RESIDUAL RANGE ORGANICS	1,100	14	41	73	230	
METALS						
ALUMINUM	36,499	18	21	17	610000	3
ANTIMONY	15	2	21	16	60	2
ARSENIC	0.045	4	21	20	130	4
BARIUM	2,555	21	21	4.3	3500	1
BERYLLIUM	73	4	20	0.23	16	
CADMIUM	18	3	21	2.4	35	1
CALCIUM	--	21	20	38000	540000	
COBALT	730	12	20	1.5	410	
CHROMIUM, TOTAL	109	21	21	2.9	1700	5
COPPER	1,460	11	21	1.8	1200	
IRON	10,950	21	21	12	1200000	7
LEAD	15	3	21	16	180	3
MAGNESIUM	--	21	20	6800	370000	
MANGANESE	876	17	21	1.1	22000	3
MERCURY	11	10	20	0.038	3.3	
NICKEL	730	13	21	10	1400	1
POTASSIUM	--	21	20	350	42000	
SELENIUM	182	3	21	32	370	1
SILVER	182	1	20	6.2	6.2	
SODIUM	--	21	20	2700	130000	
VANADIUM	255	7	21	17	1900	1
ZINC	10,950	18	20	1.9	2700	
METALS-DISSOLVED						
ALUMINUM	36,499	1	6	28	28	
ARSENIC	0.045	1	6	59	59	1
BARIUM	2,555	6	6	8.3	67	
CALCIUM	--	6	6	55000	280000	
CHROMIUM, TOTAL	109	4	6	2.5	4	
COBALT	730	3	6	1.8	2.1	
COPPER	1,460	4	6	1.4	2.4	
IRON	10,950	6	6	17	130	
MAGNESIUM	--	6	6	8400	91000	
MANGANESE	876	4	6	1.2	560	
MERCURY	11	4	6	0.033	2	
NICKEL	730	1	6	11	11	
POTASSIUM	--	6	6	740	2300	
SODIUM	--	6	6	3300	140000	

TABLE 4-20
Summary of AVMA Groundwater Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (ug/L)	Number of Detections	Number of Samples	Minimum Detected Concentration (ug/L)	Maximum Detected Concentration (ug/L)	Number of Detections that Exceeded Cleanup Level
ZINC	10,950	6	6	2.1	49	
BTEX						
BENZENE	0.34	1	41	0.38	0.38	1
TOLUENE	723	8	41	0.25	0.48	
XYLENES, TOTAL	210	1	41	0.67	0.67	
PAHs						
2-METHYLNAPHTHALENE	--	6	60	0.023	0.06	
ACENAPHTHENE	365	1	60	0.022	0.022	
BENZO(a)PYRENE	0.0092	1	60	0.17	0.17	1
BENZO(b)FLUORANTHENE	0.092	2	60	0.056	0.22	1
BENZO(g,h,i)PERYLENE	--	2	60	0.032	0.21	
BENZO(k)FLUORANTHENE	0.92	1	60	0.16	0.16	
DIBENZ(a,h)ANTHRACENE	0.0092	3	60	0.032	0.24	3
FLUORENE	243	1	60	0.022	0.022	
INDENO(1,2,3-c,d)PYRENE	0.092	2	60	0.043	0.22	1
NAPHTHALENE	6.2	7	60	0.036	0.089	
PHENANTHRENE	--	3	60	0.024	0.052	
PESTICIDES						
BETA BHC (BETA HEXACHLOROCYCLC	0.037	3	7	0.0065	0.011	
ENDOSULFAN SULFATE	--	1	7	0.0056	0.0056	
ENDRIN ALDEHYDE	--	1	7	0.0094	0.0094	
HEPTACHLOR	0.015	2	7	0.0071	0.0082	
SVOCs						
BENZYL ALCOHOL	10,950	3	60	1.4	7.9	
bis(2-ETHYLHEXYL) PHTHALATE	4.8	4	60	1.4	2.3	
DIMETHYL PHTHALATE	364,867	1	60	1.4	1.4	
DI-n-BUTYL PHTHALATE	3,650	23	60	1.2	11	
DI-n-OCTYLPHTHALATE	1,460	2	60	1.9	2	
PHENOL	21,900	3	60	2.2	2.8	
VOCs						
1,1,1,2-TETRACHLOROETHANE	0.43	1	62	0.1	0.1	
1,1,1-TRICHLOROETHANE	3,172	4	62	0.29	1.14	
1,2-DICHLOROBENZENE	370	2	62	0.16	1.9	
1,3-DICHLOROBENZENE	5.5	1	62	0.19	0.19	
1,4-DICHLOROBENZENE	0.50	1	62	0.2	0.2	
ACETONE	608	6	62	1.4	6.5	
BENZENE	0.34	3	62	0.11	0.16	
BROMODICHLOROMETHANE	0.18	1	62	0.42	0.42	1
BROMOMETHANE	8.7	1	62	0.15	0.15	
CARBON DISULFIDE	1,043	2	55	0.11	0.46	
CARBON TETRACHLORIDE	0.17	24	62	0.12	1.5	25

TABLE 4-20
Summary of AVMA Groundwater Analytical Results
OUE Remedial Investigation
Fort Richardson, Alaska

Chemical	Cleanup Level[1] (ug/L)	Number of Detections	Number of Samples	Minimum Detected Concentration (ug/L)	Maximum Detected Concentration (ug/L)	Number of Detections that Exceeded Cleanup Level
CHLOROFORM	6.2	23	62	0.12	7	1
CHLOROMETHANE	1.5	14	62	0.1	5.9	7
IODOMETHANE (METHYL IODIDE)	--	1	55	4.93	4.93	
METHYL ISOBUTYL KETONE (4-METHY	158	2	55	0.3	0.84	
METHYLENE CHLORIDE	4.3	24	62	0.43	6	2
NAPHTHALENE	6.2	1	62	2.2	2.2	
O-XYLENE (1,2-DIMETHYLBENZENE)	210	1	62	0.12	0.12	
P-CYMENE (p-ISOPROPYLTOLUENE)	--	3	62	0.11	0.16	
tert-BUTYL METHYL ETHER	13	1	55	0.17	0.17	
TETRACHLOROETHYLENE(PCE)	0.66	23	62	0.26	120	21
TOLUENE	723	21	62	0.09	1.2	
TRICHLOROETHYLENE (TCE)	0.028	1	62	0.16	0.16	1
XYLENES, m & p	210	1	62	1.1	1.1	

Notes:
[1] EPA Region 9 Tap Water Preliminary Remediation Goal values (EPA, 2002) for all chemical concentrations except TPH

BTEX = benzene, toluene, ethylbenzene, and xylenes
ug/L = micrograms per liter
PAHs = polynuclear aromatic hydrocarbons
SVOCs = semivolatile organic compounds
TPHs = total petroleum hydrocarbons
VOCs = volatile organic compounds

TABLE 4-21

AVMA Groundwater Monitoring Wells Total Metals and Turbidity Comparisons for Metals Exceeding Cleanup Levels

OUE Remedial Investigation

Fort Richardson, Alaska

Location ID:	**Cleanup Level**	**AP-3468**	**AP-3871**	**AP-3896**	**AP-4336**	**AP-4337**	**AP-4338**	**AP-4339**	**AP-4341**	**AP-4342**
Turbidity (NTUs)		37.4	9	13	>100	341	>999	337	not available	495
Analyte - Concentrations are in µg/L										
ALUMINUM	100,000	**11,000**	**420**	**120**	**110,000 =**	**20,000**	**610,000**	**7,600 J**	**13,000**	**56,000**
ANTIMONY	409	ND	**16 J**	ND	ND U	ND	**60**	ND	ND	ND
ARSENIC	1.6	ND	ND	**39 J**	**22 J**	**20 J**	**130**	ND	ND	ND
BARIUM	66,577	**110**	**14**	**71**	**890 =**	**160**	**3,500**	**74**	**130**	**470**
CADMIUM	451	ND	ND	ND	**5.2 J**	ND	**35**	ND	ND	**2.4 J**
CHROMIUM, TOTAL	448	**690**	**26**	**14**	**190 =**	**62**	**1,700**	**550**	**23**	**140**
IRON	100,000	**18,000**	**510**	**230**	**120,000 =**	**32,000**	**1.20E+06**	**14,000**	**19,000**	**87,000**
LEAD	750	ND	ND	ND	**95 =**	ND	**180**	ND	ND	**16 J**
MANGANESE	19,458	**340**	**26**	**170**	**2,500 =**	**780**	**22,000**	**560**	**650**	**1,800**
NICKEL	20,439	**230**	**11 J**	ND	**200 =**	**59**	**1,400**	**510**	**31 J**	**140**
SELENIUM	5,110	ND	ND	ND	**68 J**	ND	**370**	ND	ND	**32 J**
VANADIUM	7,154	**24**	ND	ND	**170 =**	**62**	**1,900**	**17**	**32**	**160**

Notes:

µg/L = micrograms per liter

J = The analyte detected is an estimated result.

ND = not detected at the reporting limit

NTUs = nephelometric turbidity units

Boldfaced **values** indicate detected concentrations

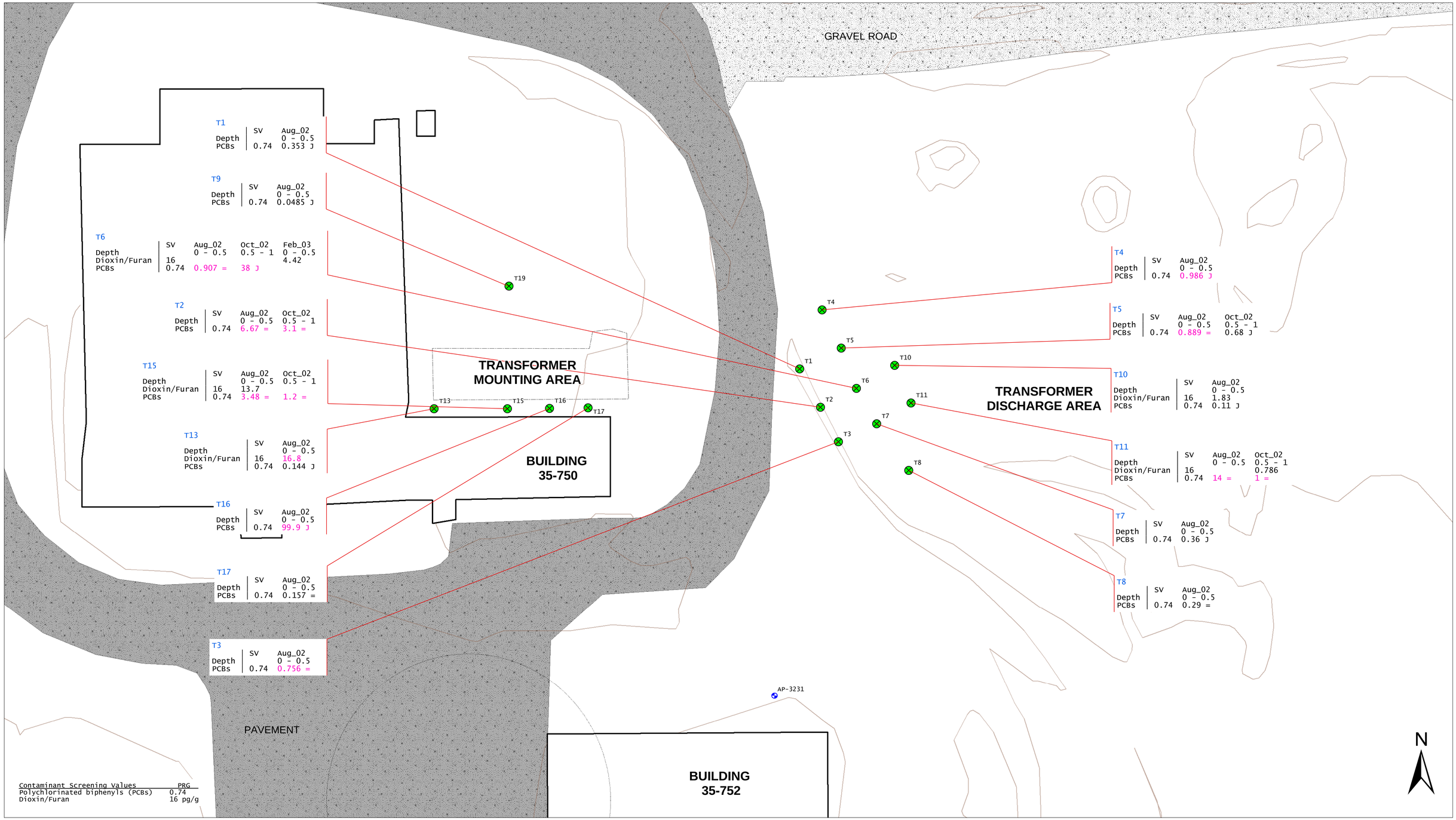
Shading indicates sample exceeds Region 9 Tap Water Preliminary Remediation Goal Values (EPA, 2002)

TABLE 4-22

AVMA Groundwater Monitoring Wells Detected Concentrations of Carbon Tetrachloride and Tetrachloroethylene (PCE)
OUE Remedial Investigation
Fort Richardson, Alaska

Sampling Event		Aug-Oct 2002		Nov 2002		Jun-Jul 2003		Sep 2003	
Chemical		CTC	PCE	CTC	PCE	CTC	PCE	CTC	PCE
Well	Aquifer	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)	(µg/L)
Cleanup Level		*0.17*	*0.66*	*0.17*	*0.66*	*0.17*	*0.66*	*0.17*	*0.66*
AP-3468	shallow unconfined	0.12	**30**			**0.44**	**69**		
AP-3532	unconfined	**1.5**				**1.4**			
AP-3534	deep confined	**0.22**	**21**				**28**		**19**
AP-3650	unconfined	**0.35**							
AP-3774	deep unconfined					**0.18**	0.26		
AP-3775	deep unconfined		0.61						
AP-3776	deep unconfined	**0.18**	0.48			**0.26**	0.44		
AP-3789	deep confined		**8.3**				**11**		
AP-3870	deep unconfined					**0.25**			
AP-3871	deep unconfined	**0.49**				**0.32**			
AP-3916	deep unconfined						**1.4**		
AP-4337	deep unconfined	**1.2**							
AP-4339	deep unconfined	0.13							
AP-4340	deep unconfined	**0.56**							
AP-4341	shallow unconfined	**0.38**	**1.8**			**0.52**	**23**		
AP-4342	shallow unconfined	**0.75**	**38**	**0.44**	**49**	**0.63**	**37**	**0.68**	**53**
AP-4411	shallow unconfined					**0.33**	**9.8**		**8.9**
AP-4413	shallow unconfined					**1.3**	**100**	**0.97**	**120**
AP-4414	merged deep unconfined								**9.8**
AP-4415	shallow unconfined						0.4		

Notes:
Boldfaced type = concentration exceeded cleanup level
µg/L = micrograms per liter
CTC = carbon tetrachloride
PCE = tetrachloroethylene



CH2MHILL

Units
Dioxin/Furan concentrations are in PG/G
All other concentrations are in mg/Kg unless noted.
Depths are in feet bgs

PRG = Preliminary Remediation Goal - EPA Region 9
All PRG concentrations are in mg/Kg unless noted.
0.44 = Concentrations exceeding screening values.

SAMPLING DATE	SAMPLING EVENT
August 2002 through October 2002	OUE RI

0 2.5 5 10 15 20 Meters

LEGEND
- Existing Monitoring Well
- Soil Sampling Location

SV = Screening Value
ND(##) Not Detected (Reporting Limit)
J, B, =, are Qualifiers
More information on qualifiers is available in the beginning of appendix A.

Figure 4-1
Building 35-752 Area
Transformer Mounting and Oil Discharge Areas Soil Analytical Results
Fort Richardson, OUE
Fort Richardson, Alaska

BUILDING
35-750

TRANSFORMER
MOUNTING AREA

PAVEMENT

BUILDING
35-752

GRAVEL

AP-4335

	SV	Jul_02	Jul_02
Depth		0 - 0.5	7 - 7.5
DCE12C	146	ND(0.0065)	0.037 =
DnBP	0	0.1 JB	0.38 B
DnOP	24624	ND(0.17)	ND(0.17)
DRO	250	5.2 J	ND(4)
GRO	300	ND(1.3)	0.71 J
MEK	27102	0.016 =	ND(0.016)
MTLNCL	21	0.016 JB	0.02 JB
PCBs	0.74	0.081 =	ND(0.013)
TCE	0.1	0.03 J	0.83 J

AP-4331

	SV	Jul_02	Jul_02
Depth		2 - 2.5	5 - 5.5
Acetone	6036	0.014 J	0.018 J
DCE12C	146	ND(0.0084)	0.0078 J
DnBP	0	0.082 JB	0.058 JB
DRO	250	81 J	ND(4.3)
MTLNCL	21	0.02 JB	ND(0.043)
PCBs	0.74	ND(6.9)	0.039 J
Pyrene	29126	0.04 J	ND(0.18)
TCE	0.1	ND(0.0087)	0.35 =

AP-4334

	SV	Jul_02	Jul_02
Depth		2 - 2.5	10 - 10.5
DCE12C	146	0.87 =	0.066 J
DCE12T	235	0.071 =	ND(0.012)
DnBP	0	0.069 JB	0.044 JB
DRO	250	6.3 J	2.2 J
GRO	300	ND(2.6)	0.41 J
MTLNCL	21	0.039 JB	0.031 JB
TCE	0.1	0.21 J	0.34 J

AP-4330

	SV	Jul_02	Jul_02
Depth		0 - 0.5	10 - 10.5
DCE12C	146	ND(0.0079)	0.011 J
DnBP	0	0.25 B	0.086 JB
DRO	250	4.3 J	ND(4.1)
GRO	300	ND(1.3)	0.58 J
MTLNCL	21	0.029 JB	0.072 B
PCBs	0.74	0.016 J	ND(0.013)
TCE	0.1	ND(0.0082)	0.21 J
Xylenes	0	0.0048 JB	ND(0.0083)

AP-4333

	SV	Jul_02	Jul_02
Depth		0 - 0.5	5 - 5.5
DnBP	0	0.091 JB	ND(0.68)
DRO	250	3.1 J	2.8 J
MEK	27102	ND(0.015)	0.12 B
MTLNCL	21	0.022 JB	0.065 JB
PCBs	0.74	0.062 J	0.037 J
Xylenes	0	ND(0.005)	0.014 =

AP-4329

	SV	Jul_02	Jul_02
Depth		2 - 2.5	7 - 7.5
Acetone	6036	0.035 J	ND(0.055)
DCE12C	146	ND(0.0093)	0.012 =
Dioxin/Furan	16	0.0376	0.0177
DnBP	0	0.099 JB	0.063 JB
DRO	250	11 =	ND(4.1)
GRO	300	ND(2)	0.53 J
MEK	27102	ND(0.019)	0.051 =
MTLNCL	21	0.043 JB	0.069 B
PCBs	0.74	0.023 J	0.045 J
TCE	0.1	0.028 J	1.1 J
Toluene	520	ND(0.0093)	0.0091 J
Xylenes	0	0.0067 J	0.0099 J

AP-4332

	SV	Jul_02
Depth		10 - 10.5
DCE12C	146	0.014 =
DnBP	0	0.094 JB
MTLNCL	21	0.063 B
TCE	0.1	0.31 J
Toluene	520	0.0051 J

AP-4328

	SV	Jul_02	Jul_02
Depth		0 - 0.5	5 - 5.5
Acetone	6036	ND(0.04)	0.021 J
BBP	100000	0.039 J	ND(0.17)
Dioxin/Furan	16	0.012	1.03
DnBP	0	0.8 B	0.66 B
DnOP	24624	ND(0.17)	0.054 J
DRO	250	3.2 J	12 =
MEK	27102	0.046 =	0.035 =
MTLNCL	21	0.033 JB	0.036 B
PCBs	0.74	0.013 J	0.69 J
Toluene	520	ND(0.0082)	0.0047 J
Xylenes	0	ND(0.0055)	0.0051 J

Contaminant Screening Value	PRG
1,1,1-Trichloroethane (TCA111)	1,200
1,2,4-Trichlorobenzene (TCB124)	3,000
Acetone	6,036
Benzylbutylphthalate (BBP)	100,000
bis-(2-ethylhexyl)phthalate (BIS2EHP)	123
Cis-1,2-Dichloroethene (DCE12C)	146
Diesel Range Organics (DRO)	250
Di-n-Butylphthalate (DnBP)	NA
Di-n-Octylphthalate (DnOP)	24,624
Dioxin/Furan	16 pg/g
Gasoline Range Organics (GRO)	300
Methyl Ethyl Ketone (2-Buatone) (MEK)	27,102
Methylene Chloride (MTLNCL)	21
PCBs	0.74
P-Cymene (p-Isopropyltoulene)	NA
Pyrene	29,126
Toulene	520
Trans-1,2-Dichloroethene (DCE12T)	235
Trichloroethylene (TCE)	0.11
Xylenes	420

AP-4335 AP-4331 AP-4334 AP-4330 AP-4333 AP-4329 AP-4332 AP-4328 AP-2982 AP-3231 AP-2983 AP-3503 AP-2987

N

CH2MHILL

Units
Dioxin/Furan concentrations are in PG/G
All other concentrations are in mg/Kg unless noted.
Depths are in feet bgs

PRG = Preliminary Remediation Goal - EPA Region 9
All PRG concentrations are in mg/Kg unless noted.
0.44 = Concentrations exceeding screening values.

SAMPLING DATE
July 2002 through August 2002

SAMPLING EVENT
OUE RI

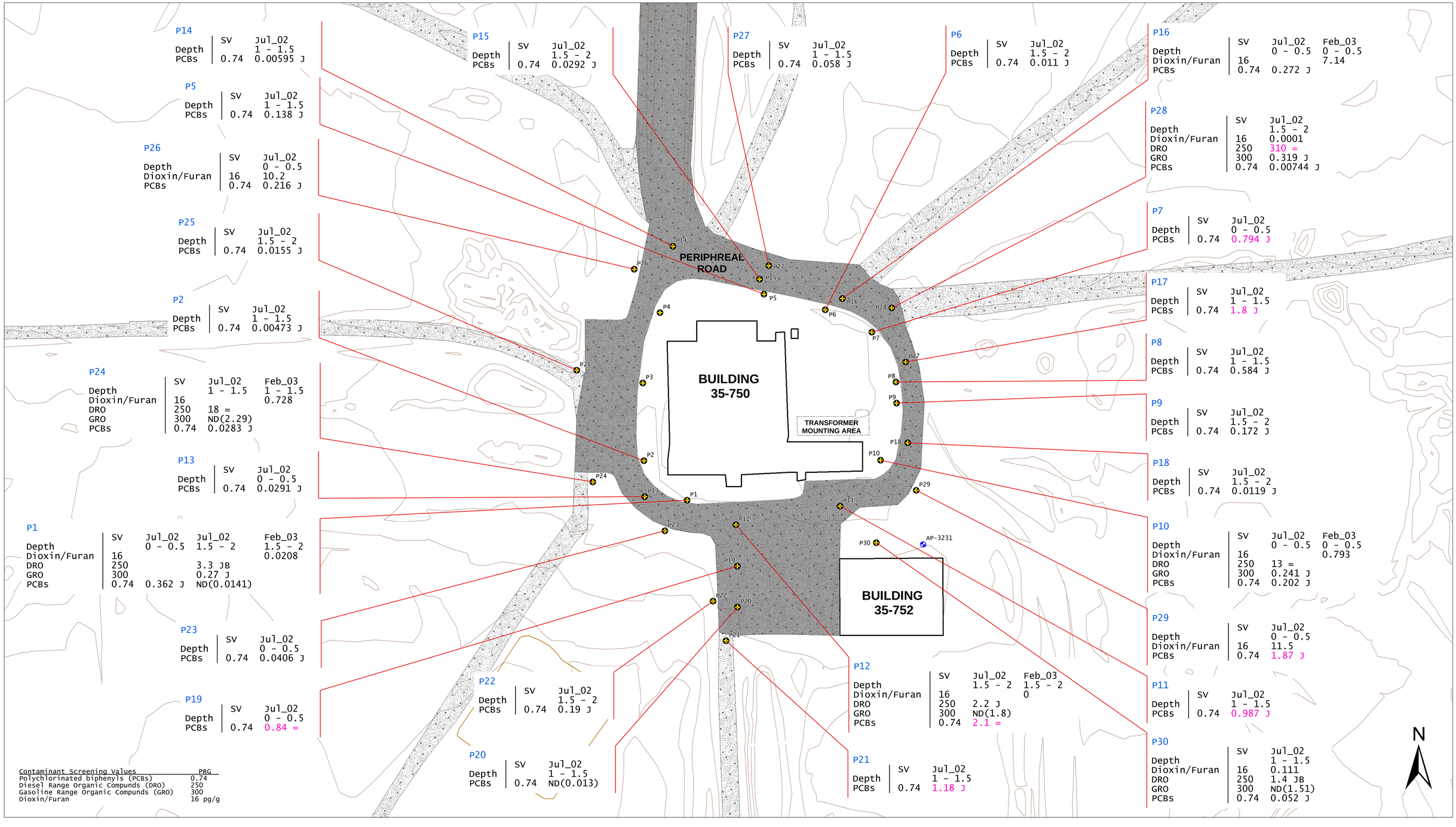
0 2.5 5 10 15 20 Meters

LEGEND

- Existing Monitoring Well
- Soil Sampling Location

SV = Screening Value
ND(##) Not Detected (Reporting Limit)
J, B, =, are Qualifiers
More information on qualifiers is available in the beginning of appendix A.

Figure 4-2
Building 35-752 Area
Burn Pit Area Soil Analytical Results
Fort Richardson, OUE
Fort Richardson, Alaska



CH2MHILL

Units
Dioxin/Furan concentrations are in PG/G
All other concentrations are in mg/Kg unless noted.
Depths are in feet bgs

PRG = Preliminary Remediation Goal - EPA Region 9
All PRG concentrations are in mg/Kg unless noted.
0.44 = Concentrations exceeding screening values.

SAMPLING DATE
July 2002

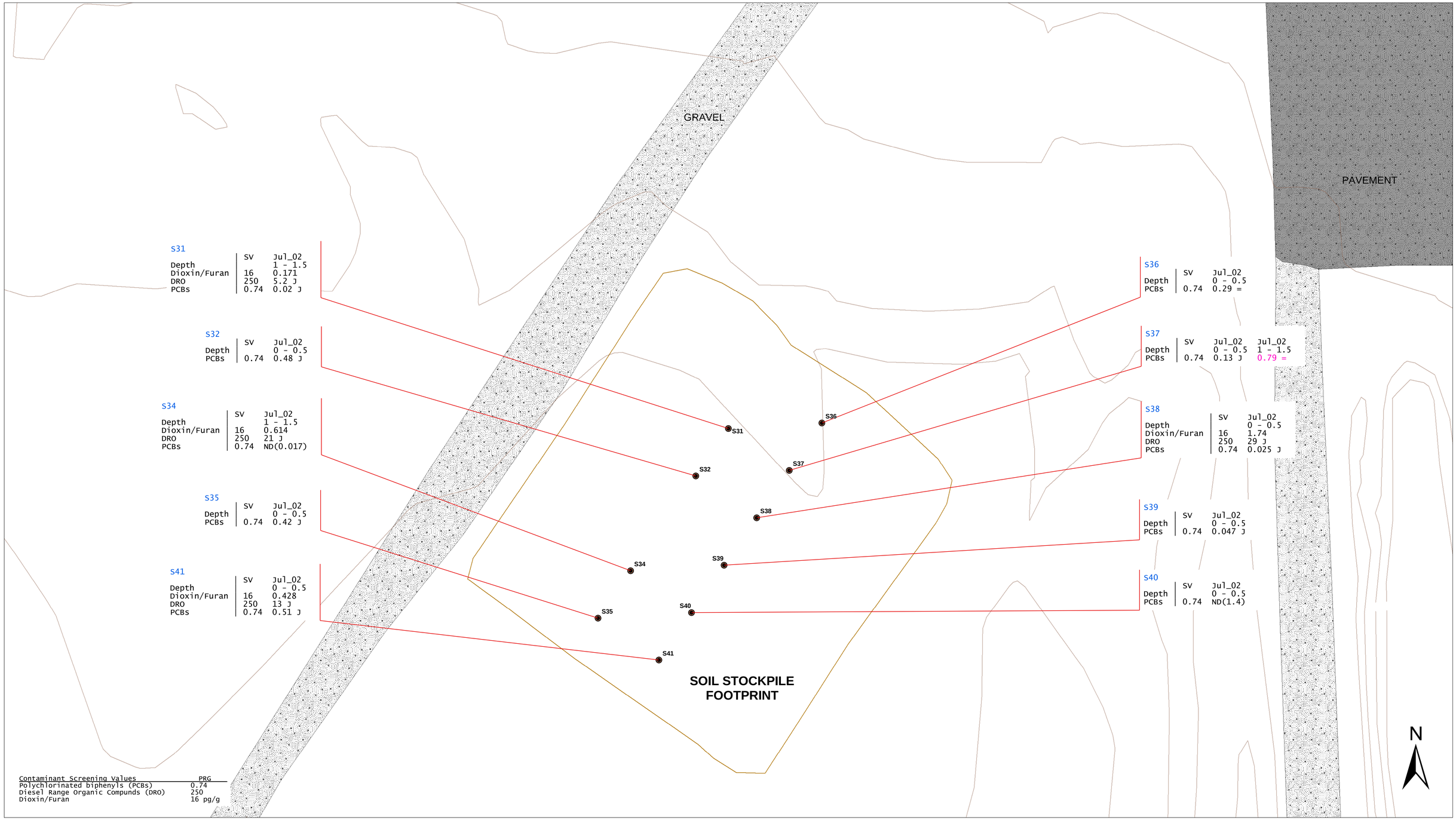
SAMPLING EVENT
OUE RI

0 5 10 20 30 40
Meters

LEGEND
- Existing Monitoring Well
- Soil Sampling Location

SV = Screening Value
ND(##) Not Detected (Reporting Limit)
J, B, =, are Qualifiers
More information on qualifiers is available in the beginning of appendix A.

Figure 4-3
Building 35-752 Area
Peripheral Road Area
Soil Analytical Results
Fort Richardson, OUE
Fort Richardson, Alaska



Contaminant Screening Values	PRG
Polychlorinated biphenyls (PCBs)	0.74
Diesel Range Organic Compunds (DRO)	250
Dioxin/Furan	16 pg/g

CH2MHILL

Units
Dioxin/Furan concentrations are in PG/G
All other concentrations are in mg/Kg unless noted.
Depths are in feet bgs

PRG = Preliminary Remediation Goal - EPA Region 9
All PRG concentrations are in mg/Kg unless noted.
0.44 = Concentrations exceeding screening values.

LEGEND
- Existing Monitoring Well
- Soil Sampling Location

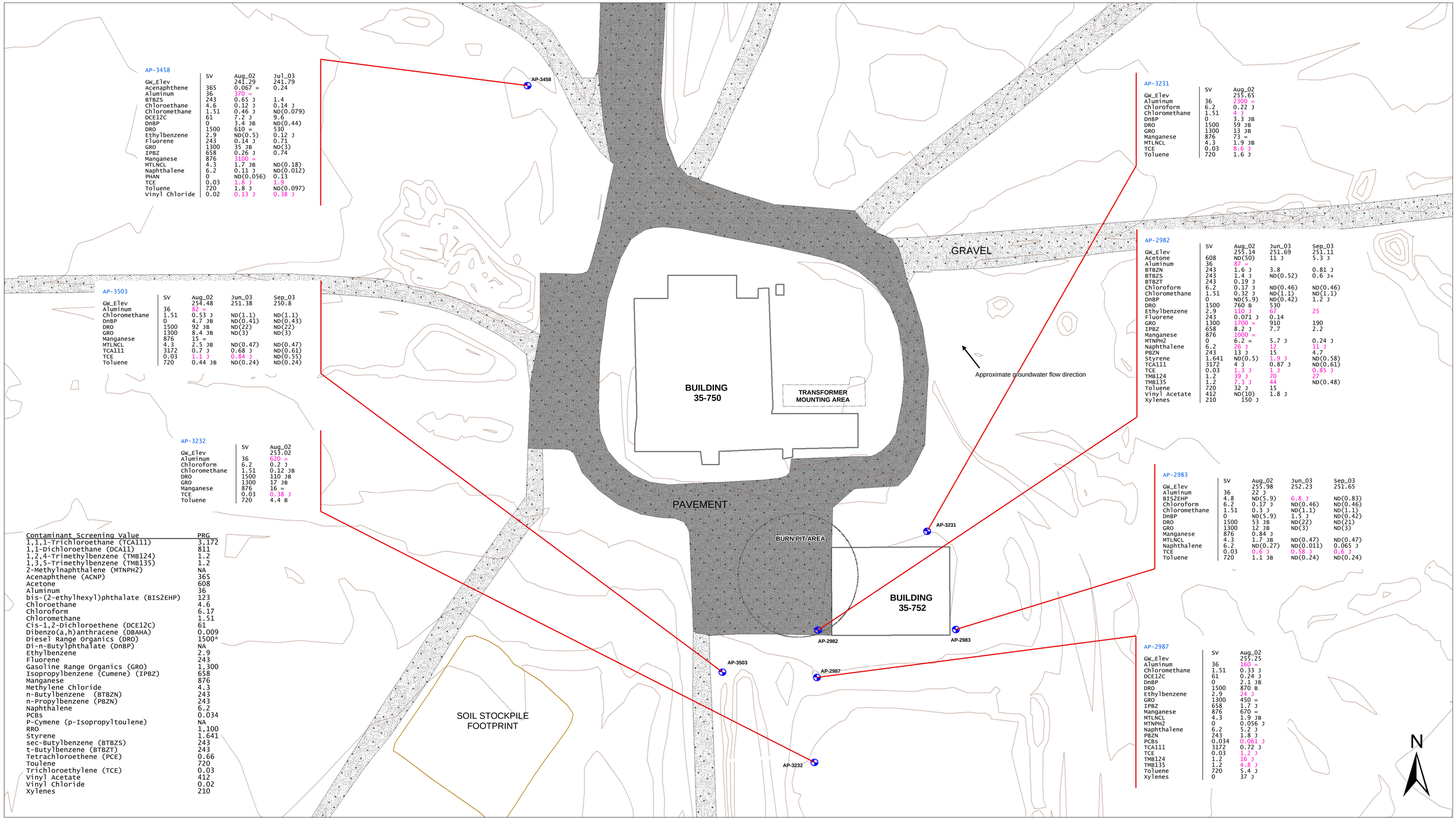
SV = Screening Value
ND(##) Not Detected (Reporting Limit)
J, B, =, are Qualifiers
More information on qualifiers is available in the beginning of appendix A.

SAMPLING DATE
July 2002

SAMPLING EVENT
OUE RI

0 2.5 5 10 15 20 Meters

Figure 4-4
Building 35-752 Area
Soil Stockpile Footprint Area
Soil Analytical Results
Fort Richardson, OUE
Fort Richardson, Alaska



AP-3458

	SV	Aug_02	Jul_03
GW_Elev		241.29	241.79
Acenaphthene	365	0.067 =	0.24
Aluminum	36	370 =	
BTBZS	243	0.65 J	1.4
Chloroethane	4.6	0.12 J	0.14 J
Chloromethane	1.51	0.46 J	ND(0.079)
DCE12C	61	7.2 J	9.6
DnBP	0	3.4 JB	ND(0.44)
DRO	1500	610 =	530
Ethylbenzene	2.9	ND(0.5)	0.12 J
Fluorene	243	0.14 J	0.71
GRO	1300	35 JB	ND(3)
IPBZ	658	0.26 J	0.74
Manganese	876	3100 =	
MTLNCL	4.3	1.7 JB	ND(0.18)
Naphthalene	6.2	0.11 J	ND(0.012)
PHAN	0	ND(0.056)	0.13
TCE	0.03	1.8 J	1.9
Toluene	720	1.8 J	ND(0.097)
Vinyl Chloride	0.02	0.13 J	0.38 J

AP-3231

	SV	Aug_02
GW_Elev		255.65
Aluminum	36	2300 =
Chloroform	6.2	0.22 J
Chloromethane	1.51	4 J
DnBP	0	3.3 JB
DRO	1500	59 JB
GRO	1300	13 JB
Manganese	876	73 =
MTLNCL	4.3	1.9 JB
TCE	0.03	8.6 J
Toluene	720	1.6 J

AP-3503

	SV	Aug_02	Jun_03	Sep_03
GW_Elev		254.48	251.38	250.8
Aluminum	36	82 =		
Chloromethane	1.51	0.53 J	ND(1.1)	ND(1.1)
DnBP	0	4.7 JB	ND(0.41)	ND(0.43)
DRO	1500	92 JB	ND(22)	ND(22)
GRO	1300	8.4 JB	ND(3)	ND(3)
Manganese	876	15 =		
MTLNCL	4.3	2.5 JB	ND(0.47)	ND(0.47)
TCA111	3172	0.7 J	0.68 J	ND(0.61)
TCE	0.03	1.1 J	0.84 J	ND(0.55)
Toluene	720	0.44 JB	ND(0.24)	ND(0.24)

AP-2982

	SV	Aug_02	Jun_03	Sep_03
GW_Elev		255.14	251.69	251.11
Acetone	608	ND(50)	11 J	5.3 J
Aluminum	36	87 =		
BTBZN	243	1.6 J	3.8	0.81 J
BTBZS	243	1.4 J	ND(0.52)	0.6 J+
BTBZT	243	0.19 J		
Chloroform	6.2	0.17 J	ND(0.46)	ND(0.46)
Chloromethane	1.51	0.32 J	ND(1.1)	ND(1.1)
DnBP	0	ND(5.9)	ND(0.42)	1.2 J
DRO	1500	760 B	530	
Ethylbenzene	2.9	110 J	67	25
Fluorene	243	0.071 J	0.14	
GRO	1300	1700 =	910	190
IPBZ	658	8.2 J	7.7	2.2
Manganese	876	1000 =		
MTNPH2	0	6.2 =	5.7 J	0.24 J
Naphthalene	6.2	26 J	12	11 J
PBZN	243	13 J	15	4.7
Styrene	1,641	ND(0.5)	1.9 J	ND(0.58)
TCA111	3172	4 J	0.87 J	ND(0.61)
TCE	0.03	1.3 J	1 J	0.85 J
TMB124	1.2	39 J	70	27
TMB135	1.2	7.3 J	44	ND(0.48)
Toluene	720	32 J	15	
Vinyl Acetate	412	ND(10)	1.8 J	
Xylenes	210	150 J		

AP-3232

	SV	Aug_02
GW_Elev		253.02
Aluminum	36	620 =
Chloroform	6.2	0.2 J
Chloromethane	1.51	0.12 JB
DRO	1500	110 JB
GRO	1300	17 JB
Manganese	876	16 =
TCE	0.03	0.38 J
Toluene	720	4.4 B

AP-2983

	SV	Aug_02	Jun_03	Sep_03
GW_Elev		255.98	252.23	251.65
Aluminum	36	22 J		
BIS2EHP	4.8	ND(5.9)	6.8 J	ND(0.83)
Chloroform	6.2	0.17 J	ND(0.46)	ND(0.46)
Chloromethane	1.51	0.3 J	ND(1.1)	ND(1.1)
DnBP	0	ND(5.9)	1.5 J	ND(0.42)
DRO	1500	53 JB	ND(22)	ND(21)
GRO	1300	12 JB	ND(3)	ND(3)
Manganese	876	0.84 J		
MTLNCL	4.3	1.7 JB	ND(0.47)	ND(0.47)
Naphthalene	6.2	ND(0.27)	ND(0.011)	0.065 J
TCE	0.03	0.6 J	0.58 J	0.6 J
Toluene	720	1.1 JB	ND(0.24)	ND(0.24)

AP-2987

	SV	Aug_02
GW_Elev		255.25
Aluminum	36	160 =
Chloromethane	1.51	0.33 J
DCE12C	61	0.24 J
DnBP	0	2.1 JB
DRO	1500	870 B
Ethylbenzene	2.9	24 J
GRO	1300	450 =
IPBZ	658	1.7 J
Manganese	876	670 =
MTLNCL	4.3	1.9 JB
MTNPH2	0	0.056 J
Naphthalene	6.2	5.2 J
PBZN	243	1.8 J
PCBs	0.034	0.061 J
TCA111	3172	0.72 J
TCE	0.03	1.2 J
TMB124	1.2	16 J
TMB135	1.2	4.8 J
Toluene	720	5.4 J
Xylenes	0	37 J

Contaminant Screening Value	PRG
1,1,1-Trichloroethane (TCA111)	3,172
1,1-Dichloroethane (DCA11)	811
1,2,4-Trimethylbenzene (TMB124)	1.2
1,3,5-Trimethylbenzene (TMB135)	1.2
2-Methylnaphthalene (MTNPH2)	NA
Acenaphthene (ACNP)	365
Acetone	608
Aluminum	36
bis-(2-ethylhexyl)phthalate (BIS2EHP)	123
Chloroethane	4.6
Chloroform	6.17
Chloromethane	1.51
Cis-1,2-Dichloroethene (DCE12C)	61
Dibenzo(a,h)anthracene (DBAHA)	0.009
Diesel Range Organics (DRO)	1500*
Di-n-Butylphthalate (DnBP)	NA
Ethylbenzene	2.9
Fluorene	243
Gasoline Range Organics (GRO)	1,300
Isopropylbenzene (Cumene) (IPBZ)	658
Manganese	876
Methylene Chloride	4.3
n-Butylbenzene (BTBZN)	243
n-Propylbenzene (PBZN)	243
Naphthalene	6.2
PCBs	0.034
P-Cymene (p-Isopropyltoulene)	NA
RRO	1,100
Styrene	1,641
sec-Butylbenzene (BTBZS)	243
t-Butylbenzene (BTBZT)	243
Tetrachloroethene (PCE)	0.66
Toulene	720
Trichloroethylene (TCE)	0.03
Vinyl Acetate	412
Vinyl Chloride	0.02
Xylenes	210

Units
All concentrations are in ug/L

PRG = Preliminary Remediation Goal - EPA Region 9
All PRG concentrations are in ug/L
*Cleanup levels for DRO, GRO and RRO are State of Alaska Groundwater Quality Standards
0.44 = Concentrations exceeding screening values.

LEGEND

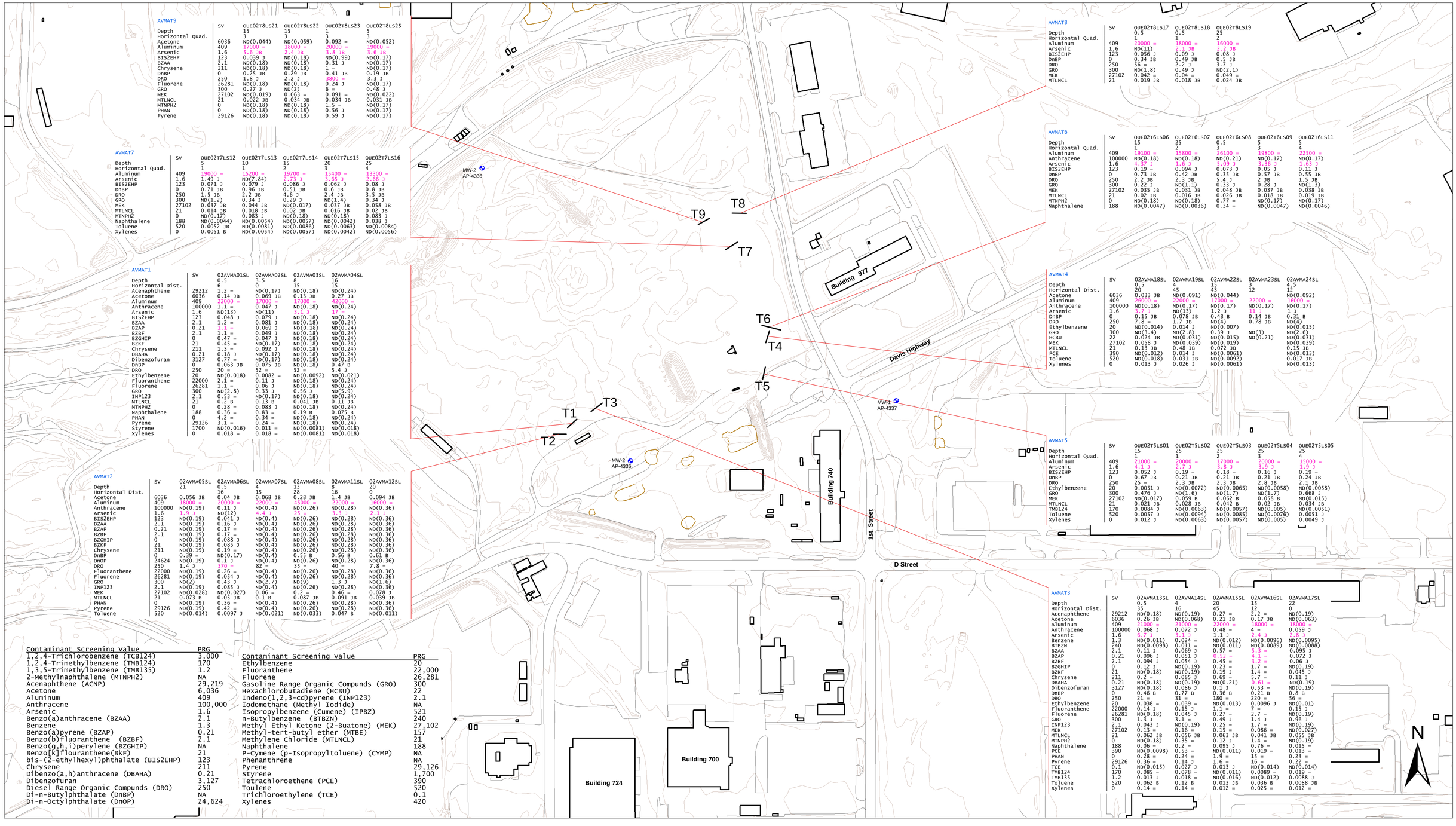
Existing Monitoring Well

SV = Screening Value
ND(##) Not Detected (Reporting Limit)
J, B, =, are Qualifiers
More information on qualifiers is available in the beginning of appendix A.

SAMPLING DATE	SAMPLING EVENT
August 2002	OUE RI
June 2003	Fort Richardson Groundwater Monitoring Project
September 2003	Fort Richardson Groundwater Monitoring Project

0 5 10 20 30 Meters

Figure 4-5
Building 35-752 Area
Groundwater Analytical Results
Fort Richardson, OUE
Fort Richardson, Alaska



AVMAT9

	SV	OUE02T8LS21	OUE02T8LS22	OUE02T8LS23	OUE02T8LS25
Depth		15	15	1	5
Horizontal Quad.		3	3	3	3
Acetone	6036	ND(0.044)	ND(0.059)	0.092 =	ND(0.052)
Aluminum	409	17000 =	18000 =	20000 =	19000 =
Arsenic	1.6	5.6 JB	2.4 JB	3.8 JB	3.6 JB
BIS2EHP	123	0.039 J	ND(0.18)	ND(0.99)	ND(0.17)
BZAA	2.1	ND(0.18)	ND(0.18)	0.31 J	ND(0.17)
Chrysene	211	ND(0.18)	ND(0.18)	1 =	ND(0.17)
DnBP	0	0.25 JB	0.29 JB	0.41 JB	0.19 JB
DRO	250	1.8 J	2.2 J	3800 =	3.3 J
Fluorene	26281	ND(0.18)	ND(0.18)	0.24 J	ND(0.17)
GRO	300	0.27 J	ND(2)	6 =	0.48 J
MEK	27102	ND(0.019)	0.063 =	0.091 =	ND(0.022)
MTLNCL	21	0.022 JB	0.034 JB	0.034 JB	0.031 JB
MTNPH2	0	ND(0.18)	ND(0.18)	1.5 =	ND(0.17)
PHAN	0	ND(0.18)	ND(0.18)	0.56 J	ND(0.17)
Pyrene	29126	ND(0.18)	ND(0.18)	0.59 J	ND(0.17)

AVMAT7

	SV	OUE02T7LS12	OUE02T7LS13	OUE02T7LS14	OUE02T7LS15	OUE02T7LS16
Depth		5	10	15	20	25
Horizontal Quad.		1	1	2	3	4
Aluminum	409	19000 =	15200 =	19700 =	15400 =	13300 =
Arsenic	1.6	1.49 J	ND(7.84)	2.73 J	3.65 J	2.66 J
BIS2EHP	123	0.071 J	0.079 J	0.086 J	0.062 J	0.08 J
DnBP	0	0.71 JB	0.96 JB	0.51 JB	0.6 JB	0.8 JB
DRO	250	1.5 JB	2.2 JB	4.6 J	2.4 JB	3.5 JB
GRO	300	ND(1.2)	0.34 J	0.29 J	ND(1.4)	0.34 J
MEK	27102	0.037 JB	0.044 JB	ND(0.017)	0.037 JB	0.058 JB
MTLNCL	21	0.014 JB	0.018 JB	0.02 JB	0.016 JB	0.02 JB
MTNPH2	0	ND(0.17)	0.083 J	ND(0.18)	ND(0.18)	0.083 J
Naphthalene	188	ND(0.0044)	ND(0.0054)	ND(0.0057)	ND(0.0042)	0.038 J
Toluene	520	0.0052 JB	ND(0.0081)	ND(0.0086)	ND(0.0063)	ND(0.0084)
Xylenes	0	0.0051 B	ND(0.0054)	ND(0.0057)	ND(0.0042)	ND(0.0056)

AVMAT1

	SV	O2AVMA01SL	O2AVMA02SL	O2AVMA03SL	O2AVMA04SL
Depth		0.5	3.5	8	16
Horizontal Dist.		6	0	15	15
Acenaphthene	29212	1.2 =	ND(0.17)	ND(0.18)	ND(0.24)
Acetone	6036	0.14 JB	0.069 JB	0.13 JB	0.27 JB
Aluminum	409	22000 =	17000 =	17000 =	42000 =
Anthracene	100000	1.1 =	0.047 J	ND(0.18)	ND(0.24)
Arsenic	1.6	ND(13)	ND(11)	3.2 J	17 =
BIS2EHP	123	0.048 J	0.079 J	ND(0.18)	ND(0.24)
BZAA	2.1	1.2 =	0.081 J	ND(0.18)	ND(0.24)
BZAP	0.21	1.1 =	0.069 J	ND(0.18)	ND(0.24)
BZBF	2.1	1.1 =	0.049 J	ND(0.18)	ND(0.24)
BZGHIP	0	0.47 =	0.047 J	ND(0.18)	ND(0.24)
BZKF	21	0.45 =	ND(0.17)	ND(0.18)	ND(0.24)
Chrysene	211	1.3 =	0.092 J	ND(0.18)	ND(0.24)
DBAHA	0.21	0.18 J	ND(0.17)	ND(0.18)	ND(0.24)
Dibenzofuran	3127	0.77 =	ND(0.17)	ND(0.18)	ND(0.24)
DnBP	0	0.063 JB	0.075 JB	ND(0.18)	0.47 B
DRO	250	20 =	52 =	52 =	5.4 J
Ethylbenzene	20	ND(0.018)	0.0082 =	ND(0.0092)	ND(0.021)
Fluoranthene	22000	2.1 =	0.11 J	ND(0.18)	ND(0.24)
Fluorene	26281	1.1 =	0.06 J	ND(0.18)	ND(0.24)
GRO	300	ND(2.8)	0.33 J	0.56 J	ND(5.9)
INP123	2.1	0.53 =	ND(0.17)	ND(0.18)	ND(0.24)
MTLNCL	21	0.2 B	0.13 B	0.041 JB	0.11 JB
MTNPH2	0	0.28 =	0.083 J	ND(0.18)	ND(0.24)
Naphthalene	188	0.36 =	0.83 =	0.19 B	0.075 B
PHAN	0	4.2 =	0.34 =	ND(0.18)	ND(0.24)
Pyrene	29126	3.1 =	0.24 =	ND(0.18)	ND(0.24)
Styrene	1700	ND(0.016)	0.011 =	ND(0.0081)	ND(0.018)
Xylenes	0	0.018 =	0.018 =	ND(0.0081)	ND(0.018)

AVMAT2

	SV	O2AVMA05SL	O2AVMA06SL	O2AVMA07SL	O2AVMA08SL	O2AVMA11SL	O2AVMA12SL
Depth		21	0.5	4	13	8	20
Horizontal Dist.			16	15	28	16	0
Acetone	6036	0.056 JB	0.04 JB	0.068 JB	0.28 JB	1.4 JB	0.094 JB
Aluminum	409	18000 =	20000 =	27000 =	45000 =	22000 =	16000 =
Anthracene	100000	ND(0.19)	0.11 J	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
Arsenic	1.6	1.9 J	ND(12)	4.4 J	25 =	3.3 J	2.3 J
BIS2EHP	123	ND(0.19)	0.041 J	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
BZAA	2.1	ND(0.19)	0.16 J	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
BZAP	0.21	ND(0.19)	0.17 =	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
BZBF	2.1	ND(0.19)	0.17 =	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
BZGHIP	0	ND(0.19)	0.088 J	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
BZKF	21	ND(0.19)	0.085 J	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
Chrysene	211	ND(0.19)	0.19 =	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
DnBP	0	0.39 =	ND(0.17)	ND(0.4)	0.55 B	0.56 B	0.61 B
DnOP	24624	ND(0.19)	0.1 J	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
DRO	250	1.4 J	370 =	82 =	35 =	40 =	7.8 =
Fluoranthene	22000	ND(0.19)	0.26 =	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
Fluorene	26281	ND(0.19)	0.054 J	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
GRO	300	ND(2)	0.43 J	ND(2.7)	ND(9)	1.3 J	ND(1.6)
INP123	2.1	ND(0.19)	0.085 J	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
MEK	27102	ND(0.028)	ND(0.027)	0.06 =	0.2 =	0.46 =	0.078 J
MTLNCL	21	0.073 B	0.05 JB	0.1 B	0.087 JB	0.091 JB	0.039 JB
PHAN	0	ND(0.19)	0.36 =	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
Pyrene	29126	ND(0.19)	0.42 =	ND(0.4)	ND(0.26)	ND(0.28)	ND(0.36)
Toluene	520	ND(0.014)	0.0097 J	ND(0.021)	ND(0.033)	0.047 B	ND(0.011)

AVMAT8

	SV	OUE02T8LS17	OUE02T8LS18	OUE02T8LS19
Depth		0.5	0.5	25
Horizontal Quad.		1	1	2
Aluminum	409	20000 =	18000 =	16000 =
Arsenic	1.6	ND(11)	2.1 JB	2.2 JB
BIS2EHP	123	0.056 J	0.09 J	0.08 J
DnBP	0	0.34 JB	0.49 JB	0.5 JB
DRO	250	56 =	2.2 J	3.7 J
GRO	300	ND(1.8)	0.49 J	ND(2.1)
MEK	27102	0.042 =	0.04 =	0.049 =
MTLNCL	21	0.019 JB	0.018 JB	0.024 JB

AVMAT6

	SV	OUE02T6LS06	OUE02T6LS07	OUE02T6LS08	OUE02T6LS09	OUE02T6LS11
Depth		15	25	0.5	5	5
Horizontal Quad.		1	2	3	3	4
Aluminum	409	19100 =	15800 =	26100 =	19800 =	22500 =
Anthracene	100000	ND(0.18)	ND(0.18)	ND(0.21)	ND(0.17)	ND(0.17)
Arsenic	1.6	4.37 J	1.6 J	5.09 J	3.36 J	1.63 J
BIS2EHP	123	0.19 =	0.094 J	0.073 J	0.05 J	0.11 J
DnBP	0	0.73 JB	0.42 JB	0.35 JB	0.57 JB	0.55 JB
DRO	250	2.2 JB	2.3 JB	5.4 J	2 JB	1.5 JB
GRO	300	0.22 J	ND(1.1)	0.33 J	0.28 J	ND(1.3)
MEK	27102	0.035 JB	0.031 JB	0.048 JB	0.037 JB	0.038 JB
MTLNCL	21	0.02 JB	0.016 JB	0.026 JB	0.018 JB	0.019 JB
MTNPH2	0	ND(0.18)	ND(0.18)	0.77 =	ND(0.17)	ND(0.17)
Naphthalene	188	ND(0.0047)	ND(0.0036)	0.34 =	ND(0.0047)	ND(0.0046)

AVMAT4

	SV	O2AVMA18SL	O2AVMA19SL	O2AVMA22SL	O2AVMA23SL	O2AVMA24SL
Depth		0.5	4	15	3	4.5
Horizontal Dist.		20	45	43	12	12
Acetone	6036	0.033 JB	ND(0.091)	ND(0.044)		ND(0.092)
Aluminum	409	26000 =	22000 =	17000 =	22000 =	16000 =
Anthracene	100000	ND(0.18)	ND(0.17)	ND(0.17)	ND(0.17)	ND(0.17)
Arsenic	1.6	3.7 J	ND(13)	1.2 J	11 J	1 J
DnBP	0	0.15 JB	0.078 JB	0.48 B	0.14 JB	0.31 B
DRO	250	7.8 =	1.7 JB	ND(4)	0.78 JB	ND(4)
Ethylbenzene	20	ND(0.014)	0.014 J	ND(0.007)		ND(0.015)
GRO	300	ND(3.4)	ND(2.8)	0.39 J	ND(3)	ND(2.6)
HCBU	22	0.024 JB	ND(0.031)	ND(0.015)	ND(0.21)	ND(0.031)
MEK	27102	0.058 J	ND(0.039)	ND(0.019)		ND(0.039)
MTLNCL	21	0.13 JB	0.48 JB	0.072 JB		0.15 JB
PCE	390	ND(0.012)	0.014 J	ND(0.0061)		ND(0.013)
Toluene	520	ND(0.018)	0.031 JB	ND(0.0092)		ND(0.017)
Xylenes	0	0.013 J	0.026 J	ND(0.0061)		ND(0.013)

AVMAT5

	SV	OUE02T5LS01	OUE02T5LS02	OUE02T5LS03	OUE02T5LS04	OUE02T5LS05
Depth		15	25	25	25	25
Horizontal Quad.		1	1	2	3	4
Aluminum	409	21000 =	20000 =	17000 =	20000 =	15000 =
Arsenic	1.6	4.1 J	2.7 J	3.8 J	3.9 J	1.9 J
BIS2EHP	123	0.052 J	0.19 =	0.18 =	0.16 J	0.19 =
DnBP	0	0.67 JB	0.21 JB	0.21 JB	0.16 J	0.19 =
DRO	250	25 =	2.3 JB	2.3 JB	2.8 JB	2.1 JB
Ethylbenzene	20	0.0051 J	ND(0.0072)	ND(0.0065)	ND(0.0058)	ND(0.0058)
GRO	300	0.476 J	ND(1.6)	ND(1.7)	ND(1.7)	0.668 J
MEK	27102	ND(0.017)	0.059 B	0.062 B	0.058 B	ND(0.015)
MTLNCL	21	0.021 JB	0.028 JB	0.042 B	0.02 JB	0.034 JB
TMB124	170	0.0084 J	ND(0.0063)	ND(0.0057)	ND(0.005)	ND(0.0051)
Toluene	520	0.0057 J	ND(0.0094)	ND(0.0085)	ND(0.0076)	0.0051 J
Xylenes	0	0.012 J	ND(0.0063)	ND(0.0057)	ND(0.005)	0.0049 J

AVMAT3

	SV	O2AVMA13SL	O2AVMA14SL	O2AVMA15SL	O2AVMA16SL	O2AVMA17SL
Depth		0.5	4	20	15	22
Horizontal Dist.		35	16	45	12	0
Acenaphthene	29212	ND(0.18)	ND(0.19)	0.27 =	2.2 =	ND(0.19)
Acetone	6036	0.26 JB	ND(0.068)	0.21 JB	0.17 JB	ND(0.063)
Aluminum	409	21000 =	21000 =	22000 =	18000 =	18000 =
Anthracene	100000	0.068 J	0.072 J	0.48 =	4 =	0.059 J
Arsenic	1.6	6.7 J	3.1 J	1.1 J	2.4 J	2.8 J
Benzene	1.3	ND(0.011)	0.024 =	ND(0.012)	ND(0.0096)	ND(0.0095)
BTBZN	240	ND(0.0098)	0.011 =	ND(0.011)	ND(0.0089)	ND(0.0088)
BZAA	2.1	0.11 J	0.069 J	0.57 =	5.3 =	0.095 J
BZAP	0.21	0.096 J	0.051 J	0.52 =	4.1 =	0.072 J
BZBF	2.1	0.094 J	0.054 J	0.45 =	3.2 =	0.06 J
BZGHIP	0	0.12 J	ND(0.19)	0.23 =	1.7 =	ND(0.19)
BZKF	21	ND(0.18)	ND(0.19)	0.19 J	1.4 =	0.045 J
Chrysene	211	0.2 =	0.085 J	0.69 =	5.7 =	0.11 J
DBAHA	0.21	ND(0.18)	ND(0.19)	ND(0.21)	0.61 =	ND(0.19)
Dibenzofuran	3127	ND(0.18)	0.086 J	0.1 J	0.53 =	ND(0.19)
DnBP	0	0.46 B	0.77 B	0.36 B	0.21 B	0.8 B
DRO	250	21 =	31 =	180 =	220 =	56 =
Ethylbenzene	20	0.038 =	0.039 =	ND(0.013)	0.0096 J	ND(0.01)
Fluoranthene	22000	0.14 J	0.15 J	1.1 =	7 =	0.15 J
Fluorene	26281	ND(0.18)	0.045 J	0.27 =	2.7 =	ND(0.19)
GRO	300	1.3 J	3.1 =	0.49 J	1.4 J	0.96 J
INP123	2.1	0.043 J	ND(0.19)	0.25 =	1.7 =	ND(0.19)
MEK	27102	0.13 =	0.16 =	0.15 =	0.086 =	ND(0.027)
MTLNCL	21	0.062 JB	0.056 JB	0.063 JB	0.041 JB	0.055 JB
MTNPH2	0	ND(0.18)	0.35 =	0.12 J	1.4 =	ND(0.19)
Naphthalene	188	0.06 =	0.2 =	0.095 J	0.76 =	0.015 =
PCE	390	ND(0.0098)	0.53 =	ND(0.011)	0.019 =	0.013 =
PHAN	0	0.28 =	0.24 =	1.9 =	15 =	0.23 =
Pyrene	29126	0.36 =	0.14 J	1.6 =	16 =	0.22 =
TCE	0.1	ND(0.015)	0.027 J	0.013 J	ND(0.014)	ND(0.014)
TMB124	170	0.085 =	0.078 =	ND(0.011)	0.0089 =	0.019 =
TMB135	1.2	0.013 J	0.018 =	ND(0.016)	ND(0.012)	0.0088 J
Toluene	520	0.062 B	0.12 B	0.013 JB	0.036 B	0.0088 JB
Xylenes	0	0.14 =	0.14 =	0.012 =	0.025 =	0.012 =

Contaminant	Screening Value	PRG
1,2,4-Trichlorobenzene (TCB124)		3,000
1,2,4-Trimethylbenzene (TMB124)		170
1,3,5-Trimethylbenzene (TMB135)		1.2
2-Methylnaphthalene (MTNPH2)		NA
Acenaphthene (ACNP)		29,219
Acetone		6,036
Aluminum		409
Anthracene		100,000
Arsenic		1.6
Benzo(a)anthracene (BZAA)		2.1
Benzene		1.3
Benzo(a)pyrene (BZAP)		0.21
Benzo(b)fluoranthene (BZBF)		2.1
Benzo(g,h,i)perylene (BZGHIP)		NA
Benzo[k]fluoranthene(BkF)		21
bis-(2-ethylhexyl)phthalate (BIS2EHP)		123
Chrysene		211
Dibenzo(a,h)anthracene (DBAHA)		0.21
Dibenzofuran		3,127
Diesel Range Organic Compunds (DRO)		250
Di-n-Butylphthalate (DnBP)		NA
Di-n-Octylphthalate (DnOP)		24,624

Contaminant	Screening Value	PRG
Ethylbenzene		20
Fluoranthene		22,000
Fluorene		26,281
Gasoline Range Organic Compunds (GRO)		300
Hexachlorobutadiene (HCBU)		22
Indeno(1,2,3-cd)pyrene (INP123)		2.1
Iodomethane (Methyl Iodide)		NA
Isopropylbenzene (Cumene) (IPBZ)		521
n-Butylbenzene (BTBZN)		240
Methyl Ethyl Ketone (2-Buatone) (MEK)		27,102
Methyl-tert-butyl ether (MTBE)		157
Methylene Chloride (MTLNCL)		21
Naphthalene		188
P-Cymene (p-Isopropyltoluene) (CYMP)		NA
Phenanthrene		NA
Pyrene		29,126
Styrene		1,700
Tetrachloroethene (PCE)		390
Toulene		520
Trichloroethylene (TCE)		0.1
Xylenes		420

CH2MHILL

Units
All concentrations are in mg/Kg

PRG = Preliminary Remediation Goal - EPA Region 9
All PRG concentrations are in mg/Kg
0.44 = Concentrations exceeding screening values.

SAMPLING DATE
June 2002 through August 2002

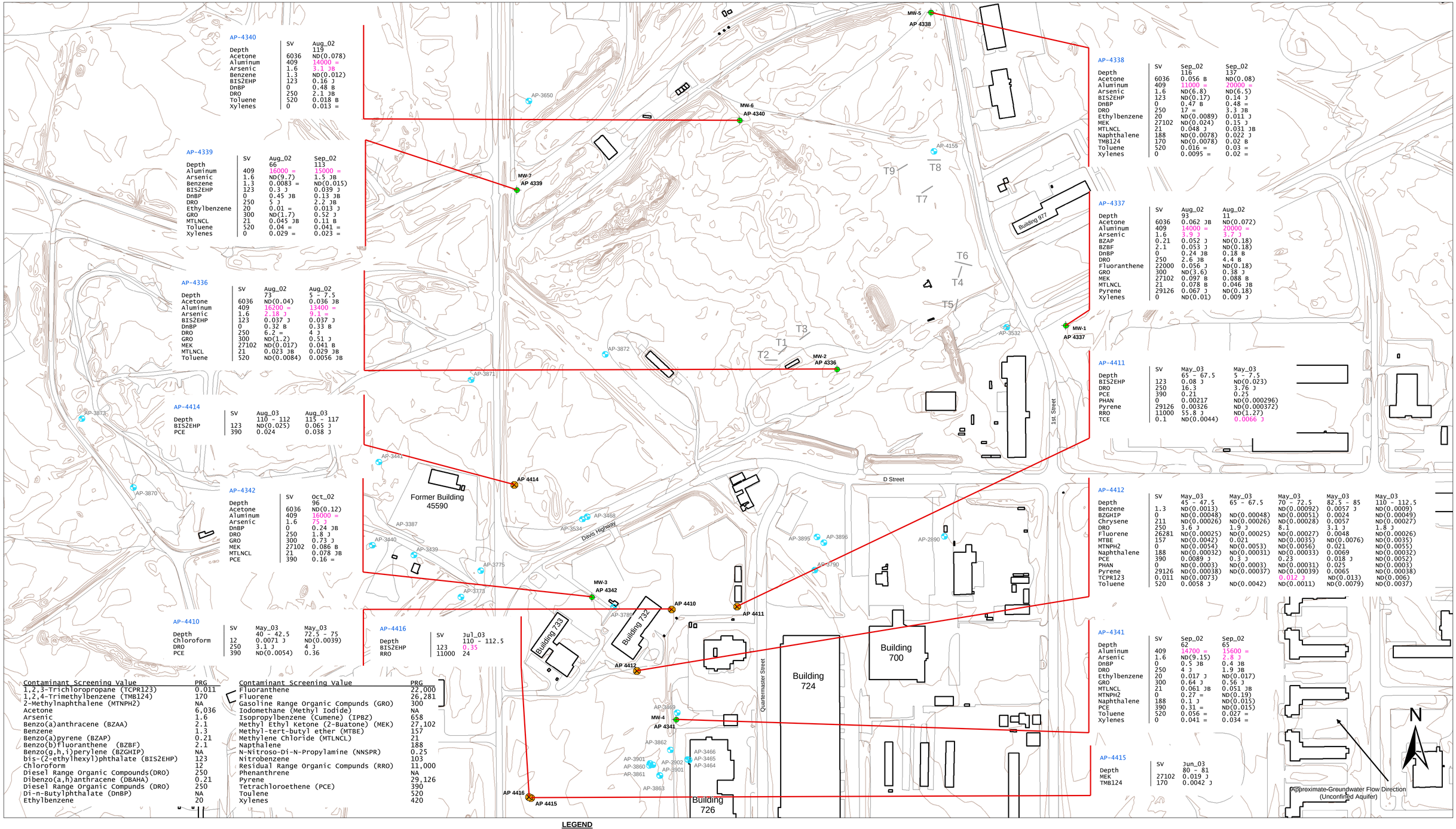
SAMPLING EVENT
OUE RI

0 50 100 200 300 Meters

LEGEND
Existing Monitoring Well

SV = Screening Value
ND(##) Not Detected (Reporting Limit)
J, B, =, are Qualifiers
More information on qualifiers is available in the beginning of appendix A.

Figure 4-6
AVMA Trenches
Soil Analytical Results
Fort Richardson, OUE
Fort Richardson, Alaska



Contaminant Screening Value	PRG
1,2,3-Trichloropropane (TCPR123)	0.011
1,2,4-Trimethylbenzene (TMB124)	170
2-Methylnaphthalene (MTNPH2)	NA
Acetone	6,036
Arsenic	1.6
Benzo(a)anthracene (BZAA)	2.1
Benzene	1.3
Benzo(a)pyrene (BZAP)	0.21
Benzo(b)fluoranthene (BZBF)	2.1
Benzo(g,h,i)perylene (BZGHIP)	NA
bis-(2-ethylhexyl)phthalate (BIS2EHP)	123
Chloroform	12
Diesel Range Organic Compounds(DRO)	250
Dibenzo(a,h)anthracene (DBAHA)	0.21
Diesel Range Organic Compounds (DRO)	250
Di-n-Butylphthalate (DnBP)	NA
Ethylbenzene	20

Contaminant Screening Value	PRG
Fluoranthene	22,000
Fluorene	26,281
Gasoline Range Organic Compounds (GRO)	300
Iodomethane (Methyl Iodide)	NA
Isopropylbenzene (Cumene) (IPBZ)	658
Methyl Ethyl Ketone (2-Buatone) (MEK)	27,102
Methyl-tert-butyl ether (MTBE)	157
Methylene Chloride (MTLNCL)	21
Napthalene	188
N-Nitroso-Di-N-Propylamine (NNSPR)	0.25
Nitrobenzene	103
Residual Range Organic Compounds (RRO)	11,000
Phenanthrene	NA
Pyrene	29,126
Tetrachloroethene (PCE)	390
Toulene	520
Xylenes	420

CH2MHILL

Units
All concentrations are in mg/Kg

PRG = Preliminary Remediation Goal - EPA Region 9
All PRG concentrations are in mg/Kg
0.44 = Concentrations exceeding screening values.

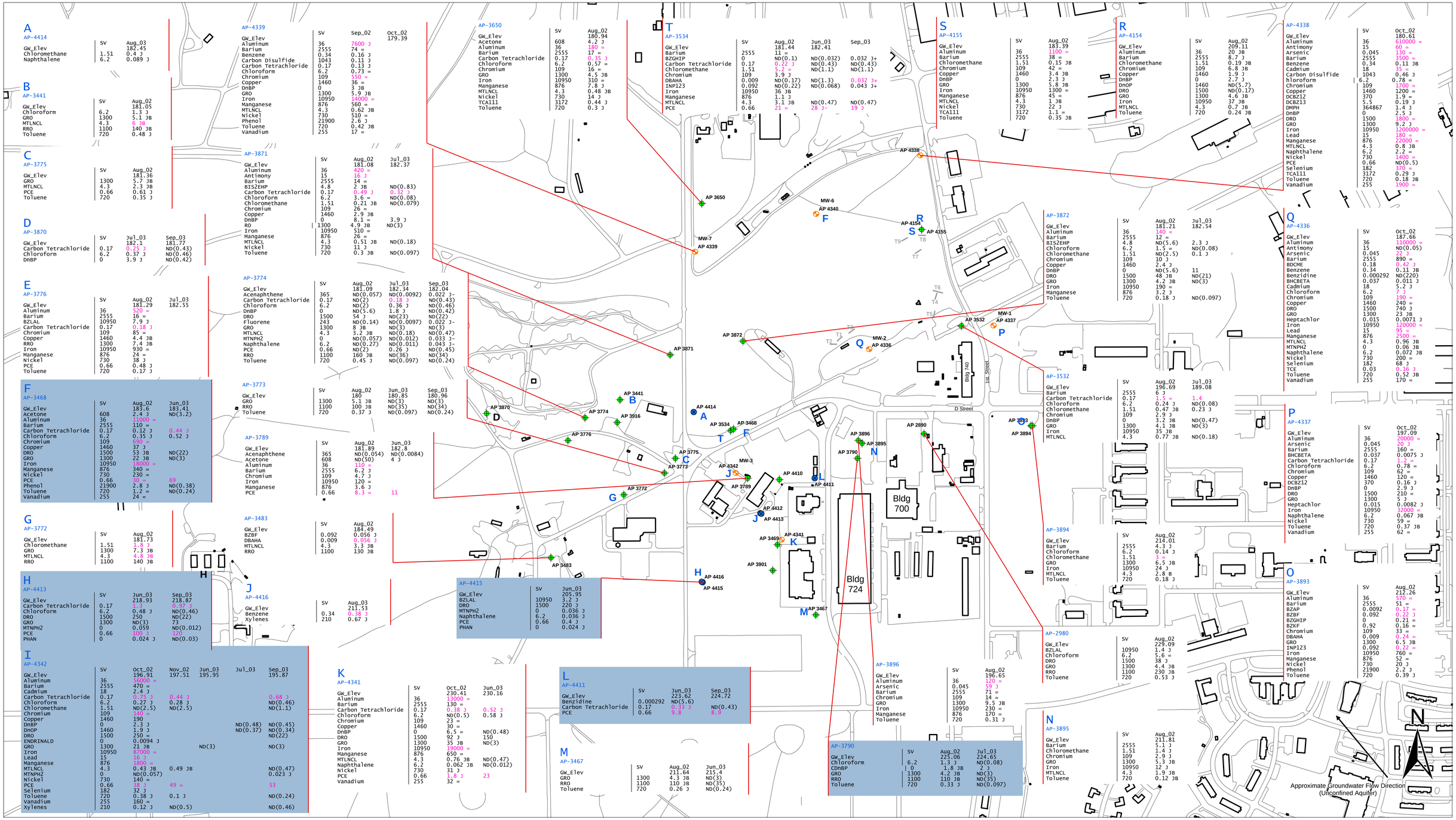
LEGEND
- Existing Monitoring Well
- OUE RI 2002 Wells
- OUE RI Additional Wells 2003

SV = Screening Value
ND(##) Not Detected (Reporting Limit)
J, B, =, are Qualifiers
More information on qualifiers is available in the beginning of appendix A.

SAMPLING DATE	SAMPLING EVENT
August 2002 through October 2002	OUE RI
May 2003 through August 2003	OUE RI MOD 5

0 50 100 200 300 Meters

Figure 4-7
AVMA Monitoring Well Borings
Soil Analytical Results
Fort Richardson, OUE
Fort Richardson, Alaska



Units
All concentrations are in ug/L

PRG = Preliminary Remediation Goal - EPA Region 9
All PRG concentrations are in mg/Kg
0.44 = Concentrations exceeding screening values.
Screening values for DRO, GRO and RRO are State of Alaska Groundwater Quality Standards

LEGEND
- Existing Monitoring Well
- New Monitoring Well (Summer 2002)
- OUE RI Additional Wells 2003
- Wells in an Unconfined Aquifer

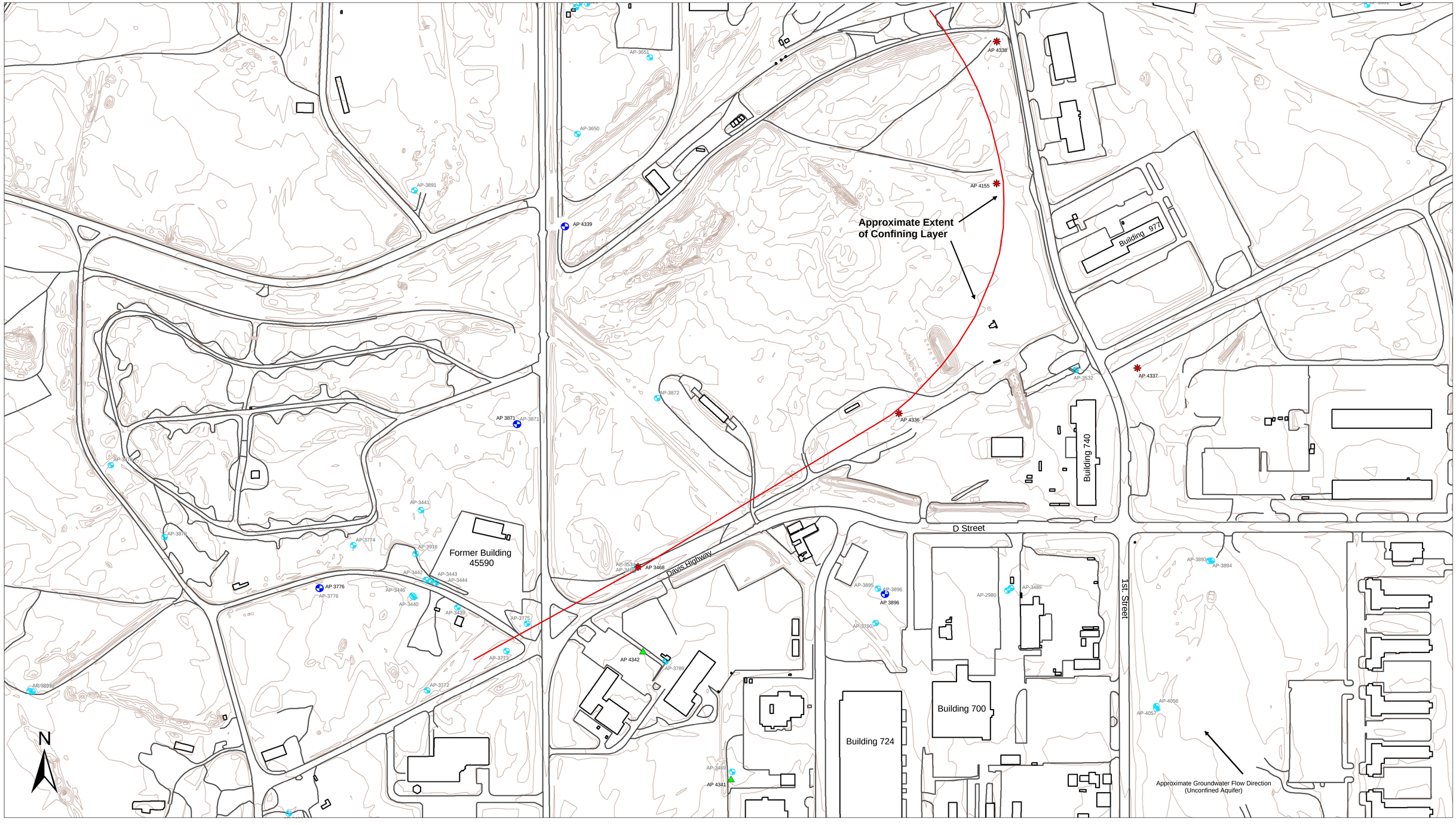
SV = Screening Value
ND(##) Not Detected (Reporting Limit)
J, B, =, are Qualifiers
More information on qualifiers is available in the beginning of appendix A.

SAMPLING DATE
August 2002 through November 2002
June 2003
June 2003 through August 2003
July 2003
September 2003

SAMPLING EVENT
OUE RI
Fort Richardson Groundwater Monitoring Project, June 2003
OUE RI MOD 5 Wells
OUE RI MOD 7 Wells
Fort Richardson Groundwater Monitoring Project, September 2003

CH2MHILL

Figure 4-8
AVMA Groundwater Analytical Results
Fort Richardson, OUE
Fort Richardson, Alaska



CH2MHILL

0 25 50 100 150 200 Meters

LEGEND

- Existing Monitoring Well with Metals Exceedances
- Existing Monitoring Well
- Well at Edge of Confining Layer
- Well Installed Upgradient in Shallow Aquifer

Figure 4-9
AVMA
Metals Exceedances
Fort Richardson, OUE
Fort Richardson, Alaska

SECTION 5

Fate and Transport of Contamination

This section provides information about the factors affecting the migration of contaminants detected in soil and groundwater samples at OUE. In the Building 35-752 Area, concerns include soil contaminated with PCBs and dioxins/furans and shallow groundwater contaminated with TCE. In the AVMA, concerns include groundwater contaminated with carbon tetrachloride and PCE.

The persistence or degradation and mobility of the identified COPCs for OUE are described in this section. Identified site media in OUE that potentially contain COPCs are surface soil and groundwater. In general, classes of COPCs in soil consist of the following:

- PCBs
- Dioxins/Furans
- TPH
- VOCs

In general, classes of COPCs in groundwater consist of the following:

- PAHs
- TPH
- VOCs
- Metals

The environmental fate of organic chemicals is largely determined by their partitioning tendencies between air, water, and organic materials. Typically, there are three types of organic phases, soil, sediment, and biological tissues (lipids). The increase in concentration through food-chain transfer is referred to as bioaccumulation or biomagnification. Bioaccumulation factors have been developed for many compounds based on their bioconcentration factors (BCFs) and resistance to biodegradation.

This section discusses:

- Chemical transformation processes
- Chemical transport
- Fate and transport of contamination in the source areas

5.1 Transformation Processes

5.1.1 Biodegradation

Biodegradation is likely the most important process in the transformation of environmental chemicals. Some hazardous environmental contaminants that are typically found in site media biodegrade relatively easily. For example, most of the petroleum hydrocarbons normally found in fuels (benzene, naphthalene, and alkanes) can biodegrade quickly in soil

or water in the presence of oxygen. Conversely, some halogenated chemicals undergo significant biological transformations only under strictly anaerobic conditions.

Under aerobic conditions, organic molecules containing functional groups with oxygen are typically more prone to biodegradation. This may be because the first step in the biodegradation pathway is often oxidation.

5.1.2 Abiotic Mechanisms

Some chemicals are susceptible to abiotic transformations, such as hydrolysis and photo-oxidation. It would not be expected that hydrolysis would be a major mechanism of degradation for the COPCs selected in OUE.

Some compounds that are quite recalcitrant in soil, sediment, or water are relatively quickly broken down in the atmosphere by sunlight. As a class of compounds, the PAHs are considered recalcitrant in soil and sediment but are easily photodegraded if transport mechanisms allow dispersion into the atmosphere. PCBs are recalcitrant in soil and sediment but are also susceptible to photo-oxidation. However, the specific PAHs and PCBs that are detected in soil or sediment are not likely to volatilize because these compounds are hydrophobic and tend to stay sorbed to soil and sediment. Soil and sediment (if it is allowed to dry) may become airborne, as particulates, which may allow photo-oxidation of the compounds. However, this would not be expected to be a significant transformation mechanism.

5.2 Transport of Contaminants

Transport of contaminants depends on hydrostratigraphy, groundwater flow velocities, directions, and flow paths.

5.2.1 Hydrostratigraphy

The dominant surficial units in the source areas are well-graded to poorly-graded gravels with varying amounts of sand and silt, to silty sand and clayey silt. Assuming the dissolved phase of the contamination remains in the upper section of the aquifer, site hydrogeologic conditions may produce a linear, elongated contamination zone. This assumes constant gradient direction and no seasonal aquifer fluctuations resulting in smearing of the contaminants. Within OUE, the confined aquifer becomes semiconfined to unconfined northwest of the Davis Highway. This could be the result of erosion of the confining unit in this area. The confining unit is a silt or silty clay dipping to the north-northwest at an unknown angle. Based on boring log information, little water exists above the confining unit in this area.

Many areas have fairly thin, discontinuous, and isolated lenses of low permeability clays and silts, resulting in perched aquifer conditions. These lenses can also cause semiconfining conditions to occur in underlying aquifers.

The confining layer is 37 feet thick at the wells AP-4412/AP-4413 location and 30 feet thick at the wells AP-4415/AP-4416 location (see Section 2.5.2.2).

Based on the findings of the field investigation, the northern extent of the confining unit appears to be adjacent to the Davis Highway, northwest of Building 732. This was confirmed in monitoring well AP-4414, where the confining layer was not encountered at a depth of 150 feet.

5.2.2 Groundwater Flow Characteristics

The estimated groundwater flow rate in the unconfined aquifer averages around four feet per day taking into account the varying conditions observed within OUE. More groundwater is present in the unconfined aquifer near Building 35-752, but the groundwater gradient is less. In the southern portions of the AVMA, there is less water present, but the local groundwater gradient is greater. The gradient in the unconfined zone in the northern portions of the AVMA decreases an order of magnitude. Groundwater flow in the unconfined aquifer is generally to the northwest, but may vary seasonally. The confined aquifer dips to the northwest and has a generally west to west-northwest direction of groundwater flow.

5.2.3 Contaminant Transport, Dilution, and Attenuation

The transport velocity of various contaminants in their pure phase (nonaqueous phase liquid [NAPL]) may be much less than groundwater velocity, depending on viscosity, adsorption, solubility, temperature, and other variables. Physical and chemical characteristics–such as water solubility, vapor pressure, and density–affect the expected migration rates and paths of the COPCs.

In the unconfined aquifer, transport of dissolved contaminants is in the direction of the groundwater gradient.

In the confined aquifer, flow is bounded by the confining layers, and contaminant migration can be limited by these layers.

5.3 Fate and Transport of Contamination in the Source Areas

5.3.1 Building 35-752

5.3.1.1 Soil

PCBs and dioxins/furans can be classified as hydrophobic organic compounds (HOCs). Concentrations of these chemicals have been detected in soil samples from the Building 35-752 area. These chemicals are extremely hydrophobic, sorb very strongly to soils, and resist movement to the air phase (unless they are transported by windblown particulates). In general, the longer a given HOC is in soil, the more tightly it becomes sorbed.

However, the presence of other compounds can increase the mobility of HOCs in these media. Typically, miscible organic solvents (for example, methanol, methyl ethyl ketone [MEK], acetone) increase solubility and decrease sorption of HOCs to soils. Acetone and MEK were detected at low concentrations in the Burn Pit Area, the only area in which VOCs were analyzed at Building 35-752. The presence of these compounds is not expected to increase the mobility of PCBs and dioxins/furans in soils.

5.3.1.2 Groundwater

The predominant COPCs for groundwater in the Building 35-752 area are chlorinated VOCs, primarily TCE, and trimethylbenzene and BTEX compounds.

TCE within the shallow groundwater in the Building 35-752 Area is subject to transport downgradient through advection processes. There is evidence that TCE in this area is undergoing natural attenuation and biodegradation in localized areas. TCE degradation products were detected in samples from downgradient well AP-3458, where anaerobic conditions are present. Vinyl Chloride, a degradation product, was detected at significantly greater concentrations in samples from well AP-3458 than in samples from wells in the immediate vicinity of Building 35-752. This provides evidence that, to some degree, biodegradation (reductive dechlorination) of TCE is occurring.

The trimethylbenze and BTEX compounds are observed in the upgradient portions of the site and were not detected in the downgradient well. This suggests the lack of a substantial source of these compounds and correspondingly, a plume of dissolved contaminants that is rather limited in extent.

5.3.2 Armored Vehicle Maintenance Area

5.3.2.1 Soil

At the AVMA, the primary chemical concentrations detected in soil samples above their screening values were the metal arsenic and dibenzo(a,h)anthracene. Past practices at AVMA are unlikely to have created a source of Arsenic. It is believed that the detected concentrations of arsenic are the result of naturally occurring levels of arsenic observed in the Anchorage area.

Dibenzo(a,h)anthracene was detected in several soil sampling locations at levels greater than the screening level. Groundwater samples collected adjacent to those soil sampling locations do not indicate the presence of dibenzo(a,h)anthracene. Therefore, the observed concentrations of dibenzo(a,h)anthracene in soil are sorbed to soil particles and are not indicative of sources of dibenzo(a,h)anthracene capable of producing dissolved plumes.

5.3.2.2 Groundwater

The primary COPCs in groundwater at the AVMA are PCE, fairly isolated concentrations of carbon tetrachloride, and metals. The observed metals concentrations in groundwater are believed to be the result of naturally occurring metals and the observed high silt content in wells installed in the shallow aquifer. Additionally, no historical evidence regarding possible sources of metals in the AVMA has been located.

The observed concentrations of PCE suggest that a defined source of PCE is not present or has not been encountered. The highest observed concentrations of PCE are observed in the shallow, unconfined aquifer near south of the Davis Highway. Downgradient well locations in the merged, unconfined aquifer do not contain PCE. Therefore, the observed higher concentrations of PCE observed in the shallow, unconfined aquifer are the result of pooling as discussed in previous sections. What PCE is migrating does not originate from a source of significant enough magnitude to create a substantial dissolved PCE plume. The lack of observed degradation products of PCE also contributes to the theory that the PCE from the

shallow, unconfined aquifer is diluted upon merging with the merged, unconfined aquifer north of the Davis Highway.

5.4 Conclusions

In general, observed concentrations of the COPCs in OUE cannot be linked to specific identifiable sources. Therefore, predictions about the fate and transport of these chemicals will be limited. Large scale sources with the potential to produce plumes capable of significant migration were not encountered in OUE. Possible sources include generator and transformer maintenance at Building 35-752 and motor pool and laundry operations in AVMA.

SECTION 6

Baseline Risk Assessments

This section provides the conceptual site models for potential human and ecological exposures and the results of the baseline risk assessments completed for OUE. These consist of a human health risk assessment and an ecological risk assessment. The baseline risk assessments evaluated pathways associated with soil and groundwater to estimate human health and ecological risks potentially posed by contaminants in OUE. The overall objective of the assessments was to determine whether chemical concentrations in OUE pose potentially unacceptable risks to human health and/or the environment under current and reasonably anticipated future land and water uses. This risk assessment is considered "baseline" because it provides an assessment of the potential impacts of past releases to soil and groundwater on human and ecological populations under the assumption that no additional remediation will occur at the site. This baseline assumption is required under CERCLA to provide justification for future remedies at OUE.

The HHRA and the ERA are provided as Volume II and submitted in conjunction with this RI.

6.1 Conceptual Site Models for Potential Human and Ecological Exposures

This section presents the conceptual site models for the Building 35-752 Area and the AVMA. These models represent the current understanding of site characteristics and identify potentially complete human and ecological exposure pathways associated with OUE.

Section 6.1.1 describes site characteristics that influence the exposure potential for human and ecological receptors and Section 6.1.2 describes the conceptual exposure model for such receptors.

6.1.1 Site Characteristics Influencing Exposure Potential

The following sections summarize site characteristics at OUE that influence the exposure potential for human and ecological receptors, including land use, water use, climate, and ecological setting. Section 2 of this report describes the physical characteristics of Fort Richardson and OUE in more detail.

6.1.1.1 Land Use

The land use at this source area and neighboring source areas will remain industrial for the foreseeable future. (See Section 2.1.2.1.)

6.1.1.2 Beneficial Use of Groundwater and Surface Water

For the Building 35-752 Area, it is unlikely that groundwater from the shallow aquifer would be developed as drinking water. Since groundwater exists in a deeper aquifer at

former Building 45-590, institutional controls prohibit access to the groundwater as a source of drinking water. (See Section 2.1.2.2.) There is no surface water in OUE.

6.1.1.3 Climate

Because of a lack of extremes in precipitation and temperature, Fort Richardson experiences a moderate climate. (See Section 2.2.)

6.1.1.4 Ecological Setting

The following sections describe the ecological setting of OUE in terms of aquatic habitats; terrestrial habitats; protected and sensitive habitats; and rare, threatened, and endangered species.

Aquatic Habitats

Since there are no surface water sources at OUE, aquatic species are not considered as potential receptors. (Note: surface water exposure to aquatic receptors from Ship Creek was evaluated previously in the Postwide ERA [ENSR, 1998b] and was not evaluated further in the OUE ERA.)

Terrestrial Habitats

Table 6-1 presents wildlife species potentially occurring in terrestrial habitats at or near OUE sites. Representative receptors were assessed at either the community level or the population level. Receptors that were assessed at the community level include terrestrial plants and invertebrates, which provide forage/prey for higher trophic levels and require protection at a community level. Species that were assessed at the population level include birds and mammals, for which protection of populations is important.

Wildlife receptors for OUE include the American robin as an avian omnivore and the bald eagle as an avian carnivore, the red-backed vole and the moose as mammalian herbivores, and the masked shrew and the coyote as mammalian omnivores. While the OUD ERA (ENSR, 1998c) used red fox as the mammalian omnivore, the coyote was selected for this evaluation because a coyote den was identified on the AVMA site and coyotes were considered more likely receptors.

Protected and Sensitive Habitats

There are no protected or sensitive habitats in the OUE investigation area.

Rare, Threatened, and Endangered Species

No special-status species are known to occur at the OUE sites, although the Aleutian Canada goose, a State of Alaska Species of Special Concern, may occur in the area. However, as mentioned before, there are no surface water sources within OUE.

6.1.2 Conceptual Exposure Models for Human and Ecological Receptors

Using the site characteristics described in Section 6.1.1, potentially complete exposure pathways for human and ecological receptors were identified to develop the conceptual exposure models.

TABLE 6-1
List of Species Potentially Occurring in Habitats at or near OUE Sites
OUE Remedial Investigation, Fort Richardson, Alaska

Common Name	Scientific Name	Federal Status	State Status
Birds			
Aleutian Canada Goose	*Branta canadensis leucopareia*	None	ASC
American Robin	*Turdus migratorius*	None	None
Bald Eagle	*Haliaeetus leucocephalus*	None	None
Black-billed Magpie	*Pica pica*	None	None
Black-capped Chickadee	*Parus atricapillus*	None	None
Cliff Swallow	*Hirundo pyrrhonota*	None	None
Common Raven	*Corvus corax*	None	None
Dark-eyed Junco	*Junco hyemalis*	None	None
Golden-crowned Sparrow	*Zonotrichia atricapilla*	None	None
Hairy Woodpecker	*Picoides villosus*	None	None
Long-billed Curlew	*Numenius americanus*	None	None
Orange-crowned Warbler	*Vermivora celata*	None	None
Pine Siskin	*Carduelis pinus*	None	None
Red-tailed Hawk	*Buteo jamaicensis*	None	None
Rock Dove	*Columba livia*	None	None
Ruby-crowned Kinglet	*Regulus calendula*	None	None
Rusty Blackbird	*Euphagus carolinus*	None	None
Savannah Sparrow	*Passerculus sandwichensis*	None	None
Spruce Grouse	*Gendragapus canadensis*	None	None
Violet-green Swallow	*Tachyncineta thalassina*	None	None
Western Wood Pewee	*Contopus sordidulus*	None	None
White-crowned Sparrow	*Zonotrichia leucophyrs*	None	None
Yellow-rumped Warbler	*Dendroica coronata*	None	None
Yellow Warbler	*Dendroica petechia brewsteri*	None	None
Mammals			
Arctic Ground Squirrel	*Spermophilus parryi*	None	None
Black Bear	*Ursus americanus*	None	None
Coyote	*Canis latrans incolatus*	None	None
Dall Sheep	*Ovis dalli dalli*	None	None
Masked Shrew	*Sorex cinereus*	None	None
Moose	*Alces alces*	None	None
Red Squirrel	*Tamiasciurus hudsonicus*	None	None
Northern Red-backed Vole	*Clethrionomys rutilus*	None	None
Wolf	*Canis lupus*	None	None

Notes**:** Sources include Alaska Department of Fish and Game (ADFG), 2002 and CH2M HILL, 1993.
No threatened or endangered species are known to occur within Fort Richardson.

ASC = State of Alaska Species of Special Concern

Exposure can occur when a constituent migrates from its source to an exposure point (a location where people or wildlife can come into contact with the constituent) or when a receptor moves into direct contact with constituents or contaminated media close to the source. An exposure pathway is complete (that is, there is a potential for exposure) if there is a means for the receptor to take in constituents through ingestion, inhalation, or dermal absorption at a location where site-related constituents are present.

An exposure pathway is the means by which a COPC moves from a source (point of release) to a receptor (a potentially exposed person or organism). Chemical intake or route of exposure is the means by which a COPC enters a receptor. The identification of exposure pathways is a key element of the HHRA and the ERA. Each assessment considers exposure pathways that are specific to geographic areas in OUE, determined by where receptors potentially occur.

For an exposure pathway to be complete, all of the following components must be present:

- A contaminant source (for example, drums, contaminated soil)
- A mechanism of chemical release and transport (for example, spills, surface-water runoff)
- An environmental transport medium (for example, soil)
- An exposure point (for example, exposed soil)
- An exposure route (for example, ingestion)
- A receptor or exposed population (for example, human, plant, bird, mammal)

In the absence of any one of these components, an exposure pathway is considered incomplete. No exposure (and therefore no risk) exists unless the exposure pathway is complete. This is an important requirement in the risk assessment process.

Figures 6-1, 6-2, 6-3, and 6-4 present the conceptual exposure model schematics for the Building 35-752 and the AVMA sites. These models were formulated according to EPA guidance, with the use of professional judgment and information on contaminant sources, release mechanisms, routes of migration, potential exposure points, potential routes of exposure, and potential receptor groups associated with OUE. Potential sources and release mechanisms are identified in Section 6.1.2.1. Potential human and ecological exposure pathways are described in Sections 6.1.2.2 and 6.1.2.3, respectively.

6.1.2.1 Potential Contaminant Sources and Release Mechanisms

Contamination at Building 35-752 consists primarily of PCBs. Contamination at the AVMA potentially includes metals, organochlorine pesticides, VOCs, and SVOCs. Data collected during the RI indicated that the original AVMA was not a source area for the contaminated groundwater plume in the vicinity of the site. At the current time, a source of groundwater contamination has not been identified. Potential sources include motor pool and laundry activities.

Contaminant sources may have discharged constituents into surrounding soils, where they may have leached into soil and groundwater or been transported offsite in runoff or

groundwater by various release mechanisms. The primary release mechanisms transporting the COPCs from the source, via environmental media, to potential receptors include the following:

- Infiltration, percolation, and leaching of contaminants from each exposure area to groundwater
- Direct contact with groundwater containing COPCs
- Direct contact with soil containing COPCs (receptor contact with onsite surface or subsurface soil in place of release and transport)
- Generation of dust emanating from surface or subsurface soil to ambient air from wind or during maintenance or construction activities at the site
- Volatilization of chemicals emanating from subsurface soil to ambient air at the site
- Volatilization of chemicals in groundwater from showering or other household activities

6.1.2.2 Potential Human Exposure Pathways

Based on current understanding of land and groundwater beneficial use conditions at or near OUE, the most plausible exposure settings that are considered for characterizing human health risks are:

- Current site-specific worker scenario
- Future Onsite Industrial Worker Scenario
- Onsite Trespasser Scenario
- Hypothetical Future Residential Scenario
- Onsite Excavation Worker Scenario

Current Site-Specific Worker Scenario

Under current site conditions, site-specific workers could potentially be exposed to soil during maintenance and military activities at the site. At the current time, the average rotation of job tenure at these sites is 3 years (Prieksat, 2003). Potential routes of exposure to surface soil (0 to 0.5 feet bgs) for the current site-specific worker include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated from wind.

Future Onsite Industrial Worker Scenario

Under future site conditions, onsite industrial workers could potentially be exposed to soil during maintenance and military activities at the site. Potential routes of exposure to surface soil (0 to 0.5 feet bgs) for the onsite industrial worker include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated by wind.

Onsite Trespasser Scenario

Although access to OUE is restricted, a trespasser scenario is evaluated assuming unauthorized access is gained to the areas surrounding Building 35-752 or the AVMA. A trespasser who infrequently gains unauthorized access to OUE could potentially become exposed to surface soils at the site. Potential routes of exposure to surface soil (0 to 0.5 feet

bgs) for the onsite trespasser include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated by wind.

Hypothetical Future Residential Scenario

Given the current understanding of current and reasonably anticipated future land uses at Fort Richardson, it is unlikely that residents will live at OUE in the future. Continued military use of the radio towers near OUE would preclude or limit expansion of post housing into the area, however, as a conservative estimate for site decision-making, a hypothetical future residential scenario is considered in the HHRA. The results from evaluation of this scenario will provide a frame of reference to indicate the potential significance of future land-use changes, if any. For soil, the plausible exposure routes for the hypothetical future onsite resident include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated by wind. For groundwater, the plausible exposure routes for the hypothetical future onsite resident include ingestion, dermal contact during showering, and inhalation of VOC vapors emanated during showering or other household uses.

Onsite Excavation Worker Scenario

Under future site conditions, onsite excavation workers could potentially be exposed to subsurface soil during infrequent excavation activities at or near the site. These activities could include placement or repair of utilities or other construction activities involving digging. Potential routes of exposure to subsurface soil (0 to 10 feet bgs) for the onsite excavation worker include incidental soil ingestion, dermal contact with soil, and inhalation of ambient vapors or dust generated by wind or during excavation activities.

6.1.2.3 Potential Ecological Exposure Pathways

On the basis of the current understanding of available habitat types and wildlife using the area, the most plausible exposure scenarios that are considered for assessing ecological risks in OUE include the following:

- Direct uptake and dermal contact by terrestrial plants
- Ingestion and dermal contact by terrestrial invertebrates
- Incidental ingestion of soil by terrestrial vertebrates (birds and mammals)
- Food-chain transfer to terrestrial vertebrates via ingestion of contaminated plants, invertebrates, and wildlife

Except in the case of burrow-dwelling animals, a receptor's exposure to contaminants by inhalation and dermal contact usually contributes little to its overall exposure. Receptors being evaluated in this assessment do not include burrow-dwelling animals, because other receptors were determined to be more representative of receptors on-site and no evidence of burrowing animals was observed at the site during the site visit. Therefore, dermal and inhalation exposures were considered negligible, and the emphasis of the OUE ERA was placed on exposure of ecological receptors through direct contact, ingestion/uptake directly from contaminated soil, or uptake of chemicals of potential ecological concern (COPECs) through the food chain.

6.2 Human Health Risk Assessment

This section provides a summary of risk estimates by exposure scenario and information about uncertainties associated with the OUE HHRA, which is provided in Volume II of this document.

6.2.1 Summary of Risk Estimates by Exposure Scenario

Hazard characterization identifies the types of toxic effects a chemical can exert. For a toxicity assessment, chemicals can be divided into two broad groups on the basis of their effects on human health: noncarcinogens and carcinogens. This classification has been selected because health risks are calculated quite differently for carcinogenic and noncarcinogenic effects, and separate toxicity values have been developed for them.

Carcinogens are those chemicals suspected of causing cancer following exposure. Noncarcinogenic compounds are associated with a wide variety of systemic effects, such as liver toxicity or developmental effects. Some chemicals (such as arsenic) are capable of eliciting both carcinogenic and noncarcinogenic responses. Therefore, these carcinogens are also evaluated for systemic (noncarcinogenic) effects.

For cancer effects, EPA has developed a weight-of-evidence classification system, which considers the available data for a chemical in order to evaluate the likelihood that the chemical is a potential human carcinogen. The potential for cancer effects is evaluated by estimating the excess lifetime cancer risk (ELCR). This risk is the incremental increase in the probability of developing cancer during one's lifetime in addition to the background probability of developing cancer (if no exposure to site chemicals occurs). For example, a $2x10^{-6}$ ELCR means that, for every 1 million people exposed to the carcinogen throughout their lifetimes, the average incidence of cancer may increase by two cases of cancer. In the U.S., the background probability of developing cancer for men is a little less than one in two, and for women a little more than one in three (American Cancer Society, 2003). Cancer slope factors developed by the EPA represent upperbound estimates, so any cancer risks generated in this assessment should be regarded as upper bound on the potential cancer risks rather than accurate representations of true cancer risk. (EPA is currently undergoing a reevaluation of the methodology for assessing risks from exposure to TCE and dioxins/furans.) The true cancer risk is likely to be less than that predicted (EPA, 1989).

Potential health risk associated with exposure to noncarcinogenic compounds is evaluated by calculating the hazard quotient (HQ). An HQ that exceeds 1 indicates that there is a potential for adverse health effects associated with exposure to that chemical. A hazard index (HI) is calculated to assess the potential for noncarcinogenic effects posed by more than one chemical. The HI approach assumes that simultaneous subthreshold exposures to several chemicals could result in an adverse health effect. It also assumes that the magnitude of the adverse effect will be proportional to the sum of the ratios of the subthreshold exposures to the acceptable exposure (the reference doses [RfDs]). The HI is equal to the sum of the HQs.

For the purposes of this evaluation, the potential for unacceptable human health risk is identified using the following risk thresholds:

- Excess lifetime cancer risk values are compared to the "point of departure" range of 10^{-6} to 10^{-4} that is generally used by regulatory agencies. Excess lifetime cancer risk values within or exceeding this range require a risk management decision that includes evaluating site-specific characteristics and exposure scenario factors to assess whether remedial action is warranted.
- Toxicity values (cancer slope factors and RfDs) used in the risk assessment were obtained from various sources. A ratio of chemical intake to the RfD for all chemicals (an HI) greater than 1 indicates that potential exists for adverse noncarcinogenic health effects associated with exposure to the chemicals of concern (EPA, 1991).

The noncancer and cancer risk estimates for the five exposure scenarios related to soil and groundwater at the Building 35-752 Area and the AVMA, under current and future conditions, are summarized in the following sections.

6.2.1.1 Summary of Risk Estimates for the Building 35-752 Area

Soil

The ELCR and HI estimates for soils at the Building 35-752 Area are below. The ranges of ELCR estimates for all exposure areas and for each exposure scenario were as follows:

- Current site-specific worker: $3x10^{-9}$ to $3x10^{-6}$
- Onsite future industrial worker: $3x10^{-8}$ to $1x10^{-5}$
- Onsite trespasser: $2x10^{-9}$ to $7x10^{-7}$
- Hypothetical future resident: $9x10^{-8}$ to $4x10^{-5}$
- Onsite excavation worker: $3x10^{-8}$ to $4x10^{-6}$

These are all within or below the regulatory target risk range of $1x10^{-6}$ to $1x10^{-4}$. Therefore, no COPCs are identified in soil for the Building 35-752 Area.

Groundwater

Seven wells were evaluated at the Building 35-752 site (AP-2982, AP-2983, AP-2987, AP-3231, AP-3232, AP-3458, and AP-3503). For a hypothetical future residential groundwater scenario, the cumulative ELCR estimates for seven wells located at the Building 35-752 area ranged from $6x10^{-7}$ to $5x10^{-5}$, all within or below the regulatory target risk range of $1x10^{-6}$ to $1x10^{-4}$.

The HIs for the seven wells located at Building 35-752 ranged from 0.03 to 13. The HI at two of these wells (AP-2982 and AP-2987) exceed the regulatory threshold value of 1.0. The primary contributors to the noncancer HI (chemicals with HQ greater than 1.0) include the following:

- 1,2,4-trimethylbenzene (wells AP-2982 and AP-2987)
- 1,3,5-trimethylbenzene (well AP-2982)
- Naphthalene (well AP-2982)

These three constituents will be addressed as part of the feasibility study (FS) for OUE.

6.2.1.2 Summary of Risk Estimates for the AVMA

Soil

The ELCR estimates for the AVMA site soils ranged from $3x10^{-7}$ for the onsite trespasser scenario to $1x10^{-5}$ for the hypothetical future residential scenario. These are all within or below the regulatory target risk range of $1x10^{-6}$ to $1x10^{-4}$. The noncancer HI estimates ranged from 0.02 for the onsite trespasser scenario to 0.6 for the hypothetical future residential scenario. These are all well below the regulatory threshold value of 1.0.

TABLE 6-2
Summary of Risk Estimates for Soils at the Armored Vehicle Maintenance Area

Exposure Scenario	Excess Lifetime Cancer Risk	Hazard Index
Current Site-Specific Worker	5.4E-07	0.17
Onsite Industrial Worker	4.5E-06	0.17
Onsite Trespasser	3.0E-07	0.019
Hypothetical Future Resident	1.5E-05	0.56
Excavation Worker	3.0E-06	0.038

Groundwater

A total of 34 wells were evaluated at the AVMA. The noncancer HI and ELCR estimates for these wells for the hypothetical future residential scenario at these wells are summarized below, along with the primary risk contributors for each well.

The cumulative ELCR estimates for 34 wells located at the AVMA site ranged from $3x10^{-7}$ to $3x10^{-3}$. Of these, 26 are within or below the regulatory target risk range of $1x10^{-6}$ to $1x10^{-4}$, and 8 exceed $1x10^{-4}$.

The primary contributors to risk (chemicals with ELCR more than 10^{-6}) for the hypothetical future residential scenario at these eight monitoring wells include the following:

- Arsenic (wells AP-3896, AP-4336, AP-4337, and AP-4338)
- Carcinogenic polycyclic aromatic hydrocarbons (well AP-3893)
- Bromodichloromethane (well AP-4336)
- Carbon tetrachloride (wells AP-3468, AP-4337, AP-4342, and AP-4413)
- Tetrachloroethylene (wells AP-3468, AP-4342, and AP-4413)

The HIs for the 34 wells located at the AVMA site ranged from 0.001 to 249. The HI at 11 of these wells exceeds the regulatory threshold value of 1.0. The primary contributors to the noncancer HI (chemicals with HQ more than 1.0) at these 11 wells include the following:

- Aluminum (wells AP-4336, AP-4338, and AP-4342)
- Antimony (well AP-3871)
- Arsenic (wells AP-3896, AP-4336, AP-4337, and AP-4338)
- Chloroform (well AP-2980)
- Chromium (wells AP-3468, AP-3776, AP-4336, AP-4338, AP-4339, and AP-4342)
- Iron (wells AP-4336, AP-4338, and AP-4342)
- Manganese (wellAP-4338)

A majority of the AVMA wells in the shallow, unconfined aquifer could not be developed using standard approaches due to the high silt load observed in water in the wells. Some were developed using a bailer because available pumps were not capable of carrying the high silt loads from the depths to water in the wells. Generally, the wells installed in the shallow, unconfined aquifer were turbid, contained little standing water, and yielded little water. Due to the presence of groundwater sample turbidity that could bias groundwater concentrations, the measured levels of metals in groundwater are believed to be unrelated to site releases. The remaining organic constituents identified that are believed to be potentially site-related releases will be addressed as part of the FS for OUE. These include the following:

- Carcinogenic PAHs (well AP-3893)
- Chloroform (well AP-2980)
- Bromodichloromethane (well AP-4336)
- Carbon tetrachloride (wells AP-3468, AP-4337, AP-4342, and AP-4413)
- PCE (wells AP-3468, AP-4342, and AP-4413)

6.2.2 Uncertainties Associated with this Human Health Risk Assessment

Risk assessment as a science is subject to uncertainty. The sources of uncertainty are generally associated with the following:

- Sampling and analysis
- Chemical fate and transport
- Exposure estimation
- Toxicological data
- Risk characterization

These sources of uncertainty are discussed in the OUE HHRA (CH2M HILL, 2004a) and are summarized in Table 6-3.

6.3 Ecological Risk Assessment

This section provides a summary of risk estimates by exposure scenario and information about uncertainties associated with the OUE ERA, which is provided in Volume II of this document.

6.3.1 Summary of Ecological Risk Characterization

During the ERA process, ecological exposure and effects assessments were integrated to estimate the potential for adverse effects to ecological receptors from exposure to COPECs in OUE. Available exposure point concentrations and likely effects concentrations were evaluated both quantitatively and qualitatively. Quantitative evaluations used the hazard quotient (HQ = exposure measure/effects measure) approach. The qualitative evaluation considered factors such as magnitude of HQ, frequency of detection, incremental risk, and bioavailability of COPECs.

TABLE 6-3
Uncertainties Associated with Human Health Risk Estimations
OUE Remedial Investigation, Fort Richardson, Alaska

Uncertainty Factor	Effects of Uncertainty	Comment
Environmental Sampling and Analysis		
Estimates of chemical concentrations	May under- or overestimate risk	Sampling errors, sample representativeness, and variability in chemical analyses will affect chemical concentrations. Available analytical data may not accurately reflect site conditions. Chemical concentrations may change as a result of migration or degradation.
Fate and Transport		
Source concentrations assumed constant over time	May underestimate or overestimate risk	Does not account for environmental fate, transport, or transfer, which may alter contaminant concentrations. Concentrations may decrease, but contaminated areas may increase.
Exposure Assessment		
Exposure point concentrations	May overestimate risks	Use of upper confidence limits and maximum detected concentrations will likely overestimate site risks.
Exposure assumptions	May under- or overestimate risk	Assumptions regarding media intake, population characteristics, and exposure patterns may not characterize exposures.
Use of applied dose to estimate risks	May over- or underestimate risks	Assumes that the absorption of the chemical is the same as it was in the study that derived the toxicity value. Assumes that absorption is equivalent across species (animal to humans). Absorption may vary with age and species.
Population characteristics	May over- or underestimate risks	Assumes weight, life span, and ingestion rate are potentially representative for a potentially exposed population.
Intake	May underestimate risks	Assumes all intake of COPCs is from the exposure medium being evaluated (no relative source contribution).
Toxicity Assessment		
Slope factor	May overestimate risks	Slope factors are upperbound upper confidence limits derived from a linearized model. In general, risks are likely to be overestimated. Dioxin risks are currently being reassessed, which may over- or underestimate risks.
Toxicity values derived from animal studies	May over- or underestimate risks	Extrapolation from animal to humans may induce error because of differences in pharmacokinetics, target organs, and population variability.
Toxicity values derived primarily from high doses (most exposures are at low doses)	May over- or underestimate risks	Assumes linearity at low doses. Tends to have conservative exposure assumptions.

TABLE 6-3
Uncertainties Associated with Human Health Risk Estimations
OUE Remedial Investigation, Fort Richardson, Alaska

Uncertainty Factor	Effects of Uncertainty	Comment
Dermal toxicity values	May over- or underestimate risks	No dermal toxicity values are available, oral slope factors and reference doses are adjusted by a gastrointestinal absorption value to represent the absorption efficiency across the gastrointestinal tract.
Toxicity values	May over- or underestimate risks	Not all values represent the same degree of certainty. All are subject to change as new evidence becomes available.
Toxicity data not available for all chemicals	Risks could not be estimated	Use of surrogate toxicity factors for structurally similar compounds may over- or underestimate risks.
Some toxicity values derived from short-term tests to predict chronic exposures	May over- or underestimate risks	Assumes that the dose-response observed from short-term exposure to high concentrations is similar to exposure to low concentration environmental exposures. Uncertainty factors are used to ensure protectiveness.
Toxicity values derived from homogeneous animal populations	May over- or underestimate risks	Human populations may have a wide range of sensitivities to a chemical.
Risk Estimation		
Estimation of risks across exposure routes	May under- or overestimate risk	Some exposure routes have greater uncertainty associated with their risk estimates than others.
Cumulative risk estimates	May under- or overestimate risk	Assumes additivity of risks from multiple chemicals; may have synergistic or antagonistic effects.
Cancer risk estimates (no threshold assumed)	May overestimate risks	Possibility that some thresholds do exist.
Cancer risk estimate (low dose) linearity	May overestimate risks	Response at low doses is not known.

6.3.2 Ecological Risk Assessment Conclusions

Conclusions of this ERA are summarized by site and receptor in the following sections.

6.3.2.1 Building 35-752

Terrestrial Plants

Maximum concentrations of chromium, lead, zinc, and Aroclor 1260 exceeded literature-derived toxicity benchmarks for plants (Table 4-1). A qualitative evaluation that assessed magnitude of HQ, frequency of detection, and incremental risk of these COPECs using less

conservative assumptions was conducted to assess potential for exposure and effects. Additionally, the 95% UCL was compared to background values (for metals only) and to toxicity benchmarks. This qualitative evaluation resulted in a conclusion that there are no significant risks to the plant community.

Terrestrial Invertebrates

Barium, chromium, and Aroclor 1260 had HQs greater than 1 for terrestrial invertebrates (Table 4-1). A qualitative evaluation of these COPECs, similar to that conducted for plants, resulted in a conclusion that there are no significant risks to the terrestrial invertebrate community from soil concentrations of barium, chromium, and Aroclor 1260 at Building 35-752.

Birds and Mammals

American Robin. Estimated exposures of the American robin to chromium, lead, zinc, TCDF, Total TCDD TEQs, aldrin, DDD, DDE, DDT, and bis(2-ethylhexyl)phthalate exceeded the NOAEL-based TRVs. However, only lead, TCDF, DDD, and DDT exposures exceeded the LOAEL-based TRVs (Table 4-3). Because robins are evaluated at the population level, exceedance of the LOAEL is considered more appropriate for evaluation than exceedance of the NOAEL (i.e., risk to individuals). Therefore, lead, TCDF, DDD, and DDT were further evaluated in a qualitative manner.

In addition to factors considered for plants and invertebrates, this evaluation also considered: that lead in soil is not 100% bioavailable, that robins are present at the site for only about half of the year, the discontinuous nature of the contamination at the site, and the size of the home range for the robin. Although risk to American robins from exposure to lead, TCDF, DDD, and DDT cannot be excluded, qualitative evaluation (including factors listed above, plus the low magnitude of TRV exceedances for all COPECs) indicates that this risk is unlikely to be significant.

Bald Eagle. Estimated exposures of the bald eagle to DDD exceeded the NOAEL-based TRV, but did not exceed the LOAEL-based TRV (Table 4-3). Because eagles are evaluated at the population level, exceedance of the LOAEL is considered more appropriate for evaluation than exceedance of the NOAEL (i.e., risk to individuals). Therefore, DDD was not further evaluated in a qualitative manner, and no risk to bald eagles from COPECs at the site is expected.

Masked Shrew. For the masked shrew, estimated exposures to chromium, lead, nickel, Total TCDD TEQs, dieldrin, endrin, DDD, DDT, Aroclor 1260, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, and indeno(1,2,3-c,d)pyrene exceeded NOAEL-based TRVs. However, only lead and Total TCDD TEQs exceeded the LOAEL-based TRVs for shrews (Table 4-3). Because shrews are evaluated at the population level, only those COPECs that exceeded LOAELs were evaluated qualitatively. Risk to masked shrews associated with exposure to lead and Total TCDD TEQs at Building 35-752 cannot be eliminated. However, this risk is considered low given the results of the qualitative evaluation (e.g., bioavailability of lead, low magnitude of exceedance of the LOAEL-based TRVs).

Coyote. Estimated exposures for all COPECs at Building 35-752 were low for coyotes, and no HQs were greater than 1 (Table 4-3). Therefore, no risk to coyotes from COPECs at the site is expected.

Moose. Estimated exposures for all COPECs at Building 35-752 were low for moose (i.e., there were no HQs greater than 1; Table 4-3). Therefore, no risk to moose from COPECs at the site is expected.

Red-backed Vole. Estimated exposures of red-backed voles to Aroclor 1260 at Building 35-752 exceeded the NOAEL-based TRV, but not the LOAEL-based TRV (Table 4-3). Exceedance of the NOAEL indicates that some sensitive individual voles may experience adverse effects associated with exposure to Aroclor 1260 at the site. However, no risk to vole populations is expected as a result of exposure to COPECs at this site.

6.3.2.2 Armored Vehicle Maintenance Area

Terrestrial Plants

Aluminum, arsenic, chromium, manganese, nickel, selenium, vanadium, zinc, and benzo(a)pyrene had HQs greater than 1 (Table 4-2); therefore, these COPECs were qualitatively evaluated for their potential risks for terrestrial plants at the AVMA. Despite exceedance of the background concentration and of the plant benchmark, aluminum concentrations in soil at the AVMA are not expected to be toxic to terrestrial plants because of the low solubility of aluminum at soil pH levels measured on-site. Therefore, aluminum is not considered a COEC. Qualitative evaluation suggests that there is no significant risk to the terrestrial plant community from arsenic, chromium, manganese, nickel, zinc, and benzo(a)pyrene. Risk to the terrestrial plant community from exposure to vanadium and selenium cannot be excluded, but the qualitative evaluation suggests that risk from selenium and vanadium is low.

Terrestrial Invertebrates

Barium, chromium, and anthracene had HQs equal to or greater than 1 for terrestrial invertebrates at the AVMA site (Table 4-2). A qualitative evaluation of these COPECs, similar to that conducted for plants, resulted in a conclusion that there are no significant risks to the terrestrial invertebrate community from soil concentrations of barium, chromium, and anthracene at the AVMA.

Birds and Mammals

American Robin. Estimated exposures of the American robin to aluminum, lead, selenium, DDD, DDE, DDT, di-n-butyl phthalate, di-n-octyl phthalate, and TPH exceeded the NOAEL-based TRVs for the American robin, though only selenium, DDT, and di-n-butyl phthalate exposures exceeded the LOAEL-based TRVs (Table 4-4). Because robins are evaluated at the population level, exceedance of the LOAEL is considered more appropriate for evaluation than exceedance of the NOAEL (i.e., risk to individuals). Therefore, selenium, DDT, and di-n-butyl phthalate were further evaluated in a qualitative manner.

Although risk to American robins from exposure to selenium, DDT, and di-n-butyl phthalate cannot be excluded, the qualitative evaluation (e.g., low magnitude of TRV exceedance, absence from the site during about half of the year, and non-contiguous areas of contamination that decrease the potential for exposure of robins foraging at the site to COPECs) indicates that this risk is low.

Bald Eagle. Estimated exposures for eagles to all COPECs at the AVMA showed no HQs greater than 1 (Table 4-4). Therefore, no risk to bald eagles from COPECs at the site is expected.

Masked Shrew. For the masked shrew, estimated exposures to aluminum, lead, nickel, selenium, vanadium, DDT, 2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-c,d)pyrene exceeded NOAEL-based TRVs. However, only aluminum, selenium, and vanadium exceeded the LOAEL-based TRVs for shrews (Table 4-4). Because shrews are evaluated at the population level, only those COPECs that exceeded LOAELs were evaluated qualitatively.

Despite exceedance of the LOAEL, aluminum is not expected to pose a risk to masked shrews at the AVMA due to the low solubility of aluminum at pH levels present at the site. Risk from exposure to selenium is also relatively low when the bioavailability and patchy distribution of selenium are accounted for in the exposure. Moreover, the relatively low HQ for selenium indicates that the magnitude of risk is expected to be low. Risk from vanadium cannot be excluded, but qualitative evaluation (e.g., low magnitude of TRV exceedances) indicates that this risk is low.

Coyote. Estimated exposure to aluminum at the AVMA exceeded NOAEL-based and LOAEL-based TRVs for coyotes (Table 4-4), so this COPEC was evaluated qualitatively. Because soluble aluminum (the form available for uptake and toxicity) is not expected based on soil pH levels measured at the site (Appendix B), aluminum is not considered to pose a risk to ecological receptors. As a consequence, no risk to coyotes from COPECs at the site is expected.

Moose. Estimated exposures to aluminum and selenium at the AVMA exceeded the NOAEL-based TRVs for moose, but only aluminum exceeded the LOAEL-based TRV (Table 4-4). However, for reasons discussed above for other receptors, aluminum is not considered to pose a risk to the moose.

Red-backed Vole. Estimated exposures of red-backed voles to aluminum and selenium at the AVMA exceeded the NOAEL-based and LOAEL-based TRVs (Table 4-4). Because the LOAEL was exceeded (i.e., HQ greater than 1), aluminum and selenium were evaluated in a qualitative manner.

As described for other receptors, aluminum is not expected to pose a risk to red-backed voles at the AVMA site due to the lack of soluble aluminum at pH levels present at the site (Appendix B). Although aluminum was eliminated as a COPEC at the AVMA, risk to red-backed voles from exposure to selenium could not be excluded. However, this risk is expected to be low due to the limited bioavailability of selenium, the low magnitude of TRV exceedance, and the patchy distribution of contamination at the site.

6.3.3 Uncertainties Associated with this Ecological Risk Assessment

Uncertainties are inherent in all risk assessments. The nature and magnitude of uncertainties depend on the amount and quality of data available, the degree of knowledge concerning site conditions, and the assumptions made to perform the assessment. A qualitative evaluation of

the major uncertainties associated with this assessment, in no particular order of importance, is presented below.

Site-specific data concerning species life-histories (e.g., body weight, diet composition, food ingestion rate, home range) and COPEC concentrations in receptor food items (terrestrial plants, terrestrial invertebrates, and small mammals) were not available. Therefore, literature-based data and models were used in the exposure calculations. Life history parameters for individuals may vary from location to location and the suitability of the bioaccumulation models to the OUE sites is unknown. As a consequence, risk may be over- or under-estimated. It should be noted that bioaccumulation models overestimate uptake of VOCs, so risk associated with exposure to VOCs was overestimated for birds and mammals.

In some cases, species-specific data were also lacking. Soil ingestion rates, toxicity data, and COPEC bioavailability data were not available for each receptor evaluated. Therefore, soil ingestion rates were estimated based on assumed similarities to other species for which data were available, toxicity data were extrapolated from laboratory species to each receptor using allometric relationships, and COPEC bioavailability data for humans and rodents were assumed to represent bioavailability for the receptors. These assumptions may result in an over- or under-estimation of risk.

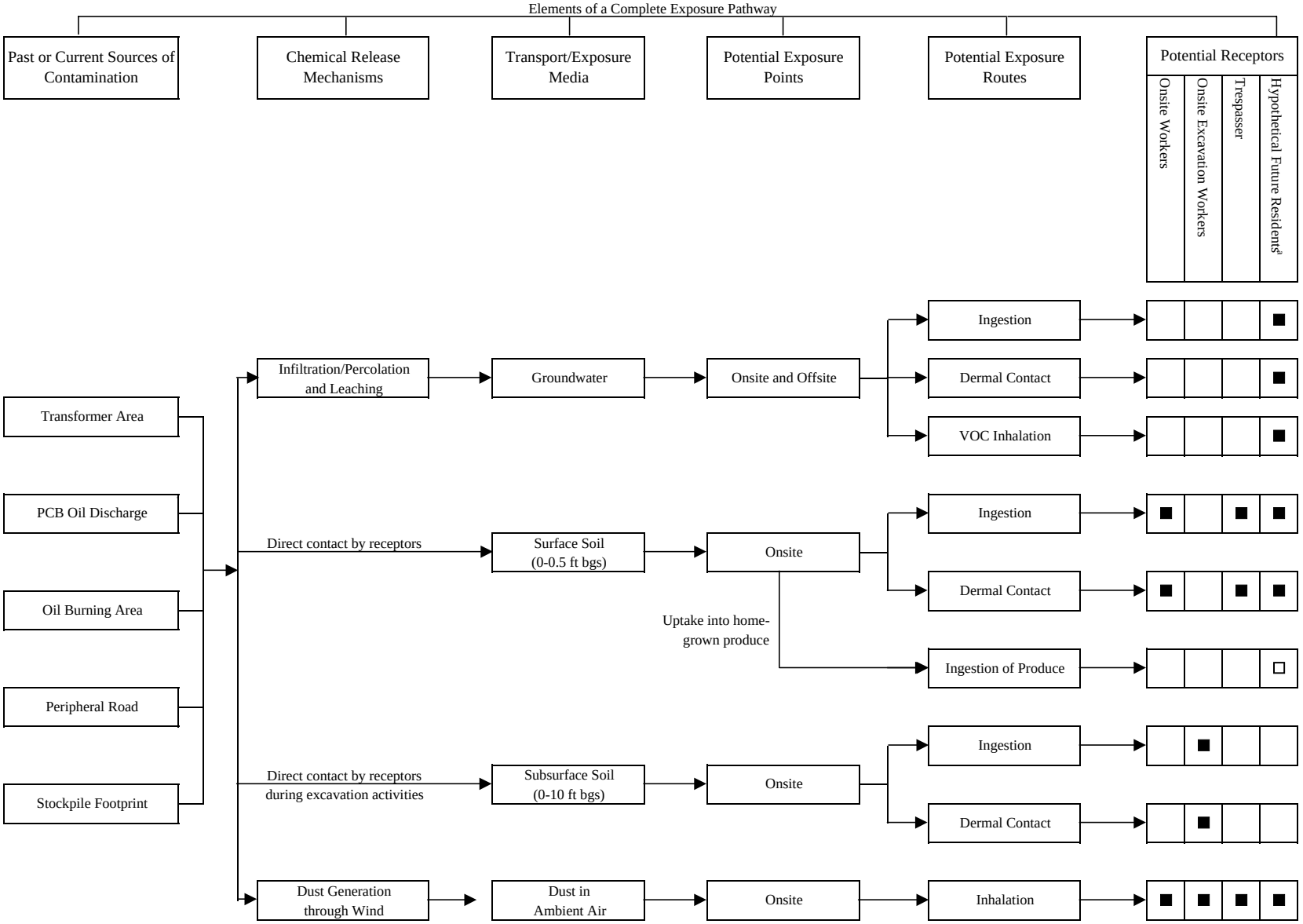
Several uncertainties are associated with the literature-derived toxicity data used in the risk evaluation. It was assumed that effects observed in laboratory species were indicative of effects that would occur in wild species. Because the suitability of this assumption in unknown, risk may be either over- or under-estimated. Soluble salts of inorganic chemicals are generally more bioavailable than other forms and are often used in laboratory tests. This use of highly bioavailable forms of inorganics results in an overestimation of risk. Risks from COPECs were each considered independently. Because chemicals may interact in an additive, antagonistic, or synergistic manner, evaluation of single-chemical risk may either under- or over-estimate risks associated with chemical mixtures. Finally, toxicity data for some COPECs were lacking. Exclusion of these COPECs from the evaluation underestimates aggregate risk.

Results of this assessment suggest that concentrations of some COPECs in soils at OUE sites may present potential (but limited) ecological risks to certain receptors. However, several gaps in the available data cause increased uncertainty in the risk characterization (as described above). Collection of additional site-specific exposure and effects data would provide for more realistic risk conclusions. If the risks to plants and animals at the OUE sites are to be defined more clearly, additional data collection should focus on the areas most likely to reduce uncertainty and to improve the precision of risk estimates. These include:

Site-specific Bioaccumulation Data. Concentrations of COPECs in wildlife foods were estimated based on bioaccumulation models derived from published literature. To develop site-specific bioaccumulation data, co-located samples of biota and their associated abiotic media (i.e., resident biota and soil from the same location) could be collected and analyzed for COPECs. Though terrestrial plants and invertebrates could be collected, the most useful approach would be to collect invertebrates, because these prey items provide the greatest source of exposure of robins and shrews to COPECs.

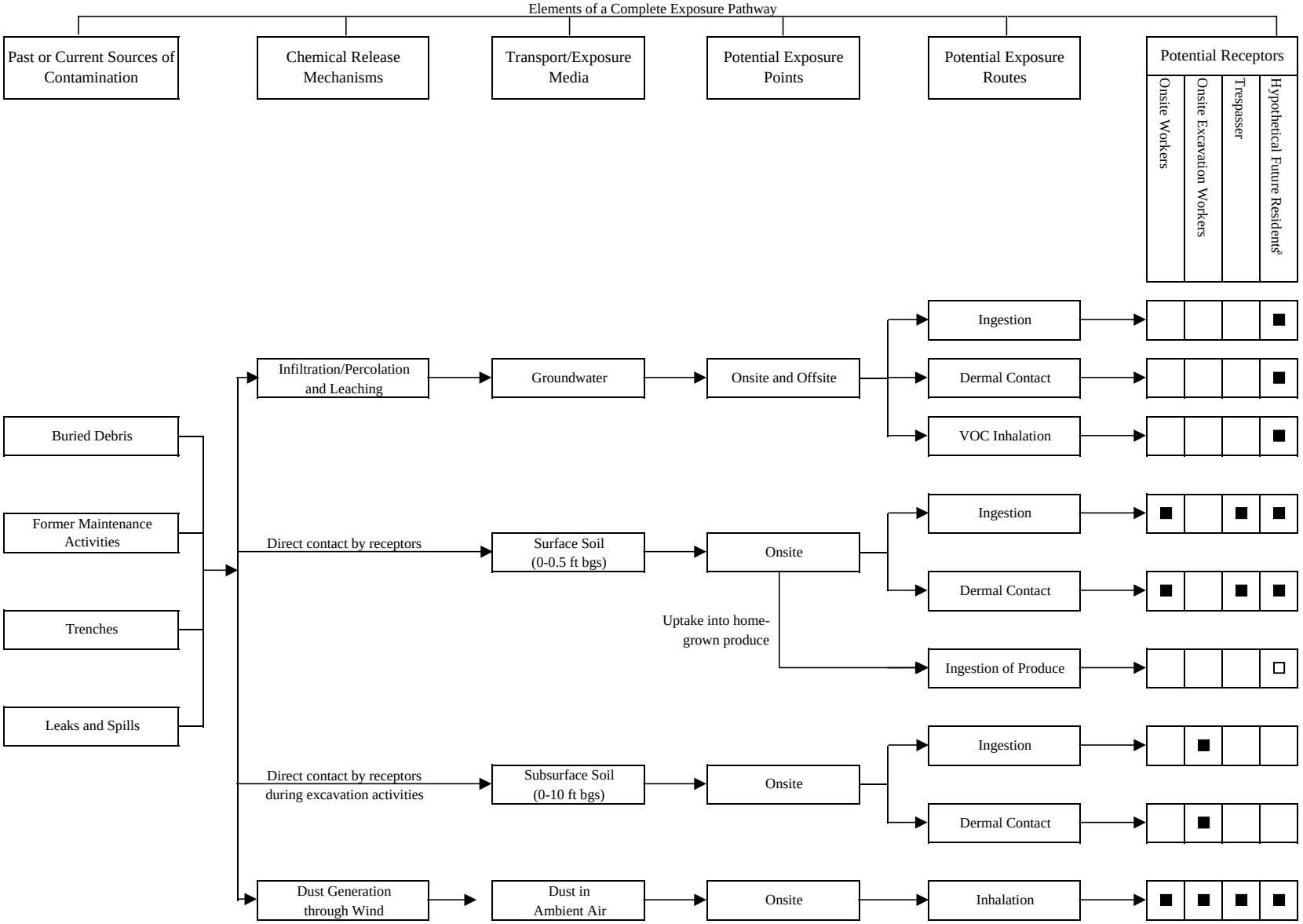
Site-specific Bioassays. Risks to terrestrial plants and invertebrates were based solely on literature-derived toxicity data. Because most literature toxicity tests are based on additions of soluble salts, such tests may overestimate bioavailability and, therefore, toxicity. To better address and account for both site-specific bioavailability and possible interactions among COPECs, bioassays could be performed for terrestrial plants and invertebrates using soil samples collected from several on- and off-site locations. Dose-response relationships developed from these analyses could then be used to evaluate potential toxicity and risks to these biota. In addition, plants or invertebrates exposed to site soils in the bioassays (as well as the soils) could be analyzed for COPECs to characterize bioaccumulation under OUE site-specific conditions.

Figure 6-1
Conceptual Site Model for Potential Human Exposures
Building 35-752, Fort Richardson, Alaska



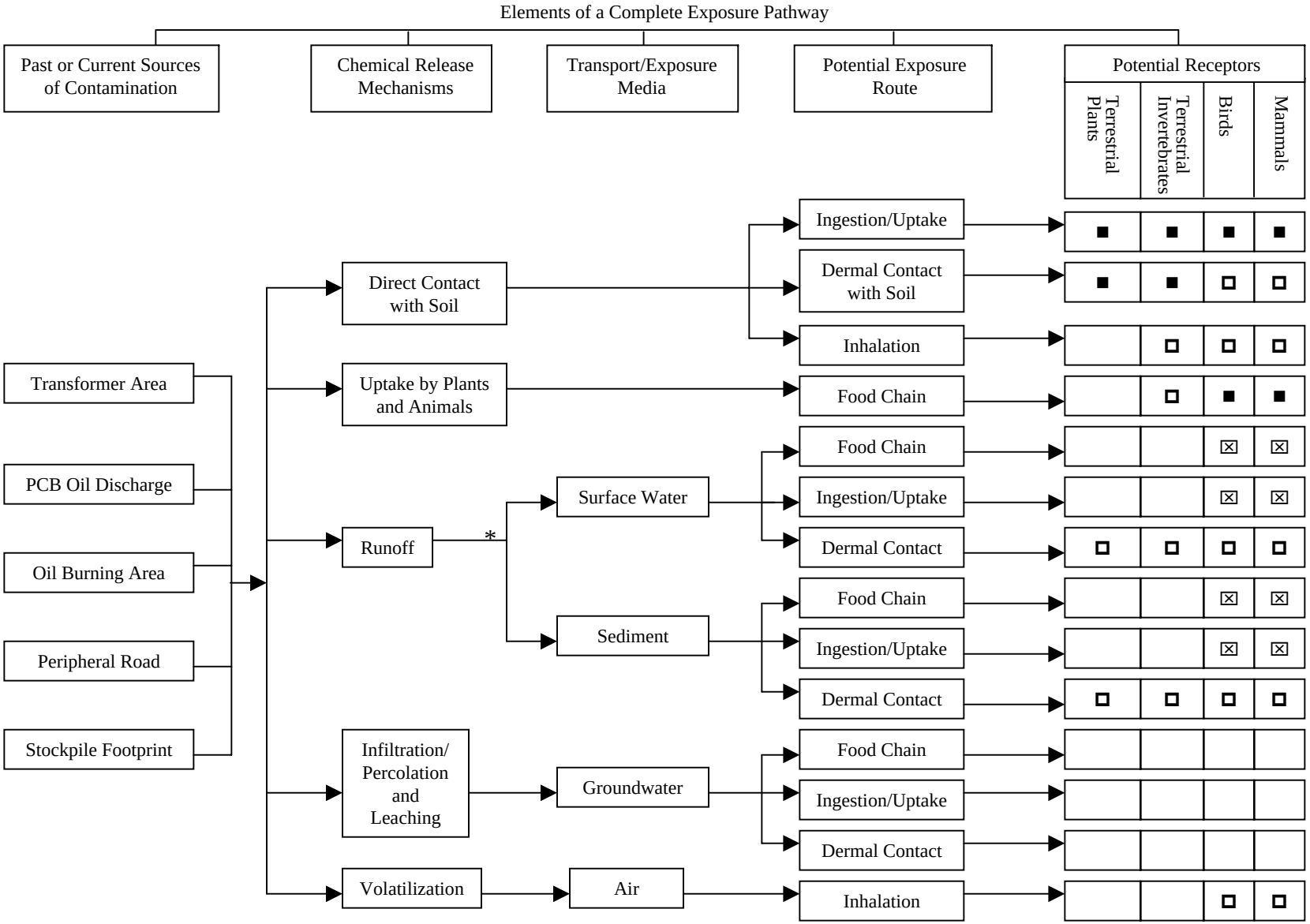
a. Residents will not likely exist at Building 35-752 in the future. This hypothetical scenario is added to provide an indication of the potential significance of future land use changes.
■ = Potentially complete pathway
□ = Pathway considered insignificant (to be addressed qualitatively
Blank = Incomplete pathway

Figure 6-2
Conceptual Site Model for Potential Human Exposures
Armored Vehicle Maintenance Area Fort Richardson, Alaska



a. Residents will not likely exist at the AVMA in the future. This hypothetical scenario is added to provide an indication of the potential significance of future land use changes.
■ = Potentially complete pathway
□ = Pathway considered insignificant (to be addressed qualitatively

Blank = Incomplete pathway

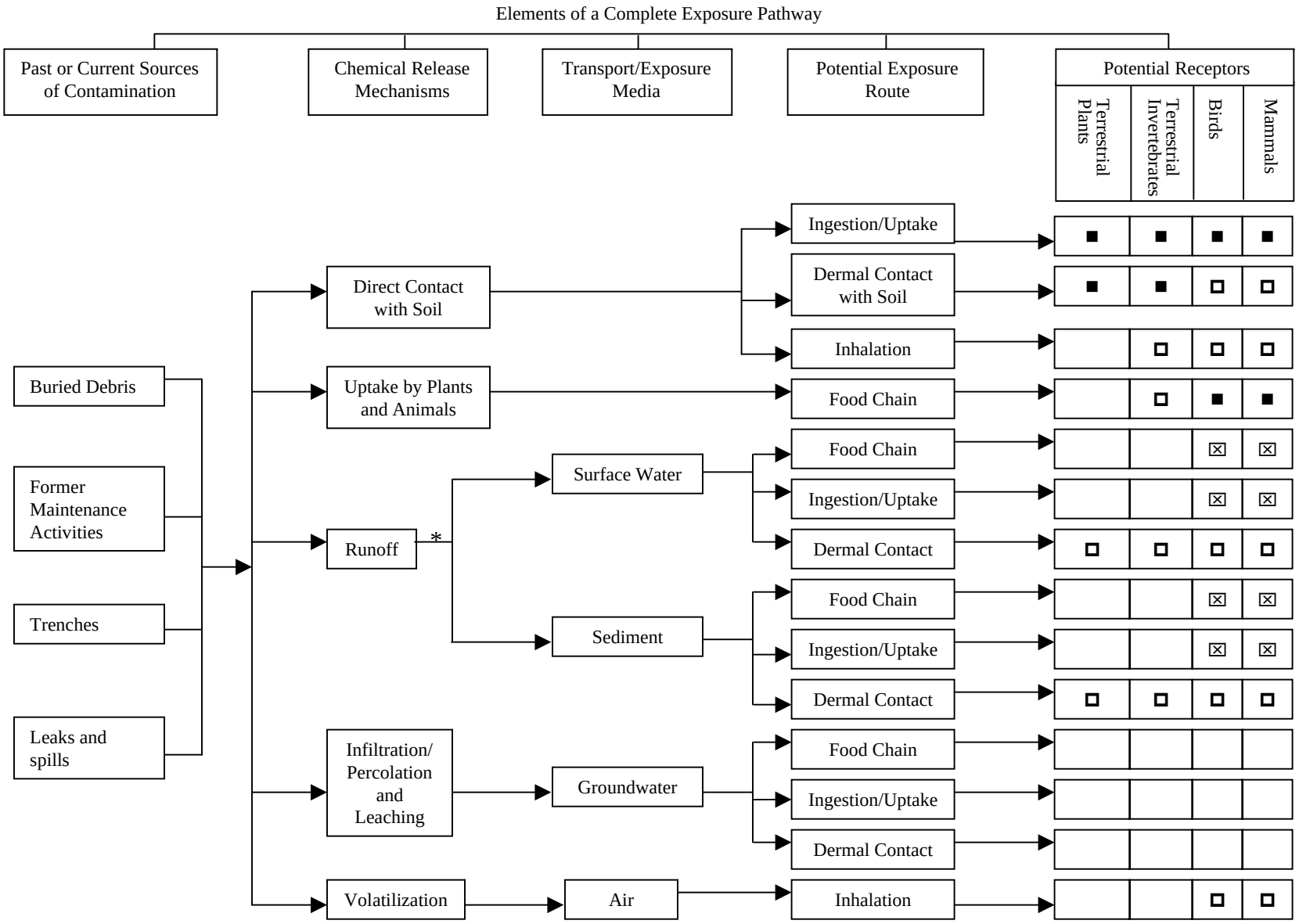


Legend

■ = Potentially complete pathway **Blank** = Incomplete pathway ☐ = Pathway considered insignificant ☒ = Potentially complete offsite

* The aquatic pathways (exposures to surface water and sediment) were not analyzed in this assessment because they have already been evaluated in the OUD ERA and the Postwide ERA (ENSR, 1998a and b).

FIGURE 6-3
Conceptual Site Model for Potential Ecological Exposures
Building 35-752, Fort Richardson, Alaska



Legend

■ = Potentially complete pathway **Blank** = Incomplete pathway ☐ = Pathway considered insignificant ☒ = Potentially complete offsite

* The aquatic pathways (exposures to surface water and sediment) were not analyzed in this assessment because they have already been evaluated in the Postwide ERA (ENSR, 1998b).

FIGURE 6-4

Conceptual Site Model for Potential Ecological Exposures
Armored Vehicle Maintenance Area, Fort Richardson, Alaska

SECTION 7

Summary, Conclusions, and Recommendations

This section summarizes the findings of the RI including the nature and extent of contamination, contaminant fate and transport, and risk assessment findings, and provides conclusions regarding recommended further work and recommended remedial action objectives

7.1 Summary of Findings from the Remedial Investigation

7.1.1 Nature and Extent of Contamination

7.1.1.1 Building 35-752 Area Soil

The principal (for example, most frequently occurring) contaminant concentrations found in soil samples from the Building 35-752 Area included PCBs, dioxins/furans, VOCS, and solvents. The distribution of contaminants within the four Building 35-752 Area investigation sites is summarized below.

- **Transformer Mounting and Oil Discharge Areas:** Concentrations of PCBs and dioxin/furan isomers were detected in surface soil samples (0 to 0.5 foot) from the Transformer Mounting and Oil Discharge Areas. In 12 of the 20 samples analyzed, concentrations of the PCB Aroclor 1260 exceeded the 0.74 mg/kg screening value. Samples collected from the Transformer Oil Discharge Area substantiate the reports that transformer oil flowed from the point of initial discharge down a swale, under the peripheral road, and into the field to the east of Building 35-752.
- **Burn Pit Area:** Low-level concentrations of PCBs were sporadically detected in surface soil samples collected in the area where reports indicated that transformer cooling oil mixed with diesel fuel had been burned. Low-level concentrations of dioxins/furans were detected in samples throughout the Burn Pit Area. These results support conclusions that either (1) the area was not used for the burning of a mixture containing PCBs or (2) contaminated soils from the burning event have been removed from the area. Concentrations of TCE were detected in soil samples throughout the area. Analysis of the data indicates decreasing concentration with depth but does not indicate a source area.
- **Peripheral Road Area:** Concentrations of PCBs, dioxins/furans, and TPHs (DRO and GRO compounds) were detected in soil samples throughout the area. These detected concentrations could be associated with the spreading of PCB-contaminated soil along the peripheral road and parking area. The highest concentrations of PCBs were in, and to the east of, the Building 35-752 parking lot. The analytical results related to samples from the Peripheral Road Area, together with the low-level concentrations of PCBs detected in samples from the Burn Pit Area, support the conclusion that PCB-contaminated soil from the Burn Pit Area was graded into the roadway before the asphalt was placed.

- **Soil Stockpile Footprint Area:** Low-level concentrations of PCBs, dioxins/furans, and TPHs (DRO compounds) were detected in surface soil samples throughout the Soil Stockpile Footprint Area. These findings support the conclusion that PCB-contaminated soil remains at the site even though the PCB-contaminated soil stockpile has been removed.

7.1.1.2 Building 35-752 Area Groundwater

No specific source for the groundwater contamination in the Building 35-752 Area was identified during the OUE RI. Possible sources are associated with generator and transformer maintenance. Contamination in samples from the shallow groundwater in the Building 35-752 Area consisted of concentrations of PCBs, VOCs, SVOCs, PAHs, and metals that were detected sporadically. The most widespread contaminant detected in samples from the area was TCE. The highest concentrations of TCE and its degradation products (for example, Vinyl Chloride) were seen in samples from a downgradient well (AP-3458). Degradation of the TCE plume in the general direction of regional groundwater flow to the northwest is indicated. Concentrations of total metals in some samples exceeded screening values for aluminum and manganese. These concentrations could be due, in part, to turbidity in the samples and naturally occurring background levels of metals.

7.1.1.3 AVMA Soil

- **Trench Excavations**. No significant source of contamination was identified during the trench excavations. The principal (for example, most frequently occurring) chemical concentrations detected in soil samples from trenches included concentrations of TPHs (DRO and GRO compounds); sporadic concentrations of PAHs (reported using the laboratory method for SVOCs); low-level concentrations of VOCs, other SVOCs, and pesticides; and high concentrations of arsenic. The highest TPH concentrations were found in samples from Trench T9, in the northwestern area of the AVMA.
- **Monitoring Well Borings.** The principal contaminants in samples from soil borings advanced for the installation of monitoring wells were low-level concentrations of TPHs (DRO and GRO compounds) and VOCs. In general, the observed concentrations of arsenic detected in samples are comparable to background levels of arsenic at Fort Richardson.

7.1.1.4 AVMA Groundwater

Data collected during the OUE RI indicated that the AVMA is not a source area for the contaminated groundwater in the vicinity of the site. At the current time, a source of the concentrations of carbon tetrachloride and PCE detected in groundwater samples has not been identified. Possible sources are motor pool and laundry operations.

PCE was one of the most widespread contaminants detected in groundwater samples at the AVMA. Concentrations of PCE that exceeded the screening value of 0.66 µg/L were limited to groundwater samples from wells in the vicinity of Buildings 732 and 726 (four wells in the unconfined water-bearing zone and one deeper well in the underlying confined aquifer) and from two wells northwest of the Davis Highway. South of Davis Highway, the silt aquitard at the base of the unconfined silt unit limits the downward migration of dissolved PCE to the locally confined unit.

Carbon tetrachloride was another contaminant detected in many groundwater samples at the AVMA. Concentrations of carbon tetrachloride that exceeded the screening value of 0.17 μg/L were detected in samples from wells throughout the unconfined zone and in a sample from one deep confined zone well. (That well is located close to the northern extent of the silt aquitard separating the unconfined and confined zones.) The spatial distribution of concentrations of carbon tetrachloride detected in samples does not indicate a specific source area.

7.1.2 Baseline Risk Assessments

Conclusions from the baseline risk assessments include the following:

7.1.2.1 Human Health Risk Assessment

Note that ELCRs are upperbound estimates of potential cancer risks and HIs are not an assessment of risk but an assessment of the potential for noncarcinogenic effects posed by more than one chemical.

- Soil at the Building 35-752 Area and the AVMA. Risks associated with human exposure to soils in OUE were below or within the regulatory target risk range of $1x10^{-6}$ to $1x10^{-4}$, but did not exceed $1x10^{-4}$ risk.
- Groundwater at the Building 35-752 Area. The HI at three of the wells at the Building 35-752 Area (AP-2982, AP-2987, and AP-3458) exceeded the regulatory threshold value of 1.0. The primary contributors to the noncancer HI (chemicals with HI greater than 1.0) include the following:
  - 1,2,4-trimethylbenzene (wells AP-2982 and AP-2987)
  - 1,3,5-trimethylbenzene (well AP-2982)
  - Naphthalene (well AP-2982)
- Groundwater at the AVMA. The cumulative ELCR estimates for eight wells located at the AVMA site exceeded the regulatory target risk range of $1x10^{-6}$ to $1x10^{-4}$. The primary contributors to risk (chemicals with ELCR greater than 10^{-6}) at these eight monitoring wells included the following:
  - Arsenic (wells AP-3896, AP-4336, AP-4337, and AP-4338)
  - Carcinogenic PAHs (well AP-3893)
  - Bromodichloromethane (well AP-4336)
  - Carbon tetrachloride (wells AP-3468, AP-4337, AP-4342, and AP-4413)
  - PCE (wells AP-3468, AP-AP-4342, and AP-4413)

  The HI at 11 of the wells in the AVMA exceeded the regulatory threshold value of 1.0. The primary contributors to the noncancer HI (chemicals with HI greater than 1.0) at these 11 wells included the following:
  - Aluminum (wells AP-4336, AP-4338, and AP-4342)
  - Antimony (well AP-3871)
  - Arsenic (wells AP-3896, AP-4336, AP-4337, and AP-4338)
  - Chloroform (well AP-2980)
  - Chromium (wells AP-3468, AP-3776, AP-4336, AP-4338, AP-4339, and AP-4342)

- Iron (wells AP-4336, AP-4338, and AP-4342)
- Manganese (wells AP-4338)

7.1.2.2 Ecological Risk Assessment

- **Building 35-752 Area.** Risk at the Building 35-752 Area is considered insignificant for most receptors. While some quantitative evaluations indicate risk, qualitative review suggests that risks are unlikely or insignificant.
- **AVMA**. Risks to receptors at the AVMA are considered insignificant or unlikely for the terrestrial invertebrates, coyote, moose, and bald eagle. While some quantitative evaluations indicate risk, qualitative review suggests that risks are unlikely or insignificant for these receptors.

7.2 Conclusions

An RI was conducted at OUE in 2002 and 2003 to evaluate the presence, nature, and extent of potential contaminants in soil and groundwater and to identify whether potential human health and/or ecological risks posed by contamination in OUE are high enough to require further response action. The conclusions reached following an interpretation of the results of the sampling efforts are discussed below in relationship to the objectives for the RI identified in Sections 1.2, 3.1.1, and 3.1.2.

7.2.1 Operable Unit E

- In the Building 35-752 Area, 67 borings were drilled and soil was sampled in the Transformer Mounting and Oil Discharge Areas, the Burn Pit Area, the Peripheral Road Area, and the Soil Stockpile Footprint Area and 7 existing groundwater monitoring wells were sampled. In the AVMA, 9 trenches were excavated and soil samples were collected, 14 groundwater monitoring wells were installed and soil and groundwater samples were collected, and 27 existing groundwater monitoring wells were sampled. Laboratory analyses were performed on all the samples collected.
- Potential human and ecological receptors in the Building 35-752 Area and the AVMA were identified and evaluated in the risk assessment (CH2M HILL, 2004a).
- No unacceptable risks to human health are attributed to soil in the Building 35-752 Area or AVMA.
- Potential human health risks for the future residential scenario related to groundwater in the AVMA and Building 35-752 Area are high enough to require further response action. The primary contributors to the noncancer HI were metals, with the exception of chloroform in AP-2980. As has been discussed in this report, the observed metals concentrations are believed to be primarily the result of the high silt content observed in several wells.
- Potential ecological risks posed by contamination related to soil and groundwater in the Building 35-752 Area and the AVMA are unlikely or insignificant and do not require further response action.

- There is no need for interim remedial action since institutional controls are already in place restricting access to the OUE source areas. The FS will recommend suitable remedial technologies.
- The RI complied with federal and state ARARs.
- Wastes generated during field investigation activities were carefully controlled and properly disposed of.

7.2.2 The Building 35-752 Area

7.2.2.1 Soil

- New COPCs were investigated in the Building 35-752 Area, including dioxins/furans. The RI found detectable concentrations of dioxins/furans in three of four areas evaluated. However, only two sampling locations exceeded screening values.
- The lateral and vertical limits of contamination were established through collection and analysis of surface soil samples.
- The subsurface stratigraphy in the Burn Pit Area is gravel fill overlying a silty sand to a depth of five feet where a well-graded gravel is encountered.
- Extended areas of potential PCB contamination were investigated. The conclusions are that:
  - Transformer cooling oil containing PCBs was discharged in the field east of Building 35-752.
  - Either the Burn Pit Area was not used for the burning of a mixture containing PCBs or contaminated soils from the burning event have been removed from the area.
  - PCB-contaminated soil from the Burn Pit Area was graded into the roadway of the Peripheral Road Area before the asphalt was placed. PCBs were detected in 28 of 30 sampling locations. Seven locations contained concentrations of PCBs greater than the screening value.
  - Some soil contaminated with low-level concentrations of PCBs remains at the Soil Stockpile Footprint Area.

7.2.2.2 Groundwater

- Groundwater quality was assessed at the seven existing monitoring wells (AP-2982, AP-2983, AP-2987, AP-3231, AP-3232, AP-3458, and AP-3503). Concentrations of several VOCs exceeded screening values in samples from all wells. The most often observed contaminants were TCE, trimethylbenzene compounds, and BTEX compounds.
- No specific source for the groundwater contamination in the Building 35-752 Area was identified.

7.2.3 Armored Vehicle Maintenance Area

7.2.3.1 Soil

- The disturbed area east of former Building 45-590, where historic photographs show potential areas of contamination, was characterized. No significant source of contamination was identified during the trench excavations.
- The principal contaminants in samples from soil borings advanced for the installation of monitoring wells were low-level concentrations of TPHs (DRO and GRO compounds) and VOCs.). No source areas for PCE and other contaminants in groundwater were identified at the AVMA.

7.2.3.2 Groundwater

- The extent of the dissolved PCE plume was determined. The plume, when encountered, extends from upgradient of building 732 to slightly past the junction of the confined and unconfined aquifers north of the Davis Highway. The plume is not encountered in upgradient portions of the confined aquifer. Concentrations of PCE decrease in the merged, deep aquifer north of the Davis Highway.
- Data collected showed that the confining layer is 37 feet thick at the well AP-4412/ AP-4413 location and 30 feet thick at the well AP-4415/AP-4416 location. The northern extent of the confining unit appears to be adjacent to the Davis Highway, northwest of Building 732.
- The lithology above the confining layer consists primarily of gravel and cobbles. Interbedded silty and sandy units are also observed.
- Ongoing groundwater monitoring in the area determined that plume degradation is occurring and there is a reduction in COPC concentrations.
- COPCs in the groundwater at the AVMA were identified. They include PCE and carbon tetrachloride.
- Wells installed in the shallow unconfined aquifer carry high sediment loads that had an impact on the observed concentrations of metals.

7.2.4 Data Limitations

No data limitations were noted.

7.3 Recommendations

No further work beyond completion of the planned feasibility study is recommended at this time. An FS is recommended to address potential future residential risk at AVMA and Building 35-752.

SECTION 8

References

Alaska Department of Environmental Conservation (ADEC). 1997. *Alaska Water Quality Standards*. 18 Alaska Administrative Code (AAC) 70.

Alaska Department of Environmental Conservation (ADEC). 1999. *Underground Storage Procedures Manual*. In *Underground Storage Tank Regulations*. 18 AAC 78.

American Cancer Society. 2003. *Cancer Facts and Figures–2003.* Atlanta, Georgia.

Astley, Beth. 2004. Personal communication via email.

Astley, B. N., A. J. Delaney, D. E. Lawson, and A. Staples. 2000a. *Geophysical Investigations around Buildings 35-750 and 35-752, Fort Richardson, Alaska*.

Astley, B. N., C. F. Snyder, D. E. Lawson, C. R. Williams, T.J. Hall, and J. Denner. 2000b. *Ground Water Data from Fort Richardson, Alaska, for the Period April 1997 to March 2000*. Draft Report, Cold Regions Research and Engineering Laboratory.

Astley, B. N., A.J. Delaney, S.R. Bigl, S. Epps, and D.E. Lawson. 2000c. *Preliminary Geophysical Investigations at the Armored Vehicle Maintenance Area, OUE*. Hanover, NH: Cold Regions Research and Engineering Laboratory. ERDC/CRREL LR-01-19.

Astley, B. N., A. Delaney, S. Epps, S. R. Bigl, and D. E. Lawson. 2001a. *Potential Contaminant Sources and Hydrogeology, Armored Vehicle Maintenance Area, OUE, Fort Richardson, Alaska*. . Interim Report. Hanover, NH: Cold Regions Research and Engineering Laboratory. ERDC/CRREL LR-02-50.

Astley, B. N., and D. E. Lawson. 2001b. *Historical Aerial Photographic Analysis of the Armored Vehicle Maintenance Area, OUE, Fort Richardson, Alaska*. Hanover, NH: Cold Regions Research and Engineering Laboratory. ERDC/CRREL LR-01-34.

Black and Veatch. 1989. *Draft IRP Stage 3 RI/FS Report, Elmendorf AFB, Alaska.*

Cederstrom, D.J., F.W. Trainer, and R.M. Waller. 1964. *Geology and Ground-Water Resources of the Anchorage Area, Alaska.* U.S. Geological Survey Water-Supply Paper 1773. United States Government Printing Office: Washington. D.C.

CH2M HILL. March 1993. *Operable Unit 5 Remedial Investigation Report, Elmendorf Air Force Base, Alaska, Volume 1*.

CH2M HILL. 2002. *Quality Assurance Program Plan, Alaska*.

CH2M HILL. 2003a. Scope of Work Contract, No. DACA85-02-D-0003, Task Order 0002, Modification 05 – Additional Field Tasks, Operable Unit E Remedial Investigation at Fort Richardson, Alaska.

CH2M HILL. 2003b. *Operable Unit E Remedial Investigation, Chemical Quality Assurance Report, Fort Richardson, Alaska.* February.

CH2M HILL. 2003c. *Operable Unit E Remedial Investigation, Chemical Quality Assurance Report, Round 2, Fort Richardson, Alaska.* November.

Ecology & Environment, Inc. (E&E). 1996. *Background Data Analysis Report, Fort Richardson, Alaska*.

EMCON, 1994, *Release Investigation Report and Corrective Action Plan, Building 45-590, Fort Richardson, Alaska*, September.

ENSR. 1994. *Closure Plan for Building 35-752, Fort Richardson, Alaska*.

ENSR. 1994b. *Closure Plan for Building 35-752, Fort Richardson, Alaska.*

ENSR. 1996. *Preliminary Source Evaluation 2, Operable Unit D, Fort Richardson, Alaska*.

ENSR. 1998. *Final RI/FS Operable Unit D, Fort Richardson, Alaska, Vol. Ia, Remedial Investigation Report*. Prepared for U.S. Army Engineer District-Alaska. November.

ENSR. 1998a. *Final RI/FS Operable Unit D, Fort Richardson, Alaska, Vol. Ia, Ecological Risk Assessment*.

ENSR. 1998b. *Final RI/FS Operable Unit D Fort Richardson, Alaska Volume IIb Postwide Risk Assessment.* November.

ENSR. 1998c. *Final RI/FS Operable Unit D. Fort Richardson, Alaska. Volume IIa Risk Assessment.* November.

ENSR. 1999. *The Proposed Plan for Remedial Action at Operable Unit D, Fort Richardson, Alaska.*

ENSR. 2000. *Record of Decision, Operable Unit D Fort Richardson, Alaska*. EPA/ROD/R10-00/032.

ENSR. 2001. *Fiber Optic Cable Installation Investigation*.

ENSR. 2002. *Final Management Plan, Operable Unit E, Remedial Investigation/Feasibility Study, Fort Richardson, Alaska*. Document No. 9090-012-004. Prepared for U.S. Army, Alaska. February.

Freethey, G. M. 1976. *Preliminary Report on Water Availability n the Lower Ship Creek Basin, Anchorage, Alaska*. U.S. Geological Survey Water Resources Investigations 48-75.

Harding Lawson Associates (HLA). 1994a. *Draft Site Assessment/Remedial Investigation and Corrective Action Plan, Site 4, Building 35-752, High Frequency Transmitter Site, Fort Richardson, Alaska*.

Hunter, L. E., D. E. Lawson, S. R. Bigl, B. N. Astley, C. Snyder, and F. Perron. 1999. *Subsurface Geologic Investigations of the Fort Richardson Cantonment Area, Alaska Interim Report*. Prepared for U.S. Army Directorate of Public Works, Fort Richardson.

Hunter, L. E., D. E. Lawson, S. R. Bigl, P.B. Robinson, J.D. Schlagel. April 2000. *Glacial Geology and Stratigraphy of Fort Richardson, Alaska*. A Review of Available Data on Hydrogeology.

MacKevett, E.M. and G. Plafker. 1974. *The Border Ranges Fault in South-Central Alaska*. U.S. Geological Survey Journal of Research.

Prieksat, Mark/U.S. Army, Alaska. 2003. Personal communication with Andy Larson/CH2M HILL. September 22.

Schmoll, H.R., and L.A. Yehle. 1986. *Pleistocene Glaciation of the Upper Cook Inlet Basin,* in Hamilton T.D., Reed K.M., and R.M. Thorson eds., Glaciation in Alaska; the Geological Record: Anchorage, Alaska Geological Society, P.193-218

Silberling, N.M.J., D.L. Jones, J.W.H. Monger, P.J. Coney, H.C. Berg, and G Plafker. 1994. Lithotectonic Terrain Map of Alaska and Adjacent Parts of Canada. In the Geology of Alaska. Geology of North America, Vol. G-1.

U.S. Army Corps of Engineers (USACE). 1990. *Release Investigation at 35-752*.

U.S. Army Corps of Engineers (USACE). 1991. *Groundwater Monitoring Network, Fort Richardson*.

U.S. Army Corps of Engineers (USACE). 2001. *Chemical Data Report, Armored Vehicle Wash Area, Fort Richardson, Alaska*.

U.S. Army Corps of Engineers (USACE). 2002. *Statement of Work, Operable Unit E, Remedial Investigation at Fort Richardson Alaska*. March 6.

U.S. Army Corps of Engineers (USACE). March 6, 2003. *OUB Interim Remedial Action Report, Fort Richardson, Alaska*.

U.S. Bureau of Census. 2000. *Census 2000 – Profile of General Demographic Characteristics*.

U.S. Environmental Protection Agency (EPA). 1988. *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*. . Interim final. EPA/540/G-89/004, OSWER Directive 9355.3-01. October.

U.S. Environmental Protection Agency (EPA). 1989. *Risk Assessment Guidance for Superfund (RAGS), Volume I: Human Health Evaluation Manual, Part A* (*Interim Final).* EPA/540-1-89/002.

U.S. Environmental Protection Agency (EPA). 1991. *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions.* Office of Solid Waste and Emergency Response (OSWER) Directive 9355.0-30. April.

U.S. Environmental Protection Agency (EPA). 1993. *Data Quality Objectives Process of Superfund.*

U.S. Environmental Protection Agency (EPA). 2002. *EPA Region 9 Preliminary Remediation Goals Table.* October. <http://www.epa.gov/region09/waste/sfund/prg/files/02table.pdf>

U.S. Geological Survey (USGS). 2001. *Ground-Water Quality in the Cook Inlet Basin, AK 1999*. Water-Resources Investigations Report 01-4208, National Water-Quality Assessment Program, Roy Glass (USGS), 1999.

U.S. Geological Survey (USGS). 2003. Alaska Resource Data Files. <http://ardf.wr.usgs.gov>

Updike, R.G., and H.R. Schmoll. 1985. A Brief Resume of the Geology of Anchorage and Vicinity.

Van den Berg, M. et al. 1998. *Toxic Equivalency Factors (TEFs) for PCBs, PCDDs, PCDFs for humans and wildlife,* Environmental Health Perspectives, Vol. 106, pp. 775-792.

Wahrhaftig, C. 1965. Physiographic Divisions of Alaska. U.S. Geological Survey Professional Paper 482.

Western Regional Climate Center. 2003. Western Regional Climate Center. <http://www.wrcc.dri.edu/>

Woodward Clyde Consultants (WCC). 1994. *Remedial Investigation Management Plan, Operable Unit B, Poleline Road Disposal Area, Fort Richardson, Alaska, Draft*.

Appendix A
Building 35-752 Area
Analytical Data Summary Tables

Appendix A: Building 35-752 Area Analytical Data Summary Tables

Appendix A consists of 20 tables that summarize the analytical data obtained during the Fort Richardson Operable Unit E (OUE) Remedial Investigation (RI) for the Building 35-752 Area. A description of the terms used in the tables is provided following the list of tables.

Analytical Data Tables for the Building 35-752 Area

Area	Table
Transformer Mounting and Discharge Area Soil Samples	A-1: Dioxins/Furans A-2: PCBs
Transformer Oil Burn Pit Area Soil Samples	A-3: Dioxins/Furans A-4: PCBs A-5: SVOCs A-6: TPHs A-7: VOCs
Peripheral Road Soil Samples	A-8: Dioxins/Furans A-9: PCBs A-10: TPHs
Former PCB-Contaminated Soil Stockpile Footprint Soil Samples	A-11: Dioxins/Furans A-12: PCBs A-13: TPHs
Building 35-752 Area Groundwater Samples	A-14: BTEX and TPHs A-15: Metals A-16: Dissolved Metals A-17: PAHs A-18: PCBs A-19: SVOCs A-20: VOCs

Concentration Qualifiers, Lab Flags, Validation Flags, and Other Lab Terms

Term	Description
=	A concentration qualifier that means the analyte was detected above the RL and should not appear in the final flag. There would be no flag for these analytes if there were no QC exceedances.
B	The analyte was identified in a blank.
Boldfaced numbers	Analytes that were detected.
GC	Laboratory flags. The G means the RL was elevated due to matrix interference. C is normally a lab flag for GC/MS that means the presence of the compound was confirmed by GC/MS.
GQ	Laboratory flags. The G means the RL was elevated due to matrix interference and the Q means the RL was elevated due to high analyte concentration.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result was estimated with a high bias.
JB	The analyte was not detected above the reported sample quantitation limit and the analyte was detected in a blank.
MDL	Method detection limit. The lowest concentration of an analyte that, when processed through an entire analytical method (including prep and equip), produces a signal/response that is statistically distinct from the signal/response arising from lab reagent blanks (zero values).
QC	Quality check
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
RL	Reporting limit. The limit above which a laboratory feels confident in reporting its results. This limit is the level where the laboratory believes results are not subject to laboratory-induced contamination or other sources of bias.
Shading/ Highlighting	The concentration detected exceeded the screening level for that chemical.
U	The analyte was analyzed for and there was an instrument response, but the analyte was not detected above the reported sample quantitation limit.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
UR	Analytes that were non-detect and were rejected and flagged R.

Other Abbreviations

Acronym	Terms
ADEC	Alaska Department of Environmental Conservation
AK GW Quality Standards	Alaska Water Quality Standards values for groundwater (ADEC, 1997) in UG/L for TPH concentrations
AK UST Standards	Alaska Underground Storage Tank values for soil (ADEC, 1999) in mg/kg for TPH concentrations
BTEX	benzene, toluene, ethylbenzene, and xylenes
Depth	Measured in feet below ground surface
DISS	dissolved
EPA	U.S. Environmental Protection Agency
FD	Field duplicate QAQC type
ID	Identifier
MG/KG	milligrams per kilogram
N	Not a QAQC type
OUE	Operable Unit E
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PG/G	picograms per gram
PRG	Preliminary Remediation Goal
PRG-IND	EPA Region 9 Industrial Preliminary Remediation Goal (PRG) values for soil and groundwater (EPA, 2002)
PRG-Tap Water	EPA Region 9 Tap Water PRG values for groundwater (EPA, 2002) in micrograms per liter (UG/L) for all but TPH concentrations
QAQC Type	Quality Assurance/Quality Control Type
SVOC	semivolatile organic compound
TCDD	tetrachlorodibenzodioxin
TEQ	toxicity equivalent quotient
Total TCDD (TEQ)	total tetrachlorodibenzodioxin (TCDD) TEQ for the sample; EPA Region 9 Industrial PRG value for 2,3,7,8-tetrachlorodibenzo-p-dioxin in soil (EPA, 2002)
TPH	total petroleum hydrocarbon
UG/L	micrograms per liter
UST	underground storage tank
VOC	volatile organic compound

TABLE A-1

Criteria Evaluation - Soil - Bldg. 35-752, Transformer Oil Mounting and Discharge Area DIOXIN/FURANS

OUE Fort Richardson

Location ID:				**T6**	**T10**	**T11**	**T13**	**T15**
Sample ID:				02B75216SL	02B75229SL	02B752233	02B75238SL	02B75244SL
QAQC Type:				N	FD	N	N	N
Depth:				0 - 0.5	0 - 0.5	0.5 - 1	0 - 0.5	0 - 0.5
Date Sampled:				08/01/02	08/01/02	10/15/02	08/01/02	08/01/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	**27 =**	**19 =**	**3.5 =**	**166 =**	**125 =**
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	1,592	**67 =**	**80 =**	**2.9 =**	**518 =**	**296 =**
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	**4.9 =**	**2.0 =**	**1.4 =**	**15 =**	**20 =**
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**12 =**	**1.6 =**	**2.4 =**	**9.7 =**	**37 =**
1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159	**0.63 =**	0.94 U	0.94 U	**2.6 =**	**2.3 =**
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**2.6 =**	**0.91 =**	**0.40 =**	**2.2 =**	**6.4 =**
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	**2.8 =**	**1.9 =**	1.5 U	**12 =**	**7.3 =**
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.38 U	0.39 U	0.39 U	0.39 U	0.39 U
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	**1.6 =**	**1.6 =**	1.4 U	**6.2 =**	**4.7 =**
1,2,3,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	318	0.93 U	0.95 U	0.95 U	**83 =**	0.94 U
1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.48 U	0.49 U	0.49 U	**0.64 =**	0.49 U
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**1.8 =**	**1.1 =**	**0.34 =**	**4.5 =**	**4.7 =**
2,3,4,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	32	**2.0 =**	1.0 U	**0.63 =**	**1.4 =**	**3.9 =**
2,3,7,8-TETRACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**2.3 =**	**0.66 =**	**0.76 =**	**1.2 =**	**5.2 =**
2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.69 U	0.70 U	0.70 U	0.70 U	**0.26 =**
HEPTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**73 =**	**78 =**	**8.5 =**	**867 =**	**461 =**
HEPTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**147 =**	**322 =**	**5.8 =**	**820 =**	**528 =**
HEXACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**80 =**	**77 =**	**14 =**	**374 =**	**378 =**
HEXACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**14 =**	**30 =**	**0.39 =**	**53 =**	**25 =**
OCTACHLORODIBENZOFURAN	PG/G	PRG-IND	159,223	**70 =**	**65 =**	**8.5 =**	**787 =**	**465 =**
OCTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159,223	**467 =**	**423 =**	**17 =**	**4,490 =**	**2,730 =**
PENTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**87 =**	**146 =**	**45 =**	**190 =**	**210 =**
PENTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**0.74 =**	0.49 U	0.49 U	**0.64 =**	**3.7 =**
TETRACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**88 =**	**128 =**	**21 =**	**65 =**	**90 =**
TETRACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**0.76 =**	**0.72 =**	**0.60 =**	**0.43 =**	**5.5 =**
Total TCDD (TEQ)	PG/G	PRG-IND	16	**4.4 =**	**1.8 =**	**0.79 =**	**17 =**	**14 =**

TABLE A-2
Criteria Evaluation - Soil - Bldg. 35-752, Transformer Oil Mounting and Discharge Area PCB
OUE Fort Richardson

Location ID:			**T1**	**T2**	**T2**	**T3**	**T4**	**T5**	**T5**	**T6**	**T6**	**T7**	**T8**
Sample ID:			02B75201SL	02B75204SL	02B752205SL	02B75207SL	02B75210SL	02B75213SL	02B752214SL	02B75216SL	02B752218SL	02B75219SL	02B75222SL
QAQC Type:			N	N	N	N	N	N	N	N	N	N	N
Depth:			0 - 0.5	0 - 0.5	0.5 - 1	0 - 0.5	0 - 0.5	0 - 0.5	0.5 - 1	0 - 0.5	0.5 - 1	0 - 0.5	0 - 0.5
Date Sampled:			08/01/02	08/01/02	10/15/02	08/01/02	08/01/02	08/01/02	10/15/02	08/01/02	10/15/02	08/01/02	08/01/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
PCB-1016 (AROCLOR 1016)	MG/KG	PRG-IND	21	0.0043 U	0.0040 U	0.0037 U	0.0037 U	0.022 U	0.0037 U	0.017 U	0.0036 U	0.015 U	0.0036 U	0.0035 U
PCB-1221 (AROCLOR 1221)	MG/KG	PRG-IND	0.74	0.0043 U	0.0040 U	0.0037 U	0.0037 U	0.022 U	0.0037 U	0.017 U	0.0036 U	0.015 U	0.0036 U	0.0035 U
PCB-1232 (AROCLOR 1232)	MG/KG	PRG-IND	0.74	0.0043 U	0.0040 U	0.0037 U	0.0037 U	0.022 U	0.0037 U	0.017 U	0.0036 U	0.015 U	0.0036 U	0.0035 U
PCB-1242 (AROCLOR 1242)	MG/KG	PRG-IND	0.74	0.0043 U	0.0040 U	0.0037 U	0.0037 U	0.022 U	0.0037 U	0.017 U	0.0036 U	0.015 U	0.0036 U	0.0035 U
PCB-1248 (AROCLOR 1248)	MG/KG	PRG-IND	0.74	0.0043 U	0.0040 U	0.0037 U	0.0037 U	0.022 U	0.0037 U	0.017 U	0.0036 U	0.015 U	0.0036 U	0.0035 U
PCB-1254 (AROCLOR 1254)	MG/KG	PRG-IND	0.74	0.0043 U	0.0040 U	0.0037 U	0.0037 U	0.022 U	0.0037 U	0.017 U	0.0036 U	0.015 U	0.0036 U	0.0035 U
PCB-1260 (AROCLOR 1260)	MG/KG	PRG-IND	0.74	**0.35 J**	**6.7 =**	**3.1 =**	**0.76 =**	**0.99 J**	**0.89 =**	**0.68 J**	**0.91 =**	**38 J**	**0.36 J**	**0.29 =**

TABLE A-2
Criteria Evaluation - Soil - Bldg. 35-752, Transformer Oil Mounting and Discha
OUE Fort Richardson

Location ID:				**T10**	**T10**	**T11**	**T11**	**T13**	**T15**	**T15**	**T16**	**T17**	**T19**
Sample ID:				02B75228SL	02B75229SL	02B752233	02B75232SL	02B75238SL	02B752246SL	02B75244SL	02B75247SL	02B75250SL	02B75256SL
QAQC Type:				N	FD	N	N	N	N	N	N	N	N
Depth:				0 - 0.5	0 - 0.5	0.5 - 1	0 - 0.5	0 - 0.5	0.5 - 1	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Date Sampled:				08/01/02	08/01/02	10/15/02	08/01/02	08/01/02	10/15/02	08/01/02	08/01/02	08/01/02	08/01/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
PCB-1016 (AROCLOR 1016)	MG/KG	PRG-IND	21	0.0041 U	0.0042 U	0.0045 U	0.0038 U	0.0038 U	0.0037 U	0.0038 U	0.0039 U	0.0037 U	0.0036 U
PCB-1221 (AROCLOR 1221)	MG/KG	PRG-IND	0.74	0.0041 U	0.0042 U	0.0045 U	0.0038 U	0.0038 U	0.0037 U	0.0038 U	0.0039 U	0.0037 U	0.0036 U
PCB-1232 (AROCLOR 1232)	MG/KG	PRG-IND	0.74	0.0041 U	0.0042 U	0.0045 U	0.0038 U	0.0038 U	0.0037 U	0.0038 U	0.0039 U	0.0037 U	0.0036 U
PCB-1242 (AROCLOR 1242)	MG/KG	PRG-IND	0.74	0.0041 U	0.0042 U	0.0045 U	0.0038 U	0.0038 U	0.0037 U	0.0038 U	0.0039 U	0.0037 U	0.0036 U
PCB-1248 (AROCLOR 1248)	MG/KG	PRG-IND	0.74	0.0041 U	0.0042 U	0.0045 U	0.0038 U	0.0038 U	0.0037 U	0.0038 U	0.0039 U	0.0037 U	0.0036 U
PCB-1254 (AROCLOR 1254)	MG/KG	PRG-IND	0.74	0.0041 U	0.0042 U	0.0045 U	0.0038 U	0.0038 U	0.0037 U	0.0038 U	0.0039 U	0.0037 U	0.0036 U
PCB-1260 (AROCLOR 1260)	MG/KG	PRG-IND	0.74	**0.11 J**	**0.15 J**	**1.0 =**	**14 =**	**0.14 J**	**1.2 =**	**3.48 =**	**99.9 J**	**0.16 =**	**0.049 J**

TABLE A-3
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit DIOXIN/FURANS
OUE Fort Richardson

Location ID:				**AP-4328**	**AP-4328**	**AP-4329**	**AP-4329**	**AP-4330**	**AP-4330**	**AP-4331**	**AP-4331**	**AP-4331**	**AP-4332**
Sample ID:				02B75288SL	02B75290SL	02B75294SL	02B75296SL	02B752102SL	02B75298SL	02B752104SL	02B752105SL	02B752106SL	02B752113SL
QAQC Type:				N	N	N	N	N	N	N	N	FD	N
Depth:				0 - 0.5	5 - 5.5	2 - 2.5	7 - 7.5	10 - 10.5	0 - 0.5	2 - 2.5	5 - 5.5	5 - 5.5	10 - 10.5
Date Sampled:				07/26/02	07/26/02	07/26/02	07/26/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	2.0 U	**6.0 =**	**0.89 =**	2.0 U	2.0 U	2.0 U	**8.7 =**	**0.52 =**	**0.27 =**	**0.14 =**
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	1,592	**1.1 =**	**3.9 =**	**2.7 =**	**1.6 =**	**0.53 =**	1.1 U	**5.1 =**	**0.77 =**	**0.59 =**	**0.60 =**
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	1.7 U	**3.5 =**	1.7 U	1.7 U	1.7 U	1.7 U	**5.0 =**	1.7 U	1.7 U	1.7 U
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.74 U	**5.3 =**	0.74 U	0.75 U	**0.20 =**	0.75 U	**9.1 =**	**0.53 =**	**0.31 =**	**0.17 =**
1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159	0.92 U	0.93 U	0.93 U	0.94 U	0.93 U	0.93 U	0.94 U	0.92 U	0.92 U	0.94 U
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.98 U	**0.63 =**	0.99 U	1.0 U	0.99 U	0.99 U	**1.1 =**	0.98 U	0.97 U	**0.13 =**
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.38 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.38 U	0.38 U	0.39 U
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U	**0.24 =**	1.4 U	1.4 U	1.4 U
1,2,3,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	318	0.93 U	0.94 U	0.94 U	0.95 U	0.94 U	0.94 U	0.95 U	0.93 U	0.93 U	0.95 U
1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.48 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.48 U	0.48 U	0.49 U
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	2.8 U	**0.39 =**	2.9 U	2.9 U	2.9 U	2.9 U	**0.67 =**	2.8 U	2.8 U	**0.14 =**
2,3,4,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	32	0.98 U	**0.44 =**	0.99 U	1.0 U	0.99 U	0.99 U	**0.50 =**	0.98 U	0.97 U	1.0 U
2,3,7,8-TETRACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.50 U	**0.35 =**	0.51 U	0.51 U	0.51 U	0.51 U	**0.37 =**	0.50 U	0.50 U	0.51 U
2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.69 U	0.69 U	0.69 U	0.70 U	0.69 U	0.70 U	0.70 U	0.68 U	0.68 U	0.70 U
HEPTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	1.7 U	**15 =**	**1.8 =**	1.7 U	1.7 U	1.7 U	**21 =**	**1.1 =**	**0.27 =**	**0.14 =**
HEPTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**2.0 =**	**7.4 =**	**4.4 =**	**2.9 =**	**0.73 =**	1.1 U	**11 =**	**1.4 =**	**1.2 =**	**0.84 =**
HEXACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	0.38 U	**11 =**	**1.3 =**	0.39 U	**0.20 =**	0.39 U	**17 =**	**0.80 =**	**0.45 =**	**0.43 =**
HEXACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.92 U	**1.3 =**	0.93 U	0.94 U	0.93 U	0.93 U	**1.4 =**	**0.24 =**	0.92 U	0.94 U
OCTACHLORODIBENZOFURAN	PG/G	PRG-IND	159,223	**0.59 =**	**17 =**	**1.2 =**	4.3 U	4.3 U	4.3 U	**22 =**	**1.3 =**	**0.50 =**	4.3 U
OCTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159,223	**9.6 =**	**25 =**	**16 =**	**17 =**	**2.6 =**	2.6 U	**23 =**	**8.8 =**	**11 =**	**4.1 =**
PENTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	0.93 U	**4.4 =**	**0.94 =**	0.95 U	0.94 U	0.94 U	**9.0 =**	0.93 U	0.93 U	0.95 U
PENTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.48 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	**0.49 =**	0.48 U	0.48 U	0.49 U
TETRACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	0.50 U	**3.6 =**	**4.5 =**	0.51 U	0.51 U	0.51 U	**4.2 =**	**0.30 =**	0.50 U	0.51 U
TETRACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.69 U	0.69 U	0.69 U	0.70 U	0.69 U	0.70 U	0.70 U	0.68 U	0.68 U	0.70 U
Total TCDD (TEQ)	PG/G	PRG-IND	16	**0.012 =**	**1.0 =**	**0.038 =**	**0.018 =**	**0.026 =**	**--**	**1.6 =**	**0.067 =**	**0.041 =**	**0.052 =**

TABLE A-3
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit DIOXIN/FURANS
OUE Fort Richardson

Location ID:				**AP-4333**	**AP-4333**	**AP-4334**	**AP-4334**	**AP-4335**	**AP-4335**	**AP-4335**
Sample ID:				02B752114SL	02B752116SL	02B752120SL	02B752123SL	02B752124SL	02B752127SL	02B752128SL
QAQC Type:				N	N	N	N	N	N	FD
Depth:				0 - 0.5	5 - 5.5	2 - 2.5	10 - 10.5	0 - 0.5	7 - 7.5	7 - 7.5
Date Sampled:				07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**							
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	**1.2 =**	**7.6 =**	**1.1 =**	2.0 U	**0.54 =**	2.0 U	2.0 U
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	1,592	**1.1 =**	**0.95 =**	**6.5 =**	**2.6 =**	**0.65 =**	1.1 U	1.1 U
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	**0.82 =**	1.7 U	**0.70 =**	1.7 U	1.7 U	1.7 U	1.7 U
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**1.3 =**	**8.8 =**	**0.73 =**	**0.10 =**	**0.55 =**	0.75 U	0.75 U
1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159	0.93 U	0.92 U	**0.56 =**	0.94 U	0.92 U	0.93 U	0.94 U
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**0.26 =**	**1.2 =**	**0.58 =**	1.0 U	0.98 U	0.99 U	1.0 U
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	1.5 U	1.5 U	**0.88 =**	**0.12 =**	1.5 U	1.5 U	1.5 U
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.38 U	0.38 U	**0.62 =**	0.39 U	0.38 U	0.39 U	0.39 U
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	1.4 U	1.4 U	**0.72 =**	1.4 U	1.4 U	1.4 U	1.4 U
1,2,3,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	318	0.94 U	**1.9 =**	**0.42 =**	0.95 U	0.93 U	0.94 U	0.95 U
1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.48 U	0.48 U	**0.63 =**	0.49 U	0.48 U	0.49 U	0.49 U
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	2.9 U	**4.0 =**	**0.45 =**	2.9 U	2.9 U	2.9 U	2.9 U
2,3,4,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	32	0.99 U	**6.9 =**	**0.41 =**	1.0 U	0.98 U	0.99 U	1.0 U
2,3,7,8-TETRACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.50 U	**4.0 =**	0.51 U	0.51 U	0.50 U	0.51 U	0.51 U
2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.69 U	0.69 U	0.70 U	0.70 U	0.69 U	0.70 U	0.70 U
HEPTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**3.7 =**	**8.1 =**	**2.7 =**	1.7 U	**1.3 =**	1.7 U	1.7 U
HEPTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**1.7 =**	**1.4 =**	**11 =**	**4.6 =**	**1.4 =**	1.1 U	1.1 U
HEXACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**2.2 =**	**28 =**	**3.8 =**	**0.60 =**	**0.69 =**	0.39 U	0.39 U
HEXACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.93 U	**0.17 =**	**3.6 =**	**1.2 =**	**0.99 =**	0.93 U	0.94 U
OCTACHLORODIBENZOFURAN	PG/G	PRG-IND	159,223	**4.8 =**	**0.60 =**	**1.1 =**	4.3 U	**2.0 =**	4.3 U	4.3 U
OCTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159,223	**11 =**	**6.2 =**	**52 =**	**35 =**	**5.6 =**	2.6 U	2.6 U
PENTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**0.28 =**	**29 =**	**1.5 =**	**0.11 =**	**0.11 =**	0.94 U	0.95 U
PENTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.48 U	0.48 U	**0.89 =**	0.49 U	0.48 U	0.49 U	0.49 U
TETRACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	0.50 U	**17 =**	**2.5 =**	**0.14 =**	**0.080 =**	0.51 U	0.51 U
TETRACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.69 U	0.69 U	0.70 U	**0.060 =**	0.69 U	0.70 U	0.70 U
Total TCDD (TEQ)	PG/G	PRG-IND	16	**0.19 =**	**5.4 =**	**1.4 =**	**0.051 =**	**0.068 =**	**--**	**--**

TABLE A-4
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit PCB
OUE Fort Richardson

Location ID:			**AP-4328**	**AP-4328**	**AP-4329**	**AP-4329**	**AP-4330**	**AP-4330**	**AP-4331**	**AP-4331**	**AP-4331**	**AP-4332**	**AP-4333**
Sample ID:			02B75288SL	02B75290SL	02B75294SL	02B75296SL	02B752102SL	02B75298SL	02B752104SL	02B752105SL	02B752106SL	02B752113SL	02B752114SL
QAQC Type:			N	N	N	N	N	N	N	N	FD	N	N
Depth:			0 - 0.5	5 - 5.5	2 - 2.5	7 - 7.5	10 - 10.5	0 - 0.5	2 - 2.5	5 - 5.5	5 - 5.5	10 - 10.5	0 - 0.5
Date Sampled:			07/26/02	07/26/02	07/26/02	07/26/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
PCB-1016 (AROCLOR 1016)	MG/KG	PRG-IND	21	0.0035 U	0.0035 U	0.0040 U	0.0035 UR	0.0034 UR	0.0034 U	0.0037 UR	0.0036 UR	0.0035 UR	0.0034 U	0.0034 U
PCB-1221 (AROCLOR 1221)	MG/KG	PRG-IND	0.74	0.0035 U	0.0035 U	0.0040 U	0.0035 U	0.0034 U	0.0034 U	0.0037 U	0.0036 U	0.0035 U	0.0034 U	0.0034 U
PCB-1232 (AROCLOR 1232)	MG/KG	PRG-IND	0.74	0.0035 U	0.0035 U	0.0040 U	0.0035 U	0.0034 U	0.0034 U	0.0037 U	0.0036 U	0.0035 U	0.0034 U	0.0034 U
PCB-1242 (AROCLOR 1242)	MG/KG	PRG-IND	0.74	0.0035 U	0.0035 U	0.0040 U	0.0035 U	0.0034 U	0.0034 U	0.0037 U	0.0036 U	0.0035 U	0.0034 U	0.0034 U
PCB-1248 (AROCLOR 1248)	MG/KG	PRG-IND	0.74	0.0035 U	0.0035 U	0.0040 U	0.0035 U	0.0034 U	0.0034 U	0.0037 U	0.0036 U	0.0035 U	0.0034 U	0.0034 U
PCB-1254 (AROCLOR 1254)	MG/KG	PRG-IND	0.74	0.0035 U	0.0035 U	0.0040 U	0.0035 U	0.0034 U	0.0034 U	0.0037 U	0.0036 U	0.0035 U	0.0034 U	0.0034 U
PCB-1260 (AROCLOR 1260)	MG/KG	PRG-IND	0.74	**0.013 J**	**0.69 J**	**0.023 J**	**0.045 J**	0.0031 UJ	**0.016 J**	1.7 UJ	**0.039 J**	0.0031 UJ	0.0031 U	**0.062 J**

TABLE A-4
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit PCB
OUE Fort Richardson

Location ID:			**AP-4333**	**AP-4334**	**AP-4334**	**AP-4335**	**AP-4335**	**AP-4335**
Sample ID:			02B752116SL	02B752120SL	02B752123SL	02B752124SL	02B752127SL	02B752128SL
QAQC Type:			N	N	N	N	N	FD
Depth:			5 - 5.5	2 - 2.5	10 - 10.5	0 - 0.5	7 - 7.5	7 - 7.5
Date Sampled:			07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
PCB-1016 (AROCLOR 1016)	MG/KG	PRG-IND	21	0.0034 U	0.0041 U	0.0034 U	0.0035 U	0.0034 U	0.0034 U
PCB-1221 (AROCLOR 1221)	MG/KG	PRG-IND	0.74	0.0034 U	0.0041 U	0.0034 U	0.0035 U	0.0034 U	0.0034 U
PCB-1232 (AROCLOR 1232)	MG/KG	PRG-IND	0.74	0.0034 U	0.0041 U	0.0034 U	0.0035 U	0.0034 U	0.0034 U
PCB-1242 (AROCLOR 1242)	MG/KG	PRG-IND	0.74	0.0034 U	0.0041 U	0.0034 U	0.0035 U	0.0034 U	0.0034 U
PCB-1248 (AROCLOR 1248)	MG/KG	PRG-IND	0.74	0.0034 U	0.0041 U	0.0034 U	0.0035 U	0.0034 U	0.0034 U
PCB-1254 (AROCLOR 1254)	MG/KG	PRG-IND	0.74	0.0034 U	0.0041 U	0.0034 U	0.0035 U	0.0034 U	0.0034 U
PCB-1260 (AROCLOR 1260)	MG/KG	PRG-IND	0.74	**0.037 J**	0.0036 U	0.0031 U	**0.081 =**	0.0031 U	0.0030 U

TABLE A-5
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit SVOC
OUE Fort Richardson

Location ID:				AP-4328	AP-4328	AP-4329	AP-4329	AP-4330	AP-4330	AP-4331	AP-4331	AP-4331	AP-4332	AP-4333	AP-4333	AP-4334	AP-4334
Sample ID:				02B75288SL	02B75290SL	02B75294SL	02B75296SL	02B752102SL	02B75298SL	02B752104SL	02B752105SL	02B752106SL	02B752113SL	02B752114SL	02B752116SL	02B752120SL	02B752123SL
QAQC Type:				N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Depth:				0 - 0.5	5 - 5.5	2 - 2.5	7 - 7.5	10 - 10.5	0 - 0.5	2 - 2.5	5 - 5.5	5 - 5.5	10 - 10.5	0 - 0.5	5 - 5.5	2 - 2.5	10 - 10.5
Date Sampled:				07/26/02	07/26/02	07/26/02	07/26/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**														
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.061 U	0.062 U	0.070 U	0.062 U	0.061 U	0.061 U	**0.24 =**	0.064 U	0.062 U	0.061 U	0.061 U	0.24 U	0.072 U	0.061 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.069 U	0.070 U	0.079 U	0.070 U	0.069 U	0.069 U	0.074 U	0.073 U	0.070 U	0.069 U	0.069 U	0.27 U	0.081 U	0.069 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.065 UJ	0.066 UJ	0.074 UJ	0.066 UJ	0.065 UJ	0.065 U	0.069 UJ	0.068 UJ	0.065 U	0.064 U	0.064 U	0.26 U	0.076 U	0.064 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.030 U	0.030 U	0.034 U	0.030 U	0.030 U	0.030 U	0.032 U	0.031 U	0.030 UJ	0.029 U	0.029 U	0.12 U	0.035 U	0.029 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.029 U	0.029 U	0.033 U	0.029 U	0.029 U	0.029 U	0.031 U	0.031 U	0.029 UJ	0.029 U	0.029 U	0.12 U	0.034 U	0.029 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.034 U	0.035 U	0.039 U	0.035 U	0.034 U	0.034 U	0.037 U	0.036 U	0.035 UJ	0.034 U	0.034 U	0.14 U	0.040 U	0.034 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.038 U	0.038 U	0.043 U	0.038 U	0.038 U	0.038 U	0.041 U	0.040 U	0.038 UJ	0.037 U	0.037 U	0.15 U	0.045 U	0.038 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.23 UJ	0.23 UJ	0.26 UJ	0.23 UJ	0.22 UJ	0.22 UJ	0.24 UJ	0.24 UJ	0.23 UJ	0.22 UJ	0.22 UJ	0.89 UJ	0.26 UJ	0.22 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.036 U	0.036 U	0.041 U	0.036 U	0.036 U	0.036 U	0.038 U	0.038 U	0.036 U	0.035 U	0.035 U	0.14 U	0.042 U	0.036 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.026 U	0.026 U	0.030 U	0.026 U	0.026 U	0.026 U	0.028 U	0.027 U	0.026 U	0.026 U	0.026 U	0.10 U	0.030 U	0.026 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.037 U	0.038 U	0.043 U	0.038 U	0.037 U	0.037 U	0.040 U	0.039 U	0.038 U	0.037 U	0.037 U	0.15 U	0.044 U	0.037 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.058 U	0.059 U	0.066 U	0.059 U	0.058 U	0.058 U	0.062 U	0.061 U	0.058 UJ	0.057 U	0.057 U	0.23 U	0.068 U	0.058 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.046 U	0.046 U	0.052 U	0.046 U	0.046 U	0.046 U	0.049 U	0.048 U	0.046 U	0.045 U	0.045 U	0.18 U	0.054 U	0.045 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.048 U	0.049 U	0.055 U	0.049 U	0.048 U	0.048 U	0.051 U	0.050 U	0.048 UJ	0.047 U	0.047 U	0.19 U	0.056 U	0.048 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.030 U	0.031 U	0.035 U	0.031 U	0.030 U	0.030 U	0.032 U	0.032 U	0.030 U	0.030 U	0.030 U	0.12 U	0.036 U	0.030 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.041 U	0.041 U	0.046 U	0.041 U	0.040 U	0.040 U	0.043 U	0.042 U	0.041 UJ	0.040 U	0.040 U	0.16 U	0.048 U	0.040 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.081 U	0.082 U	0.093 U	0.082 U	0.081 U	0.081 UJ	0.087 U	0.085 U	0.082 UJ	0.080 UJ	0.080 UJ	0.32 UJ	0.095 UJ	0.081 UJ
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.058 UJ	0.058 UJ	0.066 UJ	0.058 UJ	0.057 UJ	0.057 UJ	0.062 UJ	0.060 UJ	0.058 UJ	0.057 UJ	0.057 UJ	0.23 UJ	0.068 UJ	0.057 UJ
3-NITROANILINE	MG/KG	PRG-IND	--	0.036 U	0.036 U	0.041 U	0.036 U	0.036 U	0.036 U	0.038 U	0.038 U	0.036 U	0.035 U	0.035 U	0.14 U	0.042 U	0.036 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.022 U	0.022 U	0.025 U	0.022 U	0.021 U	0.021 U	0.023 U	0.023 U	0.022 UJ	0.021 U	0.021 U	0.085 U	0.025 U	0.021 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.036 U	0.036 U	0.041 U	0.036 U	0.036 U	0.036 U	0.039 U	0.038 U	0.036 U	0.036 U	0.036 U	0.14 U	0.042 U	0.036 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.036 U	0.036 U	0.041 U	0.036 U	0.036 U	0.036 U	0.039 U	0.038 U	0.036 UJ	0.036 U	0.036 U	0.14 U	0.042 U	0.036 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.089 UJ	0.090 UJ	0.10 UJ	0.090 UJ	0.089 UJ	0.089 UJ	0.095 UJ	0.093 UJ	0.089 UJ	0.088 UJ	0.088 UJ	0.35 UJ	0.10 UJ	0.088 UJ
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.032 U	0.032 U	0.036 U	0.032 U	0.032 U	0.032 U	0.034 U	0.033 U	0.032 U	0.031 U	0.031 U	0.13 U	0.037 U	0.031 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.038 U	0.039 U	0.044 U	0.039 U	0.038 U	0.038 U	0.041 U	0.040 U	0.038 U	0.038 U	0.038 U	0.15 U	0.045 U	0.038 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.022 U	0.022 U	0.025 U	0.022 U	0.022 U	0.022 U	0.023 U	0.023 U	0.022 UJ	0.022 U	0.022 U	0.087 U	0.026 U	0.022 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.041 U	0.041 U	0.046 U	0.041 U	0.040 U	0.040 U	0.043 U	0.043 U	0.041 U	0.040 U	0.040 U	0.16 U	0.048 U	0.040 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.037 U	0.038 U	0.043 U	0.038 U	0.037 U	0.037 U	0.040 U	0.039 U	0.038 U	0.037 U	0.037 U	0.15 U	0.044 U	0.037 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.037 U	0.037 U	0.042 U	0.037 U	0.037 U	0.037 U	0.039 U	0.039 U	0.037 U	0.036 U	0.036 U	0.15 U	0.043 U	0.036 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.037 U	0.037 U	0.042 U	0.037 U	0.037 U	0.037 U	0.039 U	0.039 U	0.037 U	0.036 U	0.036 U	0.15 U	0.043 U	0.036 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.030 U	0.030 U	0.034 U	0.030 U	0.030 U	0.030 U	0.032 U	0.032 U	0.030 U	0.030 U	0.030 U	0.12 U	0.035 U	0.030 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.026 U	0.027 U	0.030 U	0.027 U	0.026 U	0.026 U	0.028 U	0.028 U	0.027 U	0.026 U	0.026 U	0.10 U	0.031 U	0.026 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.039 U	0.040 U	0.045 U	0.040 U	0.039 U	0.039 U	0.042 U	0.041 U	0.039 U	0.039 U	0.039 U	0.16 U	0.046 U	0.039 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.035 U	0.035 U	0.040 U	0.035 U	0.035 U	0.035 U	0.037 U	0.036 U	0.035 U	0.034 U	0.034 U	0.14 U	0.041 U	0.034 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.45 UR	0.45 UR	0.51 UR	0.45 UR	0.44 UR	0.44 UR	0.48 UR	0.47 UR	0.45 UR	0.44 UR	0.44 UR	1.8 UR	0.52 UR	0.44 UR
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.049 UR	0.049 UR	0.056 UR	0.049 UR	0.049 UR	0.049 UR	0.052 UR	0.051 UR	0.049 UR	0.048 UR	0.048 UR	0.19 UR	0.057 UR	0.048 UR
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	**0.039 J**	0.031 U	0.035 U	0.031 U	0.030 U	0.030 U	0.032 U	0.032 U	0.030 U	0.030 U	0.030 U	0.12 U	0.036 U	0.030 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.066 U	0.066 U	0.075 U	0.066 U	0.065 U	0.065 U	0.070 U	0.069 U	0.066 U	0.065 U	0.065 U	0.26 U	0.077 U	0.065 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.068 U	0.069 U	0.078 U	0.069 U	0.068 U	0.068 U	0.073 U	0.071 U	0.068 U	0.067 U	0.067 U	0.27 U	0.080 U	0.068 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.075 U	0.075 U	0.085 U	0.076 U	0.074 U	0.074 U	0.080 U	0.078 U	0.075 U	0.074 U	0.074 U	0.30 U	0.088 U	0.074 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.046 J**	**1.1 =**	**0.043 J**	0.035 U	0.034 U	**0.075 J**	0.037 U	0.036 U	0.034 U	0.034 U	**0.076 J**	0.14 U	0.040 U	0.034 U
CHRYSENE	MG/KG	PRG-IND	211	0.037 U	0.037 U	0.042 U	0.037 U	0.037 U	0.037 U	0.039 U	0.039 U	0.037 U	0.036 U	0.036 U	0.15 U	0.043 U	0.036 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.041 U	0.042 U	0.047 U	0.042 U	0.041 U	0.041 U	0.044 U	0.043 U	0.042 U	0.041 U	0.041 U	0.16 U	0.049 U	0.041 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.037 U	0.037 U	0.042 U	0.037 U	0.037 U	0.037 U	0.039 U	0.039 U	0.037 U	0.036 U	0.036 U	0.15 U	0.043 U	0.036 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.037 U	0.042 U	0.037 U	0.037 U	0.037 U	0.039 U	0.039 U	0.037 U	0.036 U	0.036 U	0.15 U	0.043 U	0.036 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.037 U	0.042 U	0.037 U	0.037 U	0.037 U	0.039 U	0.039 U	0.037 U	0.036 U	0.036 U	0.15 U	0.043 U	0.036 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.80 B**	**0.66 B**	**0.099 JB**	**0.063 JB**	**0.086 JB**	**0.25 B**	**0.082 JB**	**0.058 JB**	**0.14 JB**	**0.094 JB**	**0.091 JB**	0.17 U	**0.069 JB**	**0.044 JB**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.033 U	**0.054 J**	0.038 U	0.033 U	0.033 U	0.033 U	0.035 U	0.034 U	0.033 U	0.032 U	0.032 U	0.13 U	0.039 U	0.033 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.041 U	0.042 U	0.047 U	0.042 U	0.041 U	0.041 U	0.044 U	0.043 U	0.041 U	0.041 U	0.041 U	0.16 U	0.048 U	0.041 U
FLUORENE	MG/KG	PRG-IND	26,281	0.037 U	0.037 U	0.042 U	0.037 U	0.037 U	0.037 U	0.039 U	0.039 U	0.037 U	0.036 U	0.036 U	0.15 U	0.043 U	0.036 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.037 U	0.037 U	0.042 U	0.037 U	0.037 U	0.037 U	0.039 U	0.039 U	0.037 U	0.036 U	0.036 U	0.15 U	0.043 U	0.036 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.069 U	0.070 U	0.079 U	0.070 U	0.069 U	0.069 U	0.074 U	0.072 U	0.069 U	0.068 U	0.068 U	0.27 U	0.081 U	0.068 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 U	0.013 U	0.015 U	0.013 U	0.013 U	0.013 U	0.014 U	0.013 U	0.013 U	0.013 U	0.013 U	0.050 U	0.015 U	0.013 U
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.060 UJ	0.061 UJ	0.069 UJ	0.061 UJ	0.060 UJ	0.060 U	0.064 UJ	0.063 UJ	0.060 U	0.060 U	0.060 U	0.24 U	0.071 U	0.060 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.033 U	0.034 U	0.038 U	0.034 U	0.033 U	0.033 U	0.036 U	0.035 U	0.034 U	0.033 U	0.033 U	0.13 U	0.039 U	0.033 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.044 U	0.044 U	0.050 U	0.044 U	0.043 U	0.043 U	0.047 U	0.046 U	0.044 U	0.043 U	0.043 U	0.17 U	0.051 U	0.043 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.017 U	0.017 U	0.019 U	0.017 U	0.017 U	0.017 U	0.018 U	0.018 U	0.017 U	0.017 U	0.017 U	0.067 U	0.020 U	0.017 U
NITROBENZENE	MG/KG	PRG-IND	103	0.059 U	0.059 U	0.067 U	0.060 U	0.059 U	0.059 U	0.063 U	0.062 U	0.059 U	0.058 U	0.058 U	0.23 U	0.069 U	0.058 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.054 U	0.054 U	0.061 U	0.054 U	0.053 U	0.053 U	0.057 U	0.056 U	0.054 U	0.053 U	0.053 U	0.21 U	0.063 U	0.053 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.087 U	0.088 U	0.10 U	0.088 U	0.087 U	0.087 U	0.093 U	0.091 U	0.087 U	0.086 U	0.086 U	0.35 U	0.10 U	0.087 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.025 U	0.025 U	0.029 U	0.026 U	0.025 U	0.025 UJ	0.027 U	0.026 U	0.025 UJ	0.025 UJ	0.025 UJ	0.10 UJ	0.030 UJ	0.025 UJ
PHENANTHRENE	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.042 U	0.037 U	0.037 U	0.037 U	0.039 U	0.039 U	0.037 U	0.036 U	0.036 U	0.15 U	0.043 U	0.036 U
PHENOL	MG/KG	PRG-IND	100,000	0.035 U	0.035 U	0.040 U	0.035 U	0.034 U	0.034 U	0.037 U	0.036 U	0.035 UJ	0.034 U	0.034 U	0.14 U	0.041 U	0.034 U
PYRENE	MG/KG	PRG-IND	29,126	0.035 U	0.035 U	0.040 U	0.035 U	0.035 U	0.035 U	**0.040 J**	0.036 U	0.035 U	0.034 U	0.034 U	0.14 U	0.041 U	0.034 U

TABLE A-5
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit SVOC
OUE Fort Richardson

Location ID:				**AP-4335**	**AP-4335**	**AP-4335**
Sample ID:				02B752124SL	02B752127SL	02B752128SL
QAQC Type:				N	N	FD
Depth:				0 - 0.5	7 - 7.5	7 - 7.5
Date Sampled:				07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**			
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.061 U	0.061 U	0.060 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.069 U	0.069 U	0.068 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.065 U	0.064 U	0.063 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.030 U	0.029 U	0.029 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.029 U	0.029 U	0.028 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.034 U	0.034 U	0.034 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.038 U	0.037 U	0.037 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.22 UJ	0.22 UJ	0.22 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.036 U	0.035 U	0.035 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.026 U	0.026 U	0.025 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.037 U	0.037 U	0.037 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.058 U	0.057 U	0.057 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.046 U	0.045 U	0.045 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.048 U	0.047 U	0.047 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.030 U	0.030 U	0.030 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.040 U	0.040 U	0.040 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.081 UJ	0.080 UJ	0.079 UJ
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.057 UJ	0.057 UJ	0.056 UJ
3-NITROANILINE	MG/KG	PRG-IND	--	0.036 U	0.035 U	0.035 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.021 U	0.021 U	0.021 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.036 U	0.036 U	0.035 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.036 U	0.036 U	0.035 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.088 UJ	0.088 UJ	0.087 UJ
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.031 U	0.031 U	0.031 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.038 U	0.038 U	0.037 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.022 U	0.022 U	0.021 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.040 U	0.040 U	0.040 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.037 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.037 U	0.036 U	0.036 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.037 U	0.036 U	0.036 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.030 U	0.030 U	0.029 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.026 U	0.026 U	0.026 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.039 U	0.039 U	0.038 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.034 U	0.034 U	0.034 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.44 UR	0.44 UR	0.44 UR
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.048 UR	0.048 UR	0.048 UR
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.030 U	0.030 U	0.030 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.065 U	0.065 U	0.064 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.068 U	0.067 U	0.067 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.074 U	0.074 U	0.073 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.052 J**	0.034 U	0.033 U
CHRYSENE	MG/KG	PRG-IND	211	0.037 U	0.036 U	0.036 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.041 U	0.041 U	0.040 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.037 U	0.036 U	0.036 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.036 U	0.036 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.036 U	0.036 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.10 JB**	**0.38 B**	**0.37 B**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.033 U	0.032 U	0.032 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.041 U	0.041 U	0.040 U
FLUORENE	MG/KG	PRG-IND	26,281	0.037 U	0.036 U	0.036 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.037 U	0.036 U	0.036 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.069 U	0.068 U	0.067 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 U	0.013 U	0.012 U
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.060 U	0.059 U	0.059 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.033 U	0.033 U	0.033 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.043 U	0.043 U	0.043 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.017 U	0.017 U	0.017 U
NITROBENZENE	MG/KG	PRG-IND	103	0.059 U	0.058 U	0.057 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.053 U	0.053 U	0.052 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.087 U	0.086 U	0.085 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.025 UJ	0.025 UJ	0.025 UJ
PHENANTHRENE	MG/KG	PRG-IND	--	0.037 U	0.036 U	0.036 U
PHENOL	MG/KG	PRG-IND	100,000	0.034 U	0.034 U	0.034 U
PYRENE	MG/KG	PRG-IND	29,126	0.034 U	0.034 U	0.034 U

TABLE A-6
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit TPH
OUE Fort Richardson

Location ID:				**AP-4328**	**AP-4328**	**AP-4329**	**AP-4329**	**AP-4330**	**AP-4330**	**AP-4331**	**AP-4331**	**AP-4331**	**AP-4332**	**AP-4333**
Sample ID:				02B75288SL	02B75290SL	02B75294SL	02B75296SL	02B752102SL	02B75298SL	02B752104SL	02B752105SL	02B752106SL	02B752113SL	02B752114SL
QAQC Type:				N	N	N	N	N	N	N	N	FD	N	N
Depth:				0 - 0.5	5 - 5.5	2 - 2.5	7 - 7.5	10 - 10.5	0 - 0.5	2 - 2.5	5 - 5.5	5 - 5.5	10 - 10.5	0 - 0.5
Date Sampled:				07/26/02	07/26/02	07/26/02	07/26/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**											
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**3.2 J**	**12 =**	**11 =**	0.64 UJ	0.63 UJ	**4.3 J**	**81 J**	0.66 UJ	**3.3 J**	0.62 UJ	**3.1 J**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	0.20 U	0.20 U	0.28 U	**0.53 J**	**0.58 J**	0.18 U	0.24 U	0.21 U	0.31 U	0.20 U	0.19 U

TABLE A-6
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit TPH
OUE Fort Richardson

Location ID:				**AP-4333**	**AP-4334**	**AP-4334**	**AP-4335**	**AP-4335**	**AP-4335**
Sample ID:				02B752116SL	02B752120SL	02B752123SL	02B752124SL	02B752127SL	02B752128SL
QAQC Type:				N	N	N	N	N	FD
Depth:				5 - 5.5	2 - 2.5	10 - 10.5	0 - 0.5	7 - 7.5	7 - 7.5
Date Sampled:				07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**2.8 J**	**6.3 J**	**2.2 J**	**5.2 J**	0.61 UJ	0.61 UJ
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	0.21 U	0.36 U	**0.41 J**	0.18 U	**0.71 J**	**0.66 J**

TABLE A-7
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit VOC
OUE Fort Richardson

Location ID:				AP-4328	AP-4328	AP-4329	AP-4329	AP-4330	AP-4330	AP-4331	AP-4331	AP-4331	AP-4332	AP-4333	AP-4333	AP-4334	AP-4334
Sample ID:				02B75288SL	02B75290SL	02B75294SL	02B75296SL	02B752102SL	02B75298SL	02B752104SL	02B752105SL	02B752106SL	02B752113SL	02B752114SL	02B752116SL	02B752120SL	02B752123SL
QAQC Type:				N	N	N	N	N	N	N	N	FD	N	N	N	N	N
Depth:				0 - 0.5	5 - 5.5	2 - 2.5	7 - 7.5	10 - 10.5	0 - 0.5	2 - 2.5	5 - 5.5	5 - 5.5	10 - 10.5	0 - 0.5	5 - 5.5	2 - 2.5	10 - 10.5
Date Sampled:				07/26/02	07/26/02	07/26/02	07/26/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**														
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0025 U	0.0020 U	0.0029 U	0.0035 U	0.0038 U	0.0024 U	0.0026 U	0.0027 U	0.0025 U	0.0021 U	0.0023 U	0.0059 U	0.0053 U	0.0025 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0025 U	0.0020 U	0.0029 U	0.0035 U	0.0038 U	0.0024 U	0.0026 U	0.0027 U	**0.012 =**	0.0021 U	0.0023 U	0.0059 U	0.0053 U	0.0025 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0024 U	0.0019 U	0.0027 U	0.0033 U	0.0037 U	0.0023 U	0.0025 U	0.0026 U	0.0024 U	0.0020 U	0.0022 U	0.0056 U	0.0050 U	0.0024 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0042 U	0.0033 U	0.0047 U	0.0058 U	0.0063 UJ	0.0040 U	0.0043 UJ	0.0045 U	0.0041 UJ	0.0035 UJ	0.0038 UJ	0.0098 U	0.0087 UJ	0.0041 UJ
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0048 U	0.0038 U	0.0055 U	0.0067 U	0.0073 U	0.0046 U	0.0049 U	0.0052 U	0.0047 U	0.0040 U	0.0044 U	0.011 U	0.010 U	0.0047 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0030 U	0.0023 U	0.0033 U	0.0041 U	0.0045 U	0.0028 U	0.0030 U	0.0032 U	0.0029 U	0.0025 U	0.0027 U	0.0069 U	0.0062 U	0.0029 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0038 U	0.0030 U	0.0043 U	0.0053 U	0.0058 U	0.0037 U	0.0039 U	0.0041 U	0.0038 U	0.0032 U	0.0035 U	0.0090 U	0.0080 U	0.0037 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0021 U	0.0016 U	0.0024 U	0.0029 U	0.0032 U	0.0020 U	0.0021 U	0.0022 U	0.0020 U	0.0017 U	0.0019 U	0.0049 U	0.0044 U	0.0020 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0018 UJ	0.0014 UJ	0.0020 UJ	0.0024 UJ	0.0027 UJ	0.0017 U	0.0018 UJ	0.0019 U	0.0017 UJ	0.0015 UJ	0.0016 UJ	0.0041 U	0.0037 UJ	0.0017 UJ
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0055 U	0.0043 U	0.0062 U	0.0076 U	0.0083 U	0.0053 U	0.0056 U	0.0059 U	0.0054 U	0.0046 U	0.0050 U	0.013 U	0.011 U	0.0054 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0013 U	0.0010 U	0.0015 U	0.0018 U	0.0020 U	0.0013 U	**0.047 =**	0.0014 U	0.0013 U	0.0011 U	0.0012 U	0.0031 U	0.0028 U	0.0013 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0016 U	0.0013 U	0.0019 U	0.0023 U	0.0025 U	0.0016 U	0.0017 U	0.0018 U	0.0016 U	0.0014 U	0.0015 U	0.0039 U	0.0034 U	0.0016 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.013 U	0.010 U	0.015 U	0.018 U	0.020 U	0.013 U	0.013 U	0.014 U	0.013 U	0.011 U	0.012 U	0.031 U	0.028 U	0.013 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0019 U	0.0015 U	0.0021 U	0.0026 U	0.0028 U	0.0018 U	0.0019 U	0.0020 U	0.0018 U	0.0016 U	0.0017 U	0.0044 U	0.0039 U	0.0018 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0023 U	0.0018 U	0.0026 U	0.0032 U	0.0035 U	0.0022 U	0.0024 U	0.0025 U	0.0023 U	0.0019 U	0.0021 U	0.0054 U	0.0048 U	0.0022 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0041 U	0.0032 U	0.0046 U	0.0056 U	0.0061 U	0.0039 U	0.0041 U	0.0044 U	0.0040 U	0.0034 U	0.0037 U	0.0095 U	0.0085 U	0.0040 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0038 U	0.0030 U	0.0043 U	0.0053 U	0.0058 U	0.0037 U	0.0039 U	0.0041 U	0.0038 U	0.0032 U	0.0035 U	0.0090 U	0.0080 U	0.0037 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0025 U	0.0020 U	0.0029 U	0.0035 U	0.0038 U	0.0024 U	0.0026 U	0.0027 U	0.0025 U	0.0021 U	0.0023 U	0.0059 U	0.0053 U	0.0025 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0024 U	0.0019 U	0.0027 U	0.0033 U	0.0037 U	0.0023 U	0.0025 U	0.0026 U	0.0024 U	0.0020 U	0.0022 U	0.0056 U	0.0050 U	0.0024 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0014 U	0.0011 U	0.0016 U	0.0020 U	0.0022 U	0.0014 U	0.0015 U	0.0015 U	0.0014 U	0.0012 U	0.0013 U	0.0033 U	0.0030 U	0.0014 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0031 U	0.0024 U	0.0035 U	0.0043 U	0.0047 U	0.0029 U	0.0031 U	0.0033 U	0.0030 U	0.0026 U	0.0028 U	0.0072 U	0.0064 U	0.0030 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0031 U	0.0024 U	0.0035 U	0.0043 U	0.0047 UJ	0.0029 U	0.0031 UJ	0.0033 U	0.0030 UJ	0.0026 UJ	0.0028 UJ	0.0072 U	0.0064 UJ	0.0030 UJ
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0026 U	0.0021 U	0.0030 U	0.0037 U	0.0040 U	0.0025 U	0.0027 U	0.0028 U	0.0026 U	0.0022 U	0.0024 U	0.0062 U	0.0055 U	0.0026 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0012 U	9.50E-04 U	0.0014 U	0.0017 U	0.0018 U	0.0012 U	0.0012 U	0.0013 U	0.0012 U	0.0010 U	0.0011 U	0.0028 U	0.0025 U	0.0012 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0019 U	0.0015 U	0.0021 U	0.0026 U	0.0028 U	0.0018 U	0.0019 U	0.0020 U	0.0018 U	0.0016 U	0.0017 U	0.0044 U	0.0039 U	0.0018 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0027 U	0.0022 U	0.0031 U	0.0038 U	0.0042 U	0.0026 U	0.0028 U	0.0030 U	0.0027 U	0.0023 U	0.0025 U	0.0064 U	0.0057 U	0.0027 U
ACETONE	MG/KG	PRG-IND	6,036	0.013 U	**0.021 J**	**0.035 J**	0.018 U	0.020 U	0.013 U	**0.014 J**	**0.018 J**	0.013 U	0.011 U	0.012 U	0.031 U	0.028 U	0.013 U
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0036 U	0.0028 U	0.0041 U	0.0050 U	0.0055 U	0.0035 U	0.0037 U	0.0039 U	0.0036 U	0.0030 U	0.0033 U	0.0085 U	0.0076 U	0.0035 U
BENZENE	MG/KG	PRG-IND	1.3	0.0020 UJ	0.0015 UJ	0.0022 UJ	0.0027 UJ	0.0030 U	0.0019 U	0.0020 U	0.0021 U	0.0019 U	0.0017 U	0.0018 U	0.0046 U	0.0041 U	0.0019 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0037 U	0.0029 U	0.0042 U	0.0052 U	0.0056 U	0.0036 U	0.0038 U	0.0040 U	0.0037 U	0.0031 U	0.0034 U	0.0087 U	0.0078 U	0.0036 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0037 U	0.0029 U	0.0042 U	0.0052 U	0.0056 U	0.0036 U	0.0038 U	0.0040 U	0.0037 U	0.0031 U	0.0034 U	0.0087 U	0.0078 U	0.0036 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0025 U	0.0020 U	0.0029 U	0.0035 U	0.0038 U	0.0024 U	0.0026 U	0.0027 U	0.0025 U	0.0021 U	0.0023 U	0.0059 U	0.0053 U	0.0025 U
BROMOFORM	MG/KG	PRG-IND	218	0.0035 U	0.0028 U	0.0040 U	0.0049 U	0.0053 U	0.0034 U	0.0036 U	0.0038 U	0.0035 U	0.0029 U	0.0032 U	0.0082 U	0.0073 U	0.0034 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.0083 UJ	0.0065 UJ	0.0094 UJ	0.012 UJ	0.013 UJ	0.0080 U	0.0085 UJ	0.0090 U	0.0082 UJ	0.0070 UJ	0.0077 UJ	0.020 U	0.017 UJ	0.0081 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0014 U	0.0011 U	0.0016 U	0.0020 U	0.0022 UJ	0.0014 U	0.0015 UJ	0.0015 U	0.0014 UJ	0.0012 UJ	0.0013 UJ	0.0033 U	0.0030 UJ	0.0014 UJ
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0019 U	0.0015 U	0.0021 U	0.0026 U	0.0028 U	0.0018 U	0.0019 U	0.0020 U	0.0018 U	0.0016 U	0.0017 U	0.0044 U	0.0039 U	0.0018 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0012 U	9.50E-04 U	0.0014 U	0.0017 U	0.0018 U	0.0012 U	0.0012 U	0.0013 U	0.0012 U	0.0010 U	0.0011 U	0.0028 U	0.0025 U	0.0012 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0040 UJ	0.0031 UJ	0.0045 UJ	0.0055 UJ	0.0060 UJ	0.0038 U	0.0040 UJ	0.0043 U	0.0039 UJ	0.0033 UJ	0.0036 UJ	0.0092 U	0.0083 UJ	0.0039 UJ
CHLOROFORM	MG/KG	PRG-IND	12	0.0027 U	0.0022 U	0.0031 U	0.0038 U	0.0042 U	0.0026 U	0.0028 U	0.0030 U	0.0027 U	0.0023 U	0.0025 U	0.0064 U	0.0057 U	0.0027 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0032 U	0.0025 U	0.0036 U	0.0044 U	0.0048 U	0.0030 U	0.0033 U	0.0034 U	0.0031 U	0.0027 U	0.0029 U	0.0074 U	0.0067 U	0.0031 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0027 U	0.0022 U	0.0031 U	**0.012 =**	**0.011 J**	0.0026 U	0.0028 U	**0.0078 J**	**0.011 =**	**0.014 =**	0.0025 U	0.0064 U	**0.87 =**	**0.066 J**
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	8.30E-04 U	6.50E-04 U	9.40E-04 U	0.0012 U	0.0013 UJ	8.00E-04 U	8.50E-04 UJ	9.00E-04 U	8.20E-04 UJ	7.00E-04 UJ	7.70E-04 UJ	0.0020 U	0.0017 UJ	8.10E-04 UJ
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0035 U	0.0028 U	0.0040 U	0.0049 U	0.0053 U	0.0034 U	0.0036 U	0.0038 U	0.0035 U	0.0029 U	0.0032 U	0.0082 U	0.0073 U	0.0034 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0023 U	0.0018 U	0.0026 U	0.0032 U	0.0035 U	0.0022 U	0.0024 U	0.0025 U	0.0023 U	0.0019 U	0.0021 U	0.0054 U	0.0048 U	0.0022 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0065 UJ	0.0051 UJ	0.0073 UJ	0.0090 UJ	0.0098 UJ	0.0062 U	0.0066 UJ	0.0070 U	0.0064 UJ	0.0054 UJ	0.0060 UJ	0.015 U	0.014 UJ	0.0063 UJ
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0021 UJ	0.0016 UJ	0.0024 UJ	0.0029 UJ	0.0032 UJ	0.0020 U	0.0021 UJ	0.0022 U	0.0020 UJ	0.0017 UJ	0.0019 UJ	0.0049 U	0.0044 UJ	0.0020 UJ
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0045 U	0.0035 U	0.0051 U	0.0062 U	0.0068 U	0.0043 U	0.0046 U	0.0048 U	0.0044 U	0.0038 U	0.0041 U	0.011 U	0.0094 U	0.0044 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0046 UJ	0.0036 UJ	0.0052 UJ	0.0064 UJ	0.0070 U	0.0044 U	0.0047 U	0.0050 U	0.0045 U	0.0039 U	0.0042 U	0.011 U	0.0096 U	0.0045 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	8.80E-04 U	6.90E-04 U	9.90E-04 U	0.0012 U	0.0013 U	8.40E-04 U	9.00E-04 U	9.40E-04 U	8.60E-04 U	7.40E-04 U	8.10E-04 U	0.0021 U	0.0018 U	8.60E-04 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	**0.046 =**	**0.035 =**	0.0063 U	**0.051 =**	0.0085 U	0.0054 U	0.0057 U	0.0060 U	0.0055 U	0.0047 U	0.0051 U	**0.12 B**	0.012 U	0.0055 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0016 U	0.0013 U	0.0019 U	0.0023 U	0.0025 U	0.0016 U	0.0017 U	0.0018 U	0.0016 U	0.0014 U	0.0015 U	0.0039 U	0.0034 U	0.0016 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.033 JB**	**0.036 B**	**0.043 JB**	**0.069 B**	**0.072 B**	**0.029 JB**	**0.020 JB**	0.014 U	**0.048 B**	**0.063 B**	**0.022 JB**	**0.065 JB**	**0.039 JB**	**0.031 JB**
NAPHTHALENE	MG/KG	PRG-IND	188	0.0011 U	8.40E-04 U	0.0012 U	0.0015 U	0.0016 U	0.0010 U	0.0011 U	0.0012 U	0.0011 U	9.00E-04 U	9.90E-04 U	0.0025 U	0.0022 U	0.0010 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0010 U	8.20E-04 U	0.0012 U	0.0014 U	0.0016 U	0.0010 U	0.0011 U	0.0011 U	0.0010 U	8.70E-04 U	9.60E-04 U	0.0024 U	0.0022 U	0.0010 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0018 U	0.0014 U	0.0020 U	0.0024 U	0.0027 UJ	0.0017 U	0.0018 UJ	0.0019 U	0.0017 UJ	0.0015 UJ	0.0016 UJ	0.0041 U	0.0037 UJ	0.0017 UJ
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0031 UJ	0.0024 UJ	0.0035 UJ	0.0043 UJ	0.0047 U	0.0029 U	0.0031 U	0.0033 U	0.0030 U	0.0026 U	0.0028 U	0.0072 U	0.0064 U	0.0030 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0012 U	9.50E-04 U	0.0014 U	0.0017 U	0.0018 U	**0.0047 J**	0.0012 U	0.0013 U	0.0012 U	0.0010 U	0.0011 U	0.0028 U	0.0025 U	0.0012 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0010 U	7.90E-04 U	0.0011 U	0.0014 U	0.0015 U	9.70E-04 U	0.0010 U	0.0011 U	9.90E-04 U	8.50E-04 U	9.30E-04 U	0.0024 U	0.0021 U	9.90E-04 U
STYRENE	MG/KG	PRG-IND	1,700	0.0018 UJ	0.0014 UJ	0.0020 UJ	0.0024 UJ	0.0027 U	0.0017 U	0.0018 U	0.0019 U	0.0017 U	0.0015 U	0.0016 U	0.0041 U	0.0037 U	0.0017 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0025 U	0.0020 U	0.0029 U	0.0035 U	0.0038 U	0.0024 U	0.0026 U	0.0027 U	0.0025 U	0.0021 U	0.0023 U	0.0059 U	0.0053 U	0.0025 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0013 U	0.0010 U	0.0015 U	0.0018 U	0.0020 U	0.0013 U	0.0013 U	0.0014 U	0.0013 U	0.0011 U	0.0012 U	0.0031 U	0.0028 U	0.0013 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0013 U	0.0010 U	0.0015 U	0.0018 U	0.0020 UJ	0.0013 U	0.0013 UJ	0.0014 U	0.0013 UJ	0.0011 UJ	0.0012 UJ	0.0031 U	0.0028 UJ	0.0013 UJ
TOLUENE	MG/KG	PRG-IND	520	0.0027 UJ	**0.0047 J**	0.0031 UJ	**0.0091 J**	0.0042 UJ	0.0026 U	0.0028 UJ	0.0030 U	0.0027 UJ	**0.0051 J**	0.0025 UJ	0.0064 U	0.0057 UJ	0.0027 UJ
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0041 U	0.0032 U	0.0046 U	0.0056 U	0.0061 U	0.0039 U	0.0041 U	0.0044 U	0.0040 U	0.0034 U	0.0037 U	0.0095 U	**0.071 =**	0.0040 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0022 U	0.0017 U	0.0025 U	0.0030 U	0.0033 UJ	0.0021 U	0.0022 UJ	0.0024 U	0.0022 UJ	0.0018 UJ	0.0020 UJ	0.0051 U	0.0046 UJ	0.0021 UJ
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.0069 U	0.0054 U	0.0078 U	0.0096 U	0.010 U	0.0066 U	0.0071 U	0.0074 U	0.0068 U	0.0058 U	0.0064 U	0.016 U	0.014 U	0.0067 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0029 UJ	0.0022 UJ	**0.028 J**	**1.1 J**	**0.21 J**	0.0027 U	0.0029 UJ	**0.35 =**	**0.41 J**	**0.31 J**	0.0026 UJ	0.0067 U	**0.21 J**	**0.34 J**
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0037 UJ	0.0029 UJ	0.0042 UJ	0.0052 UJ	0.0056 UJ	0.0036 U	0.0038 UJ	0.0040 U	0.0037 UJ	0.0031 UJ	0.0034 UJ	0.0087 U	0.0078 UJ	0.0036 UJ
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0023 UJ	0.0018 UJ	0.0026 UJ	0.0032 UJ	0.0035 U	0.0022 UJ	0.0024 U	0.0025 U	0.0023 U	0.0019 U	0.0021 U	0.0054 UJ	0.0048 U	0.0022 U
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0034 U	0.0027 U	0.0038 U	0.0047 U	0.0052 UJ	0.0033 U	0.0035 UJ	0.0037 U	0.0033 UJ	0.0028 UJ	0.0031 UJ	0.0080 U	0.0071 UJ	0.0033 UJ
XYLENES, m & p	MG/KG	PRG-IND	420	0.0016 UJ	**0.0051 J**	**0.0067 J**	**0.0099 J**	0.0025 UJ	**0.0048 JB**	0.0017 UJ	0.0018 U	0.0016 UJ	0.0014 UJ	0.0015 UJ	**0.014 =**	0.0034 UJ	0.0016 UJ

TABLE A-7
Criteria Evaluation - Soil - Bldg. 35-752, Burn Pit VOC
OUE Fort Richardson

Location ID:				**AP-4335**	**AP-4335**	**AP-4335**
Sample ID:				02B752124SL	02B752127SL	02B752128SL
QAQC Type:				N	N	FD
Depth:				0 - 0.5	7 - 7.5	7 - 7.5
Date Sampled:				07/29/02	07/29/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**			
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0020 U	0.0024 U	0.0028 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0020 U	0.0024 U	0.0028 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0019 U	0.0022 U	0.0027 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0033 UJ	0.0039 UJ	0.0047 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0038 U	0.0045 U	0.0054 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0023 U	0.0028 U	0.0033 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0030 U	0.0036 U	0.0043 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0016 U	0.0019 U	0.0023 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0014 UJ	0.0016 UJ	0.0020 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0043 U	0.0051 U	0.0062 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0010 U	0.0012 U	0.0015 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0013 U	0.0015 U	0.0019 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.010 U	0.012 U	0.015 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0015 U	0.0017 U	0.0021 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0018 U	0.0021 U	0.0026 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0032 U	0.0038 U	0.0046 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0030 U	0.0036 U	0.0043 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0020 U	0.0024 U	0.0028 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0019 U	0.0022 U	0.0027 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0011 U	0.0013 U	0.0016 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0024 U	0.0029 U	0.0035 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0024 UJ	0.0029 UJ	0.0035 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0021 U	0.0025 U	0.0030 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	9.50E-04 U	0.0011 U	0.0014 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0015 U	0.0017 U	0.0021 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0022 U	0.0026 U	0.0031 U
ACETONE	MG/KG	PRG-IND	6,036	0.010 U	0.012 U	**0.021 J**
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0028 U	0.0034 U	0.0041 U
BENZENE	MG/KG	PRG-IND	1.3	0.0016 U	0.0018 U	0.0022 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0029 U	0.0035 U	0.0042 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0029 U	0.0035 U	0.0042 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0020 U	0.0024 U	0.0028 U
BROMOFORM	MG/KG	PRG-IND	218	0.0028 U	0.0033 U	0.0039 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.0066 UJ	0.0078 UJ	0.0094 U
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0011 UJ	0.0013 UJ	0.0016 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0015 U	0.0017 U	0.0021 U
CHLOROBENZENE	MG/KG	PRG-IND	530	9.50E-04 U	0.0011 U	0.0014 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0031 UJ	0.0037 UJ	0.0044 U
CHLOROFORM	MG/KG	PRG-IND	12	0.0022 U	0.0026 U	0.0031 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0025 U	0.0030 U	0.0036 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0022 U	**0.037 =**	**0.052 =**
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	6.60E-04 UJ	7.80E-04 UJ	9.40E-04 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0028 U	0.0033 U	0.0039 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0018 U	0.0021 U	0.0026 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0051 UJ	0.0060 UJ	0.0073 U
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0016 UJ	0.0019 UJ	0.0023 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0035 U	0.0042 U	0.0051 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0036 U	0.0043 U	0.0052 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	6.90E-04 U	8.20E-04 U	9.90E-04 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	**0.016 =**	0.0052 U	0.0063 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0013 U	0.0015 U	0.0019 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.016 JB**	**0.020 JB**	0.015 U
NAPHTHALENE	MG/KG	PRG-IND	188	8.50E-04 U	0.0010 U	0.0012 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	8.20E-04 U	9.70E-04 U	0.0012 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0014 UJ	0.0016 UJ	0.0020 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0024 U	0.0029 U	0.0035 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	9.50E-04 U	0.0011 U	0.0014 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	7.90E-04 U	9.40E-04 U	0.0011 U
STYRENE	MG/KG	PRG-IND	1,700	0.0014 U	0.0016 U	0.0020 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0020 U	0.0024 U	0.0028 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0010 U	0.0012 U	0.0015 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0010 UJ	0.0012 UJ	0.0015 U
TOLUENE	MG/KG	PRG-IND	520	0.0022 UJ	0.0026 UJ	0.0031 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0032 U	0.0038 U	0.0046 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0017 UJ	0.0020 UJ	0.0025 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.0054 U	0.0064 U	0.0078 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	**0.030 J**	**0.83 J**	**1.1 =**
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0029 UJ	0.0035 UJ	0.0042 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0018 U	0.0021 U	0.0026 U
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0027 UJ	0.0032 UJ	0.0038 U
XYLENES, m & p	MG/KG	PRG-IND	420	0.0013 UJ	0.0015 UJ	0.0019 U

TABLE A-8
Criteria Evaluation - Soil - Bldg. 35-752, Peripheral Road DIOXIN/FURANS
OUE Fort Richardson

Location ID:				**P1**	**P10**	**P10**	**P12**	**P16**	**P16**	**P24**	**P26**	**P28**	**P29**
Sample ID:				02B752132SL	02B752157SL	02B752158SL	02B752166SL	02B752177SL	02B752178SL	02B752202SL	02B752208SL	02B752215SL	02B752217SL
QAQC Type:				N	N	FD	N	FD	FD	N	FD	N	FD
Depth:				1.5 - 2	0 - 0.5	0 - 0.5	1.5 - 2	0 - 0.5	0 - 0.5	1 - 1.5	0 - 0.5	1.5 - 2	0 - 0.5
Date Sampled:				07/30/02	07/30/02	07/30/02	07/29/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	**0.71 =**	**5.3 =**	**6.2 =**	2.0 U	**152 =**	**38 =**	**12 =**	**65 =**	2.0 U	**67 =**
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	1,592	**1.3 =**	**7.5 =**	**9.0 =**	1.1 U	**127 =**	**23 =**	**27 =**	**142 =**	1.1 U	**39 =**
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	1.7 U	**1.6 =**	**1.8 =**	1.7 U	**56 =**	**13 =**	**0.60 =**	**17 =**	1.7 U	**24 =**
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.75 U	**3.2 =**	**3.8 =**	0.75 U	**139 =**	**31 =**	**0.79 =**	**36 =**	0.75 U	**58 =**
1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159	0.94 U	0.94 U	0.93 U	0.94 U	**1.9 =**	0.94 U	0.93 U	**1.1 =**	0.94 U	0.94 U
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	1.0 U	**0.52 =**	**0.65 =**	1.0 U	**19 =**	**4.1 =**	**0.32 =**	**4.4 =**	1.0 U	**6.8 =**
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	1.5 U	**0.31 =**	1.5 U	1.5 U	**4.8 =**	**0.79 =**	**1.0 =**	**3.7 =**	1.5 U	**1.7 =**
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	1.4 U	1.4 U	1.4 U	1.4 U	**3.9 =**	**1.3 =**	**0.66 =**	**3.1 =**	1.4 U	**1.6 =**
1,2,3,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	318	0.95 U	0.95 U	0.94 U	0.95 U	0.95 U	0.95 U	0.94 U	0.94 U	0.95 U	0.95 U
1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U	0.49 U
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	2.9 U	**0.42 =**	**0.49 =**	2.9 U	**9.7 =**	**3.0 =**	**0.36 =**	**3.7 =**	2.9 U	**4.0 =**
2,3,4,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	32	1.0 U	**0.31 =**	**0.54 =**	1.0 U	**19 =**	**4.0 =**	0.99 U	**4.9 =**	1.0 U	**4.8 =**
2,3,7,8-TETRACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.51 U	**0.43 =**	**0.47 =**	0.51 U	**10 =**	**1.9 =**	0.51 U	**1.9 =**	0.51 U	**5.2 =**
2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.70 U	0.70 U	0.69 U	0.70 U	**0.51 =**	**0.21 =**	0.70 U	0.70 U	0.70 U	0.70 U
HEPTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**1.4 =**	**13 =**	**15 =**	1.7 U	**348 =**	**79 =**	**48 =**	**194 =**	1.7 U	**147 =**
HEPTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**2.3 =**	**15 =**	**21 =**	1.1 U	**321 =**	**64 =**	**47 =**	**441 =**	1.1 U	**90 =**
HEXACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**0.49 =**	**16 =**	**18 =**	0.39 U	**302 =**	**64 =**	**18 =**	**138 =**	0.39 U	**133 =**
HEXACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.94 U	**0.91 =**	0.93 U	0.94 U	**44 =**	**3.9 =**	**4.6 =**	**45 =**	0.94 U	**3.3 =**
OCTACHLORODIBENZOFURAN	PG/G	PRG-IND	159,223	**0.89 =**	**12 =**	**14 =**	4.3 U	**447 =**	**94 =**	**44 =**	**204 =**	4.3 U	**165 =**
OCTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159,223	**5.8 =**	**48 =**	**55 =**	2.6 U	**672 =**	**128 =**	**154 =**	**961 =**	**1.0 =**	**282 =**
PENTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**1.4 =**	**46 =**	**55 =**	0.95 U	**234 =**	**44 =**	**9.3 =**	**95 =**	0.95 U	**94 =**
PENTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.49 U	0.49 U	**1.1 =**	0.49 U	0.49 U	**2.2 =**	0.49 U	**1.8 =**	0.49 U	**0.88 =**
TETRACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	0.51 U	**12 =**	**15 =**	0.51 U	**146 =**	**25 =**	**1.2 =**	**46 =**	0.51 U	**50 =**
TETRACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.70 U	**0.63 =**	**0.89 =**	0.70 U	**11 =**	**3.2 =**	0.70 U	**2.2 =**	0.70 U	**5.6 =**
Total TCDD (TEQ)	PG/G	PRG-IND	16	**0.021 =**	**0.79 =**	**0.99 =**	**--**	**32 =**	**7.1 =**	**0.73 =**	**10 =**	**1.00E-04 =**	**11 =**

TABLE A-8
Criteria Evaluation - Soil - Bldg. 35-752, Peripheral Road DIOXIN/FURANS
OUE Fort Richardson

Location ID:				**P30**	
Sample ID:				02B752220SL	
QAQC Type:				N	
Depth:				1 - 1.5	
Date Sampled:				07/30/02	
Analyte	**Units**	**Criteria Source**	**Criteria Value**		
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	**0.67**	**=**
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	1,592	**0.34**	**=**
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	1.7	U
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**0.36**	**=**
1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159	0.94	U
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	1.0	U
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	1.5	U
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.39	U
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	1.4	U
1,2,3,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	318	0.95	U
1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.49	U
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	2.9	U
2,3,4,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	32	1.0	U
2,3,7,8-TETRACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**0.65**	**=**
2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.70	U
HEPTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**1.1**	**=**
HEPTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**0.58**	**=**
HEXACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**5.2**	**=**
HEXACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**0.36**	**=**
OCTACHLORODIBENZOFURAN	PG/G	PRG-IND	159,223	**0.80**	**=**
OCTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159,223	**2.8**	**=**
PENTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**30**	**=**
PENTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.49	U
TETRACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**12**	**=**
TETRACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.70	U
Total TCDD (TEQ)	PG/G	PRG-IND	16	**0.11**	**=**

TABLE A-9
Criteria Evaluation - Soil - Bldg. 35-752, Peripheral Road PCB
OUE Fort Richardson

Location ID:				**P1**	**P1**	**P2**	**P5**	**P6**	**P7**	**P8**	**P9**	**P10**	**P10**	**P11**	**P12**
Sample ID:				02B752130SL	02B752132SL	02B752134SL	02B752143SL	02B752147SL	02B752148SL	02B752152SL	02B752156SL	02B752157SL	02B752158SL	02B752162SL	02B752166SL
QAQC Type:				N	N	N	N	N	N	N	N	N	FD	N	N
Depth:				0 - 0.5	1.5 - 2	1 - 1.5	1 - 1.5	1.5 - 2	0 - 0.5	1 - 1.5	1.5 - 2	0 - 0.5	0 - 0.5	1 - 1.5	1.5 - 2
Date Sampled:				07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**												
PCB-1016 (AROCLOR 1016)	MG/KG	PRG-IND	21	0.0038 U	0.0038 U	0.0038 U	0.0036 U	0.0036 U	0.0039 U	0.0039 U	0.0039 U	0.0037 U	0.0036 U	0.0036 U	0.0036
PCB-1221 (AROCLOR 1221)	MG/KG	PRG-IND	0.74	0.0038 U	0.0038 U	0.0038 U	0.0036 U	0.0036 U	0.0039 U	0.0039 U	0.0039 U	0.0037 U	0.0036 U	0.0036 U	0.0036
PCB-1232 (AROCLOR 1232)	MG/KG	PRG-IND	0.74	0.0038 U	0.0038 U	0.0038 U	0.0036 U	0.0036 U	0.0039 U	0.0039 U	0.0039 U	0.0037 U	0.0036 U	0.0036 U	0.0036
PCB-1242 (AROCLOR 1242)	MG/KG	PRG-IND	0.74	0.0038 U	0.0038 U	0.0038 U	0.0036 U	0.0036 U	0.0039 U	0.0039 U	0.0039 U	0.0037 U	0.0036 U	0.0036 U	0.0036
PCB-1248 (AROCLOR 1248)	MG/KG	PRG-IND	0.74	0.0038 U	0.0038 U	0.0038 U	0.0036 U	0.0036 U	0.0039 U	0.0039 U	0.0039 U	0.0037 U	0.0036 U	0.0036 U	0.0036
PCB-1254 (AROCLOR 1254)	MG/KG	PRG-IND	0.74	0.0038 U	0.0038 U	0.0038 U	0.0036 U	0.0036 U	0.0039 U	0.0039 U	0.0039 U	0.0037 U	0.0036 U	0.0036 U	0.0036
PCB-1260 (AROCLOR 1260)	MG/KG	PRG-IND	0.74	**0.36 J**	0.0034 U	**0.0047 J**	**0.14 J**	**0.011 J**	**0.79 J**	**0.58 J**	**0.17 J**	**0.69 J**	**0.20 J**	**0.99 J**	**2.1**

TABLE A-9
Criteria Evaluation - Soil - Bldg. 35-752, Peripheral Road PCB
OUE Fort Richardson

Location ID:					**P13**	**P14**	**P15**	**P16**	**P17**	**P18**	**P19**	**P20**	**P20**	**P21**	**P22**
Sample ID:					02B752167SL	02B752171SL	02B752175SL	02B752176SL	02B752180SL	02B752184SL	02B752185SL	02B752189SL	02B752190SL	02B752193SL	02B752197SL
QAQC Type:					N	N	N	N	N	N	N	N	FD	N	N
Depth:					0 - 0.5	1 - 1.5	1.5 - 2	0 - 0.5	1 - 1.5	1.5 - 2	0 - 0.5	1 - 1.5	1 - 1.5	1 - 1.5	1.5 - 2
Date Sampled:					07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/29/02	07/29/02	07/29/02	07/30/02	07/30/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**												
PCB-1016 (AROCLOR 1016)	MG/KG	PRG-IND	21	U	0.0035 U	0.0039 U	0.0035 U	0.0035 U	0.0037 U	0.0039 U	0.0038 U	0.0036 U	0.0035 U	0.0035 U	0.0032 U
PCB-1221 (AROCLOR 1221)	MG/KG	PRG-IND	0.74	U	0.0035 U	0.0039 U	0.0035 U	0.0035 U	0.0037 U	0.0039 U	0.0038 U	0.0036 U	0.0035 U	0.0035 U	0.0032 U
PCB-1232 (AROCLOR 1232)	MG/KG	PRG-IND	0.74	U	0.0035 U	0.0039 U	0.0035 U	0.0035 U	0.0037 U	0.0039 U	0.0038 U	0.0036 U	0.0035 U	0.0035 U	0.0032 U
PCB-1242 (AROCLOR 1242)	MG/KG	PRG-IND	0.74	U	0.0035 U	0.0039 U	0.0035 U	0.0035 U	0.0037 U	0.0039 U	0.0038 U	0.0036 U	0.0035 U	0.0035 U	0.0032 U
PCB-1248 (AROCLOR 1248)	MG/KG	PRG-IND	0.74	U	0.0035 U	0.0039 U	0.0035 U	0.0035 U	0.0037 U	0.0039 U	0.0038 U	0.0036 U	0.0035 U	0.0035 U	0.0032 U
PCB-1254 (AROCLOR 1254)	MG/KG	PRG-IND	0.74	U	0.0035 U	0.0039 U	0.0035 U	0.0035 U	0.0037 U	0.0039 U	0.0038 U	0.0036 U	0.0035 U	0.0035 U	0.0032 U
PCB-1260 (AROCLOR 1260)	MG/KG	PRG-IND	0.74	=	**0.029 J**	**0.0060 J**	**0.029 J**	**0.27 J**	**1.8 J**	**0.012 J**	**0.84 =**	0.0032 U	0.0031 U	**1.2 J**	**0.19 J**

TABLE A-9
Criteria Evaluation - Soil - Bldg. 35-752, Peripheral Road PCB
OUE Fort Richardson

Location ID:				**P23**	**P24**	**P25**	**P26**	**P27**	**P28**	**P29**	**P29**	**P30**	**P30**
Sample ID:				02B752198SL	02B752202SL	02B752206SL	02B752207SL	02B752211SL	02B752215SL	02B752216SL	02B752217SL	02B752220SL	02B752221SL
QAQC Type:				N	N	N	N	N	N	N	FD	N	FD
Depth:				0 - 0.5	1 - 1.5	1.5 - 2	0 - 0.5	1 - 1.5	1.5 - 2	0 - 0.5	0 - 0.5	1 - 1.5	1 - 1.5
Date Sampled:				07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
PCB-1016 (AROCLOR 1016)	MG/KG	PRG-IND	21	0.0035 U	0.0039 U	0.0039 U	0.0035 U	0.0035 U	0.0035 U	0.0036 U	0.0037 U	0.0035 U	0.0036 U
PCB-1221 (AROCLOR 1221)	MG/KG	PRG-IND	0.74	0.0035 U	0.0039 U	0.0039 U	0.0035 U	0.0035 U	0.0035 U	0.0036 U	0.0037 U	0.0035 U	0.0036 U
PCB-1232 (AROCLOR 1232)	MG/KG	PRG-IND	0.74	0.0035 U	0.0039 U	0.0039 U	0.0035 U	0.0035 U	0.0035 U	0.0036 U	0.0037 U	0.0035 U	0.0036 U
PCB-1242 (AROCLOR 1242)	MG/KG	PRG-IND	0.74	0.0035 U	0.0039 U	0.0039 U	0.0035 U	0.0035 U	0.0035 U	0.0036 U	0.0037 U	0.0035 U	0.0036 U
PCB-1248 (AROCLOR 1248)	MG/KG	PRG-IND	0.74	0.0035 U	0.0039 U	0.0039 U	0.0035 U	0.0035 U	0.0035 U	0.0036 U	0.0037 U	0.0035 U	0.0036 U
PCB-1254 (AROCLOR 1254)	MG/KG	PRG-IND	0.74	0.0035 U	0.0039 U	0.0039 U	0.0035 U	0.0035 U	0.0035 U	0.0036 U	0.0037 U	0.0035 U	0.0036 U
PCB-1260 (AROCLOR 1260)	MG/KG	PRG-IND	0.74	**0.041 J**	**0.028 J**	**0.016 J**	**0.22 J**	**0.058 J**	**0.0074 J**	**1.9 J**	**3.7 J**	**0.052 J**	**0.054 J**

TABLE A-10
Criteria Evaluation - Soil - Bldg. 35-752, Peripheral Road TPH
OUE Fort Richardson

Location ID:				**P1**	**P10**	**P10**	**P12**	**P16**	**P16**	**P24**	**P26**	**P28**	**P29**	**P30**
Sample ID:				02B752132SL	02B752157SL	02B752158SL	02B752166SL	02B752177SL	02B752178SL	02B752202SL	02B752208SL	02B752215SL	02B752217SL	02B752220SL
QAQC Type:				N	N	FD	N	FD	FD	N	FD	N	FD	N
Depth:				1.5 - 2	0 - 0.5	0 - 0.5	1.5 - 2	0 - 0.5	0 - 0.5	1 - 1.5	0 - 0.5	1.5 - 2	0 - 0.5	1 - 1.5
Date Sampled:				07/30/02	07/30/02	07/30/02	07/29/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02	07/30/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**											
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**3.3 JB**	**13 =**	**14 =**	**2.2 J**	**46 =**	**12 =**	**18 =**	**36 =**	**310 =**	**68 =**	**1.4 JB**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	**0.27 J**	**0.24 J**	**0.47 J**	0.25 U	**--**	**--**	0.32 U	**--**	**0.32 J**	**--**	0.21 U

TABLE A-11

Criteria Evaluation - Soil - Bldg. 35-752, Stockpile Area DIOXIN/FURANS

OUE Fort Richardson

Location ID:				**S31**	**S34**	**S38**	**S41**	**S41**
Sample ID:				02B75264SL	02B75270SL	02B75277SL	02B75283SL	02B75284SL
QAQC Type:				N	N	N	N	FD
Depth:				1 - 1.5	1 - 1.5	0 - 0.5	0 - 0.5	0 - 0.5
Date Sampled:				07/26/02	07/26/02	07/26/02	07/26/02	07/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	**0.65 =**	**4.1 =**	**14 =**	**6.1 =**	**5.5 =**
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	1,592	**3.3 =**	**6.6 =**	**13 =**	**15 =**	**15 =**
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	PG/G	PRG-IND	1,592	1.7 U	**1.2 =**	**6.1 =**	**3.1 =**	1.7 U
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**0.44 =**	**1.9 =**	**12 =**	**3.3 =**	**2.1 =**
1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159	0.92 U	0.93 U	0.93 U	0.94 U	0.94 U
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**0.26 =**	**0.39 =**	**1.5 =**	1.0 U	1.0 U
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	**0.31 =**	**0.31 =**	1.5 U	1.5 U	1.5 U
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.38 U	0.38 U	0.39 U	0.39 U	0.39 U
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	PG/G	PRG-IND	159	1.4 U	1.4 U	1.4 U	1.4 U	1.4 U
1,2,3,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	318	0.92 U	0.94 U	0.94 U	0.95 U	0.95 U
1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.48 U	0.48 U	0.49 U	0.49 U	0.49 U
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	PRG-IND	159	**0.25 =**	**0.37 =**	2.9 U	2.9 U	2.9 U
2,3,4,7,8-PENTACHLORODIBENZOFURAN	PG/G	PRG-IND	32	0.97 U	**0.30 =**	0.99 U	1.0 U	1.0 U
2,3,7,8-TETRACHLORODIBENZOFURAN	PG/G	PRG-IND	159	0.50 U	**0.43 =**	**0.90 =**	0.51 U	0.51 U
2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	16	0.68 U	0.69 U	0.69 U	0.70 U	0.70 U
HEPTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**0.65 =**	**12 =**	**35 =**	**19 =**	**18 =**
HEPTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**5.4 =**	**15 =**	**34 =**	**30 =**	**32 =**
HEXACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**1.2 =**	**7.6 =**	**27 =**	**12 =**	**17 =**
HEXACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	**1.2 =**	**2.2 =**	**1.3 =**	**1.2 =**	0.94 U
OCTACHLORODIBENZOFURAN	PG/G	PRG-IND	159,223	**1.2 =**	**9.9 =**	**36 =**	**19 =**	**13 =**
OCTACHLORODIBENZO-p-DIOXIN	PG/G	PRG-IND	159,223	**53 =**	**42 =**	**70 =**	**87 =**	**85 =**
PENTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**0.21 =**	**9.4 =**	**26 =**	**16 =**	**20 =**
PENTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.48 U	0.48 U	0.49 U	0.49 U	**8.6 =**
TETRACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	PRG-IND	--	**0.39 =**	**15 =**	**15 =**	**9.3 =**	**18 =**
TETRACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	PRG-IND	--	0.68 U	**0.60 =**	**0.74 =**	0.70 U	**0.73 =**
Total TCDD (TEQ)	PG/G	PRG-IND	16	**0.17 =**	**0.61 =**	**1.74 =**	**0.59 =**	**0.43 =**

TABLE A-12
Criteria Evaluation - Soil - Bldg. 35-752, Stockpile Area PCB
OUE Fort Richardson

Location ID:				**S30**	**S31**	**S32**	**S34**	**S35**	**S36**	**S37**	**S37**	**S38**	**S39**	**S40**	**S41**	**S41**
Sample ID:				02B75287SL	02B75264SL	02B75265SL	02B75270SL	02B75271SL	02B75273SL	02B75275SL	02B75276SL	02B75277SL	02B75279SL	02B75281SL	02B75283SL	02B75284SL
QAQC Type:				N	N	N	N	N	N	N	N	N	N	N	N	FD
Depth:				1 - 1.5	1 - 1.5	0 - 0.5	1 - 1.5	0 - 0.5	0 - 0.5	0 - 0.5	1 - 1.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5	0 - 0.5
Date Sampled:				07/26/02	07/26/02	07/26/02	07/26/02	07/26/02	07/26/02	07/26/02	07/26/02	07/26/02	07/26/02	07/26/02	07/26/02	07/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**													
PCB-1016 (AROCLOR 1016)	MG/KG	PRG-IND	21	0.0030 U	0.0035 UR	0.0037 UR	0.0045 UR	0.0040 UR	0.0029 U	0.0030 U	0.0035 U	0.0036 UR	0.0035 UR	0.0037 UR	0.0037 UR	0.0037 UR
PCB-1221 (AROCLOR 1221)	MG/KG	PRG-IND	0.74	0.0030 U	0.0035 U	0.0037 U	0.0045 U	0.0040 U	0.0029 U	0.0030 U	0.0035 U	0.0036 U	0.0035 U	0.0037 U	0.0037 U	0.0037 U
PCB-1232 (AROCLOR 1232)	MG/KG	PRG-IND	0.74	0.0030 U	0.0035 U	0.0037 U	0.0045 U	0.0040 U	0.0029 U	0.0030 U	0.0035 U	0.0036 U	0.0035 U	0.0037 U	0.0037 U	0.0037 U
PCB-1242 (AROCLOR 1242)	MG/KG	PRG-IND	0.74	0.0030 U	0.0035 U	0.0037 U	0.0045 U	0.0040 U	0.0029 U	0.0030 U	0.0035 U	0.0036 U	0.0035 U	0.0037 U	0.0037 U	0.0037 U
PCB-1248 (AROCLOR 1248)	MG/KG	PRG-IND	0.74	0.0030 U	0.0035 U	0.0037 U	0.0045 U	0.0040 U	0.0029 U	0.0030 U	0.0035 U	0.0036 U	0.0035 U	0.0037 U	0.0037 U	0.0037 U
PCB-1254 (AROCLOR 1254)	MG/KG	PRG-IND	0.74	0.0030 U	0.0035 U	0.0037 U	0.0045 U	0.0040 U	0.0029 U	0.0030 U	0.0035 U	0.0036 U	0.0035 U	0.0037 U	0.0037 U	0.0037 U
PCB-1260 (AROCLOR 1260)	MG/KG	PRG-IND	0.74	0.0027 U	**0.020 J**	**0.48 J**	0.0040 UJ	**0.42 J**	**0.29 =**	**0.13 J**	**0.79 =**	**0.025 J**	**0.047 J**	0.33 UJ	**0.51 J**	**0.36 J**

TABLE A-13

Criteria Evaluation - Soil - Bldg. 35-752, Stockpile Area TPH

OUE Fort Richardson

Location ID:				**S31**	**S34**	**S38**	**S41**	**S41**
Sample ID:				02B75264SL	02B75270SL	02B75277SL	02B75283SL	02B75284SL
QAQC Type:				N	N	N	N	FD
Depth:				1 - 1.5	1 - 1.5	0 - 0.5	0 - 0.5	0 - 0.5
Date Sampled:				07/26/02	07/26/02	07/26/02	07/26/02	07/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**5.2 J**	**21 J**	**29 J**	**13 J**	**14 J**

TABLE A-14
Criteria Evaluation - Groundwater - Bldg 35-752 BTEX AND TPH
OUE Fort Richardson

Location ID:				**AP-2982**	**AP-2982**	**AP-2982**	**AP-2982**	**AP-2983**	**AP-2983**	**AP-2983**	**AP-2987**	**AP-3231**	**AP-3232**
Sample ID:				02B75202WA	03FROEWA08	03FROEWA21	03FROEWA22	02B75203WA	03FROEWA07	03FROEWA23	02B75206WA	02B75207WA	02B75208WA
QAQC Type:				N	N	N	FD	N	N	N	N	N	N
Date Sampled:				08/15/02	06/09/03	09/21/03	09/21/03	08/16/02	06/09/03	09/21/03	08/16/02	08/16/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
BENZENE	UG/L	PRG-TapWater	0.34	**--**	**3.8 =**	**1.6 =**	**1.6 =**	**8.2 =**	0.02 U	0.15 U	**--**	**--**	0 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	**--**	**61 =**	**21 =**	**21 =**	0.048 U	0.02 U	0.18 U	**--**	**--**	0.400 U
TOLUENE	UG/L	PRG-TapWater	723	**--**	**13 =**	0.58 U	0.69 U	0.0035 U	0.04 U	0.24 U	**--**	**--**	0.2500 U
XYLENES, TOTAL	UG/L	PRG-TapWater	210	**--**	**160 =**	**26 =**	**27 =**	**0.0087 =**	0.05 U	0.63 U	**--**	**--**	0.8400 U
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	**760 B**	**530 =**	**260 =**	**310 =**	**53 JB**	35 U	45 U	**870 B**	**59 JB**	**110 JB**
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	**1700 =**	**910 =**	**190 =**	**190 =**	**12 JB**	**12 J**	14 U	**450 =**	**13 JB**	**17 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	**--**	**110 J**	170 U	210 U	**--**	**120 J**	220 U	**--**	**--**	**--**

TABLE A-14
Criteria Evaluation - Groundwater - Bldg 35-752 BTEX AND TPH
OUE Fort Richardson

Location ID:				**AP-3232**	**AP-3458**	**AP-3458**	**AP-3503**	**AP-3503**	**AP-3503**
Sample ID:				02B75209WA	02B75204WA	03AVMA08WA	02B75201WA	03FROEWA04	03FROEWA20
QAQC Type:				FD	N	N	N	N	N
Date Sampled:				08/19/02	08/16/02	07/21/03	08/15/02	06/09/03	09/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	--	--	--	--	0.02 U	0.15 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	--	--	--	--	0.03 U	0.18 U
TOLUENE	UG/L	PRG-TapWater	723	--	--	--	--	0.06 U	0.24 U
XYLENES, TOTAL	UG/L	PRG-TapWater	210	--	--	--	--	0.08 U	0.63 U
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	**100 JB**	**610 =**	**530 =**	**92 JB**	42 U	66 U
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	**16 JB**	**35 JB**	49 U	**8.4 JB**	**20 J**	11 U
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	--	--	280 U	--	**120 J**	220 U

TABLE A-15
Criteria Evaluation - Groundwater - Bldg 35-752 METAL
OUE Fort Richardson

Location ID:				AP-2982	AP-2983	AP-2987	AP-3231	AP-3232	AP-3232	AP-3458	AP-3503
Sample ID:				02B75202WA	02B75203WA	02B75206WA	02B75207WA	02B75208WA	02B75209WA	02B75204WA	02B75201WA
QAQC Type:				N	N	N	N	N	FD	N	N
Date Sampled:				08/15/02	08/16/02	08/16/02	08/16/02	08/19/02	08/19/02	08/16/02	08/15/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**								
ALUMINUM	UG/L	PRG-TapWater	36	**87 =**	**22 J**	**160 =**	**2,300 =**	**620 =**	**650 =**	**370 =**	**82 =**
ANTIMONY	UG/L	PRG-TapWater	15	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U
ARSENIC	UG/L	PRG-TapWater	0.045	17 U	17 U	17 U	17 U	17 U	17 U	17 U	17 U
BARIUM	UG/L	PRG-TapWater	2,555	**7.4 J**	**2.5 J**	**12 =**	**24 =**	**10 =**	**10 J**	**14 =**	**8.5 J**
BERYLLIUM	UG/L	PRG-TapWater	73	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
CADMIUM	UG/L	PRG-TapWater	18	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
CALCIUM	UG/L	PRG-TapWater	--	**21,000 =**	**8,200 =**	**25,000 =**	**16,000 =**	**15,000 =**	**15,000 =**	**44,000 =**	**24,000 =**
CHROMIUM, TOTAL	UG/L	PRG-TapWater	109	**2.9 JB**	2.0 U	2.0 U	**6.0 JB**	**2.6 J**	2.0 U	**3.4 JB**	2.0 U
COBALT	UG/L	PRG-TapWater	730	**2.7 J**	1.5 U	**1.5 J**	**1.7 J**	1.5 U	1.5 U	**2.8 J**	1.5 U
COPPER	UG/L	PRG-TapWater	1,460	**2.0 J**	**15 =**	**3.5 J**	**26 =**	**3.5 JB**	**2.5 JB**	**3.9 J**	1.2 U
IRON	UG/L	PRG-TapWater	10,950	**2,200 =**	**39 J**	**360 =**	**2,200 =**	**580 =**	**610 =**	**7,600 =**	**130 =**
LEAD	UG/L	PRG-TapWater	15	14 U	14 U	14 U	14 U	14 U	14 U	14 U	14 U
MAGNESIUM	UG/L	PRG-TapWater	--	**4,300 =**	**1,800 =**	**5,600 =**	**3,700 =**	**2,800 =**	**2,700 =**	**12,000 =**	**4,500 =**
MANGANESE	UG/L	PRG-TapWater	876	**1,000 =**	**0.84 J**	**670 =**	**73 =**	**16 =**	**17 =**	**3,100 =**	**15 =**
MERCURY	UG/L	PRG-TapWater	11	**0.084 JB**	0.030 U	**0.054 JB**	**0.070 JB**	0.030 U	**0.076 JB**	**0.045 JB**	**0.064 JB**
NICKEL	UG/L	PRG-TapWater	730	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U	8.2 U
POTASSIUM	UG/L	PRG-TapWater	--	**880 J**	**1,000 =**	**1,500 =**	**1,400 =**	**1,100 =**	**820 J**	**860 J**	**990 J**
SELENIUM	UG/L	PRG-TapWater	182	27 U	27 U	27 U	27 U	27 U	27 U	27 U	27 U
SILVER	UG/L	PRG-TapWater	182	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
SODIUM	UG/L	PRG-TapWater	--	**11,000 =**	**8,200 =**	**9,500 =**	**10,000 =**	**11,000 =**	**10,000 =**	**8,400 =**	**9,400 =**
THALLIUM	UG/L	PRG-TapWater	2.4	48 U	48 U	48 U	48 U	48 U	48 U	48 U	48 U
VANADIUM	UG/L	PRG-TapWater	255	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
ZINC	UG/L	PRG-TapWater	10,950	**5.5 =**	**8.7 =**	1.0 U	**23 =**	**4.8 JB**	**5.3 JB**	**4.7 J**	**3.3 J**

TABLE A-16

Criteria Evaluation - Groundwater - Bldg 35-752 METAL DISS

OUE Fort Richardson

Location ID:				**AP-2983**	**AP-3503**
Sample ID:				02B75203WA	02B75201WA
QAQC Type:				N	N
Date Sampled:				08/16/02	08/15/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**		
ALUMINUM	UG/L	PRG-TapWater	36,499	16 U	16 U
ANTIMONY	UG/L	PRG-TapWater	15	14 U	14 U
ARSENIC	UG/L	PRG-TapWater	0.045	17 U	17 U
BARIUM	UG/L	PRG-TapWater	2,555	**2.8 J**	**10 J**
BERYLLIUM	UG/L	PRG-TapWater	73	0.20 U	0.20 U
CADMIUM	UG/L	PRG-TapWater	18	2.0 U	2.0 U
CALCIUM	UG/L	PRG-TapWater	--	**8,800 =**	**27,000 =**
CHROMIUM, TOTAL	UG/L	PRG-TapWater	109	2.0 U	2.0 U
COBALT	UG/L	PRG-TapWater	730	1.5 U	1.5 U
COPPER	UG/L	PRG-TapWater	1,460	**19 =**	**2.5 J**
IRON	UG/L	PRG-TapWater	10,950	**11 J**	**5.1 J**
LEAD	UG/L	PRG-TapWater	15	14 U	14 U
MAGNESIUM	UG/L	PRG-TapWater	--	**1,800 =**	**4,800 =**
MANGANESE	UG/L	PRG-TapWater	876	0.50 U	**0.62 J**
MERCURY	UG/L	PRG-TapWater	11	**0.056 JB**	**0.053 JB**
NICKEL	UG/L	PRG-TapWater	730	8.2 U	8.2 U
POTASSIUM	UG/L	PRG-TapWater	--	**460 J**	**1,100 =**
SELENIUM	UG/L	PRG-TapWater	182	27 U	27 U
SILVER	UG/L	PRG-TapWater	182	4.3 U	4.3 U
SODIUM	UG/L	PRG-TapWater	--	**8,300 =**	**9,900 =**
THALLIUM	UG/L	PRG-TapWater	2.4	48 U	48 U
VANADIUM	UG/L	PRG-TapWater	255	3.5 U	3.5 U
ZINC	UG/L	PRG-TapWater	10,950	**17 =**	**4.4 J**

TABLE A-17
Criteria Evaluation - Groundwater - Bldg 35-752 PAH
OUE Fort Richardson

Location ID:				**AP-2982**	**AP-2982**	**AP-2982**	**AP-2982**	**AP-2983**	**AP-2983**	**AP-2983**	**AP-2987**	**AP-3231**	**AP-3232**	**AP-3232**
Sample ID:				02B75202WA	03FROEWA08	03FROEWA21	03FROEWA22	02B75203WA	03FROEWA07	03FROEWA23	02B75206WA	02B75207WA	02B75208WA	02B75209WA
QAQC Type:				N	N	N	FD	N	N	N	N	N	N	FD
Date Sampled:				08/22/02	06/09/03	09/21/03	09/21/03	08/22/02	06/09/03	09/21/03	08/22/02	08/22/02	08/26/02	08/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**											
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	**2.5 J**	**4.8 =**	**0.24 J**	**0.16 J**	0.012 U	0.013 U	0.012 U	**0.056 J**	0.013 U	0.012 U	0.012 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.010 U	0.0088 U	0.011 UJ	0.011 U	0.0096 U	0.0097 U	0.011 U	0.0093 U	0.0097 U	0.0093 U	0.0091 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.015 U	0.013 U	0.0097 UJ	0.0096 U	0.014 U	0.014 U	0.0095 U	0.014 U	0.014 U	0.014 U	0.013 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.022 U	0.020 U	0.011 UJ	0.011 U	0.021 U	0.021 U	0.011 U	0.021 U	0.021 U	0.021 U	0.020 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.014 U	0.013 U	0.020 UJ	0.020 U	0.014 U	0.014 U	0.019 U	0.013 U	0.014 U	0.013 U	0.013 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.025 U	0.022 U	0.011 UJ	0.011 U	0.024 U	0.024 U	0.011 U	0.023 U	0.024 U	0.023 U	0.023 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.016 U	0.014 U	0.025 UJ	0.025 U	0.015 U	0.015 U	0.025 U	0.015 U	0.015 U	0.015 U	0.014 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.035 U	0.031 U	0.013 UJ	0.013 U	0.033 U	0.033 U	0.013 U	0.032 U	0.033 U	0.032 U	0.032 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.036 U	0.032 U	0.015 UJ	0.015 U	0.035 U	0.035 U	0.015 U	0.034 U	0.035 U	0.034 U	0.033 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0079 U	0.0069 U	0.0098 UJ	0.0097 U	0.0075 U	0.0076 U	0.0096 U	0.0073 U	0.0076 U	0.0073 U	0.0072 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.057 U	0.050 U	0.016 UJ	0.016 U	0.054 U	0.055 U	0.016 U	0.053 U	0.055 U	0.053 U	0.052 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.015 U	0.013 U	0.024 UJ	0.024 U	0.014 U	0.014 U	0.024 U	0.014 U	0.014 U	0.014 U	0.013 U
FLUORENE	UG/L	PRG-TapWater	243	**0.071 J**	**0.14 =**	**0.033 J-**	**0.044 J**	0.010 UJ	0.010 U	0.012 U	0.0098 UJ	0.010 UJ	0.0098 U	0.0096 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.073 U	0.065 U	0.013 UJ	0.013 U	0.070 U	0.071 U	0.013 U	0.068 U	0.071 U	0.068 U	0.067 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	**6.5 J**	**8.8 =**	**1.7 J-**	**1.5 =**	0.011 UJ	0.011 U	**0.065 J**	**0.99 J**	0.011 UJ	0.011 U	0.011 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0096 U	0.0085 U	0.031 UJ	0.031 U	0.0092 U	0.0093 U	0.030 U	0.0090 U	0.0093 U	0.0090 U	0.0088 U
PYRENE	UG/L	PRG-TapWater	183	0.017 U	0.015 U	0.027 UJ	0.027 U	0.016 U	0.016 U	0.027 U	0.016 U	0.016 U	0.016 U	0.015 U

TABLE A-17
Criteria Evaluation - Groundwater - Bldg 35-752 PAH
OUE Fort Richardson

Location ID:				**AP-3458**		**AP-3458**		**AP-3503**		**AP-3503**		**AP-3503**	
Sample ID:				02B75204WA		03AVMA08WA		02B75201WA		03FROEWA04		03FROEWA20	
QAQC Type:				N		N		N		N		N	
Date Sampled:				08/22/02		07/21/03		08/22/02		06/09/03		09/21/03	
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.012	U	0.013	U	0.012	U	**0.067**	**=**	0.012	U
ACENAPHTHENE	UG/L	PRG-TapWater	365	**0.067**	**=**	**0.24**	**=**	0.0091	U	0.0093	U	0.011	U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.014	U	**0.081**	**=**	0.013	U	0.014	U	0.0097	U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.021	U	0.022	U	0.020	U	0.021	U	0.011	U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.013	U	0.014	U	0.013	U	0.013	U	0.020	U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.023	U	0.024	U	0.023	U	0.023	U	0.011	U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.015	U	0.015	U	0.014	U	0.015	U	0.025	U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.032	U	0.034	U	0.032	U	0.032	U	0.013	U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.034	U	0.035	U	0.033	U	0.034	U	0.015	U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0073	U	0.0077	U	0.0072	U	0.0073	U	0.0098	U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.053	U	0.055	U	0.052	U	0.053	U	0.016	U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.014	U	0.014	U	0.013	U	0.014	U	0.024	U
FLUORENE	UG/L	PRG-TapWater	243	**0.14**	**J**	**0.71**	**=**	0.0096	UJ	0.0098	U	0.012	U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.068	U	0.072	U	0.067	U	0.068	U	0.013	U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	**0.11**	**J**	0.012	U	0.011	UJ	0.078	U	0.031	U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0090	U	**0.13**	**=**	0.0088	U	0.0090	U	0.031	U
PYRENE	UG/L	PRG-TapWater	183	0.016	U	0.017	U	0.015	U	0.016	U	0.027	U

TABLE A-18
Criteria Evaluation - Groundwater - Bldg 35-752 PCB
OUE Fort Richardson

Location ID:				**AP-2982**	**AP-2983**	**AP-2987**	**AP-3231**	**AP-3232**	**AP-3232**	**AP-3458**	**AP-3503**
Sample ID:				02B75202WA	02B75203WA	02B75206WA	02B75207WA	02B75208WA	02B75209WA	02B75204WA	02B75201WA
QAQC Type:				N	N	N	N	N	FD	N	N
Date Sampled:				08/15/02	08/16/02	08/16/02	08/16/02	08/19/02	08/19/02	08/16/02	08/15/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**								
PCB-1016 (AROCLOR 1016)	UG/L	PRG-TapWater	0.96	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.11 U	0.10 U
PCB-1221 (AROCLOR 1221)	UG/L	PRG-TapWater	0.034	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.11 U	0.10 U
PCB-1232 (AROCLOR 1232)	UG/L	PRG-TapWater	0.034	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.11 U	0.10 U
PCB-1242 (AROCLOR 1242)	UG/L	PRG-TapWater	0.034	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.11 U	0.10 U
PCB-1248 (AROCLOR 1248)	UG/L	PRG-TapWater	0.034	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.11 U	0.10 U
PCB-1254 (AROCLOR 1254)	UG/L	PRG-TapWater	0.034	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.11 U	0.10 U
PCB-1260 (AROCLOR 1260)	UG/L	PRG-TapWater	0.034	0.046 U	0.047 U	**0.061 J**	0.047 U	0.047 U	0.050 U	0.050 U	0.048 U

TABLE A-19
Criteria Evaluation - Groundwater - Bldg 35-752 SVOC
OUE Fort Richardson

Location ID:				**AP-2982**	**AP-2982**	**AP-2982**	**AP-2982**	**AP-2983**	**AP-2983**	**AP-2983**	**AP-2987**	**AP-3231**	**AP-3232**	**AP-3232**
Sample ID:				02B75202WA	03FROEWA08	03FROEWA21	03FROEWA22	02B75203WA	03FROEWA07	03FROEWA23	02B75206WA	02B75207WA	02B75208WA	02B75209WA
QAQC Type:				N	N	N	FD	N	N	N	N	N	N	FD
Date Sampled:				08/15/02	06/09/03	09/21/03	09/21/03	08/16/02	06/09/03	09/21/03	08/16/02	08/16/02	08/19/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**											
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.83 U	0.45 U	0.47 U	0.46 U	0.83 U	0.46 U	0.45 U	0.82 U	0.80 U	1.0 U	1.1 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.44 U	0.41 U	0.43 U	0.42 U	0.44 U	0.42 U	0.42 U	0.43 U	0.43 U	0.53 U	0.60 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.87 U	0.40 U	0.42 U	0.41 U	0.87 U	0.41 U	0.40 U	0.86 U	0.84 U	1.1 U	1.2 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.63 U	0.31 U	0.32 U	0.31 U	0.63 U	0.32 U	0.31 U	0.62 U	0.61 U	0.76 U	0.86 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.48 U	0.45 U	0.47 U	0.45 U	0.48 U	0.46 U	0.45 U	0.48 U	0.46 U	0.58 U	0.66 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.80 U	0.30 U	0.31 U	0.31 U	0.80 U	0.31 U	0.30 U	0.79 U	0.77 U	0.97 U	1.1 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.72 U	0.67 U	0.69 U	0.67 U	0.72 U	0.68 U	0.67 U	0.72 U	0.70 U	0.88 UJ	0.99 UJ
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	32 U	29 U	30 UJ	29 UJ	32 U	30 U	29 UJ	31 U	30 U	38 U	43 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.54 U	0.29 U	0.31 U	0.30 U	0.54 U	0.30 U	0.30 U	0.53 U	0.52 U	0.65 U	0.74 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.42 U	0.39 U	0.40 UJ	0.39 U	0.42 U	0.40 U	0.39 U	0.42 U	0.41 U	0.51 U	0.58 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.61 U	0.79 U	0.82 U	0.80 U	0.61 U	0.82 U	0.80 U	0.60 U	0.59 U	0.74 U	0.84 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.82 U	0.32 U	0.33 U	0.32 U	0.82 U	0.33 U	0.32 U	0.82 U	0.80 U	1.0 U	1.1 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	**6.2 =**	**5.7 =**	0.28 U	0.27 U	0.54 U	0.28 U	0.27 U	0.53 U	0.52 U	0.65 U	0.74 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.55 U	0.46 U	0.48 U	0.46 U	0.55 U	0.47 U	0.46 U	0.54 U	0.53 U	0.67 U	0.75 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	46 U	0.42 U	0.44 UJ	0.43 UJ	46 U	0.43 U	0.42 UJ	46 U	45 U	56 U	63 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.94 U	0.86 U	0.90 U	0.87 U	0.94 U	0.89 U	0.87 U	0.93 U	0.91 U	1.1 U	1.3 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	1.4 U	0.60 U	0.63 UJ	0.61 UJ	1.4 U	0.62 U	0.61 U	1.4 U	1.4 U	1.7 U	2.0 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.56 U	0.84 U	0.88 UJ	0.85 UJ	0.56 U	0.87 U	0.85 U	0.56 U	0.54 U	0.68 U	0.77 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.37 U	0.50 U	0.52 UJ	0.51 UJ	0.37 U	0.52 U	0.51 U	0.37 U	0.36 U	0.45 U	0.51 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.6 U	6.1 U	6.3 U	6.1 U	6.6 U	6.2 U	6.1 U	6.5 U	6.4 U	8.0 U	9.0 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.48 U	0.27 U	0.28 U	0.27 U	0.48 U	0.28 U	0.27 U	0.47 U	0.46 U	0.58 U	0.65 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	1.0 U	0.32 U	0.33 U	0.32 U	1.0 U	0.32 U	0.32 U	1.0 U	0.99 U	1.2 U	1.4 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.97 U	0.62 U	0.65 U	0.63 U	0.97 U	0.64 U	0.63 U	0.96 U	0.94 U	1.2 U	1.3 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.54 U	0.37 U	0.38 U	0.37 U	0.54 U	0.38 U	0.37 U	0.53 U	0.52 U	0.65 U	0.74 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.45 U	0.33 U	0.34 UJ	0.33 UJ	0.45 U	0.34 U	0.33 U	0.45 U	0.44 U	0.55 U	0.62 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.72 U	0.66 U	0.69 UJ	0.67 UJ	0.72 U	0.68 U	0.67 U	0.72 U	0.70 U	0.88 U	0.99 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.42 U	0.32 U	0.34 U	0.33 U	0.42 U	0.33 U	0.33 U	0.42 U	0.41 U	0.51 U	0.58 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.84 U	0.32 U	0.34 U	0.33 UJ	0.84 U	0.33 U	0.33 UJ	0.83 U	0.81 U	1.0 U	1.1 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.60 U	0.27 U	0.28 U	0.27 U	0.60 U	0.28 U	0.27 U	0.59 U	0.58 U	0.72 U	0.82 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.6 UR	6.1 U	--	--	6.6 UR	6.2 U	--	6.5 UR	6.4 UR	8.0 UJ	9.0 UJ
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.34 U	0.35 U	0.36 UJ	0.35 UJ	0.34 U	0.36 U	0.35 U	0.33 U	0.32 U	0.41 U	0.46 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	1.1 U	0.34 U	0.36 UJ	0.35 UJ	1.1 U	0.35 U	0.35 U	1.1 U	1.1 U	1.4 U	1.5 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.60 U	0.26 U	0.27 UJ	0.26 UJ	0.60 U	0.27 U	0.26 U	0.60 U	0.58 U	0.73 U	0.83 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.69 U	0.90 U	0.94 UJ	0.91 UJ	0.69 U	0.93 U	0.91 UJ	0.68 U	0.67 U	0.84 U	0.95 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.39 U	0.37 U	0.38 UJ	0.37 UJ	0.39 U	0.38 U	0.37 U	0.38 U	0.38 U	0.47 U	0.53 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	27 U	25 U	26 U	25 UJ	27 U	26 U	25 UJ	27 U	26 U	33 U	37 U
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.70 U	0.65 U	0.67 U	0.65 UJ	0.70 U	0.67 U	0.65 UJ	0.70 U	0.68 U	0.86 U	0.97 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.72 U	0.26 U	0.27 UJ	0.26 UJ	0.72 U	0.27 U	0.26 U	0.71 U	0.70 U	0.88 U	0.99 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.37 U	0.34 U	0.35 U	0.34 U	0.37 U	0.35 U	0.34 U	0.37 U	0.36 U	0.45 U	0.51 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.39 U	0.27 U	0.29 U	0.28 UJ	0.39 U	0.28 U	0.28 UJ	0.39 U	0.38 U	0.48 U	0.54 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.45 U	0.42 U	0.43 U	0.42 UJ	0.45 U	0.43 U	0.42 UJ	0.45 U	0.44 U	0.55 U	0.62 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	1.8 U	0.82 U	0.86 UJ	0.83 UJ	1.8 U	**6.8 =**	0.83 U	1.8 U	1.8 U	2.2 U	2.5 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.45 U	0.41 U	0.42 UJ	0.41 UJ	0.45 U	0.42 U	0.41 U	0.44 U	0.43 U	0.54 U	0.61 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	1.9 U	0.42 U	**1.2 J**	0.42 U	1.9 U	**1.5 J**	0.42 U	**2.1 JB**	**3.3 JB**	2.3 U	**4.0 JB**
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.69 U	0.32 U	0.33 UJ	0.32 UJ	0.69 U	0.32 U	0.32 U	0.68 U	0.67 U	0.84 U	0.95 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.60 U	1.3 U	1.4 UJ	1.3 UJ	0.60 U	1.4 U	1.3 UJ	0.59 U	0.58 U	0.73 U	0.82 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.47 U	0.33 U	0.35 U	0.34 U	0.47 U	0.34 U	0.34 U	0.47 U	0.45 U	0.57 U	0.65 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	0.22 U	0.36 U	0.37 U	0.36 U	0.22 U	0.37 U	0.36 U	0.22 U	0.22 U	0.27 U	0.31 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.52 U	0.31 U	0.32 U	0.31 U	0.52 U	0.32 U	0.31 U	0.51 U	0.50 U	0.63 U	0.71 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.67 U	0.26 U	0.27 U	0.26 U	0.67 U	0.27 U	0.26 U	0.66 U	0.64 U	0.81 U	0.91 U
FLUORENE	UG/L	PRG-TapWater	243	0.39 U	0.32 U	0.33 UJ	0.33 UJ	0.39 U	0.33 U	0.32 U	0.38 U	0.38 U	0.47 U	0.53 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.43 U	0.31 U	0.32 U	0.31 U	0.43 U	0.32 U	0.31 U	0.42 U	0.41 U	0.52 U	0.59 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	1.0 U	0.62 U	0.64 U	0.63 U	1.0 U	0.64 U	0.62 U	1.0 U	0.98 U	1.2 U	1.4 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.55 UR	0.53 U	0.55 U	0.54 U	0.55 UR	0.55 U	0.53 U	0.54 UR	0.53 UR	0.67 UJ	0.75 UJ
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.90 U	0.57 U	0.59 U	0.57 U	0.90 U	0.58 U	0.57 U	0.89 U	0.87 U	1.1 U	1.2 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.54 UR	0.94 U	0.98 UJ	0.95 UJ	0.54 UR	0.97 U	0.94 UJ	0.54 UR	0.53 UR	0.66 U	0.75 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.67 U	0.62 U	0.64 U	0.62 U	0.67 U	0.63 U	0.62 U	0.66 U	0.65 U	0.81 U	0.92 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.43 U	0.40 U	0.41 U	0.40 U	0.43 U	0.41 U	0.40 U	0.43 U	0.42 U	0.52 U	0.59 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	1.1 U	0.65 U	0.67 U	0.65 U	1.1 U	0.67 U	0.65 U	1.1 U	1.0 U	1.3 U	1.5 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	**19 =**	**11 =**	**2.5 J**	0.27 U	0.68 U	0.27 U	0.27 U	0.67 U	0.66 U	0.83 U	0.93 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.53 U	0.48 U	0.50 U	0.49 U	0.53 U	0.50 U	0.49 U	0.52 U	0.51 U	0.64 U	0.72 U
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.65 U	0.60 U	0.62 U	0.60 U	0.65 U	0.61 U	0.60 U	0.64 U	0.63 U	0.79 U	0.89 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.37 U	0.34 U	0.35 U	0.34 U	0.37 U	0.35 U	0.34 U	0.37 U	0.36 U	0.45 U	0.51 U
PHENOL	UG/L	PRG-TapWater	21,900	0.64 U	0.37 U	0.38 U	0.37 U	0.64 U	0.38 U	0.37 U	0.63 U	0.62 U	0.77 U	0.87 U
PYRENE	UG/L	PRG-TapWater	183	0.72 U	0.39 U	0.41 UJ	0.40 UJ	0.72 U	0.40 U	0.40 U	0.72 U	0.70 U	0.88 U	0.99 U

TABLE A-19
Criteria Evaluation - Groundwater - Bldg 35-752 SVOC
OUE Fort Richardson

Location ID:				**AP-3458**	**AP-3458**	**AP-3503**	**AP-3503**	**AP-3503**
Sample ID:				02B75204WA	03AVMA08WA	02B75201WA	03FROEWA04	03FROEWA20
QAQC Type:				N	N	N	N	N
Date Sampled:				08/16/02	07/21/03	08/15/02	06/09/03	09/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.75 U	0.47 U	0.76 U	0.44 U	0.46 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.40 U	0.43 U	0.41 U	0.41 U	0.42 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.78 U	0.42 U	0.80 U	0.40 U	0.41 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.57 U	0.33 U	0.58 U	0.31 U	0.32 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.44 U	0.47 U	0.44 U	0.44 U	0.46 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.72 U	0.32 U	0.74 U	0.30 U	0.31 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.66 U	0.70 U	0.67 U	0.66 U	0.68 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	29 U	30 U	29 U	29 U	30 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.49 U	0.31 U	0.50 U	0.29 U	0.30 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.38 U	0.41 U	0.39 U	0.38 U	0.40 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.55 U	0.83 U	0.56 U	0.78 U	0.82 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.75 U	0.34 U	0.76 U	0.31 U	0.33 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.49 U	0.29 U	0.50 U	0.27 U	0.28 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.50 U	0.48 U	0.51 U	0.45 U	0.47 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	42 U	0.44 U	43 U	0.41 U	0.43 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.85 U	0.91 U	0.87 U	0.85 U	0.89 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	1.3 U	0.63 U	1.3 U	0.59 U	0.62 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.51 U	0.89 U	0.52 U	0.83 U	0.87 UJ
3-NITROANILINE	UG/L	PRG-TapWater	--	0.34 U	0.53 U	0.34 U	0.50 U	0.52 UJ
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.0 U	6.4 U	6.1 U	6.0 U	6.2 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.43 U	0.28 U	0.44 U	0.26 U	0.28 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.92 U	0.33 U	0.94 U	0.31 U	0.32 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.88 U	0.65 U	0.90 U	0.61 U	0.64 UJ
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.49 U	0.38 U	0.50 U	0.36 U	0.38 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.41 U	0.35 U	0.42 U	0.32 U	0.34 UJ
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.65 U	0.70 U	0.67 U	0.65 U	0.68 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.38 U	0.34 U	0.39 U	0.32 U	0.33 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.76 U	0.34 U	0.77 U	0.32 U	0.33 UJ
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.54 U	0.28 U	0.55 U	0.26 U	0.28 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.0 UR	6.4 R	6.1 UR	6.0 U	--
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.30 U	0.37 U	0.31 U	0.34 U	0.36 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	1.0 U	0.36 U	1.0 U	0.34 U	0.35 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.55 U	0.27 U	0.56 U	0.26 U	0.27 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.63 U	0.95 U	0.64 U	0.89 U	0.93 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.35 U	0.38 U	0.36 U	0.36 U	0.38 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	24 U	26 U	25 U	24 U	26 UJ
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.64 U	0.68 U	0.65 U	0.64 U	0.67 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.65 U	0.27 U	0.67 U	0.26 U	0.27 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.34 U	0.35 U	0.34 U	0.33 U	0.35 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.36 U	0.29 U	0.36 U	0.27 U	0.28 UJ
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.41 U	0.44 UJ	0.42 U	0.41 U	0.43 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	1.7 U	0.87 U	1.7 U	0.81 U	0.85 UJ
CHRYSENE	UG/L	PRG-TapWater	9.2	0.40 U	0.43 U	0.41 U	0.40 U	0.42 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	**3.4 JB**	0.44 U	**4.7 JB**	0.41 U	0.43 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.62 U	0.33 U	0.64 U	0.31 U	0.32 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.54 U	1.4 U	0.55 U	1.3 U	1.4 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.43 U	0.35 U	0.43 U	0.33 U	0.34 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	0.20 U	0.38 U	0.21 U	0.35 U	0.37 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.47 U	0.33 U	0.48 U	0.31 U	0.32 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.60 U	0.28 U	0.62 U	0.26 U	0.27 U
FLUORENE	UG/L	PRG-TapWater	243	0.35 U	0.34 U	0.36 U	0.32 U	0.33 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.39 U	0.33 U	0.39 U	0.31 U	0.32 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.91 U	0.65 U	0.93 U	0.61 U	0.64 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.50 UR	0.56 UJ	0.51 UR	0.52 U	0.55 U
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.81 U	0.59 U	0.83 U	0.56 U	0.58 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.49 UR	0.99 U	0.50 UR	0.92 U	0.97 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.61 U	0.65 U	0.62 U	0.61 U	0.63 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.39 U	0.42 U	0.40 U	0.39 U	0.41 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.96 U	0.68 U	0.98 U	0.64 U	0.67 UJ
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.61 U	0.28 U	0.63 U	0.26 U	0.27 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.48 U	0.51 U	0.49 U	0.48 U	0.50 U
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.59 U	0.63 U	0.60 U	0.59 U	0.61 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.33 U	0.36 U	0.34 U	0.33 U	0.35 U
PHENOL	UG/L	PRG-TapWater	21,900	0.58 U	0.38 U	0.59 U	0.36 U	0.38 U
PYRENE	UG/L	PRG-TapWater	183	0.66 U	0.41 U	0.67 U	0.39 U	0.40 U

TABLE A-20
Criteria Evaluation - Groundwater - Bldg 35-752 VOC
OUE Fort Richardson

Location ID:				**AP-2982**	**AP-2982**	**AP-2982**	**AP-2982**	**AP-2983**	**AP-2983**	**AP-2983**	**AP-2987**	**AP-3231**	**AP-3232**
Sample ID:				02B75202WA	03FROEWA08	03FROEWA21	03FROEWA22	02B75203WA	03FROEWA07	03FROEWA23	02B75206WA	02B75207WA	02B75208WA
QAQC Type:				N	N	N	FD	N	N	N	N	N	N
Date Sampled:				08/15/02	06/09/03	09/21/03	09/21/03	08/16/02	06/09/03	09/21/03	08/16/02	08/16/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.071 U	0.47 U	0.47 U	0.47 U	0.071 U	0.47 U	0.47 U	0.071 U	0.071 U	0.071
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	**4.0 J**	**0.87 J**	0.61 U	0.61 U	0.13 U	0.61 U	0.61 U	**0.72 J**	0.13 U	0.13
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.11 U	0.48 U	0.48 U	0.48 U	0.11 U	0.48 U	0.48 U	0.11 U	0.11 U	0.11
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.088 U	0.60 U	--	--	0.088 U	0.60 U	--	0.088 U	0.088 U	0.088
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.083 U	0.41 U	0.41 U	0.41 U	0.083 U	0.41 U	0.41 U	0.083 U	0.083 U	0.083
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	**0.39 J**	0.44 U	0.44 U	0.44 U	0.074 U	0.44 U	0.44 U	**0.24 J**	0.074 U	0.074
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.081 U	0.53 U	0.53 U	0.53 U	0.081 U	0.53 U	0.53 U	0.081 U	0.081 U	0.081
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.062 U	0.43 U	0.43 U	0.43 U	0.062 U	0.43 U	0.43 U	0.062 U	0.062 U	0.062
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.31 U	0.41 U	0.41 U	0.41 U	0.31 U	0.41 U	0.41 U	0.31 U	0.31 U	0.31
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.74 U	0.61 U	0.61 U	0.61 U	0.74 U	0.61 U	0.61 U	0.74 U	0.74 U	0.74
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.067 U	0.44 U	0.44 U	0.44 U	0.067 U	0.44 U	0.44 U	0.067 U	0.067 U	0.067
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	**39 J**	**70 =**	**27 =**	**25 =**	0.062 U	0.48 U	0.48 U	**16 J**	0.062 U	0.062
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	0.20 UJ	0.32 U	0.32 U	0.32 U	0.20 UJ	0.32 U	0.32 U	0.20 UJ	0.20 UJ	0.20
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.057 U	0.34 U	0.34 U	0.34 U	0.057 U	0.34 U	0.34 U	0.057 U	0.057 U	0.057
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.074 U	0.51 U	0.51 U	0.51 U	0.074 U	0.51 U	0.51 U	0.074 U	0.074 U	0.074
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.11 U	0.37 U	0.37 U	0.37 U	0.11 U	0.37 U	0.37 U	0.11 U	0.11 U	0.11
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.074 U	0.51 U	0.51 U	0.51 U	0.074 U	0.51 U	0.51 U	0.074 U	0.074 U	0.074
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	**7.3 J**	**44 =**	0.48 U	0.48 U	0.090 U	0.48 U	0.48 U	**4.8 J**	0.090 U	0.090
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.098 U	0.55 U	0.55 U	0.55 U	0.098 U	0.55 U	0.55 U	0.098 U	0.098 U	0.098
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.092 U	0.47 U	0.47 U	0.47 U	0.092 U	0.47 U	0.47 U	0.092 U	0.092 U	0.092
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.071 U	0.65 U	0.65 U	0.65 U	0.071 U	0.65 U	0.65 U	0.071 U	0.071 U	0.071
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.12 U	0.44 U	0.44 UJ	0.44 UJ	0.12 U	0.44 U	0.44 UJ	0.12 U	0.12 U	0.12
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	0.65 UR	0.24 U	--	--	0.65 UR	0.24 U	--	0.65 UR	0.65 UR	0.65
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.097 U	0.57 U	0.57 U	0.57 U	0.097 U	0.57 U	0.57 U	0.097 U	0.097 U	0.097
2-HEXANONE	UG/L	PRG-TapWater	--	0.67 UJ	0.46 U	--	--	0.67 UJ	0.46 U	--	0.67 UJ	0.67 UJ	0.67
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.099 U	0.63 U	0.63 U	0.63 U	0.099 U	0.63 U	0.63 U	0.099 U	0.099 U	0.099
ACETONE	UG/L	PRG-TapWater	608	0.13 UJ	**11 J**	**5.3 J**	**4.8 J**	0.13 UJ	1.0 U	3.2 U	0.13 UJ	0.13 UJ	0.13
ACROLEIN	UG/L	PRG-TapWater	0.042	0.67 UJ	--	--	--	0.67 UJ	--	--	0.67 UJ	0.67 UJ	0.67
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.64 U	0.41 U	--	--	0.64 U	0.41 U	--	0.64 U	0.64 U	0.64
BENZENE	UG/L	PRG-TapWater	0.34	**12 J**	**3.7 =**	**1.4 J**	**1.4 J**	0.064 U	0.32 U	0.32 U	**5.1 J**	0.064 U	**0.10**
BROMOBENZENE	UG/L	PRG-TapWater	20	0.050 U	0.49 U	0.49 U	0.49 U	0.050 U	0.49 U	0.49 U	0.050 U	0.050 U	0.050
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.083 U	0.56 U	0.56 U	0.56 U	0.083 U	0.56 U	0.56 U	0.083 U	0.083 U	0.083
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.046 U	0.42 U	0.42 U	0.42 U	0.046 U	0.42 U	0.42 U	0.046 U	0.046 U	0.046
BROMOFORM	UG/L	PRG-TapWater	8.5	0.13 U	0.50 U	0.50 U	0.50 U	0.13 U	0.50 U	0.50 U	0.13 U	0.13 U	0.13
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.15 UJ	0.83 U	0.83 U	0.83 U	0.15 UJ	0.83 U	0.83 U	0.15 UJ	0.15 UJ	0.15
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.068 U	0.46 U	--	--	0.068 U	0.46 U	--	0.068 U	0.068 U	0.068
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	0.074 U	0.43 U	0.43 U	0.43 U	0.074 U	0.43 U	0.43 U	0.074 U	0.074 U	0.074
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.057 U	0.50 U	0.50 U	0.50 U	0.057 U	0.50 U	0.50 U	0.057 U	0.057 U	0.057
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.092 U	0.63 U	0.63 U	0.63 U	0.092 U	0.63 U	0.63 U	0.092 U	0.092 U	0.092
CHLOROFORM	UG/L	PRG-TapWater	6.2	**0.17 J**	0.46 U	0.46 U	0.46 U	**0.17 J**	0.31 U	0.46 U	0.11 U	**0.22 J**	**0.20**
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	**0.32 J**	1.1 U	1.1 U	1.1 U	**0.30 J**	1.1 U	1.1 U	**0.33 J**	**4.0 J**	**0.12**
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.079 U	0.47 U	0.47 U	0.47 U	0.079 U	0.47 U	0.47 U	**0.24 J**	0.079 U	0.079
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.076 U	0.39 U	0.39 U	0.39 U	0.076 U	0.39 U	0.39 U	0.076 U	0.076 U	0.076
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.072 U	0.37 U	0.37 U	0.37 U	0.072 U	0.37 U	0.37 U	0.072 U	0.072 U	0.072
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.10 U	0.41 U	0.41 UJ	0.41 UJ	0.10 U	0.41 U	0.41 UJ	0.10 U	0.10 U	0.10
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.11 U	1.5 U	1.5 U	1.5 U	0.11 U	1.5 U	1.5 U	0.11 U	0.11 U	0.11
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	**110 J**	**67 =**	**25 =**	**24 =**	0.056 U	0.47 U	0.47 U	**24 J**	0.056 U	0.056
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.12 U	0.50 U	0.50 U	0.50 U	0.12 U	0.50 U	0.50 U	0.12 U	0.12 U	0.12
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.47 UJ	1.1 U	--	--	0.47 UJ	1.1 U	--	0.47 UJ	0.47 UJ	0.47
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	**8.2 J**	**7.7 =**	**2.2 =**	**2.0 =**	0.063 U	0.48 U	0.48 U	**1.7 J**	0.063 U	0.063
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	0.69 UJ	1.5 U	1.5 U	1.5 U	0.69 UJ	1.5 U	1.5 U	0.69 UJ	0.69 UJ	0.69
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.094 UJ	0.36 U	--	--	0.094 UJ	0.36 U	--	0.094 UJ	0.094 UJ	0.094
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	**1.9 JB**	0.47 U	0.99 U	2.2 U	**1.7 JB**	0.44 U	1.5 U	**1.9 JB**	**1.9 JB**	0.25
NAPHTHALENE	UG/L	PRG-TapWater	6.2	**26 J**	**12 =**	**11 J**	**8.3 J**	0.042 U	0.31 U	0.31 UJ	**5.2 J**	0.042 U	0.042

TABLE A-20
Criteria Evaluation - Groundwater - Bldg 35-752 VOC
OUE Fort Richardson

Location ID:				**AP-2982**	**AP-2982**	**AP-2982**	**AP-2982**	**AP-2983**	**AP-2983**	**AP-2983**	**AP-2987**	**AP-3231**	**AP-3232**
Sample ID:				02B75202WA	03FROEWA08	03FROEWA21	03FROEWA22	02B75203WA	03FROEWA07	03FROEWA23	02B75206WA	02B75207WA	02B75208WA
QAQC Type:				N	N	N	FD	N	N	N	N	N	N
Date Sampled:				08/15/02	06/09/03	09/21/03	09/21/03	08/16/02	06/09/03	09/21/03	08/16/02	08/16/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	**1.6 J**	**3.8 =**	**0.81 J**	**0.71 J**	0.065 U	0.46 U	0.46 U	0.065 U	0.065 U	0.065
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	**13 J**	**15 =**	**4.7 =**	**4.3 =**	0.072 U	0.50 U	0.50 U	**1.8 J**	0.072 U	0.072
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	**140 J**	**70 =**	**2.1 J**	**3.0 J**	0.061 U	0.46 U	0.46 U	**39 J**	0.061 U	0.061
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	**1.0 J**	**1.0 J**	0.55 U	0.55 U	0.039 U	0.55 U	0.55 U	0.039 U	0.039 U	0.039
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	**1.4 J**	0.52 U	**0.60 J+**	**0.52 J+**	0.079 U	0.52 U	0.52 UJ	0.079 U	0.079 U	0.079
STYRENE	UG/L	PRG-TapWater	1,641	0.085 U	**1.9 J**	0.58 U	0.58 U	0.085 U	0.58 U	0.58 U	0.085 U	0.085 U	0.085
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	**0.19 J**	0.43 U	0.43 UJ	0.43 UJ	0.082 U	0.43 U	0.43 UJ	0.082 U	0.082 U	0.082
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.040 UJ	0.36 U	--	--	0.040 UJ	0.36 U	--	0.040 UJ	0.040 UJ	0.040
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	**0.40 J**	0.32 U	0.45 U	0.45 U	0.059 U	0.28 U	0.45 U	**0.44 J**	0.059 U	0.059
TOLUENE	UG/L	PRG-TapWater	723	**32 J**	**15 =**	0.55 U	**0.68 J**	**1.1 JB**	0.55 U	0.55 U	**5.4 J**	**1.6 J**	**4.4**
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.042 U	0.61 U	0.61 U	0.61 U	0.042 U	0.61 U	0.61 U	0.042 U	0.042 U	0.042
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.10 UJ	0.39 U	0.39 U	0.39 U	0.10 UJ	0.39 U	0.39 U	0.10 UJ	0.10 UJ	0.10
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.49 UJ	0.86 U	--	--	0.49 UJ	0.86 U	--	0.49 UJ	0.49 UJ	0.49
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	**1.3 J**	**1.0 J**	**0.85 J**	**0.69 J**	**0.60 J**	**0.58 J**	**0.60 J**	**1.2 J**	**8.6 J**	**0.38**
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.070 U	0.51 U	0.51 UJ	0.51 UJ	0.070 U	0.51 U	0.51 UJ	0.070 U	0.070 U	0.070
VINYL ACETATE	UG/L	PRG-TapWater	412	0.065 UR	**1.8 J**	--	--	0.065 UR	0.66 U	--	0.065 UR	0.065 UJ	0.065
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.061 U	0.53 U	0.53 U	0.53 U	0.061 U	0.53 U	0.53 U	0.061 U	0.061 U	0.061
XYLENES, m & p	UG/L	PRG-TapWater	210	**150 J**	**98 =**	**26 =**	**26 =**	0.14 U	0.28 U	0.28 U	**37 J**	0.14 U	0.14

TABLE A-20
Criteria Evaluation - Groundwater - Bldg 35-752 VOC
OUE Fort Richardson

Location ID:				**AP-3232**	**AP-3458**	**AP-3458**	**AP-3503**	**AP-3503**	**AP-3503**
Sample ID:				02B75209WA	02B75204WA	03AVMA08WA	02B75201WA	03FROEWA04	03FROEWA20
QAQC Type:				FD	N	N	N	N	N
Date Sampled:				08/19/02	08/16/02	07/21/03	08/15/02	06/09/03	09/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43 U	0.071 U	0.071 U	0.065 U	0.071 U	0.47 U	0.47 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172 U	0.13 U	0.13 U	0.17 U	**0.70 J**	**0.68 J**	0.61 U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055 U	0.11 U	0.11 U	0.062 U	0.11 U	0.48 U	0.48 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180 U	0.088 U	0.088 U	0.077 U	0.088 U	0.60 U	--
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20 U	0.083 U	0.083 U	0.13 U	0.083 U	0.41 U	0.41 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811 U	0.074 U	0.074 U	0.11 U	**0.12 J**	0.44 U	0.44 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339 U	0.081 U	0.081 U	0.15 U	0.081 U	0.53 U	0.53 UJ
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	-- U	0.062 U	0.062 U	0.11 U	0.062 U	0.43 U	0.43 UJ
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	-- U	0.31 U	0.31 U	0.058 UJ	0.31 U	0.41 U	0.41 UJ
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056 U	0.74 U	0.74 U	0.15 U	0.74 U	0.61 U	0.61 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194 U	0.067 U	0.067 U	0.080 UJ	0.067 U	0.44 U	0.44 UJ
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12 U	0.062 U	0.062 U	0.057 U	0.062 U	0.48 U	0.48 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048 U	0.20 U	0.20 UJ	0.26 U	0.20 UJ	0.32 U	0.32 UJ
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04 U	0.057 U	0.057 U	0.097 U	0.057 U	0.34 U	0.34 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370 U	0.074 U	0.074 U	0.11 U	0.074 U	0.51 U	0.51 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12 U	0.11 U	0.11 U	0.073 U	0.11 U	0.37 U	0.37 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16 U	0.074 U	0.074 U	0.060 U	0.074 U	0.51 U	0.51 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12 U	0.090 U	0.090 U	0.084 U	0.090 U	0.48 U	0.48 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5 U	0.098 U	0.098 U	0.11 U	0.098 U	0.55 U	0.55 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	-- U	0.092 U	0.092 U	0.14 U	0.092 U	0.47 U	0.47 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50 U	0.071 U	0.071 U	0.092 U	0.071 U	0.65 U	0.65 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	-- U	0.12 U	0.12 U	0.10 U	0.12 U	0.44 U	0.44 UJ
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	-- U	0.65 U	0.65 UR	--	0.65 UR	0.24 U	--
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122 U	0.097 U	0.097 U	0.084 U	0.097 U	0.57 U	0.57 U
2-HEXANONE	UG/L	PRG-TapWater	-- U	0.67 U	0.67 UJ	0.18 U	0.67 UJ	0.46 U	--
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122 U	0.099 U	0.099 U	0.085 U	0.099 U	0.63 U	0.63 U
ACETONE	UG/L	PRG-TapWater	608 U	0.13 U	0.13 UJ	5.1 UJ	0.13 UJ	1.4 U	3.2 UJ
ACROLEIN	UG/L	PRG-TapWater	0.042 U	0.67 U	0.67 UJ	0.90 U	0.67 UJ	--	--
ACRYLONITRILE	UG/L	PRG-TapWater	-- U	0.64 U	0.64 U	0.14 U	0.64 U	0.41 U	--
BENZENE	UG/L	PRG-TapWater	0.34 **J**	0.064 U	**0.10 J**	**0.15 J**	0.064 U	0.32 U	0.32 U
BROMOBENZENE	UG/L	PRG-TapWater	20 U	0.050 U	0.050 U	0.060 U	0.050 U	0.49 U	0.49 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	-- U	0.083 U	0.083 U	0.087 U	0.083 U	0.56 U	0.56 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18 U	0.046 U	0.046 U	0.079 U	0.046 U	0.42 U	0.42 U
BROMOFORM	UG/L	PRG-TapWater	8.5 U	0.13 U	0.13 U	0.12 U	0.13 U	0.50 U	0.50 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7 U	0.15 U	0.15 UJ	0.094 UJ	0.15 UJ	0.83 U	0.83 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043 U	0.068 U	0.068 U	0.090 U	0.068 U	0.46 U	--
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17 U	0.074 U	0.074 U	0.16 U	0.074 U	0.43 U	0.43 UJ
CHLOROBENZENE	UG/L	PRG-TapWater	106 U	0.057 U	0.057 U	0.087 U	0.057 U	0.50 U	0.50 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6 U	0.092 U	**0.12 J**	**0.14 J**	0.092 U	0.63 U	0.63 U
CHLOROFORM	UG/L	PRG-TapWater	6.2 **J**	**0.20 J**	0.11 U	0.080 U	0.11 U	0.46 U	0.46 U
CHLOROMETHANE	UG/L	PRG-TapWater	1.5 **JB**	**0.12 JB**	**0.46 J**	0.079 U	**0.53 J**	1.1 U	1.1 U
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61 U	0.079 U	**7.2 J**	**9.6 =**	0.079 U	0.47 U	0.47 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40 U	0.076 U	0.076 U	0.054 U	0.076 U	0.39 U	0.39 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13 U	0.072 U	0.072 U	0.096 U	0.072 U	0.37 U	0.37 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61 U	0.10 U	0.10 U	0.060 U	0.10 U	0.41 U	0.41 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395 U	0.11 U	0.11 U	0.16 U	0.11 U	1.5 U	1.5 UJ
ETHYLBENZENE	UG/L	PRG-TapWater	2.9 U	0.056 U	0.056 U	**0.12 J**	0.056 U	0.47 U	0.47 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86 U	0.12 U	0.12 U	0.13 U	0.12 U	0.50 U	0.50 UJ
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	-- U	0.47 U	0.47 UJ	0.097 U	0.47 UJ	1.1 U	--
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658 U	0.063 U	**0.26 J**	**0.74 =**	0.063 U	0.48 U	0.48 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904 U	0.69 U	0.69 UJ	1.4 UJ	0.69 UJ	1.5 U	1.5 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158 U	0.094 U	0.094 UJ	0.12 U	0.094 UJ	0.36 U	--
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3 UR	0.25 UR	**1.7 JB**	0.38 U	**2.5 JB**	0.38 U	1.9 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2 U	0.042 U	0.042 U	0.087 U	0.042 U	0.31 U	0.31 UJ

TABLE A-20

Criteria Evaluation - Groundwater - Bldg 35-752 VOC

OUE Fort Richardson

Location ID:				**AP-3232**	**AP-3458**	**AP-3458**	**AP-3503**	**AP-3503**	**AP-3503**
Sample ID:				02B75209WA	02B75204WA	03AVMA08WA	02B75201WA	03FROEWA04	03FROEWA20
QAQC Type:				FD	N	N	N	N	N
Date Sampled:				08/19/02	08/16/02	07/21/03	08/15/02	06/09/03	09/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	U 0.065 U	0.065 U	0.098 U	0.065 U	0.46 U	0.46 UJ
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	U 0.072 U	0.072 U	0.10 U	0.072 U	0.50 U	0.50 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	U 0.061 U	0.061 U	0.076 U	0.061 U	0.46 U	0.46 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	U 0.039 U	0.039 U	0.088 U	0.039 U	0.55 U	0.55 U
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	U 0.079 U	**0.65 J**	**1.4 =**	0.079 U	0.52 U	0.52 U
STYRENE	UG/L	PRG-TapWater	1,641	U 0.085 U	0.085 U	0.10 U	0.085 U	0.58 U	0.58 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	U 0.082 U	0.082 U	0.081 U	0.082 U	0.43 U	0.43 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	U 0.040 U	0.040 UJ	0.077 U	0.040 UJ	0.36 U	--
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	U 0.059 U	0.059 U	0.12 U	**0.15 J**	**0.64 J**	0.45 UJ
TOLUENE	UG/L	PRG-TapWater	723	**B 4.2 B**	**1.8 J**	0.097 U	**0.44 JB**	0.55 U	0.55 U
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	U 0.042 U	**0.13 J**	0.13 U	0.042 U	0.61 U	0.61 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	U 0.10 U	0.10 UJ	0.056 U	0.10 UJ	0.39 U	0.39 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	U 0.49 U	0.49 UJ	0.16 U	0.49 UJ	0.86 U	--
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	**J 0.34 J**	**1.8 J**	**1.9 =**	**1.1 J**	**0.84 J**	0.55 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	U 0.070 U	0.070 U	0.18 U	0.070 U	0.51 U	0.51 UJ
VINYL ACETATE	UG/L	PRG-TapWater	412	UR 0.065 UR	0.065 UR	2.6 U	0.065 UR	0.66 U	--
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	U 0.061 U	**0.13 J**	**0.38 J**	0.061 U	0.53 U	0.53 U
XYLENES, m & p	UG/L	PRG-TapWater	210	U 0.14 U	0.14 U	0.16 U	0.14 U	0.28 U	0.28 U

TABLE A-21

Criteria Evaluation - Soil - Bldg. 35-752, Transformer Oil Discharge Area DIOXIN/FURANS

OUE Fort Richardson

Location ID:					**T10**		**T11**		**T6**	
Sample ID:					02B75229SL		02B752233		02B75216SL	
QAQC Type:					FD		N		N	
Depth:					0 - 0.5		0.5 - 1		0 - 0.5	
Date Sampled:					08/01/02		10/15/02		08/01/02	
Analyte	**Units**	**Criteria Value**	**Criteria Source**	**Mammal TEFs**						
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	PG/G	1,592	PRG-IND	0.010	**19** =	0.19	**3.5** =	0.035	**27** =	0.27
1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-DIOXIN	PG/G	1,592	PRG-IND	0.010	**80** =	0.80	**2.9** =	0.029	**67** =	0.67
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	PG/G	1,592	PRG-IND	0.010	**2.0** =	0.020	**1.4** =	0.014	**4.9** =	0.049
1,2,3,4,7,8-HEXACHLORODIBENZOFURAN	PG/G	159	PRG-IND	0.10	**1.6** =	0.16	**2.4** =	0.24	**12** =	1.2
1,2,3,4,7,8-HEXACHLORODIBENZO-p-DIOXIN	PG/G	159	PRG-IND	0.10	0.94 U		0.94 U		**0.63** =	0.063
1,2,3,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	159	PRG-IND	0.10	**0.91** =	0.091	**0.40** =	0.040	**2.6** =	0.26
1,2,3,6,7,8-HEXACHLORODIBENZO-P-DIOXIN	PG/G	159	PRG-IND	0.10	**1.9** =	0.19	1.5 U		**2.8** =	0.28
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	PG/G	159	PRG-IND	0.10	0.39 U		0.39 U		0.38 U	
1,2,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	PG/G	159	PRG-IND	0.10	**1.6** =	0.16	1.4 U		**1.6** =	0.16
1,2,3,7,8-PENTACHLORODIBENZOFURAN	PG/G	318	PRG-IND	0.050	0.95 U		0.95 U		0.93 U	
1,2,3,7,8-PENTACHLORODIBENZO-p-DIOXIN	PG/G	16	PRG-IND	1.0	0.49 U		0.49 U		0.48 U	
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	PG/G	159	PRG-IND	0.10	**1.1** =	0.11	**0.34** =	0.034	**1.8** =	0.18
2,3,4,7,8-PENTACHLORODIBENZOFURAN	PG/G	32	PRG-IND	0.50	1.0 U		**0.63** =	0.32	**2.0** =	1.0
2,3,7,8-TETRACHLORODIBENZOFURAN	PG/G	159	PRG-IND	0.10	**0.66** =	0.066	**0.76** =	0.076	**2.3** =	0.23
2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN	PG/G	16	PRG-IND	1.0	0.70 U		0.70 U		0.69 U	
HEPTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	--	PRG-IND	--	**78** =		**8.5** =		**73** =	
HEPTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	--	PRG-IND	--	**322** =		**5.8** =		**147** =	
HEXACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	--	PRG-IND	--	**77** =		**14** =		**80** =	
HEXACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	--	PRG-IND	--	**30** =		**0.39** =		**14** =	
OCTACHLORODIBENZOFURAN	PG/G	159,223	PRG-IND	1.00E-04	**65** =	0.0065	**8.5** =	8.50E-04	**70** =	0.0070
OCTACHLORODIBENZO-p-DIOXIN	PG/G	159,223	PRG-IND	1.00E-04	**423** =	0.042	**17** =	0.0017	**467** =	0.047
PENTACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	--	PRG-IND	--	**146** =		**45** =		**87** =	
PENTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	--	PRG-IND	--	0.49 U		0.49 U		**0.74** =	
TETRACHLORINATED DIBENZOFURANS, (TOTAL)	PG/G	--	PRG-IND	--	**128** =		**21** =		**88** =	
TETRACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	PG/G	--	PRG-IND	--	**0.72** =		**0.60** =		**0.76** =	
Total TCDD (TEQ)	PG/G	16	PRG-IND		**1.8** =		**0.79** =		**4.4** =	

Appendix B
Armored Vehicle Maintenance Area
Analytical Data Summary Tables

Appendix B: Armored Vehicle Maintenance Area Analytical Data Summary Tables

Appendix B consists of 66 tables that summarize the analytical data obtained during the Fort Richardson Operable Unit E (OUE) Remedial Investigation (RI) for the Armored Vehicle Maintenance Area (AVMA). A description of the terms used in the tables is provided following the list of tables.

Analytical Data Tables for the AVMA

Area	Table
Trench 1 Soil Samples	B-1: Metals B-2: PCBs B-3: Pesticides B-4: SVOCs B-5: TPHs B-6: VOCs
Trench 2 Soil Samples	B-7: Metals B-8: PCBs B-9: Pesticides B-10: SVOCs B-11: TPHs B-12: VOCs
Trench 3 Soil Samples	B-13: Metals B-14: PCBs B-15: Pesticides B-16: SVOCs B-17: TPHs B-18: VOCs
Trench 4 Soil Samples	B-19: Metals B-20: PCBs B-21: Pesticides B-22: SVOCs B-23: TPHs B-24: VOCs

Area	Table
Trench 5 Soil Samples	B-25: Metals B-26: PCBs B-27: Pesticides B-28: SVOCs B-29: TPHs B-30: VOCs
Trench 6 Soil Samples	B-31: Metals B-32: PCBs B-33: Pesticides B-34: SVOCs B-35: TPHs B-36: VOCs
Trench 7 Soil Samples	B-37: Metals B-38: PCBs B-39: Pesticides B-40: SVOCs B-41: TPHs B-42: VOCs
Trench 8 Soil Samples	B-43: Metals B-44: PCBs B-45: Pesticides B-46: SVOCs B-47: TPHs B-48: VOCs
Trench 9 Soil Samples	B-49: Metals B-50: PCBs B-51: Pesticides B-52: SVOCs B-53: TPHs B-54: VOCs

Area	Table
Monitoring Well Borings Soil Samples	B-55: BTEX and TPHs B-56: Metals B-57: PAHs B-58: SVOCs B-59: VOCs
AVMA Groundwater Samples	B-60: BTEX and TPHs B-61: Metals B-62: Dissolved Metals B-63: PAHs B-64: Pesticides B-65: SVOCs B-66: VOCs

Concentration Qualifiers, Lab Flags, Validation Flags, and Other Lab Terms

Term	Description
=	A concentration qualifier that means the analyte was detected above the RL and should not appear in the final flag. There would be no flag for these analytes if there were no QC exceedances.
B	The analyte was identified in a blank.
Boldfaced numbers	Analytes that were detected.
GC	Laboratory flags. The G means the RL was elevated due to matrix interference. C is normally a lab flag for GC/MS that means the presence of the compound was confirmed by GC/MS.
GQ	Laboratory flags. The G means the RL was elevated due to matrix interference and the Q means the RL was elevated due to high analyte concentration.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result was estimated with a high bias.
JB	The analyte was not detected above the reported sample quantitation limit and the analyte was detected in a blank.
MDL	Method detection limit. The lowest concentration of an analyte that, when processed through an entire analytical method (including prep and equip), produces a signal/response that is statistically distinct from the signal/response arising from lab reagent blanks (zero values).
QC	Quality check
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.
RL	Reporting limit. The limit above which a laboratory feels confident in reporting its results. This limit is the level where the laboratory believes results are not subject to laboratory-induced contamination or other sources of bias.
Shading/ Highlighting	The concentration detected exceeded the screening level for that chemical.
U	The analyte was analyzed for and there was an instrument response, but the analyte was not detected above the reported sample quantitation limit.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
UR	Analytes that were non-detect and were rejected and flagged R.

Other Abbreviations

Acronym	Terms
ADEC	Alaska Department of Environmental Conservation
AK GW Quality Standards	Alaska Water Quality Standards values for groundwater (ADEC, 1997) in UG/L for TPH concentrations
AK UST Standards	Alaska Underground Storage Tank values for soil (ADEC, 1999) in mg/kg for TPH concentrations
BTEX	benzene, toluene, ethylbenzene, and xylenes
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
Depth	Measured in feet below ground surface
DISS	dissolved
EPA	U.S. Environmental Protection Agency
FD	Field duplicate QAQC type
ID	Identifier
MG/KG	milligrams per kilogram
N	Not a QAQC type
OUE	Operable Unit E
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PRG	Preliminary Remediation Goal
PRG-IND	EPA Region 9 Industrial Preliminary Remediation Goal (PRG) values for soil and groundwater (EPA, 2002)
PRG-Tap Water	EPA Region 9 Tap Water PRG values for groundwater (EPA, 2002) in micrograms per liter (UG/L) for all but TPH concentrations
QAQC Type	Quality Assurance/Quality Control Type
SVOC	semivolatile organic compound
TPH	total petroleum hydrocarbon
UG/L	micrograms per liter
UST	underground storage tank
VOC	volatile organic compound

TABLE B-01

Criteria Evaluation - Soil - AVMA Trench T1 METAL

OUE Fort Richardson

Location ID:				**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**
Sample ID:				02AVMA01SL	02AVMA02SL	02AVMA03SL	02AVMA04SL	02AVMA05SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	3.5	8	16	21
Date Sampled:				07/22/02	07/22/02	07/22/02	07/22/02	07/22/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
ALUMINUM	MG/KG	PRG-IND	100,000	**22,000 =**	**17,000 =**	**17,000 =**	**42,000 =**	**18,000 =**
ANTIMONY	MG/KG	PRG-IND	409	**0.30 J**	**0.37 JB**	**0.90 JB**	**0.41 J**	**0.12 J**
ARSENIC	MG/KG	PRG-IND	1.6	1.2 U	1.0 U	**3.1 J**	**17 =**	**1.9 J**
BARIUM	MG/KG	PRG-IND	66,577	**120 =**	**57 =**	**71 =**	**240 =**	**67 =**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.41 =**	**0.33 =**	**0.32 =**	**1.0 =**	**0.39 =**
CADMIUM	MG/KG	PRG-IND	451	**0.94 =**	**0.91 =**	**0.92 =**	**2.0 =**	**0.92 =**
CALCIUM	MG/KG	PRG-IND	--	**4,800 =**	**9,200 =**	**8,700 =**	**9,500 =**	**5,500 =**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**34 =**	**26 =**	**28 =**	**78 =**	**41 =**
COBALT	MG/KG	PRG-IND	1,921	**12 =**	**12 =**	**9.7 =**	**43 =**	**13 =**
COPPER	MG/KG	PRG-IND	40,877	**25 =**	**23 =**	**25 =**	**120 =**	**37 =**
IRON	MG/KG	PRG-IND	100,000	**37,000 =**	**32,000 =**	**28,000 =**	**71,000 =**	**36,000 =**
LEAD	MG/KG	PRG-IND	750	**7.0 =**	**43 =**	**50 =**	**19 =**	**3.4 =**
MAGNESIUM	MG/KG	PRG-IND	--	**6,800 =**	**10,000 =**	**6,900 =**	**17,000 =**	**11,000 =**
MANGANESE	MG/KG	PRG-IND	19,458	**550 =**	**540 =**	**490 =**	**2,600 =**	**660 =**
MERCURY	MG/KG	PRG-IND	307	**0.090 B**	**0.060 B**	**0.098 B**	**0.33 B**	**0.068 B**
NICKEL	MG/KG	PRG-IND	20,439	**31 =**	**36 =**	**30 =**	**130 =**	**43 =**
POTASSIUM	MG/KG	PRG-IND	--	**990 =**	**810 =**	**640 =**	**2,600 =**	**1,100 =**
SELENIUM	MG/KG	PRG-IND	5,110	**11 B**	**6.2 JB**	**6.9 B**	**12 B**	**5.4 B**
SILVER	MG/KG	PRG-IND	5,110	0.47 U	0.40 U	0.26 U	0.35 U	0.19 U
SODIUM	MG/KG	PRG-IND	--	**310 =**	**140 J**	**140 J**	**290 =**	**120 =**
THALLIUM	MG/KG	PRG-IND	67	0.061 U	0.056 U	0.058 U	**0.094 J,GQ**	0.064 U
VANADIUM	MG/KG	PRG-IND	7,154	**78 =**	**65 =**	**55 =**	**120 =**	**57 =**
ZINC	MG/KG	PRG-IND	100,000	**64 =**	**83 =**	**90 =**	**140 =**	**61 =**

TABLE B-02
Criteria Evaluation - Soil - AVMA Trench T1 PCB
OUE Fort Richardson

Location ID:				**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**
Sample ID:				02AVMA01SL	02AVMA02SL	02AVMA03SL	02AVMA04SL	02AVMA05SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	3.5	8	16	21
Date Sampled:				07/22/02	07/22/02	07/22/02	07/22/02	07/22/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
PCB-1016 (AROCLOR 1016)	MG/KG	PRG-IND	21	0.0031 U	0.0027 U	0.0029 U	0.0038 U	0.0031 U
PCB-1221 (AROCLOR 1221)	MG/KG	PRG-IND	0.74	0.0031 U	0.0027 U	0.0029 U	0.0038 U	0.0031 U
PCB-1232 (AROCLOR 1232)	MG/KG	PRG-IND	0.74	0.0031 U	0.0027 U	0.0029 U	0.0038 U	0.0031 U
PCB-1242 (AROCLOR 1242)	MG/KG	PRG-IND	0.74	0.0031 U	0.0027 U	0.0029 U	0.0038 U	0.0031 U
PCB-1248 (AROCLOR 1248)	MG/KG	PRG-IND	0.74	0.0031 U	0.0027 U	0.0029 U	0.0038 U	0.0031 U
PCB-1254 (AROCLOR 1254)	MG/KG	PRG-IND	0.74	0.0031 U	0.0027 U	0.0029 U	0.0038 U	0.0031 U
PCB-1260 (AROCLOR 1260)	MG/KG	PRG-IND	0.74	0.0028 U	0.0025 U	0.0026 U	0.0034 U	0.0028 U

TABLE B-03

Criteria Evaluation - Soil - AVMA Trench T1 PESTICIDE

OUE Fort Richardson

Location ID:				**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**
Sample ID:				02AVMA01SL	02AVMA02SL	02AVMA03SL	02AVMA04SL	02AVMA05SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	3.5	8	16	21
Date Sampled:				07/22/02	07/22/02	07/22/02	07/22/02	07/22/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
ALDRIN	MG/KG	PRG-IND	0.10	4.10E-04 U	3.70E-04 U	3.90E-04 U	5.10E-04 U	4.10E-04 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	0.36	**8.60E-04 J**	**0.0010 J**	**7.10E-04 J**	**5.20E-04 J**	**4.60E-04 J**
ALPHA ENDOSULFAN	MG/KG	PRG-IND	3,694	2.60E-04 U	2.30E-04 U	2.40E-04 U	3.20E-04 U	2.60E-04 U
ALPHA-CHLORDANE	MG/KG	PRG-IND	6.5	3.30E-04 U	**4.30E-04 J**	**0.0054 =**	4.10E-04 U	3.30E-04 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	1.3	6.10E-04 U	**0.0023 J**	**0.0015 J**	7.50E-04 U	**6.80E-04 J**
BETA ENDOSULFAN	MG/KG	PRG-IND	3,694	4.00E-04 U	3.60E-04 U	3.80E-04 U	5.00E-04 U	4.10E-04 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	--	5.00E-04 U	4.40E-04 U	4.60E-04 U	6.20E-04 U	5.00E-04 U
DIELDRIN	MG/KG	PRG-IND	0.11	3.00E-04 U	**6.60E-04 J**	**0.0011 J**	3.80E-04 U	3.00E-04 U
ENDOSULFAN SULFATE	MG/KG	PRG-IND	--	2.20E-04 U	**4.20E-04 J**	**3.00E-04 J**	2.70E-04 U	2.20E-04 U
ENDRIN	MG/KG	PRG-IND	185	6.80E-04 U	**0.0019 J**	6.30E-04 U	8.40E-04 U	6.80E-04 U
ENDRIN ALDEHYDE	MG/KG	PRG-IND	--	0.0011 U	9.40E-04 U	9.90E-04 U	0.0013 U	0.0011 U
ENDRIN KETONE	MG/KG	PRG-IND	--	2.60E-04 U	**3.90E-04 J**	2.40E-04 U	3.20E-04 U	2.60E-04 U
GAMMA BHC (LINDANE)	MG/KG	PRG-IND	1.7	7.90E-04 U	7.10E-04 U	7.40E-04 U	9.80E-04 U	7.90E-04 U
GAMMA-CHLORDANE	MG/KG	PRG-IND	6.5	5.20E-04 U	4.70E-04 U	**0.0057 =**	6.50E-04 U	5.30E-04 U
HEPTACHLOR	MG/KG	PRG-IND	0.38	0.0012 U	0.0011 U	**0.0023 J**	0.0015 U	0.0012 U
HEPTACHLOR EPOXIDE	MG/KG	PRG-IND	0.19	6.80E-04 U	6.10E-04 U	**0.0014 J**	8.40E-04 U	6.80E-04 U
METHOXYCHLOR	MG/KG	PRG-IND	3,078	0.0015 U	**0.0063 J**	0.0014 U	0.0018 U	0.0015 U
p,p'-DDD	MG/KG	PRG-IND	10.0	**0.0040 =**	**0.010 =**	**0.016 =**	**0.0010 J**	**8.40E-04 J**
p,p'-DDE	MG/KG	PRG-IND	7.0	**0.0013 J**	**0.0066 =**	**0.013 =**	3.40E-04 U	2.80E-04 U
p,p'-DDT	MG/KG	PRG-IND	7.0	**0.013 =**	**0.031 =**	**0.023 =**	**0.0028 J**	3.40E-04 U
TOXAPHENE	MG/KG	PRG-IND	1.6	0.0057 U	0.0051 U	0.0053 U	0.0071 U	0.0057 U

TABLE B-04

Criteria Evaluation - Soil - AVMA Trench T1 SVOC

OUE Fort Richardson

Location ID:				**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**
Sample ID:				02AVMA01SL	02AVMA02SL	02AVMA03SL	02AVMA04SL	02AVMA05SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	3.5	8	16	21
Date Sampled:				07/22/02	07/22/02	07/22/02	07/22/02	07/22/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.069 U	0.061 U	0.064 U	0.085 U	0.069 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.077 U	0.069 U	0.072 U	0.096 U	0.078 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.072 U	0.065 U	0.067 U	0.090 U	0.073 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.033 U	0.030 U	0.031 U	0.041 U	0.033 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.032 U	0.029 U	0.030 U	0.040 U	0.033 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.038 U	0.034 U	0.036 U	0.048 U	0.038 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.042 U	0.038 U	0.039 U	0.052 U	0.042 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.25 UJ	0.22 UJ	0.23 UJ	0.31 UJ	0.25 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.040 U	0.036 U	0.037 U	0.050 U	0.040 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.029 U	0.026 U	0.027 U	0.036 U	0.029 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.042 U	0.037 U	0.039 U	0.052 U	0.042 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.065 U	0.058 U	0.060 U	0.080 U	0.065 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	**0.28 =**	**0.083 J**	0.048 U	0.063 U	0.051 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.054 U	0.048 U	0.050 U	0.066 U	0.054 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.034 U	0.030 U	0.032 U	0.042 U	0.034 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.045 U	0.040 U	0.042 U	0.056 U	0.045 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.091 U	0.081 U	0.084 U	0.11 U	0.091 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.064 U	0.057 U	0.060 U	0.080 U	0.064 U
3-NITROANILINE	MG/KG	PRG-IND	--	0.040 U	0.036 U	0.037 U	0.050 U	0.040 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.024 U	0.021 U	0.022 U	0.030 U	0.024 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.040 U	0.036 U	0.037 U	0.050 U	0.040 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.040 U	0.036 U	0.037 U	0.050 U	0.040 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.099 U	0.088 U	0.092 U	0.12 U	0.099 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.035 U	0.031 U	0.033 U	0.044 U	0.035 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.043 U	0.038 U	0.040 U	0.053 U	0.043 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.025 U	0.022 U	0.023 U	0.030 U	0.025 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	**1.2 =**	0.040 U	0.042 U	0.056 U	0.045 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.042 U	0.037 U	0.039 U	0.052 U	0.042 U
ANTHRACENE	MG/KG	PRG-IND	100,000	**1.1 =**	**0.047 J**	0.038 U	0.051 U	0.041 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	**1.2 =**	**0.081 J**	0.038 U	0.051 U	0.041 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	**1.1 =**	**0.069 J**	0.031 U	0.042 U	0.034 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	**1.1 =**	**0.049 J**	0.028 U	0.037 U	0.030 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	**0.47 =**	**0.047 J**	0.041 U	0.055 U	0.044 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	**0.45 =**	0.034 U	0.036 U	0.048 U	0.039 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.50 UR	0.44 UR	0.46 UR	0.62 UR	0.50 UR

TABLE B-04

Criteria Evaluation - Soil - AVMA Trench T1 SVOC

OUE Fort Richardson

Location ID:				AVMAT1	AVMAT1	AVMAT1	AVMAT1	AVMAT1
Sample ID:				02AVMA01SL	02AVMA02SL	02AVMA03SL	02AVMA04SL	02AVMA05SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	3.5	8	16	21
Date Sampled:				07/22/02	07/22/02	07/22/02	07/22/02	07/22/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.054 UJ	0.048 UJ	0.051 UJ	0.067 UJ	0.055 UJ
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.034 U	0.030 U	0.032 U	0.042 U	0.034 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.073 U	0.065 U	0.068 U	0.091 U	0.073 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.076 U	0.068 U	0.071 U	0.094 U	0.076 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.083 U	0.074 U	0.078 U	0.10 U	0.084 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.048 J**	**0.079 J**	0.036 U	0.047 U	0.038 U
CHRYSENE	MG/KG	PRG-IND	211	**1.3 =**	**0.092 J**	0.038 U	0.051 U	0.041 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	**0.18 J**	0.041 U	0.043 U	0.057 U	0.046 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	**0.77 =**	0.037 U	0.038 U	0.051 U	0.041 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.041 U	0.037 U	0.038 U	0.051 U	0.041 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.041 U	0.037 U	0.038 U	0.051 U	0.041 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.063 JB**	**0.075 JB**	0.045 U	**0.47 B**	**0.39 =**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.037 U	0.033 U	0.034 U	0.045 U	0.037 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	**2.1 =**	**0.11 J**	0.043 U	0.057 U	0.046 U
FLUORENE	MG/KG	PRG-IND	26,281	**1.1 =**	**0.060 J**	0.038 U	0.051 U	0.041 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.041 U	0.037 U	0.038 U	0.051 U	0.041 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.077 U	0.069 U	0.072 U	0.095 U	0.077 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.014 U	0.013 U	0.013 U	0.018 U	0.014 U
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.067 U	0.060 U	0.063 U	0.083 U	0.067 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	**0.53 =**	0.033 U	0.035 U	0.046 U	0.037 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.049 U	0.043 U	0.045 U	0.060 U	0.049 U
NAPHTHALENE	MG/KG	PRG-IND	188	**0.36 =**	**0.064 J**	0.018 U	0.024 U	0.019 U
NITROBENZENE	MG/KG	PRG-IND	103	0.066 U	0.059 U	0.061 U	0.082 U	0.066 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.060 U	0.053 U	0.056 U	0.074 U	0.060 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.097 U	0.087 U	0.091 U	0.12 U	0.098 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.028 U	0.025 U	0.026 U	0.035 U	0.028 U
PHENANTHRENE	MG/KG	PRG-IND	--	**4.2 =**	**0.34 =**	0.038 U	0.051 U	0.041 U
PHENOL	MG/KG	PRG-IND	100,000	0.039 U	0.034 U	0.036 U	0.048 U	0.039 U
PYRENE	MG/KG	PRG-IND	29,126	**3.1 =**	**0.24 =**	0.036 U	0.048 U	0.039 U

TABLE B-05
Criteria Evaluation - Soil - AVMA Trench T1 TPH
OUE Fort Richardson

Location ID:				**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**
Sample ID:				02AVMA01SL	02AVMA02SL	02AVMA03SL	02AVMA04SL	02AVMA05SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	3.5	8	16	21
Date Sampled:				07/22/02	07/22/02	07/22/02	07/22/02	07/22/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**20 =**	**52 =**	**52 =**	**5.4 J**	**1.4 J**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	0.40 U	**0.33 J**	**0.56 J**	0.83 U	0.29 U

TABLE B-06

Criteria Evaluation - Soil - AVMA Trench T1 VOC

OUE Fort Richardson

Location ID:				**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**
Sample ID:				02AVMA01SL	02AVMA02SL	02AVMA03SL	02AVMA04SL	02AVMA05SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	3.5	8	16	21
Date Sampled:				07/22/02	07/22/02	07/22/02	07/22/02	07/22/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0074 U	0.0032 U	0.0037 U	0.0085 U	0.0042 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0074 U	0.0032 U	0.0037 U	0.0085 U	0.0042 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0071 U	0.0030 U	0.0035 U	0.0081 U	0.0040 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.012 U	0.0052 U	0.0061 U	0.014 U	0.0069 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.014 U	0.0060 U	0.0071 U	0.016 U	0.0080 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0087 U	0.0037 U	0.0043 U	0.010 U	0.0049 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.011 U	0.0048 U	0.0056 U	0.013 U	0.0064 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0061 U	0.0026 U	0.0031 U	0.0070 U	0.0035 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0051 U	0.0022 U	0.0026 U	0.0059 U	0.0029 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.016 U	0.0069 U	0.0081 U	0.018 U	0.0091 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0039 U	0.0016 U	0.0019 U	0.0044 U	0.0022 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0048 U	**0.019 =**	0.0024 U	0.0055 U	0.0027 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.039 U	0.016 U	0.019 U	0.044 U	0.022 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0055 U	0.0023 U	0.0027 U	0.0063 U	0.0031 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0068 U	0.0029 U	0.0034 U	0.0078 U	0.0038 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.012 U	0.0051 U	0.0060 U	0.014 U	0.0067 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.011 U	0.0048 U	0.0056 U	0.013 U	0.0064 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0074 U	**0.0079 J**	0.0037 U	0.0085 U	0.0042 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0071 U	0.0030 U	0.0035 U	0.0081 U	0.0040 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0042 U	0.0018 U	0.0021 U	0.0048 U	0.0024 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0090 U	0.0038 U	0.0045 U	0.010 U	0.0051 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0090 U	0.0038 U	0.0045 U	0.010 U	0.0051 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0077 U	0.0033 U	0.0039 U	0.0089 U	0.0044 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0035 U	0.0015 U	0.0018 U	0.0041 U	0.0020 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0055 U	0.0023 U	0.0027 U	0.0063 U	0.0031 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0080 U	0.0034 U	0.0040 U	0.0092 U	0.0045 U
ACETONE	MG/KG	PRG-IND	6,036	**0.14 JB**	**0.069 JB**	**0.13 JB**	**0.27 JB**	**0.056 JB**
ACRYLONITRILE	MG/KG	PRG-IND	--	0.011 U	0.0045 U	0.0053 U	0.012 U	0.0060 U
BENZENE	MG/KG	PRG-IND	1.3	0.0058 U	0.0025 U	0.0029 U	0.0067 U	0.0033 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.011 U	0.0047 U	0.0055 U	0.013 U	0.0062 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.011 U	0.0047 U	0.0055 U	0.013 U	0.0062 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0074 U	0.0032 U	0.0037 U	0.0085 U	0.0042 U
BROMOFORM	MG/KG	PRG-IND	218	0.010 U	0.0044 U	0.0052 U	0.012 U	0.0058 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.024 U	0.010 U	0.012 U	0.028 U	0.014 U
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0042 U	0.0018 U	0.0021 U	0.0048 U	0.0024 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0055 U	0.0023 U	0.0027 U	0.0063 U	0.0031 U

TABLE B-06

Criteria Evaluation - Soil - AVMA Trench T1 VOC

OUE Fort Richardson

Location ID:				**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**	**AVMAT1**
Sample ID:				02AVMA01SL	02AVMA02SL	02AVMA03SL	02AVMA04SL	02AVMA05SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	3.5	8	16	21
Date Sampled:				07/22/02	07/22/02	07/22/02	07/22/02	07/22/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0035 U	0.0015 U	0.0018 U	0.0041 U	0.0020 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.012 U	0.0049 U	0.0058 U	0.013 U	0.0065 U
CHLOROFORM	MG/KG	PRG-IND	12	0.0080 U	0.0034 U	0.0040 U	0.0092 U	0.0045 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0093 U	0.0040 U	0.0047 U	0.011 U	0.0053 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0080 U	0.0034 U	0.0040 U	0.0092 U	0.0045 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0024 U	0.0010 U	0.0012 U	0.0028 U	0.0014 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.010 U	0.0044 U	0.0052 U	0.012 U	0.0058 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0068 U	0.0029 U	0.0034 U	0.0078 U	0.0038 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.019 U	0.0081 U	0.0095 U	0.022 U	0.011 U
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0061 U	**0.0082 =**	0.0031 U	0.0070 U	0.0035 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.013 U	0.0056 U	0.0066 U	0.015 U	0.0074 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.014 U	0.0058 U	0.0068 U	0.016 U	0.0076 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	0.0026 U	0.0011 U	0.0013 U	0.0030 U	0.0015 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	0.016 U	0.0070 U	0.0082 U	0.019 U	0.0093 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0048 U	0.0021 U	0.0024 U	0.0055 U	0.0027 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.20 B**	**0.13 B**	**0.041 JB**	**0.11 JB**	**0.073 B**
NAPHTHALENE	MG/KG	PRG-IND	188	**0.026 B**	**0.83 =**	**0.19 B**	**0.075 B**	0.0018 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0031 U	0.0013 U	0.0015 U	0.0035 U	0.0017 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0051 U	0.0022 U	0.0026 U	0.0059 U	0.0029 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0090 U	**0.010 J**	0.0045 U	0.010 U	0.0051 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0035 U	0.0015 U	**0.0092 =**	0.0041 U	0.0020 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0030 U	0.0013 U	0.0015 U	0.0034 U	0.0017 U
STYRENE	MG/KG	PRG-IND	1,700	0.0051 U	**0.011 =**	0.0026 U	0.0059 U	0.0029 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0074 U	0.0032 U	0.0037 U	0.0085 U	0.0042 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0039 U	0.0016 U	0.0019 U	0.0044 U	0.0022 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0039 U	0.0016 U	0.0019 U	0.0044 U	0.0022 U
TOLUENE	MG/KG	PRG-IND	520	0.0080 U	**0.015 =**	0.0040 U	0.0092 U	0.0045 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.012 U	0.0051 U	0.0060 U	0.014 U	0.0067 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0064 U	0.0027 U	0.0032 U	0.0074 U	0.0036 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.020 U	0.0086 U	0.010 U	0.023 U	0.011 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0084 U	0.0036 U	0.0042 U	0.0096 U	0.0047 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.011 U	0.0047 U	0.0055 U	0.013 U	0.0062 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0068 UJ	0.0029 UJ	0.0034 UJ	0.0078 UJ	0.0038 UJ
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.010 U	0.0042 U	0.0050 U	0.011 U	0.0056 U
XYLENES, m & p	MG/KG	PRG-IND	420	**0.018 =**	**0.018 =**	0.0024 U	0.0055 U	0.0027 U

TABLE B-07

Criteria Evaluation - Soil - AVMA Trench T2 METAL

OUE Fort Richardson

Location ID:				**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**
Sample ID:				02AVMA06SL	02AVMA07SL	02AVMA08SL	02AVMA09SL	02AVMA11SL	02AVMA12SL
QAQC Type:				N	N	N	FD	N	N
Depth:				0.5	4	13	13	8	20
Date Sampled:				07/22/02	07/22/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALUMINUM	MG/KG	PRG-IND	100,000	**20,000 =**	**22,000 =**	**45,000 =**	**40,000 =**	**22,000 =**	**16,000 =**
ANTIMONY	MG/KG	PRG-IND	409	**0.57 JB**	**0.36 J**	**0.17 JB**	**0.31 JB**	**0.21 JB**	**0.18 JB**
ARSENIC	MG/KG	PRG-IND	1.6	1.1 U	**4.4 J**	**25 =**	**22 =**	**3.3 J**	**2.1 J**
BARIUM	MG/KG	PRG-IND	66,577	**90 =**	**97 =**	**250 =**	**230 =**	**160 =**	**94 =**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.40 =**	**0.40 =**	**1.1 =**	**1.0 =**	**0.35 =**	**0.32 =**
CADMIUM	MG/KG	PRG-IND	451	**0.98 =**	**0.88 =**	**2.0 =**	**2.0 =**	**0.71 =**	**0.75 =**
CALCIUM	MG/KG	PRG-IND	--	**6,000 =**	**5,200 =**	**9,800 =**	**10,000 =**	**4,100 =**	**6,300 =**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**38 =**	**36 =**	**84 =**	**76 =**	**26 =**	**34 =**
COBALT	MG/KG	PRG-IND	1,921	**12 =**	**12 =**	**46 =**	**46 =**	**7.6 =**	**9.7 =**
COPPER	MG/KG	PRG-IND	40,877	**29 =**	**25 =**	**120 J**	**130 J**	**18 J**	**26 J**
IRON	MG/KG	PRG-IND	100,000	**34,000 =**	**34,000 =**	**83,000 =**	**77,000 =**	**27,000 =**	**28,000 =**
LEAD	MG/KG	PRG-IND	750	**36 =**	**13 =**	**20 =**	**21 =**	**7.2 =**	**5.9 =**
MAGNESIUM	MG/KG	PRG-IND	--	**8,900 =**	**7,900 =**	**18,000 =**	**19,000 =**	**3,400 =**	**8,700 =**
MANGANESE	MG/KG	PRG-IND	19,458	**580 =**	**540 =**	**1,700 =**	**2,100 =**	**340 =**	**700 =**
MERCURY	MG/KG	PRG-IND	307	**0.064 B**	**0.042 JB**	**0.22 =**	**0.28 =**	**0.042 J**	**0.051 =**
NICKEL	MG/KG	PRG-IND	20,439	**35 =**	**35 =**	**140 =**	**130 =**	**16 =**	**31 =**
POTASSIUM	MG/KG	PRG-IND	--	**960 =**	**700 =**	**2,700 =**	**2,700 =**	**630 =**	**1,400 =**
SELENIUM	MG/KG	PRG-IND	5,110	**7.2 JB**	**6.6 JB**	**11 B**	**7.7 B**	**5.4 JB**	**4.4 JB**
SILVER	MG/KG	PRG-IND	5,110	0.44 U	0.40 U	0.34 U	0.30 U	0.38 U	0.29 U
SODIUM	MG/KG	PRG-IND	--	**250 J**	**150 J**	**270 =**	**300 =**	**310 =**	**290 =**
THALLIUM	MG/KG	PRG-IND	67	0.053 U	0.063 U	0.083 U	**0.074 J,GQ**	0.080 U	0.055 U
VANADIUM	MG/KG	PRG-IND	7,154	**69 =**	**69 =**	**120 J**	**110 J**	**75 J**	**53 J**
ZINC	MG/KG	PRG-IND	100,000	**73 =**	**63 =**	**140 J**	**160 J**	**52 J**	**53 J**

TABLE B-08

Criteria Evaluation - Soil - AVMA Trench T2 PCB

OUE Fort Richardson

Location ID:				**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**
Sample ID:				02AVMA06SL	02AVMA07SL	02AVMA08SL	02AVMA09SL	02AVMA11SL	02AVMA12SL
QAQC Type:				N	N	N	FD	N	N
Depth:				0.5	4	13	13	8	20
Date Sampled:				07/22/02	07/22/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
PCB-1016 (AROCHLOR 1016)	MG/KG	PRG-IND	21	0.0028 U	0.0032 U	0.0041 U	0.0040 U	0.0045 U	0.0029 U
PCB-1221 (AROCHLOR 1221)	MG/KG	PRG-IND	0.74	0.0028 U	0.0032 U	0.0041 U	0.0040 U	0.0045 U	0.0029 U
PCB-1232 (AROCHLOR 1232)	MG/KG	PRG-IND	0.74	0.0028 U	0.0032 U	0.0041 U	0.0040 U	0.0045 U	0.0029 U
PCB-1242 (AROCHLOR 1242)	MG/KG	PRG-IND	0.74	0.0028 U	0.0032 U	0.0041 U	0.0040 U	0.0045 U	0.0029 U
PCB-1248 (AROCHLOR 1248)	MG/KG	PRG-IND	0.74	0.0028 U	0.0032 U	0.0041 U	0.0040 U	0.0045 U	0.0029 U
PCB-1254 (AROCHLOR 1254)	MG/KG	PRG-IND	0.74	0.0028 U	0.0032 U	0.0041 U	0.0040 U	0.0045 U	0.0029 U
PCB-1260 (AROCHLOR 1260)	MG/KG	PRG-IND	0.74	0.0025 U	0.0029 U	0.0037 U	0.0036 U	0.0040 U	0.0026 U

TABLE B-09
Criteria Evaluation - Soil - AVMA Trench T2 PESTICIDE
OUE Fort Richardson

Location ID:				**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**
Sample ID:				02AVMA06SL	02AVMA07SL	02AVMA08SL	02AVMA09SL	02AVMA11SL	02AVMA12SL
QAQC Type:				N	N	N	FD	N	N
Depth:				0.5	4	13	13	8	20
Date Sampled:				07/22/02	07/22/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALDRIN	MG/KG	PRG-IND	0.10	3.80E-04 U	4.40E-04 U	5.60E-04 U	5.40E-04 U	6.00E-04 U	3.90E-04 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	0.36	2.80E-04 U	**5.40E-04 J**	**4.10E-04 J**	3.90E-04 UJ	4.40E-04 UJ	**4.10E-04 J**
ALPHA ENDOSULFAN	MG/KG	PRG-IND	3,694	2.30E-04 U	2.70E-04 U	3.50E-04 U	3.30E-04 U	3.70E-04 U	2.40E-04 U
ALPHA-CHLORDANE	MG/KG	PRG-IND	6.5	**4.00E-04 J**	**0.0012 J**	4.40E-04 U	4.30E-04 U	4.80E-04 U	3.10E-04 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	1.3	**7.70E-04 J**	**0.0012 J**	8.20E-04 U	7.90E-04 U	8.80E-04 U	5.70E-04 U
BETA ENDOSULFAN	MG/KG	PRG-IND	3,694	3.70E-04 U	4.30E-04 U	5.40E-04 U	5.20E-04 U	5.90E-04 U	3.80E-04 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	--	4.50E-04 U	5.20E-04 U	6.70E-04 UJ	6.40E-04 UJ	7.20E-04 UJ	4.70E-04 UJ
DIELDRIN	MG/KG	PRG-IND	0.11	2.80E-04 U	**0.0021 J**	4.10E-04 U	3.90E-04 U	4.40E-04 U	2.80E-04 U
ENDOSULFAN SULFATE	MG/KG	PRG-IND	--	2.00E-04 U	**6.00E-04 J**	3.00E-04 UJ	2.90E-04 UJ	3.20E-04 UJ	2.10E-04 UJ
ENDRIN	MG/KG	PRG-IND	185	6.20E-04 U	**0.0012 J**	9.10E-04 U	**0.0010 J**	**0.0013 J**	6.40E-04 U
ENDRIN ALDEHYDE	MG/KG	PRG-IND	--	9.60E-04 U	0.0011 U	**0.0025 J**	**0.0030 J**	0.0015 U	9.90E-04 U
ENDRIN KETONE	MG/KG	PRG-IND	--	**3.20E-04 J**	2.70E-04 U	3.50E-04 U	3.30E-04 U	3.70E-04 U	2.40E-04 U
GAMMA BHC (LINDANE)	MG/KG	PRG-IND	1.7	7.20E-04 U	8.30E-04 U	0.0011 U	0.0010 U	0.0012 U	7.40E-04 U
GAMMA-CHLORDANE	MG/KG	PRG-IND	6.5	4.80E-04 U	5.50E-04 U	7.00E-04 U	6.80E-04 U	7.60E-04 U	4.90E-04 U
HEPTACHLOR	MG/KG	PRG-IND	0.38	0.0011 U	0.0013 U	0.0016 U	0.0016 U	0.0018 U	0.0011 U
HEPTACHLOR EPOXIDE	MG/KG	PRG-IND	0.19	6.20E-04 U	7.20E-04 U	9.10E-04 U	8.80E-04 U	9.90E-04 U	6.40E-04 U
METHOXYCHLOR	MG/KG	PRG-IND	3,078	**0.0025 J**	**0.0036 J**	0.0020 U	0.0019 U	**0.0029 J**	0.0014 U
p,p'-DDD	MG/KG	PRG-IND	10.0	**0.0082 =**	**0.015 =**	**0.0015 J**	6.10E-04 U	**0.023 =**	**0.0018 J**
p,p'-DDE	MG/KG	PRG-IND	7.0	**0.0071 =**	**0.0030 =**	**4.10E-04 J**	**4.40E-04 J**	**0.0058 =**	**3.70E-04 J**
p,p'-DDT	MG/KG	PRG-IND	7.0	**0.014 =**	**0.064 =**	**0.0053 =**	**0.0065 =**	**0.015 =**	**0.0016 J**
TOXAPHENE	MG/KG	PRG-IND	1.6	0.0052 U	0.0060 U	0.0077 U	0.0074 U	0.0083 U	0.0054 U

TABLE B-10
Criteria Evaluation - Soil - AVMA Trench T2 SVOC
OUE Fort Richardson

Location ID:				**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**
Sample ID:				02AVMA06SL	02AVMA07SL	02AVMA08SL	02AVMA09SL	02AVMA11SL	02AVMA12SL
QAQC Type:				N	N	N	FD	N	N
Depth:				0.5	4	13	13	8	20
Date Sampled:				07/22/02	07/22/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.062 U	0.14 U	0.092 U	0.18 U	0.099 U	0.13 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.071 U	0.16 U	0.10 U	0.20 U	0.11 U	0.14 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.066 U	0.15 U	0.097 U	0.19 U	0.10 U	0.14 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.030 U	0.070 UJ	0.044 U	0.085 UJ	0.048 U	0.062 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.030 U	0.068 UJ	0.043 U	0.084 UJ	0.047 U	0.061 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.035 U	0.081 UJ	0.051 U	0.099 UJ	0.055 U	0.072 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.039 U	0.089 UJ	0.057 UR	0.11 UR	0.061 UR	0.079 UR
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.23 UJ	0.53 UJ	0.34 UJ	0.65 UJ	0.36 UJ	0.47 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.036 U	0.084 U	0.054 U	0.10 U	0.058 U	0.075 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.026 U	0.061 U	0.039 U	0.075 U	0.042 U	0.054 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.038 U	0.088 U	0.056 U	0.11 U	0.060 U	0.078 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.059 U	0.14 UJ	0.087 U	0.17 UJ	0.094 U	0.12 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.047 U	0.11 U	0.069 U	0.13 U	0.074 U	0.095 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.049 U	0.11 UJ	0.072 UJ	0.14 UJ	0.077 UJ	0.10 UJ
2-NITROANILINE	MG/KG	PRG-IND	18	0.031 U	0.071 U	0.045 U	0.087 U	0.049 U	0.063 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.041 U	0.095 UJ	0.061 U	0.12 UJ	0.065 U	0.084 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.083 U	0.19 UJ	0.12 U	0.23 UJ	0.13 U	0.17 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.059 U	0.14 U	0.086 UR	0.17 UR	0.093 UR	0.12 UR
3-NITROANILINE	MG/KG	PRG-IND	--	0.036 U	0.084 U	0.054 U	0.10 U	0.058 U	0.075 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.022 U	0.051 UJ	0.032 U	0.062 UJ	0.035 U	0.045 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.037 U	0.085 U	0.054 U	0.10 U	0.058 U	0.075 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.037 U	0.085 UJ	0.054 U	0.10 UJ	0.058 U	0.075 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.090 U	0.21 U	0.13 U	0.26 U	0.14 U	0.19 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.032 U	0.074 U	0.047 U	0.091 U	0.051 U	0.066 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.039 U	0.090 U	0.057 U	0.11 U	0.062 U	0.080 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.022 U	0.052 UJ	0.033 U	0.063 UJ	0.035 U	0.046 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	**0.057 J**	0.095 U	0.061 U	0.12 U	0.066 U	0.085 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.038 U	0.088 U	0.056 U	0.11 U	0.060 U	0.078 U
ANTHRACENE	MG/KG	PRG-IND	100,000	**0.11 J**	0.086 U	0.055 U	0.11 U	0.059 U	0.077 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	**0.16 J**	0.086 U	0.055 U	0.11 U	0.059 U	0.077 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	**0.17 =**	0.071 U	0.045 U	0.087 U	0.049 U	0.063 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	**0.17 =**	0.062 U	0.040 U	0.076 U	0.043 U	0.055 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	**0.088 J**	0.092 U	0.059 U	0.11 U	0.063 U	0.082 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	**0.085 J**	0.081 U	0.052 U	0.10 U	0.056 U	0.072 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.45 UR	1.0 UR	0.67 UR	1.3 UR	0.72 UR	0.93 UR
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.050 UJ	0.11 UJ	0.073 UJ	0.14 UJ	0.079 UJ	0.10 UJ
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.031 U	0.071 U	0.045 U	0.087 U	0.049 U	0.063 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.067 U	0.15 U	0.098 U	0.19 U	0.11 U	0.14 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.069 U	0.16 U	0.10 U	0.20 U	0.11 U	0.14 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.076 U	0.17 U	0.11 U	0.21 U	0.12 U	0.16 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.041 J**	0.080 U	0.051 U	0.098 U	0.055 U	0.071 U
CHRYSENE	MG/KG	PRG-IND	211	**0.19 =**	0.086 U	0.055 U	0.11 U	0.059 U	0.077 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.042 U	0.097 U	0.062 U	0.12 U	0.067 U	0.086 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.037 U	0.086 U	0.055 U	0.11 U	0.059 U	0.077 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.086 U	0.055 U	0.11 U	0.059 U	0.077 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.086 U	0.055 U	0.11 U	0.059 U	0.077 U

TABLE B-10
Criteria Evaluation - Soil - AVMA Trench T2 SVOC
OUE Fort Richardson

Location ID:				**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**
Sample ID:				02AVMA06SL	02AVMA07SL	02AVMA08SL	02AVMA09SL	02AVMA11SL	02AVMA12SL
QAQC Type:				N	N	N	FD	N	N
Depth:				0.5	4	13	13	8	20
Date Sampled:				07/22/02	07/22/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	0.044 U	0.10 U	**0.55 B**	**0.47 JB**	**0.56 B**	**0.61 B**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	**0.10 J**	0.077 U	0.049 U	0.094 U	0.053 U	0.068 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	**0.26 =**	0.097 U	0.062 U	0.12 U	0.067 U	0.086 U
FLUORENE	MG/KG	PRG-IND	26,281	**0.054 J**	0.086 U	0.055 U	0.11 U	0.059 U	0.077 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.037 U	0.086 U	0.055 U	0.11 U	0.059 U	0.077 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.070 U	0.16 U	0.10 U	0.20 U	0.11 U	0.14 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 U	0.030 U	0.019 U	0.037 U	0.021 U	0.027 U
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.061 U	0.14 U	0.090 U	0.17 U	0.097 U	0.13 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	**0.085 J**	0.078 U	0.050 U	0.096 U	0.054 U	0.070 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.044 U	0.10 U	0.065 U	0.13 U	0.070 U	0.091 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.017 U	0.040 U	0.025 U	0.049 U	0.027 U	0.035 U
NITROBENZENE	MG/KG	PRG-IND	103	0.060 U	0.14 U	0.088 U	0.17 U	0.095 U	0.12 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.055 U	0.13 U	0.080 U	0.15 U	0.087 U	0.11 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.089 U	0.20 U	0.13 U	0.25 U	0.14 U	0.18 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.026 U	0.059 UJ	0.038 U	0.073 UJ	0.041 U	0.053 U
PHENANTHRENE	MG/KG	PRG-IND	--	**0.36 =**	0.086 U	0.055 U	0.11 U	0.059 U	0.077 U
PHENOL	MG/KG	PRG-IND	100,000	0.035 U	0.081 UJ	0.052 U	0.10 UJ	0.056 U	0.072 U
PYRENE	MG/KG	PRG-IND	29,126	**0.42 =**	0.081 U	0.052 U	0.10 U	0.056 U	0.072 U

TABLE B-11
Criteria Evaluation - Soil - AVMA Trench T2 TPH
OUE Fort Richardson

Location ID:				**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**
Sample ID:				02AVMA06SL	02AVMA07SL	02AVMA08SL	02AVMA09SL	02AVMA11SL	02AVMA12SL
QAQC Type:				N	N	N	FD	N	N
Depth:				0.5	4	13	13	8	20
Date Sampled:				07/22/02	07/22/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**370 =**	**82 =**	**35 =**	**9 J**	**40 =**	**8 =**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	**0.43 J**	0.37 U	1.3 U	0.69 U	**1.3 J**	0.22 U

TABLE B-12
Criteria Evaluation - Soil - AVMA Trench T2 VOC
OUE Fort Richardson

Location ID:				**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**
Sample ID:				02AVMA06SL	02AVMA07SL	02AVMA08SL	02AVMA09SL	02AVMA11SL	02AVMA12SL
QAQC Type:				N	N	N	FD	N	N
Depth:				0.5	4	13	13	8	20
Date Sampled:				07/22/02	07/22/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0041 U	0.0063 U	0.010 U	0.0086 U	0.011 U	0.0034 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0041 U	0.0063 U	0.010 U	0.0086 U	0.011 U	0.0034 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0039 U	0.0061 U	0.0098 U	0.0083 U	0.010 U	0.0032 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0068 U	0.010 U	0.017 U	0.014 U	0.018 U	0.0056 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0079 U	0.012 U	0.020 U	0.017 U	0.021 U	0.0064 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0048 U	0.0074 U	0.012 U	0.010 U	0.013 U	0.0039 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0063 U	0.0096 U	0.016 U	0.013 U	0.016 U	0.0051 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0034 U	0.0052 U	0.0085 U	0.0071 U	0.0089 U	0.0028 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0029 U	0.0044 U	0.0071 U	0.0060 U	0.0075 U	0.0023 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0090 U	0.014 U	0.022 U	0.019 U	0.023 U	0.0073 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0021 U	0.0033 U	0.0053 U	0.0045 U	0.0056 U	0.0018 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0027 U	0.0041 U	0.0067 U	0.0056 U	0.0070 U	0.0022 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.021 U	0.033 U	0.053 U	0.045 U	0.056 U	0.018 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0030 U	0.0047 U	0.0076 U	0.0064 U	0.0080 U	0.0025 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0038 U	0.0058 U	0.0093 U	0.0079 U	0.0098 U	0.0031 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0066 U	0.010 U	0.016 U	0.014 U	0.017 U	0.0054 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0063 U	0.0096 U	0.016 U	0.013 U	0.016 U	0.0051 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0041 U	0.0063 U	0.010 U	0.0086 U	0.011 U	0.0034 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0039 U	0.0061 U	0.0098 U	0.0083 U	0.010 U	0.0032 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0023 U	0.0036 U	0.0058 U	0.0049 U	0.0061 U	0.0019 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0050 U	0.0077 U	0.012 U	0.011 U	0.013 U	0.0041 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0050 U	0.0077 U	0.012 UJ	0.011 UJ	0.013 UJ	0.0041 UJ
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0043 U	0.0066 U	0.011 U	0.0090 U	0.011 U	0.0035 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0020 U	0.0030 U	0.0049 U	0.0041 U	0.0051 U	0.0016 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0030 U	0.0047 U	0.0076 U	0.0064 U	0.0080 U	0.0025 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0045 U	0.0069 U	0.011 U	0.0094 U	0.012 U	0.0037 U
ACETONE	MG/KG	PRG-IND	6,036	**0.040 JB**	**0.068 JB**	**0.28 JB**	**0.23 JB**	**1.4 JB**	**0.094 JB**
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0059 U	0.0091 U	0.015 U	0.012 U	0.015 U	0.0048 U
BENZENE	MG/KG	PRG-IND	1.3	0.0032 U	0.0050 U	0.0080 U	0.0068 U	0.0084 U	0.0026 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0061 U	0.0094 U	0.015 U	0.013 U	0.016 U	0.0050 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0061 U	0.0094 U	0.015 U	0.013 U	0.016 U	0.0050 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0041 U	0.0063 U	0.010 U	0.0086 U	0.011 U	0.0034 U
BROMOFORM	MG/KG	PRG-IND	218	0.0057 U	0.0088 U	0.014 U	0.012 U	0.015 U	0.0047 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.014 U	0.021 U	0.034 UJ	0.029 UJ	0.036 UJ	0.011 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0023 U	0.0036 U	0.0058 U	0.0049 U	0.0061 U	0.0019 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0030 U	0.0047 U	0.0076 U	0.0064 U	0.0080 U	0.0025 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0020 U	0.0030 U	0.0049 U	0.0041 U	0.0051 U	0.0016 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0064 U	0.0099 U	0.016 UJ	0.014 UJ	0.017 UJ	0.0053 UJ
CHLOROFORM	MG/KG	PRG-IND	12	0.0045 U	0.0069 U	0.011 U	0.0094 U	0.012 U	0.0037 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0052 U	0.0080 U	0.013 U	0.011 U	0.014 U	0.0042 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0045 U	0.0069 U	0.011 U	0.0094 U	0.012 U	0.0037 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0014 U	0.0021 U	0.0034 U	0.0029 U	0.0036 U	0.0011 U

TABLE B-12
Criteria Evaluation - Soil - AVMA Trench T2 VOC
OUE Fort Richardson

Location ID:				**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**	**AVMAT2**
Sample ID:				02AVMA06SL	02AVMA07SL	02AVMA08SL	02AVMA09SL	02AVMA11SL	02AVMA12SL
QAQC Type:				N	N	N	FD	N	N
Depth:				0.5	4	13	13	8	20
Date Sampled:				07/22/02	07/22/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0057 U	0.0088 U	0.014 U	0.012 U	0.015 U	0.0047 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0038 U	0.0058 U	0.0093 U	0.0079 U	0.0098 U	0.0031 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.011 U	0.016 U	0.026 UJ	0.022 UJ	0.028 UJ	0.0086 UJ
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0034 U	0.0052 U	0.0085 U	0.0071 U	0.0089 U	0.0028 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0073 U	0.011 U	0.018 U	0.015 U	0.019 U	0.0060 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0075 U	0.012 U	0.019 U	0.016 U	0.020 U	0.0061 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	0.0014 U	0.0022 U	0.0036 U	0.0030 U	0.0037 U	0.0012 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	0.0091 U	**0.060 =**	**0.20 =**	0.019 U	**0.46 =**	**0.078 J**
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0027 U	0.0041 U	0.0067 U	0.0056 U	0.0070 U	0.0022 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.050 JB**	**0.10 B**	**0.087 JB**	**0.099 JB**	**0.091 JB**	**0.039 JB**
NAPHTHALENE	MG/KG	PRG-IND	188	0.0018 U	0.0027 U	0.0044 U	0.0037 U	0.0046 U	0.0014 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0017 U	0.0026 U	0.0042 U	0.0036 U	0.0044 U	0.0014 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0029 U	0.0044 U	0.0071 UJ	0.0060 UJ	0.0075 UJ	0.0023 UJ
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0050 U	0.0077 U	0.012 U	0.011 U	0.013 U	0.0041 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0020 U	0.0030 U	0.0049 UR	0.0041 UR	**0.45 J**	0.0016 UR
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0016 U	0.0025 U	0.0041 U	0.0035 U	0.0043 U	0.0013 U
STYRENE	MG/KG	PRG-IND	1,700	0.0029 U	0.0044 U	0.0071 U	0.0060 U	0.0075 U	0.0023 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0041 U	0.0063 U	0.010 U	0.0086 U	0.011 U	0.0034 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0021 U	0.0033 U	0.0053 U	0.0045 U	0.0056 U	0.0018 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0021 U	0.0033 U	0.0053 U	0.0045 U	0.0056 U	0.0018 U
TOLUENE	MG/KG	PRG-IND	520	**0.0097 J**	0.0069 U	0.011 U	0.0094 U	**0.047 B**	0.0037 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0066 U	0.010 U	0.016 U	0.014 U	0.017 U	0.0054 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0036 U	0.0055 U	0.0089 U	0.0075 U	0.0094 U	0.0029 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.011 U	0.017 U	0.028 U	0.024 U	0.029 U	0.0092 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0047 U	0.0072 U	0.012 UJ	0.0098 UJ	0.012 UJ	0.0038 UJ
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0061 U	0.0094 U	0.015 U	0.013 U	0.016 U	0.0050 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0038 UJ	0.0058 UJ	0.0093 UJ	0.0079 UJ	0.0098 UJ	0.0031 UJ
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0056 U	0.0085 U	0.014 U	0.012 U	0.015 U	0.0045 U
XYLENES, m & p	MG/KG	PRG-IND	420	0.0027 U	0.0041 U	0.0067 U	0.0056 U	0.0070 U	0.0022 U

TABLE B-13

Criteria Evaluation - Soil - AVMA Trench T3 METAL

OUE Fort Richardson

Location ID:				**AVMAT3**		**AVMAT3**		**AVMAT3**		**AVMAT3**		**AVMAT3**	
Sample ID:				02AVMA13SL		02AVMA14SL		02AVMA15SL		02AVMA16SL		02AVMA17SL	
QAQC Type:				N		N		N		N		N	
Depth:				0.5		4		20		15		22	
Date Sampled:				07/23/02		07/23/02		07/23/02		07/23/02		07/23/02	
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
ALUMINUM	MG/KG	PRG-IND	100,000	**21,000**	**=**	**21,000**	**=**	**22,000**	**=**	**18,000**	**=**	**18,000**	**=**
ANTIMONY	MG/KG	PRG-IND	409	**0.35**	**JB**	**0.32**	**JB**	**0.17**	**JB**	**0.33**	**JB**	**0.44**	**JB**
ARSENIC	MG/KG	PRG-IND	1.6	**6.7**	**J**	**3.1**	**J**	**1.1**	**J**	**2.4**	**J**	**2.8**	**J**
BARIUM	MG/KG	PRG-IND	66,577	**120**	**=**	**120**	**=**	**110**	**=**	**85**	**=**	**120**	**=**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.39**	**=**	**0.44**	**=**	**0.37**	**=**	**0.38**	**=**	**0.41**	**=**
CADMIUM	MG/KG	PRG-IND	451	**0.88**	**=**	**0.92**	**=**	**0.79**	**=**	**0.88**	**=**	**1.2**	**=**
CALCIUM	MG/KG	PRG-IND	--	**5,000**	**=**	**5,900**	**=**	**6,500**	**=**	**6,500**	**=**	**6,800**	**=**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**37**	**=**	**33**	**=**	**30**	**=**	**41**	**=**	**35**	**=**
COBALT	MG/KG	PRG-IND	1,921	**11**	**=**	**11**	**=**	**10**	**=**	**11**	**=**	**16**	**=**
COPPER	MG/KG	PRG-IND	40,877	**23**	**J**	**23**	**J**	**19**	**J**	**28**	**J**	**31**	**J**
IRON	MG/KG	PRG-IND	100,000	**33,000**	**=**	**33,000**	**=**	**27,000**	**=**	**30,000**	**=**	**39,000**	**=**
LEAD	MG/KG	PRG-IND	750	**13**	**=**	**32**	**=**	**8.2**	**=**	**16**	**=**	**6.9**	**=**
MAGNESIUM	MG/KG	PRG-IND	--	**7,700**	**=**	**7,300**	**=**	**6,000**	**=**	**8,000**	**=**	**11,000**	**=**
MANGANESE	MG/KG	PRG-IND	19,458	**540**	**=**	**640**	**=**	**370**	**=**	**580**	**=**	**2,000**	**=**
MERCURY	MG/KG	PRG-IND	307	**0.045**	**J**	**0.095**	**=**	**0.039**	**J**	**0.064**	**=**	**0.060**	**=**
NICKEL	MG/KG	PRG-IND	20,439	**34**	**=**	**32**	**=**	**25**	**=**	**29**	**=**	**47**	**=**
POTASSIUM	MG/KG	PRG-IND	--	**840**	**=**	**830**	**=**	**680**	**=**	**920**	**=**	**1,200**	**=**
SELENIUM	MG/KG	PRG-IND	5,110	**4.8**	**JB**	**5.5**	**JB**	**5.1**	**B**	**6.3**	**B**	**2.3**	**JB**
SILVER	MG/KG	PRG-IND	5,110	0.49	U	0.36	U	0.21	U	0.28	U	0.27	U
SODIUM	MG/KG	PRG-IND	--	**210**	**J**	**180**	**J**	**270**	**=**	**320**	**=**	**130**	**J**
THALLIUM	MG/KG	PRG-IND	67	0.060	U	0.055	U	0.069	U	0.057	U	0.062	U
VANADIUM	MG/KG	PRG-IND	7,154	**70**	**J**	**71**	**J**	**68**	**J**	**63**	**J**	**62**	**J**
ZINC	MG/KG	PRG-IND	100,000	**60**	**J**	**140**	**J**	**53**	**J**	**67**	**J**	**160**	**J**

TABLE B-14

Criteria Evaluation - Soil - AVMA Trench T3 PCB

OUE Fort Richardson

Location ID:				**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**
Sample ID:				02AVMA13SL	02AVMA14SL	02AVMA15SL	02AVMA16SL	02AVMA17SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	4	20	15	22
Date Sampled:				07/23/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
PCB-1016 (AROCHLOR 1016)	MG/KG	PRG-IND	21	0.0029 U	0.0030 U	0.0035 U	0.0030 U	0.0031 U
PCB-1221 (AROCHLOR 1221)	MG/KG	PRG-IND	0.74	0.0029 U	0.0030 U	0.0035 U	0.0030 U	0.0031 U
PCB-1232 (AROCHLOR 1232)	MG/KG	PRG-IND	0.74	0.0029 U	0.0030 U	0.0035 U	0.0030 U	0.0031 U
PCB-1242 (AROCHLOR 1242)	MG/KG	PRG-IND	0.74	0.0029 U	0.0030 U	0.0035 U	0.0030 U	0.0031 U
PCB-1248 (AROCHLOR 1248)	MG/KG	PRG-IND	0.74	0.0029 U	0.0030 U	0.0035 U	0.0030 U	0.0031 U
PCB-1254 (AROCHLOR 1254)	MG/KG	PRG-IND	0.74	0.0029 U	0.0030 U	0.0035 U	0.0030 U	0.0031 U
PCB-1260 (AROCHLOR 1260)	MG/KG	PRG-IND	0.74	0.0026 U	0.0027 U	0.0031 U	0.0027 U	0.0028 U

TABLE B-15

Criteria Evaluation - Soil - AVMA Trench T3 PESTICIDE

OUE Fort Richardson

Location ID:				**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**
Sample ID:				02AVMA13SL	02AVMA14SL	02AVMA15SL	02AVMA16SL	02AVMA17SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	4	20	15	22
Date Sampled:				07/23/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
ALDRIN	MG/KG	PRG-IND	0.10	3.90E-04 U	4.00E-04 U	4.60E-04 U	**6.60E-04 J**	4.20E-04 UJ
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	0.36	2.80E-04 UJ	**0.0011 J**	3.40E-04 UJ	**4.20E-04 J**	**6.30E-04 J**
ALPHA ENDOSULFAN	MG/KG	PRG-IND	3,694	2.40E-04 U	2.50E-04 U	2.90E-04 U	**3.60E-04 J**	2.60E-04 UJ
ALPHA-CHLORDANE	MG/KG	PRG-IND	6.5	**0.0011 J**	3.20E-04 U	3.70E-04 U	**0.0019 J**	3.40E-04 UJ
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	1.3	**9.60E-04 J**	**0.0033 J**	**0.0020 J**	**0.019 J**	**8.70E-04 J**
BETA ENDOSULFAN	MG/KG	PRG-IND	3,694	3.80E-04 U	3.90E-04 U	4.50E-04 U	**9.10E-04 J**	4.10E-04 UJ
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	--	**8.60E-04 J**	4.80E-04 UJ	5.60E-04 UJ	4.90E-04 UJ	5.00E-04 UJ
DIELDRIN	MG/KG	PRG-IND	0.11	**3.60E-04 J**	3.00E-04 U	3.40E-04 U	3.00E-04 U	**4.00E-04 J**
ENDOSULFAN SULFATE	MG/KG	PRG-IND	--	**4.60E-04 J**	**6.50E-04 J**	2.50E-04 UJ	**0.0017 J**	2.20E-04 UJ
ENDRIN	MG/KG	PRG-IND	185	**0.0022 J**	**0.0025 J**	**0.0022 J**	**0.041 =**	**0.0012 J**
ENDRIN ALDEHYDE	MG/KG	PRG-IND	--	9.90E-04 U	0.0010 U	0.0012 U	0.0010 U	0.0011 UJ
ENDRIN KETONE	MG/KG	PRG-IND	--	2.40E-04 U	2.50E-04 U	2.90E-04 U	2.50E-04 U	2.60E-04 UJ
GAMMA BHC (LINDANE)	MG/KG	PRG-IND	1.7	7.40E-04 U	7.70E-04 U	8.90E-04 U	7.80E-04 U	8.00E-04 UJ
GAMMA-CHLORDANE	MG/KG	PRG-IND	6.5	4.90E-04 U	5.10E-04 U	5.90E-04 U	5.20E-04 U	5.30E-04 UJ
HEPTACHLOR	MG/KG	PRG-IND	0.38	**0.0017 J**	0.0012 U	0.0014 U	0.0012 U	0.0012 UJ
HEPTACHLOR EPOXIDE	MG/KG	PRG-IND	0.19	**0.0025 J**	6.60E-04 U	**9.80E-04 J**	**0.0028 J**	6.90E-04 UJ
METHOXYCHLOR	MG/KG	PRG-IND	3,078	0.0014 U	**0.0033 J**	**0.0021 J**	0.0015 U	0.0015 UJ
p,p'-DDD	MG/KG	PRG-IND	10.0	**0.038 J**	**0.0028 J**	**0.045 J**	**0.061 =**	**0.0060 J**
p,p'-DDE	MG/KG	PRG-IND	7.0	**0.039 J**	**0.0021 =**	**0.0083 J**	**0.017 =**	**0.0024 J**
p,p'-DDT	MG/KG	PRG-IND	7.0	**0.24 J**	**0.023 =**	**0.096 J**	**0.085 =**	**0.0087 J**
TOXAPHENE	MG/KG	PRG-IND	1.6	0.0053 U	0.0056 U	0.0064 U	0.0056 U	0.0058 UJ

TABLE B-16

Criteria Evaluation - Soil - AVMA Trench T3 SVOC

OUE Fort Richardson

Location ID:				**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**
Sample ID:				02AVMA13SL	02AVMA14SL	02AVMA15SL	02AVMA16SL	02AVMA17SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	4	20	15	22
Date Sampled:				07/23/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.064 U	0.066 U	0.076 U	0.067 U	0.069 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.072 U	0.075 U	0.086 U	0.076 U	0.078 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.068 U	0.070 U	0.081 U	0.071 U	0.073 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.031 U	0.032 U	0.037 U	0.032 U	0.033 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.030 U	0.031 U	0.036 U	0.032 U	0.033 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.036 U	0.037 U	0.043 U	0.038 U	0.039 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.040 UR	0.041 UR	0.047 UR	0.041 UR	0.043 UR
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.23 UJ	0.24 UJ	0.28 UJ	0.25 UJ	0.25 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.037 U	0.039 U	0.045 U	0.039 U	0.040 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.027 U	0.028 U	0.032 U	0.028 U	0.029 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.039 U	0.040 U	0.046 U	0.041 U	0.042 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.061 U	0.063 U	0.072 U	0.063 U	0.065 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.048 U	**0.35 =**	**0.12 J**	**1.4 =**	0.052 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.050 UJ	0.052 UJ	0.060 UJ	0.052 UJ	0.054 UJ
2-NITROANILINE	MG/KG	PRG-IND	18	0.032 U	0.033 U	0.038 U	0.033 U	0.034 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.042 U	0.044 U	0.050 U	0.044 U	0.046 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.085 U	0.088 U	0.10 U	0.089 U	0.092 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.060 UR	0.062 UR	0.072 UR	0.063 UR	0.065 UR
3-NITROANILINE	MG/KG	PRG-IND	--	0.037 U	0.039 U	0.044 U	0.039 U	0.040 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.023 U	0.023 U	0.027 U	0.024 U	0.024 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.038 U	0.039 U	0.045 U	0.039 U	0.041 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.038 U	0.039 U	0.045 U	0.039 U	0.041 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.093 U	0.096 U	0.11 U	0.097 U	0.10 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.033 U	0.034 U	0.039 U	0.035 U	0.036 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.040 U	0.041 U	0.047 U	0.042 U	0.043 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.023 U	0.024 U	0.027 U	0.024 U	0.025 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.042 U	0.044 U	**0.27 =**	**2.2 =**	0.046 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.039 U	0.040 U	0.046 U	0.041 U	0.042 U
ANTHRACENE	MG/KG	PRG-IND	100,000	**0.068 J**	**0.072 J**	**0.48 =**	**4.0 =**	**0.059 J**
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	**0.11 J**	**0.069 J**	**0.57 =**	**5.3 =**	**0.095 J**
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	**0.096 J**	**0.051 J**	**0.52 =**	**4.1 =**	**0.072 J**
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	**0.094 J**	**0.054 J**	**0.45 =**	**3.2 =**	**0.060 J**
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	**0.12 J**	0.042 U	**0.23 =**	**1.7 =**	0.044 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.036 U	0.037 U	**0.19 J**	**1.4 =**	**0.045 J**
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.47 UR	0.48 UR	0.55 UR	0.49 UR	0.50 UR

TABLE B-16

Criteria Evaluation - Soil - AVMA Trench T3 SVOC

OUE Fort Richardson

Location ID:				AVMAT3	AVMAT3	AVMAT3	AVMAT3	AVMAT3
Sample ID:				02AVMA13SL	02AVMA14SL	02AVMA15SL	02AVMA16SL	02AVMA17SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	4	20	15	22
Date Sampled:				07/23/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.051 UJ	0.053 UJ	0.060 UJ	0.053 UJ	0.055 UJ
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.032 U	0.033 U	0.038 U	0.033 U	0.034 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.068 U	0.071 U	0.081 U	0.072 U	0.074 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.071 U	0.074 U	0.085 U	0.074 U	0.077 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.078 U	0.081 U	0.093 U	0.082 U	0.084 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.071 J**	0.037 U	0.042 U	0.037 U	0.039 U
CHRYSENE	MG/KG	PRG-IND	211	**0.20 =**	**0.085 J**	**0.69 =**	**5.7 =**	**0.11 J**
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.043 U	0.045 U	0.051 U	**0.61 =**	0.047 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.038 U	**0.086 J**	**0.10 J**	**0.53 =**	0.041 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038 U	0.040 U	0.046 U	0.040 U	0.041 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038 U	0.040 U	0.046 U	0.040 U	0.041 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.46 B**	**0.77 B**	**0.36 B**	**0.21 B**	**0.80 B**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.034 U	0.035 U	0.041 U	0.036 U	0.037 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	**0.14 J**	**0.15 J**	**1.1 =**	**7.0 =**	**0.15 J**
FLUORENE	MG/KG	PRG-IND	26,281	0.038 U	**0.045 J**	**0.27 =**	**2.7 =**	0.041 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.038 U	0.040 U	0.046 U	0.040 U	0.041 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.072 U	0.074 U	0.086 U	0.075 U	0.078 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 U	0.014 U	0.016 U	0.014 U	0.014 U
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.063 U	0.065 U	0.075 U	0.066 U	0.068 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	**0.043 J**	0.036 U	**0.25 =**	**1.7 =**	0.038 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.045 U	0.047 U	0.054 U	0.048 U	0.049 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.018 U	**0.20 =**	**0.095 J**	**0.76 =**	0.019 U
NITROBENZENE	MG/KG	PRG-IND	103	0.061 U	0.064 U	0.073 U	0.064 U	0.066 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.056 U	0.058 U	0.067 U	0.059 U	0.060 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.091 U	0.094 U	0.11 U	0.095 U	0.098 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.026 U	0.027 U	0.031 U	0.028 U	0.028 U
PHENANTHRENE	MG/KG	PRG-IND	--	**0.28 =**	**0.24 =**	**1.9 =**	**15 =**	**0.23 =**
PHENOL	MG/KG	PRG-IND	100,000	0.036 U	0.037 U	0.043 U	0.038 U	0.039 U
PYRENE	MG/KG	PRG-IND	29,126	**0.36 =**	**0.14 J**	**1.6 =**	**16 =**	**0.22 =**

TABLE B-17
Criteria Evaluation - Soil - AVMA Trench T3 TPH
OUE Fort Richardson

Location ID:				**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**
Sample ID:				02AVMA13SL	02AVMA14SL	02AVMA15SL	02AVMA16SL	02AVMA17SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	4	20	15	22
Date Sampled:				07/23/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**21 =**	**31 =**	**180 =**	**220 =**	**56 =**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	**1.3 J**	**3.1 =**	**0.49 J**	**1.4 J**	**0.96 J**

TABLE B-18

Criteria Evaluation - Soil - AVMA Trench T3 VOC

OUE Fort Richardson

Location ID:				**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**	**AVMAT3**
Sample ID:				02AVMA13SL	02AVMA14SL	02AVMA15SL	02AVMA16SL	02AVMA17SL
QAQC Type:				N	N	N	N	N
Depth:				0.5	4	20	15	22
Date Sampled:				07/23/02	07/23/02	07/23/02	07/23/02	07/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0045 U	0.0043 U	0.0052 U	0.0041 U	0.0040 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0045 U	0.0043 U	0.0052 U	0.0041 U	0.0040 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0043 U	0.0041 U	0.0050 U	0.0039 U	0.0039 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0075 U	0.0072 U	0.0086 U	0.0068 U	0.0067 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0087 U	0.0083 U	0.010 U	0.0078 U	0.0077 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0053 U	0.0051 U	0.0061 U	0.0048 U	0.0047 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0069 U	0.0066 U	0.0079 U	0.0062 U	0.0061 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0037 U	0.0036 U	0.0043 U	0.0034 U	0.0033 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0032 U	0.0030 U	0.0036 U	0.0029 U	0.0028 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0098 U	0.0094 U	0.011 U	0.0089 U	0.0088 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0024 U	0.0023 U	0.0027 U	0.0021 U	0.0021 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	**0.085 =**	**0.078 =**	0.0034 U	**0.0089 =**	**0.019 =**
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.024 U	0.023 U	0.027 U	0.021 U	0.021 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0033 U	0.0032 U	0.0039 U	0.0030 U	0.0030 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0041 U	0.0040 U	0.0048 U	0.0037 U	0.0037 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0073 U	0.0070 U	0.0084 U	0.0066 U	0.0065 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0069 U	0.0066 U	0.0079 U	0.0062 U	0.0061 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	**0.013 J**	**0.018 =**	0.0052 U	0.0041 U	**0.0088 J**
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0043 U	0.0041 U	0.0050 U	0.0039 U	0.0039 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0026 U	0.0024 U	0.0029 U	0.0023 U	0.0023 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0055 U	0.0053 U	0.0063 U	0.0050 U	0.0049 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0055 UJ	0.0053 UJ	0.0063 UJ	0.0050 UJ	0.0049 UJ
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0047 U	0.0045 U	0.0054 U	0.0043 U	0.0042 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0022 U	0.0021 U	0.0025 U	0.0020 U	0.0019 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0033 U	0.0032 U	0.0039 U	0.0030 U	0.0030 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0049 U	0.0047 U	0.0057 U	0.0045 U	0.0044 U
ACETONE	MG/KG	PRG-IND	6,036	**0.26 JB**	0.023 UJ	**0.21 JB**	**0.17 JB**	0.021 UJ
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0065 U	0.0062 U	0.0075 U	0.0059 U	0.0058 U
BENZENE	MG/KG	PRG-IND	1.3	0.0035 U	**0.024 =**	0.0041 U	0.0032 U	0.0032 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0067 U	0.0064 U	0.0077 U	0.0061 U	0.0060 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0067 U	0.0064 U	0.0077 U	0.0061 U	0.0060 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0045 U	0.0043 U	0.0052 U	0.0041 U	0.0040 U
BROMOFORM	MG/KG	PRG-IND	218	0.0063 U	0.0060 U	0.0073 U	0.0057 U	0.0056 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.015 UJ	0.014 UJ	0.017 UJ	0.014 UJ	0.013 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0026 U	0.0024 U	0.0029 U	0.0023 U	0.0023 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0033 U	0.0032 U	0.0039 U	0.0030 U	0.0030 U

TABLE B-18

Criteria Evaluation - Soil - AVMA Trench T3 VOC

OUE Fort Richardson

Location ID:				**AVMAT3**		**AVMAT3**		**AVMAT3**		**AVMAT3**		**AVMAT3**	
Sample ID:				02AVMA13SL		02AVMA14SL		02AVMA15SL		02AVMA16SL		02AVMA17SL	
QAQC Type:				N		N		N		N		N	
Depth:				0.5		4		20		15		22	
Date Sampled:				07/23/02		07/23/02		07/23/02		07/23/02		07/23/02	
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0022	U	0.0021	U	0.0025	U	0.0020	U	0.0019	U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0071	UJ	0.0068	UJ	0.0082	UJ	0.0064	UJ	0.0063	UJ
CHLOROFORM	MG/KG	PRG-IND	12	0.0049	U	0.0047	U	0.0057	U	0.0045	U	0.0044	U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0057	U	0.0055	U	0.0066	U	0.0052	U	0.0051	U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0049	U	0.0047	U	0.0057	U	0.0045	U	0.0044	U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0015	U	0.0014	U	0.0017	U	0.0014	U	0.0013	U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0063	U	0.0060	U	0.0073	U	0.0057	U	0.0056	U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0041	U	0.0040	U	0.0048	U	0.0037	U	0.0037	U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.012	UJ	0.011	UJ	0.013	UJ	0.011	UJ	0.010	UJ
ETHYLBENZENE	MG/KG	PRG-IND	20	**0.038**	=	**0.039**	=	0.0043	U	**0.0096**	J	0.0033	U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0081	U	0.0077	U	0.0093	U	0.0073	U	0.0072	U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0083	U	0.0079	U	0.0095	U	0.0075	U	0.0074	U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	**0.012**	=	**0.011**	=	0.0018	U	0.0014	U	0.0014	U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	**0.13**	=	**0.16**	=	**0.15**	=	**0.086**	=	0.0089	U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0030	U	0.0028	U	0.0034	U	0.0027	U	0.0026	U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.062**	JB	**0.056**	JB	**0.063**	JB	**0.041**	JB	**0.055**	JB
NAPHTHALENE	MG/KG	PRG-IND	188	**0.060**	=	**0.058**	=	**0.015**	=	**0.062**	=	**0.015**	=
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0019	U	**0.011**	=	0.0022	U	0.0017	U	0.0017	U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0032	UJ	0.0030	UJ	0.0036	UJ	0.0029	UJ	0.0028	UJ
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	**0.097**	=	**0.069**	=	0.0063	U	**0.0093**	J	0.0049	U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	**0.036**	J	**0.033**	J	**0.042**	J	**0.076**	J	**0.027**	J
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0018	U	0.0017	U	0.0021	U	0.0016	U	0.0016	U
STYRENE	MG/KG	PRG-IND	1,700	0.0032	U	0.0030	U	0.0036	U	0.0029	U	0.0028	U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0045	U	0.0043	U	0.0052	U	0.0041	U	0.0040	U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0024	U	0.0023	U	0.0027	U	0.0021	U	0.0021	U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0024	U	**0.53**	=	0.0027	U	**0.019**	=	**0.013**	=
TOLUENE	MG/KG	PRG-IND	520	**0.062**	B	**0.12**	B	**0.013**	JB	**0.036**	B	**0.0088**	JB
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0073	U	0.0070	U	0.0084	U	0.0066	U	0.0065	U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0039	U	0.0038	U	0.0045	U	0.0036	U	0.0035	U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.012	U	0.012	U	0.014	U	0.011	U	0.011	U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0051	UJ	**0.027**	J	**0.013**	J	0.0046	UJ	0.0046	UJ
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0067	U	0.0064	U	0.0077	U	0.0061	U	0.0060	U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0041	UJ	0.0040	UJ	0.0048	UJ	0.0037	UJ	0.0037	UJ
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0061	U	0.0058	U	0.0070	U	0.0055	U	0.0054	U
XYLENES, m & p	MG/KG	PRG-IND	420	**0.14**	=	**0.14**	=	**0.012**	=	**0.025**	=	**0.012**	=

TABLE B-19

Criteria Evaluation - Soil - AVMA Trench T4 METAL

OUE Fort Richardson

Location ID:				**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**
Sample ID:				02AVMA18SL	02AVMA19SL	02AVMA20SL	02AVMA22SL	02AVMA23SL	02AVMA24SL
QAQC Type:				N	N	FD	N	N	N
Depth:				0.5	4	4	15	3	4.5
Date Sampled:				07/24/02	07/24/02	07/24/02	07/24/02	07/24/02	07/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALUMINUM	MG/KG	PRG-IND	100,000	**26,000 =**	**22,000 =**	**16,000 =**	**17,000 =**	**22,000 =**	**16,000 =**
ANTIMONY	MG/KG	PRG-IND	409	**0.59 J**	**0.33 J**	**0.43 J**	**0.070 J**	**0.56 J**	**0.23 J**
ARSENIC	MG/KG	PRG-IND	1.6	**3.7 J**	1.2 U	**1.6 J**	**1.2 J**	**11 J**	**1.0 J**
BARIUM	MG/KG	PRG-IND	66,577	**93 =**	**63 =**	**34 =**	**45 =**	**49 =**	**37 =**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.54 =**	**0.51 =**	**0.33 =**	**0.34 =**	**0.52 =**	**0.35 =**
CADMIUM	MG/KG	PRG-IND	451	**0.84 =**	**0.94 =**	**0.65 J**	**0.79 =**	**1.0 =**	**0.75 =**
CALCIUM	MG/KG	PRG-IND	--	**5,400 =**	**9,000 =**	**6,500 =**	**6,900 =**	**8,200 =**	**7,500 =**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**42 =**	**40 =**	**24 =**	**34 =**	**37 =**	**28 =**
COBALT	MG/KG	PRG-IND	1,921	**13 =**	**13 =**	**9.7 =**	**9.9 =**	**14 =**	**11 =**
COPPER	MG/KG	PRG-IND	40,877	**27 =**	**28 =**	**25 =**	**26 =**	**32 =**	**27 =**
IRON	MG/KG	PRG-IND	100,000	**34,000 =**	**37,000 =**	**29,000 =**	**32,000 =**	**41,000 =**	**30,000 =**
LEAD	MG/KG	PRG-IND	750	**6.0 =**	**3.0 J**	**3.3 J**	**3.5 =**	**4.6 J**	**3.7 =**
MAGNESIUM	MG/KG	PRG-IND	--	**8,800 =**	**13,000 =**	**8,800 =**	**10,000 =**	**13,000 =**	**9,300 =**
MANGANESE	MG/KG	PRG-IND	19,458	**510 =**	**660 =**	**540 =**	**530 =**	**850 =**	**510 =**
MERCURY	MG/KG	PRG-IND	307	**0.047 J**	**0.042 J**	**0.039 J**	**0.080 =**	**0.075 =**	**0.041 J**
NICKEL	MG/KG	PRG-IND	20,439	**36 =**	**47 =**	**33 =**	**32 =**	**45 =**	**31 =**
POTASSIUM	MG/KG	PRG-IND	--	**740 =**	**1,000 =**	**870 =**	**810 =**	**920 =**	**760 =**
SELENIUM	MG/KG	PRG-IND	5,110	**3.6 J**	**2.4 J**	**2.8 J**	**3.3 J**	1.6 U	**3.2 J**
SILVER	MG/KG	PRG-IND	5,110	0.45 U	0.47 U	0.45 U	0.25 U	0.45 U	0.28 U
SODIUM	MG/KG	PRG-IND	--	**150 J**	**120 J**	**84 J**	**84 J**	**100 J**	**82 J**
THALLIUM	MG/KG	PRG-IND	67	0.056 UJ	0.056 UJ	0.049 UJ	0.057 UJ	0.054 UJ	0.057 UJ
VANADIUM	MG/KG	PRG-IND	7,154	**76 =**	**79 =**	**57 =**	**57 =**	**80 =**	**57 =**
ZINC	MG/KG	PRG-IND	100,000	**57 =**	**64 =**	**51 =**	**56 =**	**67 =**	**60 =**

TABLE B-20
Criteria Evaluation - Soil - AVMA Trench T4 PCB
OUE Fort Richardson

Location ID:				**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**
Sample ID:				02AVMA18SL	02AVMA19SL	02AVMA20SL	02AVMA22SL	02AVMA23SL	02AVMA24SL
QAQC Type:				N	N	FD	N	N	N
Depth:				0.5	4	4	15	3	4.5
Date Sampled:				07/24/02	07/24/02	07/24/02	07/24/02	07/24/02	07/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
PCB-1016 (AROCHLOR 1016)	MG/KG	PRG-IND	21	0.0029 UJ	0.0028 UJ	0.0028 UJ	0.0028 UJ	0.0028 UJ	0.0027 UJ
PCB-1221 (AROCHLOR 1221)	MG/KG	PRG-IND	0.74	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0027 U
PCB-1232 (AROCHLOR 1232)	MG/KG	PRG-IND	0.74	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0027 U
PCB-1242 (AROCHLOR 1242)	MG/KG	PRG-IND	0.74	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0027 U
PCB-1248 (AROCHLOR 1248)	MG/KG	PRG-IND	0.74	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0027 U
PCB-1254 (AROCHLOR 1254)	MG/KG	PRG-IND	0.74	0.0029 U	0.0028 U	0.0028 U	0.0028 U	0.0028 U	0.0027 U
PCB-1260 (AROCHLOR 1260)	MG/KG	PRG-IND	0.74	0.0026 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0025 UJ	0.0024 UJ

TABLE B-21
Criteria Evaluation - Soil - AVMA Trench T4 PESTICIDE
OUE Fort Richardson

Location ID:				**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**
Sample ID:				02AVMA18SL	02AVMA19SL	02AVMA20SL	02AVMA22SL	02AVMA23SL	02AVMA24SL
QAQC Type:				N	N	FD	N	N	N
Depth:				0.5	4	4	15	3	4.5
Date Sampled:				07/24/02	07/24/02	07/24/02	07/24/02	07/24/02	07/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALDRIN	MG/KG	PRG-IND	0.10	3.89E-04 U	3.76E-04 U	3.73E-04 U	3.77E-04 U	3.70E-04 U	3.67E-04 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	0.36	2.85E-04 U	2.76E-04 U	2.73E-04 U	2.77E-04 U	2.72E-04 U	2.69E-04 U
ALPHA ENDOSULFAN	MG/KG	PRG-IND	3,694	2.42E-04 U	2.34E-04 U	2.32E-04 U	2.35E-04 U	2.30E-04 U	2.28E-04 U
ALPHA-CHLORDANE	MG/KG	PRG-IND	6.5	3.11E-04 U	3.01E-04 U	2.98E-04 U	3.02E-04 U	2.96E-04 U	2.94E-04 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	1.3	5.70E-04 U	**5.67E-04 J**	5.46E-04 U	5.53E-04 U	5.43E-04 U	5.38E-04 U
BETA ENDOSULFAN	MG/KG	PRG-IND	3,694	3.80E-04 U	3.68E-04 U	3.64E-04 U	3.69E-04 U	3.62E-04 U	3.59E-04 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	--	4.67E-04 U	4.51E-04 U	4.47E-04 U	4.53E-04 U	4.44E-04 U	4.40E-04 U
DIELDRIN	MG/KG	PRG-IND	0.11	2.85E-04 U	2.76E-04 U	2.73E-04 U	2.77E-04 U	2.72E-04 U	2.69E-04 U
ENDOSULFAN SULFATE	MG/KG	PRG-IND	--	**2.32E-04 J**	2.01E-04 U	1.99E-04 U	2.01E-04 U	1.98E-04 U	1.96E-04 U
ENDRIN	MG/KG	PRG-IND	185	6.40E-04 U	6.19E-04 U	6.13E-04 U	6.20E-04 U	6.09E-04 U	6.03E-04 U
ENDRIN ALDEHYDE	MG/KG	PRG-IND	--	**0.0028 J**	**0.0018 J**	**0.0016 J**	**0.0021 J**	**0.0015 J**	**0.0013 J**
ENDRIN KETONE	MG/KG	PRG-IND	--	2.42E-04 U	2.34E-04 U	2.32E-04 U	2.35E-04 U	2.30E-04 U	2.28E-04 U
GAMMA BHC (LINDANE)	MG/KG	PRG-IND	1.7	7.43E-04 U	7.19E-04 U	7.12E-04 U	7.21E-04 U	7.08E-04 U	7.01E-04 U
GAMMA-CHLORDANE	MG/KG	PRG-IND	6.5	4.93E-04 U	4.76E-04 U	4.72E-04 U	4.78E-04 U	4.69E-04 U	4.65E-04 U
HEPTACHLOR	MG/KG	PRG-IND	0.38	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U	0.0011 U
HEPTACHLOR EPOXIDE	MG/KG	PRG-IND	0.19	6.40E-04 U	6.19E-04 U	6.13E-04 U	6.20E-04 U	6.09E-04 U	6.03E-04 U
METHOXYCHLOR	MG/KG	PRG-IND	3,078	0.0014 U	0.0014 U	0.0013 U	0.0014 U	0.0013 U	0.0013 U
p,p'-DDD	MG/KG	PRG-IND	10.0	**7.64E-04 J**	4.26E-04 U	4.22E-04 U	4.27E-04 U	4.20E-04 U	4.16E-04 U
p,p'-DDE	MG/KG	PRG-IND	7.0	**0.0018 J**	2.51E-04 U	2.48E-04 U	2.51E-04 U	2.47E-04 U	2.45E-04 U
p,p'-DDT	MG/KG	PRG-IND	7.0	**0.022 =**	3.09E-04 U	3.06E-04 U	**6.19E-04 J**	3.05E-04 U	3.02E-04 U
TOXAPHENE	MG/KG	PRG-IND	1.6	0.0054 U	0.0052 U	0.0051 U	0.0052 U	0.0051 U	0.0051 U

TABLE B-22
Criteria Evaluation - Soil - AVMA Trench T4 SVOC
OUE Fort Richardson

Location ID:				**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**
Sample ID:				02AVMA18SL	02AVMA19SL	02AVMA20SL	02AVMA22SL	02AVMA23SL	02AVMA24SL
QAQC Type:				N	N	FD	N	N	N
Depth:				0.5	4	4	15	3	4.5
Date Sampled:				07/24/02	07/24/02	07/24/02	07/24/02	07/24/02	07/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.064 U	0.062 U	0.062 U	0.062 U	0.061 U	0.061 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.073 U	0.070 U	0.070 U	0.070 U	0.069 U	0.069 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.068 U	0.066 U	0.065 U	0.066 U	0.065 U	0.064 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.031 U	0.030 U	0.030 U	0.030 U	0.030 U	0.029 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.030 U	0.029 U	0.029 U	0.030 U	0.029 U	0.029 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.036 U	0.035 U	0.035 U	0.035 U	0.034 U	0.034 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.040 U	0.038 U	0.038 U	0.038 U	0.038 U	0.037 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.24 UJ	0.23 UJ	0.23 UJ	0.23 UJ	0.22 UJ	0.22 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.037 U	0.036 U	0.036 U	0.036 U	0.036 U	0.035 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.027 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.039 UJ	0.038 UJ	0.038 UJ	0.038 UJ	0.037 UJ	0.037 UJ
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.061 U	0.059 U	0.058 U	0.059 U	0.058 U	0.057 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.048 U	0.046 U	0.046 U	0.047 U	0.046 U	0.045 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.050 UJ	0.049 UJ	0.048 UJ	0.049 UJ	0.048 UJ	0.047 UJ
2-NITROANILINE	MG/KG	PRG-IND	18	0.032 U	0.031 U	0.031 U	0.031 U	0.030 U	0.030 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.042 U	0.041 U	0.041 U	0.041 U	0.040 U	0.040 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.085 U	0.082 U	0.082 U	0.082 U	0.081 U	0.080 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.060 U	0.058 U	0.058 U	0.058 U	0.058 U	0.057 U
3-NITROANILINE	MG/KG	PRG-IND	--	0.037 U	0.036 U	0.036 U	0.036 U	0.036 U	0.035 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.023 U	0.022 U	0.022 U	0.022 U	0.022 U	0.021 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.038 U	0.036 U	0.036 U	0.037 U	0.036 U	0.036 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.038 U	0.036 U	0.036 U	0.037 U	0.036 U	0.036 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.093 U	0.090 U	0.089 U	0.090 U	0.089 U	0.088 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.033 U	0.032 U	0.032 U	0.032 U	0.032 U	0.031 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.040 U	0.039 U	0.038 U	0.039 U	0.038 U	0.038 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.023 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.042 U	0.041 U	0.041 U	0.041 U	0.041 U	0.040 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.039 U	0.038 U	0.038 U	0.038 U	0.037 U	0.037 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.038 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.038 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U

TABLE B-22
Criteria Evaluation - Soil - AVMA Trench T4 SVOC
OUE Fort Richardson

Location ID:				**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**
Sample ID:				02AVMA18SL	02AVMA19SL	02AVMA20SL	02AVMA22SL	02AVMA23SL	02AVMA24SL
QAQC Type:				N	N	FD	N	N	N
Depth:				0.5	4	4	15	3	4.5
Date Sampled:				07/24/02	07/24/02	07/24/02	07/24/02	07/24/02	07/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.031 U	0.030 U	0.030 U	0.031 U	0.030 U	0.030 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.028 U	0.027 U	0.027 U	0.027 U	0.026 U	0.026 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.041 U	0.040 U	0.040 U	0.040 U	0.039 U	0.039 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.036 U	0.035 U	0.035 U	0.035 U	0.035 U	0.034 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.47 UR	0.45 UR	0.45 UR	0.45 UR	0.45 UR	0.44 UR
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.051 UR	0.049 UR	0.049 UR	0.049 UR	0.049 UR	0.048 UR
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.032 U	0.031 U	0.030 U	0.031 U	0.030 U	0.030 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.069 U	0.066 U	0.066 U	0.066 U	0.065 U	0.065 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.071 U	0.069 U	0.068 U	0.069 U	0.068 U	0.067 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.078 U	0.075 U	0.075 U	0.076 U	0.075 U	0.074 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	0.036 U	0.035 U	0.034 U	0.035 U	0.034 U	0.034 U
CHRYSENE	MG/KG	PRG-IND	211	0.038 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.043 U	0.042 U	0.042 U	0.042 U	0.041 U	0.041 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.038 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.15 JB**	**0.078 JB**	**0.20 B**	**0.48 B**	**0.14 JB**	**0.31 B**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.034 U	0.033 U	0.033 U	0.033 U	0.033 U	0.032 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.043 U	0.042 U	0.041 U	0.042 U	0.041 U	0.041 U
FLUORENE	MG/KG	PRG-IND	26,281	0.038 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.038 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.072 U	0.070 U	0.069 U	0.070 U	0.069 U	0.068 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.063 U	0.061 U	0.061 U	0.061 U	0.060 U	0.059 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.035 U	0.034 U	0.034 U	0.034 U	0.033 U	0.033 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.046 U	0.044 U	0.044 U	0.044 U	0.044 U	0.043 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.018 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
NITROBENZENE	MG/KG	PRG-IND	103	0.062 U	0.060 U	0.059 U	0.060 U	0.059 U	0.058 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.056 U	0.054 U	0.054 U	0.054 U	0.054 U	0.053 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.091 U	0.088 U	0.088 U	0.088 U	0.087 U	0.086 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.026 U	0.025 U	0.025 U	0.026 U	0.025 U	0.025 U
PHENANTHRENE	MG/KG	PRG-IND	--	0.038 U	0.037 U	0.037 U	0.037 U	0.037 U	0.036 U
PHENOL	MG/KG	PRG-IND	100,000	0.036 U	0.035 U	0.035 U	0.035 U	0.035 U	0.034 U
PYRENE	MG/KG	PRG-IND	29,126	0.036 U	0.035 U	0.035 U	0.035 U	0.035 U	0.034 U

TABLE B-23
Criteria Evaluation - Soil - AVMA Trench T4 TPH
OUE Fort Richardson

Location ID:				**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**
Sample ID:				02AVMA18SL	02AVMA19SL	02AVMA20SL	02AVMA22SL	02AVMA23SL	02AVMA24SL
QAQC Type:				N	N	FD	N	N	N
Depth:				0.5	4	4	15	3	4.5
Date Sampled:				07/24/02	07/24/02	07/24/02	07/24/02	07/24/02	07/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**7.8 =**	**1.7 JB**	**1.2 JB**	0.62 U	**0.78 JB**	0.62 U
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	0.47 U	0.39 U	0.32 U	**0.39 J**	0.42 U	0.37 U

TABLE B-24
Criteria Evaluation - Soil - AVMA Trench T4 VOC
OUE Fort Richardson

Location ID:				**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**
Sample ID:				02AVMA18SL	02AVMA19SL	02AVMA20SL	02AVMA22SL	02AVMA24SL
QAQC Type:				N	N	FD	N	N
Depth:				0.5	4	4	15	4.5
Date Sampled:				07/24/02	07/24/02	07/24/02	07/24/02	07/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0056 U	0.0058 U	0.0054 U	0.0028 U	0.0059 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0056 U	0.0058 U	0.0054 U	0.0028 U	0.0059 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0054 U	0.0056 U	0.0052 U	0.0027 U	0.0056 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0092 U	0.0096 U	0.0089 U	0.0047 U	0.0097 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.011 U	0.011 U	0.010 U	0.0054 U	0.011 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0066 U	0.0068 U	0.0063 U	0.0033 U	0.0069 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0085 U	0.0089 U	0.0082 U	0.0043 U	0.0089 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0046 U	0.0048 U	0.0044 U	0.0023 U	0.0048 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0039 U	0.0041 U	0.0037 U	0.0020 U	0.0041 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.012 U	0.013 U	0.012 U	0.0061 U	0.013 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0029 U	0.0030 U	0.0028 U	0.0015 U	0.0031 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0037 U	0.0038 U	0.0035 U	0.0018 U	0.0038 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.029 U	0.030 U	0.028 U	0.015 U	0.031 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0041 U	0.0043 U	0.0040 U	0.0021 U	0.0043 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0051 U	0.0053 U	0.0049 U	0.0026 U	0.0053 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0090 U	0.0094 U	0.0087 U	0.0045 U	0.0094 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0085 U	0.0089 U	0.0082 U	0.0043 U	0.0089 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0056 U	0.0058 U	0.0054 U	0.0028 U	0.0059 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0054 U	0.0056 U	0.0052 U	0.0027 U	0.0056 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0032 U	0.0033 U	0.0030 U	0.0016 U	0.0033 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0068 U	0.0071 U	0.0066 U	0.0034 U	0.0071 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0068 U	0.0071 U	0.0066 U	0.0034 U	0.0071 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0058 U	0.0061 U	0.0056 U	0.0029 U	0.0061 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0027 U	0.0028 U	0.0026 U	0.0013 U	0.0028 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0041 U	0.0043 U	0.0040 U	0.0021 U	0.0043 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0061 U	0.0063 U	0.0059 U	0.0031 U	0.0064 U
ACETONE	MG/KG	PRG-IND	6,036	**0.033 JB**	0.030 U	0.028 U	0.015 U	0.031 U
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0080 U	0.0084 U	0.0077 U	0.0040 U	0.0084 U
BENZENE	MG/KG	PRG-IND	1.3	0.0044 U	0.0046 U	0.0042 U	0.0022 U	0.0046 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0083 U	0.0086 U	0.0080 U	0.0042 U	0.0087 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0083 U	0.0086 U	0.0080 U	0.0042 U	0.0087 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0056 U	0.0058 U	0.0054 U	0.0028 U	0.0059 U
BROMOFORM	MG/KG	PRG-IND	218	0.0078 U	0.0081 U	0.0075 U	0.0039 U	0.0081 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.018 UJ	0.019 UJ	0.018 UJ	0.0093 UJ	0.019 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0032 U	0.0033 U	0.0030 U	0.0016 U	0.0033 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0041 U	0.0043 U	0.0040 U	0.0021 U	0.0043 U

TABLE B-24
Criteria Evaluation - Soil - AVMA Trench T4 VOC
OUE Fort Richardson

Location ID:				**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**	**AVMAT4**
Sample ID:				02AVMA18SL	02AVMA19SL	02AVMA20SL	02AVMA22SL	02AVMA24SL
QAQC Type:				N	N	FD	N	N
Depth:				0.5	4	4	15	4.5
Date Sampled:				07/24/02	07/24/02	07/24/02	07/24/02	07/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0027 U	0.0028 U	0.0026 U	0.0013 U	0.0028 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0088 UJ	0.0091 UJ	0.0084 UJ	0.0044 UJ	0.0092 UJ
CHLOROFORM	MG/KG	PRG-IND	12	0.0061 U	0.0063 U	0.0059 U	0.0031 U	0.0064 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0071 U	0.0073 U	0.0068 U	0.0035 U	0.0074 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0061 U	0.0063 U	0.0059 U	0.0031 U	0.0064 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0018 U	0.0019 U	0.0018 U	9.30E-04 U	0.0019 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0078 U	0.0081 U	0.0075 U	0.0039 U	0.0081 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0051 U	0.0053 U	0.0049 U	0.0026 U	0.0053 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.014 UJ	0.015 UJ	0.014 UJ	0.0072 UJ	0.015 UJ
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0046 U	**0.014 J**	0.0044 U	0.0023 U	0.0048 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	**0.024 JB**	0.010 U	0.0096 U	0.0050 U	0.010 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.010 U	0.011 U	0.0098 U	0.0051 U	0.011 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	0.0019 U	0.0020 U	0.0019 U	9.80E-04 U	0.0020 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	**0.058 J**	0.013 U	**0.065 J**	0.0062 U	0.013 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0037 U	0.0038 U	0.0035 U	0.0018 U	0.0038 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.13 JB**	**0.48 JB**	**0.14 JB**	**0.072 JB**	**0.15 JB**
NAPHTHALENE	MG/KG	PRG-IND	188	0.0024 U	0.0025 U	0.0023 U	0.0012 U	0.0025 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0023 U	0.0024 U	0.0022 U	0.0012 U	0.0024 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0039 U	0.0041 U	0.0037 U	0.0020 U	0.0041 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0068 U	0.0071 U	0.0066 U	0.0034 U	0.0071 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0027 U	0.0028 U	0.0026 U	0.0013 U	0.0028 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0022 U	0.0023 U	0.0022 U	0.0011 U	0.0023 U
STYRENE	MG/KG	PRG-IND	1,700	0.0039 U	0.0041 U	0.0037 U	0.0020 U	0.0041 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0056 U	0.0058 U	0.0054 U	0.0028 U	0.0059 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0029 U	0.0030 U	0.0028 U	0.0015 U	0.0031 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0029 U	**0.014 J**	0.0028 U	0.0015 U	0.0031 U
TOLUENE	MG/KG	PRG-IND	520	0.0061 UJ	**0.031 JB**	0.0059 UJ	0.0031 UJ	**0.017 JB**
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0090 U	0.0094 U	0.0087 U	0.0045 U	0.0094 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0049 U	0.0051 U	0.0047 U	0.0024 U	0.0051 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.015 U	0.016 U	0.015 U	0.0077 U	0.016 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0063 UJ	0.0066 UJ	0.0061 UJ	0.0032 UJ	0.0066 UJ
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0083 UJ	0.0086 UJ	0.0080 UJ	0.0042 UJ	0.0087 UJ
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0051 U	0.0053 U	0.0049 U	0.0026 U	0.0053 U
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0075 U	0.0079 U	0.0073 U	0.0038 U	0.0079 U
XYLENES, m & p	MG/KG	PRG-IND	420	**0.013 J**	**0.026 J**	**0.012 J**	0.0018 U	0.0038 U

TABLE B-25

Criteria Evaluation - Soil - AVMA Trench T5 METAL

OUE Fort Richardson

Location ID:				**AVMAT5**		**AVMAT5**		**AVMAT5**		**AVMAT5**		**AVMAT5**	
Sample ID:				OUE02T5LS01		OUE02T5LS02		OUE02T5LS03		OUE02T5LS04		OUE02T5LS05	
QAQC Type:				N		N		N		N		N	
Depth:				15		25		25		25		25	
Date Sampled:				08/19/02		08/19/02		08/19/02		08/19/02		08/19/02	
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
ALUMINUM	MG/KG	PRG-IND	100,000	**21,000**	**=**	**20,000**	**=**	**17,000**	**=**	**20,000**	**=**	**15,000**	**=**
ANTIMONY	MG/KG	PRG-IND	409	**0.53**	**GQ,B**	**0.37**	**J,GQ**	**0.23**	**J,GQ**	**0.36**	**J,GQ**	**0.26**	**J,GQ**
ARSENIC	MG/KG	PRG-IND	1.6	**4.1**	**J**	**2.7**	**J**	**3.8**	**J**	**3.9**	**J**	**1.9**	**J**
BARIUM	MG/KG	PRG-IND	66,577	**540**	**=**	**71**	**=**	**56**	**=**	**84**	**=**	**47**	**=**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.56**	**=**	**0.41**	**=**	**0.36**	**=**	**0.48**	**=**	**0.35**	**=**
CADMIUM	MG/KG	PRG-IND	451	**0.85**	**=**	**0.98**	**=**	**0.83**	**=**	**1.1**	**=**	**0.78**	**=**
CALCIUM	MG/KG	PRG-IND	--	**9,700**	**=**	**7,800**	**=**	**6,900**	**=**	**9,200**	**=**	**7,300**	**=**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**38**	**=**	**36**	**=**	**36**	**=**	**45**	**=**	**42**	**=**
COBALT	MG/KG	PRG-IND	1,921	**12**	**=**	**13**	**=**	**11**	**=**	**13**	**=**	**11**	**=**
COPPER	MG/KG	PRG-IND	40,877	**30**	**=**	**33**	**=**	**28**	**=**	**42**	**=**	**34**	**=**
IRON	MG/KG	PRG-IND	100,000	**31,000**	**=**	**38,000**	**=**	**35,000**	**=**	**40,000**	**=**	**30,000**	**=**
LEAD	MG/KG	PRG-IND	750	**11**	**=**	**4.3**	**J**	**4.9**	**=**	**4.0**	**J**	**7.0**	**=**
MAGNESIUM	MG/KG	PRG-IND	--	**8,600**	**=**	**12,000**	**=**	**10,000**	**=**	**12,000**	**=**	**8,600**	**=**
MANGANESE	MG/KG	PRG-IND	19,458	**550**	**=**	**710**	**=**	**480**	**=**	**660**	**=**	**510**	**=**
MERCURY	MG/KG	PRG-IND	307	**0.057**	**=**	**0.060**	**=**	**0.057**	**=**	**0.075**	**=**	**0.059**	**=**
NICKEL	MG/KG	PRG-IND	20,439	**38**	**=**	**42**	**=**	**36**	**=**	**47**	**=**	**32**	**=**
POTASSIUM	MG/KG	PRG-IND	--	**1,100**	**=**	**1,100**	**=**	**1,000**	**=**	**1,400**	**=**	**1,000**	**=**
SELENIUM	MG/KG	PRG-IND	5,110	**4.5**	**J**	**7.2**	**J**	**5.0**	**J**	**7.5**	**J**	**3.3**	**J**
SILVER	MG/KG	PRG-IND	5,110	0.42	U	0.38	U	0.29	U	0.38	U	0.38	U
SODIUM	MG/KG	PRG-IND	--	**230**	**J**	**110**	**J**	**93**	**J**	**140**	**J**	**85**	**J**
THALLIUM	MG/KG	PRG-IND	67	0.25	U	0.24	U	0.23	U	0.27	U	0.25	U
VANADIUM	MG/KG	PRG-IND	7,154	**81**	**=**	**72**	**=**	**55**	**=**	**77**	**=**	**59**	**=**
ZINC	MG/KG	PRG-IND	100,000	**54**	**=**	**66**	**=**	**60**	**=**	**72**	**=**	**58**	**=**

TABLE B-26

Criteria Evaluation - Soil - AVMA Trench T5 PCB

OUE Fort Richardson

Location ID:				**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**
Sample ID:				OUE02T5LS01	OUE02T5LS02	OUE02T5LS03	OUE02T5LS04	OUE02T5LS05
QAQC Type:				N	N	N	N	N
Depth:				15	25	25	25	25
Date Sampled:				08/19/02	08/19/02	08/19/02	08/19/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
PCB-1016 (AROCHLOR 1016)	MG/KG	PRG-IND	21	0.011 U	0.0011 U	0.0011 U	0.0012 U	0.0011 U
PCB-1221 (AROCHLOR 1221)	MG/KG	PRG-IND	0.74	0.047 U	0.0047 U	0.0049 U	0.0050 U	0.0046 U
PCB-1232 (AROCHLOR 1232)	MG/KG	PRG-IND	0.74	0.037 U	0.0038 U	0.0039 U	0.0040 U	0.0037 U
PCB-1242 (AROCHLOR 1242)	MG/KG	PRG-IND	0.74	0.020 U	0.0020 U	0.0021 U	0.0022 U	0.0020 U
PCB-1248 (AROCHLOR 1248)	MG/KG	PRG-IND	0.74	0.020 U	0.0020 U	0.0021 U	0.0022 U	0.0020 U
PCB-1254 (AROCHLOR 1254)	MG/KG	PRG-IND	0.74	0.016 U	0.0016 U	0.0016 U	0.0017 U	0.0015 U
PCB-1260 (AROCHLOR 1260)	MG/KG	PRG-IND	0.74	0.016 U	0.0016 U	0.0016 U	0.0017 U	0.0015 U

TABLE B-27

Criteria Evaluation - Soil - AVMA Trench T5 PESTICIDE

OUE Fort Richardson

Location ID:				**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**
Sample ID:				OUE02T5LS01	OUE02T5LS02	OUE02T5LS03	OUE02T5LS04	OUE02T5LS05
QAQC Type:				N	N	N	N	N
Depth:				15	25	25	25	25
Date Sampled:				08/19/02	08/19/02	08/19/02	08/19/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
ALDRIN	MG/KG	PRG-IND	0.10	0.0043 U	4.32E-04 U	4.45E-04 U	4.61E-04 U	4.21E-04 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	0.36	0.0031 U	3.11E-04 U	3.20E-04 U	3.32E-04 U	3.03E-04 U
ALPHA ENDOSULFAN	MG/KG	PRG-IND	3,694	0.0042 U	4.26E-04 U	4.39E-04 U	4.55E-04 U	4.16E-04 U
ALPHA-CHLORDANE	MG/KG	PRG-IND	6.5	0.0040 U	3.98E-04 U	4.10E-04 U	4.25E-04 U	3.88E-04 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	1.3	0.0042 U	4.23E-04 U	4.36E-04 U	4.52E-04 U	4.13E-04 U
BETA ENDOSULFAN	MG/KG	PRG-IND	3,694	0.0039 U	3.87E-04 U	3.98E-04 U	4.13E-04 U	3.77E-04 U
CHLORDANE	MG/KG	PRG-IND	6.5	0.014 U	0.0014 U	0.0015 U	0.0015 U	0.0014 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	--	0.0038 U	3.84E-04 U	3.96E-04 U	4.10E-04 U	3.75E-04 U
DIELDRIN	MG/KG	PRG-IND	0.11	0.0033 U	3.28E-04 U	3.38E-04 U	3.51E-04 U	3.20E-04 U
ENDOSULFAN SULFATE	MG/KG	PRG-IND	--	0.0036 U	3.64E-04 U	3.75E-04 U	3.89E-04 U	3.55E-04 U
ENDRIN	MG/KG	PRG-IND	185	0.0036 U	3.61E-04 U	3.72E-04 U	3.86E-04 U	3.52E-04 U
ENDRIN ALDEHYDE	MG/KG	PRG-IND	--	0.0041 U	4.08E-04 U	4.20E-04 U	4.36E-04 U	3.98E-04 U
ENDRIN KETONE	MG/KG	PRG-IND	--	0.0028 U	2.81E-04 U	2.90E-04 U	3.00E-04 U	2.74E-04 U
GAMMA BHC (LINDANE)	MG/KG	PRG-IND	1.7	0.0038 U	3.82E-04 U	3.94E-04 U	4.09E-04 U	3.73E-04 U
GAMMA-CHLORDANE	MG/KG	PRG-IND	6.5	0.0040 U	4.06E-04 U	4.18E-04 U	4.34E-04 U	3.96E-04 U
HEPTACHLOR	MG/KG	PRG-IND	0.38	0.0034 U	3.44E-04 U	3.55E-04 U	3.68E-04 U	3.36E-04 U
HEPTACHLOR EPOXIDE	MG/KG	PRG-IND	0.19	0.0036 U	3.65E-04 U	3.77E-04 U	3.91E-04 U	3.56E-04 U
METHOXYCHLOR	MG/KG	PRG-IND	3,078	0.014 U	0.0014 U	0.0014 U	0.0015 U	0.0013 U
p,p'-DDD	MG/KG	PRG-IND	10.0	0.0019 U	1.95E-04 U	2.00E-04 U	2.08E-04 U	1.90E-04 U
p,p'-DDE	MG/KG	PRG-IND	7.0	0.0023 U	2.30E-04 U	2.37E-04 U	2.46E-04 U	2.25E-04 U
p,p'-DDT	MG/KG	PRG-IND	7.0	**0.034 GC**	**0.0024 GC**	2.67E-04 U	2.77E-04 U	2.53E-04 U
TOXAPHENE	MG/KG	PRG-IND	1.6	0.062 U	0.0063 U	0.0065 U	0.0067 U	0.0061 U

TABLE B-28
Criteria Evaluation - Soil - AVMA Trench T5 SVOC
OUE Fort Richardson

Location ID:				**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**
Sample ID:				OUE02T5LS01	OUE02T5LS02	OUE02T5LS03	OUE02T5LS04	OUE02T5LS05
QAQC Type:				N	N	N	N	N
Depth:				15	25	25	25	25
Date Sampled:				08/19/02	08/19/02	08/19/02	08/19/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.066 U	0.063 U	0.063 U	0.064 U	0.062 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.075 U	0.071 U	0.072 U	0.073 U	0.070 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.070 U	0.066 U	0.067 U	0.068 U	0.065 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.032 U	0.030 U	0.031 U	0.031 U	0.030 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.032 U	0.030 U	0.030 U	0.030 U	0.029 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.037 U	0.035 U	0.035 U	0.036 U	0.035 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.041 U	0.039 U	0.039 U	0.040 U	0.038 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.24 UJ	0.23 UJ	0.23 UJ	0.24 UJ	0.23 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.039 U	0.037 U	0.037 U	0.038 U	0.036 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.028 U	0.027 U	0.027 U	0.027 U	0.026 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.041 U	0.038 U	0.039 U	0.039 U	0.038 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.063 U	0.059 U	0.060 U	0.061 U	0.058 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.050 U	0.047 U	0.047 U	0.048 U	0.046 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.052 U	0.049 U	0.050 U	0.050 U	0.048 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.033 U	0.031 U	0.031 U	0.032 U	0.031 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.044 U	0.041 U	0.042 U	0.042 U	0.041 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.088 U	0.083 U	0.084 U	0.085 U	0.082 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.062 U	0.059 U	0.059 U	0.060 U	0.058 U
3-NITROANILINE	MG/KG	PRG-IND	--	0.039 U	0.037 U	0.037 U	0.038 U	0.036 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.023 U	0.022 U	0.022 U	0.023 U	0.022 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.039 U	0.037 U	0.037 U	0.038 U	0.036 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.039 U	0.037 U	0.037 U	0.038 U	0.036 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.096 U	0.091 U	0.092 U	0.093 U	0.089 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.034 U	0.032 U	0.033 U	0.033 U	0.032 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.041 U	0.039 U	0.039 U	0.040 U	0.038 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.024 U	0.022 U	0.023 U	0.023 U	0.022 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.044 U	0.042 U	0.042 U	0.043 U	0.041 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.041 U	0.038 U	0.039 U	0.039 U	0.038 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.040 U	0.038 U	0.038 U	0.038 U	0.037 U
BENZIDINE	MG/KG	PRG-IND	--	0.29 U	0.28 U	0.28 U	0.28 U	0.27 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.040 U	0.038 U	0.038 U	0.038 U	0.037 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.033 U	0.031 U	0.031 U	0.032 U	0.030 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.029 U	0.027 U	0.027 U	0.028 U	0.027 U

TABLE B-28
Criteria Evaluation - Soil - AVMA Trench T5 SVOC
OUE Fort Richardson

Location ID:				**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**
Sample ID:				OUE02T5LS01	OUE02T5LS02	OUE02T5LS03	OUE02T5LS04	OUE02T5LS05
QAQC Type:				N	N	N	N	N
Depth:				15	25	25	25	25
Date Sampled:				08/19/02	08/19/02	08/19/02	08/19/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.043 U	0.040 U	0.041 U	0.041 U	0.040 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.038 U	0.035 U	0.036 U	0.036 U	0.035 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.48 UR	0.46 UR	0.46 UR	0.47 UR	0.45 UR
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.053 UJ	0.050 UJ	0.050 UJ	0.051 UJ	0.049 UJ
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.033 U	**0.041 J**	0.031 U	0.032 U	0.030 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.071 U	0.067 U	0.068 U	0.069 U	0.066 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.074 U	0.070 U	0.070 U	0.071 U	0.068 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.081 U	0.076 U	0.077 U	0.078 U	0.075 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.052 J**	**0.19 =**	**0.18 =**	**0.16 J**	**0.19 =**
CHRYSENE	MG/KG	PRG-IND	211	0.040 U	0.038 U	0.038 U	0.038 U	0.037 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.045 U	0.042 U	0.043 U	0.043 U	0.042 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.040 U	0.038 U	0.038 U	0.038 U	0.037 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.040 U	0.038 U	0.038 U	0.038 U	0.037 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.040 U	0.038 U	0.038 U	0.038 U	0.037 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.67 JB**	**0.21 JB**	**0.21 JB**	**0.21 JB**	**0.24 JB**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.036 U	0.034 U	0.034 U	0.034 U	0.033 U
DIPHENYLAMINE	MG/KG	PRG-IND	--	0.050 U	0.047 U	0.048 U	0.049 U	0.047 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.045 U	0.042 U	0.043 U	0.043 U	0.041 U
FLUORENE	MG/KG	PRG-IND	26,281	0.040 U	0.038 U	0.038 U	0.038 U	0.037 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.040 U	0.038 U	0.038 U	0.038 U	0.037 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.075 U	0.070 U	0.071 U	0.072 U	0.069 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.014 UJ	0.013 UJ	0.013 UJ	0.013 UJ	0.013 UJ
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.065 U	0.062 U	0.062 U	0.063 U	0.061 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.036 U	0.034 U	0.034 U	0.035 U	0.034 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.047 U	0.045 U	0.045 U	0.046 U	0.044 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.018 U	0.017 U	0.018 U	0.018 U	0.017 U
NITROBENZENE	MG/KG	PRG-IND	103	0.064 U	0.060 U	0.061 U	0.062 U	0.059 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.058 U	0.055 U	0.055 U	0.056 U	0.054 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.094 U	0.089 U	0.090 U	0.091 U	0.088 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.027 UJ	0.026 UJ	0.026 UJ	0.026 UJ	0.025 UJ
PHENANTHRENE	MG/KG	PRG-IND	--	0.040 U	0.038 U	0.038 U	0.038 U	0.037 U
PHENOL	MG/KG	PRG-IND	100,000	0.037 U	0.035 U	0.036 U	0.036 U	0.035 U
PYRENE	MG/KG	PRG-IND	29,126	0.038 U	0.035 U	0.036 U	0.036 U	0.035 U

TABLE B-29
Criteria Evaluation - Soil - AVMA Trench T5 TPH
OUE Fort Richardson

Location ID:				**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**
Sample ID:				OUE02T5LS01	OUE02T5LS02	OUE02T5LS03	OUE02T5LS04	OUE02T5LS05
QAQC Type:				N	N	N	N	N
Depth:				15	25	25	25	25
Date Sampled:				08/19/02	08/19/02	08/19/02	08/19/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**25 =**	**2.3 JB**	**2.3 JB**	**2.8 JB**	**2.1 JB**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	**0.48 J**	0.22 U	0.17 U	0.17 U	**0.67 J**

TABLE B-30
Criteria Evaluation - Soil - AVMA Trench T5 VOC
OUE Fort Richardson

Location ID:				**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**
Sample ID:				OUE02T5LS01	OUE02T5LS02	OUE02T5LS03	OUE02T5LS04	OUE02T5LS05
QAQC Type:				N	N	N	N	N
Depth:				15	25	25	25	25
Date Sampled:				08/19/02	08/19/02	08/19/02	08/19/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0025 U	0.0029 U	0.0026 U	0.0023 U	0.0023 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0025 U	0.0029 U	0.0026 U	0.0023 U	0.0023 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0024 U	0.0028 U	0.0025 U	0.0022 U	0.0022 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0041 U	0.0048 U	0.0043 U	0.0038 U	0.0038 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0048 U	0.0055 U	0.0050 U	0.0044 U	0.0045 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0029 U	0.0034 U	0.0031 U	0.0027 U	0.0027 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0038 U	0.0044 U	0.0040 U	0.0035 U	0.0035 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0021 U	0.0024 U	0.0022 U	0.0019 U	0.0019 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0017 UJ	0.0020 UJ	0.0018 UR	0.0016 UJ	0.0016 UR
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0054 U	0.0063 U	0.0057 U	0.0050 U	0.0051 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0013 U	0.0015 U	0.0014 U	0.0012 U	0.0012 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	**0.0084 J**	0.0019 U	0.0017 U	0.0015 U	0.0015 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.013 U	0.015 U	0.014 U	0.012 U	0.012 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0018 U	0.0021 U	0.0019 U	0.0017 U	0.0017 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0023 U	0.0026 U	0.0024 U	0.0021 U	0.0021 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0040 U	0.0047 U	0.0042 U	0.0037 U	0.0037 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0038 U	0.0044 U	0.0040 U	0.0035 U	0.0035 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0025 U	0.0029 U	0.0026 U	0.0023 U	0.0023 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0024 U	0.0028 U	0.0025 U	0.0022 U	0.0022 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0014 U	0.0016 U	0.0015 U	0.0013 U	0.0013 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0030 U	0.0035 U	0.0032 U	0.0028 U	0.0028 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0030 U	0.0035 U	0.0032 U	0.0028 U	0.0028 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0026 U	0.0030 U	0.0027 U	0.0024 U	0.0024 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0012 U	0.0014 U	0.0013 U	0.0011 U	0.0011 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0018 U	0.0021 U	0.0019 U	0.0017 U	0.0017 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0027 U	0.0031 U	0.0028 U	0.0025 U	0.0025 U
ACETONE	MG/KG	PRG-IND	6,036	0.013 UJ	0.015 UJ	0.014 UJ	0.012 UJ	0.012 UJ
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0036 U	0.0041 U	0.0038 U	0.0033 U	0.0033 U
BENZENE	MG/KG	PRG-IND	1.3	0.0020 U	0.0023 U	0.0020 U	0.0018 U	0.0018 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0037 U	0.0043 U	0.0039 U	0.0034 U	0.0034 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0037 U	0.0043 U	0.0039 U	0.0034 U	0.0034 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0025 U	0.0029 U	0.0026 U	0.0023 U	0.0023 U
BROMOFORM	MG/KG	PRG-IND	218	0.0035 U	0.0040 U	0.0036 U	0.0032 U	0.0032 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.0083 UJ	0.0096 UJ	0.0086 UJ	0.0077 UJ	0.0077 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0014 UJ	0.0016 UJ	0.0015 U	0.0013 UJ	0.0013 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0018 U	0.0021 U	0.0019 U	0.0017 U	0.0017 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0012 U	0.0014 U	0.0013 U	0.0011 U	0.0011 U

TABLE B-30
Criteria Evaluation - Soil - AVMA Trench T5 VOC
OUE Fort Richardson

Location ID:				**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**	**AVMAT5**
Sample ID:				OUE02T5LS01	OUE02T5LS02	OUE02T5LS03	OUE02T5LS04	OUE02T5LS05
QAQC Type:				N	N	N	N	N
Depth:				15	25	25	25	25
Date Sampled:				08/19/02	08/19/02	08/19/02	08/19/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0039 UJ	0.0045 UJ	0.0041 UJ	0.0036 UJ	0.0036 UJ
CHLOROFORM	MG/KG	PRG-IND	12	0.0027 U	0.0031 U	0.0028 U	0.0025 U	0.0025 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0032 U	0.0036 U	0.0033 U	0.0029 U	0.0029 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0027 U	0.0031 U	0.0028 U	0.0025 U	0.0025 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	8.30E-04 U	9.60E-04 U	8.60E-04 U	7.70E-04 U	7.70E-04 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0035 U	0.0040 U	0.0036 U	0.0032 U	0.0032 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0023 U	0.0026 U	0.0024 U	0.0021 U	0.0021 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0064 U	0.0074 U	0.0067 U	0.0060 U	0.0060 U
ETHYLBENZENE	MG/KG	PRG-IND	20	**0.0051 J**	0.0024 U	0.0022 U	0.0019 U	0.0019 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0045 U	0.0052 U	0.0047 U	0.0041 U	0.0042 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0046 U	0.0053 U	0.0048 U	0.0042 U	0.0043 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	8.70E-04 U	0.0010 U	9.10E-04 U	8.10E-04 U	8.10E-04 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	0.0055 U	**0.059 B**	**0.062 B**	**0.058 B**	0.0052 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0016 U	0.0019 U	0.0017 U	0.0015 U	0.0015 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.021 JB**	**0.028 JB**	**0.042 B**	**0.020 JB**	**0.034 JB**
NAPHTHALENE	MG/KG	PRG-IND	188	0.0011 U	0.0012 U	0.0011 UJ	9.90E-04 U	9.90E-04 UJ
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0010 U	0.0012 U	0.0011 U	9.60E-04 U	9.60E-04 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0017 U	0.0020 U	0.0018 U	0.0016 U	0.0016 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	**0.0062 J**	0.0035 U	0.0032 U	0.0028 U	0.0028 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0012 U	0.0014 U	0.0013 U	0.0011 U	0.0011 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0010 U	0.0012 U	0.0010 U	9.30E-04 U	9.30E-04 U
STYRENE	MG/KG	PRG-IND	1,700	0.0017 U	0.0020 U	0.0018 U	0.0016 U	0.0016 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0025 U	0.0029 U	0.0026 U	0.0023 U	0.0023 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0013 U	0.0015 U	0.0014 U	0.0012 U	0.0012 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0013 U	0.0015 U	0.0014 U	0.0012 U	0.0012 U
TOLUENE	MG/KG	PRG-IND	520	**0.0057 J**	0.0031 U	0.0028 U	0.0025 U	**0.0051 J**
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0040 U	0.0047 U	0.0042 U	0.0037 U	0.0037 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0022 U	0.0025 U	0.0023 U	0.0020 U	0.0020 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.0068 U	0.0079 U	0.0072 U	0.0064 U	0.0064 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0028 U	0.0033 U	0.0030 U	0.0026 U	0.0026 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0037 U	0.0043 U	0.0039 U	0.0034 U	0.0034 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0023 U	0.0026 U	0.0024 UR	0.0021 U	0.0021 UR
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0034 U	0.0039 U	0.0035 U	0.0031 U	0.0031 U
XYLENES, m & p	MG/KG	PRG-IND	420	**0.012 J**	0.0019 U	0.0017 U	0.0015 U	**0.0049 J**

TABLE B-31

Criteria Evaluation - Soil - AVMA Trench T6 METAL

OUE Fort Richardson

Location ID:				AVMAT6	AVMAT6	AVMAT6	AVMAT6	AVMAT6	AVMAT6
Sample ID:				OUE02T6LS06	OUE02T6LS07	OUE02T6LS08	OUE02T6LS09	OUE02T6LS10	OUE02T6LS11
QAQC Type:				N	N	N	N	FD	N
Depth:				15	25	0.5	5	5	5
Date Sampled:				08/19/02	08/19/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALUMINUM	MG/KG	PRG-IND	100,000	**19,100 =**	**15,800 =**	**26,100 =**	**19,800 =**	**22,600 =**	**22,500 =**
ANTIMONY	MG/KG	PRG-IND	409	**0.13 JB**	0.055 U	**0.42 JB**	**0.16 JB**	**0.14 JB**	**0.29 JB**
ARSENIC	MG/KG	PRG-IND	1.6	**4.4 J**	**1.6 J**	**5.1 J**	**3.4 J**	**2.6 J**	**1.6 J**
BARIUM	MG/KG	PRG-IND	66,577	**60 =**	**55 =**	**103 =**	**61 =**	**64 =**	**60 =**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.42 =**	**0.34 =**	**0.46 =**	**0.44 =**	**0.56 =**	**0.51 =**
CADMIUM	MG/KG	PRG-IND	451	**0.93 =**	**0.78 =**	**1.1 =**	**0.96 =**	**1.1 =**	**1.2 =**
CALCIUM	MG/KG	PRG-IND	--	**7,730 =**	**7,970 =**	**5,260 =**	**8,170 =**	**13,300 =**	**10,800 =**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**30 =**	**35 =**	**40 =**	**51 =**	**38 =**	**54 =**
COBALT	MG/KG	PRG-IND	1,921	**13 =**	**9.9 =**	**15 =**	**11 =**	**12 =**	**13 =**
COPPER	MG/KG	PRG-IND	40,877	**32 =**	**23 =**	**25 =**	**30 =**	**31 =**	**33 =**
IRON	MG/KG	PRG-IND	100,000	**36,100 =**	**29,700 =**	**39,900 =**	**36,800 =**	**35,500 =**	**40,600 =**
LEAD	MG/KG	PRG-IND	750	**4.2 =**	**2.9 J**	**7.2 =**	**4.6 =**	**7.8 =**	**4.9 J**
MAGNESIUM	MG/KG	PRG-IND	--	**11,700 =**	**8,390 =**	**8,560 =**	**11,200 =**	**10,600 =**	**12,300 =**
MANGANESE	MG/KG	PRG-IND	19,458	**603 =**	**505 =**	**739 =**	**656 =**	**639 =**	**698 =**
MERCURY	MG/KG	PRG-IND	307	**0.050 =**	**0.059 =**	**0.047 J**	**0.056 =**	**0.055 =**	**0.051 =**
NICKEL	MG/KG	PRG-IND	20,439	**48 =**	**30 =**	**39 =**	**39 =**	**36 =**	**40 =**
POTASSIUM	MG/KG	PRG-IND	--	**1,130 =**	**933 =**	**920 =**	**1,170 =**	**1,100 =**	**1,260 =**
SELENIUM	MG/KG	PRG-IND	5,110	**3.3 J**	**3.0 J**	**8.3 J**	**6.8 =**	**5.6 J**	**8.3 J**
SILVER	MG/KG	PRG-IND	5,110	0.24 U	0.27 U	0.54 U	0.29 U	0.44 U	0.38 U
SODIUM	MG/KG	PRG-IND	--	**112 J**	**109 J**	**132 J**	**110 J**	**111 J**	**125 J**
THALLIUM	MG/KG	PRG-IND	67	0.14 U	0.20 U	0.31 U	0.28 U	0.28 U	0.26 U
VANADIUM	MG/KG	PRG-IND	7,154	**67 =**	**61 =**	**87 =**	**69 =**	**80 =**	**83 =**
ZINC	MG/KG	PRG-IND	100,000	**61 =**	**51 =**	**67 =**	**60 =**	**66 =**	**68 =**

TABLE B-32

Criteria Evaluation - Soil - AVMA Trench T6 PCB

OUE Fort Richardson

Location ID:				**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**
Sample ID:				OUE02T6LS06	OUE02T6LS07	OUE02T6LS08	OUE02T6LS09	OUE02T6LS10	OUE02T6LS11
QAQC Type:				N	N	N	N	FD	N
Depth:				15	25	0.5	5	5	5
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
PCB-1016 (AROCHLOR 1016)	MG/KG	PRG-IND	21	0.0011 U	0.0011 U	0.0012 U	0.0011 U	0.0011 U	0.0010 U
PCB-1221 (AROCHLOR 1221)	MG/KG	PRG-IND	0.74	0.0048 U	0.0047 U	0.0052 U	0.0047 U	0.0046 U	0.0044 U
PCB-1232 (AROCHLOR 1232)	MG/KG	PRG-IND	0.74	0.0038 U	0.0037 U	0.0041 U	0.0037 U	0.0036 U	0.0035 U
PCB-1242 (AROCHLOR 1242)	MG/KG	PRG-IND	0.74	0.0020 U	0.0020 U	0.0022 U	0.0020 U	0.0019 U	0.0019 U
PCB-1248 (AROCHLOR 1248)	MG/KG	PRG-IND	0.74	0.0020 U	0.0020 U	0.0022 U	0.0020 U	0.0019 U	0.0019 U
PCB-1254 (AROCHLOR 1254)	MG/KG	PRG-IND	0.74	0.0016 U	0.0015 U	0.0017 U	0.0016 U	0.0015 U	0.0015 U
PCB-1260 (AROCHLOR 1260)	MG/KG	PRG-IND	0.74	0.0016 U	0.0015 U	0.0017 U	0.0016 U	0.0015 U	0.0015 U

TABLE B-33
Criteria Evaluation - Soil - AVMA Trench T6 PESTICIDE
OUE Fort Richardson

Location ID:				**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**
Sample ID:				OUE02T6LS06	OUE02T6LS07	OUE02T6LS08	OUE02T6LS09	OUE02T6LS10	OUE02T6LS11
QAQC Type:				N	N	N	N	FD	N
Depth:				15	25	0.5	5	5	5
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALDRIN	MG/KG	PRG-IND	0.10	4.37E-04 U	4.26E-04 U	4.74E-04 U	4.30E-04 U	4.18E-04 U	4.06E-04 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	0.36	3.15E-04 U	3.07E-04 U	3.41E-04 U	3.09E-04 U	3.01E-04 U	2.92E-04 U
ALPHA ENDOSULFAN	MG/KG	PRG-IND	3,694	4.31E-04 U	4.21E-04 U	4.68E-04 U	4.24E-04 U	4.12E-04 U	4.00E-04 U
ALPHA-CHLORDANE	MG/KG	PRG-IND	6.5	4.03E-04 U	3.93E-04 U	4.37E-04 U	3.96E-04 U	3.85E-04 U	3.74E-04 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	1.3	4.29E-04 U	4.18E-04 U	4.65E-04 U	4.21E-04 U	4.10E-04 U	3.98E-04 U
BETA ENDOSULFAN	MG/KG	PRG-IND	3,694	3.92E-04 U	3.82E-04 U	4.25E-04 U	3.85E-04 U	3.74E-04 U	3.63E-04 U
CHLORDANE	MG/KG	PRG-IND	6.5	0.0014 U	0.0014 U	0.0016 U	0.0014 U	0.0014 U	0.0013 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	--	3.89E-04 U	3.79E-04 U	4.22E-04 U	3.82E-04 U	3.72E-04 U	3.61E-04 U
DIELDRIN	MG/KG	PRG-IND	0.11	3.32E-04 U	3.24E-04 U	3.60E-04 U	3.27E-04 U	3.18E-04 U	3.08E-04 U
ENDOSULFAN SULFATE	MG/KG	PRG-IND	--	3.69E-04 U	3.60E-04 U	4.00E-04 U	3.62E-04 U	3.52E-04 U	3.42E-04 U
ENDRIN	MG/KG	PRG-IND	185	3.66E-04 U	3.57E-04 U	3.97E-04 U	3.59E-04 U	3.49E-04 U	3.39E-04 U
ENDRIN ALDEHYDE	MG/KG	PRG-IND	--	4.13E-04 U	4.03E-04 U	4.48E-04 U	4.06E-04 U	3.95E-04 U	3.83E-04 U
ENDRIN KETONE	MG/KG	PRG-IND	--	2.85E-04 U	2.78E-04 U	3.09E-04 U	2.80E-04 U	2.72E-04 U	2.64E-04 U
GAMMA BHC (LINDANE)	MG/KG	PRG-IND	1.7	3.87E-04 U	3.78E-04 U	4.20E-04 U	3.81E-04 U	3.70E-04 U	3.59E-04 U
GAMMA-CHLORDANE	MG/KG	PRG-IND	6.5	4.11E-04 U	4.01E-04 U	4.46E-04 U	4.04E-04 U	3.93E-04 U	3.82E-04 U
HEPTACHLOR	MG/KG	PRG-IND	0.38	3.49E-04 U	3.40E-04 U	3.78E-04 U	3.43E-04 U	3.33E-04 U	3.24E-04 U
HEPTACHLOR EPOXIDE	MG/KG	PRG-IND	0.19	3.70E-04 U	3.61E-04 U	4.01E-04 U	3.64E-04 U	3.54E-04 U	3.43E-04 U
METHOXYCHLOR	MG/KG	PRG-IND	3,078	0.0014 U	0.0014 U	0.0015 U	0.0014 U	0.0013 U	0.0013 U
p,p'-DDD	MG/KG	PRG-IND	10.0	1.97E-04 U	1.92E-04 U	2.14E-04 U	1.94E-04 U	1.88E-04 U	1.83E-04 U
p,p'-DDE	MG/KG	PRG-IND	7.0	2.33E-04 U	2.27E-04 U	**0.0012 J,GC**	2.29E-04 U	2.23E-04 U	2.16E-04 U
p,p'-DDT	MG/KG	PRG-IND	7.0	**0.0028 GC**	2.56E-04 U	**0.0046 GC**	2.58E-04 U	2.51E-04 U	2.44E-04 U
TOXAPHENE	MG/KG	PRG-IND	1.6	0.0064 U	0.0062 U	0.0069 U	0.0062 U	0.0061 U	0.0059 U

TABLE B-34
Criteria Evaluation - Soil - AVMA Trench T6 SVOC
OUE Fort Richardson

Location ID:				**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**
Sample ID:				OUE02T6LS06	OUE02T6LS07	OUE02T6LS08	OUE02T6LS09	OUE02T6LS10	OUE02T6LS11
QAQC Type:				N	N	N	N	FD	N
Depth:				15	25	0.5	5	5	5
Date Sampled:				08/19/02	08/19/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.063 U	0.063 U	0.073 U	0.061 U	0.062 U	0.061 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.071 U	0.072 U	0.083 U	0.069 U	0.070 U	0.070 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.067 U	0.067 U	0.078 U	0.065 U	0.065 U	0.065 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.030 U	0.031 U	0.036 U	0.030 U	0.030 U	0.030 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.030 U	0.030 U	0.035 U	0.029 U	0.029 U	0.029 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.035 U	0.035 U	0.041 U	0.034 U	0.034 U	0.034 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.039 U	0.039 U	0.045 U	0.038 U	0.038 U	0.038 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.23 UJ	0.23 UJ	0.27 UJ	0.23 UJ	0.23 UJ	0.23 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.037 U	0.037 U	0.043 U	0.036 U	0.036 U	0.036 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.027 U	0.027 U	0.031 U	0.026 U	0.026 U	0.026 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.038 U	0.039 U	0.045 U	0.037 U	0.038 U	0.037 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.060 U	0.060 U	0.069 U	0.058 U	0.058 U	0.058 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.047 U	0.047 U	**0.77 =**	0.046 U	0.046 U	0.046 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.049 U	0.049 U	0.057 U	0.048 U	0.048 U	0.048 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.031 U	0.031 U	0.036 U	0.030 U	0.030 U	0.030 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.042 U	0.042 U	0.048 U	0.041 U	0.041 U	0.041 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.083 U	0.084 U	0.097 U	0.081 U	0.081 U	0.081 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.059 UJ	0.059 UJ	0.069 UJ	0.058 UJ	0.058 UJ	0.058 UJ
3-NITROANILINE	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.043 U	0.036 U	0.036 U	0.036 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.022 U	0.022 U	0.026 U	0.022 U	0.022 U	0.022 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.043 U	0.036 U	0.036 U	0.036 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.043 U	0.036 U	0.036 U	0.036 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.091 UJ	0.092 UJ	0.11 UJ	0.089 UJ	0.089 UJ	0.089 UJ
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.032 U	0.033 U	0.038 U	0.032 U	0.032 U	0.032 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.039 U	0.039 U	0.046 U	0.038 U	0.038 U	0.038 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.023 U	0.023 U	0.026 U	0.022 U	0.022 U	0.022 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.042 U	0.042 U	0.049 U	0.041 U	0.041 U	0.041 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.038 U	0.039 U	0.045 U	0.037 U	0.038 U	0.037 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.038 U	0.038 U	0.044 U	0.037 U	0.037 U	0.037 U

TABLE B-34
Criteria Evaluation - Soil - AVMA Trench T6 SVOC
OUE Fort Richardson

Location ID:				**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**
Sample ID:				OUE02T6LS06	OUE02T6LS07	OUE02T6LS08	OUE02T6LS09	OUE02T6LS10	OUE02T6LS11
QAQC Type:				N	N	N	N	FD	N
Depth:				15	25	0.5	5	5	5
Date Sampled:				08/19/02	08/19/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.038 U	0.038 U	0.044 U	0.037 U	0.037 U	0.037 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.031 U	0.031 U	0.036 U	0.030 U	0.030 U	0.030 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.027 U	0.027 U	0.032 U	0.026 U	0.027 U	0.027 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.040 U	0.041 U	0.047 U	0.039 U	0.039 U	0.039 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.036 U	0.036 U	0.041 U	0.035 U	0.035 U	0.035 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.46 UR	0.46 UR	0.53 UR	0.45 UR	0.45 UR	0.45 UR
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.050 UR	0.050 UR	0.058 UR	0.049 UR	0.049 UR	0.049 UR
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.031 U	0.031 U	0.036 U	0.030 U	0.030 U	0.030 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.067 U	0.068 U	0.078 U	0.066 U	0.066 U	0.066 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.070 U	0.070 U	0.082 U	0.068 U	0.068 U	0.068 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.077 U	0.077 U	0.089 U	0.075 U	0.075 U	0.075 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.19 =**	**0.094 J**	**0.073 J**	**0.050 J**	**0.049 J**	**0.11 J**
CHRYSENE	MG/KG	PRG-IND	211	0.038 U	0.038 U	0.044 U	0.037 U	0.037 U	0.037 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.043 U	0.043 U	0.050 U	0.041 U	0.042 U	0.042 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.038 U	0.038 U	0.044 U	0.037 U	0.037 U	0.037 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038 U	0.038 U	0.044 U	0.037 U	0.037 U	0.037 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038 U	0.038 U	0.044 U	0.037 U	0.037 U	0.037 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.73 JB**	**0.42 JB**	**0.35 JB**	**0.57 JB**	**0.44 JB**	**0.55 JB**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.034 U	0.034 U	0.039 U	0.033 U	0.033 U	0.033 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.042 U	0.042 U	0.049 U	0.041 U	0.041 U	0.041 U
FLUORENE	MG/KG	PRG-IND	26,281	0.038 U	0.038 U	0.044 U	0.037 U	0.037 U	0.037 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.038 U	0.038 U	0.044 U	0.037 U	0.037 U	0.037 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.071 U	0.071 U	0.082 U	0.069 U	0.069 U	0.069 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 UR	0.013 UR	0.015 UR	0.013 UR	0.013 UR	0.013 UR
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.062 U	0.062 U	0.072 U	0.060 U	0.060 U	0.060 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.034 U	0.034 U	0.040 U	0.033 U	0.033 U	0.033 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.045 U	0.045 U	0.052 U	0.044 U	0.044 U	0.044 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.017 U	0.017 U	**0.34 =**	0.017 U	0.017 U	0.017 U
NITROBENZENE	MG/KG	PRG-IND	103	0.060 U	0.061 U	0.070 U	0.059 U	0.059 U	0.059 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.055 U	0.055 U	0.064 U	0.054 U	0.054 U	0.054 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.089 U	0.090 U	0.10 U	0.087 U	0.087 U	0.087 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.026 UJ	0.026 UJ	0.030 UJ	0.025 UJ	0.025 UJ	0.025 UJ
PHENANTHRENE	MG/KG	PRG-IND	--	0.038 U	0.038 U	0.044 U	0.037 U	0.037 U	0.037 U
PHENOL	MG/KG	PRG-IND	100,000	0.036 U	0.036 U	0.041 U	0.035 U	0.035 U	0.035 U
PYRENE	MG/KG	PRG-IND	29,126	0.036 U	0.036 U	0.041 U	0.035 U	0.035 U	0.035 U

TABLE B-35
Criteria Evaluation - Soil - AVMA Trench T6 TPH
OUE Fort Richardson

Location ID:				**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**
Sample ID:				OUE02T6LS06	OUE02T6LS07	OUE02T6LS08	OUE02T6LS09	OUE02T6LS10	OUE02T6LS11
QAQC Type:				N	N	N	N	FD	N
Depth:				15	25	0.5	5	5	5
Date Sampled:				08/19/02	08/19/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**2.2 JB**	**2.3 JB**	**5.4 J**	**2.0 JB**	**2.9 JB**	**1.5 JB**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	**0.22 J**	0.15 U	**0.33 J**	**0.28 J**	**0.34 J**	0.19 U

TABLE B-36
Criteria Evaluation - Soil - AVMA Trench T6 VOC
OUE Fort Richardson

Location ID:				**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**
Sample ID:				OUE02T6LS06	OUE02T6LS07	OUE02T6LS08	OUE02T6LS09	OUE02T6LS10	OUE02T6LS11
QAQC Type:				N	N	N	N	FD	N
Depth:				15	25	0.5	5	5	5
Date Sampled:				08/19/02	08/19/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0021 U	0.0017 U	0.0033 U	0.0022 U	0.0021 U	0.0021 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0021 U	0.0017 U	0.0033 U	0.0022 U	0.0021 U	0.0021 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0021 U	0.0016 U	0.0032 U	0.0021 U	0.0020 U	0.0020 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0035 U	0.0027 U	0.0055 U	0.0036 U	0.0035 U	0.0035 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0041 U	0.0032 U	0.0064 U	0.0041 U	0.0040 U	0.0040 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0025 U	0.0019 U	0.0039 U	0.0025 U	0.0025 U	0.0025 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0033 U	0.0025 U	0.0051 U	0.0033 U	0.0032 U	0.0032 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0018 U	0.0014 U	0.0027 U	0.0018 U	0.0017 U	0.0017 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0015 UJ	0.0012 UJ	0.0023 UJ	**0.0078 JB**	0.0015 UJ	0.0015 UJ
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0047 U	0.0036 U	0.0072 U	0.0047 U	0.0046 U	0.0046 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0011 UJ	8.60E-04 UJ	0.0017 UJ	0.0011 UJ	0.0011 UJ	0.0011 UJ
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0014 U	0.0011 U	0.0022 U	0.0014 U	**0.014 J**	0.0014 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.011 UJ	0.0086 UJ	0.017 UJ	0.011 UJ	0.011 UJ	0.011 UJ
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0016 U	0.0012 U	0.0025 U	0.0016 U	0.0016 U	0.0016 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0020 U	0.0015 U	0.0030 U	0.0020 U	0.0019 U	0.0019 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0035 U	0.0027 U	0.0053 U	0.0035 U	0.0034 U	0.0034 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0033 U	0.0025 U	0.0051 U	0.0033 U	0.0032 U	0.0032 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0021 U	0.0017 U	0.0033 U	0.0022 U	0.0021 U	0.0021 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0021 U	0.0016 U	0.0032 U	0.0021 U	0.0020 U	0.0020 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0012 U	9.40E-04 U	0.0019 U	0.0012 U	0.0012 U	0.0012 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0026 U	0.0020 U	0.0040 U	0.0026 U	0.0026 U	0.0026 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0026 U	0.0020 U	0.0040 U	0.0026 U	0.0026 U	0.0026 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0022 U	0.0017 U	0.0035 U	0.0022 U	0.0022 U	0.0022 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0010 U	7.90E-04 U	0.0016 U	0.0010 U	0.0010 U	0.0010 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0016 U	0.0012 U	0.0025 U	0.0016 U	0.0016 U	0.0016 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0023 U	0.0018 U	0.0036 U	0.0023 U	0.0023 U	0.0023 U
ACETONE	MG/KG	PRG-IND	6,036	0.011 UJ	0.0086 UJ	0.017 UJ	0.011 UJ	**0.036 J**	0.011 UJ
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0031 U	0.0024 U	0.0048 U	0.0031 U	0.0030 U	0.0030 U
BENZENE	MG/KG	PRG-IND	1.3	0.0017 U	0.0013 U	0.0026 U	0.0017 U	0.0017 U	0.0017 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0032 U	0.0024 U	0.0049 U	0.0032 U	0.0031 U	0.0031 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0032 U	0.0024 U	0.0049 U	0.0032 U	0.0031 UJ	0.0031 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0021 U	0.0017 U	0.0033 U	0.0022 U	0.0021 U	0.0021 U
BROMOFORM	MG/KG	PRG-IND	218	0.0030 U	0.0023 U	0.0046 U	0.0030 U	0.0029 U	0.0029 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.0071 UJ	0.0055 UJ	0.011 UJ	0.0071 UJ	0.0070 UJ	0.0070 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0012 UJ	9.40E-04 UJ	0.0019 UJ	0.0012 UJ	0.0012 U	0.0012 UJ

TABLE B-36
Criteria Evaluation - Soil - AVMA Trench T6 VOC
OUE Fort Richardson

Location ID:				**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**	**AVMAT6**
Sample ID:				OUE02T6LS06	OUE02T6LS07	OUE02T6LS08	OUE02T6LS09	OUE02T6LS10	OUE02T6LS11
QAQC Type:				N	N	N	N	FD	N
Depth:				15	25	0.5	5	5	5
Date Sampled:				08/19/02	08/19/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0016 U	0.0012 U	0.0025 U	0.0016 U	0.0016 U	0.0016 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0010 U	7.90E-04 U	0.0016 U	0.0010 U	0.0010 U	0.0010 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0034 UJ	0.0026 UJ	0.0052 UJ	0.0034 UJ	0.0033 UJ	0.0033 UJ
CHLOROFORM	MG/KG	PRG-IND	12	0.0023 U	0.0018 U	0.0036 U	0.0023 U	0.0023 U	0.0023 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0027 U	0.0021 U	0.0042 U	0.0027 U	0.0027 UJ	0.0027 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0023 U	0.0018 U	0.0036 U	0.0023 U	0.0023 U	0.0023 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	7.10E-04 U	5.50E-04 U	0.0011 U	7.10E-04 U	7.00E-04 U	7.00E-04 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0030 U	0.0023 U	0.0046 U	0.0030 U	0.0029 U	0.0029 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0020 U	0.0015 U	0.0030 U	0.0020 U	0.0019 UJ	0.0019 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0055 U	0.0042 U	0.0085 U	0.0055 U	0.0054 U	0.0054 U
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0018 U	0.0014 U	0.0027 U	0.0018 U	0.0017 U	0.0017 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0038 U	0.0030 U	0.0059 U	**0.0071 J**	0.0038 U	0.0038 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0039 U	0.0030 U	0.0061 U	0.0039 U	**0.085 J**	0.0039 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	7.50E-04 U	5.80E-04 U	0.0012 U	7.50E-04 U	7.30E-04 U	7.30E-04 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	**0.035 JB**	**0.031 JB**	**0.048 JB**	**0.037 JB**	**0.013 JB**	**0.038 JB**
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0014 U	0.0011 U	0.0022 U	0.0014 U	0.0014 U	0.0014 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.020 JB**	**0.016 JB**	**0.026 JB**	**0.018 JB**	**0.027 JB**	**0.019 JB**
NAPHTHALENE	MG/KG	PRG-IND	188	9.10E-04 UJ	7.10E-04 U	0.0014 UJ	9.20E-04 UJ	**0.032 J**	9.00E-04 UJ
n-BUTYLBENZENE	MG/KG	PRG-IND	240	8.90E-04 U	6.80E-04 U	0.0014 U	8.90E-04 U	8.70E-04 U	8.70E-04 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0015 U	0.0012 U	0.0023 U	0.0015 U	0.0015 U	0.0015 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0026 U	0.0020 U	0.0040 U	0.0026 U	0.0026 U	0.0026 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0010 U	7.90E-04 U	0.0016 U	0.0010 U	0.0010 U	0.0010 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	8.60E-04 U	6.60E-04 U	0.0013 U	8.60E-04 U	8.40E-04 U	8.40E-04 U
STYRENE	MG/KG	PRG-IND	1,700	0.0015 U	0.0012 U	0.0023 U	0.0015 U	0.0015 U	0.0015 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0021 U	0.0017 U	0.0033 U	0.0022 U	0.0021 U	0.0021 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0011 U	8.60E-04 U	0.0017 U	0.0011 U	0.0011 U	0.0011 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0011 U	8.60E-04 U	0.0017 U	0.0011 U	0.0011 U	0.0011 U
TOLUENE	MG/KG	PRG-IND	520	0.0023 U	0.0018 U	0.0036 U	0.0023 U	0.0023 U	0.0023 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0035 U	0.0027 U	0.0053 U	0.0035 U	0.0034 U	0.0034 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0019 U	0.0014 U	0.0029 U	0.0019 U	0.0018 U	0.0018 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.0059 U	0.0045 U	0.0091 U	0.0059 U	0.0058 U	0.0058 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0024 U	0.0019 U	0.0038 U	0.0024 U	0.0024 U	0.0024 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0032 U	0.0024 U	0.0049 U	0.0032 U	0.0031 U	0.0031 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0020 U	0.0015 U	0.0030 U	0.0020 UJ	0.0019 UJ	0.0019 UJ
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0029 U	0.0022 UJ	0.0045 U	0.0029 UJ	0.0028 U	0.0028 UJ
XYLENES, m & p	MG/KG	PRG-IND	420	0.0014 U	0.0011 U	0.0022 U	0.0014 U	**0.0062 JB**	0.0014 U

TABLE B-37

Criteria Evaluation - Soil - AVMA Trench T7 METAL

OUE Fort Richardson

Location ID:				**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**
Sample ID:				OUE02T7LS12	OUE02T7LS13	OUE02T7LS14	OUE02T7LS15	OUE02T7LS16
QAQC Type:				N	N	N	N	N
Depth:				5	10	15	20	25
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
ALUMINUM	MG/KG	PRG-IND	100,000	**19,000 =**	**15,200 =**	**19,700 =**	**15,400 =**	**13,300 =**
ANTIMONY	MG/KG	PRG-IND	409	**0.35 JB**	**0.36 GQ,B**	**0.24 JB**	**0.28 JB**	**0.17 JB**
ARSENIC	MG/KG	PRG-IND	1.6	**1.5 J**	0.72 U	**2.7 J**	**3.7 J**	**2.7 J**
BARIUM	MG/KG	PRG-IND	66,577	**44 =**	**48 =**	**76 =**	**67 =**	**73 =**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.44 =**	**0.31 =**	**0.42 =**	**0.36 =**	**0.28 =**
CADMIUM	MG/KG	PRG-IND	451	**0.94 =**	**0.80 =**	**0.90 =**	**0.84 =**	**0.71 =**
CALCIUM	MG/KG	PRG-IND	--	**9,180 =**	**5,500 =**	**8,860 =**	**8,570 =**	**5,150 =**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**40 =**	**20 =**	**36 =**	**28 =**	**31 =**
COBALT	MG/KG	PRG-IND	1,921	**12 =**	**12 =**	**11 =**	**11 =**	**9.3 =**
COPPER	MG/KG	PRG-IND	40,877	**33 =**	**31 =**	**29 =**	**32 =**	**32 =**
IRON	MG/KG	PRG-IND	100,000	**36,400 =**	**32,700 =**	**34,200 =**	**32,300 =**	**28,000 =**
LEAD	MG/KG	PRG-IND	750	**3.4 J**	**3.1 J**	**3.1 J**	**4.0 =**	**3.8 J**
MAGNESIUM	MG/KG	PRG-IND	--	**12,200 =**	**9,830 =**	**10,300 =**	**8,500 =**	**8,020 =**
MANGANESE	MG/KG	PRG-IND	19,458	**591 =**	**529 =**	**594 =**	**530 =**	**489 =**
MERCURY	MG/KG	PRG-IND	307	**0.042 J**	**0.088 =**	**0.063 =**	**0.089 =**	**0.069 =**
NICKEL	MG/KG	PRG-IND	20,439	**40 =**	**51 =**	**32 =**	**32 =**	**26 =**
POTASSIUM	MG/KG	PRG-IND	--	**826 =**	**730 =**	**1,260 =**	**980 =**	**851 =**
SELENIUM	MG/KG	PRG-IND	5,110	**5.2 J**	**5.6 J**	**4.4 J**	**3.5 J**	**4.4 J**
SILVER	MG/KG	PRG-IND	5,110	0.44 U	0.28 U	0.38 U	0.31 U	0.30 U
SODIUM	MG/KG	PRG-IND	--	**112 J**	**66 J**	**360 =**	**130 J**	**127 J**
THALLIUM	MG/KG	PRG-IND	67	0.28 U	0.16 U	0.24 U	0.20 U	0.20 U
VANADIUM	MG/KG	PRG-IND	7,154	**72 =**	**51 =**	**71 =**	**58 =**	**46 =**
ZINC	MG/KG	PRG-IND	100,000	**63 =**	**55 =**	**63 =**	**59 =**	**50 =**

TABLE B-38
Criteria Evaluation - Soil - AVMA Trench T7 PCB
OUE Fort Richardson

Location ID:				**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**
Sample ID:				OUE02T7LS12	OUE02T7LS13	OUE02T7LS14	OUE02T7LS15	OUE02T7LS16
QAQC Type:				N	N	N	N	N
Depth:				5	10	15	20	25
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
PCB-1016 (AROCHLOR 1016)	MG/KG	PRG-IND	21	0.0011 U	0.0011 U	0.0011 U	0.0012 U	0.0012 U
PCB-1221 (AROCHLOR 1221)	MG/KG	PRG-IND	0.74	0.0047 U	0.0049 U	0.0048 U	0.0049 U	0.0051 U
PCB-1232 (AROCHLOR 1232)	MG/KG	PRG-IND	0.74	0.0037 U	0.0039 U	0.0038 U	0.0039 U	0.0040 U
PCB-1242 (AROCHLOR 1242)	MG/KG	PRG-IND	0.74	0.0020 U	0.0021 U	0.0020 U	0.0021 U	0.0022 U
PCB-1248 (AROCHLOR 1248)	MG/KG	PRG-IND	0.74	0.0020 U	0.0021 U	0.0020 U	0.0021 U	0.0022 U
PCB-1254 (AROCHLOR 1254)	MG/KG	PRG-IND	0.74	0.0015 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U
PCB-1260 (AROCHLOR 1260)	MG/KG	PRG-IND	0.74	0.0015 U	0.0016 U	0.0016 U	0.0016 U	0.0017 U

TABLE B-39

Criteria Evaluation - Soil - AVMA Trench T7 PESTICIDE

OUE Fort Richardson

Location ID:				**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**
Sample ID:				OUE02T7LS12	OUE02T7LS13	OUE02T7LS14	OUE02T7LS15	OUE02T7LS16
QAQC Type:				N	N	N	N	N
Depth:				5	10	15	20	25
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
ALDRIN	MG/KG	PRG-IND	0.10	4.28E-04 U	4.46E-04 U	4.35E-04 U	4.50E-04 U	4.63E-04 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	0.36	3.08E-04 U	3.21E-04 U	3.13E-04 U	3.24E-04 U	3.33E-04 U
ALPHA ENDOSULFAN	MG/KG	PRG-IND	3,694	4.22E-04 U	4.40E-04 U	4.30E-04 U	4.44E-04 U	4.57E-04 U
ALPHA-CHLORDANE	MG/KG	PRG-IND	6.5	3.94E-04 U	4.11E-04 U	4.01E-04 U	4.15E-04 U	4.26E-04 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	1.3	4.20E-04 U	4.38E-04 U	4.27E-04 U	4.41E-04 U	4.54E-04 U
BETA ENDOSULFAN	MG/KG	PRG-IND	3,694	3.83E-04 U	4.00E-04 U	3.90E-04 U	4.03E-04 U	4.14E-04 U
CHLORDANE	MG/KG	PRG-IND	6.5	0.0014 U	0.0015 U	0.0014 U	0.0015 U	0.0015 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	--	3.81E-04 U	3.97E-04 U	3.87E-04 U	4.00E-04 U	4.12E-04 U
DIELDRIN	MG/KG	PRG-IND	0.11	3.25E-04 U	3.39E-04 U	3.31E-04 U	3.42E-04 U	3.52E-04 U
ENDOSULFAN SULFATE	MG/KG	PRG-IND	--	3.61E-04 U	3.76E-04 U	3.67E-04 U	3.79E-04 U	3.90E-04 U
ENDRIN	MG/KG	PRG-IND	185	3.58E-04 U	3.73E-04 U	3.64E-04 U	3.76E-04 U	3.87E-04 U
ENDRIN ALDEHYDE	MG/KG	PRG-IND	--	4.04E-04 U	4.22E-04 U	4.11E-04 U	4.25E-04 U	4.37E-04 U
ENDRIN KETONE	MG/KG	PRG-IND	--	2.79E-04 U	2.91E-04 U	2.83E-04 U	2.93E-04 U	3.01E-04 U
GAMMA BHC (LINDANE)	MG/KG	PRG-IND	1.7	3.79E-04 U	3.95E-04 U	3.86E-04 U	3.99E-04 U	4.10E-04 U
GAMMA-CHLORDANE	MG/KG	PRG-IND	6.5	4.03E-04 U	4.20E-04 U	4.10E-04 U	4.23E-04 U	4.35E-04 U
HEPTACHLOR	MG/KG	PRG-IND	0.38	3.42E-04 U	3.56E-04 U	3.47E-04 U	3.59E-04 U	3.69E-04 U
HEPTACHLOR EPOXIDE	MG/KG	PRG-IND	0.19	3.62E-04 U	3.78E-04 U	3.68E-04 U	3.81E-04 U	3.92E-04 U
METHOXYCHLOR	MG/KG	PRG-IND	3,078	0.0014 U	0.0014 U	0.0014 U	0.0014 U	0.0015 U
p,p'-DDD	MG/KG	PRG-IND	10.0	1.93E-04 U	2.01E-04 U	1.96E-04 U	2.03E-04 U	2.08E-04 U
p,p'-DDE	MG/KG	PRG-IND	7.0	2.28E-04 U	2.38E-04 U	2.32E-04 U	2.40E-04 U	2.47E-04 U
p,p'-DDT	MG/KG	PRG-IND	7.0	2.57E-04 U	2.68E-04 U	2.61E-04 U	2.70E-04 U	2.78E-04 U
TOXAPHENE	MG/KG	PRG-IND	1.6	0.0062 U	0.0065 U	0.0063 U	0.0065 U	0.0067 U

TABLE B-40
Criteria Evaluation - Soil - AVMA Trench T7 SVOC
OUE Fort Richardson

Location ID:				**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**
Sample ID:				OUE02T7LS12	OUE02T7LS13	OUE02T7LS14	OUE02T7LS15	OUE02T7LS16
QAQC Type:				N	N	N	N	N
Depth:				5	10	15	20	25
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.062 U	0.065 U	0.063 U	0.063 U	0.064 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.070 U	0.074 U	0.071 U	0.071 U	0.072 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.066 U	0.069 U	0.066 U	0.067 U	0.068 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.030 U	0.032 U	0.030 U	0.031 U	0.031 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.029 U	0.031 U	0.030 U	0.030 U	0.030 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.035 U	0.037 U	0.035 U	0.035 U	0.036 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.038 U	0.040 U	0.039 U	0.039 U	0.040 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.23 UJ	0.24 UJ	0.23 UJ	0.23 UJ	0.23 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.036 U	0.038 U	0.037 U	0.037 U	0.037 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.026 U	0.028 U	0.027 U	0.027 U	0.027 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.038 U	0.040 U	0.038 U	0.038 U	0.039 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.059 U	0.062 U	0.059 U	0.060 U	0.060 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.046 U	**0.083 J**	0.047 U	0.047 U	**0.083 J**
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.049 U	0.051 U	0.049 U	0.049 U	0.050 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.031 U	0.032 U	0.031 U	0.031 U	0.032 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.041 U	0.043 U	0.041 U	0.042 U	0.042 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.082 U	0.087 U	0.083 U	0.084 U	0.085 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.058 UJ	0.061 UJ	0.059 UJ	0.059 UJ	0.060 UJ
3-NITROANILINE	MG/KG	PRG-IND	--	0.036 U	0.038 U	0.037 U	0.037 U	0.037 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.022 U	0.023 U	0.022 U	0.022 U	0.022 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.036 U	0.038 U	0.037 U	0.037 U	0.038 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.036 U	0.038 U	0.037 U	0.037 U	0.038 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.090 UJ	0.095 UJ	0.091 UJ	0.091 UJ	0.093 UJ
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.032 U	0.034 U	0.032 U	0.033 U	0.033 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.039 U	0.041 U	0.039 U	0.039 U	0.040 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.022 U	0.023 U	0.022 U	0.023 U	0.023 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.041 U	0.043 U	0.041 U	0.042 U	0.042 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.038 U	0.040 U	0.038 U	0.038 U	0.039 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.037 U	0.039 U	0.038 U	0.038 U	0.038 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.037 U	0.039 U	0.038 U	0.038 U	0.038 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.030 U	0.032 U	0.031 U	0.031 U	0.031 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.027 U	0.028 U	0.027 U	0.027 U	0.028 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.040 U	0.042 U	0.040 U	0.040 U	0.041 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.035 U	0.037 U	0.035 U	0.036 U	0.036 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.45 UR	0.47 UR	0.46 UR	0.46 UR	0.46 UR

TABLE B-40
Criteria Evaluation - Soil - AVMA Trench T7 SVOC
OUE Fort Richardson

Location ID:				**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**
Sample ID:				OUE02T7LS12	OUE02T7LS13	OUE02T7LS14	OUE02T7LS15	OUE02T7LS16
QAQC Type:				N	N	N	N	N
Depth:				5	10	15	20	25
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.049 UR	0.052 UR	0.050 UR	0.050 UR	0.051 UR
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.031 U	0.032 U	0.031 U	0.031 U	0.032 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.066 U	0.070 U	0.067 U	0.067 U	0.068 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.069 U	0.073 U	0.070 U	0.070 U	0.071 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.075 U	0.079 U	0.076 U	0.077 U	0.078 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.071 J**	**0.079 J**	**0.086 J**	**0.062 J**	**0.080 J**
CHRYSENE	MG/KG	PRG-IND	211	0.037 U	0.039 U	0.038 U	0.038 U	0.038 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.042 U	0.044 U	0.042 U	0.043 U	0.043 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.037 U	0.039 U	0.038 U	0.038 U	0.038 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.039 U	0.038 U	0.038 U	0.038 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.039 U	0.038 U	0.038 U	0.038 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.71 JB**	**0.96 JB**	**0.51 JB**	**0.60 JB**	**0.80 JB**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.033 U	0.035 U	0.034 U	0.034 U	0.034 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.042 U	0.044 U	0.042 U	0.042 U	0.043 U
FLUORENE	MG/KG	PRG-IND	26,281	0.037 U	0.039 U	0.038 U	0.038 U	0.038 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.037 U	0.039 U	0.038 U	0.038 U	0.038 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.070 U	0.073 U	0.070 U	0.071 U	0.072 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 UR	0.014 UR	0.013 UR	0.013 UR	0.013 UR
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.061 U	0.064 U	0.062 U	0.062 U	0.063 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.034 U	0.036 U	0.034 U	0.034 U	0.035 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.044 U	0.046 U	0.045 U	0.045 U	0.045 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.017 U	0.018 U	0.017 U	0.017 U	**0.038 J**
NITROBENZENE	MG/KG	PRG-IND	103	0.060 U	0.063 U	0.060 U	0.061 U	0.061 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.054 U	0.057 U	0.055 U	0.055 U	0.056 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.088 U	0.093 U	0.089 U	0.090 U	0.091 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.026 UJ	0.027 UJ	0.026 UJ	0.026 UJ	0.026 UJ
PHENANTHRENE	MG/KG	PRG-IND	--	0.037 U	0.039 U	0.038 U	0.038 U	0.038 U
PHENOL	MG/KG	PRG-IND	100,000	0.035 U	0.037 U	0.035 U	0.036 U	0.036 U
PYRENE	MG/KG	PRG-IND	29,126	0.035 U	0.037 U	0.035 U	0.036 U	0.036 U

TABLE B-41
Criteria Evaluation - Soil - AVMA Trench T7 TPH
OUE Fort Richardson

Location ID:				**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**
Sample ID:				OUE02T7LS12	OUE02T7LS13	OUE02T7LS14	OUE02T7LS15	OUE02T7LS16
QAQC Type:				N	N	N	N	N
Depth:				5	10	15	20	25
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**1.5 JB**	**2.2 JB**	**4.6 J**	**2.4 JB**	**3.5 JB**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	0.16 U	**0.34 J**	**0.29 J**	0.2 U	**0.34 J**

TABLE B-42
Criteria Evaluation - Soil - AVMA Trench T7 VOC
OUE Fort Richardson

Location ID:				**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**
Sample ID:				OUE02T7LS12	OUE02T7LS13	OUE02T7LS14	OUE02T7LS15	OUE02T7LS16
QAQC Type:				N	N	N	N	N
Depth:				5	10	15	20	25
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0020 U	0.0025 U	0.0026 U	0.0019 U	0.0026 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0020 U	0.0025 U	0.0026 U	0.0019 U	0.0026 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0019 U	0.0024 U	0.0025 U	0.0018 U	0.0025 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0033 U	0.0041 U	0.0043 U	0.0032 U	0.0043 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0039 U	0.0048 U	0.0050 U	0.0037 U	0.0049 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0024 U	0.0029 U	0.0031 U	0.0023 U	0.0030 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0031 U	0.0038 U	0.0040 U	0.0029 U	0.0039 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0017 U	0.0021 U	0.0022 U	0.0016 U	0.0021 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0014 UJ	0.0017 UJ	0.0018 UJ	0.0013 UJ	0.0018 UJ
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0044 U	0.0054 U	0.0057 U	0.0042 U	0.0056 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0011 UJ	0.0013 UJ	0.0014 UJ	0.0010 UJ	0.0013 UJ
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0013 U	0.0016 U	0.0017 U	0.0013 U	0.0017 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.011 UJ	0.013 UJ	0.014 UJ	0.010 UJ	0.013 UJ
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0015 U	0.0018 U	0.0019 U	0.0014 U	0.0019 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0018 U	0.0023 U	0.0024 U	0.0018 U	0.0024 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0033 U	0.0040 U	0.0042 U	0.0031 U	0.0042 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0031 U	0.0038 U	0.0040 U	0.0029 U	0.0039 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0020 U	0.0025 U	0.0026 U	0.0019 U	0.0026 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0019 U	0.0024 U	0.0025 U	0.0018 U	0.0025 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0011 U	0.0014 U	0.0015 U	0.0011 U	0.0015 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0025 U	0.0030 U	0.0032 U	0.0024 U	0.0031 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0025 U	0.0030 U	0.0032 U	0.0024 U	0.0031 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0021 U	0.0026 U	0.0027 U	0.0020 U	0.0027 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	9.70E-04 U	0.0012 U	0.0013 U	9.20E-04 U	0.0012 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0015 U	0.0018 U	0.0019 U	0.0014 U	0.0019 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0022 U	0.0027 U	0.0029 U	0.0021 U	0.0028 U
ACETONE	MG/KG	PRG-IND	6,036	0.011 UJ	0.013 UJ	0.014 UJ	0.010 UJ	0.013 UJ
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0029 U	0.0036 U	0.0038 U	0.0028 U	0.0037 U
BENZENE	MG/KG	PRG-IND	1.3	0.0016 U	0.0020 U	0.0021 U	0.0015 U	0.0020 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0030 U	0.0037 U	0.0039 U	0.0029 U	0.0038 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0030 U	0.0037 U	0.0039 U	0.0029 U	0.0038 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0020 U	0.0025 U	0.0026 U	0.0019 U	0.0026 U
BROMOFORM	MG/KG	PRG-IND	218	0.0028 U	0.0035 U	0.0036 U	0.0027 U	0.0036 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.0067 UJ	0.0082 UJ	0.0087 UJ	0.0064 UJ	0.0085 UJ

TABLE B-42
Criteria Evaluation - Soil - AVMA Trench T7 VOC
OUE Fort Richardson

Location ID:				**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**	**AVMAT7**
Sample ID:				OUE02T7LS12	OUE02T7LS13	OUE02T7LS14	OUE02T7LS15	OUE02T7LS16
QAQC Type:				N	N	N	N	N
Depth:				5	10	15	20	25
Date Sampled:				08/20/02	08/20/02	08/20/02	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0011 UJ	0.0014 UJ	0.0015 UJ	0.0011 UJ	0.0015 UJ
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0015 U	0.0018 U	0.0019 U	0.0014 U	0.0019 U
CHLOROBENZENE	MG/KG	PRG-IND	530	9.70E-04 U	0.0012 U	0.0013 U	9.20E-04 U	0.0012 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0032 UJ	0.0039 UJ	0.0041 UJ	0.0030 UJ	0.0040 UJ
CHLOROFORM	MG/KG	PRG-IND	12	0.0022 U	0.0027 U	0.0029 U	0.0021 U	0.0028 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0026 U	0.0031 U	0.0033 U	0.0024 U	0.0033 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0022 U	0.0027 U	0.0029 U	0.0021 U	0.0028 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	6.70E-04 U	8.20E-04 U	8.70E-04 U	6.40E-04 U	8.50E-04 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0028 U	0.0035 U	0.0036 U	0.0027 U	0.0036 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0018 U	0.0023 U	0.0024 U	0.0018 U	0.0024 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0052 U	0.0064 U	0.0067 U	0.0050 U	0.0066 U
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0017 U	0.0021 U	0.0022 U	0.0016 U	0.0021 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0036 U	0.0044 U	0.0047 U	0.0034 U	0.0046 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0037 U	0.0046 U	0.0048 U	0.0035 U	0.0047 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	7.00E-04 U	8.70E-04 U	9.10E-04 U	6.70E-04 U	9.00E-04 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	**0.037 JB**	**0.044 JB**	0.0058 UJ	**0.037 JB**	**0.058 JB**
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0013 U	0.0016 U	0.0017 U	0.0013 U	0.0017 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.014 JB**	**0.018 JB**	**0.020 JB**	**0.016 JB**	**0.020 JB**
NAPHTHALENE	MG/KG	PRG-IND	188	8.60E-04 UJ	0.0011 UJ	0.0011 UJ	8.20E-04 UJ	0.0011 UJ
n-BUTYLBENZENE	MG/KG	PRG-IND	240	8.40E-04 U	0.0010 U	0.0011 U	8.00E-04 U	0.0011 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0014 U	0.0017 U	0.0018 U	0.0013 U	0.0018 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0025 U	0.0030 U	0.0032 U	0.0024 U	0.0031 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	9.70E-04 U	0.0012 U	0.0013 U	9.20E-04 U	0.0012 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	8.10E-04 U	0.0010 U	0.0010 U	7.70E-04 U	0.0010 U
STYRENE	MG/KG	PRG-IND	1,700	0.0014 U	0.0017 U	0.0018 U	0.0013 U	0.0018 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0020 U	0.0025 U	0.0026 U	0.0019 U	0.0026 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0011 U	0.0013 U	0.0014 U	0.0010 U	0.0013 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0011 U	0.0013 U	0.0014 U	0.0010 U	0.0013 U
TOLUENE	MG/KG	PRG-IND	520	**0.0052 JB**	0.0027 U	0.0029 U	0.0021 U	0.0028 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0033 U	0.0040 U	0.0042 U	0.0031 U	0.0042 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0018 U	0.0022 U	0.0023 U	0.0017 U	0.0022 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.0055 U	0.0068 U	0.0072 U	0.0053 U	0.0071 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0023 U	0.0028 U	0.0030 U	0.0022 U	0.0029 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0030 U	0.0037 U	0.0039 U	0.0029 U	0.0038 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0018 UJ	0.0023 UJ	0.0024 UJ	0.0018 UJ	0.0024 UJ
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0027 UJ	0.0034 UJ	0.0035 UJ	0.0026 UJ	0.0035 UJ
XYLENES, m & p	MG/KG	PRG-IND	420	**0.0051 B**	0.0016 U	0.0017 U	0.0013 U	0.0017 U

TABLE B-43
Criteria Evaluation - Soil - AVMA Trench T8 METAL
OUE Fort Richardson

Location ID:				**AVMAT8**		**AVMAT8**		**AVMAT8**		**AVMAT8**	
Sample ID:				OUE02T8LS17		OUE02T8LS18		OUE02T8LS19		OUE02T8LS20	
QAQC Type:				N		FD		N		N	
Depth:				0.5		0.5		25		15	
Date Sampled:				08/21/02		08/21/02		08/21/02		08/21/02	
Analyte	**Units**	**Criteria Source**	**Criteria Value**								
ALUMINUM	MG/KG	PRG-IND	100,000	**20,000**	=	**18,000**	=	**16,000**	=	**15,000**	=
ANTIMONY	MG/KG	PRG-IND	409	**0.49**	GQ,B	**0.23**	J,GQ	**0.36**	J,GQ	**0.19**	JB
ARSENIC	MG/KG	PRG-IND	1.6	1.0	U	**2.1**	JB	**2.2**	JB	**2.3**	JB
BARIUM	MG/KG	PRG-IND	66,577	**82**	=	**56**	=	**76**	=	**60**	=
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.43**	=	**0.37**	=	**0.37**	=	**0.28**	=
CADMIUM	MG/KG	PRG-IND	451	**0.95**	=	**0.87**	=	**0.75**	=	**0.75**	=
CALCIUM	MG/KG	PRG-IND	--	**8,000**	=	**7,600**	=	**6,800**	=	**5,900**	=
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**36**	=	**28**	=	**37**	=	**24**	=
COBALT	MG/KG	PRG-IND	1,921	**13**	=	**12**	=	**11**	=	**9.7**	=
COPPER	MG/KG	PRG-IND	40,877	**30**	=	**30**	=	**27**	=	**26**	=
IRON	MG/KG	PRG-IND	100,000	**35,000**	=	**37,000**	=	**31,000**	=	**29,000**	=
LEAD	MG/KG	PRG-IND	750	**8.4**	=	**4.4**	B	**4.6**	=	**2.8**	JB
MAGNESIUM	MG/KG	PRG-IND	--	**11,000**	=	**10,000**	=	**8,700**	=	**8,300**	=
MANGANESE	MG/KG	PRG-IND	19,458	**650**	=	**570**	=	**550**	=	**560**	=
MERCURY	MG/KG	PRG-IND	307	**0.078**	=	**0.069**	=	**0.073**	=	**0.055**	=
NICKEL	MG/KG	PRG-IND	20,439	**42**	=	**38**	=	**31**	=	**30**	=
POTASSIUM	MG/KG	PRG-IND	--	**800**	=	**870**	=	**900**	=	**800**	=
SELENIUM	MG/KG	PRG-IND	5,110	**6.9**	J	**5.1**	J	**5.3**	J	**3.4**	J
SILVER	MG/KG	PRG-IND	5,110	0.38	U	0.29	U	0.33	U	0.37	U
SODIUM	MG/KG	PRG-IND	--	**120**	J	**95**	J	**83**	J	**100**	J
THALLIUM	MG/KG	PRG-IND	67	0.23	U	0.22	U	0.24	U	0.20	U
VANADIUM	MG/KG	PRG-IND	7,154	**70**	=	**66**	=	**57**	=	**46**	=
ZINC	MG/KG	PRG-IND	100,000	**61**	=	**61**	=	**52**	=	**49**	=

TABLE B-44

Criteria Evaluation - Soil - AVMA Trench T8 PCB

OUE Fort Richardson

Location ID:				**AVMAT8**	**AVMAT8**	**AVMAT8**	**AVMAT8**
Sample ID:				OUE02T8LS17	OUE02T8LS18	OUE02T8LS19	OUE02T8LS20
QAQC Type:				N	FD	N	FD
Depth:				0.5	0.5	25	15
Date Sampled:				08/21/02	08/21/02	08/21/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
PCB-1016 (AROCHLOR 1016)	MG/KG	PRG-IND	21	0.012 U	0.0012 U	0.0011 U	0.0011 U
PCB-1221 (AROCHLOR 1221)	MG/KG	PRG-IND	0.74	0.051 U	0.0049 U	0.0047 U	0.0046 U
PCB-1232 (AROCHLOR 1232)	MG/KG	PRG-IND	0.74	0.040 U	0.0039 U	0.0038 U	0.0037 U
PCB-1242 (AROCHLOR 1242)	MG/KG	PRG-IND	0.74	0.022 U	0.0021 U	0.0020 U	0.0020 U
PCB-1248 (AROCHLOR 1248)	MG/KG	PRG-IND	0.74	0.022 U	0.0021 U	0.0020 U	0.0020 U
PCB-1254 (AROCHLOR 1254)	MG/KG	PRG-IND	0.74	0.017 U	0.0016 U	0.0016 U	0.0015 U
PCB-1260 (AROCHLOR 1260)	MG/KG	PRG-IND	0.74	0.017 U	0.0016 U	0.0016 U	0.0015 U

TABLE B-45

Criteria Evaluation - Soil - AVMA Trench T8 PESTICIDE

OUE Fort Richardson

Location ID:				**AVMAT8**	**AVMAT8**	**AVMAT8**	**AVMAT8**
Sample ID:				OUE02T8LS17	OUE02T8LS18	OUE02T8LS19	OUE02T8LS20
QAQC Type:				N	FD	N	FD
Depth:				0.5	0.5	25	15
Date Sampled:				08/21/02	08/21/02	08/21/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
ALDRIN	MG/KG	PRG-IND	0.10	0.0046 U	4.49E-04 U	4.32E-04 U	4.21E-04 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	0.36	0.0033 U	3.24E-04 U	3.11E-04 U	3.03E-04 U
ALPHA ENDOSULFAN	MG/KG	PRG-IND	3,694	0.0046 U	4.44E-04 U	4.26E-04 U	4.15E-04 U
ALPHA-CHLORDANE	MG/KG	PRG-IND	6.5	0.0043 U	4.14E-04 U	3.98E-04 U	3.88E-04 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	1.3	0.0046 U	4.41E-04 U	4.24E-04 U	4.13E-04 U
BETA ENDOSULFAN	MG/KG	PRG-IND	3,694	0.0042 U	4.03E-04 U	3.87E-04 U	3.77E-04 U
CHLORDANE	MG/KG	PRG-IND	6.5	0.015 U	0.0015 U	0.0014 U	0.0014 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	--	0.0041 U	4.00E-04 U	3.84E-04 U	3.74E-04 U
DIELDRIN	MG/KG	PRG-IND	0.11	0.0035 U	3.42E-04 U	3.29E-04 U	3.20E-04 U
ENDOSULFAN SULFATE	MG/KG	PRG-IND	--	0.0039 U	3.79E-04 U	3.64E-04 U	3.55E-04 U
ENDRIN	MG/KG	PRG-IND	185	0.0039 U	3.76E-04 U	3.61E-04 U	3.52E-04 U
ENDRIN ALDEHYDE	MG/KG	PRG-IND	--	0.0044 U	4.25E-04 U	4.08E-04 U	3.98E-04 U
ENDRIN KETONE	MG/KG	PRG-IND	--	0.0030 U	2.93E-04 U	2.81E-04 U	2.74E-04 U
GAMMA BHC (LINDANE)	MG/KG	PRG-IND	1.7	0.0041 U	3.98E-04 U	3.83E-04 U	3.73E-04 U
GAMMA-CHLORDANE	MG/KG	PRG-IND	6.5	0.0044 U	4.23E-04 U	4.07E-04 U	3.96E-04 U
HEPTACHLOR	MG/KG	PRG-IND	0.38	0.0037 U	3.59E-04 U	3.45E-04 U	3.36E-04 U
HEPTACHLOR EPOXIDE	MG/KG	PRG-IND	0.19	0.0039 U	3.81E-04 U	3.66E-04 U	3.56E-04 U
METHOXYCHLOR	MG/KG	PRG-IND	3,078	0.015 U	0.0014 U	0.0014 U	0.0013 U
p,p'-DDD	MG/KG	PRG-IND	10.0	0.0021 U	2.03E-04 U	**3.30E-04 J,GC**	1.90E-04 U
p,p'-DDE	MG/KG	PRG-IND	7.0	0.0025 U	2.40E-04 U	**0.0011 J,GC**	2.24E-04 U
p,p'-DDT	MG/KG	PRG-IND	7.0	**0.045 GC**	2.70E-04 U	**0.013 GC**	2.53E-04 U
TOXAPHENE	MG/KG	PRG-IND	1.6	0.067 U	0.0065 U	0.0063 U	0.0061 U

TABLE B-46
Criteria Evaluation - Soil - AVMA Trench T8 SVOC
OUE Fort Richardson

Location ID:				**AVMAT8**	**AVMAT8**	**AVMAT8**	**AVMAT8**
Sample ID:				OUE02T8LS17	OUE02T8LS18	OUE02T8LS19	OUE02T8LS20
QAQC Type:				N	FD	N	FD
Depth:				0.5	0.5	25	15
Date Sampled:				08/21/02	08/21/02	08/21/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.064 U	0.064 U	0.064 U	0.064 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.073 U	0.072 U	0.072 U	0.072 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.068 U	0.068 U	0.068 U	0.068 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.031 U	0.031 U	0.031 U	0.031 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.030 U	0.030 U	0.030 U	0.030 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.036 U	0.036 U	0.036 U	0.036 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.040 U	0.040 U	0.040 U	0.039 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.24 UJ	0.23 UJ	0.23 UJ	0.23 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.037 U	0.037 U	0.037 U	0.037 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.027 U	0.027 U	0.027 U	0.027 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.039 U	0.039 U	0.039 U	0.039 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.061 U	0.061 U	0.061 U	0.060 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.048 U	0.048 U	0.048 U	0.048 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.050 U	0.050 U	0.050 U	0.050 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.032 U	0.032 U	0.032 U	0.032 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.042 U	0.042 U	0.042 U	0.042 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.085 U	0.085 U	0.085 U	0.085 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.060 UR	0.060 UR	0.060 UR	0.060 UR
3-NITROANILINE	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.037 U	0.037 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.023 U	0.023 U	0.023 U	0.022 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.038 U	0.038 U	0.038 U	0.038 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.038 U	0.038 U	0.038 U	0.038 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.093 UJ	0.093 UJ	0.093 UJ	0.093 UJ
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.033 U	0.033 U	0.033 U	0.033 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.040 U	0.040 U	0.040 U	0.040 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.023 UJ	0.023 UJ	0.023 UJ	0.023 UJ
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.042 U	0.042 U	0.042 U	0.042 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.039 U	0.039 U	0.039 U	0.039 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.038 U	0.038 U	0.038 U	0.038 U
BENZIDINE	MG/KG	PRG-IND	--	0.28 U	0.28 U	0.28 U	0.28 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.038 U	0.038 U	0.038 U	0.038 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.031 U	0.031 U	0.031 U	0.031 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.028 U	0.028 U	0.028 U	0.028 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.041 U	0.041 U	0.041 U	0.041 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.036 U	0.036 U	0.036 U	0.036 U

TABLE B-46

Criteria Evaluation - Soil - AVMA Trench T8 SVOC

OUE Fort Richardson

Location ID:				AVMAT8		AVMAT8		AVMAT8		AVMAT8	
Sample ID:				OUE02T8LS17		OUE02T8LS18		OUE02T8LS19		OUE02T8LS20	
QAQC Type:				N		FD		N		FD	
Depth:				0.5		0.5		25		15	
Date Sampled:				08/21/02		08/21/02		08/21/02		08/21/02	
Analyte	**Units**	**Criteria Source**	**Criteria Value**								
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.47	UR	0.47	UR	0.47	UR	0.46	UR
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.051	UR	0.051	UR	0.051	UR	0.051	UR
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.032	U	0.032	U	0.032	U	0.032	U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.069	U	0.068	U	0.068	U	0.068	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.071	U	0.071	U	0.071	U	0.071	U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.078	U	0.078	U	0.078	U	0.078	U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.056**	**J**	**0.090**	**J**	**0.080**	**J**	0.036	U
CHRYSENE	MG/KG	PRG-IND	211	0.038	U	0.038	U	0.038	U	0.038	U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.043	U	0.043	U	0.043	U	0.043	U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.038	U	0.038	U	0.038	U	0.038	U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038	U	0.038	U	0.038	U	0.038	U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038	U	0.038	U	0.038	U	0.038	U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.34**	**JB**	**0.49**	**JB**	**0.50**	**JB**	**0.26**	**JB**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.034	U	0.034	U	0.034	U	0.034	U
DIPHENYLAMINE	MG/KG	PRG-IND	--	0.049	U	0.048	U	0.048	U	0.048	U
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.043	U	0.043	U	0.043	U	0.043	U
FLUORENE	MG/KG	PRG-IND	26,281	0.038	U	0.038	U	0.038	U	0.038	U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.038	U	0.038	U	0.038	U	0.038	U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.072	U	0.072	U	0.072	U	0.072	U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013	UR	0.013	UR	0.013	UR	0.013	UR
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.063	U	0.063	U	0.063	U	0.063	U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.035	U	0.035	U	0.035	U	0.035	U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.046	U	0.046	U	0.046	U	0.045	U
NAPHTHALENE	MG/KG	PRG-IND	188	0.018	U	0.018	U	0.018	U	0.018	U
NITROBENZENE	MG/KG	PRG-IND	103	0.062	U	0.061	U	0.061	U	0.061	U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.056	U	0.056	U	0.056	U	0.056	U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.091	U	0.091	U	0.091	U	0.091	U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.026	U	0.026	U	0.026	U	0.026	U
PHENANTHRENE	MG/KG	PRG-IND	--	0.038	U	0.038	U	0.038	U	0.038	U
PHENOL	MG/KG	PRG-IND	100,000	0.036	U	0.036	U	0.036	U	0.036	U
PYRENE	MG/KG	PRG-IND	29,126	0.036	U	0.036	U	0.036	U	0.036	U

TABLE B-47
Criteria Evaluation - Soil - AVMA Trench T8 TPH
OUE Fort Richardson

Location ID:				**AVMAT8**	**AVMAT8**	**AVMAT8**	**AVMAT8**
Sample ID:				OUE02T8LS17	OUE02T8LS18	OUE02T8LS19	OUE02T8LS20
QAQC Type:				N	FD	N	FD
Depth:				0.5	0.5	25	15
Date Sampled:				08/21/02	08/21/02	08/21/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**56 =**	**2.2 J**	**3.7 J**	**2.4 J**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	0.26 U	**0.49 J**	0.30 U	**0.82 J**

TABLE B-48

Criteria Evaluation - Soil - AVMA Trench T8 VOC

OUE Fort Richardson

Location ID:				**AVMAT8**	**AVMAT8**	**AVMAT8**	**AVMAT8**
Sample ID:				OUE02T8LS17	OUE02T8LS18	OUE02T8LS19	OUE02T8LS20
QAQC Type:				N	FD	N	FD
Depth:				0.5	0.5	25	15
Date Sampled:				08/21/02	08/21/02	08/21/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0024 U	0.0024 U	0.0027 U	0.0022 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0024 U	0.0024 U	0.0027 U	0.0022 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0023 U	0.0023 U	0.0025 U	0.0021 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0040 U	0.0039 U	0.0044 U	0.0036 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0046 U	0.0045 U	0.0051 U	0.0042 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0028 U	0.0028 U	0.0031 U	0.0026 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0037 U	0.0036 U	0.0040 U	0.0033 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0020 U	0.0019 U	0.0022 U	0.0018 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0017 UJ	0.0016 UJ	0.0018 UJ	0.0015 UJ
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0052 U	0.0051 U	0.0058 U	0.0048 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0013 U	0.0012 U	0.0014 U	0.0011 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0016 U	0.0015 U	0.0017 U	0.0014 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.013 U	0.012 U	0.014 U	0.011 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0018 U	0.0017 U	0.0020 U	0.0016 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0022 U	0.0022 U	0.0024 U	0.0020 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0039 U	0.0038 U	0.0043 U	0.0035 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0037 U	0.0036 U	0.0040 U	0.0033 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0024 U	0.0024 U	0.0027 U	0.0022 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0023 U	0.0023 U	0.0025 U	0.0021 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0014 U	0.0013 U	0.0015 U	0.0012 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0029 U	0.0029 U	0.0032 U	0.0027 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0029 U	0.0029 U	0.0032 U	0.0027 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0025 U	0.0025 U	0.0028 U	0.0023 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0012 U	0.0011 U	0.0013 U	0.0011 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0018 U	0.0017 U	0.0020 U	0.0016 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0026 U	0.0026 U	0.0029 U	0.0024 U
ACETONE	MG/KG	PRG-IND	6,036	0.013 U	0.012 U	0.014 U	0.011 U
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0035 U	0.0034 U	0.0038 U	0.0032 U
BENZENE	MG/KG	PRG-IND	1.3	0.0019 U	0.0018 U	0.0021 U	0.0017 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0036 U	0.0035 U	0.0039 U	0.0032 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0036 U	0.0035 U	0.0039 U	0.0032 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0024 U	0.0024 U	0.0027 U	0.0022 U
BROMOFORM	MG/KG	PRG-IND	218	0.0034 U	0.0033 U	0.0037 U	0.0031 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.0080 U	0.0078 U	0.0088 U	0.0073 U
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0014 U	0.0013 U	0.0015 U	0.0012 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0018 U	0.0017 U	0.0020 U	0.0016 U

TABLE B-48
Criteria Evaluation - Soil - AVMA Trench T8 VOC
OUE Fort Richardson

Location ID:				**AVMAT8**	**AVMAT8**	**AVMAT8**	**AVMAT8**
Sample ID:				OUE02T8LS17	OUE02T8LS18	OUE02T8LS19	OUE02T8LS20
QAQC Type:				N	FD	N	FD
Depth:				0.5	0.5	25	15
Date Sampled:				08/21/02	08/21/02	08/21/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0012 U	0.0011 U	0.0013 U	0.0011 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0038 U	0.0037 U	0.0042 U	0.0034 U
CHLOROFORM	MG/KG	PRG-IND	12	0.0026 U	0.0026 U	0.0029 U	0.0024 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0030 U	0.0030 U	0.0034 U	0.0028 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0026 U	0.0026 U	0.0029 U	0.0024 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	8.00E-04 U	7.80E-04 U	8.80E-04 U	7.30E-04 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0034 U	0.0033 U	0.0037 U	0.0031 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0022 U	0.0022 U	0.0024 U	0.0020 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0062 U	0.0060 U	0.0068 U	0.0056 U
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0020 U	0.0019 U	0.0022 U	0.0018 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0043 U	0.0042 U	0.0047 U	0.0039 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0044 U	0.0043 U	0.0049 U	0.0040 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	8.40E-04 U	8.20E-04 U	9.20E-04 U	7.60E-04 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	**0.042 =**	**0.040 =**	**0.049 =**	**0.041 =**
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0016 U	0.0015 U	0.0017 U	0.0014 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.019 JB**	**0.018 JB**	**0.024 JB**	**0.017 JB**
NAPHTHALENE	MG/KG	PRG-IND	188	0.0010 UJ	0.0010 UJ	0.0011 UJ	9.40E-04 UJ
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0010 U	9.70E-04 U	0.0011 U	9.10E-04 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0017 U	0.0016 U	0.0018 U	0.0015 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0029 U	0.0029 U	0.0032 U	0.0027 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0012 U	0.0011 U	0.0013 U	0.0011 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	9.70E-04 U	9.40E-04 U	0.0011 U	8.80E-04 U
STYRENE	MG/KG	PRG-IND	1,700	0.0017 U	0.0016 U	0.0018 U	0.0015 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0024 U	0.0024 U	0.0027 U	0.0022 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0013 U	0.0012 U	0.0014 U	0.0011 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0013 U	0.0012 U	0.0014 U	0.0011 U
TOLUENE	MG/KG	PRG-IND	520	0.0026 U	0.0026 U	0.0029 U	0.0024 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0039 U	0.0038 U	0.0043 U	0.0035 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0021 U	0.0020 U	0.0023 U	0.0019 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.0066 U	0.0065 U	0.0073 U	0.0060 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0027 U	0.0027 U	0.0030 U	0.0025 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0036 U	0.0035 U	0.0039 U	0.0032 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0022 UJ	0.0022 UJ	0.0024 UJ	0.0020 UJ
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0033 U	0.0032 U	0.0036 U	0.0030 U
XYLENES, m & p	MG/KG	PRG-IND	420	0.0016 U	0.0015 U	0.0017 U	0.0014 U

TABLE B-49

Criteria Evaluation - Soil - AVMA Trench T9 METAL

OUE Fort Richardson

Location ID:				AVMAT9	AVMAT9	AVMAT9	AVMAT9	AVMAT9
Sample ID:				OUE02T8LS21	OUE02T8LS22	OUE02T8LS23	OUE02T8LS24	OUE02T8LS25
QAQC Type:				N	N	N	FD	N
Depth:				15	15	1	15	5
Date Sampled:				08/22/02	08/22/02	08/22/02	08/22/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
ALUMINUM	MG/KG	PRG-IND	100,000	**17,000 =**	**18,000 =**	**20,000 =**	**19,000 =**	**19,000 =**
ANTIMONY	MG/KG	PRG-IND	409	**0.25 J,GQ**	0.067 U	**0.090 JB**	0.071 U	**0.16 JB**
ARSENIC	MG/KG	PRG-IND	1.6	**5.6 JB**	**2.4 JB**	**3.8 JB**	**3.0 JB**	**3.6 JB**
BARIUM	MG/KG	PRG-IND	66,577	**67 =**	**73 =**	**64 =**	**62 =**	**43 =**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.41 =**	**0.40 =**	**0.41 =**	**0.42 =**	**0.44 =**
CADMIUM	MG/KG	PRG-IND	451	**0.97 =**	**0.98 =**	**1.0 =**	**0.97 =**	**0.98 =**
CALCIUM	MG/KG	PRG-IND	--	**6,600 =**	**9,800 =**	**7,200 =**	**9,800 =**	**8,900 =**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**36 =**	**32 =**	**40 =**	**27 =**	**39 =**
COBALT	MG/KG	PRG-IND	1,921	**12 =**	**12 =**	**15 =**	**11 =**	**12 =**
COPPER	MG/KG	PRG-IND	40,877	**36 =**	**33 =**	**26 =**	**27 =**	**31 =**
IRON	MG/KG	PRG-IND	100,000	**35,000 =**	**34,000 =**	**35,000 =**	**35,000 =**	**35,000 =**
LEAD	MG/KG	PRG-IND	750	**6.0 =**	**5.3 =**	**11 =**	**3.6 JB**	**4.3 J**
MAGNESIUM	MG/KG	PRG-IND	--	**9,700 =**	**9,800 =**	**13,000 =**	**11,000 =**	**10,000 =**
MANGANESE	MG/KG	PRG-IND	19,458	**710 =**	**570 =**	**600 =**	**590 =**	**630 =**
MERCURY	MG/KG	PRG-IND	307	**0.034 J**	**0.062 =**	**0.063 =**	**0.063 =**	**0.037 J**
NICKEL	MG/KG	PRG-IND	20,439	**39 =**	**40 =**	**62 =**	**35 =**	**38 =**
POTASSIUM	MG/KG	PRG-IND	--	**1,200 =**	**1,200 =**	**940 =**	**1,000 =**	**880 =**
SELENIUM	MG/KG	PRG-IND	5,110	**3.8 J**	**4.1 J**	1.3 U	**5.6 J**	**6.1 J**
SILVER	MG/KG	PRG-IND	5,110	0.37 U	0.33 U	0.38 U	0.35 U	0.42 U
SODIUM	MG/KG	PRG-IND	--	**93 J**	**140 J**	**140 J**	**250 =**	**99 J**
THALLIUM	MG/KG	PRG-IND	67	0.19 U	**0.36 J,GQ**	0.29 U	0.20 U	**0.27 J,GQ**
VANADIUM	MG/KG	PRG-IND	7,154	**61 =**	**65 =**	**74 =**	**66 =**	**68 =**
ZINC	MG/KG	PRG-IND	100,000	**70 =**	**62 =**	**57 =**	**64 =**	**70 =**

TABLE B-50
Criteria Evaluation - Soil - AVMA Trench T9 PCB
OUE Fort Richardson

Location ID:				**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**
Sample ID:				OUE02T8LS21	OUE02T8LS22	OUE02T8LS23	OUE02T8LS24	OUE02T8LS25
QAQC Type:				N	N	N	FD	N
Depth:				15	15	1	15	5
Date Sampled:				08/22/02	08/22/02	08/22/02	08/22/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
PCB-1016 (AROCHLOR 1016)	MG/KG	PRG-IND	21	0.0011 U	0.0011 U	0.021 U	0.0011 U	0.0011 U
PCB-1221 (AROCHLOR 1221)	MG/KG	PRG-IND	0.74	0.0048 U	0.0049 U	0.092 U	0.0045 U	0.0045 U
PCB-1232 (AROCHLOR 1232)	MG/KG	PRG-IND	0.74	0.0038 U	0.0039 U	0.073 U	0.0036 U	0.0036 U
PCB-1242 (AROCHLOR 1242)	MG/KG	PRG-IND	0.74	0.0020 U	0.0021 U	0.039 U	0.0019 U	0.0019 U
PCB-1248 (AROCHLOR 1248)	MG/KG	PRG-IND	0.74	0.0020 U	0.0021 U	0.039 U	0.0019 U	0.0019 U
PCB-1254 (AROCHLOR 1254)	MG/KG	PRG-IND	0.74	0.0016 U	0.0016 U	0.030 U	0.0015 U	0.0015 U
PCB-1260 (AROCHLOR 1260)	MG/KG	PRG-IND	0.74	0.0016 U	0.0016 U	0.030 U	0.0015 U	0.0015 U

TABLE B-51
Criteria Evaluation - Soil - AVMA Trench T9 PESTICIDE
OUE Fort Richardson

Location ID:				**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**
Sample ID:				OUE02T8LS21	OUE02T8LS22	OUE02T8LS23	OUE02T8LS24	OUE02T8LS25
QAQC Type:				N	N	N	FD	N
Depth:				15	15	1	15	5
Date Sampled:				08/22/02	08/22/02	08/22/02	08/22/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
ALDRIN	MG/KG	PRG-IND	0.10	4.38E-04 U	4.48E-04 U	0.0084 U	4.14E-04 U	4.15E-04 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	0.36	3.15E-04 U	3.23E-04 U	0.0061 U	2.98E-04 U	2.99E-04 U
ALPHA ENDOSULFAN	MG/KG	PRG-IND	3,694	4.32E-04 U	4.42E-04 U	0.0083 U	4.08E-04 U	4.10E-04 U
ALPHA-CHLORDANE	MG/KG	PRG-IND	6.5	4.03E-04 U	4.13E-04 U	0.0077 U	3.81E-04 U	3.83E-04 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	1.3	4.29E-04 U	4.39E-04 U	0.0082 U	4.06E-04 U	4.07E-04 U
BETA ENDOSULFAN	MG/KG	PRG-IND	3,694	3.92E-04 U	4.01E-04 U	0.0075 U	3.71E-04 U	3.72E-04 U
CHLORDANE	MG/KG	PRG-IND	6.5	0.0014 U	0.0015 U	0.027 U	0.0014 U	0.0014 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	MG/KG	PRG-IND	--	3.89E-04 U	3.98E-04 U	0.0075 U	3.68E-04 U	3.69E-04 U
DIELDRIN	MG/KG	PRG-IND	0.11	3.33E-04 U	3.40E-04 U	0.0064 U	3.15E-04 U	3.16E-04 U
ENDOSULFAN SULFATE	MG/KG	PRG-IND	--	3.69E-04 U	3.78E-04 U	0.0071 U	3.49E-04 U	3.50E-04 U
ENDRIN	MG/KG	PRG-IND	185	3.66E-04 U	3.75E-04 U	0.0070 U	3.46E-04 U	3.47E-04 U
ENDRIN ALDEHYDE	MG/KG	PRG-IND	--	4.14E-04 U	4.23E-04 U	0.0079 U	3.91E-04 U	3.92E-04 U
ENDRIN KETONE	MG/KG	PRG-IND	--	2.85E-04 U	2.92E-04 U	0.0055 U	2.70E-04 U	2.70E-04 U
GAMMA BHC (LINDANE)	MG/KG	PRG-IND	1.7	3.88E-04 U	3.97E-04 U	0.0074 U	3.67E-04 U	3.68E-04 U
GAMMA-CHLORDANE	MG/KG	PRG-IND	6.5	4.12E-04 U	4.21E-04 U	0.0079 U	3.90E-04 U	3.91E-04 U
HEPTACHLOR	MG/KG	PRG-IND	0.38	3.49E-04 U	3.57E-04 U	0.0067 U	3.30E-04 U	3.31E-04 U
HEPTACHLOR EPOXIDE	MG/KG	PRG-IND	0.19	3.71E-04 U	3.79E-04 U	0.0071 U	3.50E-04 U	3.52E-04 U
METHOXYCHLOR	MG/KG	PRG-IND	3,078	0.0014 U	0.0014 U	0.027 U	0.0013 U	0.0013 U
p,p'-DDD	MG/KG	PRG-IND	10.0	1.97E-04 U	2.02E-04 U	0.0038 U	1.87E-04 U	1.87E-04 U
p,p'-DDE	MG/KG	PRG-IND	7.0	2.33E-04 U	2.39E-04 U	0.0045 U	2.21E-04 U	**5.52E-04 J,GC**
p,p'-DDT	MG/KG	PRG-IND	7.0	**0.0042 GC**	**3.98E-04 J,GC**	0.0051 U	**0.0034 GC**	**0.0061 GC**
TOXAPHENE	MG/KG	PRG-IND	1.6	0.0064 U	0.0065 U	0.12 U	0.0060 U	0.0060 U

TABLE B-52
Criteria Evaluation - Soil - AVMA Trench T9 SVOC
OUE Fort Richardson

Location ID:				**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**
Sample ID:				OUE02T8LS21	OUE02T8LS22	OUE02T8LS23	OUE02T8LS24	OUE02T8LS25
QAQC Type:				N	N	N	FD	N
Depth:				15	15	1	15	5
Date Sampled:				08/22/02	08/22/02	08/22/02	08/22/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.064 U	0.064 U	0.35 U	0.064 U	0.061 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.072 U	0.072 U	0.40 U	0.072 U	0.069 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.067 U	0.067 U	0.37 U	0.067 U	0.065 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.031 U	0.031 U	0.17 U	0.031 U	0.030 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.030 U	0.030 U	0.17 U	0.030 U	0.029 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.036 U	0.036 U	0.20 U	0.036 U	0.034 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.039 U	0.039 U	0.22 U	0.039 U	0.038 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.23 UJ	0.23 UJ	1.3 UJ	0.23 UJ	0.23 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.037 U	0.037 U	0.21 U	0.037 U	0.036 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.027 U	0.027 U	0.15 U	0.027 U	0.026 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.039 U	0.039 U	0.22 U	0.039 U	0.037 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.060 U	0.060 U	0.33 U	0.060 U	0.058 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.048 U	0.047 U	**1.5 =**	0.047 U	0.046 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.050 U	0.050 U	0.28 U	0.050 U	0.048 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.032 U	0.031 U	0.18 U	0.032 U	0.030 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.042 U	0.042 U	0.23 U	0.042 U	0.041 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.084 U	0.084 U	0.47 U	0.084 U	0.081 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.060 UR	0.060 UR	0.33 UR	0.060 UR	0.058 UR
3-NITROANILINE	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.21 U	0.037 U	0.036 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.022 U	0.022 U	0.12 U	0.022 U	0.022 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.21 U	0.037 U	0.036 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.21 U	0.037 U	0.036 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.092 UJ	0.092 UJ	0.51 UJ	0.092 UJ	0.089 UJ
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.033 U	0.033 U	0.18 U	0.033 U	0.032 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.040 U	0.040 U	0.22 U	0.040 U	0.038 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.023 UJ	0.023 UJ	0.13 UJ	0.023 UJ	0.022 UJ
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.042 U	0.042 U	0.23 U	0.042 U	0.041 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.039 U	0.039 U	0.22 U	0.039 U	0.037 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.038 U	0.038 U	0.21 U	0.038 U	0.037 U
BENZIDINE	MG/KG	PRG-IND	--	0.28 U	0.28 U	1.6 U	0.28 U	0.27 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.038 U	0.038 U	**0.31 J**	0.038 U	0.037 U

TABLE B-52
Criteria Evaluation - Soil - AVMA Trench T9 SVOC
OUE Fort Richardson

Location ID:				**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**
Sample ID:				OUE02T8LS21	OUE02T8LS22	OUE02T8LS23	OUE02T8LS24	OUE02T8LS25
QAQC Type:				N	N	N	FD	N
Depth:				15	15	1	15	5
Date Sampled:				08/22/02	08/22/02	08/22/02	08/22/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.031 U	0.031 U	0.17 U	0.031 U	0.030 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.027 U	0.027 U	0.15 U	0.027 U	0.026 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.041 U	0.041 U	0.23 U	0.041 U	0.039 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.036 U	0.036 U	0.20 U	0.036 U	0.035 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.46 UR	0.46 UR	2.6 UR	0.46 UR	0.45 UR
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.051 UR	0.050 UR	0.28 UR	0.050 UR	0.049 UR
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.031 U	0.031 U	0.17 U	0.031 U	0.030 U
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.068 U	0.068 U	0.38 U	0.068 U	0.066 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.071 U	0.071 U	0.39 U	0.071 U	0.068 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.077 U	0.077 U	0.43 U	0.077 U	0.075 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.039 J**	0.035 U	0.20 U	**0.047 J**	0.034 U
CHRYSENE	MG/KG	PRG-IND	211	0.038 U	0.038 U	**1.0 =**	0.038 U	0.037 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.043 U	0.043 U	0.24 U	0.043 U	0.041 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.038 U	0.038 U	0.21 U	0.038 U	0.037 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038 U	0.038 U	0.21 U	0.038 U	0.037 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.038 U	0.038 U	0.21 U	0.038 U	0.037 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	**0.25 JB**	**0.29 JB**	**0.41 JB**	**0.49 JB**	**0.19 JB**
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.034 U	0.034 U	0.19 U	0.034 U	0.033 U
DIPHENYLAMINE	MG/KG	PRG-IND	--	0.048 U	0.048 U	0.27 U	0.048 U	0.046 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.043 U	0.043 U	0.24 U	0.043 U	0.041 U
FLUORENE	MG/KG	PRG-IND	26,281	0.038 U	0.038 U	**0.24 J**	0.038 U	0.037 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.038 U	0.038 U	0.21 U	0.038 U	0.037 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.072 U	0.071 U	0.40 U	0.071 U	0.069 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 UR	0.013 UR	0.073 UR	0.013 UR	0.013 UR
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.063 U	0.062 U	0.35 U	0.062 U	0.060 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.035 U	0.035 U	0.19 U	0.035 U	0.033 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.045 U	0.045 U	0.25 U	0.045 U	0.044 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.018 U	0.018 U	0.098 U	0.018 U	0.017 U
NITROBENZENE	MG/KG	PRG-IND	103	0.061 U	0.061 U	0.34 U	0.061 U	0.059 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.056 U	0.056 U	0.31 U	0.056 U	0.054 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.090 U	0.090 U	0.50 U	0.090 U	0.087 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.026 U	0.026 U	0.15 U	0.026 U	0.025 U
PHENANTHRENE	MG/KG	PRG-IND	--	0.038 U	0.038 U	**0.56 J**	0.038 U	0.037 U
PHENOL	MG/KG	PRG-IND	100,000	0.036 U	0.036 U	0.20 U	0.036 U	0.035 U
PYRENE	MG/KG	PRG-IND	29,126	0.036 U	0.036 U	**0.59 J**	0.036 U	0.035 U

TABLE B-53
Criteria Evaluation - Soil - AVMA Trench T9 TPH
OUE Fort Richardson

Location ID:				**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**
Sample ID:				OUE02T8LS21	OUE02T8LS22	OUE02T8LS23	OUE02T8LS24	OUE02T8LS25
QAQC Type:				N	N	N	FD	N
Depth:				15	15	1	15	5
Date Sampled:				08/22/02	08/22/02	08/22/02	08/22/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**1.8 J**	**2.2 J**	**3,800 =**	**2.2 J**	**3.3 J**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	**0.27 J**	0.28 U	**6.0 =**	0.23 U	**0.48 J**

TABLE B-54
Criteria Evaluation - Soil - AVMA Trench T9 VOC
OUE Fort Richardson

Location ID:				**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**
Sample ID:				OUE02T8LS21	OUE02T8LS22	OUE02T8LS23	OUE02T8LS24	OUE02T8LS25
QAQC Type:				N	N	N	FD	N
Depth:				15	15	1	15	5
Date Sampled:				08/22/02	08/22/02	08/22/02	08/22/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0028 U	0.0038 U	0.0034 U	0.0034 U	0.0033 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0028 U	0.0038 U	0.0034 U	0.0034 U	0.0033 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0027 U	0.0036 U	0.0033 U	0.0032 U	0.0032 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0046 U	0.0062 U	0.0057 U	0.0056 U	0.0055 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0054 U	0.0072 U	0.0066 U	0.0065 U	0.0063 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0033 U	0.0044 U	0.0040 U	0.0040 U	0.0039 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0043 U	0.0057 U	0.0052 U	0.0052 U	0.0050 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0023 U	0.0031 U	0.0028 U	0.0028 U	0.0027 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0020 UJ	0.0026 UJ	0.0024 UJ	0.0024 UJ	0.0023 UJ
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0061 U	0.0082 U	0.0075 U	0.0074 U	0.0072 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0015 U	0.0020 U	0.0018 U	0.0018 U	0.0017 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0018 U	0.0025 U	0.0022 U	0.0022 U	0.0022 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.015 U	0.020 U	0.018 U	0.018 U	0.017 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0021 U	0.0028 U	0.0025 U	0.0025 U	0.0024 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0026 U	0.0034 U	0.0031 U	0.0031 U	0.0030 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0045 U	0.0061 U	0.0055 U	0.0055 U	0.0053 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0043 U	0.0057 U	0.0052 U	0.0052 U	0.0050 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0028 U	0.0038 U	0.0034 U	0.0034 U	0.0033 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0027 U	0.0036 U	0.0033 U	0.0032 U	0.0032 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0016 U	0.0021 U	0.0019 U	0.0019 U	0.0019 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0034 U	0.0046 U	0.0042 U	0.0041 U	0.0040 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0034 U	0.0046 U	0.0042 U	0.0041 U	0.0040 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0029 U	0.0039 U	0.0036 U	0.0035 U	0.0035 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0013 U	0.0018 U	0.0016 U	0.0016 U	0.0016 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0021 U	0.0028 U	0.0025 U	0.0025 U	0.0024 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0030 U	0.0041 U	0.0037 U	0.0037 U	0.0036 U
ACETONE	MG/KG	PRG-IND	6,036	0.015 U	0.020 U	**0.092 =**	0.018 U	0.017 U
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0040 U	0.0054 U	0.0049 U	0.0049 U	0.0048 U
BENZENE	MG/KG	PRG-IND	1.3	0.0022 U	0.0029 U	0.0027 U	0.0027 U	0.0026 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0041 U	0.0056 U	0.0051 U	0.0050 U	0.0049 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0041 U	0.0056 U	0.0051 U	0.0050 U	0.0049 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0028 U	0.0038 U	0.0034 U	0.0034 U	0.0033 U
BROMOFORM	MG/KG	PRG-IND	218	0.0039 U	0.0052 U	0.0048 U	0.0047 U	0.0046 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.0093 U	0.012 U	0.011 U	0.011 U	0.011 U
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0016 UJ	0.0021 UJ	0.0019 UJ	0.0019 UJ	0.0019 UJ
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0021 U	0.0028 U	0.0025 U	0.0025 U	0.0024 U

TABLE B-54
Criteria Evaluation - Soil - AVMA Trench T9 VOC
OUE Fort Richardson

Location ID:				**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**	**AVMAT9**
Sample ID:				OUE02T8LS21	OUE02T8LS22	OUE02T8LS23	OUE02T8LS24	OUE02T8LS25
QAQC Type:				N	N	N	FD	N
Depth:				15	15	1	15	5
Date Sampled:				08/22/02	08/22/02	08/22/02	08/22/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0013 U	0.0018 U	0.0016 U	0.0016 U	0.0016 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0044 U	0.0059 U	0.0054 U	0.0053 U	0.0052 U
CHLOROFORM	MG/KG	PRG-IND	12	0.0030 U	0.0041 U	0.0037 U	0.0037 U	0.0036 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0035 U	0.0047 U	0.0043 U	0.0043 U	0.0042 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0030 U	0.0041 U	0.0037 U	0.0037 U	0.0036 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	9.30E-04 U	0.0012 U	0.0011 U	0.0011 U	0.0011 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0039 U	0.0052 U	0.0048 U	0.0047 U	0.0046 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0026 U	0.0034 U	0.0031 U	0.0031 U	0.0030 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0072 U	0.0097 U	0.0088 U	0.0087 U	0.0085 U
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0023 U	0.0031 U	0.0028 U	0.0028 U	0.0027 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0050 U	0.0067 U	0.0061 U	0.0060 U	0.0059 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0051 U	0.0069 U	0.0063 U	0.0062 U	0.0061 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	9.80E-04 U	0.0013 U	0.0012 U	0.0012 U	0.0012 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	0.0062 U	**0.063 =**	**0.091 =**	0.0075 U	0.0073 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0018 U	0.0025 U	0.0022 U	0.0022 U	0.0022 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.022 JB**	**0.034 JB**	**0.034 JB**	**0.027 JB**	**0.031 JB**
NAPHTHALENE	MG/KG	PRG-IND	188	0.0012 U	0.0016 U	0.0015 U	0.0014 U	0.0014 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0012 U	0.0016 U	0.0014 U	0.0014 U	0.0014 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0020 U	0.0026 U	0.0024 U	0.0024 U	0.0023 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0034 U	0.0046 U	0.0042 U	0.0041 U	0.0040 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0013 U	0.0018 U	**0.014 =**	0.0016 U	0.0016 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0011 U	0.0015 U	0.0014 U	0.0014 U	0.0013 U
STYRENE	MG/KG	PRG-IND	1,700	0.0020 U	0.0026 U	0.0024 U	0.0024 U	0.0023 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0028 U	0.0038 U	0.0034 U	0.0034 U	0.0033 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0015 U	0.0020 U	0.0018 U	0.0018 U	0.0017 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0015 U	0.0020 U	0.0018 U	0.0018 U	0.0017 U
TOLUENE	MG/KG	PRG-IND	520	0.0030 U	0.0041 U	0.0037 U	0.0037 U	0.0036 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0045 U	0.0061 U	0.0055 U	0.0055 U	0.0053 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0024 U	0.0033 U	0.0030 U	0.0029 U	0.0029 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.0077 U	0.010 U	0.0094 U	0.0093 U	0.0091 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0032 U	0.0043 U	0.0039 U	0.0038 U	0.0037 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0041 U	0.0056 U	0.0051 U	0.0050 U	0.0049 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0026 U	0.0034 U	0.0031 U	0.0031 U	0.0030 U
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0038 U	0.0051 U	0.0046 U	0.0046 U	0.0045 U
XYLENES, m & p	MG/KG	PRG-IND	420	0.0018 U	0.0025 U	0.0022 U	0.0022 U	0.0022 U

TABLE B-55
Criteria Evaluation - Soil - AVMA BTEX and TPH
OUE Fort Richardson

Location ID:				**AP-4336**	**AP-4336**	**AP-4337**	**AP-4337**	**AP-4338**	**AP-4338**
Sample ID:				02AVMA25SL	02AVMA26SL	02AVMA27SL	02AVMA28SL	02AVMA31SL	02AVMA33SL
QAQC Type:				N	N	N	N	N	N
Depth:				5 - 7.5	72.5 - 75	10 - 12.5	92.5 - 95	115 - 117.5	135-140
Date Sampled:				08/01/02	08/02/02	08/06/02	08/07/02	09/04/02	09/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	MG/KG	PRG-IND	13	--	--	--	--	--	--
ETHYLBENZENE	MG/KG	PRG-IND	195	--	--	--	--	--	--
TOLUENE	MG/KG	PRG-IND	5,200	--	--	--	--	--	--
XYLENES, TOTAL	MG/KG	PRG-IND	4,200	--	--	--	--	--	--
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**4.0 J**	**6.2 =**	**4.4 B**	**2.6 JB**	**17 =**	**3.3 JB**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	**0.51 J**	0.17 U	**0.38 J**	0.51 U	0.43 U	0.40 U
RESIDUAL RANGE ORGANICS	MG/KG	AK UST Standards	11,000	--	--	--	--	--	--

TABLE B-55
Criteria Evaluation - Soil - AVMA BTEX and TPH
OUE Fort Richardson

Location ID:				**AP-4339**	**AP-4339**	**AP-4340**	**AP-4341**	**AP-4341**	**AP-4341**
Sample ID:				02AVMA29SL	02AVMA32SL	02AVMA30SL	02AVMA34SL	02AVMA35SL	02AVMA37SL
QAQC Type:				N	N	N	N	FD	N
Depth:				65 - 67.5	112.5 - 115	117.5 - 120	60 - 62.5	60 - 62.5	62.5 - 65
Date Sampled:				08/19/02	09/10/02	08/30/02	09/24/02	09/24/02	09/25/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	MG/KG	PRG-IND	13	--	--	--	--	--	--
ETHYLBENZENE	MG/KG	PRG-IND	195	--	--	--	--	--	--
TOLUENE	MG/KG	PRG-IND	5,200	--	--	--	--	--	--
XYLENES, TOTAL	MG/KG	PRG-IND	4,200	--	--	--	--	--	--
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**5.0 J**	**2.2 JB**	**2.1 JB**	**4.0 J**	**2.2 JB**	**1.9 JB**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	0.24 U	**0.52 J**	0.50 U	**0.64 J**	**0.73 J**	**0.56 J**
RESIDUAL RANGE ORGANICS	MG/KG	AK UST Standards	11,000	--	--	--	--	--	--

TABLE B-55
Criteria Evaluation - Soil - AVMA BTEX and TPH
OUE Fort Richardson

Location ID:				**AP-4342**	**AP-4342**	**AP-4410**	**AP-4410**	**AP-4411**	**AP-4411**
Sample ID:				02AVMA38SL	02AVMA39SL	03AVMA01SL	03AVMA02SL	03AVMA03SL	03AVMA04SL
QAQC Type:				N	FD	N	N	N	N
Depth:				95 - 97.5	95 - 97.5	40 - 42.5	72.5 - 75	5 - 7.5	65 - 67.5
Date Sampled:				10/10/02	10/10/02	05/07/03	05/08/03	05/12/03	05/12/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	MG/KG	PRG-IND	13	--	--	0.0015 U	0.0013 U	0.0021 U	0.0079 U
ETHYLBENZENE	MG/KG	PRG-IND	195	--	--	0.0014 U	0.0012 U	0.0020 U	0.0050 U
TOLUENE	MG/KG	PRG-IND	5,200	--	--	0.0042 U	0.0016 U	0.0070 U	0.010 U
XYLENES, TOTAL	MG/KG	PRG-IND	4,200	--	--	0.014 U	0.0098 U	0.019 U	0.029 U
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**1.8 J**	**2.1 J**	**3.1 J**	**4.0 J**	**3.8 J**	**16 =**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	**0.73 J**	**0.64 J**	0.42 UJ	0.37 UJ	0.60 UJ	0.57 U
RESIDUAL RANGE ORGANICS	MG/KG	AK UST Standards	11,000	--	--	10 U	8.2 U	11 U	**56 =**

TABLE B-55
Criteria Evaluation - Soil - AVMA BTEX and TPH
OUE Fort Richardson

Location ID:				**AP-4412**	**AP-4412**	**AP-4412**	**AP-4412**	**AP-4412**	**AP-4412**
Sample ID:				03AVMA05SL	03AVMA06SL	03AVMA07SL	03AVMA08SL	03AVMA09SL	03AVMA10SL
QAQC Type:				N	N	FD	N	N	N
Depth:				45 - 47.5	65 - 67.5	65 - 67.5	70 -72.5	82.5 - 85	110 - 112.5
Date Sampled:				05/14/03	05/15/03	05/15/03	05/15/03	05/16/03	05/19/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	MG/KG	PRG-IND	13	0.0013 U	0.0030 U	0.0011 U	9.20E-04 U	**0.0057 J**	9.00E-04 U
ETHYLBENZENE	MG/KG	PRG-IND	195	0.0012 U	0.025 U	0.0010 U	0.0064 U	0.017 U	8.30E-04 U
TOLUENE	MG/KG	PRG-IND	5,200	0.0074 U	0.022 U	0.0043 U	0.0032 U	0.014 U	0.0056 U
XYLENES, TOTAL	MG/KG	PRG-IND	4,200	0.011 U	0.044 U	0.010 U	0.0098 U	0.039 U	0.0084 U
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	**3.6 J**	**1.9 J**	**1.7 J**	**8.1 =**	**3.1 J**	**1.8 J**
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	0.35 U	0.85 U	0.31 U	0.26 U	0.66 U	0.25 U
RESIDUAL RANGE ORGANICS	MG/KG	AK UST Standards	11,000	11 U	5.9 U	8.2 U	8.1 U	14 U	8.6 U

TABLE B-55
Criteria Evaluation - Soil - AVMA BTEX and TPH
OUE Fort Richardson

Location ID:				**AP-4414**	**AP-4414**	**AP-4414**	**AP-4415**	**AP-4416**
Sample ID:				03AVMA13SL	03AVMA14SL	03AVMA15SL	03AVMA11SL	03AVMA12SL
QAQC Type:				N	N	FD	N	N
Depth:				110 - 112	115 - 117	115 - 117	80 - 81	110 - 112.5
Date Sampled:				08/18/03	08/18/03	08/18/03	06/03/03	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZENE	MG/KG	PRG-IND	13	4.70E-04 U	9.50E-04 U	0.0010 U	0.0014 U	0.0011 U
ETHYLBENZENE	MG/KG	PRG-IND	195	5.30E-04 U	6.20E-04 U	0.0010 U	0.0095 U	0.0020 U
TOLUENE	MG/KG	PRG-IND	5,200	0.0021 U	0.0025 U	0.0038 U	0.0045 U	0.0045 U
XYLENES, TOTAL	MG/KG	PRG-IND	4,200	0.0043 U	0.0045 U	0.0076 U	0.017 U	0.013 U
DIESEL RANGE ORGANICS	MG/KG	AK UST Standards	250	2.0 U	1.9 U	1.8 U	2.5 U	2.8 U
GASOLINE RANGE ORGANICS	MG/KG	AK UST Standards	300	0.12 U	0.19 U	0.20 U	0.38 U	0.26 U
RESIDUAL RANGE ORGANICS	MG/KG	AK UST Standards	11,000	4.5 U	4.6 U	4.1 U	11 U	**24 =**

TABLE B-56
Criteria Evaluation - Soil - AVMA METAL
OUE Fort Richardson

Location ID:				AP-4336	AP-4336	AP-4337	AP-4337	AP-4338	AP-4338	AP-4339
Sample ID:				02AVMA25SL	02AVMA26SL	02AVMA27SL	02AVMA28SL	02AVMA31SL	02AVMA33SL	02AVMA29SL
QAQC Type:				N	N	N	N	N	N	N
Depth:				5 - 7.5	72.5 - 75	10 - 12.5	92.5 - 95	115 - 117.5	135-140	65 - 67.5
Date Sampled:				08/01/02	08/02/02	08/06/02	08/07/02	09/04/02	09/23/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**							
ALUMINUM	MG/KG	PRG-IND	100,000	**13,400 =**	**16,200 =**	**20,000 =**	**14,000 =**	**11,000 =**	**20,000 =**	**16,000 =**
ANTIMONY	MG/KG	PRG-IND	409	**0.82 JB**	**0.16 JB**	**0.28 JB**	**0.13 JB**	0.049 U	**0.56 JB**	0.070 U
ARSENIC	MG/KG	PRG-IND	1.6	**9.1 =**	**2.2 J**	**3.7 J**	**3.9 J**	0.63 U	0.60 U	0.90 U
BARIUM	MG/KG	PRG-IND	66,577	**69 =**	**37 =**	**68 =**	**53 =**	**26 =**	**67 =**	**41 =**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.41 =**	**0.29 =**	**0.48 =**	**0.28 =**	**0.16 =**	**0.39 =**	**0.32 =**
CADMIUM	MG/KG	PRG-IND	451	**1.5 =**	**0.77 =**	**1.0 =**	**0.68 =**	**0.56 =**	**1.1 =**	**0.84 =**
CALCIUM	MG/KG	PRG-IND	--	**4,250 =**	**11,400 =**	**8,400 =**	**11,000 =**	**5,600 =**	**15,000 =**	**12,000 =**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**36 =**	**28 =**	**58 =**	**24 =**	**25 =**	**82 =**	**32 =**
COBALT	MG/KG	PRG-IND	1,921	**24 =**	**9.3 =**	**13 =**	**7.9 =**	**8.3 =**	**12 =**	**11 =**
COPPER	MG/KG	PRG-IND	40,877	**37 J**	**20 J**	**42 =**	**18 =**	**16 =**	**36 =**	**26 =**
IRON	MG/KG	PRG-IND	100,000	**48,200 =**	**29,900 =**	**37,000 =**	**23,000 =**	**22,000 =**	**42,000 =**	**31,000 =**
LEAD	MG/KG	PRG-IND	750	**3.7 =**	**2.1 J**	**5.1 =**	**2.2 J**	1.0 U	**3.4 =**	1.4 U
MAGNESIUM	MG/KG	PRG-IND	--	**35,900 =**	**9,550 =**	**12,000 =**	**7,100 =**	**7,700 =**	**13,000 =**	**11,000 =**
MANGANESE	MG/KG	PRG-IND	19,458	**1,670 =**	**470 =**	**620 =**	**450 =**	**430 =**	**600 =**	**510 =**
MERCURY	MG/KG	PRG-IND	307	**0.042 J**	**0.043 J**	**0.088 =**	**0.048 =**	0.0010 U	**0.060 =**	0.0011 U
NICKEL	MG/KG	PRG-IND	20,439	**195 =**	**28 =**	**45 =**	**26 =**	**27 =**	**42 =**	**58 =**
POTASSIUM	MG/KG	PRG-IND	--	**757 J**	**666 J**	**1,300 =**	**860 =**	**370 B**	**990 =**	**820 =**
SELENIUM	MG/KG	PRG-IND	5,110	**4.1 J**	**2.3 J**	**7.1 =**	**2.9 J**	0.84 U	**7.1 =**	1.2 U
SILVER	MG/KG	PRG-IND	5,110	0.27 U	0.25 U	0.28 U	0.28 U	0.24 U	0.23 U	0.34 U
SODIUM	MG/KG	PRG-IND	--	**58 J**	**182 =**	**370 =**	**210 =**	**250 =**	**350 =**	23 U
THALLIUM	MG/KG	PRG-IND	67	0.051 UJ	0.056 UJ	0.052 U	0.064 U	0.17 U	**0.067 J**	0.28 U
VANADIUM	MG/KG	PRG-IND	7,154	**56 J**	**54 J**	**66 =**	**48 =**	**39 =**	**78 =**	**59 =**
ZINC	MG/KG	PRG-IND	100,000	**65 =**	**48 =**	**64 =**	**42 =**	**36 =**	**68 =**	**52 =**

TABLE B-56
Criteria Evaluation - Soil - AVMA METAL
OUE Fort Richardson

Location ID:				AP-4339	AP-4340	AP-4341	AP-4341	AP-4341	AP-4342	AP-4342
Sample ID:				02AVMA32SL	02AVMA30SL	02AVMA34SL	02AVMA35SL	02AVMA37SL	02AVMA38SL	02AVMA39SL
QAQC Type:				N	N	N	FD	N	N	FD
Depth:				112.5 - 115	117.5 - 120	60 - 62.5	60 - 62.5	62.5 - 65	95 - 97.5	95 - 97.5
Date Sampled:				09/10/02	08/30/02	09/24/02	09/24/02	09/25/02	10/10/02	10/10/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**							
ALUMINUM	MG/KG	PRG-IND	100,000	**15,000 =**	**14,000 =**	**14,700 =**	**14,400 =**	**15,600 =**	**16,000 =**	**15,000 =**
ANTIMONY	MG/KG	PRG-IND	409	**0.24 J,GQ**	**0.29 =**	**0.41 B**	**0.52 B**	**0.56 B**	**0.37 J,GQ**	**0.44 J,GQ**
ARSENIC	MG/KG	PRG-IND	1.6	**1.5 JB**	**3.1 JB**	0.84 U	**1.7 J**	**2.8 J**	**75 J**	**2.5 J**
BARIUM	MG/KG	PRG-IND	66,577	**30 =**	**41 =**	**61 =**	**54 =**	**59 =**	**99 =**	**97 =**
BERYLLIUM	MG/KG	PRG-IND	1,941	**0.24 =**	**0.25 =**	**0.24 =**	**0.24 =**	**0.26 =**	**0.38 =**	**0.41 =**
CADMIUM	MG/KG	PRG-IND	451	**0.79 =**	**0.74 =**	**0.69 =**	**0.72 =**	**0.74 =**	**0.51 J**	**0.74 =**
CALCIUM	MG/KG	PRG-IND	--	**7,300 =**	**9,500 =**	**9,900 =**	**9,540 =**	**11,500 =**	**6,900 =**	**8,700 =**
CHROMIUM, TOTAL	MG/KG	PRG-IND	448	**38 =**	**28 =**	**33 =**	**35 =**	**36 =**	**36 =**	**46 =**
COBALT	MG/KG	PRG-IND	1,921	**10 =**	**9.7 =**	**9.2 =**	**9.5 =**	**9.9 =**	**10 =**	**10 =**
COPPER	MG/KG	PRG-IND	40,877	**26 =**	**24 =**	**32 J**	**28 J**	**28 J**	**31 =**	**28 =**
IRON	MG/KG	PRG-IND	100,000	**33,000 =**	**31,000 =**	**26,500 =**	**25,600 =**	**27,800 =**	**29,000 =**	**28,000 =**
LEAD	MG/KG	PRG-IND	750	**2.8 =**	**2.5 J**	**3.3 J**	**2.3 J**	**2.5 J**	**3.8 J**	**3.7 J**
MAGNESIUM	MG/KG	PRG-IND	--	**10,000 =**	**9,500 J**	**7,240 =**	**7,630 =**	**8,080 =**	**8,500 =**	**8,300 =**
MANGANESE	MG/KG	PRG-IND	19,458	**480 =**	**640 =**	**497 =**	**487 =**	**487 =**	**460 =**	**440 =**
MERCURY	MG/KG	PRG-IND	307	**0.051 =**	**0.048 =**	**0.077 =**	**0.085 =**	**0.078 =**	**0.057 =**	**0.067 =**
NICKEL	MG/KG	PRG-IND	20,439	**34 =**	**37 =**	**30 =**	**31 =**	**35 =**	**33 =**	**34 =**
POTASSIUM	MG/KG	PRG-IND	--	**510 =**	**590 =**	**1,010 J**	**941 J**	**1,050 J**	**1,500 J**	**1,400 J**
SELENIUM	MG/KG	PRG-IND	5,110	**5.6 =**	**3.5 J**	**7.5 =**	**6.3 J**	**7.8 =**	**1.4 J**	1.4 U
SILVER	MG/KG	PRG-IND	5,110	0.21 U	0.25 U	0.32 U	0.32 U	0.36 U	0.32 U	0.39 U
SODIUM	MG/KG	PRG-IND	--	**120 J**	**110 J**	**217 =**	**204 J**	**197 J**	**220 J**	**250 J**
THALLIUM	MG/KG	PRG-IND	67	0.14 U	0.17 U	**0.11 J**	**0.091 J**	**0.18 J**	0.26 U	0.30 U
VANADIUM	MG/KG	PRG-IND	7,154	**53 =**	**46 =**	**49 =**	**48 =**	**52 =**	**50 =**	**54 =**
ZINC	MG/KG	PRG-IND	100,000	**52 =**	**49 =**	**52 =**	**51 =**	**55 =**	**61 =**	**56 =**

TABLE B-57
Criteria Evaluation - Soil - AVMA PAH
OUE Fort Richardson

Location ID:				**AP-4410**	**AP-4410**	**AP-4411**	**AP-4411**	**AP-4412**	**AP-4412**	**AP-4412**	**AP-4412**	**AP-4412**
Sample ID:				03AVMA01SL	03AVMA02SL	03AVMA03SL	03AVMA04SL	03AVMA05SL	03AVMA06SL	03AVMA07SL	03AVMA08SL	03AVMA09SL
QAQC Type:				N	N	N	N	N	N	FD	N	N
Depth:				40 - 42.5	72.5 - 75	5 - 7.5	65 - 67.5	45 - 47.5	65 - 67.5	65 - 67.5	70 -72.5	82.5 - 85
Date Sampled:				05/07/03	05/08/03	05/12/03	05/12/03	05/14/03	05/15/03	05/15/03	05/15/03	05/16/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**									
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.0054 U	0.0053 U	0.0053 U	0.0056 U	0.0054 U	0.0053 U	0.0053 U	0.0056 U	**0.021**
ACENAPHTHENE	MG/KG	PRG-IND	29,219	2.10E-04 U	2.10E-04 U	2.07E-04 U	2.18E-04 U	2.10E-04 U	2.10E-04 U	2.10E-04 U	2.20E-04 U	2.40E-04
ACENAPHTHYLENE	MG/KG	PRG-IND	--	6.30E-04 U	6.20E-04 U	6.22E-04 U	6.53E-04 U	6.30E-04 U	6.20E-04 U	6.20E-04 U	6.60E-04 U	7.30E-04
ANTHRACENE	MG/KG	PRG-IND	100,000	2.70E-04 U	2.70E-04 U	2.65E-04 U	2.79E-04 U	2.70E-04 U	2.70E-04 U	2.70E-04 U	2.80E-04 U	3.10E-04
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	5.40E-04 U	5.40E-04 U	5.36E-04 U	5.63E-04 U	5.40E-04 U	5.40E-04 U	5.40E-04 U	5.70E-04 U	6.30E-04
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	9.40E-04 U	9.20E-04 U	9.22E-04 U	9.68E-04 U	9.30E-04 U	9.20E-04 U	9.20E-04 U	9.70E-04 U	0.0011
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	3.50E-04 U	3.50E-04 U	3.49E-04 U	3.66E-04 U	3.50E-04 U	3.50E-04 U	3.50E-04 U	3.70E-04 U	4.10E-04
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	4.90E-04 U	4.80E-04 U	4.81E-04 U	5.05E-04 U	4.80E-04 U	4.80E-04 U	4.80E-04 U	5.10E-04 U	**0.0024**
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	2.20E-04 U	2.20E-04 U	2.18E-04 U	2.29E-04 U	2.20E-04 UJ	2.20E-04 UJ	2.20E-04 UJ	2.30E-04 UJ	2.60E-04
CHRYSENE	MG/KG	PRG-IND	211	2.70E-04 U	2.60E-04 U	2.62E-04 U	2.75E-04 U	2.60E-04 U	2.60E-04 U	2.60E-04 U	2.80E-04 U	**0.0057**
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	3.50E-04 U	3.40E-04 U	3.41E-04 U	3.58E-04 U	3.40E-04 U	3.40E-04 U	3.40E-04 U	3.60E-04 U	4.00E-04
FLUORANTHENE	MG/KG	PRG-IND	22,000	6.20E-04 U	6.10E-04 U	6.15E-04 U	6.46E-04 U	6.20E-04 U	6.10E-04 U	6.20E-04 U	6.50E-04 U	7.20E-04
FLUORENE	MG/KG	PRG-IND	26,281	2.60E-04 U	2.50E-04 U	2.53E-04 U	2.65E-04 U	2.50E-04 U	2.50E-04 U	2.50E-04 U	2.70E-04 U	**0.0048**
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	4.80E-04 U	4.70E-04 U	4.73E-04 U	4.96E-04 U	4.80E-04 U	4.70E-04 U	4.70E-04 U	5.00E-04 U	5.50E-04
NAPHTHALENE	MG/KG	PRG-IND	188	3.20E-04 U	3.10E-04 U	3.14E-04 U	3.30E-04 U	3.20E-04 U	3.10E-04 U	3.10E-04 U	3.30E-04 U	**0.0069**
PHENANTHRENE	MG/KG	PRG-IND	--	3.00E-04 U	3.00E-04 U	2.96E-04 U	**0.0022 =**	3.00E-04 U	3.00E-04 U	3.00E-04 U	3.10E-04 U	**0.025**
PYRENE	MG/KG	PRG-IND	29,126	3.80E-04 U	3.70E-04 U	3.72E-04 U	**0.0033 =**	3.80E-04 U	3.70E-04 U	3.70E-04 U	3.90E-04 U	**0.0065**

TABLE B-57
Criteria Evaluation - Soil - AVMA PAH
OUE Fort Richardson

Location ID:					**AP-4412**	**AP-4414**	**AP-4414**	**AP-4414**	**AP-4415**	**AP-4416**
Sample ID:					03AVMA10SL	03AVMA13SL	03AVMA14SL	03AVMA15SL	03AVMA11SL	03AVMA12SL
QAQC Type:					N	N	N	FD	N	N
Depth:					110 - 112.5	110 - 112	115 - 117	115 - 117	80 - 81	110 - 112.5
Date Sampled:					05/19/03	08/18/03	08/18/03	08/18/03	06/03/03	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**							
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	=	0.0055 U	0.0058 U	0.0061 U	0.0062 U	0.0060 U	0.0061 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	U	2.10E-04 U	2.30E-04 U	2.40E-04 U	2.40E-04 U	2.30E-04 U	2.40E-04 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	U	6.40E-04 U	6.80E-04 U	7.10E-04 U	7.30E-04 U	7.00E-04 U	7.10E-04 U
ANTHRACENE	MG/KG	PRG-IND	100,000	U	2.70E-04 U	2.90E-04 U	3.00E-04 U	3.10E-04 U	3.00E-04 U	3.00E-04 U
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	U	5.50E-04 U	5.90E-04 U	6.10E-04 U	6.30E-04 U	6.00E-04 U	6.10E-04 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	U	9.50E-04 U	0.0010 U	0.0010 U	0.0011 U	0.0010 U	0.0011 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	U	3.60E-04 U	3.80E-04 U	4.00E-04 U	4.10E-04 U	3.90E-04 U	4.00E-04 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	=	4.90E-04 U	5.30E-04 U	5.50E-04 U	5.60E-04 U	5.40E-04 U	5.50E-04 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	UJ	2.20E-04 U	2.40E-04 U	2.50E-04 U	2.60E-04 U	2.50E-04 U	2.50E-04 U
CHRYSENE	MG/KG	PRG-IND	211	=	2.70E-04 U	2.90E-04 U	3.00E-04 U	3.10E-04 U	3.00E-04 U	3.00E-04 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	U	3.50E-04 U	3.70E-04 U	3.90E-04 U	4.00E-04 U	3.90E-04 U	3.90E-04 U
FLUORANTHENE	MG/KG	PRG-IND	22,000	U	6.30E-04 U	6.70E-04 U	7.00E-04 U	7.20E-04 U	6.90E-04 U	7.00E-04 U
FLUORENE	MG/KG	PRG-IND	26,281	=	2.60E-04 U	2.80E-04 U	2.90E-04 U	3.00E-04 U	2.90E-04 U	2.90E-04 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	U	4.80E-04 U	5.20E-04 U	5.40E-04 U	5.50E-04 U	5.30E-04 U	5.40E-04 U
NAPHTHALENE	MG/KG	PRG-IND	188	=	3.20E-04 U	3.40E-04 U	3.60E-04 U	3.70E-04 U	3.50E-04 U	3.60E-04 U
PHENANTHRENE	MG/KG	PRG-IND	--	=	3.00E-04 U	3.20E-04 U	3.40E-04 U	3.50E-04 U	3.30E-04 U	3.40E-04 U
PYRENE	MG/KG	PRG-IND	29,126	=	3.80E-04 U	4.10E-04 U	4.20E-04 U	4.40E-04 U	4.20E-04 U	4.20E-04 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4336**	**AP-4336**	**AP-4337**	**AP-4337**	**AP-4338**
Sample ID:				02AVMA25SL	02AVMA26SL	02AVMA27SL	02AVMA28SL	02AVMA31SL
QAQC Type:				N	N	N	N	N
Depth:				5 - 7.5	72.5 - 75	10 - 12.5	92.5 - 95	115 - 117.5
Date Sampled:				08/01/02	08/02/02	08/06/02	08/07/02	09/04/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.062 U	0.061 U	0.063 U	0.070 UJ	0.062 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.070 U	0.069 U	0.071 U	0.079 UJ	0.070 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.066 U	0.065 U	0.067 U	0.074 UJ	0.065 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.030 U	0.030 U	0.030 U	0.034 UJ	0.030 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.029 U	0.029 U	0.030 U	0.033 UJ	0.029 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.035 U	0.034 U	0.035 U	0.039 UJ	0.035 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.038 U	0.038 U	0.039 U	0.043 UJ	0.038 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.23 U	0.22 U	0.23 U	0.26 UJ	0.23 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.036 U	0.036 U	0.037 U	0.041 UJ	0.036 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.026 U	0.026 U	0.027 U	0.029 UJ	0.026 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.038 U	0.037 U	0.038 U	0.042 UJ	0.038 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.059 U	0.058 U	0.060 U	0.066 UJ	0.058 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.046 U	0.046 U	0.047 U	0.052 UJ	0.046 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.049 U	0.048 U	0.049 U	0.054 UJ	0.048 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.031 U	0.030 U	0.031 U	0.034 UJ	0.031 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.041 U	0.040 U	0.042 U	0.046 UJ	0.041 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.082 U	0.081 U	0.083 U	0.092 UJ	0.082 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.058 U	0.057 U	0.059 U	0.065 UJ	0.058 U
3-NITROANILINE	MG/KG	PRG-IND	--	0.036 U	0.036 U	0.037 U	0.041 UJ	0.036 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.022 U	0.021 U	0.022 U	0.024 UJ	0.022 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.037 U	0.036 U	0.037 U	0.041 UJ	0.036 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.037 U	0.036 U	0.037 U	0.041 UJ	0.036 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.090 U	0.088 U	0.091 U	0.10 UJ	0.089 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.032 U	0.031 U	0.032 U	0.036 UJ	0.032 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.039 U	0.038 U	0.039 U	0.043 UJ	0.038 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.022 U	0.022 U	0.023 U	0.025 UJ	0.022 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.041 U	0.040 U	0.042 U	0.046 UJ	0.041 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.038 U	0.037 U	0.038 U	0.042 UJ	0.038 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.037 U	0.037 U	0.038 U	0.042 UJ	0.037 U
BENZIDINE	MG/KG	PRG-IND	--	--	--	--	--	--
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.037 U	0.037 U	0.038 U	0.042 UJ	0.037 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.030 U	0.030 U	0.031 U	**0.052 J**	0.030 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.027 U	0.026 U	0.027 U	**0.053 J**	0.027 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.040 U	0.039 U	0.040 U	0.045 UJ	0.040 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.035 U	0.034 U	0.036 U	0.039 UJ	0.035 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.45 U	0.44 U	0.46 UR	0.51 UR	0.45 UR
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.049 U	0.048 U	0.050 U	0.055 UJ	0.049 U
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.031 U	0.030 U	0.031 U	0.034 UJ	0.030 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4336**	**AP-4336**	**AP-4337**	**AP-4337**	**AP-4338**
Sample ID:				02AVMA25SL	02AVMA26SL	02AVMA27SL	02AVMA28SL	02AVMA31SL
QAQC Type:				N	N	N	N	N
Depth:				5 - 7.5	72.5 - 75	10 - 12.5	92.5 - 95	115 - 117.5
Date Sampled:				08/01/02	08/02/02	08/06/02	08/07/02	09/04/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.066 U	0.065 U	0.067 U	0.074 UJ	0.066 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.069 U	0.068 U	0.070 U	0.077 UJ	0.068 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.076 U	0.074 U	0.077 U	0.085 UJ	0.075 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.037 J**	**0.037 J**	0.035 U	0.039 UJ	0.034 U
CHRYSENE	MG/KG	PRG-IND	211	0.037 U	0.037 U	0.038 U	0.042 UJ	0.037 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	**0.33 B**	**0.32 B**	**0.18 B**	**0.24 JB**	**0.47 B**
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.033 U	0.033 U	0.034 U	0.037 UJ	0.033 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.042 U	0.041 U	0.043 U	0.047 UJ	0.042 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.037 U	0.038 U	0.042 UJ	0.037 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	0.037 U	0.037 U	0.038 U	0.042 UJ	0.037 U
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.037 U	0.037 U	0.038 U	0.042 UJ	0.037 U
DIPHENYLAMINE	MG/KG	PRG-IND	--	**--**	**--**	**--**	**--**	**--**
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.042 U	0.041 U	0.042 U	**0.056 J**	0.041 U
FLUORENE	MG/KG	PRG-IND	26,281	0.037 U	0.037 U	0.038 U	0.042 UJ	0.037 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.037 U	0.037 U	0.038 U	0.042 UJ	0.037 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.070 U	0.069 U	0.071 U	0.078 UJ	0.069 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 U	0.013 U	0.013 UJ	0.014 UJ	0.013 UJ
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.061 U	0.060 U	0.062 U	0.068 UJ	0.060 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.034 U	0.033 U	0.034 U	0.038 UJ	0.034 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.044 U	0.043 U	0.045 U	0.049 UJ	0.044 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.054 U	0.053 U	0.055 U	0.061 UJ	0.054 U
NITROBENZENE	MG/KG	PRG-IND	103	0.088 U	0.087 U	0.090 U	0.099 UJ	0.088 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.017 U	0.017 U	0.017 U	0.019 UJ	0.017 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.060 U	0.059 U	0.060 U	0.067 UJ	0.059 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.026 U	0.025 U	0.026 UR	0.029 UR	0.025 U
PHENANTHRENE	MG/KG	PRG-IND	--	0.037 U	0.037 U	0.038 U	0.042 UJ	0.037 U
PHENOL	MG/KG	PRG-IND	100,000	0.035 U	0.034 U	0.036 U	0.039 UJ	0.035 U
PYRENE	MG/KG	PRG-IND	29,126	0.035 U	0.034 U	0.036 U	**0.067 J**	0.035 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4338**	**AP-4339**	**AP-4339**	**AP-4340**	**AP-4341**
Sample ID:				02AVMA33SL	02AVMA29SL	02AVMA32SL	02AVMA30SL	02AVMA34SL
QAQC Type:				N	N	N	N	N
Depth:				135-140	65 - 67.5	112.5 - 115	117.5 - 120	60 - 62.5
Date Sampled:				09/23/02	08/19/02	09/10/02	08/30/02	09/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.074 U	0.061 U	0.061 U	0.062 U	0.062 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.084 U	0.069 U	0.069 U	0.070 U	0.071 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.078 U	0.064 U	0.064 UJ	0.065 U	0.066 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.036 U	0.029 U	0.029 U	0.030 U	0.030 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.035 U	0.029 U	0.029 U	0.029 U	0.030 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.042 U	0.034 U	0.034 U	0.035 U	0.035 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.046 UJ	0.038 U	0.037 UJ	0.038 U	0.039 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.27 UR	0.22 UJ	0.22 UJ	0.23 UJ	0.23 U
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.043 U	0.036 U	0.035 U	0.036 U	0.036 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.031 U	0.026 U	0.026 U	0.026 U	0.026 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.045 U	0.037 U	0.037 U	0.038 UJ	0.038 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.070 U	0.058 U	0.057 U	0.058 U	0.059 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.055 U	0.045 U	0.045 U	0.046 U	**0.27 =**
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.058 U	0.048 U	0.047 U	0.048 U	0.049 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.037 U	0.030 U	0.030 U	0.031 U	0.031 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.049 U	0.040 U	0.040 U	0.041 U	0.041 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.098 U	0.081 U	0.080 U	0.082 U	0.083 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.070 U	0.057 UR	0.057 UJ	0.058 U	0.059 U
3-NITROANILINE	MG/KG	PRG-IND	--	0.043 U	0.036 U	0.035 U	0.036 U	0.036 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.026 U	0.021 U	0.021 U	0.022 U	0.022 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.044 U	0.036 U	0.036 U	0.036 U	0.037 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.044 U	0.036 U	0.036 U	0.036 U	0.037 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.11 U	0.088 UJ	0.088 U	0.089 U	0.090 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.038 U	0.031 U	0.031 U	0.032 U	0.032 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.046 U	0.038 U	0.038 U	0.038 U	0.039 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.027 U	0.022 UJ	0.022 U	0.022 U	0.022 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.049 U	0.040 U	0.040 U	0.041 U	0.041 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.045 U	0.037 U	0.037 U	0.038 U	0.038 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.044 U	0.036 U	0.036 U	0.037 U	0.037 U
BENZIDINE	MG/KG	PRG-IND	--	--	--	--	--	--
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.044 U	0.036 U	0.036 U	0.037 U	0.037 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.036 U	0.030 U	0.030 U	0.030 U	0.031 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.032 U	0.026 U	0.026 U	0.027 U	0.027 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.048 U	0.039 U	0.039 U	0.040 U	0.040 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.042 U	0.034 U	0.034 U	0.035 U	0.035 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.54 UR	0.44 UR	0.44 U	0.45 UR	0.45 UJ
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.059 U	0.048 UR	0.048 UJ	0.049 UJ	0.050 U
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.030 U	0.030 U	0.030 U	0.031 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4338**	**AP-4339**	**AP-4339**	**AP-4340**	**AP-4341**
Sample ID:				02AVMA33SL	02AVMA29SL	02AVMA32SL	02AVMA30SL	02AVMA34SL
QAQC Type:				N	N	N	N	N
Depth:				135-140	65 - 67.5	112.5 - 115	117.5 - 120	60 - 62.5
Date Sampled:				09/23/02	08/19/02	09/10/02	08/30/02	09/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.079 U	0.065 U	0.065 U	0.066 U	0.067 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.082 U	0.068 U	0.067 U	0.069 U	0.069 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.090 U	0.074 U	0.074 U	0.075 U	0.076 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.14 J**	**0.30 J**	**0.039 J**	**0.16 J**	0.035 U
CHRYSENE	MG/KG	PRG-IND	211	0.044 U	0.036 U	0.036 U	0.037 U	0.037 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	**0.48 =**	**0.45 JB**	**0.13 JB**	**0.48 B**	**0.50 JB**
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.040 U	0.033 U	0.032 U	0.033 U	0.033 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.050 U	0.041 U	0.041 U	0.042 U	0.042 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.044 U	0.036 U	0.036 U	0.037 U	0.037 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	0.044 U	0.036 U	0.036 U	0.037 U	0.037 U
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.044 U	0.036 U	0.036 U	0.037 U	0.037 U
DIPHENYLAMINE	MG/KG	PRG-IND	--	**--**	**--**	**--**	**--**	**--**
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.050 U	0.041 U	0.041 U	0.041 U	0.042 U
FLUORENE	MG/KG	PRG-IND	26,281	0.044 U	0.036 U	0.036 U	0.037 U	0.037 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.044 U	0.036 U	0.036 U	0.037 U	0.037 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.083 U	0.068 U	0.068 U	0.069 U	0.070 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.015 U	0.013 UR	0.013 U	0.013 UR	0.013 U
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.073 U	0.060 U	0.059 UJ	0.061 U	0.061 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.040 U	0.033 U	0.033 U	0.034 U	0.034 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.053 U	0.043 U	0.043 U	0.044 U	0.044 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.065 U	0.053 U	0.053 U	0.054 U	0.055 U
NITROBENZENE	MG/KG	PRG-IND	103	0.11 U	0.087 U	0.086 U	0.088 UJ	0.089 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.021 U	0.017 U	0.017 U	0.017 U	**0.10 J**
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.071 U	0.058 U	0.058 U	0.059 UJ	0.060 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.030 UJ	0.025 UJ	0.025 U	0.025 U	0.026 U
PHENANTHRENE	MG/KG	PRG-IND	--	0.044 U	0.036 U	0.036 U	0.037 U	0.037 U
PHENOL	MG/KG	PRG-IND	100,000	0.042 U	0.034 U	0.034 U	0.035 U	0.035 U
PYRENE	MG/KG	PRG-IND	29,126	0.042 U	0.034 U	0.034 U	0.035 U	0.035 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4341**	**AP-4341**	**AP-4342**	**AP-4342**	**AP-4410**
Sample ID:				02AVMA35SL	02AVMA37SL	02AVMA38SL	02AVMA39SL	03AVMA01SL
QAQC Type:				FD	N	N	FD	N
Depth:				60 - 62.5	62.5 - 65	95 - 97.5	95 - 97.5	40 - 42.5
Date Sampled:				09/24/02	09/25/02	10/10/02	10/10/02	05/07/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.062 U	0.069 U	0.068 UJ	0.069 UJ	0.019 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.070 U	0.078 U	0.077 UJ	0.078 UJ	0.023 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.065 U	0.073 U	0.072 UJ	0.073 UJ	0.021 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.030 U	0.033 U	0.033 UJ	0.033 UJ	0.023 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.029 U	0.033 U	0.032 U	0.033 U	0.031 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.035 U	0.039 U	0.038 UJ	0.039 UJ	0.021 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.038 U	0.043 U	0.042 UJ	0.043 UJ	0.037 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.23 U	0.25 U	0.25 UJ	0.25 UJ	0.023 U
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.036 U	0.040 U	0.040 U	0.040 U	0.030 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.026 U	0.029 U	0.029 U	0.029 U	0.029 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.038 U	0.042 U	0.042 U	0.042 U	0.022 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.058 U	0.065 U	0.064 UJ	0.065 UJ	0.021 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	**0.25 =**	0.052 U	0.051 UJ	0.052 UJ	0.019 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.048 U	0.054 U	0.053 UJ	0.054 UJ	0.024 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.031 U	0.034 U	0.034 UJ	0.034 UJ	0.031 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.041 U	0.046 U	0.045 UJ	0.046 UJ	0.029 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.082 U	0.091 U	0.090 UJ	0.091 UJ	0.025 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.058 U	0.065 U	0.064 U	0.065 U	0.016 U
3-NITROANILINE	MG/KG	PRG-IND	--	0.036 U	0.040 U	0.040 UJ	0.040 UJ	0.031 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.022 U	0.024 U	0.024 UJ	0.024 UJ	0.016 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.036 U	0.041 U	0.040 U	0.041 U	0.026 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.036 U	0.041 U	0.040 UJ	0.041 UJ	0.022 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.089 U	0.10 U	0.099 UJ	0.10 UJ	0.021 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.032 U	0.036 U	0.035 U	0.036 U	0.024 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.038 U	0.043 U	0.042 UJ	0.043 UJ	0.025 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.022 U	0.025 U	0.024 UJ	0.025 UJ	0.028 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.041 U	0.046 U	0.045 UJ	0.046 UJ	0.025 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.038 U	0.042 U	0.042 UJ	0.042 UJ	0.028 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.037 U	0.041 U	0.041 U	0.041 U	0.026 U
BENZIDINE	MG/KG	PRG-IND	--	**--**	**--**	0.30 U	0.30 U	**--**
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.037 U	0.041 U	0.041 UJ	0.041 UJ	0.017 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.030 U	0.034 U	0.033 UJ	0.034 UJ	0.019 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.027 U	0.030 U	0.029 UJ	0.030 UJ	0.023 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.040 U	0.044 U	0.044 UJ	0.044 UJ	0.050 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.035 U	0.039 U	0.038 UJ	0.039 UJ	0.038 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.45 UJ	0.50 UJ	0.50 UJ	0.50 UJ	0.015 U
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.049 U	0.055 U	0.054 UR	0.055 UR	0.026 U
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.031 U	0.034 U	0.034 U	0.034 U	0.023 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4341**	**AP-4341**	**AP-4342**	**AP-4342**	**AP-4410**
Sample ID:				02AVMA35SL	02AVMA37SL	02AVMA38SL	02AVMA39SL	03AVMA01SL
QAQC Type:				FD	N	N	FD	N
Depth:				60 - 62.5	62.5 - 65	95 - 97.5	95 - 97.5	40 - 42.5
Date Sampled:				09/24/02	09/25/02	10/10/02	10/10/02	05/07/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.066 U	0.074 U	0.073 UJ	0.074 UJ	0.023 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.069 U	0.077 U	0.076 UJ	0.077 UJ	0.022 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.075 U	0.084 U	0.083 UJ	0.084 UJ	0.014 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	0.034 U	0.038 U	0.038 U	0.038 U	0.022 U
CHRYSENE	MG/KG	PRG-IND	211	0.037 U	0.041 U	0.041 U	0.041 U	0.018 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	**0.23 JB**	**0.40 JB**	**0.24 JB**	**0.10 JB**	0.042 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.033 U	0.037 U	0.036 U	0.037 U	0.018 UJ
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.042 U	0.047 U	0.046 UJ	0.047 UJ	0.051 UJ
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.037 U	0.041 U	0.041 UJ	0.041 UJ	0.027 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	0.037 U	0.041 U	0.041 U	0.041 U	0.022 U
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.037 U	0.041 U	0.041 U	0.041 U	0.027 U
DIPHENYLAMINE	MG/KG	PRG-IND	--	**--**	**--**	0.052 U	0.052 U	**--**
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.041 U	0.046 U	0.046 UJ	0.046 UJ	0.021 U
FLUORENE	MG/KG	PRG-IND	26,281	0.037 U	0.041 U	0.041 U	0.041 U	0.024 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.037 U	0.041 U	0.041 U	0.041 U	0.021 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.069 U	0.078 U	0.077 UJ	0.078 UJ	0.026 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.013 U	0.014 U	0.014 UJ	0.014 UJ	0.051 UJ
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.061 U	0.068 U	0.067 UJ	0.068 UJ	0.022 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.034 U	0.038 U	0.037 UJ	0.038 UJ	0.046 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.044 U	0.049 U	0.048 UJ	0.049 UJ	0.022 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.054 U	0.060 U	0.060 UJ	0.060 UJ	0.026 U
NITROBENZENE	MG/KG	PRG-IND	103	0.088 U	0.098 U	0.097 UJ	0.098 UJ	0.047 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	**0.078 J**	0.019 U	0.019 UJ	0.019 UJ	0.020 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.059 U	0.066 U	0.065 UJ	0.066 UJ	0.018 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.025 U	0.028 U	0.028 UJ	0.028 UJ	0.023 U
PHENANTHRENE	MG/KG	PRG-IND	--	0.037 U	0.041 U	0.041 U	0.041 U	0.020 U
PHENOL	MG/KG	PRG-IND	100,000	0.035 U	0.039 U	0.038 UJ	0.047 UJ	0.027 U
PYRENE	MG/KG	PRG-IND	29,126	0.035 U	0.039 U	0.038 U	0.039 U	0.027 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4410**	**AP-4411**	**AP-4411**	**AP-4412**	**AP-4412**
Sample ID:				03AVMA02SL	03AVMA03SL	03AVMA04SL	03AVMA05SL	03AVMA06SL
QAQC Type:				N	N	N	N	N
Depth:				72.5 - 75	5 - 7.5	65 - 67.5	45 - 47.5	65 - 67.5
Date Sampled:				05/08/03	05/12/03	05/12/03	05/14/03	05/15/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.019 U	0.020 U	0.021 U	0.020 U	0.020 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.023 U	0.024 U	0.025 U	0.024 U	0.024 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.021 U	0.022 U	0.023 U	0.022 U	0.022 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.023 U	0.024 U	0.025 U	0.024 U	0.024 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.031 U	0.032 U	0.034 U	0.032 U	0.032 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.021 U	0.021 U	0.022 U	0.021 U	0.021 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.037 U	0.038 UJ	0.040 U	0.038 U	0.038 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.023 UJ	0.024 UJ	0.025 U	0.024 UJ	0.024 U
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.030 U	0.032 U	0.033 U	0.032 U	0.032 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.029 U	0.030 U	0.032 U	0.030 U	0.030 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.022 U	0.023 U	0.024 U	0.023 U	0.023 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.021 U	0.022 U	0.023 U	0.022 U	0.022 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.019 U	0.020 U	0.020 U	0.020 U	0.019 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.024 U	0.025 U	0.026 U	0.025 U	0.025 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.031 U	0.032 U	0.033 U	0.032 U	0.032 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.029 U	0.030 U	0.032 U	0.031 U	0.030 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.025 U	0.026 U	0.028 U	0.027 U	0.026 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.016 U	0.016 UJ	0.017 U	0.016 U	0.016 U
3-NITROANILINE	MG/KG	PRG-IND	--	0.031 U	0.032 U	0.033 U	0.032 U	0.032 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.016 U	0.016 U	0.017 U	0.016 U	0.016 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.026 U	0.027 U	0.028 U	0.027 U	0.027 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.023 U	0.023 U	0.024 U	0.024 U	0.023 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.021 U	0.022 U	0.023 U	0.022 U	0.022 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.024 U	0.025 U	0.026 U	0.025 U	0.025 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.025 U	0.026 U	0.028 U	0.026 U	0.026 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.028 U	0.030 U	0.031 U	0.030 U	0.030 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.025 U	0.026 U	0.028 U	0.027 U	0.026 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.028 U	0.029 U	0.030 U	0.029 U	0.029 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.026 U	0.027 U	0.028 U	0.027 U	0.027 U
BENZIDINE	MG/KG	PRG-IND	--	--	--	--	--	--
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.017 U	0.017 U	0.018 U	0.017 U	0.017 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.019 U	0.020 U	0.020 U	0.020 U	0.019 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.023 U	0.023 U	0.025 U	0.024 U	0.023 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.050 U	0.052 U	0.055 U	0.052 U	0.052 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.038 U	0.040 U	0.042 U	0.040 U	0.040 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.015 U	0.015 UJ	0.016 U	0.015 UJ	0.015 U
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.026 U	0.027 UJ	0.028 U	0.027 U	0.027 U
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.023 U	0.024 U	0.025 U	0.024 U	0.024 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4410**	**AP-4411**	**AP-4411**	**AP-4412**	**AP-4412**
Sample ID:				03AVMA02SL	03AVMA03SL	03AVMA04SL	03AVMA05SL	03AVMA06SL
QAQC Type:				N	N	N	N	N
Depth:				72.5 - 75	5 - 7.5	65 - 67.5	45 - 47.5	65 - 67.5
Date Sampled:				05/08/03	05/12/03	05/12/03	05/14/03	05/15/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.023 U	0.024 U	0.025 U	0.024 U	0.024 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.022 U	0.023 U	0.024 U	0.023 U	0.023 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.014 U	0.015 U	0.016 U	0.015 U	0.015 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	0.022 U	0.023 U	**0.080 J**	0.023 U	0.023 U
CHRYSENE	MG/KG	PRG-IND	211	0.018 U	0.019 U	0.020 U	0.019 U	0.019 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.042 U	0.097 U	0.30 U	0.10 U	0.17 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.018 UJ	0.019 U	0.020 U	0.019 U	0.019 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.051 UJ	0.053 UJ	0.055 UJ	0.053 U	0.053 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.027 U	0.028 U	0.029 U	0.028 U	0.028 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	0.022 U	0.023 U	0.024 U	0.023 U	0.023 U
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.027 U	0.028 U	0.029 U	0.028 U	0.028 U
DIPHENYLAMINE	MG/KG	PRG-IND	--	**--**	**--**	**--**	**--**	**--**
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.021 U	0.021 U	0.023 U	0.022 U	0.021 U
FLUORENE	MG/KG	PRG-IND	26,281	0.024 U	0.025 U	0.027 U	0.026 U	0.025 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.021 U	0.021 U	0.022 U	0.021 U	0.021 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.026 U	0.027 U	0.029 U	0.028 U	0.027 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.051 UJ	0.053 U	0.055 U	0.053 U	0.053 U
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.022 U	0.023 U	0.024 U	0.023 U	0.023 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.046 U	0.048 U	0.050 U	0.048 U	0.048 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.022 U	0.023 U	0.024 U	0.023 U	0.023 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.026 U	0.027 U	0.028 U	0.027 U	0.027 U
NITROBENZENE	MG/KG	PRG-IND	103	0.047 U	0.049 U	0.051 U	0.049 U	0.049 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.020 U	0.020 U	0.021 U	0.021 U	0.020 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.018 U	0.018 U	0.019 U	0.018 U	0.018 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.023 U	0.024 U	0.025 U	0.024 U	0.024 U
PHENANTHRENE	MG/KG	PRG-IND	--	0.020 U	0.020 U	0.021 U	0.020 U	0.020 U
PHENOL	MG/KG	PRG-IND	100,000	0.027 UJ	0.029 U	0.030 U	0.029 U	0.028 U
PYRENE	MG/KG	PRG-IND	29,126	0.027 U	0.028 U	0.030 U	0.028 U	0.028 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4412**	**AP-4412**	**AP-4412**	**AP-4412**	**AP-4414**
Sample ID:				03AVMA07SL	03AVMA08SL	03AVMA09SL	03AVMA10SL	03AVMA13SL
QAQC Type:				FD	N	N	N	N
Depth:				65 - 67.5	70 -72.5	82.5 - 85	110 - 112.5	110 - 112
Date Sampled:				05/15/03	05/15/03	05/16/03	05/19/03	08/18/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.020 U	0.021 U	0.023 U	0.020 U	0.022 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.024 U	0.025 U	0.028 U	0.024 U	0.026 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.022 U	0.023 U	0.025 U	0.022 U	0.024 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.024 U	0.025 U	0.028 U	0.024 U	0.026 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.032 U	0.034 U	0.037 U	0.033 U	0.035 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.021 U	0.022 U	0.025 U	0.022 U	0.023 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.038 U	0.040 U	0.044 U	0.039 U	0.042 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.024 U	0.025 U	0.028 U	0.024 U	0.026 U
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.032 U	0.033 U	0.037 U	0.032 U	0.035 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.030 U	0.032 U	0.035 U	0.031 U	0.033 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.023 U	0.024 U	0.027 U	0.024 U	0.026 UJ
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.022 U	0.023 U	0.026 U	0.023 U	0.024 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.019 U	0.021 U	0.023 U	0.020 U	0.021 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.025 U	0.026 U	0.029 U	0.025 U	0.027 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.032 U	0.033 U	0.037 U	0.032 U	0.035 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.030 U	0.032 U	0.035 U	0.031 U	0.033 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.026 U	0.028 U	0.031 U	0.027 U	0.029 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.016 U	0.017 U	0.019 U	0.017 U	0.018 U
3-NITROANILINE	MG/KG	PRG-IND	--	0.032 U	0.033 U	0.037 U	0.032 U	0.035 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.016 U	0.017 U	0.019 U	0.016 U	0.018 U
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.027 U	0.028 U	0.032 U	0.028 U	0.030 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.023 U	0.025 U	0.027 U	0.024 U	0.026 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.022 U	0.023 U	0.026 U	0.023 U	0.024 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.025 U	0.026 U	0.029 U	0.025 U	0.027 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.026 U	0.028 U	0.031 U	0.027 U	0.029 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.030 U	0.031 U	0.035 U	0.030 U	0.032 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.026 U	0.028 U	0.031 U	0.027 U	0.029 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.029 U	0.030 U	0.034 U	0.030 U	0.032 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.027 U	0.028 U	0.031 U	0.027 U	0.029 U
BENZIDINE	MG/KG	PRG-IND	--	--	--	--	--	--
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.017 U	0.018 U	0.020 U	0.018 U	0.019 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.019 U	0.021 U	0.023 U	0.020 U	0.021 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.023 U	0.025 U	0.027 U	0.024 U	0.026 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.052 U	0.055 U	0.061 U	0.053 U	0.057 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.040 U	0.042 U	0.046 U	0.041 U	0.044 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.015 U	0.016 U	0.018 U	0.016 UJ	0.017 U
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.027 U	0.028 U	0.031 U	0.027 U	0.029 U
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.024 U	0.025 U	0.028 U	0.025 U	0.026 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4412**	**AP-4412**	**AP-4412**	**AP-4412**	**AP-4414**
Sample ID:				03AVMA07SL	03AVMA08SL	03AVMA09SL	03AVMA10SL	03AVMA13SL
QAQC Type:				FD	N	N	N	N
Depth:				65 - 67.5	70 -72.5	82.5 - 85	110 - 112.5	110 - 112
Date Sampled:				05/15/03	05/15/03	05/16/03	05/19/03	08/18/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.024 U	0.025 U	0.028 U	0.025 U	0.026 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.023 U	0.024 U	0.027 U	0.024 U	0.026 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.015 U	0.016 U	0.017 U	0.015 U	0.016 U
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	0.023 U	0.024 U	0.027 U	0.023 U	0.025 U
CHRYSENE	MG/KG	PRG-IND	211	0.019 U	0.020 U	0.022 U	0.019 U	0.021 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	**0.24 =**	0.11 U	0.086 U	0.045 U	0.048 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.019 U	0.020 U	0.022 U	0.020 U	0.021 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.053 U	0.055 U	0.062 U	0.054 UJ	0.058 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.028 U	0.029 U	0.032 U	0.028 U	0.030 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	0.023 U	0.024 U	0.027 U	0.023 U	0.025 U
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.028 U	0.029 U	0.032 U	0.028 U	0.030 U
DIPHENYLAMINE	MG/KG	PRG-IND	--	--	--	--	--	--
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.021 U	0.023 U	0.025 U	0.022 U	0.024 U
FLUORENE	MG/KG	PRG-IND	26,281	0.025 U	0.027 U	0.030 U	0.026 U	0.028 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.021 U	0.022 U	0.025 U	0.022 U	0.023 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.027 U	0.029 U	0.032 U	0.028 U	0.030 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.053 U	0.055 U	0.061 U	0.054 U	0.058 UJ
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.023 U	0.024 U	0.027 U	0.023 U	0.025 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.048 U	0.050 U	0.056 U	0.049 U	0.052 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.023 U	0.024 U	0.027 U	0.024 U	0.026 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.027 U	0.028 U	0.031 U	0.027 U	0.029 U
NITROBENZENE	MG/KG	PRG-IND	103	0.049 U	0.051 U	0.057 U	0.050 U	0.053 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.020 U	0.022 U	0.024 U	0.021 U	0.022 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.018 U	0.019 U	0.021 U	0.019 U	0.020 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.024 U	0.026 U	0.028 U	0.025 U	0.027 U
PHENANTHRENE	MG/KG	PRG-IND	--	0.020 U	0.021 U	0.024 U	0.021 U	0.022 U
PHENOL	MG/KG	PRG-IND	100,000	0.028 U	0.030 U	0.033 U	0.029 U	0.031 U
PYRENE	MG/KG	PRG-IND	29,126	0.028 U	0.030 U	0.033 U	0.029 U	0.031 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4414**	**AP-4414**	**AP-4415**	**AP-4416**
Sample ID:				03AVMA14SL	03AVMA15SL	03AVMA11SL	03AVMA12SL
QAQC Type:				N	FD	N	N
Depth:				115 - 117	115 - 117	80 - 81	110 - 112.5
Date Sampled:				08/18/03	08/18/03	06/03/03	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.022 U	0.023 U	0.022 U	0.023 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.027 U	0.028 U	0.027 U	0.027 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.024 U	0.025 U	0.024 U	0.025 U
2,4,5-TRICHLOROPHENOL	MG/KG	PRG-IND	61,561	0.027 U	0.028 U	0.027 UJ	0.027 U
2,4,6-TRICHLOROPHENOL	MG/KG	PRG-IND	62	0.036 U	0.038 U	0.036 UJ	0.036 U
2,4-DICHLOROPHENOL	MG/KG	PRG-IND	1,847	0.024 U	0.025 U	0.024 UJ	0.024 U
2,4-DIMETHYLPHENOL	MG/KG	PRG-IND	12,312	0.043 U	0.045 U	0.043 UJ	0.043 U
2,4-DINITROPHENOL	MG/KG	PRG-IND	1,231	0.027 U	0.028 U	0.027 UJ	0.027 UJ
2,4-DINITROTOLUENE	MG/KG	PRG-IND	1,231	0.036 U	0.037 U	0.036 U	0.036 U
2,6-DINITROTOLUENE	MG/KG	PRG-IND	616	0.034 U	0.035 U	0.034 U	0.034 U
2-CHLORONAPHTHALENE	MG/KG	PRG-IND	23,383	0.026 UJ	0.027 UJ	0.026 U	0.026 U
2-CHLOROPHENOL	MG/KG	PRG-IND	236	0.025 U	0.026 U	0.025 UJ	0.025 U
2-METHYLNAPHTHALENE	MG/KG	PRG-IND	--	0.022 U	0.023 U	0.022 U	0.022 U
2-METHYLPHENOL (o-CRESOL)	MG/KG	PRG-IND	30,780	0.028 U	0.029 U	0.028 UJ	0.028 U
2-NITROANILINE	MG/KG	PRG-IND	18	0.036 U	0.037 U	0.036 U	0.036 U
2-NITROPHENOL	MG/KG	PRG-IND	--	0.034 U	0.036 U	0.034 UJ	0.035 U
3&4-METHYLPHENOL	MG/KG	PRG-IND	3,078	0.030 U	0.031 U	0.030 UJ	0.030 U
3,3'-DICHLOROBENZIDINE	MG/KG	PRG-IND	3.8	0.018 U	0.019 U	0.018 UJ	0.019 U
3-NITROANILINE	MG/KG	PRG-IND	--	0.036 U	0.037 U	0.036 U	0.036 U
4,6-DINITRO-2-METHYLPHENOL	MG/KG	PRG-IND	--	0.018 U	0.019 U	0.018 UJ	0.018 UJ
4-BROMOPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.031 U	0.032 U	0.030 U	0.031 U
4-CHLORO-3-METHYLPHENOL	MG/KG	PRG-IND	--	0.026 U	0.027 U	0.026 UJ	0.027 U
4-CHLOROANILINE	MG/KG	PRG-IND	2,462	0.025 U	0.026 U	0.025 U	0.025 U
4-CHLOROPHENYL PHENYL ETHER	MG/KG	PRG-IND	--	0.028 U	0.029 U	0.028 U	0.028 U
4-NITROANILINE	MG/KG	PRG-IND	--	0.030 U	0.031 U	0.030 U	0.030 U
4-NITROPHENOL	MG/KG	PRG-IND	--	0.033 U	0.035 U	0.033 UJ	0.034 U
ACENAPHTHENE	MG/KG	PRG-IND	29,219	0.030 U	0.031 U	0.030 U	0.030 U
ACENAPHTHYLENE	MG/KG	PRG-IND	--	0.033 U	0.034 U	0.032 U	0.033 U
ANTHRACENE	MG/KG	PRG-IND	100,000	0.030 U	0.032 U	0.030 U	0.031 U
BENZIDINE	MG/KG	PRG-IND	--	--	--	--	--
BENZO(a)ANTHRACENE	MG/KG	PRG-IND	2.1	0.020 U	0.020 U	0.019 U	0.020 U
BENZO(a)PYRENE	MG/KG	PRG-IND	0.21	0.022 U	0.023 U	0.022 U	0.022 U
BENZO(b)FLUORANTHENE	MG/KG	PRG-IND	2.1	0.027 U	0.028 U	0.026 U	0.027 U
BENZO(g,h,i)PERYLENE	MG/KG	PRG-IND	--	0.059 U	0.061 U	0.058 U	0.059 U
BENZO(k)FLUORANTHENE	MG/KG	PRG-IND	21	0.045 U	0.047 U	0.045 U	0.045 U
BENZOIC ACID	MG/KG	PRG-IND	100,000	0.017 UJ	0.018 U	0.017 UJ	0.017 UJ
BENZYL ALCOHOL	MG/KG	PRG-IND	100,000	0.030 U	0.032 U	0.030 U	0.031 U
BENZYL BUTYL PHTHALATE	MG/KG	PRG-IND	100,000	0.027 U	0.028 U	0.027 U	0.027 U

TABLE B-58
Criteria Evaluation - Soil - AVMA SVOC
OUE Fort Richardson

Location ID:				**AP-4414**	**AP-4414**	**AP-4415**	**AP-4416**
Sample ID:				03AVMA14SL	03AVMA15SL	03AVMA11SL	03AVMA12SL
QAQC Type:				N	FD	N	N
Depth:				115 - 117	115 - 117	80 - 81	110 - 112.5
Date Sampled:				08/18/03	08/18/03	06/03/03	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
bis(2-CHLOROETHOXY) METHANE	MG/KG	PRG-IND	--	0.027 U	0.028 U	0.027 U	0.027 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	MG/KG	PRG-IND	0.55	0.026 U	0.027 U	0.026 U	0.026 U
bis(2-CHLOROISOPROPYL) ETHER	MG/KG	PRG-IND	7.4	0.017 U	0.017 U	0.017 U	0.017 UJ
bis(2-ETHYLHEXYL) PHTHALATE	MG/KG	PRG-IND	123	**0.065 J**	**0.097 J**	0.026 U	**0.35 =**
CHRYSENE	MG/KG	PRG-IND	211	0.021 U	0.022 U	0.021 U	0.021 U
DIBENZ(a,h)ANTHRACENE	MG/KG	PRG-IND	0.21	0.049 U	0.051 U	0.11 U	0.13 U
DIBENZOFURAN	MG/KG	PRG-IND	3,127	0.022 U	0.022 U	0.021 U	0.022 U
DIETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.060 U	0.062 U	0.059 UJ	0.060 U
DIMETHYL PHTHALATE	MG/KG	PRG-IND	100,000	0.031 U	0.033 U	0.031 U	0.032 U
DI-n-BUTYL PHTHALATE	MG/KG	PRG-IND	61,561	0.026 U	0.027 U	0.026 U	0.026 U
DI-n-OCTYLPHTHALATE	MG/KG	PRG-IND	24,624	0.031 U	0.032 U	0.031 U	0.031 U
DIPHENYLAMINE	MG/KG	PRG-IND	--	**--**	**--**	**--**	**--**
FLUORANTHENE	MG/KG	PRG-IND	22,000	0.024 U	0.025 U	0.024 U	0.024 U
FLUORENE	MG/KG	PRG-IND	26,281	0.029 U	0.030 U	0.028 U	0.029 U
HEXACHLOROBENZENE	MG/KG	PRG-IND	1.1	0.024 U	0.025 U	0.024 U	0.024 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.031 U	0.032 U	0.031 U	0.031 U
HEXACHLOROCYCLOPENTADIENE	MG/KG	PRG-IND	3,659	0.060 UJ	0.062 UJ	0.059 U	0.060 UJ
HEXACHLOROETHANE	MG/KG	PRG-IND	123	0.026 U	0.027 U	0.026 U	0.026 U
INDENO(1,2,3-c,d)PYRENE	MG/KG	PRG-IND	2.1	0.054 U	0.056 U	0.054 U	0.054 U
ISOPHORONE	MG/KG	PRG-IND	1,814	0.026 U	0.027 U	0.026 U	0.026 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.030 U	0.031 U	0.030 U	0.030 U
NITROBENZENE	MG/KG	PRG-IND	103	0.055 U	0.057 U	0.055 U	0.055 U
N-NITROSODI-n-PROPYLAMINE	MG/KG	PRG-IND	0.25	0.023 U	0.024 U	0.023 U	0.023 U
N-NITROSODIPHENYLAMINE	MG/KG	PRG-IND	352	0.021 U	0.021 U	0.021 U	0.021 U
PENTACHLOROPHENOL	MG/KG	PRG-IND	9.0	0.028 U	0.028 U	0.027 UJ	0.028 UJ
PHENANTHRENE	MG/KG	PRG-IND	--	0.023 U	0.024 U	0.023 U	0.023 U
PHENOL	MG/KG	PRG-IND	100,000	0.032 U	0.033 U	0.032 UJ	0.032 U
PYRENE	MG/KG	PRG-IND	29,126	0.032 U	0.033 U	0.032 U	0.032 U

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4336**	**AP-4336**	**AP-4337**	**AP-4337**	**AP-4338**
Sample ID:				02AVMA25SL	02AVMA26SL	02AVMA27SL	02AVMA28SL	02AVMA31SL
QAQC Type:				N	N	N	N	N
Depth:				5 - 7.5	72.5 - 75	10 - 12.5	92.5 - 95	115 - 117.5
Date Sampled:				08/01/02	08/02/02	08/06/02	08/07/02	09/04/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0028 U	0.0026 U	0.0046 U	0.0046 U	0.0036 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0028 U	0.0026 U	0.0046 U	0.0046 U	0.0036 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0027 U	0.0025 U	0.0044 U	0.0044 U	0.0034 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0046 U	0.0043 U	0.0076 UJ	0.0076 UJ	0.0059 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0054 U	0.0049 U	0.0088 U	0.0088 U	0.0069 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0033 U	0.003 U	0.0054 U	0.0054 U	0.0042 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0043 U	0.0039 U	0.007 U	0.007 U	0.0055 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0023 U	0.0021 U	0.0038 U	0.0038 U	0.003 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.002 U	0.0018 U	0.0032 U	0.0032 U	0.0025 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0061 U	0.0056 U	0.01 U	0.01 U	0.0078 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0015 U	0.0013 U	0.0024 U	0.0024 U	0.0019 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0018 U	0.0017 U	0.003 U	0.003 U	0.0023 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.015 U	0.013 U	0.024 U	0.024 U	0.019 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0021 U	0.0019 U	0.0034 U	0.0034 U	0.0027 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0026 U	0.0024 U	0.0042 U	0.0042 U	0.0033 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0045 U	0.0042 U	0.0074 U	0.0074 U	0.0058 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0043 U	0.0039 U	0.007 U	0.007 U	0.0055 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0028 U	0.0026 U	0.0046 U	0.0046 U	0.0036 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0027 U	0.0025 U	0.0044 U	0.0044 U	0.0034 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0016 U	0.0015 U	0.0026 U	0.0026 U	0.002 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0034 U	0.0031 U	0.0056 U	0.0056 U	0.0044 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0034 U	0.0031 U	0.0056 U	0.0056 U	0.0044 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0029 U	0.0027 U	0.0048 U	0.0048 U	0.0038 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0013 U	0.0012 U	0.0022 U	0.0022 U	0.0017 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0021 U	0.0019 U	0.0034 U	0.0034 U	0.0027 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0031 U	0.0028 U	0.005 U	0.005 U	0.0039 U
ACETONE	MG/KG	PRG-IND	6,036	**0.036 JB**	0.013 U	0.024 U	**0.062 JB**	**0.056 B**
ACRYLONITRILE	MG/KG	PRG-IND	--	0.004 U	0.0037 U	0.0066 U	0.0066 U	0.0052 U
BENZENE	MG/KG	PRG-IND	1.3	0.0022 U	0.002 U	0.0036 U	0.0036 U	0.0028 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0042 U	0.0038 U	0.0068 U	0.0068 U	0.0053 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0042 U	0.0038 U	0.0068 U	0.0068 U	0.0053 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0028 U	0.0026 U	0.0046 U	0.0046 U	0.0036 U
BROMOFORM	MG/KG	PRG-IND	218	0.0039 U	0.0036 U	0.0064 U	0.0064 U	0.005 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.0093 U	0.0085 U	0.015 UJ	0.015 UJ	0.012 U
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0016 U	0.0015 U	0.0026 UJ	0.0026 UJ	0.002 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0021 U	0.0019 U	0.0034 U	0.0034 U	0.0027 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0013 U	0.0012 U	0.0022 U	0.0022 U	0.0017 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.0044 U	0.004 U	0.0072 UR	0.0072 UR	0.0056 U

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4336**	**AP-4336**	**AP-4337**	**AP-4337**	**AP-4338**
Sample ID:				02AVMA25SL	02AVMA26SL	02AVMA27SL	02AVMA28SL	02AVMA31SL
QAQC Type:				N	N	N	N	N
Depth:				5 - 7.5	72.5 - 75	10 - 12.5	92.5 - 95	115 - 117.5
Date Sampled:				08/01/02	08/02/02	08/06/02	08/07/02	09/04/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CHLOROFORM	MG/KG	PRG-IND	12	0.0031 U	0.0028 U	0.005 U	0.005 U	0.0039 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0035 U	0.0033 U	0.0058 U	0.0058 U	0.0045 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0031 U	0.0028 U	0.005 U	0.005 U	0.0039 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.00093 U	0.00085 U	0.0015 U	0.0015 U	0.0012 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0039 U	0.0036 U	0.0064 U	0.0064 U	0.005 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0026 U	0.0024 U	0.0042 U	0.0042 U	0.0033 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0072 U	0.0066 U	0.012 U	0.012 U	0.0092 U
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0023 U	0.0021 U	0.0038 U	0.0038 U	0.003 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.005 U	0.0046 U	0.0082 U	0.0082 U	0.0064 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0051 U	0.0047 U	0.0084 UJ	0.0084 UJ	0.0066 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	0.00098 U	0.0009 U	0.0016 U	0.0016 U	0.0013 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	**0.041 B**	0.0057 U	**0.088 B**	**0.097 B**	0.008 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0018 U	0.0017 U	0.003 U	0.003 U	0.0023 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.029 JB**	**0.023 JB**	**0.046 JB**	**0.078 B**	**0.048 J**
NAPHTHALENE	MG/KG	PRG-IND	188	0.0012 U	0.0011 U	0.0019 U	0.0019 U	0.0015 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.002 U	0.0018 U	0.0032 U	0.0032 U	0.0025 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0012 U	0.0011 U	0.002 U	0.002 U	0.0015 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0034 U	0.0031 U	0.0056 U	0.0056 U	0.0044 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0013 U	0.0012 U	0.0022 U	0.0022 U	0.0017 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0011 U	0.001 U	0.0018 U	0.0018 U	0.0014 U
STYRENE	MG/KG	PRG-IND	1,700	0.002 U	0.0018 U	0.0032 U	0.0032 U	0.0025 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0028 U	0.0026 U	0.0046 U	0.0046 U	0.0036 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0015 U	0.0013 U	0.0024 U	0.0024 U	0.0019 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0015 U	0.0013 U	0.0024 U	0.0024 U	0.0019 U
TOLUENE	MG/KG	PRG-IND	520	**0.0056 JB**	0.0028 U	0.005 U	0.005 U	**0.016 =**
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0045 U	0.0042 U	0.0074 U	0.0074 U	0.0058 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0024 U	0.0022 U	0.004 U	0.004 U	0.0031 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.0077 U	0.0071 U	0.013 U	0.013 U	0.0098 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0032 U	0.0029 U	0.0052 U	0.0052 U	0.0041 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0042 U	0.0038 U	0.0068 UJ	0.0068 UJ	0.0053 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0026 UJ	0.0024 UJ	0.0042 UJ	0.0042 UJ	0.0033 U
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0038 U	0.0035 U	0.0062 U	0.0062 U	0.0048 U
XYLENES, m & p	MG/KG	PRG-IND	420	0.0018 U	0.0017 U	**0.009 J**	0.003 U	**0.0095 =**

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4338**	**AP-4339**	**AP-4339**	**AP-4340**	**AP-4341**
Sample ID:				02AVMA33SL	02AVMA29SL	02AVMA32SL	02AVMA30SL	02AVMA34SL
QAQC Type:				N	N	N	N	N
Depth:				135-140	65 - 67.5	112.5 - 115	117.5 - 120	60 - 62.5
Date Sampled:				09/23/02	08/19/02	09/10/02	08/30/02	09/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0051 U	0.003 U	0.0063 U	0.005 U	0.0071 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0051 U	0.003 U	0.0063 U	0.005 U	0.0071 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0049 UJ	0.0029 U	0.0061 U	0.0048 U	0.0068 UJ
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0085 U	0.005 U	0.01 U	0.0083 U	0.012 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0098 U	0.0058 U	0.012 U	0.0096 U	0.014 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.006 U	0.0035 U	0.0074 U	0.0059 U	0.0084 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0078 U	0.0046 U	0.0096 U	0.0076 U	0.011 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0042 U	0.0025 U	0.0052 U	0.0041 U	0.0059 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0036 U	0.0021 UJ	0.0044 U	0.0035 UJ	0.005 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.011 U	0.0066 U	0.014 U	0.011 U	0.016 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0027 U	0.0016 U	0.0033 U	0.0026 U	0.0037 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	**0.02 B**	0.002 U	0.0041 U	0.0033 U	0.0047 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.027 U	0.016 U	0.033 U	0.026 U	0.037 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0038 U	0.0022 U	0.0047 U	0.0037 U	0.0053 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0047 U	0.0028 U	0.0058 U	0.0046 U	0.0065 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0083 U	0.0049 U	0.01 U	0.0081 U	0.011 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0078 U	0.0046 U	0.0096 U	0.0076 U	0.011 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0051 U	0.003 U	0.0063 U	0.005 U	0.0071 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0049 U	0.0029 U	0.0061 U	0.0048 U	0.0068 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0029 U	0.0017 U	0.0036 U	0.0028 U	0.004 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0063 U	0.0037 U	0.0077 U	0.0061 U	0.0087 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0063 U	0.0037 U	0.0077 U	0.0061 U	0.0087 UJ
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.0054 U	0.0031 U	0.0066 U	0.0052 U	0.0074 U
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0025 U	0.0014 U	0.003 U	0.0024 U	0.0034 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0038 U	0.0022 U	0.0047 U	0.0037 U	0.0053 UJ
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0056 U	0.0033 U	0.0069 U	0.0054 U	0.0078 U
ACETONE	MG/KG	PRG-IND	6,036	0.027 U	0.016 U	0.033 U	0.026 U	0.037 U
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0074 U	0.0043 U	0.0091 U	0.0072 U	0.01 U
BENZENE	MG/KG	PRG-IND	1.3	0.004 U	**0.0083 =**	0.005 U	0.0039 U	0.0056 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0076 U	0.0045 U	0.0094 U	0.0074 U	0.011 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0076 U	0.0045 U	0.0094 U	0.0074 U	0.011 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0051 U	0.003 U	0.0063 U	0.005 U	0.0071 U
BROMOFORM	MG/KG	PRG-IND	218	0.0072 U	0.0042 U	0.0088 U	0.007 U	0.0099 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.017 UJ	0.01 UJ	0.021 U	0.017 UJ	0.024 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0029 UJ	0.0017 U	0.0036 U	0.0028 U	0.004 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0038 U	0.0022 U	0.0047 U	0.0037 U	0.0053 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0025 U	0.0014 U	0.003 U	0.0024 U	0.0034 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.008 UR	0.0047 UJ	0.0099 U	0.0078 UJ	0.011 U

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4338**	**AP-4339**	**AP-4339**	**AP-4340**	**AP-4341**
Sample ID:				02AVMA33SL	02AVMA29SL	02AVMA32SL	02AVMA30SL	02AVMA34SL
QAQC Type:				N	N	N	N	N
Depth:				135-140	65 - 67.5	112.5 - 115	117.5 - 120	60 - 62.5
Date Sampled:				09/23/02	08/19/02	09/10/02	08/30/02	09/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CHLOROFORM	MG/KG	PRG-IND	12	0.0056 U	0.0033 U	0.0069 U	0.0054 U	0.0078 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0065 U	0.0038 U	0.008 U	0.0063 U	0.009 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0056 U	0.0033 U	0.0069 U	0.0054 U	0.0078 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0017 U	0.001 U	0.0021 U	0.0017 U	0.0024 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0072 U	0.0042 U	0.0088 U	0.007 U	0.0099 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0047 U	0.0028 U	0.0058 U	0.0046 U	0.0065 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.013 U	0.0077 U	0.016 U	0.013 UJ	0.018 UJ
ETHYLBENZENE	MG/KG	PRG-IND	20	**0.011 J**	**0.01 =**	**0.013 J**	0.0041 U	**0.017 J**
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0092 U	0.0054 U	0.011 U	0.0089 U	0.013 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.0094 UJ	0.0055 U	0.012 U	0.0091 U	0.013 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	0.0018 U	0.001 U	0.0022 U	0.0017 U	0.0025 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	**0.15 J**	0.0067 U	0.014 U	0.011 U	0.016 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0034 U	0.002 UJ	0.0041 U	0.0033 UJ	0.0047 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	**0.031 JB**	**0.045 JB**	**0.11 B**	0.026 U	**0.061 JB**
NAPHTHALENE	MG/KG	PRG-IND	188	0.0021 U	0.0012 U	0.0026 U	0.0021 U	0.0029 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0036 U	0.0021 U	0.0044 U	0.0035 U	0.005 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	**0.022 J**	0.0013 UJ	0.0027 U	0.0021 U	0.003 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0063 U	**0.0073 J**	0.0077 U	0.0061 U	0.0087 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0025 U	0.0014 U	0.003 U	0.0024 U	0.0034 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0021 U	0.0012 U	0.0025 U	0.002 U	0.0029 U
STYRENE	MG/KG	PRG-IND	1,700	0.0036 U	0.0021 U	0.0044 U	0.0035 U	0.005 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0051 U	0.003 U	0.0063 U	0.005 U	0.0071 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0027 U	0.0016 U	0.0033 U	0.0026 U	0.0037 U
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	0.0027 U	0.0016 U	0.0033 U	0.0026 U	**0.31 =**
TOLUENE	MG/KG	PRG-IND	520	**0.03 =**	**0.04 =**	**0.041 =**	**0.018 B**	**0.056 =**
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0083 U	0.0049 U	0.01 U	0.0081 U	0.011 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0045 U	0.0026 U	0.0055 U	0.0044 U	0.0062 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.014 U	0.0083 UJ	0.017 U	0.014 U	0.02 UJ
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0058 U	0.0034 U	0.0072 U	0.0057 U	0.0081 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0076 U	0.0045 U	0.0094 U	0.0074 U	0.011 UJ
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0047 UJ	0.0028 UJ	0.0058 UJ	0.0046 UJ	0.0065 UR
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0069 U	0.0041 U	0.0085 U	0.0068 U	0.0096 U
XYLENES, m & p	MG/KG	PRG-IND	420	**0.02 =**	**0.029 =**	**0.023 =**	**0.013 =**	**0.041 =**

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4341**	**AP-4341**	**AP-4342**	**AP-4342**	**AP-4410**
Sample ID:				02AVMA35SL	02AVMA37SL	02AVMA38SL	02AVMA39SL	03AVMA01SL
QAQC Type:				FD	N	N	FD	N
Depth:				60 - 62.5	62.5 - 65	95 - 97.5	95 - 97.5	40 - 42.5
Date Sampled:				09/24/02	09/25/02	10/10/02	10/10/02	05/07/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0067 U	0.007 U	0.0079 U	0.0071 U	0.0038 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0067 U	0.007 U	0.0079 U	0.0071 U	0.0024 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0064 UJ	0.0067 UJ	0.0075 U	0.0068 U	0.0048 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.011 U	0.012 U	0.013 UJ	0.012 UJ	0.0023 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.013 U	0.013 U	0.015 U	0.014 U	0.0059 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0078 U	0.0082 U	0.0093 U	0.0084 U	0.003 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.01 U	0.011 U	0.012 U	0.011 U	0.0064 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0055 U	0.0058 U	0.0065 U	0.0059 U	0.002 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0046 U	0.0049 U	0.0055 U	0.005 U	0.021 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.014 U	0.015 U	0.017 U	0.015 U	0.0063 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0035 U	0.0037 U	0.0041 U	0.0037 U	0.0049 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0043 U	0.0046 U	0.0051 U	0.0046 U	0.0026 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.035 U	0.037 U	0.041 U	0.037 U	0.012 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0049 U	0.0052 U	0.0058 U	0.0053 U	0.0061 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0061 U	0.0064 U	0.0072 U	0.0065 U	0.0044 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.011 U	0.011 U	0.013 U	0.011 U	0.0036 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.01 U	0.011 U	0.012 U	0.011 U	0.0042 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0067 U	0.007 U	0.0079 U	0.0071 U	0.0033 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0064 U	0.0067 U	0.0075 U	0.0068 U	0.0032 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0038 U	0.004 U	0.0045 U	0.004 U	0.0026 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0081 U	0.0085 U	0.0096 U	0.0087 U	0.0036 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0081 UJ	0.0085 UJ	0.0096 U	0.0087 U	0.0056 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	0.007 U	0.0073 U	0.0082 U	0.0074 U	--
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0032 U	0.0034 U	0.0038 U	0.0034 U	0.0038 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0049 UJ	0.0052 UJ	0.0058 UJ	0.0053 UJ	0.0033 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0072 U	0.0076 U	0.0086 U	0.0077 U	0.0026 U
ACETONE	MG/KG	PRG-IND	6,036	0.035 U	0.037 U	0.041 U	0.037 U	0.099 U
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0096 U	0.01 U	0.011 U	0.01 U	0.0089 U
BENZENE	MG/KG	PRG-IND	1.3	0.0052 U	0.0055 U	0.0062 U	0.0056 U	0.0042 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0099 U	0.01 U	0.012 U	0.011 U	0.0024 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0099 U	0.01 U	0.012 U	0.011 U	0.014 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0067 U	0.007 U	0.0079 U	0.0071 U	0.0032 U
BROMOFORM	MG/KG	PRG-IND	218	0.0093 U	0.0098 U	0.011 U	0.0099 U	0.0045 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.022 UJ	0.023 UJ	0.026 UJ	0.024 UJ	0.015 U
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0038 U	0.004 U	0.0045 U	0.004 U	0.0055 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0049 U	0.0052 U	0.0058 U	0.0053 U	0.0035 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0032 U	0.0034 U	0.0038 U	0.0034 U	0.0039 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.01 U	0.011 U	0.012 UJ	0.011 UJ	0.022 U

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4341**	**AP-4341**	**AP-4342**	**AP-4342**	**AP-4410**
Sample ID:				02AVMA35SL	02AVMA37SL	02AVMA38SL	02AVMA39SL	03AVMA01SL
QAQC Type:				FD	N	N	FD	N
Depth:				60 - 62.5	62.5 - 65	95 - 97.5	95 - 97.5	40 - 42.5
Date Sampled:				09/24/02	09/25/02	10/10/02	10/10/02	05/07/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CHLOROFORM	MG/KG	PRG-IND	12	0.0072 U	0.0076 U	0.0086 U	0.0077 U	**0.0071 J**
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0084 U	0.0089 U	0.01 U	0.009 U	0.0067 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0072 U	0.0076 U	0.0086 U	0.0077 U	0.0069 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0022 U	0.0023 U	0.0026 U	0.0024 U	0.0038 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0093 U	0.0098 U	0.011 U	0.0099 U	0.0029 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0061 U	0.0064 U	0.0072 U	0.0065 U	0.0088 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.017 UJ	0.018 UJ	0.02 U	0.018 U	0.0036 UJ
ETHYLBENZENE	MG/KG	PRG-IND	20	**0.017 =**	0.0058 U	0.0065 U	0.0059 U	0.0035 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.012 U	0.013 U	0.014 U	0.013 U	0.0092 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.012 U	0.013 U	**0.27 B**	**0.16 B**	0.029 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	0.0023 U	0.0024 U	0.0027 U	0.0025 U	0.0043 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	0.015 U	0.016 U	**0.086 B**	**0.1 B**	0.011 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0043 U	0.0046 U	0.0051 U	0.0046 U	0.0089 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	0.035 U	**0.051 JB**	**0.078 JB**	**0.064 JB**	0.019 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.0028 U	0.0029 U	0.0033 U	0.0029 U	0.004 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0046 U	0.0049 U	0.0055 U	0.005 U	0.0035 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0028 U	0.003 U	0.0034 U	0.003 U	0.019 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0081 U	0.0085 U	0.0096 U	0.0087 U	0.0043 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0032 U	0.0034 U	0.0038 U	0.0034 U	0.0042 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0027 U	0.0028 U	0.0032 U	0.0029 U	0.0038 U
STYRENE	MG/KG	PRG-IND	1,700	0.0046 U	0.0049 U	0.0055 U	0.005 U	0.0033 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0067 U	0.007 U	0.0079 U	0.0071 U	0.0037 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	0.0035 U	0.0037 U	0.0041 U	0.0037 U	**0.023 =**
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	**0.18 =**	0.0037 U	**0.16 =**	**0.15 =**	0.0054 U
TOLUENE	MG/KG	PRG-IND	520	**0.044 =**	**0.027 =**	0.0086 U	**0.023 =**	**0.0042 J**
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.011 U	0.011 U	0.013 U	0.011 U	0.011 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0058 U	0.0061 U	0.0069 U	0.0062 U	0.0017 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.018 UJ	0.019 UJ	0.022 U	0.02 U	0.038 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0075 U	0.0079 U	0.0089 U	0.0081 U	0.004 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0099 UJ	0.01 UJ	0.012 U	0.011 U	0.012 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0061 UR	0.0064 UR	0.0072 UR	0.0065 UR	0.004 UJ
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.009 U	0.0095 U	0.011 U	0.0096 U	0.0031 U
XYLENES, m & p	MG/KG	PRG-IND	420	**0.039 =**	**0.034 =**	0.0051 U	**0.018 =**	0.013 U

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4410**	**AP-4411**	**AP-4411**	**AP-4412**	**AP-4412**
Sample ID:				03AVMA02SL	03AVMA03SL	03AVMA04SL	03AVMA05SL	03AVMA06SL
QAQC Type:				N	N	N	N	N
Depth:				72.5 - 75	5 - 7.5	65 - 67.5	45 - 47.5	65 - 67.5
Date Sampled:				05/08/03	05/12/03	05/12/03	05/14/03	05/15/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0035 U	0.0031 U	0.0042 U	0.0043 U	0.0041 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0022 U	0.002 U	0.0026 U	0.0028 U	0.0026 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0045 U	0.0039 U	0.0053 U	0.0055 U	0.0053 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0021 U	0.0019 U	0.0025 U	0.0026 U	0.0025 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0055 U	0.0048 U	0.0065 U	0.0068 U	0.0065 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0028 U	0.0024 U	0.0033 U	0.0034 U	0.0033 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0059 U	0.0052 U	0.007 U	0.0073 U	0.007 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0018 U	0.0016 U	0.0022 U	0.0023 U	0.0021 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.02 U	0.018 U	0.024 U	0.025 U	0.023 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0058 U	0.0052 U	0.0069 U	0.0073 U	0.0069 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0045 U	0.004 U	0.0054 U	0.0056 U	0.0053 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0024 U	0.0021 U	0.0028 U	0.003 U	0.0028 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.012 U	0.01 U	0.014 U	0.014 U	0.014 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0056 U	0.0049 U	0.0067 U	0.007 U	0.0066 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.004 U	0.0036 U	0.0048 U	0.005 U	0.0048 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0033 U	0.0029 U	0.0039 U	0.0041 U	0.0039 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0039 U	0.0034 U	0.0046 U	0.0048 U	0.0046 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0031 U	0.0027 U	0.0037 U	0.0038 U	0.0036 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0029 U	0.0026 U	0.0035 U	0.0037 U	0.0035 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0024 U	0.0021 U	0.0029 U	0.003 U	0.0029 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0033 U	0.0029 U	0.0039 U	0.0041 U	0.0039 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0052 U	0.0046 U	0.0062 U	0.0065 UJ	0.0062 UJ
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	--	--	--	--	--
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0035 U	0.0031 U	0.0041 U	0.0043 U	0.0041 U
2-HEXANONE	MG/KG	PRG-IND	--	0.003 U	0.0027 U	0.0036 U	0.0038 UJ	0.0036 UJ
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0024 U	0.0021 U	0.0028 U	0.0029 U	0.0028 U
ACETONE	MG/KG	PRG-IND	6,036	0.098 U	0.09 U	0.12 U	0.13 U	0.14 U
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0082 U	0.0072 U	0.0097 U	0.01 U	0.0097 U
BENZENE	MG/KG	PRG-IND	1.3	0.0039 U	0.0034 U	0.0046 U	0.0048 U	0.0046 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0022 U	0.002 U	0.0027 U	0.0028 U	0.0026 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.013 U	0.011 U	0.015 U	0.016 U	0.015 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.003 U	0.0026 U	0.0035 U	0.0037 U	0.0035 U
BROMOFORM	MG/KG	PRG-IND	218	0.0042 U	0.0037 U	0.0049 U	0.0052 U	0.0049 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.014 UJ	0.012 UJ	0.016 U	0.017 UJ	0.016 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0051 U	0.0045 U	0.006 U	0.0063 U	0.006 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0032 U	0.0028 U	0.0038 U	0.004 U	0.0038 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0036 U	0.0032 U	0.0043 U	0.0045 U	0.0043 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.021 UJ	0.018 UJ	0.025 U	0.026 U	0.025 U

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4410**	**AP-4411**	**AP-4411**	**AP-4412**	**AP-4412**
Sample ID:				03AVMA02SL	03AVMA03SL	03AVMA04SL	03AVMA05SL	03AVMA06SL
QAQC Type:				N	N	N	N	N
Depth:				72.5 - 75	5 - 7.5	65 - 67.5	45 - 47.5	65 - 67.5
Date Sampled:				05/08/03	05/12/03	05/12/03	05/14/03	05/15/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CHLOROFORM	MG/KG	PRG-IND	12	0.0039 U	0.0034 U	0.0046 U	0.0048 U	0.0045 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0062 U	0.0055 U	0.0074 U	0.0077 U	0.0074 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0064 U	0.0057 U	0.0076 U	0.008 U	0.0076 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0035 U	0.0031 U	0.0042 U	0.0044 U	0.0042 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0027 U	0.0024 U	0.0032 U	0.0033 U	0.0032 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0081 U	0.0072 U	0.0097 U	0.01 U	0.0096 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0034 UJ	0.003 UJ	0.004 UJ	0.0042 UJ	0.004 UJ
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0032 U	0.0028 U	0.0038 U	0.0062 U	0.0038 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0085 U	0.0075 U	0.01 U	0.011 U	0.01 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.027 U	0.023 U	0.032 U	0.033 U	0.031 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	0.0039 U	0.0035 U	0.0047 U	0.0049 U	0.0047 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	0.01 U	0.025 U	0.036 U	0.013 U	0.012 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0083 U	0.0073 U	0.0098 U	0.01 U	0.0098 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	0.036 U	0.04 U	0.032 U	0.13 U	0.039 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.0037 U	0.0033 U	0.0044 U	0.0046 U	0.0044 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0032 U	0.0028 U	0.0038 U	0.004 U	0.0038 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.018 U	0.016 U	0.021 U	0.022 U	0.021 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.004 U	0.0036 U	0.0048 U	0.005 U	0.0048 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0039 U	0.0035 U	0.0047 U	0.0049 U	0.0046 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0035 U	0.0031 U	0.0042 U	0.0044 U	0.0042 U
STYRENE	MG/KG	PRG-IND	1,700	0.003 U	0.0027 U	0.0036 U	0.0038 U	0.0036 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0034 U	0.003 U	0.0041 U	0.0042 U	0.004 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	**0.02 =**	**0.017 =**	**0.021 =**	0.0049 U	**0.021 =**
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	**0.36 =**	**0.25 =**	**0.21 =**	**0.0089 J**	**0.3 J**
TOLUENE	MG/KG	PRG-IND	520	0.0035 U	0.0031 U	0.0042 U	**0.0058 J**	0.0042 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.011 U	0.0093 U	0.013 U	0.013 U	0.012 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0015 U	0.0014 U	0.0018 U	0.0019 U	0.0018 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.036 U	0.031 U	0.042 U	0.044 U	0.042 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0037 U	**0.0066 J**	0.0044 U	0.0046 U	0.0044 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.011 U	0.01 U	0.013 U	0.014 U	0.013 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0037 UJ	0.0033 UJ	0.0044 UJ	0.0047 UJ	0.0044 UJ
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0029 U	0.0025 U	0.0034 U	0.0036 U	0.0034 U
XYLENES, m & p	MG/KG	PRG-IND	420	0.0076 U	0.0067 U	0.009 U	0.0094 U	0.0089 U

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4412**	**AP-4412**	**AP-4412**	**AP-4412**	**AP-4414**
Sample ID:				03AVMA07SL	03AVMA08SL	03AVMA09SL	03AVMA10SL	03AVMA13SL
QAQC Type:				FD	N	N	N	N
Depth:				65 - 67.5	70 -72.5	82.5 - 85	110 - 112.5	110 - 112
Date Sampled:				05/15/03	05/15/03	05/16/03	05/19/03	08/18/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0036 U	0.0036 U	0.0079 U	0.0036 U	0.0015 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0023 U	0.0023 U	0.005 U	0.0023 U	0.00093 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0046 U	0.0046 U	0.01 UJ	0.0046 UJ	0.0019 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.0022 U	0.0022 U	0.0048 U	0.0022 U	0.00089 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0056 U	0.0057 U	0.012 U	0.0057 U	0.0023 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0028 U	0.0028 U	0.0062 U	0.0028 U	0.0011 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.006 U	0.0061 U	0.013 U	0.0061 U	0.0025 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.0019 U	0.0019 U	0.0041 U	0.0019 U	0.00076 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.02 U	0.02 U	0.044 U	0.021 U	0.0083 UJ
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.006 U	**0.012 J**	0.013 U	0.006 U	0.0024 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0046 U	0.0047 U	0.01 U	0.0047 U	0.0019 UJ
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0025 U	0.0025 U	0.0054 U	0.0025 U	0.001 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.012 U	0.012 U	0.026 U	0.012 U	0.0048 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0057 U	0.0058 U	0.013 U	0.0058 U	0.0023 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.0041 U	0.0042 U	0.0091 U	0.0042 U	0.0017 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0034 U	0.0034 U	0.0074 U	0.0034 U	0.0014 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.004 U	0.004 U	0.0087 U	0.004 U	0.0016 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0032 U	0.0032 U	0.0069 U	0.0032 U	0.0013 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.003 U	0.003 U	0.0066 U	0.003 U	0.0012 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0025 U	0.0025 U	0.0054 U	0.0025 U	0.001 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0034 U	0.0034 U	0.0074 U	0.0034 U	0.0014 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0054 UJ	0.0054 UJ	0.012 U	0.0054 U	0.0022 U
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	--	--	--	--	--
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0036 U	0.0036 U	0.0078 U	0.0036 U	0.0015 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0031 UJ	0.0031 UJ	0.0068 UJ	0.0031 UJ	0.0013 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0024 U	0.0024 U	0.0053 U	0.0024 U	0.00099 U
ACETONE	MG/KG	PRG-IND	6,036	0.12 U	0.087 U	0.25 U	0.14 U	0.15 U
ACRYLONITRILE	MG/KG	PRG-IND	--	0.0084 U	0.0085 U	0.018 U	0.0085 U	0.0034 U
BENZENE	MG/KG	PRG-IND	1.3	0.004 U	0.004 U	0.0087 U	0.004 U	0.0016 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0023 U	0.0023 U	0.005 U	0.0023 U	0.00093 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.013 U	0.013 U	0.028 U	0.013 U	0.0052 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.003 U	0.0031 U	0.0066 U	0.0031 U	0.0012 U
BROMOFORM	MG/KG	PRG-IND	218	0.0043 U	0.0043 U	0.0093 U	0.0043 U	0.0017 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.014 UJ	0.014 UJ	0.031 UJ	0.014 UJ	0.0057 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0052 U	0.0053 U	0.011 U	0.0053 U	0.0021 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0033 U	0.0033 U	0.0072 UJ	0.0033 U	0.0013 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0037 U	0.0037 U	0.0081 U	0.0037 U	0.0015 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.021 U	0.021 U	0.047 UJ	0.021 UJ	0.0087 U

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4412**	**AP-4412**	**AP-4412**	**AP-4412**	**AP-4414**
Sample ID:				03AVMA07SL	03AVMA08SL	03AVMA09SL	03AVMA10SL	03AVMA13SL
QAQC Type:				FD	N	N	N	N
Depth:				65 - 67.5	70 -72.5	82.5 - 85	110 - 112.5	110 - 112
Date Sampled:				05/15/03	05/15/03	05/16/03	05/19/03	08/18/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CHLOROFORM	MG/KG	PRG-IND	12	0.0039 U	0.004 U	0.0086 U	0.004 U	0.0016 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0064 U	0.0064 U	0.014 U	0.0064 UJ	0.0026 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0066 U	0.0066 U	0.014 U	0.0066 U	0.0027 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0036 U	0.0036 U	0.0079 U	0.0036 U	0.0015 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0027 U	0.0028 U	0.006 U	0.0028 U	0.0011 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.0083 U	0.0084 U	0.018 U	0.0084 U	0.0034 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0034 UJ	0.0035 UJ	0.0075 UJ	0.0035 UJ	0.0014 U
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0033 U	0.0035 U	0.0072 U	0.0033 U	0.0013 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0087 U	0.0088 U	0.019 U	0.0088 U	0.0035 UJ
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.027 U	0.027 U	0.059 U	0.027 U	0.011 UJ
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	0.004 U	0.0041 U	0.0088 U	0.0041 U	0.0016 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	0.01 U	0.01 U	0.023 UJ	0.01 U	0.0042 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.0085 U	0.0085 U	0.019 U	0.0086 U	0.0035 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	0.17 U	0.051 U	0.18 U	0.021 U	0.093 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.0038 U	0.0038 U	0.0083 U	0.0038 U	0.0015 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0033 U	0.0033 U	0.0072 U	0.0033 U	0.0013 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.018 U	0.018 U	0.04 U	0.018 U	0.0074 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.0041 U	0.0042 U	0.009 U	0.0042 U	0.0017 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.004 U	0.0041 U	0.0088 U	0.0041 U	0.0016 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0036 U	0.0036 U	0.0079 U	0.0036 U	0.0015 U
STYRENE	MG/KG	PRG-IND	1,700	0.0031 U	0.0031 U	0.0068 U	0.0032 U	0.0013 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0035 U	0.0035 U	0.0076 U	0.0035 U	0.0014 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	**0.017 =**	0.0041 U	**0.038 =**	**0.02 =**	**0.005 J**
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	**0.22 J**	**0.23 =**	**0.018 J**	0.0052 U	**0.024 =**
TOLUENE	MG/KG	PRG-IND	520	0.0036 U	0.0037 U	0.0079 U	0.005 U	0.0015 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.011 U	0.011 U	0.024 U	0.011 U	0.0044 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0016 U	0.0016 U	0.0035 U	0.0016 U	0.00065 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.036 U	0.037 U	0.08 U	0.037 U	0.015 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0038 U	0.0039 U	0.0084 U	0.0039 U	0.0016 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.012 U	0.012 U	0.025 U	0.012 U	0.0047 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0038 UJ	0.0039 UJ	0.0084 UJ	0.0039 UJ	0.0016 U
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.003 U	0.003 U	0.0065 U	0.003 U	0.0012 U
XYLENES, m & p	MG/KG	PRG-IND	420	0.0077 U	0.0078 U	0.017 U	0.0078 U	0.0032 U

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4414**	**AP-4414**	**AP-4415**	**AP-4416**
Sample ID:				03AVMA14SL	03AVMA15SL	03AVMA11SL	03AVMA12SL
QAQC Type:				N	FD	N	N
Depth:				115 - 117	115 - 117	80 - 81	110 - 112.5
Date Sampled:				08/18/03	08/18/03	06/03/03	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
1,1,1,2-TETRACHLOROETHANE	MG/KG	PRG-IND	7.3	0.0017 U	0.0022 U	0.0028 U	0.0033 U
1,1,1-TRICHLOROETHANE	MG/KG	PRG-IND	1,200	0.0011 U	0.0014 U	0.0018 U	0.0021 U
1,1,2,2-TETRACHLOROETHANE	MG/KG	PRG-IND	0.93	0.0022 U	0.0028 U	0.0036 UJ	0.0042 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	MG/KG	PRG-IND	5,600	0.001 U	0.0013 U	0.0017 U	0.002 U
1,1,2-TRICHLOROETHANE	MG/KG	PRG-IND	1.6	0.0027 U	0.0034 U	0.0044 U	0.0052 U
1,1-DICHLOROETHANE	MG/KG	PRG-IND	1,739	0.0013 U	0.0017 U	0.0022 U	0.0026 U
1,1-DICHLOROETHENE	MG/KG	PRG-IND	413	0.0029 U	0.0037 U	0.0047 U	0.0056 U
1,1-DICHLOROPROPENE	MG/KG	PRG-IND	--	0.00089 U	0.0011 U	0.0015 U	0.0017 U
1,2,3-TRICHLOROBENZENE	MG/KG	PRG-IND	--	0.0097 UJ	0.012 UJ	0.016 UJ	0.019 U
1,2,3-TRICHLOROPROPANE	MG/KG	PRG-IND	0.011	0.0029 U	0.0037 U	0.0047 U	0.0055 U
1,2,4-TRICHLOROBENZENE	MG/KG	PRG-IND	3,000	0.0022 UJ	0.0028 UJ	0.0036 UJ	0.0043 U
1,2,4-TRIMETHYLBENZENE	MG/KG	PRG-IND	170	0.0012 U	0.0015 U	**0.0042 J**	0.0023 U
1,2-DIBROMO-3-CHLOROPROPANE	MG/KG	PRG-IND	2.0	0.0057 U	0.0072 U	0.0093 UJ	0.011 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	MG/KG	PRG-IND	0.028	0.0027 U	0.0035 U	0.0045 U	0.0053 U
1,2-DICHLOROBENZENE	MG/KG	PRG-IND	370	0.002 U	0.0025 U	0.0032 U	0.0038 U
1,2-DICHLOROETHANE	MG/KG	PRG-IND	0.60	0.0016 U	0.0021 U	0.0026 U	0.0031 U
1,2-DICHLOROPROPANE	MG/KG	PRG-IND	0.74	0.0019 U	0.0024 U	0.0031 U	0.0037 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	MG/KG	PRG-IND	70	0.0015 U	0.0019 U	0.0025 U	0.0029 U
1,3-DICHLOROBENZENE	MG/KG	PRG-IND	63	0.0014 U	0.0018 U	0.0024 U	0.0028 U
1,3-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0012 U	0.0015 U	0.0019 U	0.0023 U
1,4-DICHLOROBENZENE	MG/KG	PRG-IND	7.9	0.0016 U	0.0021 U	0.0027 U	0.0031 U
2,2-DICHLOROPROPANE	MG/KG	PRG-IND	--	0.0026 U	0.0033 U	0.0042 UJ	0.0049 UJ
2-CHLOROETHYL VINYL ETHER	MG/KG	PRG-IND	--	**--**	**--**	**--**	**--**
2-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0017 U	0.0022 U	0.0028 U	0.0033 U
2-HEXANONE	MG/KG	PRG-IND	--	0.0015 U	0.0019 U	0.0024 U	0.0029 U
4-CHLOROTOLUENE	MG/KG	PRG-IND	560	0.0012 U	0.0015 U	0.0019 U	0.0022 U
ACETONE	MG/KG	PRG-IND	6,036	0.083 U	0.1 U	0.017 UJ	0.086 U
ACRYLONITRILE	MG/KG	PRG-IND	--	0.004 U	0.0051 U	0.0066 U	0.0077 U
BENZENE	MG/KG	PRG-IND	1.3	0.0019 U	0.0024 U	0.0031 U	0.0037 U
BROMOBENZENE	MG/KG	PRG-IND	92	0.0011 U	0.0014 U	0.0018 U	0.0021 U
BROMOCHLOROMETHANE	MG/KG	PRG-IND	--	0.0061 U	0.0079 U	0.01 U	0.012 U
BROMODICHLOROMETHANE	MG/KG	PRG-IND	1.8	0.0014 U	0.0018 U	0.0024 U	0.0028 U
BROMOFORM	MG/KG	PRG-IND	218	0.002 U	0.0026 U	0.0033 U	0.0039 U
BROMOMETHANE	MG/KG	PRG-IND	13	0.0067 UJ	0.0085 UJ	0.011 UJ	0.013 UJ
CARBON DISULFIDE	MG/KG	PRG-IND	720	0.0025 U	0.0032 U	0.0041 U	0.0048 U
CARBON TETRACHLORIDE	MG/KG	PRG-IND	0.55	0.0016 U	0.002 U	0.0026 UJ	0.003 U
CHLOROBENZENE	MG/KG	PRG-IND	530	0.0018 U	0.0023 U	0.0029 U	0.0034 U
CHLOROETHANE	MG/KG	PRG-IND	6.5	0.01 U	0.013 U	0.017 UJ	0.02 UJ

TABLE B-59
Criteria Evaluation - Soil - AVMA VOC
OUE Fort Richardson

Location ID:				**AP-4414**	**AP-4414**	**AP-4415**	**AP-4416**
Sample ID:				03AVMA14SL	03AVMA15SL	03AVMA11SL	03AVMA12SL
QAQC Type:				N	FD	N	N
Depth:				115 - 117	115 - 117	80 - 81	110 - 112.5
Date Sampled:				08/18/03	08/18/03	06/03/03	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
CHLOROFORM	MG/KG	PRG-IND	12	0.0019 U	0.0024 U	0.0031 U	0.0036 U
CHLOROMETHANE	MG/KG	PRG-IND	2.6	0.003 U	0.0039 U	0.005 UJ	0.0059 U
cis-1,2-DICHLOROETHYLENE	MG/KG	PRG-IND	146	0.0031 U	0.004 U	0.0051 U	0.006 U
cis-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.0017 U	0.0022 U	0.0028 U	0.0033 U
DIBROMOCHLOROMETHANE	MG/KG	PRG-IND	2.6	0.0013 U	0.0017 U	0.0021 U	0.0025 U
DIBROMOMETHANE	MG/KG	PRG-IND	234	0.004 U	0.0051 U	0.0065 U	0.0077 U
DICHLORODIFLUOROMETHANE	MG/KG	PRG-IND	308	0.0016 U	0.0021 U	0.0027 UJ	0.0032 U
ETHYLBENZENE	MG/KG	PRG-IND	20	0.0016 U	0.002 U	0.0043 U	0.003 U
HEXACHLOROBUTADIENE	MG/KG	PRG-IND	22	0.0042 UJ	0.0053 UJ	0.0068 UJ	0.008 U
IODOMETHANE (METHYL IODIDE)	MG/KG	PRG-IND	--	0.013 UJ	0.017 UJ	0.021 U	0.025 U
ISOPROPYLBENZENE (CUMENE)	MG/KG	PRG-IND	521	0.0019 U	0.0025 U	0.0032 U	0.0037 U
METHYL ETHYL KETONE (2-BUTANONE)	MG/KG	PRG-IND	27,102	0.005 U	0.0063 U	**0.019 J**	0.0096 UJ
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	MG/KG	PRG-IND	2,837	0.004 U	0.0052 U	0.0066 U	0.0078 U
METHYLENE CHLORIDE	MG/KG	PRG-IND	21	0.21 U	0.18 U	0.02 U	0.0072 U
NAPHTHALENE	MG/KG	PRG-IND	188	0.0018 U	0.0023 U	0.003 U	0.0035 U
n-BUTYLBENZENE	MG/KG	PRG-IND	240	0.0016 U	0.002 U	0.0026 U	0.003 U
n-PROPYLBENZENE	MG/KG	PRG-IND	240	0.0087 U	0.011 U	0.014 UJ	0.017 U
O-XYLENE (1,2-DIMETHYLBENZENE)	MG/KG	PRG-IND	420	0.002 U	0.0025 U	0.0032 U	0.0038 U
P-CYMENE (p-ISOPROPYLTOLUENE)	MG/KG	PRG-IND	--	0.0019 U	0.0025 U	0.0032 U	0.0037 U
SEC-BUTYLBENZENE	MG/KG	PRG-IND	220	0.0017 U	0.0022 U	0.0028 U	0.0033 U
STYRENE	MG/KG	PRG-IND	1,700	0.0015 U	0.0019 U	0.0024 U	0.0029 U
t-BUTYLBENZENE	MG/KG	PRG-IND	390	0.0017 U	0.0021 U	0.0027 U	0.0032 U
tert-BUTYL METHYL ETHER	MG/KG	PRG-IND	157	**0.0065 J**	**0.0086 J**	0.0032 U	**0.012 =**
TETRACHLOROETHYLENE(PCE)	MG/KG	PRG-IND	3.4	**0.038 J**	**0.071 J**	0.004 U	0.0047 U
TOLUENE	MG/KG	PRG-IND	520	0.0017 U	0.0022 U	0.0028 U	0.0033 U
trans-1,2-DICHLOROETHENE	MG/KG	PRG-IND	235	0.0052 U	0.0066 U	0.0085 U	0.01 U
trans-1,3-DICHLOROPROPENE	MG/KG	PRG-IND	1.8	0.00076 U	0.00097 U	0.0012 U	0.0015 U
trans-1,4-DICHLORO-2-BUTENE	MG/KG	PRG-IND	--	0.017 U	0.022 U	0.029 U	0.034 U
TRICHLOROETHYLENE (TCE)	MG/KG	PRG-IND	0.11	0.0018 U	0.0023 U	0.003 U	0.0035 U
TRICHLOROFLUOROMETHANE	MG/KG	PRG-IND	2,000	0.0055 U	0.0071 U	0.0091 UJ	0.011 U
VINYL ACETATE	MG/KG	PRG-IND	1,396	0.0018 U	0.0023 U	0.003 UJ	0.0035 U
VINYL CHLORIDE	MG/KG	PRG-IND	0.75	0.0014 U	0.0018 U	0.0023 UJ	0.0027 U
XYLENES, m & p	MG/KG	PRG-IND	420	0.0037 U	0.0047 U	0.0061 U	0.0071 U

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-2980**	**AP-3441**	**AP-3467**	**AP-3467**	**AP-3467**	**AP-3468**
Sample ID:				02FROEWA24	02FROEWA15	02FROEWA19	02FROEWA20	03FROEWA01	02AVMA13WA
QAQC Type:				N	N	N	FD	N	N
Date Sampled:				08/29/02	08/28/02	08/29/02	08/29/02	06/06/03	08/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	0.15 U	0.15 U	0.15 U	0.15 U	0.020 U	--
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.18 U	0.18 U	0.18 U	0.18 U	0.040 U	--
TOLUENE	UG/L	PRG-TapWater	723	**0.43 J**	**0.48 J**	**0.26 J**	**0.29 J**	0.060 U	--
XYLENES, TOTAL	UG/L	PRG-TapWater	210	0.63 U	0.63 U	0.63 U	0.63 U	0.060 U	--
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	**38 J**	37 U	35 U	36 U	23 U	**53 JB**
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	**4.4 JB**	**5.1 JB**	**4.6 JB**	**4.3 JB**	**14 J**	**22 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	**230 JB**	**140 JB**	**110 JB**	**110 JB**	**81 J**	--

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-3468**	**AP-3469**	**AP-3483**	**AP-3532**	**AP-3532**	**AP-3534**
Sample ID:				03FROEWA03	02FROEWA18	02FROEWA17	02AVMA02WA	03AVMA11WA	02AVMA01WA
QAQC Type:				N	N	N	N	N	N
Date Sampled:				06/06/03	08/28/02	08/28/02	08/19/02	07/23/03	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	0.030 U	0.15 U	0.15 U	--	0.15 U	--
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.10 U	0.18 U	0.18 U	--	0.18 U	--
TOLUENE	UG/L	PRG-TapWater	723	0.13 U	0.24 U	0.24 U	--	0.24 U	--
XYLENES, TOTAL	UG/L	PRG-TapWater	210	0.17 U	0.63 U	0.63 U	--	0.63 U	--
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	39 U	37 U	35 U	37 UJ	24 U	35 UJ
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	**44 J**	**5.1 JB**	**5.1 JB**	**4.1 JB**	11 U	**15 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	**98 J**	**120 JB**	**130 JB**	--	86 U	--

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-3534**	**AP-3534**	**AP-3650**	**AP-3772**	**AP-3773**	**AP-3773**
Sample ID:				03FROEWA02	03FROEWA13	02AVMA12WA	02FROEWA13	02FROEWA21	02FROEWA22
QAQC Type:				N	N	N	N	N	FD
Date Sampled:				06/06/03	09/19/03	08/23/02	08/28/02	08/29/02	08/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	0.070 U	0.15 U	--	0.15 U	0.15 U	0.15 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.14 U	0.18 U	--	0.18 U	0.18 U	0.18 U
TOLUENE	UG/L	PRG-TapWater	723	0.12 U	0.28 U	--	0.24 U	**0.47 J**	**0.37 J**
XYLENES, TOTAL	UG/L	PRG-TapWater	210	0.40 U	0.63 U	--	0.63 U	0.63 U	0.63 U
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	24 U	21 U	36 U	35 U	36 U	35 U
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	**23 J**	18 U	**4.5 JB**	**7.3 JB**	**6.2 JB**	**5.1 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	**90 J**	140 U	--	**140 JB**	**110 JB**	**100 JB**

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-3773**	**AP-3773**	**AP-3774**	**AP-3774**	**AP-3774**	**AP-3775**
Sample ID:				03AVMA02WA	03FROEWA19	02FROEWA16	03AVMA15WA	03FROEWA17	02FROEWA14
QAQC Type:				N	N	N	N	N	N
Date Sampled:				06/11/03	09/20/03	08/28/02	07/24/03	09/20/03	08/28/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
TOLUENE	UG/L	PRG-TapWater	723	0.24 U	0.24 U	**0.45 J**	0.24 U	0.24 U	**0.35 J**
XYLENES, TOTAL	UG/L	PRG-TapWater	210	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	33 U	22 U	**54 J**	59 U	79 U	37 U
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	13 U	8.2 U	**8.0 JB**	12 U	6.8 U	**5.7 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	160 U	100 U	**160 JB**	110 U	170 U	**140 JB**

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-3776**	**AP-3776**	**AP-3776**	**AP-3789**	**AP-3789**	**AP-3790**
Sample ID:				02AVMA08WA	03AVMA09WA	03AVMA10WA	02AVMA11WA	03FROEWA10	02FROEWA23
QAQC Type:				N	N	FD	N	N	N
Date Sampled:				08/21/02	07/22/03	07/22/03	08/23/02	06/10/03	08/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	--	0.15 U	0.15 U	--	0.15 U	0.15 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	--	0.18 U	0.18 U	--	0.18 U	0.18 U
TOLUENE	UG/L	PRG-TapWater	723	--	0.24 U	0.24 U	--	0.24 U	**0.33 J**
XYLENES, TOTAL	UG/L	PRG-TapWater	210	--	0.63 U	0.63 U	--	0.63 U	0.63 U
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	37 UJ	61 U	72 U	36 U	23 U	35 U
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	**7.4 JB**	13 U	11 U	**8.2 JB**	18 U	**4.2 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	--	130 U	140 U	--	280 U	**110 JB**

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-3790**	**AP-3870**	**AP-3870**	**AP-3871**	**AP-3871**	**AP-3872**
Sample ID:				03AVMA12WA	03AVMA16WA	03FROEWA18	02BAVMA06WA	03AVMA14WA	02AVMA10WA
QAQC Type:				N	N	N	N	N	N
Date Sampled:				07/23/03	07/24/03	09/20/03	08/20/02	07/23/03	08/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	0.15 U	0.15 U	0.15 U	--	0.15 U	--
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.18 U	0.18 U	0.18 U	--	0.18 U	--
TOLUENE	UG/L	PRG-TapWater	723	0.24 U	0.24 U	0.24 U	--	0.24 U	--
XYLENES, TOTAL	UG/L	PRG-TapWater	210	0.63 U	0.63 U	0.63 U	--	0.63 U	--
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	37 U	29 U	21 U	35 UJ	31 U	**48 JB**
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	11 U	7.6 U	8.9 U	**4.9 JB**	12 U	**4.2 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	110 U	79 U	180 U	--	82 U	--

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-3872**	**AP-3893**	**AP-3894**	**AP-3894**	**AP-3895**	**AP-3895**
Sample ID:				03AVMA13WA	02AVMA19WA	02AVMA17WA	02AVMA18WA	02AVMA14WA	02AVMA15WA
QAQC Type:				N	N	N	FD	N	FD
Date Sampled:				07/23/03	08/27/02	08/27/02	08/27/02	08/26/02	08/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	0.15 U	--	--	--	--	--
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.18 U	--	--	--	--	--
TOLUENE	UG/L	PRG-TapWater	723	0.24 U	--	--	--	--	--
XYLENES, TOTAL	UG/L	PRG-TapWater	210	0.63 U	--	--	--	--	--
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	27 U	35 U	34 U	35 U	34 U	**38 JB**
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	9.6 U	**6.5 JB**	**7.1 JB**	**6.5 JB**	**5.3 JB**	**6.0 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	79 U	--	--	--	--	--

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-3896**	**AP-3901**	**AP-3916**	**AP-3916**	**AP-4154**	**AP-4155**
Sample ID:				02AVMA16WA	03FROEWA09	03FROEWA05	03FROEWA06	02BAVMA04WA	02BAVMA05WA
QAQC Type:				N	N	N	FD	N	N
Date Sampled:				08/27/02	06/10/03	06/09/03	06/09/03	08/20/02	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	--	0.15 U	0.020 U	0.020 U	--	--
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	--	0.18 U	0.030 U	0.030 U	--	--
TOLUENE	UG/L	PRG-TapWater	723	--	0.24 U	0.11 U	0.12 U	--	--
XYLENES, TOTAL	UG/L	PRG-TapWater	210	--	0.63 U	0.080 U	0.070 U	--	--
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	38 U	23 U	23 U	25 U	35 UJ	35 UJ
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	**9.5 JB**	14 U	**13 J**	**15 J**	**4.6 JB**	**5.8 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	--	180 U	**77 J**	**73 J**	--	--

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-4336**	**AP-4336**	**AP-4337**	**AP-4338**	**AP-4339**	**AP-4340**
Sample ID:				02AVMA25WA	03AVMA17WA	02AVMA28WA	02AVMA26WA	02AVMA20WA	02AVMA21WA
QAQC Type:				N	N	N	N	N	N
Date Sampled:				10/24/02	07/24/03	10/25/02	10/25/02	09/24/02	09/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	--	0.15 U	--	--	--	--
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	--	0.18 U	--	--	--	--
TOLUENE	UG/L	PRG-TapWater	723	--	0.26 U	--	--	--	--
XYLENES, TOTAL	UG/L	PRG-TapWater	210	--	0.63 U	--	--	--	--
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	**740 J**	55 U	**210 =**	**1800 =**	34 U	36 U
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	**23 JB**	11 U	**5.0 J**	**9.2 J**	**5.9 JB**	**6.3 JB**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	--	120 U	--	--	--	--

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-4341**	**AP-4341**	**AP-4342**	**AP-4342**	**AP-4342**	**AP-4342**
Sample ID:				02AVMA24WA	03FROEWA11	02AVMA22WA	02AVMA23WA	03AVMA01WA	03AVMA07WA
QAQC Type:				N	N	N	FD	N	FD
Date Sampled:				10/24/02	06/10/03	10/23/02	10/23/02	06/10/03	06/10/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	--	0.15 U	--	--	0.15 U	0.15 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	--	0.18 U	--	--	0.18 U	0.18 U
TOLUENE	UG/L	PRG-TapWater	723	--	0.24 U	--	--	0.24 U	**0.25 J**
XYLENES, TOTAL	UG/L	PRG-TapWater	210	--	0.63 U	--	--	0.63 U	0.63 U
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	**92 J**	**150 =**	**250 =**	**210 =**	34 U	47 U
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	**35 JB**	26 U	**21 JB**	**20 JB**	28 U	39 U
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	--	410 U	--	--	140 U	160 U

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-4342**	**AP-4411**	**AP-4411**	**AP-4412**	**AP-4413**	**AP-4413**
Sample ID:				03FROEWA15	03AVMA04WA	03FROEWA14	03AVMA03WA	03AVMA05WA	03FROEWA16
QAQC Type:				N	N	N	N	N	N
Date Sampled:				09/20/03	06/11/03	09/20/03	06/11/03	06/11/03	09/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
BENZENE	UG/L	PRG-TapWater	0.34	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U	0.15 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U	0.18 U
TOLUENE	UG/L	PRG-TapWater	723	0.24 U	0.24 U	0.36 U	0.24 U	0.24 U	0.24 U
XYLENES, TOTAL	UG/L	PRG-TapWater	210	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U	0.63 U
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	58 U	77 U	44 U	31 U	**250 =**	54 U
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	29 U	18 U	12 U	14 U	72 U	**73 =**
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	220 U	260 U	190 U	160 U	280 U	170 U

TABLE B-60

Criteria Evaluation - Groundwater - AVMA BTEX_TPH

OUE Fort Richardson

Location ID:				**AP-4414**	**AP-4415**	**AP-4416**
Sample ID:				03AVMA20WA	03AVMA06WA	03AVMA18WA
QAQC Type:				N	N	N
Date Sampled:				08/20/03	06/12/03	08/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**			
BENZENE	UG/L	PRG-TapWater	0.34	0.20 U	0.15 U	**0.38 J**
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.18 U	0.18 U	0.18 U
TOLUENE	UG/L	PRG-TapWater	723	0.39 U	0.24 U	0.58 U
XYLENES, TOTAL	UG/L	PRG-TapWater	210	0.63 U	0.63 U	**0.67 J**
DIESEL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,500	31 U	**220 =**	44 U
GASOLINE RANGE ORGANICS	UG/L	AK GW Quality Standards	1,300	17 U	16 U	18 U
RESIDUAL RANGE ORGANICS	UG/L	AK GW Quality Standards	1,100	110 U	330 U	210 U

TABLE B-61

Criteria Evaluation - Groundwater - AVMA METAL

OUE Fort Richardson

Location ID:				AP-3468	AP-3532	AP-3534	AP-3650	AP-3776	AP-3789
Sample ID:				02AVMA13WA	02AVMA02WA	02AVMA01WA	02AVMA12WA	02AVMA08WA	02AVMA11WA
QAQC Type:				N	N	N	N	N	N
Date Sampled:				08/23/02	08/19/02	08/19/02	08/23/02	08/21/02	08/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALUMINUM	UG/L	PRG-TapWater	36,499	**11,000 =**	16 U	16 U	**180 =**	**520 =**	**110 =**
ANTIMONY	UG/L	PRG-TapWater	15	14 U	14 U	14 U	14 U	14 U	14 U
ARSENIC	UG/L	PRG-TapWater	0.045	17 U	17 U	17 U	17 U	17 U	17 U
BARIUM	UG/L	PRG-TapWater	2,555	**110 =**	**6.0 J**	**11 =**	**17 =**	**16 =**	**6.2 J**
BERYLLIUM	UG/L	PRG-TapWater	73	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
CADMIUM	UG/L	PRG-TapWater	18	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
CALCIUM	UG/L	PRG-TapWater	--	**99,000 =**	**63,000 =**	**59,000 =**	**110,000 =**	**70,000 =**	**45,000 =**
CHROMIUM, TOTAL	UG/L	PRG-TapWater	109	**690 =**	**2.9 J**	**3.9 J**	**16 =**	**85 =**	**4.7 J**
COBALT	UG/L	PRG-TapWater	730	**18 =**	1.5 U	1.5 U	**3.8 J**	1.5 U	**2.6 J**
COPPER	UG/L	PRG-TapWater	1,460	**37 J**	1.2 U	1.2 U	1.2 UJ	**4.4 JB**	1.2 UJ
IRON	UG/L	PRG-TapWater	10,950	**18,000 =**	**35 JB**	**36 JB**	**310 =**	**930 =**	**120 =**
LEAD	UG/L	PRG-TapWater	15	14 U	14 U	14 U	14 U	14 U	14 U
MAGNESIUM	UG/L	PRG-TapWater	--	**15,000 =**	**9,600 =**	**8,100 =**	**13,000 =**	**9,300 =**	**7,100 =**
MANGANESE	UG/L	PRG-TapWater	876	**340 =**	0.50 U	**1.1 J**	**7.8 J**	**24 =**	**3.6 J**
MERCURY	UG/L	PRG-TapWater	11	0.10 U	**0.072 JB**	**0.038 JB**	0.10 U	**0.060 JB**	0.10 U
NICKEL	UG/L	PRG-TapWater	730	**230 =**	8.2 U	8.2 U	**14 J**	**38 J**	8.2 U
POTASSIUM	UG/L	PRG-TapWater	--	**2,900 =**	**860 J**	**600 J**	**970 J**	**670 J**	**620 J**
SELENIUM	UG/L	PRG-TapWater	182	27 U	27 U	27 U	27 U	27 U	27 U
SILVER	UG/L	PRG-TapWater	182	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
SODIUM	UG/L	PRG-TapWater	--	**7,800 =**	**3,500 =**	**3,500 =**	**4,600 =**	**3,300 =**	**3,200 =**
THALLIUM	UG/L	PRG-TapWater	2.4	48 U	48 U	48 U	48 U	48 U	48 U
VANADIUM	UG/L	PRG-TapWater	255	**24 =**	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
ZINC	UG/L	PRG-TapWater	10,950	**670 =**	1.0 U	1.0 U	**330 =**	**1.9 J**	**34 =**

TABLE B-61

Criteria Evaluation - Groundwater - AVMA METAL

OUE Fort Richardson

Location ID:				AP-3871	AP-3872	AP-3893	AP-3894	AP-3894	AP-3895
Sample ID:				02BAVMA06WA	02AVMA10WA	02AVMA19WA	02AVMA17WA	02AVMA18WA	02AVMA14WA
QAQC Type:				N	N	N	N	FD	N
Date Sampled:				08/20/02	08/23/02	08/27/02	08/27/02	08/27/02	08/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALUMINUM	UG/L	PRG-TapWater	36,499	**420 =**	**140 =**	**570 =**	16 U	**17 J**	16 U
ANTIMONY	UG/L	PRG-TapWater	15	**16 J**	14 U	14 U	14 U	14 U	14 U
ARSENIC	UG/L	PRG-TapWater	0.045	17 U	17 U	17 U	17 U	17 U	17 U
BARIUM	UG/L	PRG-TapWater	2,555	**14 =**	**11 =**	**51 =**	**4.5 J**	**4.3 J**	**5.1 J**
BERYLLIUM	UG/L	PRG-TapWater	73	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
CADMIUM	UG/L	PRG-TapWater	18	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
CALCIUM	UG/L	PRG-TapWater	--	**74,000 =**	**77,000 =**	**38,000 =**	**44,000 =**	**44,000 =**	**43,000 =**
CHROMIUM, TOTAL	UG/L	PRG-TapWater	109	**26 =**	**10 J**	**33 =**	**3.0 J**	2.0 U	**2.9 J**
COBALT	UG/L	PRG-TapWater	730	1.5 U	**12 =**	1.5 U	1.5 U	1.5 U	1.5 U
COPPER	UG/L	PRG-TapWater	1,460	**2.9 JB**	**1.8 J**	1.2 U	1.2 U	1.2 U	1.2 U
IRON	UG/L	PRG-TapWater	10,950	**510 =**	**190 =**	**760 =**	**27 J**	**24 J**	**46 J**
LEAD	UG/L	PRG-TapWater	15	14 U	14 U	14 U	14 U	14 U	14 U
MAGNESIUM	UG/L	PRG-TapWater	--	**9,500 =**	**8,100 =**	**9,300 =**	**6,800 =**	**6,800 =**	**7,000 =**
MANGANESE	UG/L	PRG-TapWater	876	**26 =**	**3.2 J**	**52 =**	0.50 U	0.50 U	0.50 U
MERCURY	UG/L	PRG-TapWater	11	**0.067 JB**	0.10 U	0.030 U	0.030 U	0.030 U	0.10 U
NICKEL	UG/L	PRG-TapWater	730	**11 J**	8.2 U	**20 J**	8.2 U	8.2 U	8.2 U
POTASSIUM	UG/L	PRG-TapWater	--	**880 J**	**900 J**	**1,100 =**	**350 J**	**540 J**	**480 J**
SELENIUM	UG/L	PRG-TapWater	182	27 U	27 U	27 U	27 U	27 U	27 U
SILVER	UG/L	PRG-TapWater	182	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
SODIUM	UG/L	PRG-TapWater	--	**3,500 =**	**3,400 =**	**3,500 =**	**2,900 J**	**2,900 J**	**2,800 J**
THALLIUM	UG/L	PRG-TapWater	2.4	48 U	48 U	48 U	48 U	48 U	48 U
VANADIUM	UG/L	PRG-TapWater	255	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
ZINC	UG/L	PRG-TapWater	10,950	**4.2 JB**	**41 =**	**100 =**	**190 =**	**200 =**	**100 =**

TABLE B-61

Criteria Evaluation - Groundwater - AVMA METAL

OUE Fort Richardson

Location ID:				AP-3895	AP-3896	AP-4154	AP-4155	AP-4336	AP-4337
Sample ID:				02AVMA15WA	02AVMA16WA	02BAVMA04WA	02BAVMA05WA	02AVMA25WA	02AVMA28WA
QAQC Type:				FD	N	N	N	N	N
Date Sampled:				08/26/02	08/27/02	08/20/02	08/20/02	10/24/02	10/25/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALUMINUM	UG/L	PRG-TapWater	36,499	16 U	**120 =**	**20 JB**	**1,100 =**	**110,000 =**	**20,000 =**
ANTIMONY	UG/L	PRG-TapWater	15	14 U	14 U	14 U	14 U	14 U	14 U
ARSENIC	UG/L	PRG-TapWater	0.045	17 U	**39 J**	17 U	17 U	**22 J**	**20 J**
BARIUM	UG/L	PRG-TapWater	2,555	**5.1 J**	**71 =**	**8.7 J**	**38 =**	**890 =**	**160 =**
BERYLLIUM	UG/L	PRG-TapWater	73	0.20 U	0.20 U	0.20 U	0.20 U	**6.8 =**	**0.23 J**
CADMIUM	UG/L	PRG-TapWater	18	2.0 U	2.0 U	2.0 U	2.0 U	**5.2 J**	2.0 U
CALCIUM	UG/L	PRG-TapWater	--	**43,000 =**	**73,000 =**	**51,000 =**	**59,000 =**	**100,000 =**	**64,000 =**
CHROMIUM, TOTAL	UG/L	PRG-TapWater	109	**3.9 J**	**14 =**	**6.8 JB**	**42 =**	**190 =**	**62 =**
COBALT	UG/L	PRG-TapWater	730	1.5 U	1.5 U	1.5 U	**1.5 J**	**46 =**	**16 =**
COPPER	UG/L	PRG-TapWater	1,460	1.2 U	1.2 U	1.2 U	**3.4 JB**	**240 =**	**120 =**
IRON	UG/L	PRG-TapWater	10,950	**12 J**	**230 =**	**37 JB**	**1,300 =**	**120,000 =**	**32,000 =**
LEAD	UG/L	PRG-TapWater	15	14 U	14 U	14 U	14 U	**95 =**	14 U
MAGNESIUM	UG/L	PRG-TapWater	--	**6,800 =**	**22,000 =**	**8,000 =**	**8,900 =**	**45,000 =**	**17,000 =**
MANGANESE	UG/L	PRG-TapWater	876	0.50 U	**170 =**	0.50 U	**45 =**	**2,500 =**	**780 =**
MERCURY	UG/L	PRG-TapWater	11	0.10 U	0.030 U	0.030 U	**0.13 JB**	**0.41 =**	**0.16 J**
NICKEL	UG/L	PRG-TapWater	730	8.2 U	8.2 U	8.2 U	**22 J**	**200 =**	**59 =**
POTASSIUM	UG/L	PRG-TapWater	--	**580 J**	**1,500 =**	**660 J**	**1,100 =**	**10,000 =**	**4,400 =**
SELENIUM	UG/L	PRG-TapWater	182	27 U	27 U	27 U	27 U	**68 J**	27 U
SILVER	UG/L	PRG-TapWater	182	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
SODIUM	UG/L	PRG-TapWater	--	**2,700 J**	**6,700 =**	**3,000 =**	**3,200 =**	**63,000 =**	**13,000 =**
THALLIUM	UG/L	PRG-TapWater	2.4	48 U	48 U	48 U	48 U	48 U	48 U
VANADIUM	UG/L	PRG-TapWater	255	3.5 U	3.5 U	3.5 U	3.5 U	**170 =**	**62 =**
ZINC	UG/L	PRG-TapWater	10,950	**99 =**	**7.6 =**	1.0 U	**3.1 JB**	**500 =**	**120 =**

TABLE B-61

Criteria Evaluation - Groundwater - AVMA METAL

OUE Fort Richardson

Location ID:				AP-4338	AP-4339	AP-4340	AP-4341	AP-4342	AP-4342
Sample ID:				02AVMA26WA	02AVMA20WA	02AVMA21WA	02AVMA24WA	02AVMA22WA	02AVMA23WA
QAQC Type:				N	N	N	N	N	FD
Date Sampled:				10/25/02	09/24/02	09/26/02	10/24/02	10/23/02	10/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
ALUMINUM	UG/L	PRG-TapWater	36,499	**610,000 =**	**7,600 J**	**98 =**	**13,000 =**	**56,000 =**	**86,000 =**
ANTIMONY	UG/L	PRG-TapWater	15	**60 =**	14 U	14 U	14 U	14 U	14 U
ARSENIC	UG/L	PRG-TapWater	0.045	**130 =**	17 U	17 U	17 U	17 U	17 U
BARIUM	UG/L	PRG-TapWater	2,555	**3,500 =**	**74 =**	**24 =**	**130 =**	**470 =**	**700 =**
BERYLLIUM	UG/L	PRG-TapWater	73	**16 =**	0.20 U	0.20 U	0.20 U	**1.2 =**	**2.0 =**
CADMIUM	UG/L	PRG-TapWater	18	**35 =**	2.0 U	2.0 U	2.0 U	**2.4 J**	**4.5 J**
CALCIUM	UG/L	PRG-TapWater	--	**540,000 =**	**110,000 =**	**140,000 =**	**96,000 =**	**90,000 =**	**110,000 =**
CHROMIUM, TOTAL	UG/L	PRG-TapWater	109	**1,700 =**	**550 =**	**6.0 J**	**23 =**	**140 =**	**210 =**
COBALT	UG/L	PRG-TapWater	730	**410 =**	**19 =**	**4.6 J**	**11 =**	**37 =**	**66 =**
COPPER	UG/L	PRG-TapWater	1,460	**1,200 =**	**36 =**	1.2 U	**30 =**	**190 =**	**230 =**
IRON	UG/L	PRG-TapWater	10,950	**1.20E+06 =**	**14,000 =**	**240 =**	**19,000 =**	**87,000 =**	**150,000 =**
LEAD	UG/L	PRG-TapWater	15	**180 =**	14 U	14 U	14 U	**16 J**	**37 J**
MAGNESIUM	UG/L	PRG-TapWater	--	**370,000 =**	**19,000 =**	**15,000 =**	**15,000 =**	**35,000 =**	**51,000 =**
MANGANESE	UG/L	PRG-TapWater	876	**22,000 =**	**560 =**	**130 =**	**650 =**	**1,800 =**	**3,000 =**
MERCURY	UG/L	PRG-TapWater	11	**3.3 =**	0.030 U	0.10 U	**0.13 J**	**0.32 =**	**0.61 =**
NICKEL	UG/L	PRG-TapWater	730	**1,400 =**	**510 =**	**10 J**	**31 J**	**140 =**	**210 =**
POTASSIUM	UG/L	PRG-TapWater	--	**42,000 =**	**2,900 =**	**1,300 =**	**3,400 =**	**8,500 =**	**12,000 =**
SELENIUM	UG/L	PRG-TapWater	182	**370 =**	27 U	27 U	27 U	**32 J**	27 U
SILVER	UG/L	PRG-TapWater	182	4.3 U	**6.2 J**	4.3 U	4.3 U	4.3 U	4.3 U
SODIUM	UG/L	PRG-TapWater	--	**130,000 =**	**5,100 =**	**3,900 =**	**6,300 =**	**6,300 =**	**6,700 =**
THALLIUM	UG/L	PRG-TapWater	2.4	48 U	48 U	48 U	48 U	48 U	48 U
VANADIUM	UG/L	PRG-TapWater	255	**1,900 =**	**17 =**	3.5 U	**32 =**	**160 =**	**240 =**
ZINC	UG/L	PRG-TapWater	10,950	**2,700 =**	**76 =**	**4.4 JB**	**69 =**	**260 =**	**410 =**

TABLE B-62
Criteria Evaluation - Groundwater - AVMA METAL DISS
OUE Fort Richardson

Location ID:				AP-3776	AP-3872	AP-3896	AP-4154	AP-4340	AP-4342	AP-4342
Sample ID:				02AVMA08WA	02AVMA10WA	02AVMA16WA	02BAVMA04WA	02AVMA21WA	02AVMA22WA	02AVMA23WA
QAQC Type:				N	N	N	N	N	N	FD
Date Sampled:				08/21/02	08/23/02	08/27/02	08/20/02	09/26/02	10/23/02	10/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**							
ALUMINUM	UG/L	PRG-TapWater	36,499	16 U	16 U	16 U	16 U	**28 J**	16 U	16 U
ANTIMONY	UG/L	PRG-TapWater	15	14 U	14 U	14 U	14 U	14 U	14 U	14 U
ARSENIC	UG/L	PRG-TapWater	0.045	17 U	17 U	**59 J**	17 U	17 U	17 U	17 U
BARIUM	UG/L	PRG-TapWater	2,555	**12 JB**	**12 =**	**67 =**	**8.3 J**	**34 =**	**37 =**	**36 =**
BERYLLIUM	UG/L	PRG-TapWater	73	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
CADMIUM	UG/L	PRG-TapWater	18	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
CALCIUM	UG/L	PRG-TapWater	--	**75,000 =**	**85,000 =**	**74,000 =**	**55,000 =**	**280,000 =**	**72,000 =**	**72,000 =**
CHROMIUM, TOTAL	UG/L	PRG-TapWater	109	**2.9 J**	**4.0 JB**	**3.1 JB**	**2.5 JB**	2.0 U	2.0 U	2.0 U
COBALT	UG/L	PRG-TapWater	730	1.5 U	**2.1 J**	**2.1 J**	1.5 U	**1.8 J**	1.5 U	1.5 U
COPPER	UG/L	PRG-TapWater	1,460	**1.4 JB**	**2.4 J**	1.2 U	**1.9 J**	**1.8 J**	1.2 U	1.2 U
IRON	UG/L	PRG-TapWater	10,950	**18 JB**	**54 =**	**53 =**	**17 J**	**42 J**	**61 =**	**130 =**
LEAD	UG/L	PRG-TapWater	15	14 U	14 U	14 U	14 U	14 U	14 U	14 U
MAGNESIUM	UG/L	PRG-TapWater	--	**9,600 =**	**8,800 =**	**22,000 =**	**8,400 =**	**91,000 =**	**8,600 =**	**8,600 =**
MANGANESE	UG/L	PRG-TapWater	876	**1.2 J**	0.50 U	**170 =**	0.50 U	**560 =**	**87 =**	**87 =**
MERCURY	UG/L	PRG-TapWater	11	**0.066 JB**	0.10 U	**0.040 J**	**2.0 =**	0.10 U	**0.033 J**	0.030 U
NICKEL	UG/L	PRG-TapWater	730	8.2 U	8.2 U	8.2 U	8.2 U	**11 J**	8.2 U	8.2 U
POTASSIUM	UG/L	PRG-TapWater	--	**820 J**	**980 J**	**1,500 =**	**740 J**	**2,300 =**	**1,900 =**	**1,700 =**
SELENIUM	UG/L	PRG-TapWater	182	27 U	27 U	27 U	27 U	27 U	27 U	27 U
SILVER	UG/L	PRG-TapWater	182	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U	4.3 U
SODIUM	UG/L	PRG-TapWater	--	**3,300 =**	**3,600 =**	**6,800 =**	**3,600 =**	**140,000 =**	**4,000 =**	**3,900 =**
THALLIUM	UG/L	PRG-TapWater	2.4	48 U	48 U	48 U	48 U	48 U	48 U	48 U
VANADIUM	UG/L	PRG-TapWater	255	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
ZINC	UG/L	PRG-TapWater	10,950	**3.2 J**	**49 =**	**2.1 J**	**6.5 =**	**27 =**	**10 B**	**12 B**

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-2980**	**AP-3441**	**AP-3467**	**AP-3467**	**AP-3467**	**AP-3468**
Sample ID:				02FROEWA24	02FROEWA15	02FROEWA19	02FROEWA20	03FROEWA01	02AVMA13WA
QAQC Type:				N	N	N	FD	N	N
Date Sampled:				08/29/02	08/28/02	08/29/02	08/29/02	06/06/03	08/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.012 U	0.012 U	0.012 U	0.012 U	0.012 U	0.013 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.0092 U	0.0093 U	0.0092 U	0.0092 U	0.0094 U	0.0097 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.013 U	0.014 U	0.013 U	0.013 U	0.014 U	0.014 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.020 U	0.021 U	0.020 U	0.020 U	0.021 U	0.021 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.014 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.023 U	0.023 U	0.023 U	0.023 U	0.024 U	0.024 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.014 U	0.015 U	0.014 U	0.014 U	0.015 U	0.015 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.032 U	0.032 U	0.032 U	0.032 U	0.033 U	0.033 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.033 U	0.034 U	0.033 U	0.033 U	0.034 U	0.035 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0073 U	0.0073 U	0.0073 U	0.0073 U	0.0074 U	0.0076 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.052 U	0.053 U	0.052 U	0.052 U	0.053 U	0.055 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.013 U	0.014 U	0.013 U	0.013 U	0.014 U	0.014 U
FLUORENE	UG/L	PRG-TapWater	243	0.0097 U	0.0098 U	0.0097 U	0.0097 U	0.0099 U	0.010 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.068 U	0.068 U	0.068 U	0.068 U	0.069 U	0.071 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0089 U	0.0090 U	0.0089 U	0.0089 U	0.0091 U	0.0093 U
PYRENE	UG/L	PRG-TapWater	183	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-3468**	**AP-3469**	**AP-3483**	**AP-3532**	**AP-3532**	**AP-3532**
Sample ID:				03FROEWA03	02FROEWA18	02FROEWA17	02AVMA02WA	02AVMA02WAD	03AVMA11WA
QAQC Type:				N	N	N	N	FD	N
Date Sampled:				06/06/03	08/28/02	08/28/02	08/19/02	08/22/02	07/23/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.012 U	0.012 UJ	0.012 U	0.012 U	0.012 U	0.011 UJ
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.0091 U	0.0091 UJ	0.0093 U	0.0093 U	0.0093 U	0.0088 UJ
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.013 U	0.013 UJ	0.014 U	0.014 U	0.014 U	0.013 UJ
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.020 U	0.020 UJ	0.021 U	0.021 U	0.021 U	0.019 UJ
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.013 U	0.013 UJ	0.013 U	0.013 U	0.013 U	0.013 UJ
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.023 U	0.023 UJ	0.023 U	0.023 U	0.023 U	0.022 UJ
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.014 U	0.014 UJ	**0.056 J**	0.015 U	0.015 U	0.014 UJ
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.032 U	0.032 UJ	0.032 U	0.032 U	0.032 U	0.030 UJ
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.033 U	0.033 UJ	0.034 U	0.034 U	0.034 U	0.032 UJ
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0072 U	0.0072 UJ	0.0073 U	0.0073 U	0.0073 U	0.0069 UJ
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.052 U	0.052 UJ	**0.056 J**	0.053 U	0.053 U	0.050 UJ
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.013 U	0.013 UJ	0.014 U	0.014 U	0.014 U	0.013 UJ
FLUORENE	UG/L	PRG-TapWater	243	0.0096 U	0.0096 UJ	0.0098 U	0.0098 U	0.0098 UJ	0.0092 UJ
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.067 U	0.067 UJ	0.068 U	0.068 U	0.068 U	0.064 UJ
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.011 U	0.011 UJ	0.011 U	0.011 U	0.011 UJ	0.010 UJ
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0088 U	0.0088 UJ	0.0090 U	0.0090 U	0.0090 U	0.0084 UJ
PYRENE	UG/L	PRG-TapWater	183	0.015 U	0.015 UJ	0.016 U	0.016 U	0.016 U	0.015 UJ

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-3534**	**AP-3534**	**AP-3534**	**AP-3534**	**AP-3650**	**AP-3772**
Sample ID:				02AVMA01WA	02AVMA01WAD	03FROEWA02	03FROEWA13	02AVMA12WA	02FROEWA13
QAQC Type:				N	FD	N	N	N	N
Date Sampled:				08/19/02	08/22/02	06/06/03	09/19/03	08/23/02	08/28/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.012 U	0.013 U	0.012 U	0.012 UJ	0.012 U	0.012 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.0093 U	0.0099 U	0.0093 U	0.011 UJ	0.0093 U	0.0093 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.014 U	0.014 U	0.014 U	0.0094 UJ	0.014 U	0.014 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.021 U	0.022 U	0.021 U	0.011 UJ	0.021 U	0.021 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.013 U	0.014 U	0.013 U	0.019 UJ	0.013 U	0.013 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.023 U	0.025 U	0.023 U	0.011 UJ	0.023 U	0.023 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.015 U	0.015 U	0.015 U	0.024 UJ	0.015 U	0.015 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.032 U	0.034 U	0.032 U	**0.032 J+**	0.032 U	0.032 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.034 U	0.036 U	0.034 U	0.015 UJ	0.034 U	0.034 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0073 U	0.0078 U	0.0073 U	0.0095 UJ	0.0073 U	0.0073 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.053 U	0.056 U	0.053 U	**0.032 J+**	0.053 U	0.053 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.014 U	0.014 U	0.014 U	0.023 UJ	0.014 U	0.014 U
FLUORENE	UG/L	PRG-TapWater	243	0.0098 U	0.010 UJ	0.0098 U	0.012 UJ	0.0098 U	0.0098 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.068 U	0.072 U	0.068 U	**0.043 J+**	0.068 U	0.068 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.011 U	0.012 UJ	0.011 U	0.030 UJ	0.011 U	0.011 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0090 U	0.0095 U	0.0090 U	0.030 UJ	0.0090 U	0.0090 U
PYRENE	UG/L	PRG-TapWater	183	0.016 U	0.017 U	0.016 U	0.027 UJ	0.016 U	0.016 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-3773**	**AP-3773**	**AP-3773**	**AP-3773**	**AP-3774**	**AP-3774**
Sample ID:				02FROEWA21	02FROEWA22	03AVMA02WA	03FROEWA19	02FROEWA16	03AVMA15WA
QAQC Type:				N	FD	N	N	N	N
Date Sampled:				08/29/02	08/29/02	06/11/03	09/20/03	08/28/02	07/24/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.013 U	0.012 U	0.011 U	0.012 UJ	0.012 U	0.012 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.0098 U	0.0096 U	0.0084 U	0.011 UJ	0.0096 U	0.0092 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.014 U	0.014 U	0.012 U	0.0094 UJ	0.014 U	0.013 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.022 U	0.021 U	0.019 U	0.011 UJ	0.021 U	0.020 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.014 U	0.014 U	0.012 U	0.019 UJ	0.014 U	0.013 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.024 U	0.024 U	0.021 U	0.011 UJ	0.024 U	0.023 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.015 U	0.015 U	0.013 U	0.024 UJ	0.015 U	0.014 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.034 U	0.033 U	0.029 U	0.013 UJ	0.033 U	0.032 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.035 U	0.035 U	0.030 U	0.015 UJ	0.035 U	0.033 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0077 U	0.0075 U	0.0066 U	0.0095 UJ	0.0075 U	0.0072 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.055 U	0.054 U	0.048 U	0.016 UJ	0.054 U	0.052 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.014 U	0.014 U	0.012 U	0.023 UJ	0.014 U	0.013 U
FLUORENE	UG/L	PRG-TapWater	243	0.010 U	0.010 U	0.0088 U	0.012 UJ	0.010 U	0.0097 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.072 U	0.070 U	0.062 U	0.013 UJ	0.070 U	0.068 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.012 U	0.011 U	0.010 U	0.030 UJ	0.011 U	0.011 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0094 U	0.0092 U	0.0081 U	0.030 UJ	0.0092 U	0.0089 U
PYRENE	UG/L	PRG-TapWater	183	0.017 U	0.016 U	0.014 U	0.027 UJ	0.016 U	0.016 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-3774**	**AP-3775**	**AP-3776**	**AP-3776**	**AP-3776**	**AP-3789**
Sample ID:				03FROEWA17	02FROEWA14	02AVMA08WA	03AVMA09WA	03AVMA10WA	02AVMA11WA
QAQC Type:				N	N	N	N	FD	N
Date Sampled:				09/20/03	08/28/02	08/21/02	07/22/03	07/22/03	08/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	**0.033 J-**	0.012 U	0.012 U	0.013 U	0.013 U	0.012 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	**0.022 J-**	0.0093 U	0.0093 U	0.0099 U	0.010 U	0.0091 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.0096 UJ	0.014 U	0.014 U	0.014 U	0.015 U	0.013 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.011 UJ	0.021 U	0.021 U	0.022 U	0.022 U	0.020 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.020 UJ	0.013 U	0.013 U	0.014 U	0.014 U	0.013 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.011 UJ	0.023 U	0.023 U	0.025 U	0.025 U	0.023 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.025 UJ	0.015 U	0.015 U	0.015 U	0.016 U	0.014 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.013 UJ	0.032 U	0.032 U	0.034 U	0.035 U	0.032 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.015 UJ	0.034 U	0.034 U	0.036 U	0.036 U	0.033 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0097 UJ	0.0073 U	0.0073 U	0.0078 U	0.0079 U	0.0072 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.016 UJ	0.053 U	0.053 U	0.056 U	0.057 U	0.052 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.024 UJ	0.014 U	0.014 U	0.014 U	0.015 U	0.013 U
FLUORENE	UG/L	PRG-TapWater	243	**0.022 J-**	0.0098 U	0.0098 UJ	0.010 U	0.010 U	0.0096 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.013 UJ	0.068 U	0.068 U	0.072 U	0.073 U	0.067 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	**0.043 J-**	0.011 U	0.011 UJ	0.012 U	0.012 U	0.011 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.030 UJ	0.0090 U	0.0090 U	0.0095 U	0.0096 U	0.0088 U
PYRENE	UG/L	PRG-TapWater	183	0.027 UJ	0.016 U	0.016 U	0.017 U	0.017 U	0.015 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-3790**	**AP-3790**	**AP-3870**	**AP-3870**	**AP-3871**	**AP-3871**
Sample ID:				02FROEWA23	03AVMA12WA	03AVMA16WA	03FROEWA18	02BAVMA06WA	03AVMA14WA
QAQC Type:				N	N	N	N	N	N
Date Sampled:				08/29/02	07/23/03	07/24/03	09/20/03	08/20/02	07/23/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.012 U	0.012 U	0.012 U	0.012 UJ	0.012 U	0.012 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.0096 U	0.0091 U	0.0095 U	0.011 UJ	0.0093 U	0.0094 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.014 U	0.013 U	0.014 U	0.0098 UJ	0.014 U	0.014 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.021 U	0.020 U	0.021 U	0.011 UJ	0.021 U	0.021 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.014 U	0.013 U	0.014 U	0.020 UJ	0.013 U	0.013 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.024 U	0.023 U	0.024 U	0.011 UJ	0.023 U	0.024 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.015 U	0.014 U	0.015 U	0.026 UJ	0.015 U	0.015 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.033 U	0.032 U	0.033 U	0.013 UJ	0.032 U	0.033 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.035 U	0.033 U	0.035 U	0.016 UJ	0.034 U	0.034 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0075 U	0.0072 U	0.0075 U	0.0099 UJ	0.0073 U	0.0074 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.054 U	0.052 U	0.054 U	0.017 UJ	0.053 U	0.053 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.014 U	0.013 U	0.014 U	0.024 UJ	0.014 U	0.014 U
FLUORENE	UG/L	PRG-TapWater	243	0.010 U	0.0096 U	0.010 U	0.012 UJ	0.0098 U	0.0099 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.070 U	0.067 U	0.070 U	0.013 UJ	0.068 U	0.069 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.011 U	0.011 U	0.011 U	0.031 UJ	0.011 U	0.011 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0092 U	0.0088 U	0.0092 U	0.031 UJ	0.0090 U	0.0091 U
PYRENE	UG/L	PRG-TapWater	183	0.016 U	0.015 U	0.016 U	0.028 UJ	0.016 U	0.016 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-3872**	**AP-3872**	**AP-3893**	**AP-3894**	**AP-3894**	**AP-3895**
Sample ID:				02AVMA10WA	03AVMA13WA	02AVMA19WA	02AVMA17WA	02AVMA18WA	02AVMA14WA
QAQC Type:				N	N	N	N	FD	N
Date Sampled:				08/23/02	07/23/03	08/27/02	08/27/02	08/27/02	08/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.012 U	0.014 UJ	0.012 U	0.012 U	0.013 U	0.012 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.0093 U	0.011 UJ	0.0091 U	0.0093 U	0.0099 U	0.0094 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.014 U	0.015 UJ	0.013 U	0.014 U	0.014 U	0.014 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.021 U	0.024 UJ	0.020 U	0.021 U	0.022 U	0.021 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.013 U	0.015 UJ	0.013 U	0.013 U	0.014 U	0.014 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.023 U	0.027 UJ	**0.17 =**	0.023 U	0.025 U	0.024 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.015 U	0.017 UJ	**0.22 J**	0.015 U	0.015 U	0.015 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.032 U	0.037 UJ	**0.21 =**	0.032 U	0.034 U	0.033 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.034 U	0.038 UJ	**0.16 =**	0.034 U	0.036 U	0.034 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0073 U	0.0083 UJ	0.0072 U	0.0073 U	0.0078 U	0.0074 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.053 U	0.060 UJ	**0.24 =**	0.053 U	0.056 U	0.054 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.014 U	0.015 UJ	0.013 U	0.014 U	0.014 U	0.014 U
FLUORENE	UG/L	PRG-TapWater	243	0.0098 U	0.011 UJ	0.0096 U	0.0098 U	0.010 U	0.0099 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.068 U	0.078 UJ	**0.22 =**	0.068 U	0.072 U	0.069 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.011 U	0.013 UJ	0.011 U	0.011 U	0.012 U	0.011 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0090 U	0.010 UJ	0.0088 U	0.0090 U	0.0095 U	0.0091 U
PYRENE	UG/L	PRG-TapWater	183	0.016 U	0.018 UJ	0.015 U	0.016 U	0.017 U	0.016 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-3895**	**AP-3896**	**AP-3901**	**AP-3916**	**AP-3916**	**AP-4154**
Sample ID:				02AVMA15WA	02AVMA16WA	03FROEWA09	03FROEWA05	03FROEWA06	02BAVMA04WA
QAQC Type:				FD	N	N	N	FD	N
Date Sampled:				08/26/02	08/27/02	06/10/03	06/09/03	06/09/03	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.013 U	0.012 U	0.011 U	0.011 U	0.012 U	0.012 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.0098 U	0.0093 U	0.0084 U	0.0088 U	0.0093 U	0.0096 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.014 U	0.014 U	0.012 U	0.013 U	0.014 U	0.014 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.022 U	0.021 U	0.019 U	0.020 U	0.021 U	0.021 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.014 U	0.013 U	0.012 U	0.013 U	0.013 U	0.014 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.024 U	0.023 U	0.021 U	0.022 U	0.023 U	0.024 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.015 U	0.015 U	0.013 U	0.014 U	0.015 U	0.015 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.034 U	0.032 U	0.029 U	0.031 U	0.032 U	0.033 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.035 U	0.034 U	0.030 U	0.032 U	0.034 U	0.035 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0077 U	0.0073 U	0.0066 U	0.0069 U	0.0073 U	0.0075 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.055 U	0.053 U	0.048 U	0.050 U	0.053 U	0.054 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.014 U	0.014 U	0.012 U	0.013 U	0.014 U	0.014 U
FLUORENE	UG/L	PRG-TapWater	243	0.010 U	0.0098 U	0.0088 U	0.0093 U	0.0098 U	0.010 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.072 U	0.068 U	0.062 U	0.065 U	0.068 U	0.070 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.012 U	0.011 U	0.010 U	0.011 U	0.011 U	0.011 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0094 U	0.0090 U	0.0081 U	0.0085 U	0.0090 U	0.0092 U
PYRENE	UG/L	PRG-TapWater	183	0.017 U	0.016 U	0.014 U	0.015 U	0.016 U	0.016 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-4155**	**AP-4336**	**AP-4336**	**AP-4337**	**AP-4338**	**AP-4339**
Sample ID:				02BAVMA05WA	02AVMA25WA	03AVMA17WA	02AVMA28WA	02AVMA26WA	02AVMA20WA
QAQC Type:				N	N	N	N	N	N
Date Sampled:				08/20/02	10/24/02	07/24/03	10/25/02	10/25/02	09/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.013 U	**0.060 JB**	0.013 U	0.012 U	0.013 U	0.012 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.0099 U	0.010 UJ	0.0099 U	0.0093 U	0.010 U	0.0094 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.014 U	0.015 UJ	0.014 U	0.014 U	0.015 U	0.014 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.022 U	0.022 UJ	0.022 U	0.021 U	0.022 U	0.021 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.014 U	0.014 UJ	0.014 U	0.013 U	0.014 U	0.013 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.025 U	0.025 UJ	0.025 U	0.023 U	0.025 U	0.024 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.015 U	0.016 UJ	0.015 U	0.015 U	0.016 U	0.015 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.034 U	0.035 UJ	0.034 U	0.032 U	0.035 U	0.033 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.036 U	0.037 UJ	0.036 U	0.034 U	0.037 U	0.034 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0078 U	0.0080 UJ	0.0078 U	0.0073 U	0.0080 U	0.0074 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.056 U	0.057 UJ	0.056 U	0.053 U	0.057 U	0.053 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.014 U	0.015 UJ	0.014 U	0.014 U	0.015 U	0.014 U
FLUORENE	UG/L	PRG-TapWater	243	0.010 U	0.011 UJ	0.010 U	0.0098 U	0.011 U	0.0099 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.072 U	0.074 UJ	0.072 U	0.068 U	0.074 U	0.069 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.012 U	**0.072 JB**	0.012 U	**0.067 JB**	**0.060 JB**	0.011 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0095 U	0.0098 UJ	0.0095 U	0.0090 U	0.0098 U	0.0091 U
PYRENE	UG/L	PRG-TapWater	183	0.017 U	0.017 UJ	0.017 U	0.016 U	0.017 U	0.016 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-4340**	**AP-4341**	**AP-4341**	**AP-4342**	**AP-4342**	**AP-4342**
Sample ID:				02AVMA21WA	02AVMA24WA	03FROEWA11	02AVMA22WA	02AVMA23WA	03AVMA01WA
QAQC Type:				N	N	N	N	FD	N
Date Sampled:				09/26/02	10/24/02	06/10/03	10/23/02	10/23/02	06/10/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.012 U	0.013 U	0.013 U	0.012 U	0.013 U	0.013 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.0093 U	0.010 U	0.010 U	0.0096 U	0.0099 U	0.0099 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.021 U	0.023 U	0.022 U	0.021 U	0.022 U	0.022 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.013 U	0.015 U	0.014 U	0.014 U	0.014 U	0.014 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.023 U	0.026 U	0.025 U	0.024 U	0.025 U	0.025 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.015 U	0.016 U	0.016 U	0.015 U	0.015 U	0.015 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.032 U	0.036 U	0.035 U	0.033 U	0.034 U	0.034 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.034 U	0.038 U	0.036 U	0.035 U	0.036 U	0.036 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0073 U	0.0082 U	0.0079 U	0.0075 U	0.0078 U	0.0078 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.053 U	0.059 U	0.057 U	0.054 U	0.056 U	0.056 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.014 U	0.015 U	0.015 U	0.014 U	0.014 U	0.014 U
FLUORENE	UG/L	PRG-TapWater	243	0.0098 U	0.011 U	0.010 U	0.010 U	0.010 U	0.010 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.068 U	0.076 U	0.073 U	0.070 U	0.072 U	0.072 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.011 U	**0.062 JB**	0.012 U	0.011 U	0.012 U	0.012 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.0090 U	0.010 U	0.0096 U	0.0092 U	0.0095 U	0.0095 U
PYRENE	UG/L	PRG-TapWater	183	0.016 U	0.018 U	0.017 U	0.016 U	0.017 U	0.017 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-4342**	**AP-4342**	**AP-4411**	**AP-4411**	**AP-4412**	**AP-4413**
Sample ID:				03AVMA07WA	03FROEWA15	03AVMA04WA	03FROEWA14	03AVMA03WA	03AVMA05WA
QAQC Type:				FD	N	N	N	N	N
Date Sampled:				06/10/03	09/20/03	06/11/03	09/20/03	06/11/03	06/11/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**						
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	**0.052 J**	**0.023 J**	0.013 U	0.012 U	0.011 U	**0.059 =**
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.011 U	0.012 U	0.0099 U	0.011 U	0.0084 U	0.0099 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.016 U	0.010 U	0.014 U	0.0098 U	0.012 U	0.014 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.024 U	0.012 U	0.022 U	0.011 U	0.019 U	0.022 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.015 U	0.021 U	0.014 U	0.020 U	0.012 U	0.014 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.027 U	0.012 U	0.025 U	0.011 U	0.021 U	0.025 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.017 U	0.027 U	0.015 U	0.026 U	0.013 U	0.015 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.037 U	0.014 U	0.034 U	0.013 U	0.029 U	0.034 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.039 U	0.016 U	0.036 U	0.016 U	0.030 U	0.036 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0085 U	0.010 U	0.0078 U	0.0099 U	0.0066 U	0.0078 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.061 U	0.017 U	0.056 U	0.017 U	0.048 U	0.056 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.016 U	0.026 U	0.014 U	0.024 U	0.012 U	0.014 U
FLUORENE	UG/L	PRG-TapWater	243	0.011 U	0.013 U	0.010 U	0.012 U	0.0088 U	0.010 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.079 U	0.014 U	0.072 U	0.013 U	0.062 U	0.072 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.013 U	0.033 U	0.012 U	0.031 U	0.010 U	0.035 U
PHENANTHRENE	UG/L	PRG-TapWater	--	**0.052 J**	0.033 U	0.0095 U	0.031 U	0.0081 U	**0.024 J**
PYRENE	UG/L	PRG-TapWater	183	0.018 U	0.029 U	0.017 U	0.028 U	0.014 U	0.017 U

TABLE B-63

Criteria Evaluation - Groundwater - AVMA PAH

OUE Fort Richardson

Location ID:				**AP-4413**		**AP-4414**		**AP-4415**		**AP-4416**	
Sample ID:				03FROEWA16		03AVMA20WA		03AVMA06WA		03AVMA18WA	
QAQC Type:				N		N		N		N	
Date Sampled:				09/20/03		08/20/03		06/12/03		08/20/03	
Analyte	**Units**	**Criteria Source**	**Criteria Value**								
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.012	UJ	0.012	U	**0.036**	**J**	0.012	U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.011	UJ	0.0093	U	0.010	U	0.0093	U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.0096	UJ	0.014	U	0.015	U	0.014	U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.011	UJ	0.021	U	0.022	U	0.021	U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.020	UJ	0.013	U	0.014	U	0.013	U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.011	UJ	0.023	U	0.025	U	0.023	U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.025	UJ	0.015	U	0.016	U	0.015	U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.013	UJ	0.032	U	0.035	U	0.032	U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.015	UJ	0.034	U	0.036	U	0.034	U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.0097	UJ	0.0073	U	0.0079	U	0.0073	U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.016	UJ	0.053	U	0.057	U	0.053	U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.024	UJ	0.014	U	0.015	U	0.014	U
FLUORENE	UG/L	PRG-TapWater	243	0.012	UJ	0.0098	U	0.010	U	0.0098	U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.013	UJ	0.068	U	0.073	U	0.068	U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.030	UJ	**0.089**	**J**	**0.036**	**J**	0.011	U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.030	UJ	0.0090	U	**0.024**	**J**	0.0090	U
PYRENE	UG/L	PRG-TapWater	183	0.027	UJ	0.016	U	0.017	U	0.016	U

TABLE B-64

Criteria Evaluation - Groundwater - AVMA PESTICIDE

OUE Fort Richardson

Location ID:				**AP-4336**	**AP-4337**	**AP-4338**	**AP-4339**	**AP-4340**
Sample ID:				02AVMA25WA	02AVMA28WA	02AVMA26WA	02AVMA20WA	02AVMA21WA
QAQC Type:				N	N	N	N	N
Date Sampled:				10/24/02	10/25/02	10/25/02	10/24/02	10/25/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
ALDRIN	UG/L	PRG-TapWater	0.0040	0.0033 U	0.0033 U	0.0033 UJ	0.0036 U	0.0036 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	PRG-TapWater	0.011	0.0040 U	0.0040 U	0.0039 UJ	0.0043 U	0.0043 U
ALPHA ENDOSULFAN	UG/L	PRG-TapWater	219	0.0027 U	0.0027 U	0.0027 UJ	0.0029 U	0.0029 U
ALPHA-CHLORDANE	UG/L	PRG-TapWater	0.19	0.0034 U	0.0034 U	0.0034 UJ	0.0037 U	0.0037 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	PRG-TapWater	0.037	**0.011 J**	**0.0075 J**	0.0044 UJ	0.0049 U	0.0049 U
BETA ENDOSULFAN	UG/L	PRG-TapWater	219	0.0044 U	0.0043 U	0.0043 UJ	0.0047 U	0.0047 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	PRG-TapWater	--	0.0038 U	0.0038 U	0.0037 UJ	0.0041 U	0.0041 U
DIELDRIN	UG/L	PRG-TapWater	0.0042	0.0036 U	0.0035 U	0.0035 UJ	0.0038 U	0.0038 U
ENDOSULFAN SULFATE	UG/L	PRG-TapWater	--	0.0043 U	0.0043 U	0.0042 UJ	0.0047 U	**0.0056 J**
ENDRIN	UG/L	PRG-TapWater	11	0.0034 U	0.0033 U	0.0033 UJ	0.0036 U	0.0036 U
ENDRIN ALDEHYDE	UG/L	PRG-TapWater	--	0.0079 U	0.0078 U	0.0077 UJ	0.0084 U	0.0084 U
GAMMA BHC (LINDANE)	UG/L	PRG-TapWater	0.052	0.0031 U	0.0030 U	0.0030 UJ	0.0033 U	0.0033 U
GAMMA-CHLORDANE	UG/L	PRG-TapWater	0.19	0.0033 U	0.0032 U	0.0032 UJ	0.0035 U	0.0035 U
HEPTACHLOR	UG/L	PRG-TapWater	0.015	**0.0071 J**	**0.0082 J**	0.0068 UJ	0.0074 U	0.0074 U
HEPTACHLOR EPOXIDE	UG/L	PRG-TapWater	0.0074	0.0032 U	0.0032 U	0.0031 UJ	0.0034 U	0.0034 U
METHOXYCHLOR	UG/L	PRG-TapWater	182	0.0047 U	0.0047 U	0.0046 UJ	0.0051 U	0.0051 U
p,p'-DDD	UG/L	PRG-TapWater	0.28	0.0040 U	0.0040 U	0.0039 UJ	0.0043 U	0.0043 U
p,p'-DDE	UG/L	PRG-TapWater	0.20	0.0028 U	0.0028 U	0.0027 UJ	0.0030 U	0.0030 U
p,p'-DDT	UG/L	PRG-TapWater	0.20	0.0052 U	0.0052 U	0.0051 UJ	0.0056 U	0.0056 U
TOXAPHENE	UG/L	PRG-TapWater	0.061	0.11 UR	0.11 U	0.11 UJ	0.12 UR	0.12 U

TABLE B-64

Criteria Evaluation - Groundwater - AVMA PESTICIDE

OUE Fort Richardson

Location ID:				**AP-4341**	**AP-4342**	**AP-4342**
Sample ID:				02AVMA24WA	02AVMA22WA	02AVMA23WA
QAQC Type:				N	N	FD
Date Sampled:				10/24/02	10/23/02	10/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**			
ALDRIN	UG/L	PRG-TapWater	0.0040	0.0037 U	0.0033 U	0.0034 U
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	UG/L	PRG-TapWater	0.011	0.0044 U	0.0039 U	0.0041 U
ALPHA ENDOSULFAN	UG/L	PRG-TapWater	219	0.0030 U	0.0027 U	0.0028 U
ALPHA-CHLORDANE	UG/L	PRG-TapWater	0.19	0.0038 U	0.0034 U	0.0035 U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	UG/L	PRG-TapWater	0.037	0.0050 U	0.0044 U	**0.0065 J**
BETA ENDOSULFAN	UG/L	PRG-TapWater	219	0.0048 U	0.0043 U	0.0045 U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	UG/L	PRG-TapWater	--	0.0042 U	0.0037 U	0.0039 U
DIELDRIN	UG/L	PRG-TapWater	0.0042	0.0039 U	0.0035 U	0.0036 U
ENDOSULFAN SULFATE	UG/L	PRG-TapWater	--	0.0048 U	0.0042 U	0.0044 U
ENDRIN	UG/L	PRG-TapWater	11	0.0037 U	0.0033 U	0.0034 U
ENDRIN ALDEHYDE	UG/L	PRG-TapWater	--	0.0086 U	**0.0094 J**	0.0080 U
GAMMA BHC (LINDANE)	UG/L	PRG-TapWater	0.052	0.0034 U	0.0030 U	0.0031 U
GAMMA-CHLORDANE	UG/L	PRG-TapWater	0.19	0.0036 U	0.0032 U	0.0034 U
HEPTACHLOR	UG/L	PRG-TapWater	0.015	0.0076 U	0.0068 U	0.0071 U
HEPTACHLOR EPOXIDE	UG/L	PRG-TapWater	0.0074	0.0035 U	0.0031 U	0.0033 U
METHOXYCHLOR	UG/L	PRG-TapWater	182	0.0052 U	0.0046 U	0.0048 U
p,p'-DDD	UG/L	PRG-TapWater	0.28	0.0044 U	0.0039 U	0.0041 U
p,p'-DDE	UG/L	PRG-TapWater	0.20	0.0031 U	0.0027 U	0.0029 U
p,p'-DDT	UG/L	PRG-TapWater	0.20	0.0057 U	0.0051 U	0.0053 U
TOXAPHENE	UG/L	PRG-TapWater	0.061	0.12 UR	0.11 UR	0.11 UR

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				AP-2980	AP-3441	AP-3467	AP-3467	AP-3467
Sample ID:				02FROEWA24	02FROEWA15	02FROEWA19	02FROEWA20	03FROEWA01
QAQC Type:				N	N	N	FD	N
Date Sampled:				08/29/02	08/28/02	08/29/02	08/29/02	06/06/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.79 UJ	0.79 U	0.82 U	0.84 U	0.49 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.42 UJ	0.42 U	0.43 U	0.45 U	0.45 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.83 UJ	0.83 UJ	0.86 UJ	0.88 UJ	0.44 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.60 UJ	0.60 U	0.62 U	0.64 U	0.34 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.46 UJ	0.46 U	0.48 U	0.49 U	0.49 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.76 UJ	0.76 U	0.79 U	0.81 U	0.33 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.69 UJ	0.69 UJ	0.72 U	0.73 U	0.72 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	30 UJ	30 U	31 UJ	32 UJ	32 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.51 UJ	0.51 U	0.53 U	0.55 U	0.32 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.40 UJ	0.40 U	0.42 U	0.43 U	0.42 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.58 UJ	0.58 U	0.60 U	0.62 U	0.86 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.79 UJ	0.79 U	0.82 U	0.83 U	0.35 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.51 UJ	0.51 U	0.53 U	0.54 U	0.30 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.53 UJ	0.53 U	0.54 U	0.56 U	0.50 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	44 UJ	44 U	46 U	47 U	0.46 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.90 UJ	0.90 U	0.93 U	0.95 U	0.94 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	1.4 UJ	1.4 U	1.4 U	1.4 U	0.66 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.54 UJ	0.54 UR	0.56 U	0.57 U	0.92 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.36 UJ	0.36 UJ	0.37 U	0.38 U	0.55 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.3 UJ	6.3 U	6.5 U	6.7 U	6.6 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.46 UJ	0.46 U	0.47 U	0.48 U	0.29 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.98 UJ	0.98 U	1.0 U	1.0 U	0.34 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.93 UJ	0.93 UR	0.96 U	0.99 U	0.68 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.51 UJ	0.51 U	0.53 U	0.55 U	0.40 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.43 UJ	0.43 UJ	0.45 U	0.46 U	0.36 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.69 UJ	0.69 U	0.72 U	0.73 U	0.72 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.40 UJ	0.40 U	0.42 U	0.43 U	0.35 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.80 UJ	0.80 U	0.83 U	0.85 U	0.35 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.57 UJ	0.57 U	0.59 U	0.60 U	0.29 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.3 UR	6.3 UR	6.5 UR	6.7 UR	6.6 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.32 UJ	0.32 U	0.33 U	0.34 U	0.38 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	1.1 UJ	1.1 U	1.1 U	1.1 U	0.37 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.58 UJ	0.58 U	0.60 U	0.61 U	0.28 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.66 UJ	0.66 U	0.68 U	0.70 U	0.98 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.37 UJ	0.37 U	0.38 U	0.39 U	0.40 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	26 UJ	26 U	27 U	27 U	27 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-2980**	**AP-3441**	**AP-3467**	**AP-3467**	**AP-3467**
Sample ID:				02FROEWA24	02FROEWA15	02FROEWA19	02FROEWA20	03FROEWA01
QAQC Type:				N	N	N	FD	N
Date Sampled:				08/29/02	08/28/02	08/29/02	08/29/02	06/06/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	**1.4 J**	0.67 UJ	0.70 U	0.71 U	0.70 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.69 UJ	0.69 U	0.71 U	0.73 U	0.28 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.36 UJ	0.36 U	0.37 U	0.38 U	0.37 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.38 UJ	0.38 U	0.39 U	0.40 U	0.30 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.43 UJ	0.43 U	0.45 U	0.46 U	0.45 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	1.8 UJ	1.8 U	**2.2 JB**	1.9 U	0.90 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.43 UJ	0.43 U	0.44 U	0.45 U	0.44 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.57 UJ	0.57 U	0.59 U	0.61 U	1.4 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.45 UJ	0.45 U	0.47 U	0.48 U	0.36 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.21 UJ	0.21 U	0.22 U	0.23 U	0.39 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.49 UJ	0.49 U	0.51 U	0.52 U	0.34 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	1.8 UJ	1.8 U	**2.8 JB**	1.9 U	**4.4 BJ**
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.66 UJ	0.66 U	0.68 U	0.70 U	0.34 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	**--**	1.2 U	**--**	**--**	**--**
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.64 UJ	0.64 U	0.66 U	0.67 U	0.28 U
FLUORENE	UG/L	PRG-TapWater	243	0.37 UJ	0.37 U	0.38 U	0.39 U	0.35 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.41 UJ	0.41 U	0.42 U	0.43 U	0.34 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.96 UJ	0.96 U	1.0 U	1.0 U	0.68 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.53 UJ	0.53 U	0.54 U	0.56 U	0.58 U
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.86 UJ	0.86 UJ	0.89 UJ	0.91 UJ	0.62 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.52 UJ	0.52 U	0.54 U	0.55 U	1.0 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.64 UJ	0.64 U	0.66 U	0.68 U	0.67 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.65 UJ	0.65 U	0.67 U	0.69 U	0.29 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.50 UJ	0.50 U	0.52 U	0.53 U	0.53 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.41 UJ	0.41 U	0.43 U	0.44 U	0.43 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	1.0 UJ	1.0 UJ	1.1 U	1.1 U	0.70 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	**--**	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.62 UJ	0.62 U	0.64 UJ	0.66 UJ	0.65 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.35 UJ	0.35 U	0.37 U	0.37 U	0.37 U
PHENOL	UG/L	PRG-TapWater	21,900	0.61 UJ	0.61 U	0.63 U	0.65 U	0.40 U
PYRENE	UG/L	PRG-TapWater	183	0.69 UJ	0.69 U	0.72 U	0.73 U	0.43 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				AP-3468	AP-3468	AP-3469	AP-3483	AP-3532
Sample ID:				02AVMA13WA	03FROEWA03	02FROEWA18	02FROEWA17	02AVMA02WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/23/02	06/06/03	08/28/02	08/28/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.83 U	0.46 U	0.76 U	0.76 U	0.86 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.44 U	0.42 U	0.41 U	0.41 U	0.46 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.87 U	0.41 U	0.80 UJ	0.80 UJ	0.90 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.63 U	0.32 U	0.58 U	0.58 U	0.65 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.48 U	0.46 U	0.44 U	0.44 U	0.50 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.80 U	0.31 U	0.74 U	0.74 U	0.83 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.72 U	0.68 U	0.67 UJ	0.67 UJ	0.75 UJ
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	32 U	30 U	29 U	29 U	33 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.54 U	0.30 U	0.50 U	0.50 U	0.56 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.42 U	0.40 U	0.39 U	0.39 U	0.44 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.61 U	0.82 U	0.56 U	0.56 U	0.63 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.82 U	0.33 U	0.76 U	0.76 U	0.85 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.54 U	0.28 U	0.50 U	0.50 U	0.56 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.55 U	0.47 U	0.51 U	0.51 U	0.57 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	46 U	0.43 U	43 U	43 U	48 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.94 U	0.89 U	0.87 U	0.87 U	0.97 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	1.4 U	0.62 U	1.3 U	1.3 U	1.5 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.56 U	0.87 U	0.52 UR	0.52 UR	0.58 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.37 U	0.52 U	0.34 UJ	0.34 UJ	0.39 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.6 U	6.2 U	6.1 U	6.1 U	6.8 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.48 U	0.28 U	0.44 U	0.44 U	0.49 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	1.0 U	0.32 U	0.94 U	0.94 U	1.1 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.97 U	0.64 U	0.90 UR	0.90 UR	1.0 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.54 U	0.38 U	0.50 U	0.50 U	0.56 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.45 U	0.34 U	0.42 UJ	0.42 UJ	0.47 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.72 U	0.68 U	0.67 U	0.67 U	0.75 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.42 U	0.33 U	0.39 U	0.39 U	0.44 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.84 U	0.33 U	0.77 U	0.77 U	0.87 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.60 U	0.28 U	0.55 U	0.55 U	0.62 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.6 UJ	6.2 U	6.1 UR	6.1 UR	6.8 UJ
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.34 U	0.36 U	0.31 U	0.31 U	0.35 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	1.1 U	0.35 U	1.0 U	1.0 U	1.2 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.60 U	0.27 U	0.56 U	0.56 U	0.63 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.69 U	0.93 U	0.64 U	0.64 U	0.72 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.39 U	0.38 U	0.36 U	0.36 U	0.40 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	27 U	26 U	25 U	25 U	28 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3468**	**AP-3468**	**AP-3469**	**AP-3483**	**AP-3532**
Sample ID:				02AVMA13WA	03FROEWA03	02FROEWA18	02FROEWA17	02AVMA02WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/23/02	06/06/03	08/28/02	08/28/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.70 U	0.67 U	0.65 UJ	0.65 UJ	0.73 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.72 U	0.27 U	0.67 U	0.67 U	0.75 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.37 U	0.35 U	0.34 U	0.34 U	0.39 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.39 U	0.28 U	0.36 U	0.36 U	0.41 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.45 U	0.43 U	0.42 U	0.42 U	0.47 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	1.8 U	0.85 U	1.7 U	1.7 U	1.9 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.45 U	0.42 U	0.41 U	0.41 U	0.46 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.60 U	1.4 U	0.55 U	0.55 U	0.62 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.47 U	0.34 U	0.43 U	0.43 U	0.49 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.22 U	0.37 U	0.21 U	0.21 U	0.23 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.52 U	0.32 U	0.48 U	0.48 U	0.54 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	1.9 U	**2.4 BJ**	1.8 U	1.8 U	**3.2 JB**
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.69 U	0.32 U	0.64 U	0.64 U	0.72 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	**--**	**--**	1.2 U	1.2 U	**--**
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.67 U	0.27 U	0.62 U	0.62 U	0.69 U
FLUORENE	UG/L	PRG-TapWater	243	0.39 U	0.33 U	0.36 U	0.36 U	0.40 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.43 U	0.32 U	0.39 U	0.39 U	0.44 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	1.0 U	0.64 U	0.93 U	0.93 U	1.0 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.55 U	0.55 U	0.51 U	0.51 U	0.57 UJ
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.90 U	0.58 U	0.83 UJ	0.83 UJ	0.93 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.54 U	0.97 U	0.50 U	0.50 U	0.56 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.67 U	0.63 U	0.62 U	0.62 U	0.70 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.68 U	0.27 U	0.63 U	0.63 U	0.70 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.53 U	0.50 U	0.49 U	0.49 U	0.55 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.43 U	0.41 U	0.40 U	0.40 U	0.45 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	1.1 U	0.67 U	0.98 UJ	0.98 UJ	1.1 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	**--**	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.65 U	0.61 U	0.60 U	0.60 U	0.67 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.37 U	0.35 U	0.34 U	0.34 U	0.38 U
PHENOL	UG/L	PRG-TapWater	21,900	**2.8 J**	0.38 U	0.59 U	0.59 U	0.66 U
PYRENE	UG/L	PRG-TapWater	183	0.72 U	0.40 U	0.67 U	0.67 U	0.75 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				AP-3532	AP-3534	AP-3534	AP-3534	AP-3650
Sample ID:				03AVMA11WA	02AVMA01WA	03FROEWA02	03FROEWA13	02AVMA12WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/23/03	08/19/02	06/06/03	09/19/03	08/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.51 U	0.75 U	0.45 U	0.44 U	0.80 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.47 U	0.40 U	0.42 U	0.40 U	0.43 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.45 U	0.78 U	0.40 U	0.39 U	0.84 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.35 U	0.57 U	0.31 U	0.30 U	0.61 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.51 U	0.44 U	0.45 U	0.44 U	0.46 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.34 U	0.72 U	0.30 U	0.30 U	0.77 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.75 U	0.66 UJ	0.67 U	0.65 U	0.70 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	33 U	29 U	29 U	28 UJ	30 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.33 U	0.49 U	0.30 U	0.29 U	0.52 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.44 U	0.38 U	0.39 U	0.38 U	0.41 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.90 U	0.55 U	0.80 U	0.78 U	0.59 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.36 U	0.75 U	0.32 U	0.31 U	0.80 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.31 U	0.49 U	0.27 U	0.27 U	0.52 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.52 U	0.50 U	0.46 U	0.45 U	0.53 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	0.48 U	42 U	0.42 U	0.41 UJ	45 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.97 U	0.85 U	0.87 U	0.84 U	0.91 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	0.68 U	1.3 U	0.61 U	0.59 U	1.4 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.95 U	0.51 U	0.85 U	0.83 U	0.54 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.57 U	0.34 U	0.51 U	0.49 U	0.36 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.8 U	6.0 U	6.1 U	5.9 U	6.4 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.30 U	0.43 U	0.27 U	0.26 U	0.46 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.36 U	0.92 U	0.32 U	0.31 U	0.99 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.70 U	0.88 U	0.63 U	0.61 U	0.94 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.41 U	0.49 U	0.37 U	0.36 U	0.52 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.37 U	0.41 U	0.33 U	0.32 U	0.44 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.75 U	0.65 U	0.67 U	0.65 U	0.70 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.37 U	0.38 U	0.33 U	0.32 U	0.41 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.37 U	0.76 U	0.33 U	0.32 UJ	0.81 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.30 U	0.54 U	0.27 U	0.26 U	0.58 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.8 UJ	6.0 UJ	6.1 U	--	6.4 UJ
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.40 U	0.30 U	0.35 U	0.34 U	0.32 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.39 U	1.0 U	0.35 U	0.34 U	1.1 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.29 U	0.55 U	0.26 U	0.26 U	0.58 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	1.0 U	0.63 U	0.91 U	0.88 UJ	0.67 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.41 U	0.35 U	0.37 U	0.36 U	0.38 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	28 U	24 U	25 U	24 UJ	26 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3532**	**AP-3534**	**AP-3534**	**AP-3534**	**AP-3650**
Sample ID:				03AVMA11WA	02AVMA01WA	03FROEWA02	03FROEWA13	02AVMA12WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/23/03	08/19/02	06/06/03	09/19/03	08/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.73 U	0.64 U	0.65 U	0.63 UJ	0.68 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.29 U	0.65 U	0.26 U	0.26 U	0.70 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.38 U	0.34 U	0.34 U	0.33 U	0.36 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.31 U	0.36 U	0.28 U	0.27 UJ	0.38 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.47 U	0.41 U	0.42 U	0.41 UJ	0.44 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	0.93 U	1.7 U	0.83 U	0.81 U	1.8 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.46 U	0.40 U	0.41 U	0.40 U	0.43 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	1.5 U	0.54 U	1.3 U	1.3 UJ	0.58 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.38 U	0.43 U	0.34 U	0.33 U	0.45 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.40 U	0.20 U	0.36 U	0.35 U	0.22 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.35 U	0.47 U	0.31 U	0.30 U	0.50 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	0.47 U	1.7 U	**3.2 BJ**	0.41 U	1.8 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.36 U	0.62 U	0.32 U	0.31 U	0.67 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	**--**	**--**	**--**	**--**	**--**
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.30 U	0.60 U	0.26 U	0.26 U	0.64 U
FLUORENE	UG/L	PRG-TapWater	243	0.36 U	0.35 U	0.32 U	0.32 U	0.38 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.35 U	0.39 U	0.31 U	0.30 U	0.41 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.70 U	0.91 U	0.62 U	0.61 U	0.98 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.60 UJ	0.50 UJ	0.53 U	0.52 U	0.53 U
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.64 U	0.81 U	0.57 U	0.55 U	0.87 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	1.1 U	0.49 U	0.94 U	0.92 UJ	0.53 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.70 U	0.61 U	0.62 U	0.60 U	0.65 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.30 U	0.61 U	0.27 U	0.26 U	0.66 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.55 U	0.48 U	0.49 U	0.47 U	0.51 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.45 U	0.39 U	0.40 U	0.39 U	0.42 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.73 U	0.96 U	0.65 U	0.63 U	1.0 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	**--**	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.67 U	0.59 U	0.60 U	0.58 U	0.63 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.38 U	0.33 U	0.34 U	0.33 U	0.36 U
PHENOL	UG/L	PRG-TapWater	21,900	0.41 U	0.58 U	0.37 U	0.36 U	0.62 U
PYRENE	UG/L	PRG-TapWater	183	0.44 U	0.66 U	0.40 U	0.39 U	0.70 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				AP-3772	AP-3773	AP-3773	AP-3773	AP-3773
Sample ID:				02FROEWA13	02FROEWA21	02FROEWA22	03AVMA02WA	03FROEWA19
QAQC Type:				N	N	FD	N	N
Date Sampled:				08/28/02	08/29/02	08/29/02	06/11/03	09/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.78 U	0.82 UJ	0.76 U	0.42 U	0.44 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.42 U	0.43 UJ	0.41 U	0.38 U	0.41 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.82 UJ	0.86 UJ	0.80 UJ	0.37 U	0.40 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.59 U	0.62 UJ	0.58 U	0.29 U	0.31 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.45 U	0.48 UJ	0.44 U	0.41 U	0.44 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.76 U	0.79 UJ	0.74 U	0.28 U	0.30 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.68 UJ	0.72 UJ	0.67 U	0.62 U	0.66 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	30 U	31 UJ	29 UJ	27 U	29 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.51 U	0.53 UJ	0.50 U	0.27 U	0.29 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.40 U	0.42 UJ	0.39 U	0.36 U	0.38 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.58 U	0.60 UJ	0.56 U	0.73 U	0.78 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.78 U	0.82 UJ	0.76 U	0.30 U	0.31 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.51 U	0.53 UJ	0.50 U	0.25 U	0.27 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.52 U	0.54 UJ	0.51 U	0.42 U	0.45 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	44 U	46 UJ	43 U	0.39 U	0.41 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.89 U	0.93 UJ	0.87 U	0.80 U	0.85 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	1.3 U	1.4 UJ	1.3 U	0.56 U	0.59 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.53 UR	0.56 UJ	0.52 U	0.78 U	0.83 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.35 UJ	0.37 UJ	0.34 U	0.47 U	0.50 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.2 U	6.5 UJ	6.1 U	5.6 U	6.0 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.45 U	0.47 UJ	0.44 U	0.25 U	0.26 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.97 U	1.0 UJ	0.94 U	0.29 U	0.31 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.92 UR	0.96 UJ	0.90 U	0.58 U	0.61 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.51 U	0.53 UJ	0.50 U	0.34 U	0.36 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.43 UJ	0.45 UJ	0.42 U	0.31 U	0.32 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.68 U	0.72 UJ	0.67 U	0.62 U	0.65 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.40 U	0.42 UJ	0.39 U	0.30 U	0.32 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.79 U	0.83 UJ	0.77 U	0.30 U	0.32 UJ
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.56 U	0.59 UJ	0.55 U	0.25 U	0.26 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.2 UR	6.5 UJ	6.1 UR	5.6 UJ	--
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.32 U	0.33 UJ	0.31 U	0.32 U	0.34 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	1.1 U	1.1 UJ	1.0 U	0.32 U	0.34 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.57 U	0.60 UJ	0.56 U	0.24 U	0.26 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.65 U	0.68 UJ	0.64 U	0.83 U	0.89 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.37 U	0.38 UJ	0.36 U	0.34 U	0.36 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	26 U	27 UJ	25 U	23 U	24 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3772**	**AP-3773**	**AP-3773**	**AP-3773**	**AP-3773**
Sample ID:				02FROEWA13	02FROEWA21	02FROEWA22	03AVMA02WA	03FROEWA19
QAQC Type:				N	N	FD	N	N
Date Sampled:				08/28/02	08/29/02	08/29/02	06/11/03	09/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.67 UJ	0.70 UJ	0.65 U	7.1 U	0.64 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.68 U	0.71 UJ	0.67 U	0.24 U	0.26 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.35 U	0.37 UJ	0.34 U	0.31 U	0.33 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.37 U	0.39 UJ	0.36 U	0.25 U	0.27 UJ
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.43 U	0.45 UJ	0.42 U	0.38 U	0.41 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	1.7 U	1.8 UJ	1.7 U	0.76 U	0.81 UJ
CHRYSENE	UG/L	PRG-TapWater	9.2	0.42 U	0.44 UJ	0.41 U	0.38 U	0.40 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.57 U	0.59 UJ	0.55 U	1.2 U	1.3 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.44 U	0.47 UJ	0.43 U	0.31 U	0.33 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.21 U	0.22 UJ	0.21 U	0.33 U	0.35 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.49 U	0.51 UJ	0.48 U	0.29 U	0.31 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	1.8 U	**2.2 JB**	1.8 U	0.39 U	0.41 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.65 U	0.68 UJ	0.64 U	0.29 U	0.31 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	1.2 U	**--**	**--**	**--**	**--**
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.63 U	0.66 UJ	0.62 U	0.24 U	0.26 U
FLUORENE	UG/L	PRG-TapWater	243	0.37 U	0.38 UJ	0.36 U	0.30 U	0.32 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.40 U	0.42 UJ	0.39 U	0.29 U	0.31 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.95 U	1.0 UJ	0.93 U	0.57 U	0.61 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.52 U	0.54 UJ	0.51 U	0.49 U	0.52 U
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.85 UJ	0.89 UJ	0.83 UJ	0.52 U	0.56 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.51 U	0.54 UJ	0.50 U	0.87 U	0.92 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.63 U	0.66 UJ	0.62 U	0.57 U	0.61 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.64 U	0.67 UJ	0.63 U	0.25 U	0.26 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.50 U	0.52 UJ	0.49 U	0.45 U	0.48 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.41 U	0.43 UJ	0.40 U	0.37 U	0.39 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	1.0 UJ	1.1 UJ	0.98 U	0.60 U	0.64 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	**--**	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.61 U	0.64 UJ	0.60 UJ	0.55 U	0.59 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.35 U	0.37 UJ	0.34 U	0.31 U	0.33 U
PHENOL	UG/L	PRG-TapWater	21,900	0.60 U	0.63 UJ	0.59 U	0.34 U	0.36 U
PYRENE	UG/L	PRG-TapWater	183	0.68 U	0.72 UJ	0.67 U	0.36 U	0.39 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3774**	**AP-3774**	**AP-3774**	**AP-3775**	**AP-3776**
Sample ID:				02FROEWA16	03AVMA15WA	03FROEWA17	02FROEWA14	02AVMA08WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/28/02	07/24/03	09/20/03	08/28/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.78 U	0.46 U	0.45 U	0.78 U	0.82 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.42 U	0.42 U	0.41 U	0.42 U	0.43 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.82 UJ	0.41 U	0.40 U	0.82 UJ	0.86 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.59 U	0.32 U	0.31 U	0.59 U	0.62 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.45 U	0.46 U	0.45 U	0.45 U	0.48 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.76 U	0.31 U	0.30 U	0.76 U	0.79 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.68 UJ	0.68 U	0.66 U	0.68 UJ	0.72 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	30 U	29 UJ	29 U	30 U	31 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.51 U	0.30 U	0.29 U	0.51 U	0.53 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.40 U	0.40 U	0.39 U	0.40 U	0.42 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.58 U	0.81 U	0.79 U	0.58 U	0.60 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.78 U	0.33 U	0.32 U	0.78 U	0.82 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.51 U	0.28 U	0.27 U	0.51 U	0.53 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.52 U	0.46 U	0.45 U	0.52 U	0.54 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	44 U	0.43 U	0.42 U	44 U	46 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.89 U	0.88 U	0.86 U	0.89 U	0.93 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	1.3 U	0.61 U	0.60 U	1.3 U	1.4 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.53 UR	0.86 U	0.84 U	0.53 UR	0.56 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.35 UJ	0.51 U	0.50 U	0.35 UJ	0.37 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.2 U	6.2 U	6.0 U	6.2 U	6.5 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.45 U	0.27 U	0.27 U	0.45 U	0.47 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.97 U	0.32 U	0.31 U	0.97 U	1.0 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.92 UR	0.63 U	0.62 U	0.92 UR	0.96 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.51 U	0.37 U	0.36 U	0.51 U	0.53 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.43 UJ	0.34 U	0.33 U	0.43 UJ	0.45 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.68 U	0.68 U	0.66 U	0.68 U	0.72 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.40 U	0.33 U	0.32 U	0.40 U	0.42 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.79 U	0.33 U	0.32 UJ	0.79 U	0.83 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.56 U	0.27 U	0.27 U	0.56 U	0.59 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.2 UR	6.2 R	--	6.2 UR	6.5 UJ
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.32 U	0.36 U	0.35 U	0.32 U	0.33 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	1.1 U	0.35 U	0.34 U	1.1 U	1.1 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.57 U	0.26 U	0.26 U	0.57 U	0.60 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.65 U	0.92 U	0.90 U	0.65 U	0.68 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.37 U	0.37 U	0.36 U	0.37 U	0.38 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	26 U	25 U	25 U	26 U	27 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3774**	**AP-3774**	**AP-3774**	**AP-3775**	**AP-3776**
Sample ID:				02FROEWA16	03AVMA15WA	03FROEWA17	02FROEWA14	02AVMA08WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/28/02	07/24/03	09/20/03	08/28/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.67 UJ	0.66 U	0.64 U	0.67 UJ	**7.9 J**
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.68 U	0.26 U	0.26 U	0.68 U	0.71 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.35 U	0.34 U	0.33 U	0.35 U	0.37 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.37 U	0.28 U	0.27 UJ	0.37 U	0.39 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.43 U	0.42 U	0.41 U	0.43 U	0.45 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	1.7 U	0.84 U	0.82 UJ	1.7 U	1.8 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.42 U	0.41 U	0.40 U	0.42 U	0.44 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.57 U	1.3 U	1.3 U	0.57 U	0.59 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.44 U	0.34 U	0.33 U	0.44 U	0.47 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.21 U	0.36 U	0.36 U	0.21 U	0.22 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.49 U	0.32 U	0.31 U	0.49 U	0.51 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	1.8 U	**1.8 J**	0.42 U	1.8 U	1.9 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.65 U	0.32 U	0.31 U	0.65 U	0.68 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	1.2 U	**--**	**--**	1.2 U	**--**
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.63 U	0.27 U	0.26 U	0.63 U	0.66 U
FLUORENE	UG/L	PRG-TapWater	243	0.37 U	0.33 U	0.32 U	0.37 U	0.38 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.40 U	0.32 U	0.31 U	0.40 U	0.42 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.95 U	0.63 U	0.62 U	0.95 U	1.0 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.52 U	0.54 UJ	0.53 U	0.52 U	0.54 U
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.85 UJ	0.57 U	0.56 U	0.85 UJ	0.89 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.51 U	0.95 U	0.93 U	0.51 U	0.54 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.63 U	0.63 U	0.61 U	0.63 U	0.66 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.64 U	0.27 U	0.27 U	0.64 U	0.67 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.50 U	0.49 U	0.48 U	0.50 U	0.52 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.41 U	0.40 U	0.39 U	0.41 U	0.43 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	1.0 UJ	0.66 U	0.64 U	1.0 UJ	1.1 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	**--**	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.61 U	0.61 U	0.59 U	0.61 U	0.64 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.35 U	0.35 U	0.34 U	0.35 U	0.37 U
PHENOL	UG/L	PRG-TapWater	21,900	0.60 U	0.37 U	0.36 U	0.60 U	0.63 U
PYRENE	UG/L	PRG-TapWater	183	0.68 U	0.40 U	0.39 U	0.68 U	0.72 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3776**	**AP-3776**	**AP-3789**	**AP-3789**	**AP-3789**
Sample ID:				03AVMA09WA	03AVMA10WA	02AVMA11WA	03FROEWA10	03FROEWA10
QAQC Type:				N	FD	N	N	N
Date Sampled:				07/22/03	07/22/03	08/23/02	06/10/03	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.50 U	0.47 U	0.78 U	--	0.46 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.45 U	0.43 U	0.42 U	--	0.42 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.44 U	0.42 U	0.82 U	--	0.41 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.34 U	0.33 U	0.59 U	--	0.32 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.49 U	0.47 U	0.45 U	--	0.46 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.33 U	0.32 U	0.76 U	--	0.31 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.73 U	0.70 U	0.68 U	--	0.68 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	32 U	30 U	30 U	--	30 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.32 U	0.31 U	0.51 U	--	0.30 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.43 U	0.41 U	0.40 U	--	0.40 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.87 U	0.83 U	0.58 U	--	0.82 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.35 U	0.34 U	0.78 U	--	0.33 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.30 U	0.29 U	0.51 U	0.011 U	0.28 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.50 U	0.48 U	0.52 U	--	0.47 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	0.46 U	0.44 U	44 U	--	0.43 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.95 U	0.91 U	0.89 U	--	0.89 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	0.66 U	0.63 U	1.3 U	--	0.62 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.93 U	0.89 U	0.53 U	--	0.87 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.56 U	0.53 U	0.35 U	--	0.52 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.7 U	6.4 U	6.2 U	--	6.2 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.30 U	0.28 U	0.45 U	--	0.28 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.35 U	0.33 U	0.97 U	--	0.32 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.69 U	0.65 U	0.92 U	--	0.64 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.40 U	0.38 U	0.51 U	--	0.38 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.36 U	0.35 U	0.43 U	--	0.34 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.73 U	0.70 U	0.68 U	--	0.68 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.36 U	0.34 U	0.40 U	0.0084 U	0.33 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.36 U	0.34 U	0.79 U	0.012 U	0.33 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.30 U	0.28 U	0.56 U	0.019 U	0.28 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.7 UJ	6.4 UJ	6.2 UJ	--	6.2 U
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.39 U	0.37 U	0.32 U	0.012 U	0.36 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.38 U	0.36 U	1.1 U	0.021 U	0.35 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.29 U	0.27 U	0.57 U	0.013 U	0.27 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.99 U	0.95 U	0.65 U	0.029 U	0.93 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.40 U	0.38 U	0.37 U	0.030 U	0.38 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	27 U	26 U	26 U	--	26 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3776**	**AP-3776**	**AP-3789**	**AP-3789**	**AP-3789**
Sample ID:				03AVMA09WA	03AVMA10WA	02AVMA11WA	03FROEWA10	03FROEWA10
QAQC Type:				N	FD	N	N	N
Date Sampled:				07/22/03	07/22/03	08/23/02	06/10/03	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	**6.5 J**	0.68 U	0.67 U	--	0.67 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.29 U	0.27 U	0.68 U	--	0.27 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.37 U	0.35 U	0.35 U	--	0.35 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.30 U	0.29 U	0.37 U	--	0.28 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.46 U	0.44 U	0.43 U	--	0.43 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	0.91 U	0.87 U	1.7 U	--	0.85 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.45 U	0.43 U	0.42 U	0.0066 U	0.42 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	1.5 U	1.4 U	0.57 U	0.048 U	1.4 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.37 U	0.35 U	0.44 U	--	0.34 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.39 U	0.38 U	0.21 U	--	0.37 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.34 U	0.33 U	0.49 U	--	0.32 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	0.46 U	0.44 U	1.8 U	--	0.43 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.35 U	0.33 U	0.65 U	--	0.32 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	--	--	--	--	--
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.29 U	0.28 U	0.63 U	0.012 U	0.27 U
FLUORENE	UG/L	PRG-TapWater	243	0.35 U	0.34 U	0.37 U	0.0088 U	0.33 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.34 U	0.33 U	0.40 U	--	0.32 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.68 U	0.65 U	0.95 U	--	0.64 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.59 UJ	0.56 UJ	0.52 U	--	0.55 U
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.62 U	0.59 U	0.85 U	--	0.58 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	1.0 U	0.99 U	0.51 U	0.062 U	0.97 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.68 U	0.65 U	0.63 U	--	0.63 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.29 U	0.28 U	0.64 U	0.010 U	0.27 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.53 U	0.51 U	0.50 U	--	0.50 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.44 U	0.42 U	0.41 U	--	0.41 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.71 U	0.68 U	1.0 U	--	0.67 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	--	--	--	--	--
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.66 U	0.63 U	0.61 U	--	0.61 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.37 U	0.36 U	0.35 U	0.0081 U	0.35 U
PHENOL	UG/L	PRG-TapWater	21,900	0.40 U	0.38 U	0.60 U	--	0.38 U
PYRENE	UG/L	PRG-TapWater	183	0.43 U	0.41 U	0.68 U	0.014 U	0.40 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3790**	**AP-3790**	**AP-3870**	**AP-3870**	**AP-3871**
Sample ID:				02FROEWA23	03AVMA12WA	03AVMA16WA	03FROEWA18	02BAVMA06WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/29/02	07/23/03	07/24/03	09/20/03	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.76 U	0.48 U	0.46 U	0.45 U	0.78 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.41 U	0.44 U	0.42 U	0.42 U	0.42 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.80 UJ	0.43 U	0.41 U	0.40 U	0.82 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.58 U	0.33 U	0.32 U	0.31 U	0.59 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.44 U	0.48 U	0.46 U	0.45 U	0.45 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.74 U	0.32 U	0.31 U	0.30 U	0.76 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.67 U	0.71 U	0.68 U	0.67 U	0.68 UJ
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	29 UJ	31 U	29 UJ	29 U	30 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.50 U	0.31 U	0.30 U	0.30 U	0.51 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.39 U	0.41 U	0.40 U	0.39 U	0.40 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.56 U	0.84 U	0.81 U	0.80 U	0.58 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.76 U	0.34 U	0.33 U	0.32 U	0.78 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.50 U	0.29 U	0.28 U	0.27 U	0.51 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.51 U	0.49 U	0.46 U	0.46 U	0.52 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	43 U	0.45 U	0.43 U	0.42 U	44 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.87 U	0.92 U	0.88 U	0.87 U	0.89 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	1.3 U	0.64 U	0.61 U	0.61 U	1.3 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.52 U	0.90 U	0.86 U	0.85 U	0.53 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.34 U	0.54 U	0.51 U	0.51 U	0.35 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.1 U	6.4 U	6.2 U	6.1 U	6.2 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.44 U	0.29 U	0.27 U	0.27 U	0.45 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.94 U	0.34 U	0.32 U	0.32 U	0.97 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.90 U	0.66 U	0.63 U	0.63 U	0.92 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.50 U	0.39 U	0.37 U	0.37 U	0.51 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.42 U	0.35 U	0.34 U	0.33 U	0.43 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.67 U	0.71 U	0.68 U	0.67 U	0.68 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.39 U	0.34 U	0.33 U	0.33 U	0.40 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.77 U	0.34 U	0.33 U	0.33 UJ	0.79 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.55 U	0.29 U	0.27 U	0.27 U	0.56 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.1 UR	6.4 UJ	6.2 R	--	6.2 UJ
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.31 U	0.37 U	0.36 U	0.35 U	0.32 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	1.0 U	0.37 UJ	0.35 U	0.35 U	1.1 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.56 U	0.28 UJ	0.26 U	0.26 U	0.57 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.64 U	0.96 UJ	0.92 U	0.91 U	0.65 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.36 U	0.39 UJ	0.37 U	0.37 U	0.37 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	25 U	26 U	25 U	25 U	26 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3790**	**AP-3790**	**AP-3870**	**AP-3870**	**AP-3871**
Sample ID:				02FROEWA23	03AVMA12WA	03AVMA16WA	03FROEWA18	02BAVMA06WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/29/02	07/23/03	07/24/03	09/20/03	08/20/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.65 U	0.69 U	0.66 U	0.65 U	0.67 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.67 U	0.28 U	0.26 U	0.26 U	0.68 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.34 U	0.36 U	0.34 U	0.34 U	0.35 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.36 U	0.29 U	0.28 U	0.28 UJ	0.37 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.42 U	0.44 U	0.42 U	0.42 U	0.43 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	1.7 U	0.88 U	0.84 U	0.83 UJ	**2.0 JB**
CHRYSENE	UG/L	PRG-TapWater	9.2	0.41 U	0.43 U	0.41 U	0.41 U	0.42 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.55 U	1.4 UJ	1.3 U	1.3 U	0.57 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.43 U	0.36 U	0.34 U	0.34 U	0.44 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.21 U	0.38 U	0.36 U	0.36 U	0.21 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.48 U	0.33 U	0.32 U	0.31 U	0.49 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	**1.8 JB**	**2.0 J**	**3.9 J**	0.42 U	**8.1 =**
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.64 U	0.34 UJ	0.32 U	0.32 U	0.65 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	**--**	**--**	**--**	**--**	**--**
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.62 U	0.28 U	0.27 U	0.26 U	0.63 U
FLUORENE	UG/L	PRG-TapWater	243	0.36 U	0.34 U	0.33 U	0.32 U	0.37 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.39 U	0.33 U	0.32 U	0.31 U	0.40 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.93 U	0.66 U	0.63 U	0.62 U	0.95 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.51 U	0.57 UJ	0.54 UJ	0.53 U	0.52 UJ
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.83 UJ	0.60 U	0.57 U	0.57 U	0.85 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.50 U	1.0 UJ	0.95 U	0.94 U	0.51 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.62 U	0.66 U	0.63 U	0.62 U	0.63 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.63 U	0.28 U	0.27 U	0.27 U	0.64 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.49 U	0.51 U	0.49 U	0.49 U	0.50 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.40 U	0.42 U	0.40 U	0.40 U	0.41 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.98 U	0.69 U	0.66 U	0.65 U	1.0 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	**--**	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.60 UJ	0.63 U	0.61 U	0.60 U	0.61 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.34 U	0.36 U	0.35 U	0.34 U	0.35 U
PHENOL	UG/L	PRG-TapWater	21,900	0.59 U	0.39 U	0.37 U	0.37 U	0.60 U
PYRENE	UG/L	PRG-TapWater	183	0.67 U	0.42 U	0.40 U	0.40 U	0.68 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3871**	**AP-3872**	**AP-3872**	**AP-3893**	**AP-3894**
Sample ID:				03AVMA14WA	02AVMA10WA	03AVMA13WA	02AVMA19WA	02AVMA17WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/23/03	08/23/02	07/23/03	08/27/02	08/27/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.45 U	0.78 U	0.44 U	0.78 U	0.79 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.42 U	0.42 U	0.40 U	0.42 U	0.42 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.40 U	0.82 U	0.39 U	0.82 UJ	0.83 UJ
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.31 U	0.59 U	0.30 U	0.59 U	0.60 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.45 U	0.45 U	0.43 U	0.45 U	0.46 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.30 U	0.76 U	0.29 U	0.76 U	0.76 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.67 U	0.68 U	0.64 U	0.68 UJ	0.69 UJ
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	29 U	30 U	28 U	30 U	30 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.30 U	0.51 U	0.28 U	0.51 U	0.51 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.39 U	0.40 U	0.38 U	0.40 U	0.40 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.80 U	0.58 U	0.76 U	0.58 U	0.58 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.32 U	0.78 U	0.31 U	0.78 U	0.79 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.27 U	0.51 U	0.26 U	0.51 U	0.51 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.46 U	0.52 U	0.44 U	0.52 U	0.53 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	0.42 U	44 U	0.41 U	44 U	44 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.87 U	0.89 U	0.83 U	0.89 U	0.90 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	0.61 U	1.3 U	0.58 U	1.3 U	1.4 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.85 U	0.53 U	0.81 U	0.53 U	0.54 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.51 U	0.35 U	0.49 U	0.35 U	0.36 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.1 U	6.2 U	5.8 U	6.2 U	6.3 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.27 U	0.45 U	0.26 U	0.45 U	0.46 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.32 U	0.97 U	0.30 U	0.97 U	0.98 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.63 U	0.92 U	0.60 U	0.92 U	0.93 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.37 U	0.51 U	0.35 U	0.51 U	0.51 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.33 U	0.43 U	0.32 U	0.43 U	0.43 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.67 U	0.68 U	0.64 U	0.68 U	0.69 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.33 U	0.40 U	0.31 U	0.40 U	0.40 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.33 U	0.79 U	0.31 U	0.79 U	0.80 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.27 U	0.56 U	0.26 U	0.56 U	0.57 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.1 UJ	6.2 UJ	5.8 UJ	6.2 UR	6.3 UR
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.35 U	0.32 U	0.34 U	0.32 U	0.32 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.35 U	1.1 U	0.33 U	1.1 U	1.1 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.26 U	0.57 U	0.25 U	0.57 U	0.58 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.91 U	0.65 U	0.87 U	0.65 U	0.66 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.37 U	0.37 U	0.35 U	0.37 U	0.37 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	25 U	26 U	24 U	26 U	26 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3871**	**AP-3872**	**AP-3872**	**AP-3893**	**AP-3894**
Sample ID:				03AVMA14WA	02AVMA10WA	03AVMA13WA	02AVMA19WA	02AVMA17WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/23/03	08/23/02	07/23/03	08/27/02	08/27/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.65 U	0.67 U	0.62 U	0.67 UJ	0.67 UJ
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.26 U	0.68 U	0.25 U	0.68 U	0.69 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.34 U	0.35 U	0.32 U	0.35 U	0.36 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.28 U	0.37 U	0.26 U	0.37 U	0.38 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.42 U	0.43 U	0.40 U	0.43 U	0.43 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	0.83 U	1.7 U	**2.3 J**	1.7 U	1.8 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.41 U	0.42 U	0.39 U	0.42 U	0.43 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	1.3 U	0.57 U	1.3 U	0.57 U	0.57 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.34 U	0.44 U	0.32 U	0.44 U	0.45 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.36 U	0.21 U	0.34 U	0.21 U	0.21 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.31 U	0.49 U	0.30 U	0.49 U	0.49 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	**3.9 J**	1.8 U	**11 =**	1.8 U	1.8 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.32 U	0.65 U	0.30 U	0.65 U	0.66 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	**--**	**--**	**--**	1.2 U	1.2 U
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.26 U	0.63 U	0.25 U	0.63 U	0.64 U
FLUORENE	UG/L	PRG-TapWater	243	0.32 U	0.37 U	0.31 U	0.37 U	0.37 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.31 U	0.40 U	0.30 U	0.40 U	0.41 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.62 U	0.95 U	0.60 U	0.95 U	0.96 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.53 UJ	0.52 U	0.51 UJ	0.52 U	0.53 U
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.57 U	0.85 U	0.54 U	0.85 UJ	0.86 UJ
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.94 U	0.51 U	0.91 U	0.51 U	0.52 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.62 U	0.63 U	0.59 U	0.63 U	0.64 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.27 U	0.64 U	0.26 U	0.64 U	0.65 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.49 U	0.50 U	0.47 U	0.50 U	0.50 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.40 U	0.41 U	0.38 U	0.41 U	0.41 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.65 U	1.0 U	0.62 U	1.0 U	1.0 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	**--**	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.60 U	0.61 U	0.57 U	0.61 U	0.62 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.34 U	0.35 U	0.33 U	0.35 U	0.35 U
PHENOL	UG/L	PRG-TapWater	21,900	0.37 U	0.60 U	0.35 U	**2.2 J**	0.61 U
PYRENE	UG/L	PRG-TapWater	183	0.40 U	0.68 U	0.38 U	0.68 U	0.69 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3894**	**AP-3895**	**AP-3895**	**AP-3896**	**AP-3901**
Sample ID:				02AVMA18WA	02AVMA14WA	02AVMA15WA	02AVMA16WA	03FROEWA09
QAQC Type:				FD	N	FD	N	N
Date Sampled:				08/27/02	08/26/02	08/26/02	08/27/02	06/10/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.82 U	0.78 U	0.78 U	0.79 U	0.47 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.43 U	0.42 U	0.42 U	0.42 U	0.43 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.86 UJ	0.82 UJ	0.82 UJ	0.83 UJ	0.42 UJ
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.62 U	0.59 U	0.59 U	0.60 U	0.33 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.48 U	0.45 U	0.45 U	0.46 U	0.47 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.79 U	0.76 U	0.76 U	0.76 U	0.32 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.72 UJ	0.68 UJ	0.68 UJ	0.69 UJ	0.70 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	31 U	30 U	30 U	30 U	30 UJ
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.53 U	0.51 U	0.51 U	0.51 U	0.31 UJ
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.42 U	0.40 U	0.40 U	0.40 U	0.41 UJ
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.60 U	0.58 U	0.58 U	0.58 U	0.83 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.82 U	0.78 U	0.78 U	0.79 U	0.34 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.53 U	0.51 U	0.51 U	0.51 U	0.29 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.54 U	0.52 U	0.52 U	0.53 U	0.48 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	46 U	44 U	44 U	44 U	0.44 UJ
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.93 U	0.89 U	0.89 U	0.90 U	0.91 UJ
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	1.4 U	1.3 U	1.3 U	1.4 U	0.63 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.56 U	0.53 U	0.53 U	0.54 U	0.89 UJ
3-NITROANILINE	UG/L	PRG-TapWater	--	0.37 U	0.35 U	0.35 U	0.36 U	0.53 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.5 U	6.2 U	6.2 U	6.3 U	6.4 UJ
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.47 U	0.45 U	0.45 U	0.46 U	0.28 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	1.0 U	0.97 U	0.97 U	0.98 U	0.33 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.96 U	0.92 U	0.92 U	0.93 U	0.65 UJ
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.53 U	0.51 U	0.51 U	0.51 U	0.38 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.45 U	0.43 U	0.43 U	0.43 U	0.35 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.72 U	0.68 U	0.68 U	0.69 U	0.70 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.42 U	0.40 U	0.40 U	0.40 U	0.34 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.83 U	0.79 U	0.79 U	0.80 U	0.34 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.59 U	0.56 U	0.56 U	0.57 U	0.28 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.5 UR	6.2 UR	6.2 UR	6.3 UR	6.4 UJ
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.33 U	0.32 U	0.32 U	0.32 U	0.37 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	1.1 U	1.1 U	1.1 U	1.1 U	0.36 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.60 U	0.57 U	0.57 U	0.58 U	0.27 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.68 U	0.65 U	0.65 U	0.66 U	0.95 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.38 U	0.37 U	0.37 U	0.37 U	0.38 UJ
BENZOIC ACID	UG/L	PRG-TapWater	145,979	27 U	26 U	26 U	26 U	26 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3894**	**AP-3895**	**AP-3895**	**AP-3896**	**AP-3901**
Sample ID:				02AVMA18WA	02AVMA14WA	02AVMA15WA	02AVMA16WA	03FROEWA09
QAQC Type:				FD	N	FD	N	N
Date Sampled:				08/27/02	08/26/02	08/26/02	08/27/02	06/10/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.70 UJ	0.67 UJ	0.67 UJ	0.67 UJ	0.68 UJ
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.71 U	0.68 U	0.68 U	0.69 U	0.27 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.37 U	0.35 U	0.35 U	0.36 U	0.35 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.39 U	0.37 U	0.37 U	0.38 U	0.29 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.45 U	0.43 U	0.43 U	0.43 U	0.44 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	1.8 U	1.7 U	1.7 U	1.8 U	0.87 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.44 U	0.42 U	0.42 U	0.43 U	0.43 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.59 U	0.57 U	0.57 U	0.57 U	1.4 UJ
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.47 U	0.44 U	0.44 U	0.45 U	0.35 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.22 U	0.21 U	0.21 U	0.21 U	0.38 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.51 U	0.49 U	0.49 U	0.49 U	0.33 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	1.9 U	1.8 U	1.8 U	1.8 U	2.0 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.68 U	0.65 U	0.65 U	0.66 U	0.33 UJ
DIPHENYLAMINE	UG/L	PRG-TapWater	--	1.3 U	--	--	1.2 U	--
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.66 U	0.63 U	0.63 U	0.64 U	0.28 U
FLUORENE	UG/L	PRG-TapWater	243	0.38 U	0.37 U	0.37 U	0.37 U	0.34 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.42 U	0.40 U	0.40 U	0.41 U	0.33 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	1.0 U	0.95 U	0.95 U	0.96 U	0.65 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.54 U	0.52 U	0.52 U	0.53 U	0.56 UJ
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.89 UJ	0.85 UJ	0.85 UJ	0.86 UJ	0.59 UJ
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.54 U	0.51 U	0.51 U	0.52 U	0.99 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.66 U	0.63 U	0.63 U	0.64 U	0.65 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.67 U	0.64 U	0.64 U	0.65 U	0.28 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.52 U	0.50 U	0.50 U	0.50 U	0.51 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.43 U	0.41 U	0.41 U	0.41 U	0.42 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	1.1 U	1.0 U	1.0 U	1.0 U	0.68 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	--	--	--	--	0.37 U
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.64 U	0.61 U	0.61 U	0.62 U	0.63 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.37 U	0.35 U	0.35 U	0.35 U	0.36 U
PHENOL	UG/L	PRG-TapWater	21,900	0.63 U	0.60 U	0.60 U	0.61 U	0.38 UJ
PYRENE	UG/L	PRG-TapWater	183	0.72 U	0.68 U	0.68 U	0.69 U	0.41 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3916**	**AP-3916**	**AP-4154**	**AP-4155**	**AP-4336**
Sample ID:				03FROEWA05	03FROEWA06	02BAVMA04WA	02BAVMA05WA	02AVMA25WA
QAQC Type:				N	FD	N	N	N
Date Sampled:				06/09/03	06/09/03	08/20/02	08/20/02	10/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.45 U	0.44 U	0.80 U	0.82 U	0.78 UJ
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.41 U	0.41 U	0.43 U	0.43 U	0.42 UJ
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.40 U	0.40 U	0.84 U	0.86 U	0.82 UJ
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.31 U	0.31 U	0.61 U	0.62 U	0.59 UJ
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.44 U	0.44 U	0.46 U	0.48 U	0.45 UJ
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.30 U	0.30 U	0.77 U	0.79 U	0.76 UJ
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.66 U	0.66 U	0.70 UJ	0.72 UJ	0.68 UJ
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	29 U	29 U	30 U	31 U	30 UJ
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.29 U	0.29 U	0.52 U	0.53 U	0.51 UJ
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.39 U	0.38 U	0.41 U	0.42 U	0.40 UJ
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.79 U	0.78 U	0.59 U	0.60 U	0.58 UJ
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.32 U	0.31 U	0.80 U	0.82 U	0.78 UJ
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.27 U	0.27 U	0.52 U	0.53 U	0.51 UJ
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.45 U	0.45 U	0.53 U	0.54 U	0.52 UJ
2-NITROANILINE	UG/L	PRG-TapWater	1.0	0.42 U	0.41 U	45 U	46 U	44 UJ
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.85 U	0.85 U	0.91 U	0.93 U	0.89 UJ
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	0.60 U	0.59 U	1.4 U	1.4 U	1.3 UJ
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.84 U	0.83 U	0.54 U	0.56 U	0.53 UJ
3-NITROANILINE	UG/L	PRG-TapWater	--	0.50 U	0.50 U	0.36 U	0.37 U	0.35 UJ
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.0 U	6.0 U	6.4 U	6.5 U	6.2 UJ
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.27 U	0.26 U	0.46 U	0.47 U	0.45 UJ
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.31 U	0.31 U	0.99 U	1.0 U	0.97 UJ
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.62 U	0.61 U	0.94 U	0.96 U	0.92 UJ
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.36 U	0.36 U	0.52 U	0.53 U	0.51 UJ
4-NITROANILINE	UG/L	PRG-TapWater	--	0.33 U	0.32 U	0.44 U	0.45 U	0.43 UJ
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.66 U	0.65 U	0.70 U	0.72 U	0.68 UJ
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.32 U	0.32 U	0.41 U	0.42 U	0.40 UJ
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.32 U	0.32 U	0.81 U	0.83 U	0.79 UJ
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.27 U	0.26 U	0.58 U	0.59 U	0.56 UJ
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.0 U	6.0 U	6.4 UJ	6.5 UJ	6.2 UR
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.35 U	0.34 U	0.32 U	0.33 U	0.32 UJ
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.34 U	0.34 U	1.1 U	1.1 U	1.1 UJ
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.26 U	0.26 U	0.58 U	0.60 U	0.57 UJ
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.89 U	0.89 U	0.67 U	0.68 U	0.65 UJ
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.36 U	0.36 U	0.38 U	0.38 U	0.37 UJ
BENZOIC ACID	UG/L	PRG-TapWater	145,979	25 U	24 U	26 U	27 U	26 UJ

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-3916**	**AP-3916**	**AP-4154**	**AP-4155**	**AP-4336**
Sample ID:				03FROEWA05	03FROEWA06	02BAVMA04WA	02BAVMA05WA	02AVMA25WA
QAQC Type:				N	FD	N	N	N
Date Sampled:				06/09/03	06/09/03	08/20/02	08/20/02	10/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.64 U	0.64 U	0.68 U	0.70 U	0.67 UJ
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.26 U	0.26 U	0.70 U	0.71 U	0.68 UJ
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.33 U	0.33 U	0.36 U	0.37 U	0.35 UJ
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.27 U	0.27 U	0.38 U	0.39 U	0.37 UJ
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.41 U	0.41 U	0.44 U	0.45 U	0.43 UJ
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	0.81 U	0.81 U	1.8 U	1.8 U	1.7 UJ
CHRYSENE	UG/L	PRG-TapWater	9.2	0.40 U	0.40 U	0.43 U	0.44 U	0.42 UJ
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	1.3 U	1.3 U	0.58 U	0.59 U	0.57 UJ
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.33 U	0.33 U	0.45 U	0.47 U	0.44 UJ
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.35 U	0.35 U	0.22 U	0.22 U	0.21 UJ
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.31 U	0.31 U	0.50 U	0.51 U	0.49 UJ
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	**1.2 J**	**1.7 J**	**2.7 J**	**2.3 J**	**6.5 J**
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.31 U	0.31 U	0.67 U	0.68 U	**2.0 J**
DIPHENYLAMINE	UG/L	PRG-TapWater	--	**--**	**--**	**--**	**--**	**--**
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.26 U	0.26 U	0.64 U	0.66 U	0.63 UJ
FLUORENE	UG/L	PRG-TapWater	243	0.32 U	0.32 U	0.38 U	0.38 U	0.37 UJ
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.31 U	0.31 U	0.41 U	0.42 U	0.40 UJ
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.61 U	0.61 U	0.98 U	1.0 U	0.95 UJ
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.53 U	0.52 U	0.53 UJ	0.54 UJ	0.52 UJ
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.56 U	0.56 U	0.87 U	0.89 U	0.85 UJ
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.93 U	0.92 U	0.53 U	0.54 U	0.51 UJ
ISOPHORONE	UG/L	PRG-TapWater	71	0.61 U	0.61 U	0.65 U	0.66 U	0.63 UJ
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.26 U	0.26 U	0.66 U	0.67 U	0.64 UJ
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.48 U	0.48 U	0.51 U	0.52 U	0.50 UJ
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.39 U	0.39 U	0.42 U	0.43 U	0.41 UJ
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.64 U	0.64 U	1.0 U	1.1 U	1.0 UJ
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	**--**	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.59 U	0.59 U	0.63 U	0.64 U	0.61 UJ
PHENANTHRENE	UG/L	PRG-TapWater	--	0.34 U	0.33 U	0.36 U	0.37 U	0.35 UJ
PHENOL	UG/L	PRG-TapWater	21,900	0.36 U	0.36 U	0.62 U	0.63 U	0.60 UJ
PYRENE	UG/L	PRG-TapWater	183	0.39 U	0.39 U	0.70 U	0.72 U	0.68 UJ

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-4336**	**AP-4337**	**AP-4338**	**AP-4339**	**AP-4340**
Sample ID:				03AVMA17WA	02AVMA28WA	02AVMA26WA	02AVMA20WA	02AVMA21WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/24/03	10/25/02	10/25/02	09/24/02	09/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.49 U	0.75 UJ	0.78 UJ	0.78 U	0.80 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.44 U	0.40 UJ	0.42 UJ	0.42 U	0.43 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.43 U	0.78 UJ	0.82 UJ	0.82 UJ	0.84 UJ
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.33 U	0.57 UJ	0.59 UJ	0.59 U	0.61 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.48 U	0.44 UJ	0.45 UJ	0.45 U	0.46 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.33 U	0.72 UJ	0.76 UJ	0.76 U	0.77 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.72 U	0.66 UJ	0.68 UJ	0.68 UJ	0.70 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	31 UJ	29 UR	30 UR	30 UR	30 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.32 U	0.49 UJ	0.51 UJ	0.51 U	0.52 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.42 U	0.38 UJ	0.40 UJ	0.40 U	0.41 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.85 U	0.55 UJ	0.58 UJ	0.58 U	0.59 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.34 U	0.75 UJ	0.78 UJ	0.78 U	0.80 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.29 U	0.49 UJ	0.51 UJ	0.51 U	0.52 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.49 U	0.50 UJ	0.52 UJ	0.52 U	0.53 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	0.45 U	42 UJ	44 UJ	44 U	45 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.93 U	0.85 UJ	0.89 UJ	0.89 UJ	0.91 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	0.65 U	1.3 UJ	1.3 UJ	1.3 U	1.4 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.91 U	0.51 UJ	0.53 UJ	0.53 UR	0.54 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.54 U	0.34 UJ	0.35 UJ	0.35 UR	0.36 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.5 U	6.0 UJ	6.2 UJ	6.2 UR	6.4 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.29 U	0.43 UJ	0.45 UJ	0.45 U	0.46 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.34 U	0.92 UJ	0.97 UJ	0.97 U	0.99 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.67 U	0.88 UJ	0.92 UJ	0.92 UJ	0.94 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.39 U	0.49 UJ	0.51 UJ	0.51 U	0.52 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.35 U	0.41 UJ	0.43 UJ	0.43 UJ	0.44 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.72 U	0.65 UJ	0.68 UJ	0.68 UJ	0.70 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.35 U	0.38 UJ	0.40 UJ	0.40 U	0.41 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.35 U	0.76 UJ	0.79 UJ	0.79 U	0.81 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.29 U	0.54 UJ	0.56 UJ	0.56 U	0.58 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.5 R	6.0 UR	6.2 UR	6.2 UR	6.4 UR
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.38 U	0.30 UJ	0.32 UJ	0.32 U	0.32 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.37 U	1.0 UJ	1.1 UJ	1.1 U	1.1 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.28 U	0.55 UJ	0.57 UJ	0.57 U	0.58 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.97 U	0.63 UJ	0.65 UJ	0.65 U	0.67 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.39 U	0.35 UJ	0.37 UJ	0.37 U	0.38 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	27 U	24 UJ	26 UJ	26 U	26 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-4336**	**AP-4337**	**AP-4338**	**AP-4339**	**AP-4340**
Sample ID:				03AVMA17WA	02AVMA28WA	02AVMA26WA	02AVMA20WA	02AVMA21WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/24/03	10/25/02	10/25/02	09/24/02	09/26/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.70 U	0.64 UJ	0.67 UJ	0.67 U	0.68 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.28 U	0.65 UJ	0.68 UJ	0.68 U	0.70 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.36 U	0.34 UJ	0.35 UJ	0.35 U	0.36 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.30 U	0.36 UJ	0.37 UJ	0.37 U	0.38 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.45 U	0.41 UJ	0.43 UJ	0.43 U	0.44 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	0.89 U	1.7 UJ	1.7 UJ	1.7 U	1.8 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.44 U	0.40 UJ	0.42 UJ	0.42 U	0.43 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	1.4 U	0.54 UJ	0.57 UJ	0.57 U	0.58 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.36 U	0.43 UJ	0.44 UJ	0.44 U	0.45 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.38 U	0.20 UJ	0.21 UJ	0.21 U	0.22 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.33 U	0.47 UJ	**1.4 J**	0.49 U	0.50 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	0.45 U	**2.9 J**	**2.5 J**	**3.0 JB**	**7.1 B**
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.34 U	0.62 UJ	0.65 UJ	0.65 U	0.67 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	**--**	**--**	**--**	**--**	**--**
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.28 U	0.60 UJ	0.63 UJ	0.63 U	0.64 U
FLUORENE	UG/L	PRG-TapWater	243	0.35 U	0.35 UJ	0.37 UJ	0.37 U	0.38 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.33 U	0.39 UJ	0.40 UJ	0.40 U	0.41 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.67 U	0.91 UJ	0.95 UJ	0.95 U	0.98 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.57 UJ	0.50 UJ	0.52 UJ	0.52 U	0.53 U
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.61 U	0.81 UJ	0.85 UJ	0.85 UJ	0.87 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	1.0 U	0.49 UJ	0.51 UJ	0.51 U	0.53 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.66 U	0.61 UJ	0.63 UJ	0.63 U	0.65 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.29 U	0.61 UJ	0.64 UJ	0.64 U	0.66 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.52 U	0.48 UJ	0.50 UJ	0.50 U	0.51 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.43 U	0.39 UJ	0.41 UJ	0.41 U	0.42 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.70 U	0.96 UJ	1.0 UJ	1.0 UJ	1.0 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	**--**	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.64 U	0.59 UJ	0.61 UJ	0.61 UJ	0.63 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.37 U	0.33 UJ	0.35 UJ	0.35 U	0.36 U
PHENOL	UG/L	PRG-TapWater	21,900	0.39 U	0.58 UR	0.60 UR	**2.6 J**	0.62 U
PYRENE	UG/L	PRG-TapWater	183	0.42 U	0.66 UJ	0.68 UJ	0.68 U	0.70 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				AP-4341	AP-4341	AP-4342	AP-4342	AP-4342
Sample ID:				02AVMA24WA	03FROEWA11	02AVMA22WA	02AVMA23WA	03AVMA01WA
QAQC Type:				N	N	N	FD	N
Date Sampled:				10/24/02	06/10/03	10/23/02	10/23/02	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.84 U	0.52 U	0.88 U	0.78 U	0.52 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.45 U	0.48 U	0.47 U	0.42 U	0.48 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.88 U	0.47 UJ	0.92 U	0.82 U	0.47 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.64 U	0.36 U	0.67 U	0.59 U	0.36 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.49 U	0.52 U	0.51 U	0.45 U	0.52 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.81 U	0.35 U	0.85 U	0.76 U	0.35 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.73 UJ	0.77 U	0.77 UJ	0.68 UJ	0.77 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	32 U	34 UJ	34 U	30 U	34 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.55 U	0.34 UJ	0.57 U	0.51 U	0.34 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.43 U	0.45 UJ	0.45 U	0.40 U	0.45 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.62 U	0.92 U	0.65 U	0.58 U	0.92 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.83 U	0.37 U	0.88 U	0.78 U	0.37 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.54 U	0.31 U	0.57 U	0.51 U	0.31 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.56 U	0.53 U	0.59 U	0.52 U	0.53 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	47 U	0.49 UJ	49 U	44 U	0.49 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.95 U	1.0 UJ	1.0 U	0.89 U	1.0 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	1.4 U	0.70 U	1.5 U	1.3 U	0.70 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.57 U	0.98 U	0.60 U	0.53 U	0.98 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.38 U	0.58 UJ	0.40 U	0.35 U	0.58 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	6.7 U	7.0 UJ	7.0 U	6.2 U	7.0 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.48 U	0.31 U	0.51 U	0.45 U	0.31 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	1.0 U	0.37 U	1.1 U	0.97 U	0.37 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.99 U	0.72 U	1.0 U	0.92 U	0.72 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.55 U	0.42 U	0.57 U	0.51 U	0.42 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.46 U	0.38 U	0.48 U	0.43 U	0.38 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.73 U	0.77 U	0.77 U	0.68 U	0.77 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.43 U	0.38 U	0.45 U	0.40 U	0.38 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.85 U	0.38 U	0.89 U	0.79 U	0.38 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.60 U	0.31 U	0.63 U	0.56 U	0.31 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	6.7 UR	7.0 UJ	7.0 UJ	6.2 UJ	7.0 R
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.34 U	0.41 U	0.36 U	0.32 U	0.41 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	1.1 U	0.40 U	1.2 U	1.1 U	0.40 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.61 U	0.30 U	0.64 U	0.57 U	0.30 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.70 U	1.0 U	0.74 U	0.65 U	1.0 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.39 U	0.42 UJ	0.41 U	0.37 U	0.42 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	27 U	29 U	29 U	26 U	29 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-4341**	**AP-4341**	**AP-4342**	**AP-4342**	**AP-4342**
Sample ID:				02AVMA24WA	03FROEWA11	02AVMA22WA	02AVMA23WA	03AVMA01WA
QAQC Type:				N	N	N	FD	N
Date Sampled:				10/24/02	06/10/03	10/23/02	10/23/02	07/21/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.71 U	0.75 U	0.75 U	0.67 U	0.75 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.73 U	0.30 U	0.77 U	0.68 U	0.30 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.38 U	0.39 U	0.40 U	0.35 U	0.39 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.40 U	0.32 U	0.42 U	0.37 U	0.32 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.46 U	0.48 U	0.48 U	0.43 U	0.48 UJ
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	1.9 U	0.95 U	2.0 U	1.7 U	**1.4 J**
CHRYSENE	UG/L	PRG-TapWater	9.2	0.45 U	0.47 U	0.48 U	0.42 U	0.47 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	0.61 U	1.5 UJ	0.64 U	0.57 U	1.5 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.48 U	0.39 U	0.50 U	0.44 U	0.39 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.23 U	0.41 U	0.24 U	0.21 U	0.41 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.52 U	0.36 U	0.55 U	0.49 U	0.36 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	**6.5 =**	1.5 U	**2.3 J**	**6.3 =**	0.48 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.70 U	0.37 UJ	**1.9 J**	0.65 U	0.37 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	**--**	**--**	**--**	**--**	**--**
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.67 U	0.30 U	0.71 U	0.63 U	0.30 U
FLUORENE	UG/L	PRG-TapWater	243	0.39 U	0.37 U	0.41 U	0.37 U	0.37 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.43 U	0.36 U	0.45 U	0.40 U	0.36 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	1.0 U	0.72 U	1.1 U	0.95 U	0.72 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.56 U	0.62 UJ	0.59 U	0.52 U	0.62 UJ
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.91 U	0.65 UJ	0.96 U	0.85 U	0.65 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.55 U	1.1 U	0.58 U	0.51 U	1.1 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.68 U	0.71 U	0.71 U	0.63 U	0.71 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.69 U	0.31 U	0.72 U	0.64 U	0.31 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.53 U	0.56 U	0.56 U	0.50 U	0.56 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.44 U	0.46 U	0.46 U	0.41 U	0.46 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	1.1 U	0.75 U	1.1 U	1.0 U	0.75 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	**--**	0.41 U	**--**	**--**	**--**
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.66 U	0.69 U	0.69 U	0.61 U	0.69 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.37 U	0.39 U	0.39 U	0.35 U	0.39 U
PHENOL	UG/L	PRG-TapWater	21,900	0.65 UJ	0.42 UJ	0.68 UJ	0.60 UJ	0.42 U
PYRENE	UG/L	PRG-TapWater	183	0.73 U	0.46 U	0.77 U	0.68 U	0.46 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				AP-4342	AP-4342	AP-4411	AP-4411	AP-4412
Sample ID:				03AVMA07WA	03FROEWA15	03AVMA04WA	03FROEWA14	03AVMA03WA
QAQC Type:				FD	N	N	N	N
Date Sampled:				07/21/03	09/20/03	06/11/03	09/20/03	06/11/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.54 U	0.49 U	0.42 U	0.45 U	0.42 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.49 U	0.44 U	0.38 U	0.41 U	0.38 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.48 U	0.43 U	0.37 U	0.40 U	0.37 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.37 U	0.33 U	0.29 U	0.31 U	0.29 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.53 U	0.48 U	0.41 U	0.45 U	0.41 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.36 U	0.33 U	0.28 U	0.30 U	0.28 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.79 U	0.72 U	0.62 U	0.66 U	0.62 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	34 U	31 U	27 U	29 U	27 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.35 U	0.32 U	0.27 U	0.29 U	0.27 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.46 U	0.42 U	0.36 U	0.39 U	0.36 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.94 U	0.85 U	0.73 U	0.79 U	0.73 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.38 U	0.34 U	0.30 U	0.32 U	0.30 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.32 U	0.29 U	0.25 U	0.27 U	0.25 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.54 U	0.49 U	0.42 U	0.45 U	0.42 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	0.50 U	0.45 U	0.39 U	0.42 U	0.39 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	1.0 U	0.93 U	0.80 U	0.86 U	0.80 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	0.72 U	0.65 U	0.56 U	0.60 U	0.56 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	1.0 U	0.91 U	0.78 U	0.84 U	0.78 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.60 U	0.54 U	0.47 U	0.50 U	0.47 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	7.2 U	6.5 U	5.6 U	6.0 U	5.6 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.32 U	0.29 U	0.25 U	0.27 U	0.25 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.37 U	0.34 U	0.29 U	0.31 U	0.29 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.74 U	0.67 U	0.58 U	0.62 U	0.58 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.43 U	0.39 U	0.34 U	0.36 U	0.34 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.39 U	0.35 U	0.31 U	0.33 U	0.31 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.79 U	0.72 U	0.62 U	0.66 U	0.62 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.38 U	0.35 U	0.30 U	0.32 U	0.30 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.38 U	0.35 UJ	0.30 U	0.32 UJ	0.30 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.32 U	0.29 U	0.25 U	0.27 U	0.25 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	7.2 R	--	5.6 UJ	--	5.6 UJ
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.42 U	0.38 U	0.32 U	0.35 U	0.32 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.41 U	0.37 U	0.32 U	0.34 U	0.32 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.31 U	0.28 U	0.24 U	0.26 U	0.24 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	1.1 U	0.97 U	0.83 U	0.90 U	0.83 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.43 U	0.39 U	0.34 U	0.36 U	0.34 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	29 U	27 U	23 U	25 U	23 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				AP-4342	AP-4342	AP-4411	AP-4411	AP-4412
Sample ID:				03AVMA07WA	03FROEWA15	03AVMA04WA	03FROEWA14	03AVMA03WA
QAQC Type:				FD	N	N	N	N
Date Sampled:				07/21/03	09/20/03	06/11/03	09/20/03	06/11/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.77 U	0.70 U	5.0 U	0.64 U	0.60 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.31 U	0.28 U	0.24 U	0.26 U	0.24 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.40 U	0.36 U	0.31 U	0.33 U	0.31 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.33 U	0.30 UJ	0.25 U	0.27 UJ	0.25 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.49 UJ	0.45 U	0.38 U	0.41 U	0.38 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	0.98 U	0.89 UJ	0.76 U	0.82 UJ	0.76 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.48 U	0.44 U	0.38 U	0.40 U	0.38 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	1.6 U	1.4 U	1.2 U	1.3 U	1.2 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.40 U	0.36 U	0.31 U	0.33 U	0.31 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.42 U	0.38 U	0.33 U	0.36 U	0.33 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.37 U	0.33 U	0.29 U	0.31 U	0.29 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	0.50 U	0.45 U	0.39 U	0.42 U	0.39 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.37 U	0.34 U	0.29 U	0.31 U	0.29 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	--	--	--	--	--
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.31 U	0.28 U	0.24 U	0.26 U	0.24 U
FLUORENE	UG/L	PRG-TapWater	243	0.38 U	0.35 U	0.30 U	0.32 U	0.30 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.37 U	0.33 U	0.29 U	0.31 U	0.29 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.74 U	0.67 U	0.57 U	0.62 U	0.57 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.63 UJ	0.57 U	0.49 U	0.53 U	0.49 U
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.67 U	0.61 U	0.52 U	0.56 U	0.52 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	1.1 U	1.0 U	0.87 U	0.93 U	0.87 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.73 U	0.66 U	0.57 U	0.61 U	0.57 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.32 U	0.29 U	0.25 U	0.27 U	0.25 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.57 U	0.52 U	0.45 U	0.48 U	0.45 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.47 U	0.43 U	0.37 U	0.39 U	0.37 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.77 U	0.70 U	0.60 U	0.64 U	0.60 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	--	--	--	--	--
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.71 U	0.64 U	0.55 U	0.59 U	0.55 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.40 U	0.37 U	0.31 U	0.34 U	0.31 U
PHENOL	UG/L	PRG-TapWater	21,900	0.43 U	0.39 U	0.34 U	0.36 U	0.34 U
PYRENE	UG/L	PRG-TapWater	183	0.47 U	0.42 U	0.36 U	0.39 U	0.36 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-4413**	**AP-4413**	**AP-4414**	**AP-4416**
Sample ID:				03AVMA05WA	03FROEWA16	03AVMA20WA	03AVMA18WA
QAQC Type:				N	N	N	N
Date Sampled:				06/11/03	09/20/03	08/20/03	08/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.42 U	0.47 U	0.46 U	0.45 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.38 U	0.43 U	0.42 U	0.42 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.37 U	0.42 U	0.41 U	0.40 U
2,4,5-TRICHLOROPHENOL	UG/L	PRG-TapWater	3,650	0.29 U	0.33 U	0.32 U	0.31 U
2,4,6-TRICHLOROPHENOL	UG/L	PRG-TapWater	3.6	0.41 U	0.47 U	0.46 U	0.45 U
2,4-DICHLOROPHENOL	UG/L	PRG-TapWater	109	0.28 U	0.32 U	0.31 U	0.30 U
2,4-DIMETHYLPHENOL	UG/L	PRG-TapWater	730	0.62 U	0.70 U	0.68 U	0.67 U
2,4-DINITROPHENOL	UG/L	PRG-TapWater	73	27 U	30 U	30 U	29 U
2,4-DINITROTOLUENE	UG/L	PRG-TapWater	73	0.27 U	0.31 U	0.30 U	0.30 U
2,6-DINITROTOLUENE	UG/L	PRG-TapWater	36	0.36 U	0.41 U	0.40 U	0.39 U
2-CHLORONAPHTHALENE	UG/L	PRG-TapWater	487	0.73 U	0.83 U	0.82 UJ	0.80 U
2-CHLOROPHENOL	UG/L	PRG-TapWater	30	0.30 U	0.34 U	0.33 U	0.32 U
2-METHYLNAPHTHALENE	UG/L	PRG-TapWater	--	0.25 U	0.29 U	0.28 U	0.27 U
2-METHYLPHENOL (o-CRESOL)	UG/L	PRG-TapWater	1,825	0.42 U	0.48 U	0.47 U	0.46 U
2-NITROANILINE	UG/L	PRG-TapWater	1.0	0.39 U	0.44 U	0.43 U	0.42 U
2-NITROPHENOL	UG/L	PRG-TapWater	--	0.80 U	0.91 U	0.89 U	0.87 U
3&4-METHYLPHENOL	UG/L	PRG-TapWater	182	0.56 U	0.63 U	0.62 U	0.61 U
3,3'-DICHLOROBENZIDINE	UG/L	PRG-TapWater	0.15	0.78 U	0.89 U	0.87 U	0.85 U
3-NITROANILINE	UG/L	PRG-TapWater	--	0.47 U	0.53 U	0.52 U	0.51 U
4,6-DINITRO-2-METHYLPHENOL	UG/L	PRG-TapWater	--	5.6 U	6.4 U	6.2 U	6.1 U
4-BROMOPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.25 U	0.28 U	0.28 U	0.27 U
4-CHLORO-3-METHYLPHENOL	UG/L	PRG-TapWater	--	0.29 U	0.33 U	0.32 U	0.32 U
4-CHLOROANILINE	UG/L	PRG-TapWater	146	0.58 U	0.65 U	0.64 U	0.63 U
4-CHLOROPHENYL PHENYL ETHER	UG/L	PRG-TapWater	--	0.34 U	0.38 U	0.38 U	0.37 U
4-NITROANILINE	UG/L	PRG-TapWater	--	0.31 U	0.35 U	0.34 U	0.33 U
4-NITROPHENOL	UG/L	PRG-TapWater	--	0.62 U	0.70 U	0.68 U	0.67 U
ACENAPHTHENE	UG/L	PRG-TapWater	365	0.30 U	0.34 U	0.33 U	0.33 U
ACENAPHTHYLENE	UG/L	PRG-TapWater	--	0.30 U	0.34 UJ	0.33 U	0.33 U
ANTHRACENE	UG/L	PRG-TapWater	1,825	0.25 U	0.28 U	0.28 U	0.27 U
BENZIDINE	UG/L	PRG-TapWater	2.92E-04	5.6 UJ	--	6.2 R	6.1 R
BENZO(a)ANTHRACENE	UG/L	PRG-TapWater	0.092	0.32 U	0.37 U	0.36 U	0.35 U
BENZO(a)PYRENE	UG/L	PRG-TapWater	0.0092	0.32 U	0.36 U	0.35 U	0.35 U
BENZO(b)FLUORANTHENE	UG/L	PRG-TapWater	0.092	0.24 U	0.27 U	0.27 U	0.26 U
BENZO(g,h,i)PERYLENE	UG/L	PRG-TapWater	--	0.83 U	0.95 U	0.93 U	0.91 U
BENZO(k)FLUORANTHENE	UG/L	PRG-TapWater	0.92	0.34 U	0.38 U	0.38 U	0.37 U
BENZOIC ACID	UG/L	PRG-TapWater	145,979	23 U	26 U	26 U	25 U

TABLE B-65

Criteria Evaluation - Groundwater - AVMA SVOC

OUE Fort Richardson

Location ID:				**AP-4413**	**AP-4413**	**AP-4414**	**AP-4416**
Sample ID:				03AVMA05WA	03FROEWA16	03AVMA20WA	03AVMA18WA
QAQC Type:				N	N	N	N
Date Sampled:				06/11/03	09/20/03	08/20/03	08/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**				
BENZYL ALCOHOL	UG/L	PRG-TapWater	10,950	0.60 U	0.68 U	0.67 U	0.65 U
BENZYL BUTYL PHTHALATE	UG/L	PRG-TapWater	7,300	0.24 U	0.27 U	0.27 U	0.26 U
bis(2-CHLOROETHOXY) METHANE	UG/L	PRG-TapWater	--	0.31 U	0.35 U	0.35 U	0.34 U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	UG/L	PRG-TapWater	0.0098	0.25 U	0.29 UJ	0.28 U	0.28 U
bis(2-CHLOROISOPROPYL) ETHER	UG/L	PRG-TapWater	0.27	0.38 U	0.44 U	0.43 U	0.42 U
bis(2-ETHYLHEXYL) PHTHALATE	UG/L	PRG-TapWater	4.8	0.76 U	0.87 UJ	0.85 U	0.83 U
CHRYSENE	UG/L	PRG-TapWater	9.2	0.38 U	0.43 U	0.42 U	0.41 U
DIBENZ(a,h)ANTHRACENE	UG/L	PRG-TapWater	0.0092	1.2 U	1.4 U	1.4 U	1.3 U
DIBENZOFURAN	UG/L	PRG-TapWater	24	0.31 U	0.35 U	0.34 U	0.34 U
DIETHYL PHTHALATE	UG/L	PRG-TapWater	29,199	0.33 U	0.38 U	0.37 U	0.36 U
DIMETHYL PHTHALATE	UG/L	PRG-TapWater	364,867	0.29 U	0.33 U	0.32 U	0.31 U
DI-n-BUTYL PHTHALATE	UG/L	PRG-TapWater	3,650	0.39 U	0.44 U	0.43 U	0.42 U
DI-n-OCTYLPHTHALATE	UG/L	PRG-TapWater	1,460	0.29 U	0.33 U	0.32 U	0.32 U
DIPHENYLAMINE	UG/L	PRG-TapWater	--	--	--	--	--
FLUORANTHENE	UG/L	PRG-TapWater	1,460	0.24 U	0.28 U	0.27 U	0.26 U
FLUORENE	UG/L	PRG-TapWater	243	0.30 U	0.34 U	0.33 U	0.32 U
HEXACHLOROBENZENE	UG/L	PRG-TapWater	0.042	0.29 U	0.33 U	0.32 U	0.31 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.57 U	0.65 U	0.64 U	0.62 U
HEXACHLOROCYCLOPENTADIENE	UG/L	PRG-TapWater	219	0.49 U	0.56 U	0.55 UJ	0.53 UJ
HEXACHLOROETHANE	UG/L	PRG-TapWater	4.8	0.52 U	0.59 U	0.58 U	0.57 U
INDENO(1,2,3-c,d)PYRENE	UG/L	PRG-TapWater	0.092	0.87 U	0.99 U	0.97 U	0.94 U
ISOPHORONE	UG/L	PRG-TapWater	71	0.57 U	0.65 U	0.63 U	0.62 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.25 U	0.28 U	0.27 U	0.27 U
NITROBENZENE	UG/L	PRG-TapWater	3.4	0.45 U	0.51 U	0.50 U	0.49 U
N-NITROSODI-n-PROPYLAMINE	UG/L	PRG-TapWater	0.0096	0.37 U	0.42 U	0.41 U	0.40 U
N-NITROSODIPHENYLAMINE	UG/L	PRG-TapWater	14	0.60 U	0.68 U	0.67 U	0.65 U
p-CHLOROPHENYLMETHYLSULFONE	ug/L	--	--	--	--	--	--
PENTACHLOROPHENOL	UG/L	PRG-TapWater	0.56	0.55 U	0.63 U	0.61 U	0.60 U
PHENANTHRENE	UG/L	PRG-TapWater	--	0.31 U	0.36 U	0.35 U	0.34 U
PHENOL	UG/L	PRG-TapWater	21,900	0.34 U	0.38 U	0.38 U	0.37 U
PYRENE	UG/L	PRG-TapWater	183	0.36 U	0.41 U	0.40 U	0.40 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-2980**	**AP-3441**	**AP-3467**	**AP-3467**	**AP-3467**
Sample ID:				02FROEWA24	02FROEWA15	02FROEWA19	02FROEWA20	03FROEWA01
QAQC Type:				N	N	N	FD	N
Date Sampled:				08/29/02	08/28/02	08/29/02	08/29/02	06/06/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.23 U	0.23 U	0.23 U	0.23 U	0.47 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.23 U	0.23 U	0.23 U	0.23 U	0.61 U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.22 U	0.22 U	0.22 U	0.22 UJ	0.48 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.38 U	0.38 U	0.38 U	0.38 U	0.60 U
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.44 U	0.44 U	0.44 U	0.44 U	0.41 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.27 U	0.27 U	0.27 U	0.27 U	0.44 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.35 U	0.35 U	0.35 U	0.35 U	0.53 U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.19 U	0.19 U	0.19 U	0.19 U	0.43 U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.16 U	0.16 U	0.16 U	0.16 U	0.41 U
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.50 U	0.50 U	0.50 U	0.50 U	0.61 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.12 U	0.12 U	0.12 U	0.12 U	0.44 U
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.15 U	0.15 U	0.15 U	0.15 U	0.48 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	1.2 U	1.2 U	1.2 U	1.2 U	0.32 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.17 U	0.17 U	0.17 U	0.17 U	0.34 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.21 U	0.21 U	0.21 U	0.21 U	0.51 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.37 U	0.37 U	0.37 U	0.37 U	0.37 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.35 U	0.35 U	0.35 U	0.35 U	0.51 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.23 U	0.23 U	0.23 U	0.23 U	0.48 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.22 U	0.22 U	0.22 U	0.22 U	0.55 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.13 U	0.13 U	0.13 U	0.13 U	0.47 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.28 U	0.28 U	0.28 U	0.28 U	0.65 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.28 U	0.28 U	0.28 U	0.28 U	0.44 U
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	0.24 U	0.24 UR	0.24 U	0.24 U	0.24 U
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.11 U	0.11 U	0.11 U	0.11 U	0.57 U
2-HEXANONE	UG/L	PRG-TapWater	--	0.17 U	0.17 U	0.17 U	0.17 U	0.46 U
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.25 U	0.25 U	0.25 U	0.25 U	0.63 U
ACETONE	UG/L	PRG-TapWater	608	1.2 U	1.2 UJ	1.2 U	**6.5 J**	1.3 U
ACROLEIN	UG/L	PRG-TapWater	0.042	**--**	0.39 U	**--**	**--**	**--**
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.33 U	0.33 U	0.33 U	0.33 U	0.41 U
BENZENE	UG/L	PRG-TapWater	0.34	0.18 U	0.18 U	0.18 U	0.18 U	0.32 U
BROMOBENZENE	UG/L	PRG-TapWater	20	0.34 U	0.34 U	0.34 U	0.34 U	0.49 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.34 U	0.34 U	0.34 U	0.34 U	0.56 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.23 U	0.23 U	0.23 U	0.23 U	0.42 U
BROMOFORM	UG/L	PRG-TapWater	8.5	0.32 U	0.32 U	0.32 U	0.32 U	0.50 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.76 U	0.76 UJ	0.76 U	0.76 U	0.83 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.13 U	0.13 U	0.13 U	0.13 U	0.46 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-2980**	**AP-3441**	**AP-3467**	**AP-3467**	**AP-3467**
Sample ID:				02FROEWA24	02FROEWA15	02FROEWA19	02FROEWA20	03FROEWA01
QAQC Type:				N	N	N	FD	N
Date Sampled:				08/29/02	08/28/02	08/29/02	08/29/02	06/06/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	0.17 U	0.17 U	0.17 U	0.17 U	0.43 U
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.11 U	0.11 U	0.11 U	0.11 U	0.50 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.36 U	0.36 U	0.36 U	0.36 U	0.63 U
CHLOROFORM	UG/L	PRG-TapWater	6.2	**5.6 =**	**1.3 J**	0.25 U	0.25 U	0.46 U
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	0.29 U	0.29 U	0.29 U	0.29 U	1.1 U
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.25 U	0.25 U	0.25 U	0.25 U	0.47 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.076 U	0.076 U	0.076 U	0.076 U	0.39 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.32 U	0.32 U	0.32 U	0.32 U	0.37 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.21 U	0.21 U	0.21 U	0.21 U	0.41 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.59 U	0.59 UJ	0.59 U	0.59 U	1.5 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.19 U	0.19 U	0.19 U	0.19 U	0.47 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.41 U	0.41 U	0.41 U	0.41 U	0.50 U
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.42 U	0.42 U	0.42 U	0.42 U	1.1 U
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.080 U	0.080 U	0.080 U	0.080 U	0.48 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	0.51 U	0.51 U	0.51 U	0.51 U	1.5 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.15 U	0.15 U	0.15 U	0.15 U	0.36 U
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	1.2 U	**6.0 JB**	1.2 U	1.2 U	**0.77 BJ**
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.098 U	0.098 U	0.098 U	0.098 U	0.31 U
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.095 U	0.095 U	0.095 U	0.095 U	0.46 U
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.16 U	0.16 U	0.16 U	0.16 U	0.50 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.28 U	0.28 U	0.28 U	0.28 U	0.46 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	0.11 U	0.11 U	0.11 U	0.11 U	0.55 U
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.092 U	0.092 U	0.092 U	0.092 U	0.52 U
STYRENE	UG/L	PRG-TapWater	1,641	0.16 U	0.16 U	0.16 U	0.16 U	0.58 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.23 U	0.23 U	0.23 U	0.23 U	0.43 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.12 U	0.12 U	0.12 U	0.12 U	0.36 U
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	0.12 U	0.12 U	0.12 U	0.12 U	0.31 U
TOLUENE	UG/L	PRG-TapWater	723	**0.53 J**	0.25 U	0.25 U	0.25 U	0.55 U
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.37 U	0.37 U	0.37 U	0.37 U	0.61 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.20 U	0.20 U	0.20 U	0.20 U	0.39 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.63 U	0.63 U	0.63 U	0.63 U	0.86 U
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.26 U	0.26 U	0.26 U	0.26 UJ	0.55 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.34 U	0.34 U	0.34 U	0.34 U	0.51 U
VINYL ACETATE	UG/L	PRG-TapWater	412	0.21 U	0.21 UJ	0.21 U	0.21 UJ	0.66 U
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.31 U	0.31 UJ	0.31 U	0.31 U	0.53 U
XYLENES, m & p	UG/L	PRG-TapWater	210	0.15 U	0.15 U	0.15 U	0.15 U	0.28 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-3468**	**AP-3468**	**AP-3469**	**AP-3483**	**AP-3532**
Sample ID:				02AVMA13WA	03FROEWA03	02FROEWA18	02FROEWA17	02AVMA02WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/23/02	06/06/03	08/28/02	08/28/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.071 U	0.47 U	0.23 U	0.23 U	0.071 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.13 U	0.61 U	0.23 U	0.23 U	0.13 U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.11 U	0.48 U	0.22 U	0.22 U	0.11 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.088 U	0.60 U	0.38 U	0.38 U	0.088 U
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.083 U	0.41 U	0.44 U	0.44 U	0.083 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.074 U	0.44 U	0.27 U	0.27 U	0.074 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.081 U	0.53 U	0.35 U	0.35 U	0.081 U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.062 U	0.43 U	0.19 U	0.19 U	0.062 U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.31 U	0.41 U	0.16 U	0.16 U	0.31 U
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.74 U	0.61 U	0.50 U	0.50 U	0.74 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.067 U	0.44 U	0.12 U	0.12 U	0.067 U
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.062 U	0.48 U	0.15 U	0.15 U	0.062 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	0.20 U	0.32 U	1.2 U	1.2 U	0.20 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.057 U	0.34 U	0.17 U	0.17 U	0.057 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.074 U	0.51 U	0.21 U	0.21 U	0.074 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.11 U	0.37 U	0.37 U	0.37 U	0.11 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.074 U	0.51 U	0.35 U	0.35 U	0.074 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.090 U	0.48 U	0.23 U	0.23 U	0.090 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.098 U	0.55 U	0.22 U	0.22 U	0.098 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.092 U	0.47 U	0.13 U	0.13 U	0.092 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.071 U	0.65 U	0.28 U	0.28 U	0.071 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.12 U	0.44 U	0.28 U	0.28 U	0.12 U
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	0.65 U	0.24 U	0.24 UR	0.24 UR	0.65 U
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.097 U	0.57 U	0.11 U	0.11 U	0.097 U
2-HEXANONE	UG/L	PRG-TapWater	--	0.67 U	0.46 U	0.17 U	0.17 U	0.67 U
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.099 U	0.63 U	0.25 U	0.25 U	0.099 U
ACETONE	UG/L	PRG-TapWater	608	**2.4 J**	1.4 U	1.2 U	1.2 U	0.13 U
ACROLEIN	UG/L	PRG-TapWater	0.042	0.67 U	**--**	0.39 U	0.39 U	0.67 U
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.64 U	0.41 U	0.33 U	0.33 U	0.64 U
BENZENE	UG/L	PRG-TapWater	0.34	0.064 U	0.32 U	0.18 U	0.18 U	0.064 U
BROMOBENZENE	UG/L	PRG-TapWater	20	0.050 U	0.49 U	0.34 U	0.34 U	0.050 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.083 U	0.56 U	0.34 U	0.34 U	0.083 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.046 U	0.42 U	0.23 U	0.23 U	0.046 U
BROMOFORM	UG/L	PRG-TapWater	8.5	0.13 U	0.50 U	0.32 U	0.32 U	0.13 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.15 U	0.83 U	0.76 U	0.76 U	0.15 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.068 U	0.46 U	0.13 U	0.13 U	0.068 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3468	AP-3468	AP-3469	AP-3483	AP-3532
Sample ID:				02AVMA13WA	03FROEWA03	02FROEWA18	02FROEWA17	02AVMA02WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/23/02	06/06/03	08/28/02	08/28/02	08/19/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	**0.12 J**	**0.44 J**	0.17 U	0.17 U	**1.5 =**
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.057 U	0.50 U	0.11 U	0.11 U	0.057 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.092 U	0.63 U	0.36 U	0.36 U	0.092 U
CHLOROFORM	UG/L	PRG-TapWater	6.2	**0.35 J**	**0.52 J**	0.25 U	0.25 U	**0.24 J**
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	0.071 U	1.1 U	0.29 U	0.29 U	**0.47 JB**
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.079 U	0.47 U	0.25 U	0.25 U	0.079 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.076 U	0.39 U	0.076 U	0.076 U	0.076 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.072 U	0.37 U	0.32 U	0.32 U	0.072 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.10 U	0.41 U	0.21 U	0.21 U	0.10 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.11 U	1.5 U	0.59 UJ	0.59 UJ	0.11 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.056 U	0.47 U	0.19 U	0.19 U	0.056 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.12 U	0.50 U	0.41 U	0.41 U	0.12 U
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.47 U	1.1 U	0.42 U	0.42 U	0.47 U
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.063 U	0.48 U	0.080 U	0.080 U	0.063 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	0.69 U	1.5 U	0.51 U	0.51 U	0.69 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.094 U	0.36 U	0.15 U	0.15 U	0.094 U
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	0.25 U	**0.53 BJ**	1.2 U	**3.3 JB**	**0.77 JB**
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.042 U	0.31 U	0.098 U	0.098 U	0.042 U
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.065 U	0.46 U	0.095 U	0.095 U	0.065 U
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.072 U	0.50 U	0.16 U	0.16 U	0.072 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.061 U	0.46 U	0.28 U	0.28 U	0.061 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	**0.11 J**	0.55 U	0.11 U	0.11 U	0.039 U
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.079 U	0.52 U	0.092 U	0.092 U	0.079 U
STYRENE	UG/L	PRG-TapWater	1,641	0.085 U	0.58 U	0.16 U	0.16 U	0.085 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.082 U	0.43 U	0.23 U	0.23 U	0.082 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.040 U	0.36 U	0.12 U	0.12 U	0.040 U
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	**30 =**	**69 =**	0.12 U	0.12 U	0.059 U
TOLUENE	UG/L	PRG-TapWater	723	**1.2 =**	0.25 U	0.25 U	0.25 U	0.067 U
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.042 U	0.61 U	0.37 U	0.37 U	0.042 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.10 U	0.39 U	0.20 U	0.20 U	0.10 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.49 U	0.86 U	0.63 U	0.63 U	0.49 U
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.086 U	0.55 U	0.26 U	0.26 U	0.086 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.070 U	0.51 U	0.34 U	0.34 U	0.070 U
VINYL ACETATE	UG/L	PRG-TapWater	412	0.065 U	0.66 U	0.21 U	0.21 U	0.065 UR
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.061 U	0.53 U	0.31 UJ	0.31 UJ	0.061 U
XYLENES, m & p	UG/L	PRG-TapWater	210	0.14 U	0.28 U	0.15 U	0.15 U	0.14 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-3532**	**AP-3534**	**AP-3534**	**AP-3534**	**AP-3650**
Sample ID:				03AVMA11WA	02AVMA01WA	03FROEWA02	03FROEWA13	02AVMA12WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/23/03	08/19/02	06/06/03	09/19/03	08/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.065 U	0.071 U	0.47 U	0.47 U	0.071 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.17 U	0.13 U	0.61 U	0.61 UJ	**0.44 J**
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.062 U	0.11 U	0.48 U	0.48 U	0.11 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.077 U	0.088 U	0.60 U	--	0.088 U
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.13 U	0.083 U	0.41 U	0.41 U	0.083 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.11 U	0.074 U	0.44 U	0.44 U	0.074 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.15 U	0.081 U	0.53 U	0.53 UJ	0.081 U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.11 U	0.062 U	0.43 U	0.43 UJ	0.062 U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.058 UJ	0.31 U	0.41 U	0.41 UJ	0.31 U
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.15 U	0.74 U	0.61 U	0.61 U	0.74 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.080 U	0.067 U	0.44 U	0.44 UJ	0.067 U
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.057 U	0.062 U	0.48 U	0.48 U	0.062 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	0.26 U	0.20 U	0.32 U	0.32 UJ	0.20 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.097 U	0.057 U	0.34 U	0.34 U	0.057 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.11 U	0.074 U	0.51 U	0.51 U	0.074 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.073 U	0.11 U	0.37 U	0.37 U	0.11 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.060 U	0.074 U	0.51 U	0.51 U	0.074 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.084 U	0.090 U	0.48 U	0.48 U	0.090 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.11 U	0.098 U	0.55 U	0.55 U	0.098 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.14 U	0.092 U	0.47 U	0.47 U	0.092 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.092 U	0.071 U	0.65 U	0.65 U	0.071 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.10 U	0.12 U	0.44 U	0.44 UJ	0.12 U
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	--	0.65 U	0.24 U	--	0.65 U
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.084 U	0.097 U	0.57 U	0.57 U	0.097 U
2-HEXANONE	UG/L	PRG-TapWater	--	0.18 U	0.67 U	0.46 U	--	0.67 U
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.085 U	0.099 U	0.63 U	0.63 U	0.099 U
ACETONE	UG/L	PRG-TapWater	608	5.1 UJ	0.13 U	1.7 U	3.2 UJ	**4.2 J**
ACROLEIN	UG/L	PRG-TapWater	0.042	0.90 U	0.67 U	--	--	0.67 U
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.14 U	0.64 U	0.41 U	--	0.64 U
BENZENE	UG/L	PRG-TapWater	0.34	0.092 U	0.064 U	0.32 U	0.32 U	0.064 U
BROMOBENZENE	UG/L	PRG-TapWater	20	0.060 U	0.050 U	0.49 U	0.49 U	0.050 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.087 U	0.083 U	0.56 U	0.56 U	0.083 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.079 U	0.046 U	0.42 U	0.42 U	0.046 U
BROMOFORM	UG/L	PRG-TapWater	8.5	0.12 U	0.13 U	0.50 U	0.50 U	0.13 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.094 U	0.15 U	0.83 U	0.83 U	0.15 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.090 U	0.068 U	0.46 U	--	0.068 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3532	AP-3534	AP-3534	AP-3534	AP-3650
Sample ID:				03AVMA11WA	02AVMA01WA	03FROEWA02	03FROEWA13	02AVMA12WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/23/03	08/19/02	06/06/03	09/19/03	08/23/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	**1.4 =**	**0.22 J**	0.43 U	0.43 UJ	**0.35 J**
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.087 U	0.057 U	0.50 U	0.50 U	0.057 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.12 U	0.092 U	0.63 U	0.63 U	0.092 U
CHLOROFORM	UG/L	PRG-TapWater	6.2	0.23 U	**0.12 J**	0.46 U	0.46 U	**0.57 =**
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	**0.23 J**	**5.2 =**	1.1 U	1.1 U	0.071 U
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.11 U	0.079 U	0.47 U	0.47 U	0.079 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.054 U	0.076 U	0.39 U	0.39 U	0.076 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.096 U	0.072 U	0.37 U	0.37 U	0.072 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.060 U	0.10 U	0.41 U	0.41 U	0.10 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.16 U	0.11 U	1.5 U	1.5 UJ	0.11 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.073 U	0.056 U	0.47 U	0.47 U	0.056 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.13 U	0.12 U	0.50 U	0.50 UJ	0.12 U
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.097 U	0.47 U	1.1 U	--	0.47 U
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.084 U	0.063 U	0.48 U	0.48 U	0.063 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	1.4 U	0.69 U	1.5 U	1.5 UJ	0.69 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.12 U	0.094 U	0.36 U	--	0.094 U
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	1.4 U	**3.1 JB**	**0.83 BJ**	0.83 U	**0.48 JB**
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.087 U	0.042 U	0.31 U	0.31 UJ	0.042 U
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.098 U	0.065 U	0.46 U	0.46 UJ	0.065 U
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.10 U	0.072 U	0.50 U	0.50 U	0.072 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.076 U	0.061 U	0.46 U	0.46 U	0.061 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	0.088 U	0.039 U	0.55 U	0.55 U	**0.16 J**
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.098 U	0.079 U	0.52 U	0.52 U	0.079 U
STYRENE	UG/L	PRG-TapWater	1,641	0.10 U	0.085 U	0.58 U	0.58 U	0.085 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.081 U	0.082 U	0.43 U	0.43 U	0.082 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.077 U	0.040 U	0.36 U	--	0.040 U
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	0.12 U	**21 =**	**28 =**	**19 J**	0.059 U
TOLUENE	UG/L	PRG-TapWater	723	0.097 U	0.067 U	0.55 U	0.55 U	**0.30 J**
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.13 U	0.042 U	0.61 U	0.61 U	0.042 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.056 U	0.10 U	0.39 U	0.39 U	0.10 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.16 U	0.49 U	0.86 U	--	0.49 U
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.099 U	0.086 U	0.55 U	0.55 U	0.086 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.18 U	0.070 U	0.51 U	0.51 UJ	0.070 U
VINYL ACETATE	UG/L	PRG-TapWater	412	2.6 U	0.065 UR	0.66 U	--	0.065 U
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.10 U	0.061 U	0.53 U	0.53 UJ	0.061 U
XYLENES, m & p	UG/L	PRG-TapWater	210	0.16 U	0.14 U	0.28 U	0.28 U	0.14 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-3772**	**AP-3773**	**AP-3773**	**AP-3773**	**AP-3773**
Sample ID:				02FROEWA13	02FROEWA21	02FROEWA22	03AVMA02WA	03FROEWA19
QAQC Type:				N	N	FD	N	N
Date Sampled:				08/28/02	08/29/02	08/29/02	06/11/03	09/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.23 U	0.23 U	0.23 U	0.065 U	0.47 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.23 U	0.23 U	0.23 U	0.17 U	0.61 U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.22 U	0.22 U	0.22 U	0.062 UJ	0.48 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.38 U	0.38 U	0.38 U	0.077 U	--
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.44 U	0.44 U	0.44 U	0.13 U	0.41 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.27 U	0.27 U	0.27 U	0.11 U	0.44 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.35 U	0.35 U	0.35 U	0.15 U	0.53 U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.19 U	0.19 U	0.19 U	0.11 U	0.43 U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.16 U	0.16 U	0.16 U	0.058 UJ	0.41 UJ
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.50 U	0.50 U	0.50 U	0.15 U	0.61 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.12 U	0.12 U	0.12 U	0.080 U	0.44 UJ
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.15 U	0.15 U	0.15 U	0.057 U	0.48 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	1.2 U	1.2 U	1.2 U	0.26 U	0.32 UJ
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.17 U	0.17 U	0.17 U	0.097 U	0.34 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.21 U	0.21 U	0.21 U	0.11 U	0.51 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.37 U	0.37 U	0.37 U	0.073 U	0.37 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.35 U	0.35 U	0.35 U	0.060 U	0.51 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.23 U	0.23 U	0.23 U	0.084 U	0.48 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.22 U	0.22 U	0.22 U	0.11 U	0.55 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.13 U	0.13 U	0.13 U	0.14 U	0.47 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.28 U	0.28 U	0.28 U	0.092 U	0.65 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.28 U	0.28 U	0.28 U	0.10 U	0.44 UJ
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	0.24 UR	0.24 U	0.24 U	--	--
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.11 U	0.11 U	0.11 U	0.084 U	0.57 U
2-HEXANONE	UG/L	PRG-TapWater	--	0.17 U	0.17 U	0.17 U	0.18 U	--
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.25 U	0.25 U	0.25 U	0.085 U	0.63 U
ACETONE	UG/L	PRG-TapWater	608	1.2 UJ	**1.4 JB**	1.2 U	5.1 UJ	3.2 UJ
ACROLEIN	UG/L	PRG-TapWater	0.042	0.39 U	--	--	0.90 UJ	--
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.33 U	0.33 U	0.33 U	0.14 U	--
BENZENE	UG/L	PRG-TapWater	0.34	0.18 U	0.18 U	0.18 U	0.092 U	0.32 U
BROMOBENZENE	UG/L	PRG-TapWater	20	0.34 U	0.34 U	0.34 U	0.060 U	0.49 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.34 U	0.34 U	0.34 U	0.087 U	0.56 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.23 U	0.23 U	0.23 U	0.079 U	0.42 U
BROMOFORM	UG/L	PRG-TapWater	8.5	0.32 U	0.32 U	0.32 U	0.12 U	0.50 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.76 UJ	0.76 U	0.76 U	0.094 U	0.83 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.13 U	0.13 U	0.13 U	0.090 U	--

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3772	AP-3773	AP-3773	AP-3773	AP-3773
Sample ID:				02FROEWA13	02FROEWA21	02FROEWA22	03AVMA02WA	03FROEWA19
QAQC Type:				N	N	FD	N	N
Date Sampled:				08/28/02	08/29/02	08/29/02	06/11/03	09/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	0.17 U	0.17 U	0.17 U	0.16 U	0.43 U
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.11 U	0.11 U	0.11 U	0.087 U	0.50 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.36 U	0.36 U	0.36 U	0.12 U	0.63 U
CHLOROFORM	UG/L	PRG-TapWater	6.2	0.25 U	0.25 U	0.25 U	0.080 U	0.46 U
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	**1.8 J**	0.29 U	0.29 U	0.079 U	1.1 U
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.25 U	0.25 U	0.25 U	0.11 U	0.47 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.076 U	0.076 U	0.076 U	0.054 U	0.39 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.32 U	0.32 U	0.32 U	0.096 U	0.37 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.21 U	0.21 U	0.21 U	0.060 U	0.41 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.59 UJ	0.59 U	0.59 U	0.16 U	1.5 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.19 U	0.19 U	0.19 U	0.073 U	0.47 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.41 U	0.41 U	0.41 U	0.13 UJ	0.50 UJ
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.42 U	0.42 U	0.42 U	0.097 U	--
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.080 U	0.080 U	0.080 U	0.084 U	0.48 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	0.51 U	0.51 U	0.51 U	1.4 UJ	1.5 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.15 U	0.15 U	0.15 U	0.12 U	--
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	**4.8 JB**	1.2 U	1.2 U	1.1 U	1.8 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.098 U	0.098 U	0.098 U	0.087 U	0.31 UJ
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.095 U	0.095 U	0.095 U	0.098 U	0.46 UJ
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.16 U	0.16 U	0.16 U	0.10 U	0.50 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.28 U	0.28 U	0.28 U	0.076 U	0.46 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	0.11 U	0.11 U	0.11 U	0.088 U	0.55 U
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.092 U	0.092 U	0.092 U	0.098 U	0.52 U
STYRENE	UG/L	PRG-TapWater	1,641	0.16 U	0.16 U	0.16 U	0.10 U	0.58 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.23 U	0.23 U	0.23 U	0.081 U	0.43 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.12 U	0.12 U	0.12 U	0.077 U	--
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	0.12 U	0.12 U	0.12 U	0.12 U	0.45 U
TOLUENE	UG/L	PRG-TapWater	723	0.25 U	**0.56 J**	0.25 U	0.097 U	0.55 U
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.37 U	0.37 U	0.37 U	0.13 U	0.61 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.20 U	0.20 U	0.20 U	0.056 U	0.39 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.63 U	0.63 U	0.63 U	0.16 U	--
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.26 U	0.26 U	0.26 U	0.099 U	0.55 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.34 U	0.34 U	0.34 U	0.18 U	0.51 U
VINYL ACETATE	UG/L	PRG-TapWater	412	0.21 UJ	0.21 U	0.21 U	2.6 U	--
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.31 UJ	0.31 U	0.31 U	0.10 U	0.53 U
XYLENES, m & p	UG/L	PRG-TapWater	210	0.15 U	0.15 U	0.15 U	0.16 U	0.28 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3774	AP-3774	AP-3774	AP-3775	AP-3776
Sample ID:				02FROEWA16	03AVMA15WA	03FROEWA17	02FROEWA14	02AVMA08WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/28/02	07/24/03	09/20/03	08/28/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.23 U	0.065 U	0.47 U	0.23 U	0.071 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.23 U	0.17 U	0.61 U	0.23 U	0.13 U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.22 U	0.062 U	0.48 U	0.22 U	0.11 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.38 U	0.077 U	--	0.38 U	0.088 U
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.44 U	0.13 U	0.41 U	0.44 U	0.083 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.27 U	0.11 U	0.44 U	0.27 U	0.074 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.35 U	0.15 U	0.53 U	0.35 U	0.081 U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.19 U	0.11 U	0.43 U	0.19 U	0.062 U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.16 U	0.058 UJ	0.41 UJ	0.16 U	0.31 U
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.50 U	0.15 U	0.61 U	0.50 U	0.74 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.12 U	0.080 U	0.44 UJ	0.12 U	0.067 U
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.15 U	0.057 U	0.48 U	0.15 U	0.062 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	1.2 U	0.26 U	0.32 UJ	1.2 U	0.20 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.17 U	0.097 U	0.34 U	0.17 U	0.057 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.21 U	0.11 U	0.51 U	0.21 U	0.074 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.37 U	0.073 U	0.37 U	0.37 U	0.11 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.35 U	0.060 U	0.51 U	0.35 U	0.074 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.23 U	0.084 U	0.48 U	0.23 U	0.090 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.22 U	0.11 U	0.55 U	0.22 U	0.098 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.13 U	0.14 U	0.47 U	0.13 U	0.092 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.28 U	0.092 U	0.65 U	0.28 U	0.071 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.28 U	0.10 U	0.44 UJ	0.28 U	0.12 U
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	0.24 UR	--	--	0.24 UR	0.65 U
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.11 U	0.084 U	0.57 U	0.11 U	0.097 U
2-HEXANONE	UG/L	PRG-TapWater	--	0.17 U	0.18 U	--	0.17 U	0.67 U
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.25 U	0.085 U	0.63 U	0.25 U	0.099 U
ACETONE	UG/L	PRG-TapWater	608	1.2 U	5.1 UJ	3.2 UJ	1.2 UJ	0.13 U
ACROLEIN	UG/L	PRG-TapWater	0.042	0.39 U	0.90 U	--	0.39 U	0.67 U
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.33 U	0.14 U	--	0.33 U	0.64 U
BENZENE	UG/L	PRG-TapWater	0.34	0.18 U	0.092 U	0.32 U	0.18 U	0.064 U
BROMOBENZENE	UG/L	PRG-TapWater	20	0.34 U	0.060 U	0.49 U	0.34 U	0.050 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.34 U	0.087 U	0.56 U	0.34 U	0.083 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.23 U	0.079 U	0.42 U	0.23 U	0.046 U
BROMOFORM	UG/L	PRG-TapWater	8.5	0.32 U	0.12 U	0.50 U	0.32 U	0.13 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.76 U	0.094 U	0.83 U	0.76 UJ	0.15 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.13 U	0.090 U	--	0.13 U	0.068 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-3774**	**AP-3774**	**AP-3774**	**AP-3775**	**AP-3776**
Sample ID:				02FROEWA16	03AVMA15WA	03FROEWA17	02FROEWA14	02AVMA08WA
QAQC Type:				N	N	N	N	N
Date Sampled:				08/28/02	07/24/03	09/20/03	08/28/02	08/21/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	0.17 U	**0.18 J**	0.43 U	0.17 U	**0.18 J**
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.11 U	0.087 U	0.50 U	0.11 U	0.057 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.36 U	0.12 U	0.63 U	0.36 U	0.092 U
CHLOROFORM	UG/L	PRG-TapWater	6.2	0.25 U	**0.36 J**	0.46 U	0.25 U	0.11 U
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	0.29 U	0.079 U	1.1 U	0.29 U	0.071 U
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.25 U	0.11 U	0.47 U	0.25 U	0.079 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.076 U	0.054 U	0.39 U	0.076 U	0.076 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.32 U	0.096 U	0.37 U	0.32 U	0.072 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.21 U	0.060 U	0.41 U	0.21 U	0.10 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.59 UJ	0.16 U	1.5 U	0.59 UJ	0.11 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.19 U	0.073 U	0.47 U	0.19 U	0.056 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.41 U	0.13 U	0.50 UJ	0.41 U	0.12 U
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.42 U	0.097 U	--	0.42 U	0.47 U
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.080 U	0.084 U	0.48 U	0.080 U	0.063 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	0.51 U	1.4 U	1.5 U	0.51 U	0.69 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.15 U	0.12 U	--	0.15 U	0.094 U
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	**3.2 JB**	0.67 U	2.2 U	**2.3 JB**	0.25 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.098 U	0.087 U	0.31 UJ	0.098 U	0.042 U
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.095 U	0.098 U	0.46 UJ	0.095 U	0.065 U
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.16 U	0.10 U	0.50 U	0.16 U	0.072 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.28 U	0.076 U	0.46 U	0.28 U	0.061 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	0.11 U	0.088 U	0.55 U	0.11 U	0.039 U
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.092 U	0.098 U	0.52 U	0.092 U	0.079 U
STYRENE	UG/L	PRG-TapWater	1,641	0.16 U	0.10 U	0.58 U	0.16 U	0.085 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.23 U	0.081 U	0.43 U	0.23 U	0.082 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.12 U	0.077 U	--	0.12 U	0.040 U
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	0.12 U	**0.26 J**	0.45 U	**0.61 J**	**0.48 J**
TOLUENE	UG/L	PRG-TapWater	723	0.25 U	0.16 U	0.55 U	0.25 U	**0.17 J**
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.37 U	0.13 U	0.61 U	0.37 U	0.042 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.20 U	0.056 U	0.39 U	0.20 U	0.10 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.63 U	0.16 U	--	0.63 U	0.49 U
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.26 U	0.099 U	0.55 U	0.26 U	0.086 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.34 U	0.18 U	0.51 U	0.34 U	0.070 U
VINYL ACETATE	UG/L	PRG-TapWater	412	0.21 U	2.6 U	--	0.21 UJ	0.065 U
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.31 UJ	0.10 U	0.53 U	0.31 UJ	0.061 U
XYLENES, m & p	UG/L	PRG-TapWater	210	0.15 U	0.16 U	0.28 U	0.15 U	0.14 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-3776**	**AP-3776**	**AP-3789**	**AP-3789**	**AP-3790**
Sample ID:				03AVMA09WA	03AVMA10WA	02AVMA11WA	03FROEWA10	02FROEWA23
QAQC Type:				N	FD	N	N	N
Date Sampled:				07/22/03	07/22/03	08/23/02	06/10/03	08/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.065 U	0.065 U	0.071 U	0.47 U	0.23 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.17 U	0.17 U	0.13 U	0.61 U	0.23 U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.062 U	0.062 U	0.11 U	0.48 U	0.22 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.077 U	0.077 U	0.088 U	0.60 U	0.38 U
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.13 U	0.13 U	0.083 U	0.41 U	0.44 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.11 U	0.11 U	0.074 U	0.44 U	0.27 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.15 U	0.15 U	0.081 U	0.53 U	0.35 U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.11 U	0.11 U	0.062 U	0.43 U	0.19 U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.058 UJ	0.058 UJ	0.31 U	0.41 UJ	0.16 U
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.15 U	0.15 U	0.74 U	0.61 U	0.50 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.080 U	0.080 U	0.067 U	0.44 U	0.12 U
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.057 U	0.057 U	0.062 U	0.48 U	0.15 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	0.26 U	0.26 U	0.20 U	0.32 UJ	1.2 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.097 U	0.097 U	0.057 U	0.34 U	0.17 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.11 U	0.11 U	0.074 U	0.51 U	0.21 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.073 U	0.073 U	0.11 U	0.37 U	0.37 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.060 U	0.060 U	0.074 U	0.51 U	0.35 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.084 U	0.084 U	0.090 U	0.48 U	0.23 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.11 U	0.11 U	0.098 U	0.55 U	0.22 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.14 U	0.14 U	0.092 U	0.47 U	0.13 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.092 U	0.092 U	0.071 U	0.65 U	0.28 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.10 U	0.10 U	0.12 U	0.44 U	0.28 U
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	**--**	**--**	0.65 U	**--**	0.24 U
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.084 U	0.084 U	0.097 U	0.57 U	0.11 U
2-HEXANONE	UG/L	PRG-TapWater	--	0.18 U	0.18 U	0.67 U	0.46 UJ	0.17 U
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.085 U	0.085 U	0.099 U	0.63 U	0.25 U
ACETONE	UG/L	PRG-TapWater	608	5.1 UJ	5.1 UJ	0.13 U	**4.0 J**	1.2 U
ACROLEIN	UG/L	PRG-TapWater	0.042	0.90 U	0.90 U	0.67 U	**--**	**--**
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.14 U	0.14 U	0.64 U	0.41 UJ	0.33 U
BENZENE	UG/L	PRG-TapWater	0.34	0.092 U	0.092 U	0.064 U	0.32 U	0.18 U
BROMOBENZENE	UG/L	PRG-TapWater	20	0.060 U	0.060 U	0.050 U	0.49 U	0.34 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.087 U	0.087 U	0.083 U	0.56 U	0.34 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.079 U	0.079 U	0.046 U	0.42 U	0.23 U
BROMOFORM	UG/L	PRG-TapWater	8.5	0.12 U	0.12 U	0.13 U	0.50 U	0.32 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.094 U	0.094 U	0.15 U	0.83 U	0.76 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.090 U	0.090 U	0.068 U	0.46 U	0.13 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3776	AP-3776	AP-3789	AP-3789	AP-3790
Sample ID:				03AVMA09WA	03AVMA10WA	02AVMA11WA	03FROEWA10	02FROEWA23
QAQC Type:				N	FD	N	N	N
Date Sampled:				07/22/03	07/22/03	08/23/02	06/10/03	08/29/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	**0.26 J**	**0.26 J**	0.074 U	0.43 U	0.17 U
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.087 U	0.087 U	0.057 U	0.50 U	0.11 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.12 U	0.12 U	0.092 U	0.63 U	0.36 U
CHLOROFORM	UG/L	PRG-TapWater	6.2	**0.20 J**	**0.20 J**	0.11 U	0.46 U	**1.3 J**
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	0.079 U	0.079 U	0.071 U	1.1 U	0.29 U
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.11 U	0.11 U	0.079 U	0.47 U	0.25 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.054 U	0.054 U	0.076 U	0.39 U	0.076 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.096 U	0.096 U	0.072 U	0.37 U	0.32 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.060 U	0.060 U	0.10 U	0.41 U	0.21 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.16 U	0.16 U	0.11 U	1.5 U	0.59 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.073 U	0.073 U	0.056 U	0.47 U	0.19 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.13 U	0.13 U	0.12 U	0.50 U	0.41 U
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.097 U	0.097 U	0.47 U	1.1 U	0.42 U
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.084 U	0.084 U	0.063 U	0.48 U	0.080 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	1.4 U	1.4 U	0.69 U	1.5 U	0.51 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.12 U	0.12 U	0.094 U	0.36 UJ	0.15 U
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	0.41 U	0.42 U	0.25 U	0.66 U	1.2 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.087 U	0.087 U	0.042 U	0.31 U	0.098 U
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.098 U	0.098 U	0.065 U	0.46 U	0.095 U
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.10 U	0.10 U	0.072 U	0.50 U	0.16 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.076 U	0.076 U	0.061 U	0.46 U	0.28 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	0.088 U	0.088 U	0.039 U	0.55 U	0.11 U
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.098 U	0.098 U	0.079 U	0.52 U	0.092 U
STYRENE	UG/L	PRG-TapWater	1,641	0.10 U	0.10 U	0.085 U	0.58 U	0.16 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.081 U	0.081 U	0.082 U	0.43 U	0.23 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.077 U	0.077 U	0.040 U	0.36 U	0.12 U
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	**0.43 J**	**0.44 J**	**8.3 =**	**11 =**	0.12 U
TOLUENE	UG/L	PRG-TapWater	723	0.097 U	0.097 U	**0.20 J**	0.55 U	0.25 U
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.13 U	0.13 U	0.042 U	0.61 U	0.37 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.056 U	0.056 U	0.10 U	0.39 U	0.20 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.16 U	0.16 U	0.49 U	0.86 U	0.63 U
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.099 U	0.099 U	0.086 U	0.55 U	0.26 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.18 U	0.18 U	0.070 U	0.51 U	0.34 U
VINYL ACETATE	UG/L	PRG-TapWater	412	2.6 U	2.6 U	0.065 U	0.66 U	0.21 U
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.10 U	0.10 U	0.061 U	0.53 U	0.31 U
XYLENES, m & p	UG/L	PRG-TapWater	210	0.16 U	0.16 U	0.14 U	0.28 U	0.15 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3790	AP-3870	AP-3870	AP-3871	AP-3871
Sample ID:				03AVMA12WA	03AVMA16WA	03FROEWA18	02BAVMA06WA	03AVMA14WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/23/03	07/24/03	09/20/03	08/20/02	07/23/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.065 U	0.065 U	0.47 U	0.071 U	0.065 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.17 U	0.17 U	0.61 U	0.13 U	0.17 U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.062 U	0.062 U	0.48 U	0.11 U	0.062 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.077 U	0.077 U	--	0.088 U	0.077 U
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.13 U	0.13 U	0.41 U	0.083 U	0.13 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.11 U	0.11 U	0.44 U	0.074 U	0.11 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.15 U	0.15 U	0.53 U	0.081 U	0.15 U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.11 U	0.11 U	0.43 U	0.062 U	0.11 U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.058 UJ	0.058 UJ	0.41 UJ	0.31 U	0.058 UJ
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.15 U	0.15 U	0.61 U	0.74 U	0.15 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.080 U	0.080 U	0.44 UJ	0.067 U	0.080 U
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.057 U	0.057 U	0.48 U	0.062 U	0.057 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	0.26 U	0.26 U	0.32 UJ	0.20 U	0.26 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.097 U	0.097 U	0.34 U	0.057 U	0.097 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.11 U	0.11 U	0.51 U	0.074 U	0.11 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.073 U	0.073 U	0.37 U	0.11 U	0.073 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.060 U	0.060 U	0.51 U	0.074 U	0.060 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.084 U	0.084 U	0.48 U	0.090 U	0.084 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.11 U	0.11 U	0.55 U	0.098 U	0.11 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.14 U	0.14 U	0.47 U	0.092 U	0.14 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.092 U	0.092 U	0.65 U	0.071 U	0.092 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.10 U	0.10 U	0.44 UJ	0.12 U	0.10 U
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	--	--	--	0.65 U	--
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.084 U	0.084 U	0.57 U	0.097 U	0.084 U
2-HEXANONE	UG/L	PRG-TapWater	--	0.18 U	0.18 U	--	0.67 U	0.18 U
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.085 U	0.085 U	0.63 U	0.099 U	0.085 U
ACETONE	UG/L	PRG-TapWater	608	5.1 UJ	5.1 UJ	3.2 UJ	0.13 U	5.1 UJ
ACROLEIN	UG/L	PRG-TapWater	0.042	0.90 U	0.90 U	--	0.67 U	0.90 U
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.14 U	0.14 U	--	0.64 U	0.14 U
BENZENE	UG/L	PRG-TapWater	0.34	0.092 U	0.092 U	0.32 U	0.064 U	0.092 U
BROMOBENZENE	UG/L	PRG-TapWater	20	0.060 U	0.060 U	0.49 U	0.050 U	0.060 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.087 U	0.087 U	0.56 U	0.083 U	0.087 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.079 U	0.079 U	0.42 U	0.046 U	0.12 U
BROMOFORM	UG/L	PRG-TapWater	8.5	0.12 U	0.12 U	0.50 U	0.13 U	0.12 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.094 U	0.094 U	0.83 U	0.15 U	0.094 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.090 U	0.090 U	--	0.068 U	0.090 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-3790**	**AP-3870**	**AP-3870**	**AP-3871**	**AP-3871**
Sample ID:				03AVMA12WA	03AVMA16WA	03FROEWA18	02BAVMA06WA	03AVMA14WA
QAQC Type:				N	N	N	N	N
Date Sampled:				07/23/03	07/24/03	09/20/03	08/20/02	07/23/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	0.16 U	**0.25 J**	0.43 U	**0.49 J**	**0.32 J**
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.087 U	0.087 U	0.50 U	0.057 U	0.087 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.12 U	0.12 U	0.63 U	0.092 U	0.12 U
CHLOROFORM	UG/L	PRG-TapWater	6.2	1.3 U	**0.37 J**	0.46 U	**3.6 =**	3.6 U
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	0.079 U	0.079 U	1.1 U	**0.21 JB**	0.079 U
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.11 U	0.11 U	0.47 U	0.079 U	0.11 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.054 U	0.054 U	0.39 U	0.076 U	0.054 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.096 U	0.096 U	0.37 U	0.072 U	0.096 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.060 U	0.060 U	0.41 U	0.10 U	0.060 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.16 U	0.16 U	1.5 U	0.11 U	0.16 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.073 U	0.073 U	0.47 U	0.056 U	0.073 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.13 U	0.13 U	0.50 UJ	0.12 U	0.13 U
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.097 U	0.097 U	--	0.47 U	0.097 U
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.084 U	0.084 U	0.48 U	0.063 U	0.084 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	1.4 U	1.4 U	1.5 U	0.69 U	1.4 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.12 U	0.12 U	--	0.094 U	0.12 U
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	0.33 U	0.56 U	0.47 U	**0.51 JB**	0.54 U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.087 U	0.087 U	0.31 UJ	0.042 U	0.087 U
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.098 U	0.098 U	0.46 UJ	0.065 U	0.098 U
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.10 U	0.10 U	0.50 U	0.072 U	0.10 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.076 U	0.076 U	0.46 U	0.061 U	0.076 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	0.088 U	0.088 U	0.55 U	0.039 U	0.088 U
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.098 U	0.098 U	0.52 U	0.079 U	0.098 U
STYRENE	UG/L	PRG-TapWater	1,641	0.10 U	0.10 U	0.58 U	0.085 U	0.10 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.081 U	0.081 U	0.43 U	0.082 U	0.081 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.077 U	0.077 U	--	0.040 U	0.077 U
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	0.12 U	0.12 U	0.45 U	0.059 U	0.12 U
TOLUENE	UG/L	PRG-TapWater	723	0.097 U	0.097 U	0.55 U	**0.30 JB**	0.097 U
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.13 U	0.13 U	0.61 U	0.042 U	0.13 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.056 U	0.056 U	0.39 U	0.10 U	0.056 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.16 U	0.16 U	--	0.49 U	0.16 U
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.099 U	0.099 U	0.55 U	0.086 U	0.099 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.18 U	0.18 U	0.51 U	0.070 U	0.18 U
VINYL ACETATE	UG/L	PRG-TapWater	412	2.6 U	2.6 U	--	0.065 UJ	2.6 U
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.10 U	0.10 U	0.53 U	0.061 U	0.10 U
XYLENES, m & p	UG/L	PRG-TapWater	210	0.16 U	0.16 U	0.28 U	0.14 U	0.16 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3872	AP-3872	AP-3893	AP-3894	AP-3894
Sample ID:				02AVMA10WA	03AVMA13WA	02AVMA19WA	02AVMA17WA	02AVMA18WA
QAQC Type:				N	N	N	N	FD
Date Sampled:				08/23/02	07/23/03	08/27/02	08/27/02	08/27/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.071 U	0.065 U	0.071 U	0.071 U	0.071 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.13 U	0.17 U	0.13 U	0.13 U	0.13 U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.11 U	0.062 U	0.11 U	0.11 U	0.11 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.088 U	0.077 U	0.088 U	0.088 U	0.088 U
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.083 U	0.13 U	0.083 U	0.083 U	0.083 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.074 U	0.11 U	0.074 U	0.074 U	0.074 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.081 U	0.15 U	0.081 U	0.081 U	0.081 U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.062 U	0.11 U	0.062 U	0.062 U	0.062 U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.31 U	0.058 UJ	0.31 U	0.31 U	0.31 U
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.74 U	0.15 U	0.74 U	0.74 U	0.74 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.067 U	0.080 U	0.067 U	0.067 U	0.067 U
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.062 U	0.057 U	0.062 U	0.062 U	0.062 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	0.20 U	0.26 U	0.20 U	0.20 U	0.20 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.057 U	0.097 U	0.057 U	0.057 U	0.057 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.074 U	0.11 U	0.074 U	0.074 U	0.074 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.11 U	0.073 U	0.11 U	0.11 U	0.11 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.074 U	0.060 U	0.074 U	0.074 U	0.074 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.090 U	0.084 U	0.090 U	0.090 U	0.090 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.098 U	0.11 U	0.098 U	0.098 U	0.098 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.092 U	0.14 U	0.092 U	0.092 U	0.092 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.071 U	0.092 U	0.071 U	0.071 U	0.071 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.12 U	0.10 U	0.12 U	0.12 U	0.12 U
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	0.65 U	--	0.65 U	0.65 U	0.65 U
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.097 U	0.084 U	0.097 U	0.097 U	0.097 U
2-HEXANONE	UG/L	PRG-TapWater	--	0.67 U	0.18 U	0.67 U	0.67 U	0.67 U
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.099 U	0.085 U	0.099 U	0.099 U	0.099 U
ACETONE	UG/L	PRG-TapWater	608	0.13 U	5.1 UJ	0.13 UJ	0.13 UJ	0.13 UJ
ACROLEIN	UG/L	PRG-TapWater	0.042	0.67 U	0.90 U	0.67 U	0.67 U	0.67 U
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.64 U	0.14 U	0.64 U	0.64 U	0.64 U
BENZENE	UG/L	PRG-TapWater	0.34	0.064 U	0.092 U	0.064 U	0.064 U	0.064 U
BROMOBENZENE	UG/L	PRG-TapWater	20	0.050 U	0.060 U	0.050 U	0.050 U	0.050 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.083 U	0.087 U	0.083 U	0.083 U	0.083 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.046 U	0.079 U	0.046 U	0.046 U	0.046 U
BROMOFORM	UG/L	PRG-TapWater	8.5	0.13 U	0.12 U	0.13 U	0.13 U	0.13 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.15 U	0.094 U	0.15 U	0.15 U	0.15 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.068 U	0.090 U	0.068 U	0.068 U	0.068 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3872	AP-3872	AP-3893	AP-3894	AP-3894
Sample ID:				02AVMA10WA	03AVMA13WA	02AVMA19WA	02AVMA17WA	02AVMA18WA
QAQC Type:				N	N	N	N	FD
Date Sampled:				08/23/02	07/23/03	08/27/02	08/27/02	08/27/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	0.074 U	0.16 U	0.074 U	0.074 U	0.074 U
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.057 U	0.087 U	0.057 U	0.057 U	0.057 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.092 U	0.12 U	0.092 U	0.092 U	0.092 U
CHLOROFORM	UG/L	PRG-TapWater	6.2	**1.5 =**	1.7 U	0.11 U	**0.14 J**	**0.14 J**
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	0.071 U	**0.10 J**	0.071 U	**3.0 =**	**5.9 =**
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.079 U	0.11 U	0.079 U	0.079 U	0.079 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.076 U	0.054 U	0.076 U	0.076 U	0.076 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.072 U	0.096 U	0.072 U	0.072 U	0.072 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.10 U	0.060 U	0.10 U	0.10 U	0.10 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.11 U	0.16 U	0.11 U	0.11 U	0.11 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.056 U	0.073 U	0.056 U	0.056 U	0.056 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.12 U	0.13 U	0.12 UJ	0.12 UJ	0.12 UJ
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.47 U	0.097 U	0.47 U	0.47 U	0.47 U
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.063 U	0.084 U	0.063 U	0.063 U	0.063 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	0.69 U	1.4 U	0.69 U	0.69 U	0.69 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.094 U	0.12 U	0.094 U	0.094 U	0.094 U
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	0.25 U	0.59 U	0.25 U	**2.8 B**	**3.2 B**
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.042 U	0.087 U	0.042 U	0.042 U	0.042 U
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.065 U	0.098 U	0.065 U	0.065 U	0.065 U
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.072 U	0.10 U	0.072 U	0.072 U	0.072 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.061 U	0.076 U	0.061 U	0.061 U	0.061 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	**0.12 J**	0.088 U	0.039 U	0.039 U	0.039 U
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.079 U	0.098 U	0.079 U	0.079 U	0.079 U
STYRENE	UG/L	PRG-TapWater	1,641	0.085 U	0.10 U	0.085 U	0.085 U	0.085 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.082 U	0.081 U	0.082 U	0.082 U	0.082 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.040 U	0.077 U	0.040 U	0.040 U	0.040 U
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	0.059 U	0.12 U	0.059 U	0.059 U	0.059 U
TOLUENE	UG/L	PRG-TapWater	723	**0.18 J**	0.097 U	**0.39 J**	**0.18 J**	**0.18 J**
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.042 U	0.13 U	0.042 U	0.042 U	0.042 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.10 U	0.056 U	0.10 U	0.10 U	0.10 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.49 U	0.16 U	0.49 U	0.49 U	0.49 U
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.086 U	0.099 U	0.086 U	0.086 U	0.086 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.070 U	0.18 U	0.070 U	0.070 U	0.070 U
VINYL ACETATE	UG/L	PRG-TapWater	412	0.065 U	2.6 U	0.065 U	0.065 U	0.065 U
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.061 U	0.10 U	0.061 U	0.061 U	0.061 U
XYLENES, m & p	UG/L	PRG-TapWater	210	0.14 U	0.16 U	0.14 U	0.14 U	0.14 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3895	AP-3895	AP-3896	AP-3901	AP-3916
Sample ID:				02AVMA14WA	02AVMA15WA	02AVMA16WA	03FROEWA09	03FROEWA05
QAQC Type:				N	FD	N	N	N
Date Sampled:				08/26/02	08/26/02	08/27/02	06/10/03	06/09/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.071 U	0.071 U	0.071 U	0.47 U	0.47 U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.13 U	0.13 U	0.13 U	0.61 U	0.61 U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.11 U	0.11 U	0.11 U	0.48 U	0.48 U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.088 U	0.088 U	0.088 U	0.60 U	0.60 U
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.083 U	0.083 U	0.083 U	0.41 U	0.41 U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.074 U	0.074 U	0.074 U	0.44 U	0.44 U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.081 U	0.081 U	0.081 U	0.53 U	0.53 U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.062 U	0.062 U	0.062 U	0.43 U	0.43 U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.31 U	0.31 U	0.31 U	0.41 UJ	0.41 U
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.74 U	0.74 U	0.74 U	0.61 U	0.61 U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.067 U	0.067 U	0.067 U	0.44 U	0.44 U
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.062 U	0.062 U	0.062 U	0.48 U	0.48 U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	0.20 U	0.20 U	0.20 U	0.32 UJ	0.32 U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.057 U	0.057 U	0.057 U	0.34 U	0.34 U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.074 U	0.074 U	0.074 U	0.51 U	0.51 U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.11 U	0.11 U	0.11 U	0.37 U	0.37 U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.074 U	0.074 U	0.074 U	0.51 U	0.51 U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.090 U	0.090 U	0.090 U	0.48 U	0.48 U
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.098 U	0.098 U	0.098 U	0.55 U	0.55 U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.092 U	0.092 U	0.092 U	0.47 U	0.47 U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.071 U	0.071 U	0.071 U	0.65 U	0.65 U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.12 U	0.12 U	0.12 U	0.44 U	0.44 U
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	0.65 U	0.65 U	0.65 U	--	0.24 U
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.097 U	0.097 U	0.097 U	0.57 U	0.57 U
2-HEXANONE	UG/L	PRG-TapWater	--	0.67 U	0.67 U	0.67 U	0.46 UJ	0.46 U
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.099 U	0.099 U	0.099 U	0.63 U	0.63 U
ACETONE	UG/L	PRG-TapWater	608	0.13 UJ	0.13 UJ	0.13 UJ	3.2 UJ	2.2 U
ACROLEIN	UG/L	PRG-TapWater	0.042	0.67 U	0.67 U	0.67 U	--	--
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.64 U	0.64 U	0.64 U	0.41 UJ	0.41 U
BENZENE	UG/L	PRG-TapWater	0.34	0.064 U	0.064 U	0.064 U	0.32 U	0.32 U
BROMOBENZENE	UG/L	PRG-TapWater	20	0.050 U	0.050 U	0.050 U	0.49 U	0.49 U
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.083 U	0.083 U	0.083 U	0.56 U	0.56 U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.046 U	0.046 U	0.046 U	0.42 U	0.42 U
BROMOFORM	UG/L	PRG-TapWater	8.5	0.13 U	0.13 U	0.13 U	0.50 U	0.50 U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.15 U	0.15 U	0.15 U	0.83 U	0.83 U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.068 U	0.068 U	0.068 U	0.46 U	0.46 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3895	AP-3895	AP-3896	AP-3901	AP-3916
Sample ID:				02AVMA14WA	02AVMA15WA	02AVMA16WA	03FROEWA09	03FROEWA05
QAQC Type:				N	FD	N	N	N
Date Sampled:				08/26/02	08/26/02	08/27/02	06/10/03	06/09/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	0.074 U	0.074 U	0.074 U	0.43 U	0.43 U
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.057 U	0.057 U	0.057 U	0.50 U	0.50 U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.092 U	0.092 U	0.092 U	0.63 U	0.63 U
CHLOROFORM	UG/L	PRG-TapWater	6.2	0.11 U	0.11 U	0.11 U	0.46 U	0.46 U
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	**1.4 J**	**3.4 =**	0.071 U	1.1 U	1.1 U
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.079 U	0.079 U	0.079 U	0.47 U	0.47 U
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.076 U	0.076 U	0.076 U	0.39 U	0.39 U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.072 U	0.072 U	0.072 U	0.37 U	0.37 U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.10 U	0.10 U	0.10 U	0.41 U	0.41 U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	0.11 U	0.11 U	0.11 U	1.5 UJ	1.5 U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.056 U	0.056 U	0.056 U	0.47 U	0.47 U
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.12 UJ	0.12 UJ	0.12 UJ	0.50 U	0.50 U
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	0.47 U	0.47 U	0.47 U	1.1 U	1.1 U
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.063 U	0.063 U	0.063 U	0.48 U	0.48 U
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	0.69 U	0.69 U	0.69 U	1.5 U	1.5 U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.094 U	0.094 U	0.094 U	0.36 UJ	0.36 U
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	**1.9 JB**	**2.6 B**	0.25 U	0.47 UJ	**0.60 BJ**
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.042 U	0.042 U	0.042 U	0.31 U	0.31 U
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.065 U	0.065 U	0.065 U	0.46 U	0.46 U
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.072 U	0.072 U	0.072 U	0.50 U	0.50 U
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.061 U	0.061 U	0.061 U	0.46 U	0.46 U
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	0.039 U	0.039 U	0.039 U	0.55 U	0.55 U
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.079 U	0.079 U	0.079 U	0.52 U	0.52 U
STYRENE	UG/L	PRG-TapWater	1,641	0.085 U	0.085 U	0.085 U	0.58 U	0.58 U
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.082 U	0.082 U	0.082 U	0.43 U	0.43 U
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.040 U	0.040 U	0.040 U	0.36 U	0.36 U
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	0.059 U	0.059 U	0.059 U	0.45 U	**1.3 J**
TOLUENE	UG/L	PRG-TapWater	723	**0.13 JB**	**0.12 JB**	**0.31 J**	0.55 U	0.26 U
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.042 U	0.042 U	0.042 U	0.61 U	0.61 U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.10 U	0.10 U	0.10 U	0.39 U	0.39 U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.49 U	0.49 U	0.49 U	0.86 U	0.86 U
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.086 U	0.086 U	0.086 U	0.55 U	0.55 U
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.070 U	0.070 U	0.070 U	0.51 U	0.51 U
VINYL ACETATE	UG/L	PRG-TapWater	412	0.065 U	0.065 U	0.065 U	0.66 U	0.66 U
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.061 U	0.061 U	0.061 U	0.53 U	0.53 U
XYLENES, m & p	UG/L	PRG-TapWater	210	0.14 U	0.14 U	0.14 U	0.28 U	0.28 U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3916	AP-4154	AP-4155	AP-4336	AP-4336
Sample ID:				03FROEWA06	02BAVMA04WA	02BAVMA05WA	02AVMA25WA	03AVMA17WA
QAQC Type:				FD	N	N	N	N
Date Sampled:				06/09/03	08/20/02	08/20/02	10/24/02	07/24/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	0.47 U	0.071 U	0.071 U	0.091 UJ	0.065
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	0.61 U	0.13 U	**1.1 =**	0.059 UJ	0.17
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	0.48 U	0.11 U	0.11 U	0.090 UJ	0.062
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	0.60 U	0.088 U	0.088 U	0.077 UJ	0.077
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	0.41 U	0.083 U	0.083 U	0.088 UJ	0.13
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	0.44 U	0.074 U	0.074 U	0.076 UJ	0.11
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	0.53 U	0.081 U	0.081 U	0.085 UJ	0.15
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	0.43 U	0.062 U	0.062 U	0.11 UJ	0.11
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	0.41 U	0.31 U	0.31 U	0.10 UJ	0.058
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	0.61 U	0.74 U	0.74 U	0.11 UJ	0.15
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	0.44 U	0.067 U	0.067 U	0.10 UJ	0.080
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	0.48 U	0.062 U	0.062 U	0.086 UJ	0.057
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	0.32 U	0.20 U	0.20 U	1.0 UJ	0.26
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	0.34 U	0.057 U	0.057 U	0.094 UJ	0.097
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	0.51 U	0.074 U	0.074 U	0.095 UJ	0.11
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	0.37 U	0.11 U	0.11 U	0.098 UJ	0.073
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	0.51 U	0.074 U	0.074 U	0.11 UJ	0.060
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	0.48 U	0.090 U	0.090 U	0.092 UJ	0.084
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	0.55 U	0.098 U	0.098 U	0.086 UJ	0.11
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.47 U	0.092 U	0.092 U	0.087 UJ	0.14
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	0.65 U	0.071 U	0.071 U	0.079 UJ	0.092
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	0.44 U	0.12 U	0.12 U	0.10 UJ	0.10
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	0.24 U	0.65 U	0.65 U	0.085 UJ	**--**
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.57 U	0.097 U	0.097 U	0.087 UJ	0.084
2-HEXANONE	UG/L	PRG-TapWater	--	0.46 U	0.67 U	0.67 U	0.18 UJ	0.18
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	0.63 U	0.099 U	0.099 U	0.090 UJ	0.085
ACETONE	UG/L	PRG-TapWater	608	**4.7 J**	0.13 U	0.13 U	5.1 UJ	5.1
ACROLEIN	UG/L	PRG-TapWater	0.042	**--**	0.67 U	0.67 U	0.90 UJ	0.90
ACRYLONITRILE	UG/L	PRG-TapWater	--	0.41 U	0.64 U	0.64 U	0.14 U	0.14
BENZENE	UG/L	PRG-TapWater	0.34	0.32 U	0.064 U	0.064 U	**0.11 JB**	0.092
BROMOBENZENE	UG/L	PRG-TapWater	20	0.49 U	0.050 U	0.050 U	0.079 UJ	0.060
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	0.56 U	0.083 U	0.083 U	0.072 UJ	0.087
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	0.42 U	0.046 U	0.046 U	**0.42 J**	0.079
BROMOFORM	UG/L	PRG-TapWater	8.5	0.50 U	0.13 U	0.13 U	0.079 UJ	0.12
BROMOMETHANE	UG/L	PRG-TapWater	8.7	0.83 U	0.15 U	0.15 U	0.068 UJ	0.094
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	0.46 U	0.068 U	0.068 U	0.090 UJ	0.090

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				AP-3916	AP-4154	AP-4155	AP-4336	AP-4336
Sample ID:				03FROEWA06	02BAVMA04WA	02BAVMA05WA	02AVMA25WA	03AVMA17WA
QAQC Type:				FD	N	N	N	N
Date Sampled:				06/09/03	08/20/02	08/20/02	10/24/02	07/24/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	0.43 U	0.074 U	0.074 U	0.085 UJ	0.16
CHLOROBENZENE	UG/L	PRG-TapWater	106	0.50 U	0.057 U	0.057 U	0.068 UJ	0.087
CHLOROETHANE	UG/L	PRG-TapWater	4.6	0.63 U	0.092 U	0.092 U	0.093 UJ	0.12
CHLOROFORM	UG/L	PRG-TapWater	6.2	0.46 U	0.11 U	0.11 U	**7.0 J**	0.080
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	1.1 U	**0.19 JB**	**0.15 JB**	0.072 UJ	**0.24**
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	0.47 U	0.079 U	0.079 U	0.080 UJ	0.11
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.39 U	0.076 U	0.076 U	0.065 UJ	0.054
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	0.37 U	0.072 U	0.072 U	0.053 UJ	0.096
DIBROMOMETHANE	UG/L	PRG-TapWater	61	0.41 U	0.10 U	0.10 U	0.089 UJ	0.060
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	1.5 U	0.11 U	0.11 U	0.081 UJ	0.16
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	0.47 U	0.056 U	0.056 U	0.094 UJ	0.073
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	0.50 U	0.12 U	0.12 U	0.12 UJ	0.13
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	1.1 U	0.47 U	0.47 U	0.097 UJ	0.097
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	0.48 U	0.063 U	0.063 U	0.10 UJ	0.084
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	1.5 U	0.69 U	0.69 U	1.4 UJ	1.4
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	0.36 U	0.094 U	0.094 U	**0.84 J**	0.12
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	**1.2 BJ**	**0.70 JB**	**1.0 JB**	**0.96 JB**	0.80
NAPHTHALENE	UG/L	PRG-TapWater	6.2	0.31 U	0.042 U	0.042 U	0.081 UJ	0.087
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.46 U	0.065 U	0.065 U	0.11 UJ	0.098
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	0.50 U	0.072 U	0.072 U	0.095 UJ	0.10
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	0.46 U	0.061 U	0.061 U	0.11 UJ	0.076
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	0.55 U	0.039 U	0.039 U	0.092 UJ	0.088
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.52 U	0.079 U	0.079 U	0.092 UJ	0.098
STYRENE	UG/L	PRG-TapWater	1,641	0.58 U	0.085 U	0.085 U	0.065 UJ	0.10
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	0.43 U	0.082 U	0.082 U	0.085 UJ	0.081
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	0.36 U	0.040 U	0.040 U	0.077 UJ	0.077
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	**1.4 J**	0.059 U	0.059 U	0.066 UJ	0.12
TOLUENE	UG/L	PRG-TapWater	723	0.35 U	**0.24 JB**	**0.35 JB**	**0.52 JB**	0.26
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	0.61 U	0.042 U	0.042 U	0.053 UJ	0.13
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	0.39 U	0.10 U	0.10 U	0.061 UJ	0.056
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	0.86 U	0.49 U	0.49 U	0.16 UJ	0.16
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	0.55 U	0.086 U	0.086 U	**0.16 J**	0.099
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	0.51 U	0.070 U	0.070 U	0.061 UJ	0.18
VINYL ACETATE	UG/L	PRG-TapWater	412	0.66 U	0.065 UJ	0.065 UJ	2.6 UJ	2.6
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	0.53 U	0.061 U	0.061 U	0.070 UJ	0.10
XYLENES, m & p	UG/L	PRG-TapWater	210	0.28 U	0.14 U	0.14 U	0.18 UJ	0.16

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-4337**	**AP-4338**	**AP-4339**	**AP-4340**	**AP-4341**
Sample ID:				02AVMA28WA	02AVMA26WA	02AVMA20WA	02AVMA21WA	02AVMA24WA
QAQC Type:				N	N	N	N	N
Date Sampled:				10/25/02	10/25/02	09/24/02	09/26/02	10/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43 U	0.091 U	0.091 U	0.071 U	0.50 U	0.091
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172 U	0.059 U	**0.29 J**	0.13 U	**1.1 =**	0.059
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055 U	0.090 U	0.090 U	0.11 U	0.50 U	0.090
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180 U	0.077 U	0.077 U	0.088 U	--	0.077
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20 U	0.088 U	0.088 U	0.083 U	0.50 U	0.088
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811 U	0.076 U	0.076 U	0.074 U	0.50 U	0.076
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339 U	0.085 U	0.085 U	0.081 U	0.50 U	0.085
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	-- U	0.11 U	0.11 U	0.062 U	0.50 U	0.11
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	-- UJ	0.10 U	0.10 U	0.31 U	0.50 U	0.10
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056 U	0.11 U	0.11 U	0.74 U	0.50 U	0.11
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194 U	0.10 U	0.10 U	0.067 U	0.50 U	0.10
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12 U	0.086 U	0.086 U	0.062 UJ	0.50 U	0.086
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048 U	1.0 UJ	1.0 UJ	0.20 U	0.50 U	1.0
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04 U	0.094 U	0.094 U	0.057 U	0.50 U	0.094
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370 U	**0.16 J**	**1.9 =**	0.074 U	0.50 U	0.095
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12 U	0.098 U	0.098 U	0.11 U	0.50 U	0.098
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16 U	0.11 U	0.11 U	0.074 U	0.50 U	0.11
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12 U	0.092 U	0.092 U	0.090 UJ	0.50 U	0.092
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5 U	0.086 U	**0.19 J**	0.098 U	0.50 U	0.086
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	-- U	0.087 U	0.087 U	0.092 U	0.50 U	0.087
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50 U	0.079 U	**0.20 J**	0.071 U	0.50 U	0.079
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	-- U	0.10 U	0.10 U	0.12 U	0.50 U	0.10
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	0.085 U	0.085 U	0.65 UR	2.5 U	0.085
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122 U	0.087 U	0.087 U	0.097 U	0.50 U	0.087
2-HEXANONE	UG/L	PRG-TapWater	-- U	0.18 U	0.18 U	0.67 U	2.5 U	0.18
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122 U	0.090 U	0.090 U	0.099 U	0.50 U	0.090
ACETONE	UG/L	PRG-TapWater	608 UJ	5.1 UJ	5.1 UJ	0.13 U	2.5 U	5.1
ACROLEIN	UG/L	PRG-TapWater	0.042 U	0.90 U	0.90 U	0.67 U	--	0.90
ACRYLONITRILE	UG/L	PRG-TapWater	-- U	0.14 U	0.14 U	0.64 U	--	0.14
BENZENE	UG/L	PRG-TapWater	0.34 U	0.10 U	**0.11 JB**	**0.16 J**	0.50 U	0.10
BROMOBENZENE	UG/L	PRG-TapWater	20 U	0.079 U	0.079 U	0.050 U	0.50 U	0.079
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	-- U	0.072 U	0.072 U	0.083 U	0.50 U	0.072
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18 U	0.081 U	0.081 U	0.046 U	0.50 U	0.081
BROMOFORM	UG/L	PRG-TapWater	8.5 U	0.079 U	0.079 U	0.13 UJ	0.50 U	0.079
BROMOMETHANE	UG/L	PRG-TapWater	8.7 U	0.068 U	0.068 U	0.15 U	1.0 U	0.068
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043 U	0.090 U	**0.46 J**	**0.11 J**	0.50 U	0.090

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-4337**	**AP-4338**	**AP-4339**	**AP-4340**	**AP-4341**
Sample ID:				02AVMA28WA	02AVMA26WA	02AVMA20WA	02AVMA21WA	02AVMA24WA
QAQC Type:				N	N	N	N	N
Date Sampled:				10/25/02	10/25/02	09/24/02	09/26/02	10/24/02
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17 U	**1.2 =**	0.085 U	**0.13 J**	**0.56 J**	**0.38**
CHLOROBENZENE	UG/L	PRG-TapWater	106 U	0.068 U	0.068 U	0.057 U	0.50 U	0.068
CHLOROETHANE	UG/L	PRG-TapWater	4.6 U	0.093 U	0.093 U	0.092 U	0.50 U	0.093
CHLOROFORM	UG/L	PRG-TapWater	6.2 U	**0.78 =**	**0.78 =**	**0.73 =**	0.50 U	0.076
CHLOROMETHANE	UG/L	PRG-TapWater	1.5 **J**	0.072 U	0.072 U	0.071 U	**3.3 =**	0.072
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61 U	0.080 U	0.080 U	0.079 U	0.50 U	0.080
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40 U	0.065 U	0.065 U	0.076 U	0.50 U	0.065
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13 U	0.053 U	0.053 U	0.072 U	0.50 U	0.053
DIBROMOMETHANE	UG/L	PRG-TapWater	61 U	0.089 U	0.089 U	0.10 U	0.50 U	0.089
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395 U	0.081 U	0.081 U	0.11 U	0.50 U	0.081
ETHYLBENZENE	UG/L	PRG-TapWater	2.9 U	0.094 U	0.094 U	0.056 U	0.50 U	0.094
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86 U	0.12 U	0.12 U	0.12 U	0.50 U	0.12
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	-- U	0.097 U	0.097 U	0.47 U	**4.9 J**	0.097
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658 U	0.10 U	0.10 U	0.063 U	0.50 U	0.10
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904 U	1.4 U	1.4 U	0.69 U	2.5 U	1.4
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158 U	0.12 U	**0.30 J**	0.094 U	2.5 U	0.12
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3 U	0.19 U	**0.80 JB**	**0.62 JB**	**2.0 B**	**0.76**
NAPHTHALENE	UG/L	PRG-TapWater	6.2 U	0.081 U	**2.2 =**	0.042 U	0.50 U	0.081
n-BUTYLBENZENE	UG/L	PRG-TapWater	243 U	0.11 U	0.11 U	0.065 U	0.50 U	0.11
n-PROPYLBENZENE	UG/L	PRG-TapWater	243 U	0.095 U	0.095 U	0.072 U	0.50 U	0.095
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210 U	0.11 U	0.11 U	0.061 U	0.50 U	0.11
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	-- U	0.092 U	0.092 U	0.039 U	0.50 U	0.092
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243 U	0.092 U	0.092 U	0.079 U	0.50 U	0.092
STYRENE	UG/L	PRG-TapWater	1,641 U	0.065 U	0.065 U	0.085 UJ	0.50 U	0.065
t-BUTYLBENZENE	UG/L	PRG-TapWater	243 U	0.085 U	0.085 U	0.082 U	0.50 U	0.085
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13 U	**0.17 J**	0.077 U	0.040 U	0.50 U	0.077
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66 U	0.066 U	0.066 U	0.059 U	0.50 U	**1.8**
TOLUENE	UG/L	PRG-TapWater	723 U	**0.37 JB**	**0.18 JB**	**0.42 JB**	0.50 U	**0.090**
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122 U	0.053 U	0.053 U	0.042 U	0.50 U	0.053
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40 U	0.061 U	0.061 U	0.10 U	0.50 U	0.061
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	-- U	0.16 U	0.16 U	0.49 UJ	**--**	0.16
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028 U	0.081 U	0.081 U	0.086 U	0.50 U	0.081
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288 U	0.061 U	0.061 U	0.070 U	0.50 U	0.061
VINYL ACETATE	UG/L	PRG-TapWater	412 U	2.6 UJ	2.6 UJ	0.065 UJ	2.5 U	2.6
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020 U	0.070 U	0.070 U	0.061 U	0.50 U	0.070
XYLENES, m & p	UG/L	PRG-TapWater	210 U	0.18 U	0.18 U	0.14 U	1.0 U	0.18

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-4341**	**AP-4342**	**AP-4342**	**AP-4342**	**AP-4342**
Sample ID:				03FROEWA11	02AVMA22WA	02AVMA23WA	02AVMA29WA	03AVMA01WA
QAQC Type:				N	N	FD	N	N
Date Sampled:				06/10/03	10/23/02	10/23/02	11/14/02	06/10/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43 UJ	0.47 U	0.091 UJ	**0.10 J**	0.091 U	0.065
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172 UJ	0.61 U	0.059 UJ	0.059 UJ	0.059 U	0.17
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055 UJ	0.48 U	0.090 UJ	0.090 UJ	0.090 U	0.062
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180 UJ	0.60 U	0.077 UJ	0.077 UJ	0.077 U	0.077
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20 UJ	0.41 U	0.088 UJ	0.088 UJ	0.088 U	0.13
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811 UJ	0.44 U	0.076 UJ	0.076 UJ	0.076 U	0.11
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339 UJ	0.53 U	0.085 UJ	0.085 UJ	0.085 U	0.15
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	-- UJ	0.43 U	0.11 UJ	0.11 UJ	0.11 U	0.11
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	-- UJ	0.41 UJ	0.10 UJ	0.10 UJ	0.10 U	0.058
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056 UJ	0.61 U	0.11 UJ	0.11 UJ	0.11 U	0.15
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194 UJ	0.44 U	0.10 UJ	0.10 UJ	0.10 U	0.080
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12 UJ	0.48 U	0.086 UJ	0.086 UJ	0.086 U	0.057
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048 UJ	0.32 UJ	1.0 UJ	1.0 UJ	1.0 U	0.26
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04 UJ	0.34 U	0.094 UJ	0.094 UJ	0.094 U	0.097
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370 UJ	0.51 U	0.095 UJ	0.095 UJ	0.095 U	0.11
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12 UJ	0.37 U	0.098 UJ	0.098 UJ	0.098 U	0.073
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16 UJ	0.51 U	0.11 UJ	0.11 UJ	0.11 U	0.060
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12 UJ	0.48 U	0.092 UJ	0.092 UJ	0.092 U	0.084
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5 UJ	0.55 U	0.086 UJ	0.086 UJ	0.086 U	0.11
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	-- UJ	0.47 U	0.087 UJ	0.087 UJ	0.087 U	0.14
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50 UJ	0.65 U	0.079 UJ	0.079 UJ	0.079 U	0.092
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	-- UJ	0.44 U	0.10 UJ	0.10 UJ	0.10 U	0.10
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	-- UJ	**--**	0.085 UJ	0.085 UJ	0.085 U	**--**
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122 UJ	0.57 U	0.087 UJ	0.087 UJ	0.087 U	0.084
2-HEXANONE	UG/L	PRG-TapWater	-- UJ	0.46 UJ	0.18 UJ	0.18 UJ	0.18 U	0.18
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122 UJ	0.63 U	0.090 UJ	0.090 UJ	0.090 U	0.085
ACETONE	UG/L	PRG-TapWater	608 UJ	3.2 UJ	5.1 UR	5.1 UR	5.1 UR	5.1
ACROLEIN	UG/L	PRG-TapWater	0.042 UJ	**--**	0.90 UJ	0.90 UJ	0.90 U	0.90
ACRYLONITRILE	UG/L	PRG-TapWater	-- U	0.41 UJ	0.14 U	0.14 U	0.14 U	0.14
BENZENE	UG/L	PRG-TapWater	0.34 UJ	0.32 U	0.10 UJ	0.10 UJ	0.10 U	0.092
BROMOBENZENE	UG/L	PRG-TapWater	20 UJ	0.49 U	0.079 UJ	0.079 UJ	0.079 U	0.060
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	-- UJ	0.56 U	0.072 UJ	0.072 UJ	0.072 U	0.087
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18 UJ	0.42 U	0.081 UJ	0.081 UJ	0.081 U	0.079
BROMOFORM	UG/L	PRG-TapWater	8.5 UJ	0.50 U	0.079 UJ	0.079 UJ	0.079 U	0.12
BROMOMETHANE	UG/L	PRG-TapWater	8.7 UJ	0.83 U	0.068 UJ	**0.15 J**	0.068 U	0.094
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043 UJ	0.46 U	0.090 UJ	0.090 UJ	0.090 U	0.090

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-4341**		**AP-4342**		**AP-4342**		**AP-4342**		**AP-4342**	
Sample ID:				03FROEWA11		02AVMA22WA		02AVMA23WA		02AVMA29WA		03AVMA01WA	
QAQC Type:				N		N		FD		N		N	
Date Sampled:				06/10/03		10/23/02		10/23/02		11/14/02		06/10/03	
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	**J**	**0.52**	**J**	**0.75**	**J**	**0.80**	**J**	**0.44**	**J**	**0.63**
CHLOROBENZENE	UG/L	PRG-TapWater	106	UJ	0.50	U	0.068	UJ	0.068	UJ	0.068	U	0.087
CHLOROETHANE	UG/L	PRG-TapWater	4.6	UJ	0.63	U	0.093	UJ	0.093	UJ	0.093	U	0.12
CHLOROFORM	UG/L	PRG-TapWater	6.2	UJ	**0.58**	**J**	**0.27**	**J**	**0.29**	**J**	**0.28**	**J**	**0.29**
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	UJ	1.1	U	0.072	UJ	**2.2**	**J**	0.072	U	0.079
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	UJ	0.47	U	0.080	UJ	0.080	UJ	0.080	U	0.11
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	UJ	0.39	U	0.065	UJ	0.065	UJ	0.065	U	0.054
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	UJ	0.37	U	0.053	UJ	0.053	UJ	0.053	U	0.096
DIBROMOMETHANE	UG/L	PRG-TapWater	61	UJ	0.41	U	0.089	UJ	0.089	UJ	0.089	U	0.060
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	UJ	1.5	U	0.081	UJ	0.081	UJ	0.081	U	0.16
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	UJ	0.47	U	0.094	UJ	0.094	UJ	0.094	U	0.073
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	UJ	0.50	U	0.12	UJ	0.12	UJ	0.12	U	0.13
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	UJ	1.1	U	0.097	UJ	0.097	UJ	0.097	U	0.097
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	UJ	0.48	U	0.10	UJ	0.10	UJ	0.10	U	0.084
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	UJ	1.5	U	1.4	UJ	1.4	UJ	1.4	U	1.4
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	UJ	0.36	UJ	0.12	UJ	0.12	UJ	0.12	U	0.12
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	**JB**	0.47	UJ	**0.43**	**JB**	**1.0**	**JB**	**0.49**	**JB**	0.37
NAPHTHALENE	UG/L	PRG-TapWater	6.2	UJ	0.31	U	0.081	UJ	0.081	UJ	0.081	U	0.087
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	UJ	0.46	U	0.11	UJ	0.11	UJ	0.11	U	0.098
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	UJ	0.50	U	0.095	UJ	0.095	UJ	0.095	U	0.10
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	UJ	0.46	U	**0.12**	**J**	0.11	UJ	0.11	U	0.076
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	UJ	0.55	U	0.092	UJ	0.092	UJ	0.092	U	0.088
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	UJ	0.52	U	0.092	UJ	0.092	UJ	0.092	U	0.098
STYRENE	UG/L	PRG-TapWater	1,641	UJ	0.58	U	0.065	UJ	0.065	UJ	0.065	U	0.10
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	UJ	0.43	U	0.085	UJ	0.085	UJ	0.085	U	0.081
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	UJ	0.36	U	0.077	UJ	0.077	UJ	0.077	U	0.077
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	**J**	**23**	**=**	**38**	**J**	**38**	**J**	**49**	**=**	**37**
TOLUENE	UG/L	PRG-TapWater	723	**JB**	0.55	U	**0.38**	**J**	**0.39**	**J**	**0.10**	**J**	0.097
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	UJ	0.61	U	0.053	UJ	0.053	UJ	0.053	U	0.13
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	UJ	0.39	U	0.061	UJ	0.061	UJ	0.061	U	0.056
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	UJ	0.86	U	0.16	UJ	0.16	UJ	0.16	U	0.16
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	UJ	0.55	U	0.081	UJ	0.081	UJ	0.081	U	0.099
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	UJ	0.51	U	0.061	UJ	0.061	UJ	0.061	U	0.18
VINYL ACETATE	UG/L	PRG-TapWater	412	UJ	0.66	U	2.6	UJ	2.6	UJ	2.6	U	2.6
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	UJ	0.53	U	0.070	UJ	0.070	UJ	0.070	U	0.10
XYLENES, m & p	UG/L	PRG-TapWater	210	UJ	0.28	U	**1.1**	**J**	0.18	UJ	0.18	U	0.16

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:					AP-4342		AP-4342		AP-4411		AP-4411		AP-4412
Sample ID:					03AVMA07WA		03FROEWA15		03AVMA04WA		03FROEWA14		03AVMA03WA
QAQC Type:					FD		N		N		N		N
Date Sampled:					06/10/03		09/20/03		06/11/03		09/20/03		06/11/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	U	0.065	U	0.47	U	0.065	U	0.47	U	0.065
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	U	0.17	U	0.61	U	0.17	U	0.61	U	0.17
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	UJ	0.062	UJ	0.48	U	0.062	UJ	0.48	U	0.062
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	U	0.077	U	--		0.077	U	--		0.077
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	U	0.13	U	0.41	U	0.13	U	0.41	U	0.13
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	U	0.11	U	0.44	U	0.11	U	0.44	U	0.11
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	U	0.15	U	0.53	U	0.15	U	0.53	U	0.15
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	U	0.11	U	0.43	U	0.11	U	0.43	U	0.11
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	UJ	0.058	UJ	0.41	UJ	0.058	UJ	0.41	UJ	0.058
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	U	0.15	U	0.61	U	0.15	U	0.61	U	0.15
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	U	0.080	U	0.44	UJ	0.080	U	0.44	UJ	0.080
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	U	0.057	U	0.48	U	0.057	U	0.48	U	0.057
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	U	0.26	U	0.32	UJ	0.26	U	0.32	UJ	0.26
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	U	0.097	U	0.34	U	0.097	U	0.34	U	0.097
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	U	0.11	U	0.51	U	0.11	U	0.51	U	0.11
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	U	0.073	U	0.37	U	0.073	U	0.37	U	0.073
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	U	0.060	U	0.51	U	0.060	U	0.51	U	0.060
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	U	0.084	U	0.48	U	0.084	U	0.48	U	0.084
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	U	0.11	U	0.55	U	0.11	U	0.55	U	0.11
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	U	0.14	U	0.47	U	0.14	U	0.47	U	0.14
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	U	0.092	U	0.65	U	0.092	U	0.65	U	0.092
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	U	0.10	U	0.44	UJ	0.10	U	0.44	UJ	0.10
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--		--		--		--		--		--
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	U	0.084	U	0.57	U	0.084	U	0.57	U	0.084
2-HEXANONE	UG/L	PRG-TapWater	--	U	0.18	U	--		0.18	U	--		0.18
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	U	0.085	U	0.63	U	0.085	U	0.63	U	0.085
ACETONE	UG/L	PRG-TapWater	608	R	5.1	R	3.2	UJ	5.1	UJ	3.2	UJ	5.1
ACROLEIN	UG/L	PRG-TapWater	0.042	UJ	0.90	UJ	--		0.90	UJ	--		0.90
ACRYLONITRILE	UG/L	PRG-TapWater	--	U	0.14	U	--		0.14	U	--		0.14
BENZENE	UG/L	PRG-TapWater	0.34	U	0.092	U	0.32	U	0.092	U	0.32	U	0.092
BROMOBENZENE	UG/L	PRG-TapWater	20	U	0.060	U	0.49	U	0.060	U	0.49	U	0.060
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	U	0.087	U	0.56	U	0.087	U	0.56	U	0.087
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	U	0.079	U	0.42	U	0.079	U	0.42	U	0.079
BROMOFORM	UG/L	PRG-TapWater	8.5	U	0.12	U	0.50	U	0.12	U	0.50	U	0.12
BROMOMETHANE	UG/L	PRG-TapWater	8.7	U	0.094	U	0.83	U	0.094	U	0.83	U	0.094
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	U	0.090	U	--		0.090	U	--		0.090

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-4342**		**AP-4342**		**AP-4411**		**AP-4411**		**AP-4412**
Sample ID:				03AVMA07WA		03FROEWA15		03AVMA04WA		03FROEWA14		03AVMA03WA
QAQC Type:				FD		N		N		N		N
Date Sampled:				06/10/03		09/20/03		06/11/03		09/20/03		06/11/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**									
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	**=**	**0.59**	**=**	**0.68**	**J**	**0.33**	**J**	0.43	U 0.16
CHLOROBENZENE	UG/L	PRG-TapWater	106	U	0.087	U	0.50	U	0.087	U	0.50	U 0.087
CHLOROETHANE	UG/L	PRG-TapWater	4.6	U	0.12	U	0.63	U	0.12	U	0.63	U 0.12
CHLOROFORM	UG/L	PRG-TapWater	6.2	**J**	**0.32**	**J**	0.46	U	0.080	U	0.46	U 0.080
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	U	0.079	U	1.1	U	0.079	U	1.1	U 0.079
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	U	0.11	U	0.47	U	0.11	U	0.47	U 0.11
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	U	0.054	U	0.39	U	0.054	U	0.39	U 0.054
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	U	0.096	U	0.37	U	0.096	U	0.37	U 0.096
DIBROMOMETHANE	UG/L	PRG-TapWater	61	U	0.060	U	0.41	U	0.060	U	0.41	U 0.060
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	U	0.16	U	1.5	U	0.16	U	1.5	U 0.16
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	U	0.073	U	0.47	U	0.073	U	0.47	U 0.073
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	UJ	0.13	UJ	0.50	UJ	0.13	UJ	0.50	UJ 0.13
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	U	0.097	U	--		0.097	U	--	0.097
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	U	0.084	U	0.48	U	0.084	U	0.48	U 0.084
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	UJ	1.4	UJ	1.5	U	1.4	UJ	1.5	U 1.4
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	U	0.12	U	--		0.12	U	--	0.12
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	U	0.60	U	1.8	U	0.51	U	1.5	U 0.54
NAPHTHALENE	UG/L	PRG-TapWater	6.2	U	0.087	U	0.31	UJ	0.087	U	0.31	UJ 0.087
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	U	0.098	U	0.46	UJ	0.098	U	0.46	UJ 0.098
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	U	0.10	U	0.50	U	0.10	U	0.50	U 0.10
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	U	0.076	U	0.46	U	0.076	U	0.46	U 0.076
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	U	0.088	U	0.55	U	0.088	U	0.55	U 0.088
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	U	0.098	U	0.52	U	0.098	U	0.52	U 0.098
STYRENE	UG/L	PRG-TapWater	1,641	U	0.10	U	0.58	U	0.10	U	0.58	U 0.10
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	U	0.081	U	0.43	U	0.081	U	0.43	U 0.081
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	U	0.077	U	--		0.077	U	--	0.077
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	**=**	**34**	**=**	**53**	**=**	**9.8**	**=**	**8.9**	**=** 0.12
TOLUENE	UG/L	PRG-TapWater	723	U	0.097	U	0.55	U	0.097	U	0.55	U 0.097
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	U	0.13	U	0.61	U	0.13	U	0.61	U 0.13
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	U	0.056	U	0.39	U	0.056	U	0.39	U 0.056
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	U	0.16	U	--		0.16	U	--	0.16
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	U	0.099	U	0.55	U	0.099	U	0.55	U 0.099
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	U	0.18	U	0.51	U	0.18	U	0.51	U 0.18
VINYL ACETATE	UG/L	PRG-TapWater	412	U	2.6	U	--		2.6	U	--	2.6
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	U	0.10	U	0.53	U	0.10	U	0.53	U 0.10
XYLENES, m & p	UG/L	PRG-TapWater	210	U	0.16	U	0.28	U	0.16	U	0.28	U 0.16

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				**AP-4413**	**AP-4413**	**AP-4414**	**AP-4415**	**AP-4416**
Sample ID:				03AVMA05WA	03FROEWA16	03AVMA20WA	03AVMA06WA	03AVMA18WA
QAQC Type:				N	N	N	N	N
Date Sampled:				06/11/03	09/20/03	08/20/03	06/12/03	08/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**					
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43 U	0.065 U	0.47 U	0.065 U	0.065 U	0.065
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172 U	0.17 U	0.61 U	0.17 U	0.17 U	0.17
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055 UJ	0.062 UJ	0.48 U	0.062 U	0.062 UJ	0.062
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180 U	0.077 U	--	0.077 U	0.077 U	0.077
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20 U	0.13 U	0.41 U	0.13 U	0.13 U	0.13
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811 U	0.11 U	0.44 U	0.11 U	0.11 U	0.11
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339 U	0.15 U	0.53 U	0.15 U	0.15 U	0.15
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	-- U	0.11 U	0.43 U	0.11 U	0.11 U	0.11
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	-- UJ	0.058 UJ	0.41 UJ	0.058 UJ	0.058 U	0.058
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056 U	0.15 U	0.61 U	0.15 U	0.15 U	0.15
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194 U	0.080 U	0.44 UJ	0.080 UJ	0.080 U	0.080
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12 U	0.057 U	0.48 U	0.057 UJ	0.057 U	0.057
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048 U	0.26 U	0.32 UJ	0.26 U	0.26 U	0.26
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04 U	0.097 U	0.34 U	0.097 U	0.097 U	0.097
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370 U	0.11 U	0.51 U	0.11 U	0.11 U	0.11
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12 U	0.073 U	0.37 U	0.073 U	0.073 U	0.073
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16 U	0.060 U	0.51 U	0.060 U	0.060 U	0.060
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12 U	0.084 U	0.48 U	0.084 UJ	0.084 U	0.084
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5 U	0.11 U	0.55 U	0.11 UJ	0.11 U	0.11
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	-- U	0.14 U	0.47 U	0.14 U	0.14 U	0.14
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50 U	0.092 U	0.65 U	0.092 U	0.092 U	0.092
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	-- U	0.10 U	0.44 UJ	0.10 U	0.10 U	0.10
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	--	--	--	--	--
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122 U	0.084 U	0.57 U	0.084 U	0.084 U	0.084
2-HEXANONE	UG/L	PRG-TapWater	-- U	0.18 U	--	0.18 U	0.18 U	0.18
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122 U	0.085 U	0.63 U	0.085 U	0.085 U	0.085
ACETONE	UG/L	PRG-TapWater	608 UJ	5.1 UJ	3.2 UJ	5.1 UJ	5.1 R	5.1
ACROLEIN	UG/L	PRG-TapWater	0.042 UJ	0.90 UJ	--	0.90 U	0.90 UJ	0.90
ACRYLONITRILE	UG/L	PRG-TapWater	-- U	0.14 U	--	0.14 U	0.14 U	0.14
BENZENE	UG/L	PRG-TapWater	0.34 U	0.092 U	0.32 U	0.092 U	0.092 U	0.092
BROMOBENZENE	UG/L	PRG-TapWater	20 U	0.060 U	0.49 U	0.060 UJ	0.060 U	0.060
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	-- U	0.087 U	0.56 U	0.087 U	0.087 U	0.087
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18 U	0.079 U	0.42 U	0.079 U	0.079 U	0.079
BROMOFORM	UG/L	PRG-TapWater	8.5 U	0.12 U	0.50 U	0.12 U	0.12 U	0.12
BROMOMETHANE	UG/L	PRG-TapWater	8.7 U	0.094 U	0.83 U	0.094 U	0.094 U	0.094
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043 U	0.090 U	--	0.090 U	0.090 U	0.090

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:					**AP-4413**		**AP-4413**		**AP-4414**		**AP-4415**		**AP-4416**
Sample ID:					03AVMA05WA		03FROEWA16		03AVMA20WA		03AVMA06WA		03AVMA18WA
QAQC Type:					N		N		N		N		N
Date Sampled:					06/11/03		09/20/03		08/20/03		06/12/03		08/20/03
Analyte	**Units**	**Criteria Source**	**Criteria Value**										
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	U	**1.3**	**=**	**0.97**	**J**	0.16	U	0.16	U	0.16
CHLOROBENZENE	UG/L	PRG-TapWater	106	U	0.087	U	0.50	U	0.087	U	0.087	U	0.087
CHLOROETHANE	UG/L	PRG-TapWater	4.6	U	0.12	U	0.63	U	0.12	U	0.12	U	0.12
CHLOROFORM	UG/L	PRG-TapWater	6.2	U	**0.48**	**J**	0.46	U	0.080	U	0.080	U	0.080
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	U	0.079	U	1.1	U	**0.40**	**J**	0.079	U	0.079
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	U	0.11	U	0.47	U	0.11	UJ	0.11	U	0.11
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	U	0.054	U	0.39	U	0.054	U	0.054	U	0.054
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	U	0.096	U	0.37	U	0.096	U	0.096	U	0.096
DIBROMOMETHANE	UG/L	PRG-TapWater	61	U	0.060	U	0.41	U	0.060	U	0.060	U	0.060
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	U	0.16	U	1.5	U	0.16	UJ	0.16	U	0.16
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	U	0.073	U	0.47	U	0.073	UJ	0.073	U	0.073
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	UJ	0.13	UJ	0.50	UJ	0.13	UJ	0.13	U	0.13
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	U	0.097	U	--		0.097	U	0.097	U	0.097
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	U	0.084	U	0.48	U	0.084	UJ	0.084	U	0.084
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	UJ	1.4	UJ	1.5	U	1.4	U	1.4	UJ	1.4
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	U	0.12	U	--		0.12	U	0.12	U	0.12
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	U	0.18	UJ	2.0	U	0.73	U	0.31	U	0.90
NAPHTHALENE	UG/L	PRG-TapWater	6.2	U	0.087	U	0.31	UJ	0.087	U	0.087	U	0.087
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	U	0.098	U	0.46	UJ	0.098	UJ	0.098	U	0.098
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	U	0.10	U	0.50	U	0.10	UJ	0.10	U	0.10
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	U	0.076	U	0.46	U	0.076	UJ	0.076	U	0.076
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	U	0.088	U	0.55	U	0.088	UJ	0.088	U	0.088
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	U	0.098	U	0.52	U	0.098	UJ	0.098	U	0.098
STYRENE	UG/L	PRG-TapWater	1,641	U	0.10	U	0.58	U	0.10	UJ	0.10	U	0.10
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	U	0.081	U	0.43	U	0.081	UJ	0.081	U	0.081
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	U	0.077	U	--		0.077	U	0.077	U	0.077
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	U	**100**	**J**	**120**	**=**	0.12	UJ	**0.40**	**J**	0.12
TOLUENE	UG/L	PRG-TapWater	723	U	0.097	U	0.55	U	0.097	U	0.097	U	0.097
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	U	0.13	U	0.61	U	0.13	U	0.13	U	0.13
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	U	0.056	U	0.39	U	0.056	U	0.056	U	0.056
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	U	0.16	U	--		0.16	U	0.16	U	0.16
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	U	0.099	U	0.55	U	0.099	UJ	0.099	U	0.099
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	U	0.18	U	0.51	U	0.18	U	0.18	U	0.18
VINYL ACETATE	UG/L	PRG-TapWater	412	U	2.6	U	--		2.6	UJ	2.6	U	2.6
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	U	0.10	U	0.53	U	0.10	U	0.10	U	0.10
XYLENES, m & p	UG/L	PRG-TapWater	210	U	0.16	U	0.28	U	0.16	UJ	0.16	U	0.16

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:
Sample ID:
QAQC Type:
Date Sampled:

Analyte	Units	Criteria Source	Criteria Value	
1,1,1,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.43	U
1,1,1-TRICHLOROETHANE	UG/L	PRG-TapWater	3,172	U
1,1,2,2-TETRACHLOROETHANE	UG/L	PRG-TapWater	0.055	U
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	UG/L	PRG-TapWater	59,180	U
1,1,2-TRICHLOROETHANE	UG/L	PRG-TapWater	0.20	U
1,1-DICHLOROETHANE	UG/L	PRG-TapWater	811	U
1,1-DICHLOROETHENE	UG/L	PRG-TapWater	339	U
1,1-DICHLOROPROPENE	UG/L	PRG-TapWater	--	U
1,2,3-TRICHLOROBENZENE	UG/L	PRG-TapWater	--	U
1,2,3-TRICHLOROPROPANE	UG/L	PRG-TapWater	0.0056	U
1,2,4-TRICHLOROBENZENE	UG/L	PRG-TapWater	194	UJ
1,2,4-TRIMETHYLBENZENE	UG/L	PRG-TapWater	12	U
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	PRG-TapWater	0.048	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	UG/L	PRG-TapWater	7.57E-04	U
1,2-DICHLOROBENZENE	UG/L	PRG-TapWater	370	U
1,2-DICHLOROETHANE	UG/L	PRG-TapWater	0.12	U
1,2-DICHLOROPROPANE	UG/L	PRG-TapWater	0.16	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	UG/L	PRG-TapWater	12	UJ
1,3-DICHLOROBENZENE	UG/L	PRG-TapWater	5.5	U
1,3-DICHLOROPROPANE	UG/L	PRG-TapWater	--	U
1,4-DICHLOROBENZENE	UG/L	PRG-TapWater	0.50	U
2,2-DICHLOROPROPANE	UG/L	PRG-TapWater	--	U
2-CHLOROETHYL VINYL ETHER	UG/L	PRG-TapWater	--	
2-CHLOROTOLUENE	UG/L	PRG-TapWater	122	U
2-HEXANONE	UG/L	PRG-TapWater	--	U
4-CHLOROTOLUENE	UG/L	PRG-TapWater	122	U
ACETONE	UG/L	PRG-TapWater	608	UJ
ACROLEIN	UG/L	PRG-TapWater	0.042	U
ACRYLONITRILE	UG/L	PRG-TapWater	--	U
BENZENE	UG/L	PRG-TapWater	0.34	U
BROMOBENZENE	UG/L	PRG-TapWater	20	UJ
BROMOCHLOROMETHANE	UG/L	PRG-TapWater	--	U
BROMODICHLOROMETHANE	UG/L	PRG-TapWater	0.18	U
BROMOFORM	UG/L	PRG-TapWater	8.5	U
BROMOMETHANE	UG/L	PRG-TapWater	8.7	U
CARBON DISULFIDE	UG/L	PRG-TapWater	1,043	U

TABLE B-66

Criteria Evaluation - Groundwater - AVMA VOC

OUE Fort Richardson

Location ID:				
Sample ID:				
QAQC Type:				
Date Sampled:				
Analyte	**Units**	**Criteria Source**	**Criteria Value**	
CARBON TETRACHLORIDE	UG/L	PRG-TapWater	0.17	U
CHLOROBENZENE	UG/L	PRG-TapWater	106	U
CHLOROETHANE	UG/L	PRG-TapWater	4.6	U
CHLOROFORM	UG/L	PRG-TapWater	6.2	U
CHLOROMETHANE	UG/L	PRG-TapWater	1.5	U
cis-1,2-DICHLOROETHYLENE	UG/L	PRG-TapWater	61	UJ
cis-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	U
DIBROMOCHLOROMETHANE	UG/L	PRG-TapWater	0.13	U
DIBROMOMETHANE	UG/L	PRG-TapWater	61	U
DICHLORODIFLUOROMETHANE	UG/L	PRG-TapWater	395	U
ETHYLBENZENE	UG/L	PRG-TapWater	2.9	UJ
HEXACHLOROBUTADIENE	UG/L	PRG-TapWater	0.86	UJ
IODOMETHANE (METHYL IODIDE)	UG/L	PRG-TapWater	--	U
ISOPROPYLBENZENE (CUMENE)	UG/L	PRG-TapWater	658	UJ
METHYL ETHYL KETONE (2-BUTANONE)	UG/L	PRG-TapWater	1,904	U
METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	UG/L	PRG-TapWater	158	U
METHYLENE CHLORIDE	UG/L	PRG-TapWater	4.3	U
NAPHTHALENE	UG/L	PRG-TapWater	6.2	U
n-BUTYLBENZENE	UG/L	PRG-TapWater	243	UJ
n-PROPYLBENZENE	UG/L	PRG-TapWater	243	UJ
O-XYLENE (1,2-DIMETHYLBENZENE)	UG/L	PRG-TapWater	210	UJ
P-CYMENE (p-ISOPROPYLTOLUENE)	UG/L	PRG-TapWater	--	UJ
SEC-BUTYLBENZENE	UG/L	PRG-TapWater	243	U
STYRENE	UG/L	PRG-TapWater	1,641	UJ
t-BUTYLBENZENE	UG/L	PRG-TapWater	243	UJ
tert-BUTYL METHYL ETHER	UG/L	PRG-TapWater	13	U
TETRACHLOROETHYLENE(PCE)	UG/L	PRG-TapWater	0.66	UJ
TOLUENE	UG/L	PRG-TapWater	723	U
trans-1,2-DICHLOROETHENE	UG/L	PRG-TapWater	122	U
trans-1,3-DICHLOROPROPENE	UG/L	PRG-TapWater	0.40	U
trans-1,4-DICHLORO-2-BUTENE	UG/L	PRG-TapWater	--	U
TRICHLOROETHYLENE (TCE)	UG/L	PRG-TapWater	0.028	UJ
TRICHLOROFLUOROMETHANE	UG/L	PRG-TapWater	1,288	U
VINYL ACETATE	UG/L	PRG-TapWater	412	UJ
VINYL CHLORIDE	UG/L	PRG-TapWater	0.020	U
XYLENES, m & p	UG/L	PRG-TapWater	210	UJ

Appendix C
Building 35-752 Area
Soil Boring Logs

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
171256	AP-4328	Sheet 1 of 1

SOIL BORING LOG

PROJECT : Operational Unit E Release Investigation LOCATION : Building 35-752 - Burn Pit DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (FT): NORTHING (FT): EASTING (FT):

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger CME-55

WATER LEVELS : None Encountered START : 7/26/02 15:00 END : 7/26/02 15:45 LOGGER : Rob Crotty

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	PENETRATION TEST RESULTS 6"-6"-6" (BLOWS)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS,TESTS, INSTRUMENTATION, AND OTHER OBSERVATIONS.
0	0.0	30	02B75288SL GRAB		Apshalt Well-graded GRAVEL with Sand (GW), dark brown, moist, loose to medium dense, subrounded gravel to two incehs, fine to coarse sand, occasional cobble, fill.	
	2.5		02B75289SL GRAB		Sandy SILT with Gravel (ML), brown, moist, stiff, with fine to medium sand and subrounded gravel to two inches.	
5	5.0	30	02B75290SL GRAB		Well-graded GRAVEL with Sand (GW), grayish brown, moist, subangular to subrounded gravel to two inches, medium to coarse sand.	Driller notes soil change at approximately 4.5 feet bgs.
	7.5		02B75291SL GRAB			
		30			Same as above. Decreaseing gravel with depth, possibly SW. Trace silt.	
10	10.0		02B75292SL GRAB			
					Bottom of boring at 10 feet bgs.	

SOIL BORING LOG OUE 35-752.GPJ CH2M_ANC.GDT 4/12/04

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
171256	AP-4329	Sheet 1 of 1

SOIL BORING LOG

PROJECT : Operational Unit E Release Investigation LOCATION : Building 35-752 - Burn Pit DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (FT): NORTHING (FT): EASTING (FT):

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger CME-55

WATER LEVELS : None Encountered START : 7/26/02 16:00 END : 7/26/02 16:45 LOGGER : Rob Crotty

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	PENETRATION TEST RESULTS 6"-6"-6" (BLOWS)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, INSTRUMENTATION, AND OTHER OBSERVATIONS.
0	0.0	30	02B75293SL GRAB		Apshalt Well-graded GRAVEL with Sand (GW), dark brown, moist, loose to medium dense, subrounded gravel to two incehs, fine to coarse sand, occasional cobble, fill.	
	2.5		02B75294SL GRAB		Sandy SILT with Gravel (ML), brown, moist, stiff, with fine to medium sand and subrounded gravel to two inches.	
5	5.0	30	02B75295SL GRAB 02B75296SL GRAB		Well-graded GRAVEL with Sand (GW), grayish brown, moist, subangular to subrounded gravel to two inches, medium to coarse sand.	
	7.5					
	8.0	30	02B75297SL GRAB		Same as above. Decreaseing gravel with depth, possibly SW. Trace silt.	
10	10.5				Bottom of boring at 10.5 feet.	

SOIL BORING LOG OUE 35-752.GPJ CH2M_ANC.GDT 4/12/04

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
171256	AP-4330	Sheet 1 of 1

SOIL BORING LOG

PROJECT : Operational Unit E Release Investigation LOCATION : Building 35-752 - Burn Pit DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (FT): NORTHING (FT): EASTING (FT):

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger CME-55

WATER LEVELS : None Encountered START : 7/26/02 10:50 END : 7/26/02 11:25 LOGGER : Rob Crotty

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	PENETRATION TEST RESULTS 6"-6"-6"-6" (BLOWS)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, INSTRUMENTATION, AND OTHER OBSERVATIONS.
0	0.0				Apshalt	
		30	02B75298SL GRAB		Well-graded GRAVEL with Sand (GW), dark brown, moist, loose to medium dense, subrounded gravel to two incehs, fine to coarse sand, occasional cobble, fill.	
	2.5		02B75299SL GRAB		Sandy SILT with Gravel (ML), brown, moist, stiff, with fine to medium sand and subrounded gravel to two inches.	
5	5.0	30	02B752100SL GRAB		Well-graded GRAVEL with Sand (GW), grayish brown, moist, subangular to subrounded gravel to two inches, medium to coarse sand.	
	7.5		02B752101SL GRAB			
	8.0	27			Same as above. Decreaseing gravel with depth, possibly SW. Trace silt.	
10	10.5		02B752102SL GRAB			
					Bottom of boring at 10.5 feet.	

SOIL BORING LOG OUE 35-752.GPJ CH2M_ANC.GDT 4/12/04

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
171256	AP-4331	Sheet 1 of 1

SOIL BORING LOG

PROJECT : Operational Unit E Release Investigation LOCATION : Building 35-752 - Burn Pit DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (FT): NORTHING (FT): EASTING (FT):

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger CME-55

WATER LEVELS : None Encountered START : 7/26/02 11:25 END : 7/26/02 11:50 LOGGER : Rob Crotty

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	PENETRATION TEST RESULTS 6"-6"-6"-6" (BLOWS)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, INSTRUMENTATION, AND OTHER OBSERVATIONS.
0	0.0	28	02B752103SL GRAB		Apshalt Well-graded GRAVEL with Sand (GW), dark brown, moist, loose to medium dense, subrounded gravel to two incehs, fine to coarse sand, occasional cobble, fill.	
	2.5		02B752104SL GRAB		Sandy SILT with Gravel (ML), brown, moist, stiff, with fine to medium sand and subrounded gravel to two inches.	
5	5.0	27	02B752105SL GRAB 02B752107SL GRAB		Well-graded GRAVEL with Sand (GW), grayish brown, moist, subangular to subrounded gravel to two inches, medium to coarse sand.	
	7.5					
	8.0				Same as above. Decreaseing gravel with depth, possibly SW. Trace silt.	
10	10.5	28	02B752108SL GRAB		Bottom of boring at 10.5 feet.	

SOIL BORING LOG OUE 35-752.GPJ CH2M_ANC.GDT 4/12/04

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
171256	AP-4332	Sheet 1 of 1

SOIL BORING LOG

PROJECT : Operational Unit E Release Investigation LOCATION : Building 35-752 - Burn Pit DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (FT): NORTHING (FT): EASTING (FT):

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger CME-55

WATER LEVELS : None Encountered START : 7/26/02 11:55 END : 7/26/02 12:50 LOGGER : Rob Crotty

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	PENETRATION TEST RESULTS 6"-6"-6"-6" (BLOWS)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, INSTRUMENTATION, AND OTHER OBSERVATIONS.
0	0.0				Apshalt	
		30	02B752109SL GRAB		Well-graded GRAVEL with Sand (GW), dark brown, moist, loose to medium dense, subrounded gravel to two incehs, fine to coarse sand, occasional cobble, fill.	
	2.5		02B752110SL GRAB		Sandy SILT with Gravel (ML), brown, moist, stiff, with fine to medium sand and subrounded gravel to two inches.	
	5.0					Driller notes soil change at 4.5 feet.
5					Well-graded GRAVEL with Sand (GW), grayish brown, moist, subangular to subrounded gravel to two inches, medium to coarse sand.	
		28	02B752111SL GRAB			
	7.5		02B752112SL GRAB			
	8.0					
		28			Same as above. Decreaseing gravel with depth, possibly SW. Trace silt.	
10			02B752113SL GRAB			
	10.5				Bottom of boring at 10.5 feet.	

SOIL BORING LOG OUE 35-752.GPJ CH2M_ANC.GDT 4/12/04

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
171256	AP-4333	Sheet 1 of 1

SOIL BORING LOG

PROJECT : Operational Unit E Release Investigation LOCATION : Building 35-752 - Burn Pit DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (FT): NORTHING (FT): EASTING (FT):

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger CME-55

WATER LEVELS : None Encountered START : 7/26/02 14:00 END : 7/26/02 14:20 LOGGER : Rob Crotty

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	PENETRATION TEST RESULTS 6"-6"-6"-6" (BLOWS)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS,TESTS, INSTRUMENTATION, AND OTHER OBSERVATIONS.
0	0.0				Apshalt	
		27	02B752114SL GRAB		Well-graded GRAVEL with Sand (GW), dark brown, moist, loose to medium dense, subrounded gravel to two incehs, fine to coarse sand, occasional cobble, fill.	
	2.5		02B752115SL GRAB		Sandy SILT with Gravel (ML), brown, moist, stiff, with fine to medium sand and subrounded gravel to two inches.	
5	5.0	26	02B752116SL GRAB		Well-graded GRAVEL with Sand (GW), grayish brown, moist, subangular to subrounded gravel to two inches, medium to coarse sand.	
	7.5		02B752117SL GRAB			
	8.0				Same as above. Decreaseing gravel with depth, possibly SW. Trace silt.	
		30				
10	10.5		02B752118SL GRAB			
					Bottom of boring at 10.5 feet.	

SOIL BORING LOG OUE 35-752.GPJ CH2M_ANC.GDT 4/12/04

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
171256	AP-4334	Sheet 1 of 1

SOIL BORING LOG

PROJECT : Operational Unit E Release Investigation LOCATION : Building 35-752 - Burn Pit DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (FT): NORTHING (FT): EASTING (FT):

DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger CME-55

WATER LEVELS : None Encountered START : 7/26/02 14:25 END : 7/26/02 14:50 LOGGER : Rob Crotty

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	PENETRATION TEST RESULTS 6"-6"-6"-6" (BLOWS)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, INSTRUMENTATION, AND OTHER OBSERVATIONS.
0	0.0	30	02B752119SL GRAB		Apshalt Well-graded GRAVEL with Sand (GW), dark brown, moist, loose to medium dense, subrounded gravel to two incehs, fine to coarse sand, occasional cobble, fill.	
	2.5		02B752120SL GRAB		Sandy SILT with Gravel (ML), brown, moist, stiff, with fine to medium sand and subrounded gravel to two inches.	
5	5.0	30	02B752121SL GRAB 02B752122SL GRAB		Well-graded GRAVEL with Sand (GW), grayish brown, moist, subangular to subrounded gravel to two inches, medium to coarse sand.	
	7.5 8.0					
10	10.5	27	02B752123SL GRAB		Same as above. Decreaseing gravel with depth, possibly SW. Trace silt. Bottom of boring at 10.5 feet.	

SOIL BORING LOG OUE 35-752.GPJ CH2M_ANC.GDT 4/12/04

CH2MHILL

PROJECT NUMBER	BORING NUMBER	
171256	AP-4335	Sheet 1 of 1

SOIL BORING LOG

PROJECT : Operational Unit E Release Investigation LOCATION : Building 35-752 - Burn Pit DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (FT): NORTHING (FT): EASTING (FT):

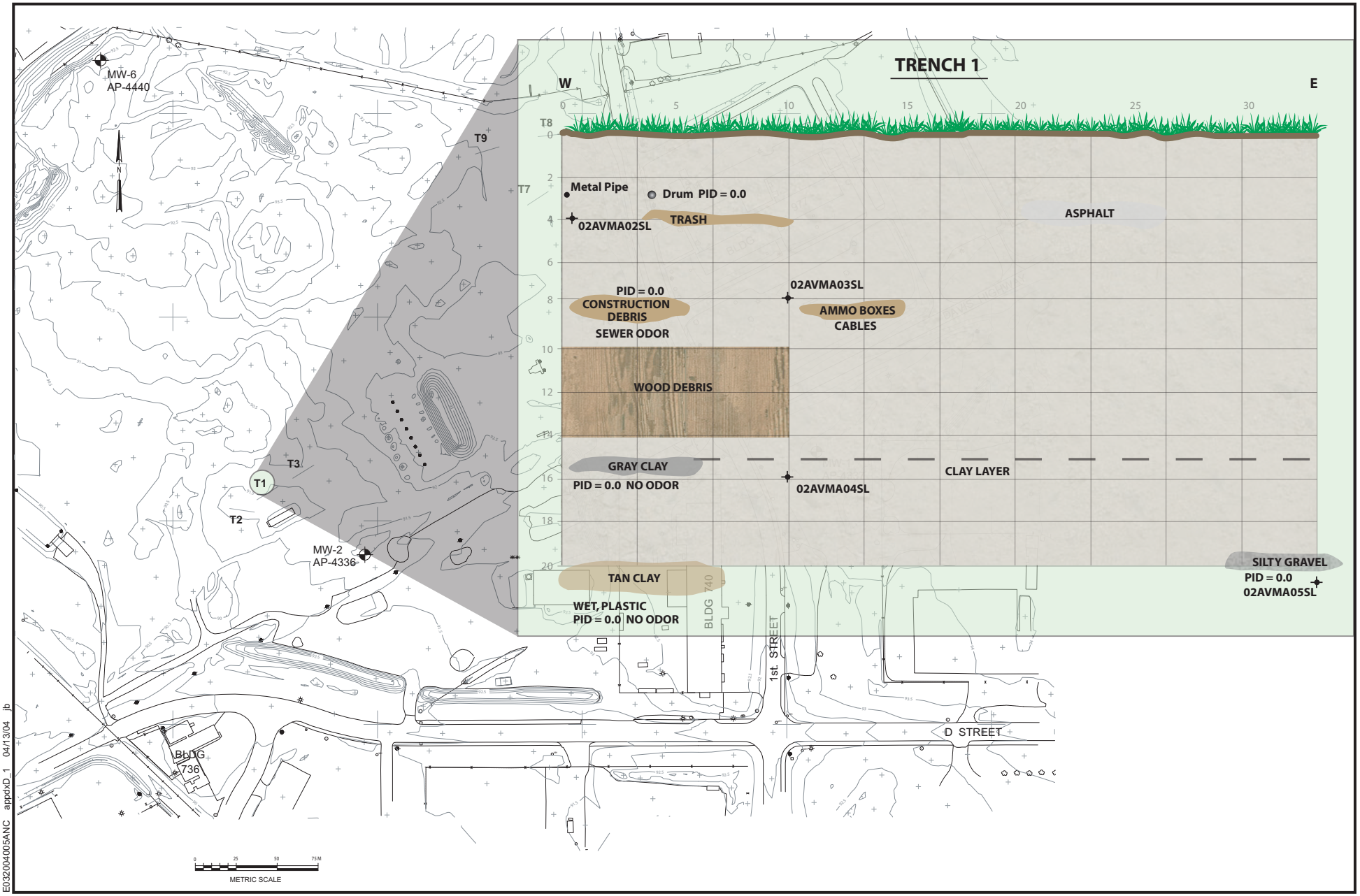
DRILLING METHOD AND EQUIPMENT USED : Hollow Stem Auger CME-55

WATER LEVELS : None Encountered START : 7/26/02 15:00 END : 7/26/02 16:00 LOGGER : Rob Crotty

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	PENETRATION TEST RESULTS 6"-6"-6"-6" (BLOWS)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS,TESTS, INSTRUMENTATION, AND OTHER OBSERVATIONS.
0	0.0	28	02B752124SL GRAB		Apshalt Well-graded GRAVEL with Sand (GW), dark brown, moist, loose to medium dense, subrounded gravel to two incehs, fine to coarse sand, occasional cobble, fill.	
	2.5		02B752125SL GRAB		Sandy SILT with Gravel (ML), brown, moist, stiff, with fine to medium sand and subrounded gravel to two inches.	
5	5.0	30	02B752126SL GRAB 02B752127SL GRAB		Well-graded GRAVEL with Sand (GW), grayish brown, moist, subangular to subrounded gravel to two inches, medium to coarse sand.	
	7.5					
	8.0				Same as above. Decreaseing gravel with depth, possibly SW. Trace silt.	
10	10.5	28	02B752129SL GRAB		Bottom of boring at 10.5 feet.	

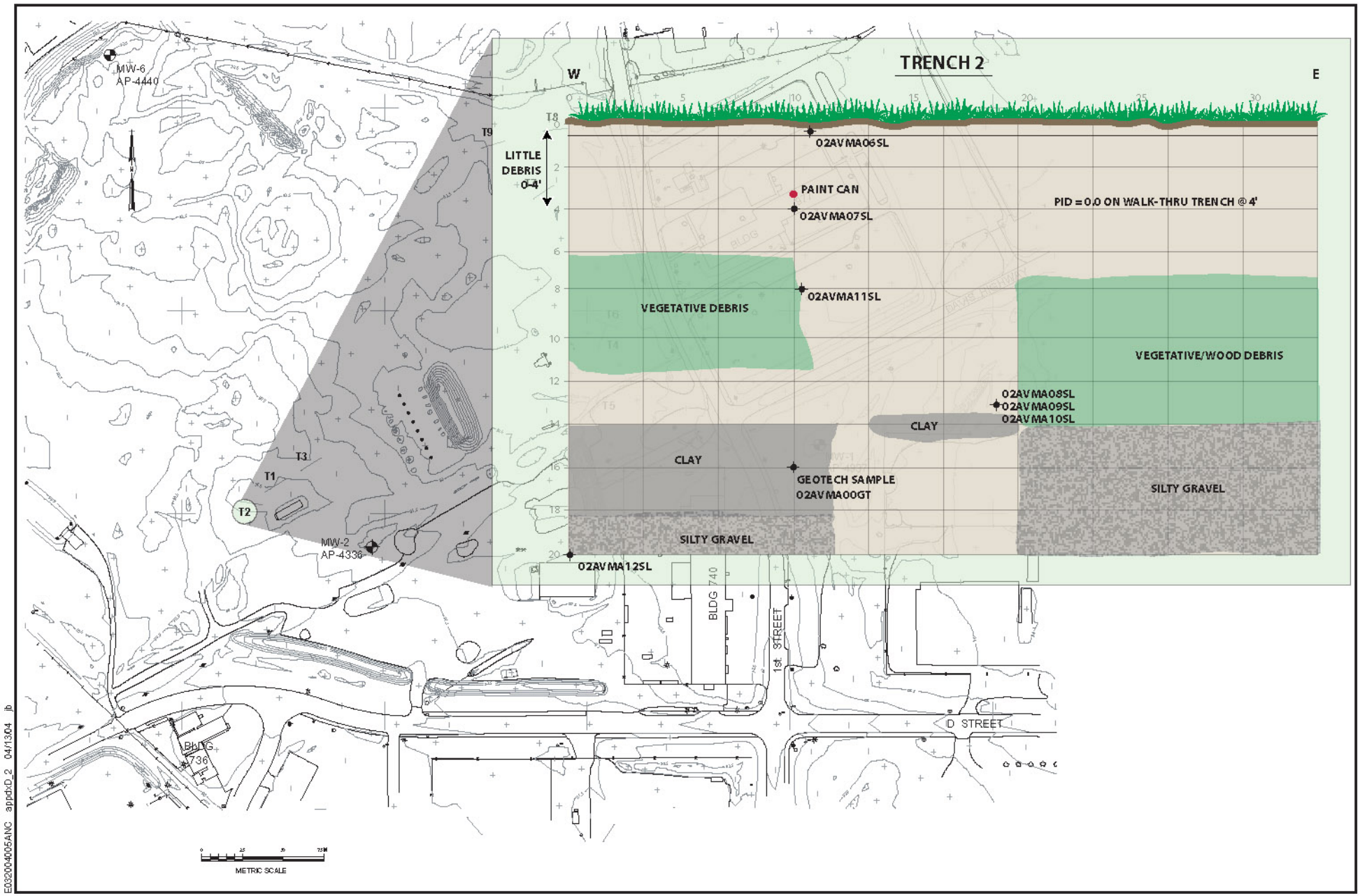
SOIL BORING LOG OUE 35-752.GPJ CH2M_ANC.GDT 4/12/04

Appendix D
Armored Vehicle Maintenance Area
Trench Diagrams and Logs

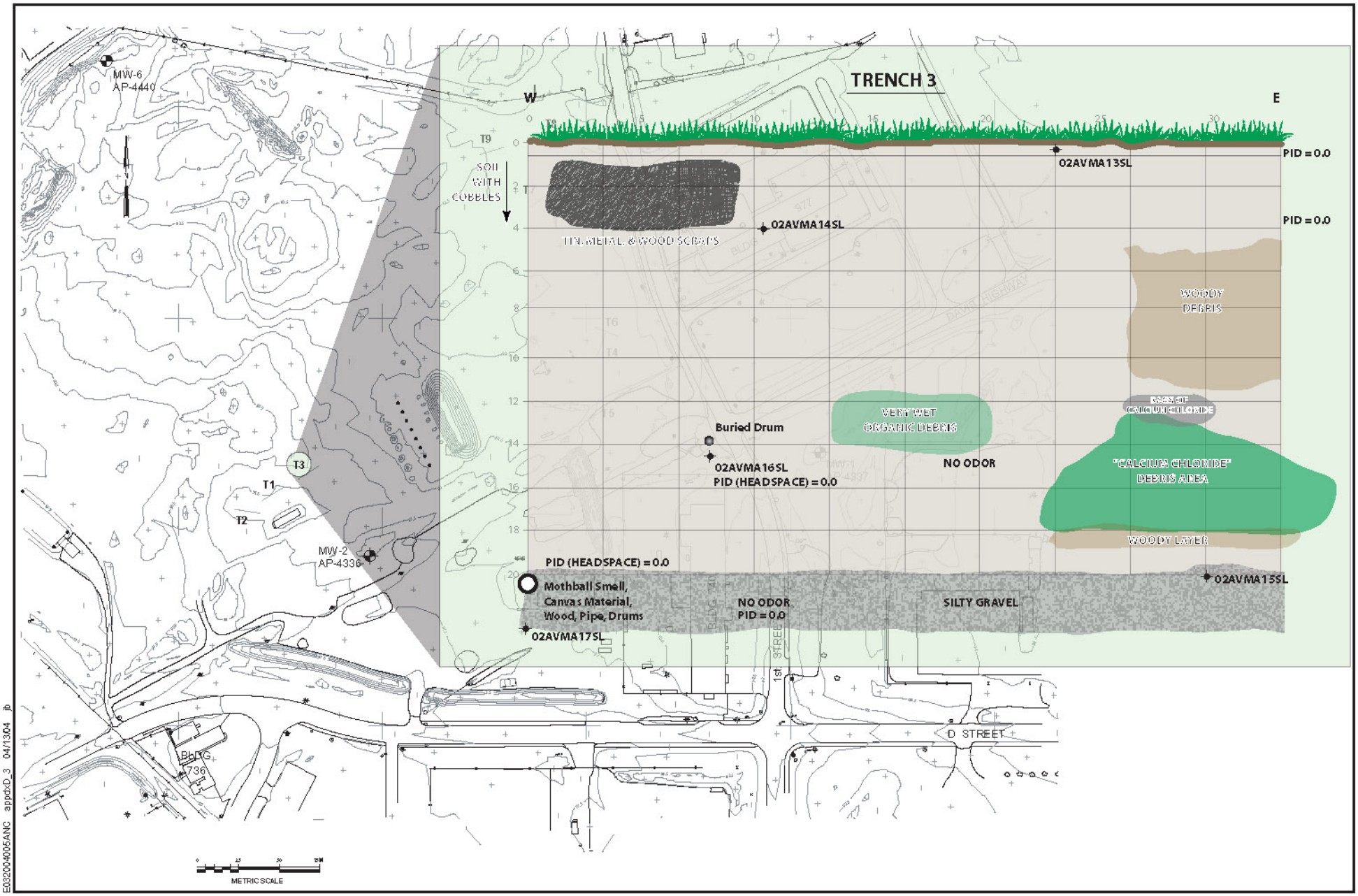


CH2MHILL

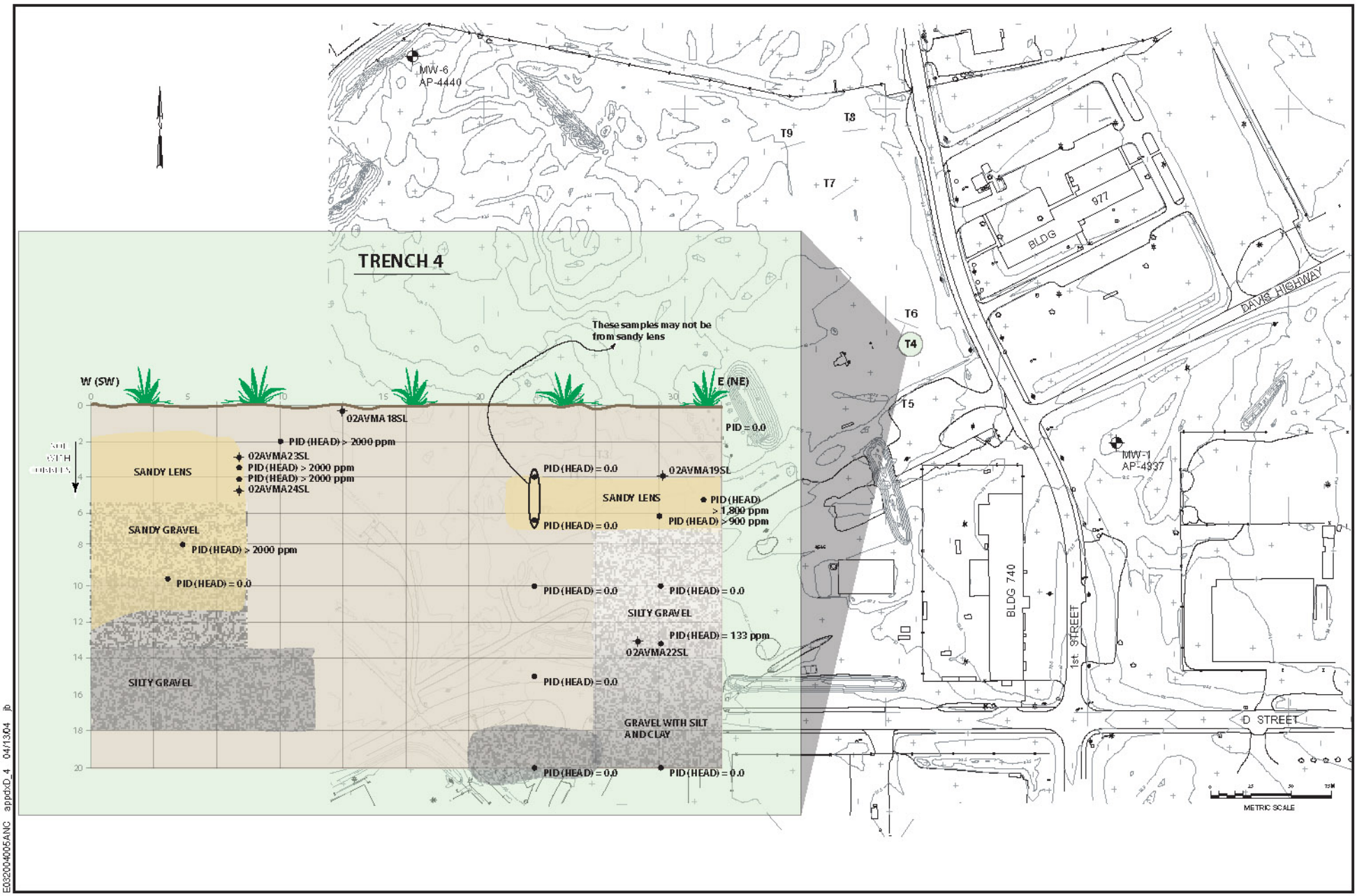
Appendix D-1
Trench #1
Operable Unit E
OUE Remedial Investigation Report
Ft. Richardson, Alaska



Appendix D-2
Trench #2
Operable Unit E
OUE Remedial Investigation Report
Ft. Richardson, Alaska

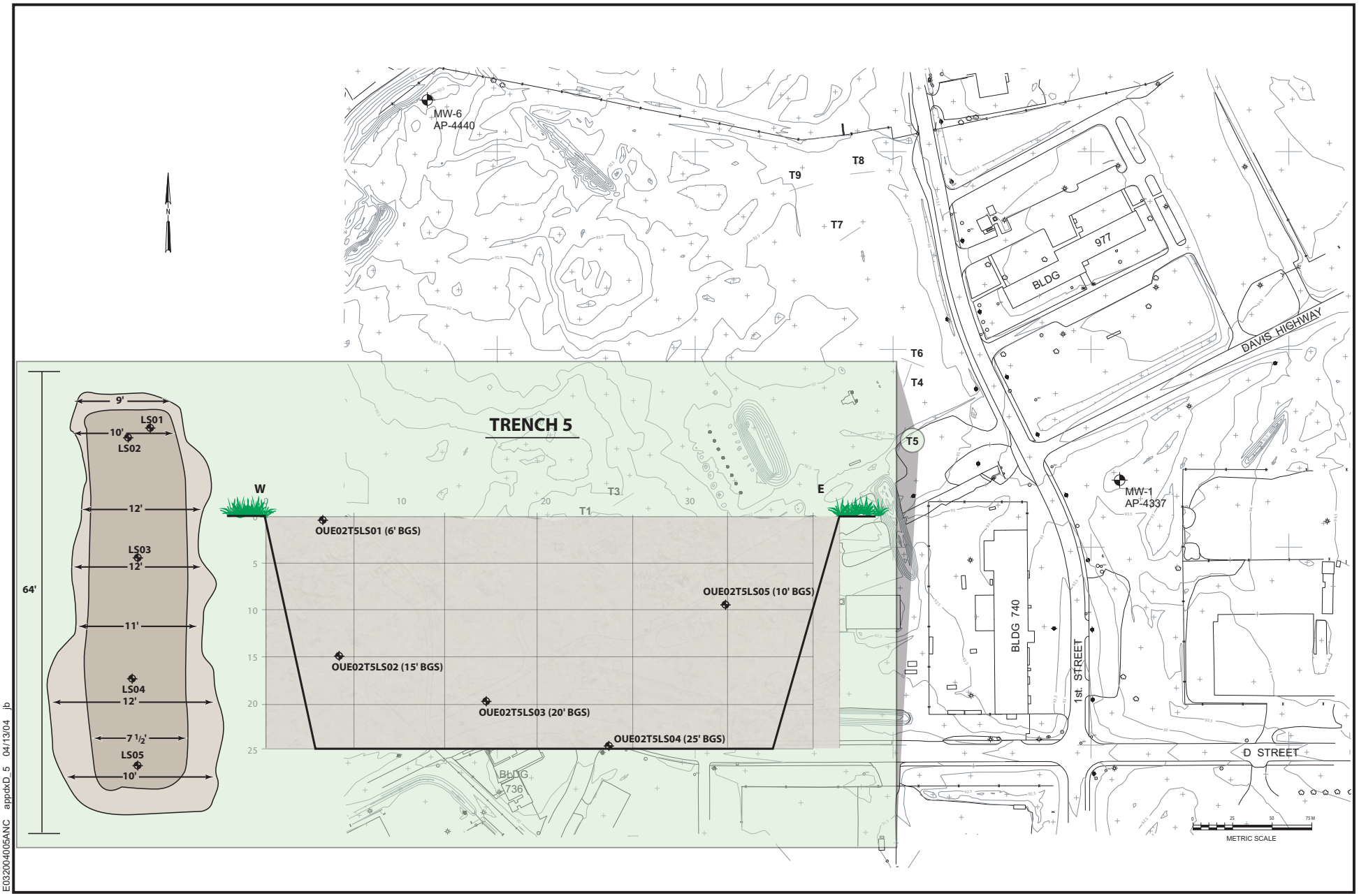


Appendix D-3
Trench #3
Operable Unit E
OUE Remedial Investigation Report
Ft. Richardson, Alaska



E032004005ANC appdxD_4 04/13/04 jb

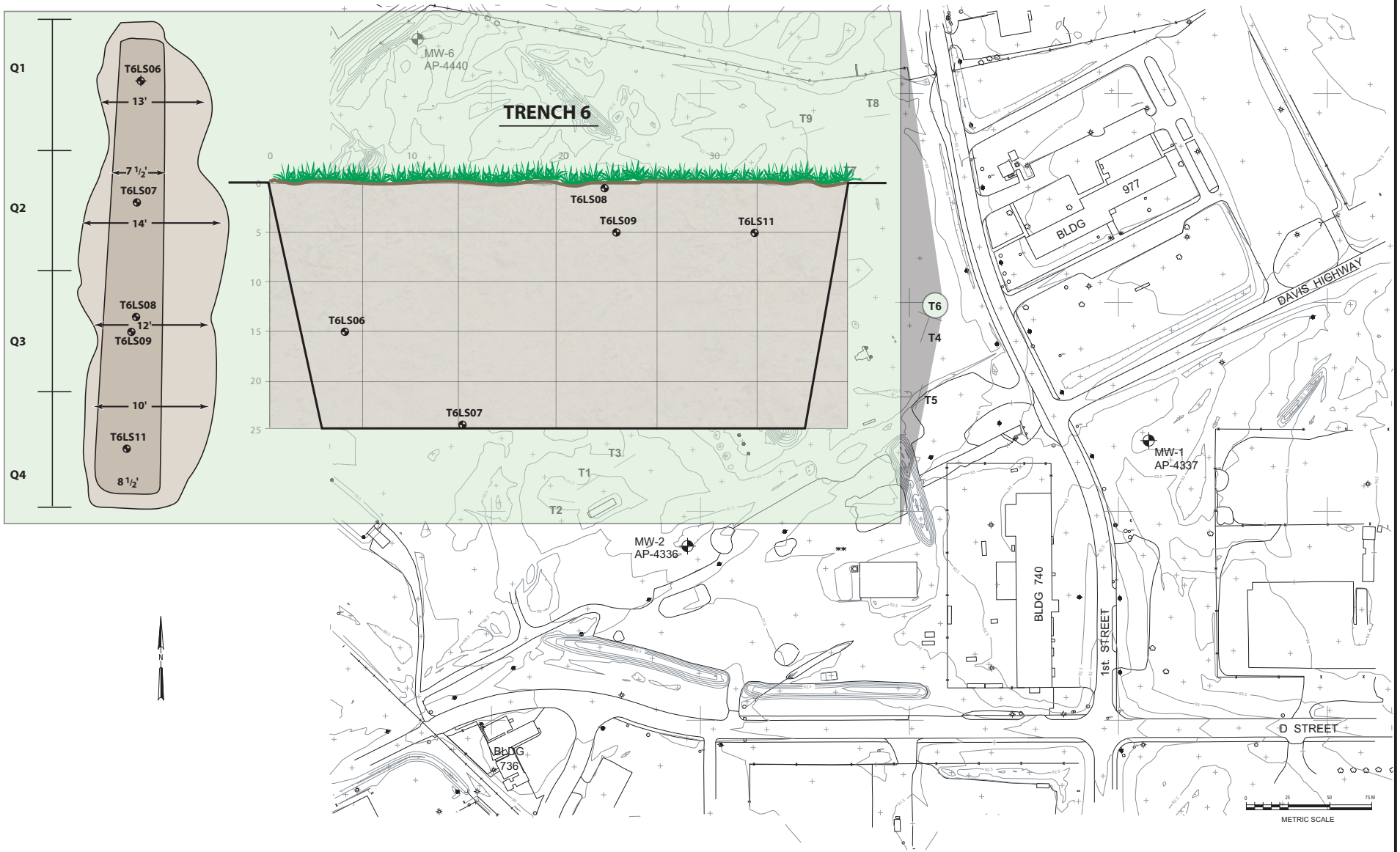
Appendix D-4
Trench #4
Operable Unit E
OUE Remedial Investigation Report
Ft. Richardson, Alaska



E03200400SANC appdxD_5 04/13/04 jb

CH2MHILL

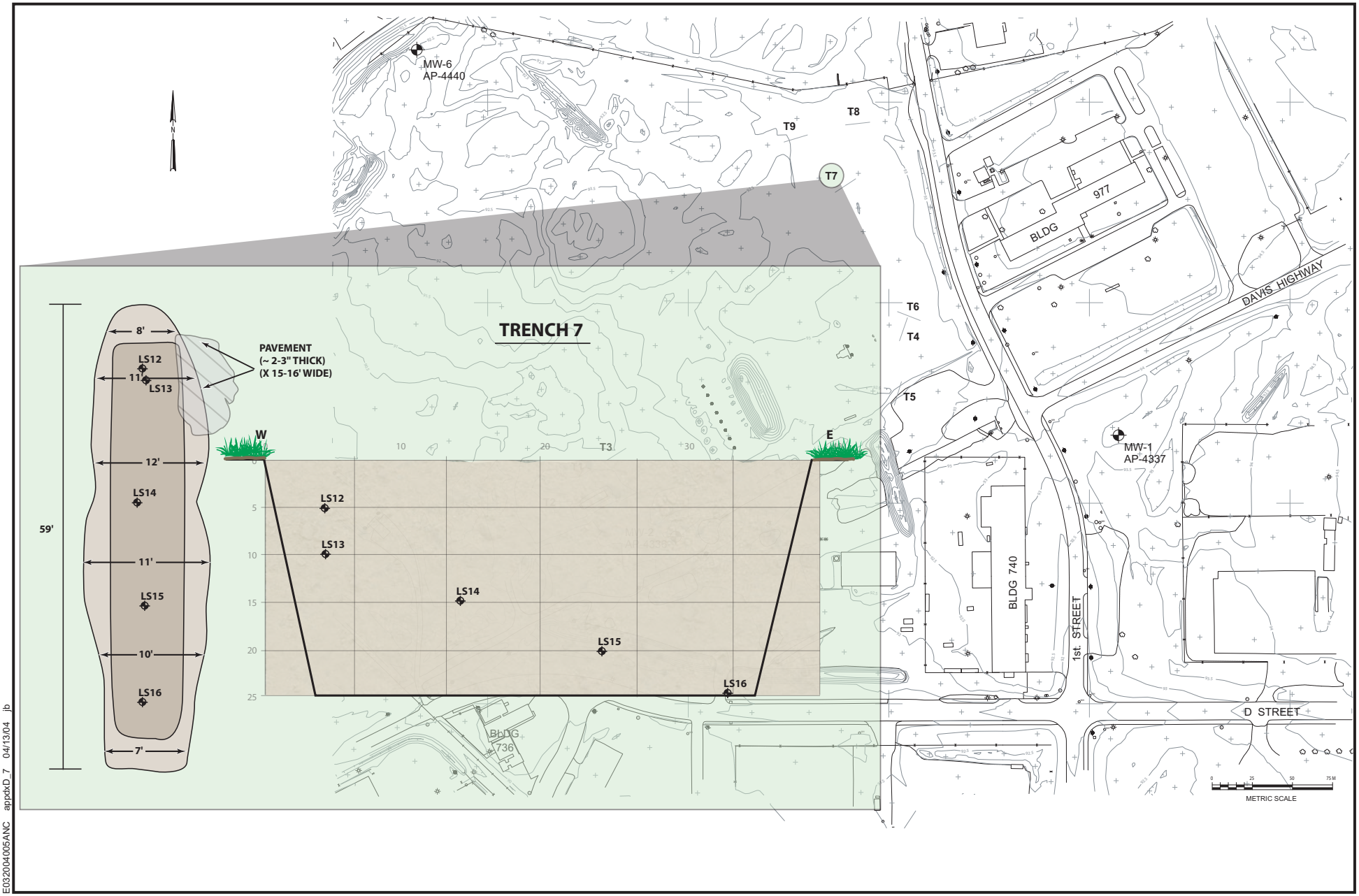
Appendix D-5
Trench #5
Operable Unit E
OUE Remedial Investigation Report
Ft. Richardson, Alaska



E03200400SANC appdxD_6 04/13/04 jb

CH2MHILL

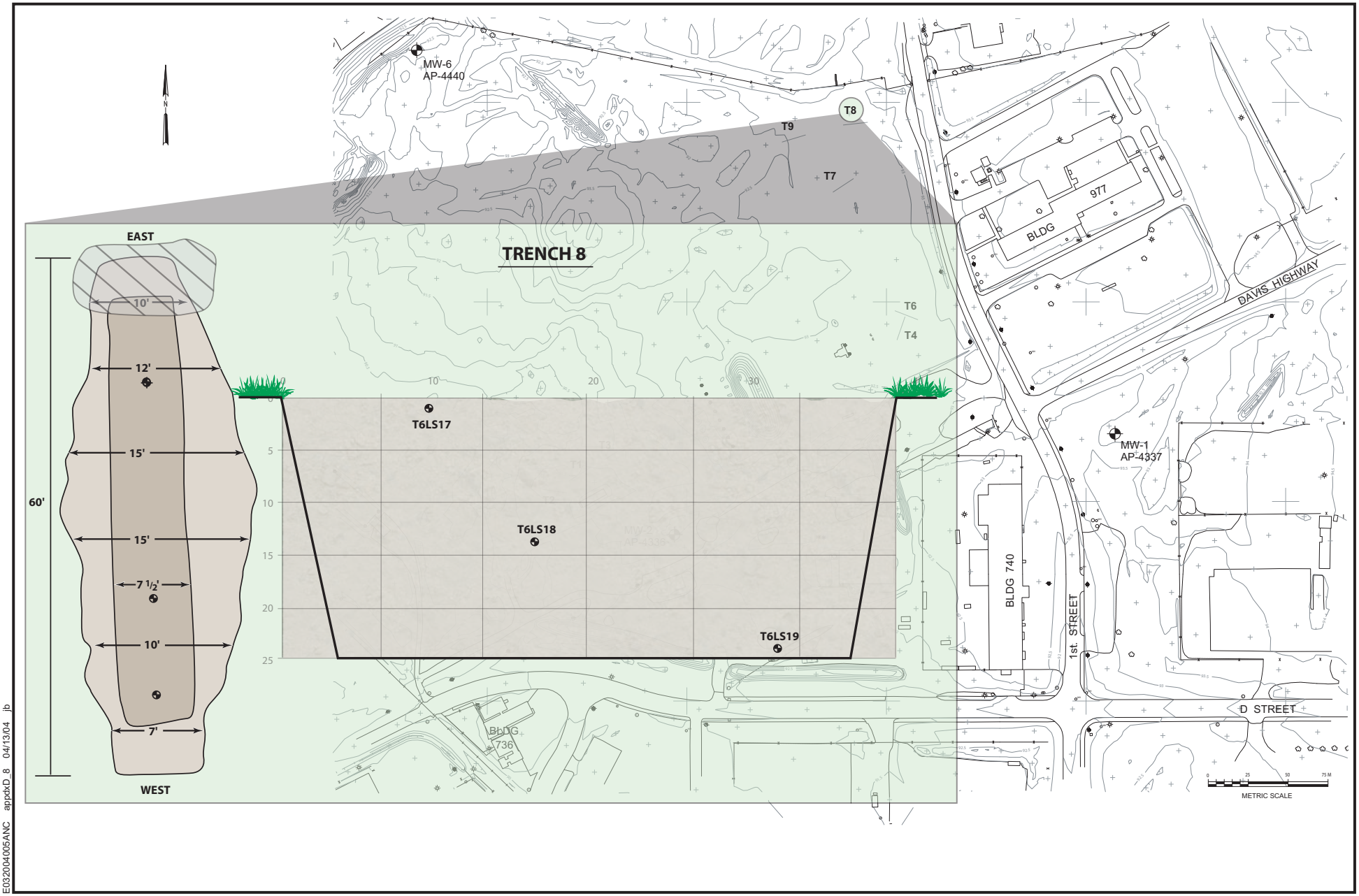
Appendix D-6
Trench #6
Operable Unit E
OUE Remedial Investigation Report
Ft. Richardson, Alaska



E032004005ANC apdxD_7 04/13/04 jb

CH2MHILL

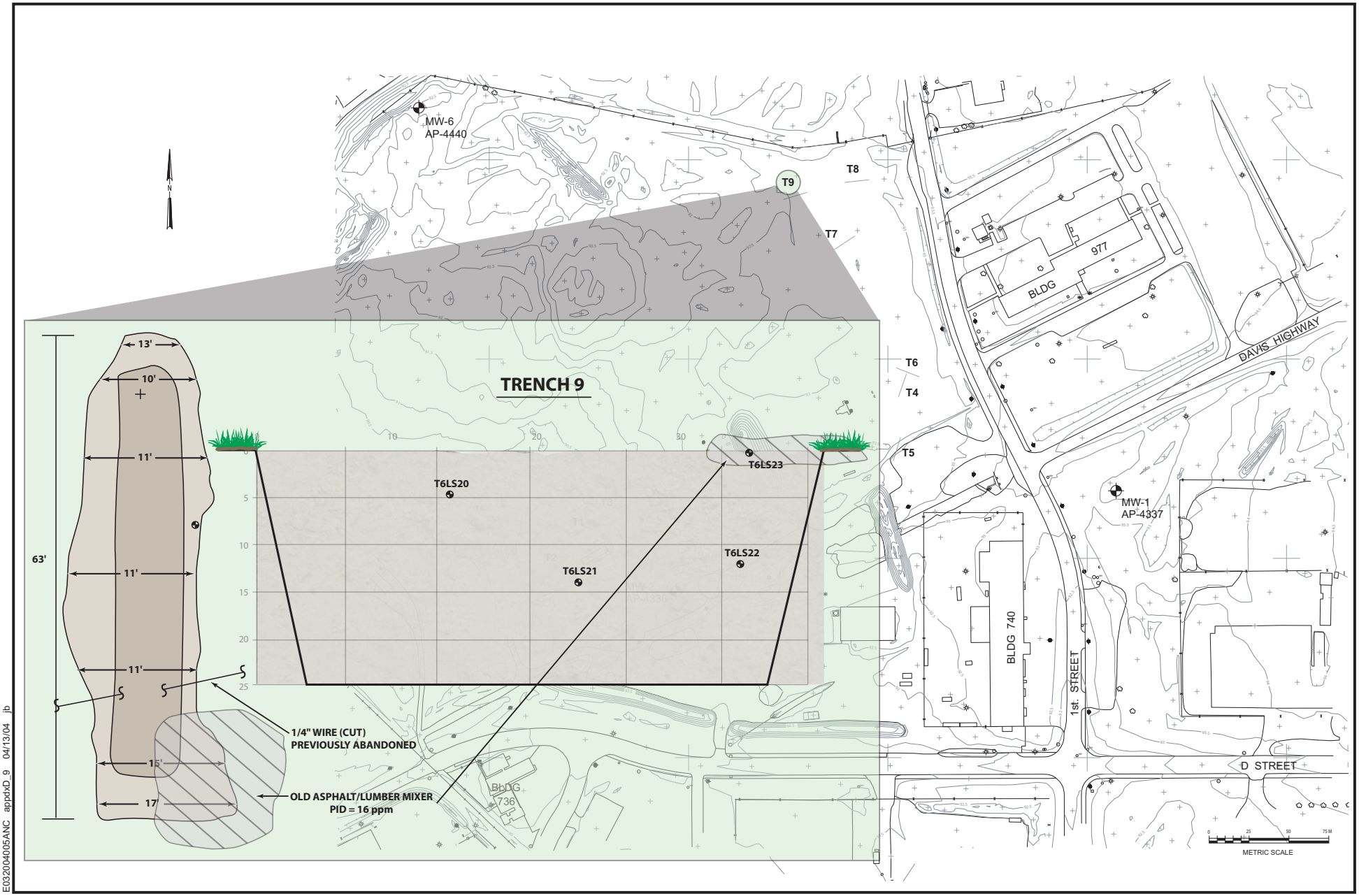
Appendix D-7
Trench #7
Operable Unit E
OUE Remedial Investigation Report
Ft. Richardson, Alaska



E032004005ANC apptxD_8 04/13/04 jb

CH2MHILL

Appendix D-8
Trench #8
Operable Unit E
OUE Remedial Investigation Report
Ft. Richardson, Alaska



E032004005ANC apdxD_9 04/13/04 jb

CH2MHILL

Appendix D-9
Trench #9
Operable Unit E
OUE Remedial Investigation Report
Ft. Richardson, Alaska

Appendix E
Armored Vehicle Maintenance Area Monitoring Well Boring Logs and Well Diagrams

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4336**	Sheet 1 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 91.28 | NORTHING (M) : 2652539.151 | EASTING (M): 1691246.918

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 108 feet BGS | START : 8/1/02 09:00 | END : 9/6/02 12:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
0	0.0						
		8	CORE		**Organic Silt (OL).** Brown to reddish-tan, moist, loose to medium stiff. Dry silty layer. Cobbles reported too.		Soil root zone. PID = 177
	2.5						
		12	CORE		**Silty Sand with Gravel (SM).** Dark brown sand and gravel, tan silt, moist, loose. Cobbles observed during drilling. Fine grained sand, well-graded subangular gravel.		Encountered rock in shoe. PID=152
5	5.0						
		28	02AVMA25SL CORE		Same as above, gravels are larger and silt fraction is less distinct. Trace cobbles are evident.		PID = greater than 2,000. Sample 02AVMA25SL at 10:40 on 8/1/02.
	7.5						
		24	CORE		Same as above.		Stained, oily appearence. PID = 1573 (taken from shoe).
10	10.0						
		28	CORE		**Silty Gravel with Sand (GM).** Tan, moist, loose to medium dense. Gravels are overall larger than above with less sand.		Will no longer drum cuttings. PID = 10.7
	12.5						
		24	CORE		Decreased sand content. Gravel is well-graded and subrounded.		Driller added water to hole. Soil feels sticky. PID = 447
15	15.0						
		10	CORE		Same as above, trace cobbles present. Some rusty zones.		PID = 373
	17.5						
		28	CORE		Same as above, trace coal. Gravel is decreasing in size. Sand is coarse and subangular.		PID = 257
20	20.0						
		28	CORE		Same as above, gravels are subround, approximately 0.75 inch in diameter.		PID = 39.1
	22.5						
		18	CORE		Same as above, sand is becoming fine to medium grained.		Driller reports "softer". PID = 0
25	25.0				**Well-graded Sand (SW).** Dark brown, moist, loose, trace gravel.		
		24	CORE		**Silty Gravel (GM).** Brown, moist, loose to medium dense. Trace cobbles throughout. Fine, subangular gravel.		PID = 164
	27.5						
		26	CORE		Increased sand content. Becoming a Silty Gravel with Sand (GM).		PID = 801
30	30.0						

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 302.06	Dia. : N/A	Type : None
Vent hole? : Yes	Type : N/A	Quantity used : N/A
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : Natural cave-in	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : N/A	**DEVELOPMENT**
Type : PVC		Method : Grundfos pump and bailer.
		Time : 21 minutes
		Estimated purge volume : 2 gallons

Comments :

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4336	Sheet 2 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 91.28 | NORTHING (M) : 2652539.151 | EASTING (M): 1691246.918

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 108 feet BGS | START : 8/1/02 09:00 | END : 9/6/02 12:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV))
	32.0	23	CORE		**Silty Gravel (GM).** Brown, moist, loose to medium dense. Trace cobbles throughout. Fine, subangular gravel. Coal pockets. Increased sand with depth.		PID = 278
		6	CORE				32' to 35' drilled in two intervals due to rock. No liner. PID = 1,025.
35	35.0				**Silty Sand (SM).** Gray, moist, loose, trace gravel.		PID = 0
	37.5	14	CORE		**Silty Sand with Gravel (SM).** Gray brown, moist, loose, trace cobbles. Some rusty zones. Sand is coarse grained. Gravels are fairly well-graded.		PID = 97.7
		6	CORE		Same as above, trace cobbles in shoe and throughout, rusty patches.		Blocked by rock to 39'. Will go without liner. "Wide-mouth" with no liner was then blocked too. No liner used. PID = 0.
40	40.0						
	42.5	26	CORE		Same as above, less silt.		PID = 2.0
		16	CORE		**Well-graded Gravel with Sand (GW).** Tan-brown, moist, loose. Gravels up to 2.5". Driller reports a cobble zone. Sand is well-graded.		PID = 40.0
45	45.0						
	47.0	18	CORE		**Well-graded Sand with Gravel (SW).** Gray-brown, moist, loose, trace silt. Sand is well-graded. Gravels from 0.25" to greater than 2.5".		PID = 927
	47.5		CORE				Driller added water to hole. PID = 95
		20	CORE		Same as above, trace coal and cobbles, increased gravel content becoming larger with depth. Silt is tan in color.		PID = 0
50	50.0						
	52.5	0	CORE		No recovery. Rock blocked sampler.		
		30	CORE		Band of coal (2 inches) at 53 feet. Sand is fine to medium grained. Gravels to 0.5 inch.		Broke thru rock to easier drilling in sand. PID = 177.
55	55.0						
	57.5	20	CORE		Same as above. Increased gravel content. Gravels are subround (0.25" to greater than 2.5"). Coal still present. Sand is medium to coarse grained and subangular.		Soil on top of sampler. Will have to pull augers to check the cap screws. PID = 0
		24	CORE		**Well-graded Gravel with Sand (GW).** Brown-gray, moist, loose, with approximately 10 percent sand. Gravel is round to subround, fine to coarse (3 inches). Sand is medium to coarse grained and subrounded.		PID = 8.0
60	60.0						
	62.5	16	CORE		**Poorly-graded Gravel with Silt and Sand (GP-GM).** Gray-brown, moist, loose. Coarse gravel of 2.5 inches, round to subround. Trace fine to medium gravel.		PID = 4.3
		18	CORE		**Well-graded Gravel with Silt and Sand (GW-GM).** Gray-brown, moist, loose. Gravel is subround to round to greater than 3". Sand is medium to coarse.		PID = 4.8
65	65.0						
	67.5	20	CORE		**Well-graded Gravel with Sand (GW).** Gray, moist, loose. Same as above with more sand. Mostly medium grained sand.		PID = 13.0
		20	CORE		Same as above. Color changing to brown. Gravel is fine to coarse, round to subround with medium to coarse sand. Gravel diameter to greater than 3".		PID = 12.3
70	70.0						

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4336	Sheet 3 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 91.28 | NORTHING (M) : 2652539.151 | EASTING (M): 1691246.918

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 108 feet BGS | START : 8/1/02 09:00 | END : 9/6/02 12:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
		24	CORE		**Well-graded Gravel with Sand (GW).** Gray, moist, loose. Same as above with more sand. Mostly medium grained sand. Same as above.		PID = 20.9
	72.5						
		20	02AVMA26SL CORE		Same as above.		Collected sample 02AVMA26SL at 10:45 on 8/2/02. PID = 90.9.
75	75.0				Same as above.		PID = 27.8
		18	CORE				
	77.5				**Well-graded Sand with Gravel (SW).** Gray-brown, moist, loose. Fine to medium grained sand with trace gravel. Gravel is fine to medium grained and rounded.		Driller reported easy drilling, less than 100 psi of pressure. PID = 11.8
		18	CORE				
80	80.0				**Well-graded Gravel with Silt and Sand (GP-GM).** Gray, moist to wet, loose. Fine to coarse gravel, less than 2", with fine to coarse sand.		PID = 37.7
		14	CORE				
	82.5				**Poorly-graded Sand (SP).** Brown-gray, moist, loose. Medium-fine grained sand.		PID = 24.4
		24	CORE		**Poorly-graded Gravel with Sand (GP).** Brown-gray, moist, loose. Gavel is fine grained and round to subround. Sand is fine to course grained.		
85	85.0				**Well-graded Sand (SW).** Brown-gray, dry to moist, loose. Fine to coarse grained sand with rounded, fine to course gravel with diameter less than 3 inches.		PID = 13.2
		18	CORE				
	87.5				Fines with depth. Goes from fine to course gravel (greater than 3") to fine to course sand, subround to round. Shoe is mostly fine to medium sand.		PID = 14.6
		26	CORE				
90	90.0				Fine to coarse sand with gravel. Gravel is approximately 30% to 40%, fine to coarse, subround to well-rounded, diameter up to greater than 3".		PID = 15.8
		20	CORE				
	92.5				Fine to coarse sand with gravel. Gravel is fine to coarse, rounded, and up to 2.5" in diameter.		PID = 20.8
		24	CORE				
95	95.0				Same as above, but more coarse gravel, rounded, diameter up to greater than 3". More coarse sand.		PID = 32.1
		20	CORE				
	97.5				**Well-graded Gravel (GW).** Brown-gray, moist, loose. Fine to coarse gravel, rounded, diameter greater than 3". Fine to coarse sand. Trace silt.		PID = 15.5
		20	CORE				
100	100.0				Same as above, trace coal.		Soil on top of sampler. May have lost cap screw. Consider pulling augers after about 10'. PID = 19.7
		22	CORE				
	102.5				Same as above, but sand is more coarse.		PID = 9.2
		22	CORE				
105	105.0				Same as above, fine to coarse gravel, diameter less than 2.5", well-rounded. Fine to coarse sand.		PID = 9.6
		19	CORE				
	107.5			▽	Same as above, wet.		Water at 108' bgs. Set up to drive for geotech sample. PID = 14.7
		12	CORE				
110	110.0						

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4336	Sheet 4 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 91.28 | NORTHING (M) : 2652539.151 | EASTING (M): 1691246.918

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 108 feet BGS | START : 8/1/02 09:00 | END : 9/6/02 12:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
	112.0	24	02AVMA01GT SS	8-20-41-100 (61)	**Silt with Sand (ML).** Yellow-brown, dry, stiff. Moisture content 15.7 percent.		Brass liners used to collect sample 02AVMA01GT at 15:30 on 8/2/02. PID = 1.8
							Approximately 15' of water evident at 112'. Augers appear broken. PID = 0.9
		28	CORE				
115	115.0				Same as above with trace very fine sand and subround gravels up to 1.5 inches.		PID = 1.3
		27	CORE				
	117.5				**Silty Sand (SM).** Dark gray, wet, fluid.		Drilled stiffer last foot. Drastic change. PID = 1.3
		30	CORE		**Silt (ML).** Dark gray with olive, moist, very stiff.		
120	120.0				**Poorly-graded Sand (SP).** Dark gray, wet, medium dense.		Still in confining layer. PID = 0.3
		28	CORE		**Silt (ML).** Dark gray with olive, moist, very stiff. Trace sand and small gravel.		
	122.5				Same as above with a thin band of sand and gravel at the top, then becoming progressively more silty and drier with depth.		Bottom is stiff and dry. PID = 1.1
		30	CORE				
125	125.0				Sandy layer at 127' and wet. Becoming drier with depth. Trace gravel, subround to 0.5 inch throughout.		Driller says, "same stuff." PID = 0.3
		30	CORE				
	127.5				Drier at the bottom.		Sampler half full of water. PID = 0
		16	CORE				
130	130.0				Decreased gravel content. Increased sand content with depth. Soil color changing to olive.		Rods hard to get out and in. PID = 0
		24	CORE				
	132.5				Large cobble at 133.5 feet. Olive rather than gray. Some fine gravel throughout.		No PID sample.
		30	CORE				
135	135.0				Bottom of boring at 135 feet.		Three IDW drums of cuttings produced.
140							
145							
150							

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4337	Sheet 1 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 93.31 | NORTHING (M) : 2652705.448 | EASTING (M): 1692110.075

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 105 feet BGS | START : 8/6/02 09:45 | END : 10/3/02 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
0	0.0						
		6	CORE		**Organic Silt (OL).** Brown to reddish-brown, moist, loose. Root zone. One cobble in sampler.		PID=0.0
	2.5						
		10	CORE		Same as above with trace cobbles.		Just emptied sample out of sampler. PID=0.0
5	5.0				**Well-Graded Sand with Silt and Gravel (SW-SM).** Gray-brown, moist, loose. Sand is fine to medium grained, gravels are subangular.		PID=0.0
		22	CORE		**Silty Sand with Gravel (SM).** Gray brown, moist, loose. Becoming siltier with depth.		
	7.5						
		20	CORE		Trace cobbles and coal. Approximately 35% silt.		Begin Drumming Soil. Will cap next liner to collect a sample. Had to use big sampler to 15'. PID=1198
10	10.0						
		20	02AVMA27SL CORE		Same as above. Cobbles increasing in size.		Capped liner for possible sample collection. Sample collected at 10:30 on 8/6/02, 02AVMA27SL. PID=1055
	12.5						
		0	CORE		No recovery		Rock blocked sampler. No recovery. No liner used. No PID sample.
15	15.0						
		24	CORE		Same as above. Pockets of gray, brown silt.		Cobbles throughout. Hard drilling. PID=1333
	17.5						
		24	CORE		Rusty band at 19 feet.		Had to drill in two segments due to rock in sampler. No liner in second run. PID=543
20	20.0						
		22	CORE		**Silty Gravel with Sand (GM).** Grayish tan, moist, medium dense, trace coal and rusty patches. Fine, subangular gravel.		Drilled in two segments due to rock. Some chips from hole conditioning in top of sampler. No liner on second run. PID=611
	22.5						
		18	CORE		Trace cobbles greater than 3 inches. Increasing sand with depth.		PID=160
25	25.0						
		24	CORE		Same as above, less coal.		PID=0.0
	27.5						
		18	CORE		Some areas "stained" a purple color. Decreasing sand. Gravel ranges from fine subangular to subround cobbles.		PID=517
30	30.0						

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 309.54	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 1 bag
WELLHEAD PROTECTION COVER	SCREEN	GROUT
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	SCREEN FILTER	Vol. in surface casing : N/A
WELL CASING	Type : Natural cave-in	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : N/A	DEVELOPMENT
Type : PVC		Method : Surged for 15 minutes. Bailer.
		Time : 1 hour
		Estimated purge volume : 8.5 gallons

Comments :

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4337	Sheet 2 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 93.31 | NORTHING (M) : 2652705.448 | EASTING (M): 1692110.075

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 105 feet BGS | START : 8/6/02 09:45 | END : 10/3/02 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
		20	CORE		**Silty Gravel with Sand (GM).** Grayish tan, moist, medium dense, trace coal and rusty patches. Fine, subangular gravel.		PID=248
	32.5						
		20	CORE		More coarse sand, fine gravel (angular), than above. Cobbles present. Some coal.		PID=102
35	35.0				**Silty Sand with Gravel (SM).** Gray, moist, possibly wet, loose. Bottom half of sample is sand. Trace cobbles and coal still present but coarse, angular sand dominates.		
		10	CORE		Same as above, but more coal.		PID=51.4
	37.5						
		6	CORE		Subrounded gravel ranges up to cobble size. Sand is coarse grained and subrounded.		PID=9.7
40	40.0						
		14	CORE		Same as above. Trace coal.		PID=53.1
	42.5						
		22	CORE		Same as above. Gravel is overall smaller and subrounded to 1 inch. Sand, medium grained, sub-angular. Less silt.		PID=27.4
45	45.0						
		20	CORE		Same as above with trace cobbles at top and middle.		PID=36.7
	47.5						
		12	CORE		Same as above, slightly coarser material.		PID=1.9
50	50.0						
		18	CORE		**Well-Graded Sand with Gravel (SW).** Dark gray, moist to wet, loose. Few fines, cobbles in upper sample. Sand is medium to coarse, subrounded.		PID=5.8
	52.5						
		16	CORE		Same as above. Gravel is subrounded to 3 inches.		PID=18.2
55	55.0						
		18	CORE		**Well-graded Gravel with Sand (GW).** Light brown-gray gravel and sand, moist to wet, loose, trace coal and silt. Gravels to 2 inches.		PID=31.2
	57.5						
		20	CORE		**Well-Graded Sand with Gravel (SW).** Gray, moist to wet, loose, trace silt. Coarse, subangular sand and subrounded gravels to 2 inches.		PID=34.7
60	60.0						
		16	CORE		Same as above.		PID= 48.7
	62.5						
		16	CORE		**Poorly Graded Sand (SP).** Dark gray, moist, loose, trace silt and gravel. Medium grained sand. **Well-graded Sand with Gravel (SW).** Dark gray, moist, loose. Sand is well graded, find to coarse, subangular. Gravels subround to 1 inch.		Some of loose sand sample fell out of sampler. PID= 62.1
65	65.0						
		24	CORE		**Well-graded Gravel (GW).** Dark gray, moist, very loose. Subrounded gravel to 2 inches. Sand is coarse grained.		Will drum sandy cuttings. PID=134
	67.5						
		20	CORE		Same as above with cobbles.		PID=91.2
70	70.0						

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4337	Sheet 3 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 93.31 | NORTHING (M) : 2652705.448 | EASTING (M): 1692110.075

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 105 feet BGS | START : 8/6/02 09:45 | END : 10/3/02 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
		14	CORE		**Well-graded Gravel (GW).** Dark gray, moist, very loose. Subrounded gravel to 2 inches. Sand is coarse grained.		PID= 250
	72.5						
		6	CORE		**Well-Graded Sand with Gravel (SW).** Light gray, moist, loose. Large cobble in shoe, little recovery. Sand is fine to medium grained.		PID= 103
75	75.0						
		26	CORE		Massive coal at bottom, trace silt, gravels to approximately 1.5". Sand is medium coarse and subangular.		PID= 45.7
	77.5						
		18	CORE		Same as above. Gravel is subround to 1 inch. Sand is coarse and subangular. Cohesive silt lense at 79 feet.		PID= 50.2
80	81.0						
		24	SS	39-61-68-91 (129)	Same as above with trace cobbles.		Switched to rods. Pounded a sample for information. PID = 30.9
	84.0						
85	85.0	20	CORE		**Poorly-graded Sand (SP).** Tan-brown, moist, loose. Trace silt, fine grained sand.		PID= 91.9
		30	CORE		**Silty Sand (SM).** Olive brown, moist, dense. Approximately 30% silt. Fine sand, no gravel. Silt in beds, pockets.		No PID sample.
	87.5						PID= 35.4
		28	CORE		Very fine sand with almost 50% silt.		
90	90.0						
		30	CORE		**Poorly-graded Sand (SP).** Olive brown, moist, wetter than above, dense. Some silt at top and in pockets throughout. Fine sand, a little darker and wetter at bottom.		PID= 52.5
	92.5			▽			
		26	02AVMA28SL CORE		Same as above. Fine sand with trace silt.		Sample taken at 15:20 on 8/7/02. 02AVMA28SL. No picture. PID= 49.6
95	95.0						
		30	CORE		Same as above. Increased silt, approximately 10%. Sand is coarser with depth. Trace coal.		Two feet of heave. PID= 12.4
	97.5						
		30	CORE		Medium coarse sand, some fines.		Drilled to 100'. Added water to augers to fight heave. PID= 3.2
100	100.0						
		18	02AVMA02GT SS	35-130	**Silt (ML).** Olive brown, moist, very stiff. LL=29, PL=19, PI=10. Moisture Content 19.6 percent.		Very hard to drive spoons. Geotech sample taken at 17:40 on 8/7/02. 02AVMA02GT. No PID sample.
	102.5						
		N/A	CORE		Hard, laminar bedded silt. Observed some sand at approximately 104'. Color changing to tan.		Driller reported hard, 1600 PSI at 84 to 86'. Liner used to 104'. No liner after that. PID = 0.0
105	105.0			▽			
		6	CORE		**Well-graded Gravel (GW).** Tan-gray, wet, loose, trace sand and silt. Gravel up to 2 inches, some subround, otherwise broken.		Very hard drilling. Stood rig up. Liner used on first run. No liner used on second run to 107'. No PID sample.
	107.5						
		8	CORE		Contained a fine poorly graded sand layer, then gravel with silt.		Rock in shoe. Will drill with rods. Drilled better with rods to 110'. No PID sample.
110	110.0						

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4337	Sheet 4 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 93.31 | NORTHING (M) : 2652705.448 | EASTING (M): 1692110.075

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 105 feet BGS | START : 8/6/02 09:45 | END : 10/3/02 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
		0	CORE		**Well-graded Gravel (GW).** Tan-gray, wet, loose, trace sand and silt. Gravel up to 2 inches, some subround, otherwise broken.		Drilled with rods to 115'. Most was hard. Got a little different at end. No PID sample.
	114.0						
115	115.0				No recovery. Drilling through cobbles and gravel.		No recovery. Drillers were short a rod and did not recover anything.
		0	CORE				
	117.5				Same as above.		There was a lot of stuff on the augers from grouting operations. No liner. No PID sample.
		20	CORE				
120	120.0				Same as above with fewer large gravels/cobbles. Layer of fine, poorly-graded sand at 120 feet becoming coarser with depth.		Driller notes water. No PID sample.
		24	CORE				
	122.5				**Well-graded Sand (SW).** Gray, wet, heaving.		
					Bottom of boring at 123 feet.		Heaving sand at bottom according to drillers. Four drums of IDW cuttings produced. No PID sample.
125							
130							
135							
140							
145							
150							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4338**	Sheet 1 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 93.47 | NORTHING (M) : 2653886.156 | EASTING (M): 1691601.789

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 130 feet BGS | START : 8/13/02 09:00 | END : 9/23/02 13:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
	0.0						
		16	CORE		**Organic Silt (OL).** Red-brown, moist, stiff, trace cobbles and roots.		Piece of wire in top 12". PID = 85.2
	2.5				**Well-graded Sand with Gravel (SW).** Dark brown, moist, loose. Medium to coarse sand, gravels are subangular to 1.5 inch.		
		16	CORE		**Well-graded Sand with Silt and Gravel (SW-SM).** Dark brown, moist, loose.		Second run to 5' only contained a rock. PID = 297
5	5.0				Same as above, slightly more silt.		PID = 510
		6	CORE				
	7.5				Same as above. Cobbles more prevalent. Some rust inclusions.		Did this in two runs. Rock in shoe at 10'. PID = 365
		10	CORE				
10	10.0				**Silty Gravel with Sand (GM).** Tan, moist, medium dense, trace cobbles. Silt with sand and fine gravels as a matrix with cobbles.		Added bentonite and water to hole. PID = 32.6
		18	CORE				
	12.5				Same as above. Some bands of rust. Fewer cobbles.		PID = 0.0
		16	CORE				
15	15.0				Same as above. Trace coal, particularly at 17 feet. Rust band of sand at 16 feet.		PID = 0.0
		28	CORE				
	17.5				Same as above. Dark tan. Trace coal, rust, and cobbles throughout sample. A band of finer sand was present at 19.5 feet.		PID = 0.0
		24	CORE				
20	20.0				Same as above. Trace coal in pockets. Cobbles smaller overall. Drillers report rock at 22.5". Sand is coarse. Some reddish tan silt in pockets.		PID = 0.0
		26	CORE				
	22.5				Same as above.		PID = 0.0
		26	CORE				
25	25.0				More silt than above. Bottom has less sand. Rust and coal at mid-sample along with more sand. Cobbles throughout.		PID = 29.0
		24	CORE				
	27.5				Same as above. Wet silt at 28.5 feet with gravel and coal. Silt in pockets along with yellow and orange sand. Sample is varied.		Drillers note fewer boulders here. PID = 4.4
		20	CORE				
30	30.0						

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 309.77	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 3 bags
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : Natural cave-in	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : N/A	**DEVELOPMENT**
Type : PVC		Method : Surged for 15 minutes. Bailer.
		Time : 1.2 hours
		Estimated purge volume : 6.5 gallons

Comments :

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4338**	Sheet 2 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 93.47 | NORTHING (M) : 2653886.156 | EASTING (M): 1691601.789

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 130 feet BGS | START : 8/13/02 09:00 | END : 9/23/02 13:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
	32.5	20	CORE		**Silty Gravel with Sand (GM).** Tan, moist, medium dense, trace cobbles. Silt with sand and fine gravels as a matrix with cobbles.		Chips and water added to hole at 30'. Drill two runs because of rock. PID = 0.0
	35.0	18	CORE		No recovery		Drilled in two runs. Hit rock. No recovery. No liner. PID = 0.0
35	37.5	20	CORE		Same as above. Coal present.		PID = 0.0
	40.0	8	CORE		Same as above. Less coal.		PID = 0.0
40	42.5	10	CORE		Same as above. Color is tannish gray. Pieces of coal. Cobbles persist. More sand, finer grained.		PID = 0.0
	45.0	18	CORE		**Silty Sand with Gravel (SM).** Gray-brown, moist, medium dense. Coarse grained sand, gravel is subround to 2 inches.		Harder drilling from 42.5' to 45'. PID = 0.0
45	47.5	0	CORE				Only one rock for recovery. No PID sample.
	50.0	18	CORE		Same as above with less silt. Becoming loose. Two thin bands of coal. Trace cobbles throughout. Sand is well-graded and fine to medium grained.		Driller reports, "loose." PID = 0.0
50	52.5	10	CORE		**Well-graded Sand with Silt and Gravel (SW-SM).** Brownish-gray, moist, loose. Cleaner sand, little silt, Trace cobbles still present.		PID = 0.0
	55.0	14	CORE		**Well-graded Sand with Gravel (SW).** Gray, moist, loose, trace cobbles present. Sand is medium to coarse grained and very moist.		PID = 2.6
55	57.5	18	CORE		Same as above with trace coal and silt.		PID = 0.0
	60.0	18	CORE		Same as above with rusty patches and coal. Gravel is more rounded than above.		No PID sample.
60	62.5	20	CORE		Same as above with more silt.		PID = 0.0
	65.0	16	CORE		**Well-graded Gravel with Sand (GW).** Tan-gray, moist, loose, trace silt. Gravel up to 2 inches. Much less sand than above.		PID = 0.0
65	67.5	16	CORE		**Well-graded Sand with Gravel (SW).** Tan-gray, moist, loose, trace cobbles and silt.		Four inches of concrete slough recovered. PID = 0.8
	70.0	16	CORE		Same as above with increased cobbles in upper part of sample then smaller gravel (1 inch) and increased sand.		PID = 2.3

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4338	Sheet 3 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 93.47 | NORTHING (M) : 2653886.156 | EASTING (M): 1691601.789

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 130 feet BGS | START : 8/13/02 09:00 | END : 9/23/02 13:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
	72.5	18	CORE		**Well-graded Sand with Gravel (SW).** Tan-gray, moist, loose, trace cobbles and silt. Sandier than above. More fine gravels. Gravels to 2 inches and more round. Trace silt in pockets.		PID = 4.7
	75.0	18	CORE		Same as above with more coarse grains at the top. A wet gravel band is evident at 73.5 feet. Some rusty grains at 74 feet.		PID = 1.2
75	77.5	22	CORE		**Well-graded Gravel with Sand (GW).** Tan-gray, moist, loose, trace silt. Gravel is coarser overall, but large gravels in the top only.		PID = 1.1
	80.0	16	CORE		**Well-graded Sand with Gravel (SW).** Dark gray, moist, loose. Fine to medium grained sand. Trace cobbles at top. Gravel to about 1.5 inches.		PID = 3.7
80	82.5	20	CORE		Same as above with some medium gravels at the top with more silt. Then, medium sand with a few cobbles (trace). More silt at the bottom.		PID = 3.0
	85.0	18	CORE		Same as above with coarser sand at the top. Increased silt and sand with depth.		PID = 5.8
85	87.5	14	CORE		Same as above with a finer sand and more silt 86 feet. Trace cobbles. Cobble in shoe.		Rock in shoe. PID = 4.5
	90.0	14	CORE		Same as above with gravel to 0.5 inch. Slightly more silt in bottom. Cobble with silt around and near bottom of run.		No liner used on second run due to rock. PID = 8.5
90	92.5	22	CORE		Same as above with cobbles. Most gravels subround to 0.5". Trace silt. Sand is medium to coarse grained.		PID = 6.8
	95.0	30	CORE		Same as above with more cobbles. Sand is finer grained. Bottom has more silt, some in pockets.		PID = 6.1
95	97.5	20	CORE		Same as above. Coarse sand and cobbles.		Only cuttings are volclay, cement mix. PID = 6.2
	100.0	23	CORE		**Poorly-graded Sand with Gravel (SP).** Dark gray, moist, loose, trace silt. Medium sand.		PID = 8.8
100	102.5	24	CORE		**Well-graded Gravel with Sand (GW).** Tan, gray, moist, loose, trace cobbles. Fine sand and silt in matrix. **Poorly-graded Sand with Gravel (SP).** Dark gray, moist, loose. Fine to medium sand, more gravel, including cobbles at top. Less gravel and smaller at bottom.		Drills soft. PID = 7.5
	105.0	24	CORE		Same as above with slightly more gravel at bottom. Cobble at bottom as well.		Rods hung up for a while. PID = 5.8
105	107.5	26	CORE		Same as above with a few subround gravels to 1.5 inch. Medium sand.		Starting to see other material in cuttings, not just cement mix. PID = 7.1
	110.0	18	CORE		**Well-graded Sand with Gravel (SW).** Dark gray, moist, loose, trace silt. Gravel to 3 inches. Sand is fine to medium grained.		PID = 4.0
110							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4338**	Sheet 4 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 93.47 | NORTHING (M) : 2653886.156 | EASTING (M): 1691601.789

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 130 feet BGS | START : 8/13/02 09:00 | END : 9/23/02 13:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.) PID (ppmV):
		10	CORE		**Well-graded Sand with Gravel (SW).** Dark gray, moist, loose, trace silt. Gravel to 3 inches. Sand is fine to medium grained.		PID = 5.8
	112.5						
		14	CORE		**Well-graded Gravel with Sand (GW).** Tan-gray, moist (almost wet), loose, trace silt. Gravel ranges from fine up to 2.5 inches.		PID = 7.6
115	115.0				Same as above, more sand, less silt.		Sampled on supposition that water was near. Sampled 02AVMA31SL at 15:50 on 9/4/02. PID = 7.4
		16	02AVMA31SL CORE				
	117.5				Same as above. More fines in bottom. Trace cobbles throughout.		PID = 6.7
		24	CORE				
120	120.0				**Well-graded Sand with Gravel (SW).** Dark gray, moist, loose. Fine to medium sand and gravels to 0.75". Trace cobbles and silt.		Rock in shoe. PID = 6.9
		16	CORE				
	122.0				**Well-graded Gravel with Sand (GW).** Unable to determine color due to mixing with grout. Cobbles throughout.		Augers in a bind. Have to pull back. No liner used. No PID reading taken beyond this point.
	123.0	0	CORE		**Silt (ML).** Dark gray, moist, stiff.		
		10	CORE		**Well-graded Sand with Silt and Gravel (SW-SM).** Tan, moist, loose. Sand is coarse. Largest gravels are 2" in diameter.		
125	125.0				**Silty Sand with Gravel (SM).** Gray, moist, stiff. Fine grained sand with silt. Gravels subround to 0.75" in diameter, semi-cemented. Hard drilling. No cuttings made it surface after 130'.		Drill with rock bit. Easier sections and rocky sections.
130		30	CORE	▽			
135	135.0				**Well-graded Sand with Silt and Gravel (SW-SM).** Gray sand and gravel, silt is tan, wet, medium dense. Two feet of heave in augers.		No easy drilling. Water zone encountered. Driller says, "no water yet."
		30	02AVMA33SL CORE				Sampled 02AVMA33SL at 11:20 on 9/23/02.
140	140.0				Bottom of boring at 141 feet.		Drilled with rock bit to 141. Rock at 141'. Bottom of boring. One IDW drum of cuttings generated.
145							
150							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4339	Sheet 1 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.77 | NORTHING (M) : 2653217.721 | EASTING (M): 1690040.615

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 115 feet BGS | START : 8/15/02 12:35 | END : 9/11/02 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
0.0							
	0.0 - 2.5	20	CORE		**Organic Silt (OL).** Dark brown to reddish-brown, moist, stiff. Root zone throughout. More sand in dark brown material.		Roots. PID = 411
5	2.5 - 5.0	14	CORE		Same as above, color is tan and becoming darker with depth. Trace subangular gravel to 2 inches throughout.		PID = 154
	5.0 - 7.5	10	CORE		**Silty Sand with Gravel (SM).** Gray, moist, loose.		
					Well-graded Sand with Silt and Gravel (SW-SM). Gray, moist, loose. Fine to medium subangular sand. Gravel subangular to over 3". Silt is a tan color.		Two runs. No liner on second run. PID = 126
10	7.5 - 10.0	12	CORE		**Silty Sand with Gravel (SM).** Dark gray, moist, loose. Medium sand is subangular. Gravel subangular to 2". Pockets of tan and rust colored silt.		PID = 65.8
	10.0 - 12.5	16	CORE		**Well-graded Sand with Silt and Gravel (SW-SM).** gray, moist. loose, trace cobbles. Fine to medium sand.		PID = 144
					Silty Gravel with Sand (GM). Tan, moist, stiff. Pockets of a dark brown silty sand.		
15	12.5 - 15.0	16	CORE		**Silty Gravel (GM).** Tan, moist, stiff, trace cobbles. Gravel is well graded from fine to greater than 3 inches.		PID = 151
	15.0 - 17.5	24	CORE		Same as above. Trace sand, trace coal, some rust. Stiff silt matrix with fine to cobble sized gravel, more rounded with size.		PID = 96.4
					Same as above with more sand in upper portion. Trace coal and yellowish sandstone in lower portion. Sand is very coarse to fine gravel.		PID = 0.0
20	17.5 - 20.0	24	CORE		Same as above with more sand.		PID = 0.0
	20.0 - 22.5	18	CORE		**Silty Sand with Gravel (SM).** Tan-gray, moist, medium dense. Coarse, angular sand. Gravel to 2 inches. Band of coal and yellowish sand at 23'.		PID = 0.0
25	22.5 - 25.0	20	CORE		Same as above.		PID = 438
	25.0 - 27.5	12	CORE		Same as above with trace silt at 27.5 feet.		
	27.5 - 30.0	20	CORE		**Poorly-graded Sand with Gravel (SP).** Tan, moist, loose. Small 1/2-inch layer of coal present at 29 feet.		
30							

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 297.28	Dia. : N/A	Type : None
Vent hole? : Yes	Type : N/A	Quantity used : N/A
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : Natural cave-in	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : N/A	**DEVELOPMENT**
Type : PVC		Method : Surged for 15 minutes. Grundfos pump.
		Time : 2.3 hours
		Estimated purge volume : 53 gallons

Comments :

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4339	Sheet 2 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.77 | NORTHING (M) : 2653217.721 | EASTING (M): 1690040.615

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 115 feet BGS | START : 8/15/02 12:35 | END : 9/11/02 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
		14	CORE		**Well-graded Sand with Silt and Gravel (SW-SM).** Dark brown, moist, loose. Band of coal in shoe. Trace cobbles on upper portion of sample. Some rusty stains near bottom. More silt than previous sample.		PID = 162
	32.5						
		16	CORE		Same as above with less sand with depth. Trace coal present, some orange, rusty grains.		Had to drill second half of run with big-mouth, no liner. Big rock, went to rod-drill. PID = 15
35	35.0				**Silty Gravel (GM).** Tan, moist, loose. Cobbles more prevalent in upper portions.		
		20	CORE		**Well-graded Sand with Silt and Gravel (SW-SM).** Dark tan, moist, loose. Fairly coarse sand. Gravels subround and smaller overall. Some rusty grains.		PID = 0.0
	37.5						
		16	CORE		Same as above with pockets of yellowish-orange sand. Less silt than above. Cobbles are back to greater than 3" in diameter, not as wet.		PID = 57.9
40	40.0						
		18	CORE		**Well-graded Sand with Gravel (SW).** Gray-brown, moist, loose, with trace silt, coal, and cobbles throughout. Sands become coarser with depth.		PID = 78.4
	42.5						
			CORE		Same as above with less silt. Cobbles in upper portion, then medium sand with some subround gravels to 0.75".		PID = 6.0
45	45.0						
					Same as above.		PID = 0.0
		20	CORE		**Silty Gravel (GM).** Tan, moist (silt is wet), loose. Gravels to 1.5" in diameter. Becomes sandier at depth.		
	47.5						
		34	CORE		**Well-graded Sand with Silt and Gravel (SW-SM).** Tan (darker at bottom), moist, loose. Trace coal and cobbles throughout. Becoming more fine grained overall with depth.		PID = 0.0
50	50.0						
					More cobbles and more smaller gravels.		PID = 0.0
		22	CORE				
	52.5						
		19	CORE		**Well-graded Sand with Gravel (SW).** Dark gray, moist, loose, with trace silt and cobbles. Gravel is primarily to 1" to 1.5". Sand is medium to coarse grained, subangular.		PID = 0.0
55	55.0						
		26	CORE		**Well-graded Sand with Silt and Gravel (SW-SM).** Gray, moist, loose, trace cobbles and coal. Fine-grained sand.		PID = 0.0
	57.5						
		18	CORE		Same as above with less silt. Trace cobbles still present. Some reddish sand grains at bottom. Rock in shoe.		No pictures taken 60' to 75' due to wet weather. PID = 1.5
60	60.0						
		24	CORE		**Well-graded Sand with Gravel (SW).** Gray, moist, loose. Some siltier gravel above then a zone of cobbles at the bottom. Sand is fine grained.		PID = 8.1
	62.5						
		22	CORE		Same as above. Subrounded gravel to 1.5", but up to 3". Sand is fine to medium-grained, subangular.		PID = 38.4
65	65.0						
					Same as above. Less evidence of cobbles in sample shoe.		Encountered rock, no liner. Sampled 02AVMA29SL at 13:45. PID = 310
		12	02AVMA29SL CORE				
	67.5				**Silt (ML) with Gravel.** Brown, moist. Hard, cemented.		No recovery. Rods are hanging up.
		0	CORE		No recovery.		
70	70.0						

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4339	Sheet 3 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.77 | NORTHING (M) : 2653217.721 | EASTING (M): 1690040.615

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 115 feet BGS | START : 8/15/02 12:35 | END : 9/11/02 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
		20	CORE		**Well-graded Sand with Gravel (SW).** Gray, moist, loose. Trace, yellowish-orange silt. Gravels subround to 2" in diameter. Medium grained sand.		PID = 112
	72.5						
		10	CORE		Same as above. Grain size overall larger. Trace silt. Rock in shoe, limited recovery.		PID = 122
75	75.0						
		18	CORE		Same as above. Band of finer sand and silt at 76.5 feet.		PID = 126
	77.5						
		14	CORE		Same as above. Fine to medium sand. Slightly more silt. Cobbles also present.		PID = 43.7
80	80.0						
		18	CORE		Same as above.		Broke keystock. PID = 400
	82.5						
		20	CORE		Same as above with slightly fewer cobbles.		PID = 0.0
85	85.0						
		26	CORE		Same as above.		PID = 41.9
	87.5						
					Poorly-graded Sand (SP). Brown, moist, loose, trace silt. Fine to medium sand.		
		18	CORE		**Well-graded Sand with Gravel (SW).** Brown, moist, loose, with tracre cobbles and silt. Drier at the bottom of sample.		PID = 225
90	90.0						
					Same as above with larger sand grains. Cobbles still present.		No PID readings from 90' to 102.5'
		18	CORE				
	92.5						
					Same as above with more silt in upper portion and rusty sand grains. Cobbles still present.		
		15	CORE				
95	95.0						
					Same as above with more gravel and silt.		
		16	CORE				
	97.5						
					Same as above. Slightly drier, more cobbles.		
		18	CORE				
100	100.0						
					Same as above.		Attempted to push split spoon greater than 50 blows for 6". No recovery.
		14	CORE				
	102.5						
					Silt with Gravel (ML). Gray, olive-brown, moist, stiff. Cemented and hard to drill. Gravels up to cobbles.		PID = 0.5
		12	CORE				
105	105.0						
					Well-graded Sand with Gravel (SW). Tan-gray, moist, loose, trace silt. Sand is coarse, some fine gravels - more at the top.		PID = 0.8
		16	CORE				
	107.5						
					Poorly-graded Sand with Silt. Tan-gray, moist, stiff. Fine sand. Wet at bottom.		Driller says we had approximately 1 foot of easy drilling. PID = 0.3
		20	CORE		**Well-graded Sand with Gravel (SW).** Tan-gray, moist, loose.		
110	110.0						

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4339	Sheet 4 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.77 | NORTHING (M) : 2653217.721 | EASTING (M): 1690040.615

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 115 feet BGS | START : 8/15/02 12:35 | END : 9/11/02 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
		18	CORE		**Well-graded Sand with Gravel (SW).** Tan-gray, moist, loose. Same as above with gravels subround, larger, and more present than above. Trace coal and silt (around larger particles). Gravels to 2 inches in diameter.		Rods are tough going in again. PID = 3.4
	112.5				Same as above becoming wetter with depth.		Driller reports water. Rock in shoe. Sample 02AVMA32SL at 15:04 on 9/10/02. PID = 2.8
115		20	02AVMA32SL CORE				
	115.0			▽			
		24	02AVMA03GT SS	17-26-40-34 (66)	**Well-graded Gravel with Sand.** Tan-gray, moist to wet, loose. Moisture content 7 percent.		Sample 02AVMA03GT at 15:20. Split spoon with brass liners used.
	117.0				Same as above. Color is gray sands and gravel with tan silts.		
120							
125		15	CORE				
130					Same as above. Silt is now gray in color.		Driller reports sand layers on long drill. Bottom of boring.
	134.0				Bottom of boring at 134 feet.		Two IDW drums of cuttings produced.
135							
140							
145							
150							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4340**	Sheet 1 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 91.39 | NORTHING (M) : 2653480.305 | EASTING (M): 1690878.163

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 119 feet BGS | START : 8/22/02 08:30 | END : 8/30/02 17:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.) PID (ppmV):
0	0.0						
		6	CORE		**Organic Sandy Silt (OL).** Brown, moist, loose, trace cobbles. Root zone.		No PID sample.
	2.5						
		16	CORE		Same as above.		Mini-Rae used for PID readings on this hole. PID = 5.9
5	5.0				**Silty Sand with Gravel (SM).** Brown, moist, loose, trace cobbles.		
		17	CORE		**Well-graded Sand with Gravel (SW).** Brown, moist, loose, trace silt and coal. Gravels subroud up to 1.5 inch in diameter. Sand is fine grained.		PID = 0.0
	7.5				Same as above. Sand is coarser than above.		PID = 0.0
		18	CORE		**Silty Gravel (GM).** Brown, moist, loose.		
10	10.0				Same as above. Color changing to tan. Less sand than above. Gravel fine to 1.5 inch.		Encountered a rock. No liner used. No PID sample.
		6	CORE				
	12.5				Same as above. Pockets of fine silt, yellowish sand grains.		No liner used. Shoe sized rock in sampler. Liner on completion to 15'. PID = 2.2
		14	CORE				
15	15.0				**Silty Sand with Gravel (SM).** Tan to brown, moist, medium dense, trace cobbles. Sands to medium grained.		PID = 3.0
		24	CORE				
	17.5				Same as above.		No PID sample.
		16	CORE				
20	20.0				Same as above. Some coal and cobbles.		PID = 3.0
		20	CORE				
	22.5				**Silty Gravel (GM).** Tan, moist, medium dense, with trace cobbles.		PID = 0.1
		16	CORE				
25	25.0						PID = 0.1
		18	CORE		Band of sandier material at 27'.		
	27.5				Same as above. Color becoming darker than above with increased sand. Some rusty zones and cobbles.		PID = 0.0
		20	CORE				
30	30.0						

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 302.81	Dia. : N/A	Type : None
Vent hole? : Yes	Type : N/A	Quantity used : N/A
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : Natural cave-in and silica sand	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : 0.5 bag	**DEVELOPMENT**
Type : PVC		Method : Surged for 15 minutes. Grundfos pump.
		Time : 1.75 hours
		Estimated purge volume : 16 gallons

Comments :

WELL STICKUP METRIC OUE1.GPJ CH2M ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4340**	Sheet 2 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 91.39 | NORTHING (M) : 2653480.305 | EASTING (M): 1690878.163

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 119 feet BGS | START : 8/22/02 08:30 | END : 8/30/02 17:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
					Same as above, slightly less sand.		Drillers say, "soft." PID = 0.0
	32.5	24	CORE		**Poorly-graded Sand (SP).** Brown-gray, moist, loose, with trace silt, coal, and gravel to 1.5 inches.		
	35.0	0	CORE		No recovery		No recovery
35	37.5	20	CORE		Same as above. More silt and gravel with depth. Trace coal.		PID = 0.0
	40.0	12	CORE		**Silty Sand with Gravel (SM).** Tan-brown, moist, loose, trace cobbles. Some silt pockets and gravel at top.		PID = 0.0
40	42.5	12	CORE		Same as above. Sand is medium grained. Trace coal and cobbles throughout.		PID = 1.8
	45.0	10	CORE		**Poorly-graded Sand with Silt and Gravel (SP-SM).** Grayish-tan, moist, loose. Coarse subangular sand, gravel to greater than 2". Trace coal.		No liner, Big Mouth used. PID = 6.7
45	47.0	10	CORE		Same as above.		Hard drilling. Drill will not proceed past location - rock? No liner on second run. No PID sample.
	47.5				**Gravelly Silt with Sand (ML).** Dark brown, moist, very stiff. Semi-cemented silt with gravel and sand. Hard.		
	49.5	0	CORE		**Poorly-graded Sand with Silt and Gravel (SP-SM).** Gray, moist to wet, loose with trace coal and cobbles. Sand becoming well-graded.		No recovery. Drill with rods.
50	50.0				**Gravelly Silt with Sand (ML).** Dark brown, moist, very stiff, less cohesion.		
	52.5	16	CORE		No recovery		Drillers will add water and chips to hole. PID = 0.0
	55.0	20	CORE		**Well-graded Sand with Gravel (SW).** Gray, moist, loose, with trace silt. Gravels to over 2". Coarse sand.		Rock issues reported by drillers. PID = 0.0
55	57.5	24	CORE		**Well-graded Sand with Silt and Gravel (SW-SM).** Dark brown, moist, loose. Same as above, but darker and with more silt. Sands are smaller grained.		PID = 5.5 (unnaturally high reading)
	60.0	20	CORE		**Gravelly Silt with Sand (ML).** Dark brown, most, stiff.		PID = 4.9
60	62.5	10	CORE		Same as above with less gravel.		Rock in shoe. Drilled with Big Mouth. Second run had no liner. PID = 5.9
	65.0	10	CORE		**Well-graded Sand with Gravel (SW).** Gray, moist, loose, trace silt. Medium sand. Gravels subround to 3 inches.		PID = 6.5
65	67.5	12	CORE		Same as above. Gravels subround, 0.5 inch to 3 inch.		PID = 3.7
	70.0	N/A	CORE		Same as above, slightly less silt.		No liner on second run. PID = 6.0
					Same as above. More tan silt in upper sample. Sand is fairly coarse. Cobble at bottom.		
					Same as above.		

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4340	Sheet 3 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 91.39 | NORTHING (M) : 2653480.305 | EASTING (M): 1690878.163

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 119 feet BGS | START : 8/22/02 08:30 | END : 8/30/02 17:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
		20	CORE		**Well-graded Sand with Gravel (SW).** Gray, moist, loose, trace silt. Medium sand. Gravels subround to 3 inches.		PID = 1.0
	72.5						
		15	CORE		Same as above with slightly more silt and gravel. Cobble zone between 73 and 73.3 feet.		PID = 6.5
75	75.0						
		18	CORE		More gravel than above. Trace silt. Sands coarser than above. Gravels well-graded from fine to over 3".		PID = 6.7
	77.5						
		20	CORE		Same as above. Some coal at bottom. Slightly more silt at bottom.		PID = 5.9
80	80.0						
		18	CORE		Same as above. Gravels smaller overall, but still have cobbles, yellowish-orange grains. Some coal, trace silt.		PID = 6.0
	82.5						
		20	CORE		**Poorly-graded Sand with Gravel (SP).** Gray, moist, loose, trace silt. Sample has reddish tint. White, granitic cobble mid-sample. Some rusty zones, less gravel present at bottom.		PID = 6.7
85	85.0						
		22	CORE		**Well-graded Sand with Gravel (SW).** Gray, moist, loose, trace cobbles. Pockets of reddish-brown silt, yellowish-orange grains. Gravels generally approximately 1" in diameter.		PID = 5.8
	87.5						
		23	CORE		Same as above. Gravel are subround, 0.5 inch to 1 inch. Increased silt at depth. Sand becoming finer grained.		PID = 4.8
90	90.0						
		22	CORE		Same as above with less gravel at depth. Cobble zone at 91 feet. Sand is finer at bottom with increase silt content.		PID = 4.4
	92.5						
		24	CORE		Same as above. Sand becoming finer grained with depth.		No PID sample.
95	95.0						
		24	CORE		Same as above. Sand is very coarse. A few cobbles, but most gravels round to subround to less than 1 inch.		PID = 4.8
	97.5						
		26	CORE		Same as above with slightly more silt. Gravels a little larger and less rounded.		Drillers conditioned hole with chips. PID = 3.9
100	100.0						
		23	CORE		Same as above. Increased cobbles. Reddish sandstone mid-sample.		Chewed up liner. PID = 5.3
	102.5						
		20	CORE		Same as above. Medium to coarse sand. Gravels to 0.5 inch. Trace coal.		PID = 6.2
105	105.0						
		16	CORE		Same as above. Sand is fairly coarse. Gravels to approximately 1" except for cobbles. Increasing silt with depth.		PID = 5.5
	107.5						
		14	CORE		**Well-graded Gravel with Sand (GW).** Gray, moist, loose, trace silt and cobbles. Gravels are 0.5 inch, subround, and subangular.		Rods were wet for approximately 8'. PID = 4.2
110	110.0						

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4340**	Sheet 4 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 91.39 | NORTHING (M) : 2653480.305 | EASTING (M): 1690878.163

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 119 feet BGS | START : 8/22/02 08:30 | END : 8/30/02 17:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
		24	CORE		**Well-graded Sand with Gravel (SW).** Gray, moist, loose, trace cobbles and silt. Sands are fine grained, gravels are 0.5 inch.		Rods wet again. Drills soft. Lots of cobbles in cuttings. PID = 6.0
	112.5						
		16	CORE		Same as above, less silt, fewer smaller gravels.		PID = 4.1
115	115.0				Same as above.		Harder drilling. PID = 6.5
		26	CORE		**Silty Sand with Gravel (SM).** Tan, moist, medium dense, trace cobbles.		
	117.5						Broke key stock. Sampled 02AVMA30SL at 14:05. PID = 7.0
		10	02AVMA30SL CORE	▽	Same as above, wet.		
120	120.0				**Well-graded Gravel with Silt and Sand (GW-GM).** Tan, wet, loose, trace cobble. Gravels from fine to one inch and subround.		Some of sample fell out. Have a little heave in augers. PID = 4.0
		10	CORE				
	122.5				**Well-graded Gravel with Sand (GW).** Tan-gray, wet, loose. Some cobbles at end of sample.		
125							
			CORE				
130							
135	135.0				Bottom of boring at 135 feet.		Drilled soft. Rods stuck in augers. Bottom of boring. No IDW drums of cuttings generated.
140							
145							
150							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4341**	Sheet 1 of 2

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.73 | NORTHING (M) : 2651219.362 | EASTING (M): 1690639.452

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 60 feet BGS | START : 9/24/02 10:00 | END : 9/25/02 12:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
0.0							
	0.0 - 2.5	14	SS1 CORE		**Organic Silt or Clay (OL)** Brown, moist, loose. Some plastic in top of root zone. Gravels to 1 inch.		PID = 0.1
	2.5 - 5.0	16	SS2 CORE		Sandy at top. Some root mass, more silt, finer sand toward bottom. Gravels to 1.5 inches.		PID = 0.0
5	5.0 - 7.5	18	SS3 CORE		**Well-graded Sand (SW).** Brown, moist, loose, trace silt. Plug of wetter silty stuff at top of sample. Rest of sample is fine to medium sand with subangular gravels to 2 inch.		PID = 0.6
	7.5 - 10.0	18	SS4 CORE		**Well-graded Sand with Silt (SW-SM).** Tan, moist, loose to medium dense. Gravels subangular to greater than 2 inches. Rusty sandstone pieces throughout.		PID = 0.1
10	10.0 - 12.5	20	SS5 CORE		Same as above. Some rusty grains. Subangular gravels to 3 inches. Sand is medium to coarse grained.		PID = 0.2
	12.5 - 15.0	14	SS6 CORE		Same as above. Some rusty grains and trace coal. Increasing silt becoming wetter and stiffer mid-sample.		PID = 0.0
15	15.0 - 17.5	30	SS7 CORE		Same as above. Trace coal, rusty grains. Increasing gravel content and trace cobbles.		Rock in shoe on first run. PID = 0.0
	17.5 - 20.0	12	SS8 CORE		Same as above. Increasing cobbles.		Rock in shoe. PID = 0.0
20	20.0 - 22.5	28	SS9 CORE		Same as above with trace coal, rusty grains, and cobbles. Sands are becoming larger grained. Increasing silt content.		PID = 0.2
	22.5 - 25.0	20	SS10 CORE		**Silty Sand (SM).** Dark tan, moist, loose. Increased coal content, few cobbles, and gravels are smaller than above.		PID = 0.0
25	25.0 - 27.5	16	SS11 CORE		Same as above with increasing gravel content. Rusty grains, sand is fairly coarse. Most gravels approximately 1 inch in diameter.		PID = 0.0
	27.5 - 30.0	14	SS12 CORE		**Silty Gravel (GM).** Tan, moist, loose. Overall coarser than above. Top contained approximately 0.5 to 0.75 inch gravels with no sand.		No PID sample.
30							

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 294.23	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 1 bag
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : Silica Sand	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : 8 bags	**DEVELOPMENT**
Type : PVC		Method : Not developed
		Time : N/A
		Estimated purge volume : N/A

Comments : In order to ensure that a sample could be collected from the limited water present, this well was not developed.

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4341	Sheet 2 of 2

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.73 | NORTHING (M) : 2651219.362 | EASTING (M): 1690639.452

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 60 feet BGS | START : 9/24/02 10:00 | END : 9/25/02 12:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
		14	SS13 CORE		**Silty Sand (SM).** Tan, moist, loose. Top contained coal, silty gravel, then less gravel, more sand with silt in matrix.		Rock in shoe. PID = 0.0
	32.5				Same as above with increasing cobble and coal content.		PID = 0.0
		16	SS14 CORE				
35	35.0				**Silty Gravel (GM).** Tan, moist, loose. Increased coal at 37 feet. Fine gravel rather than sand.		PID = 0.0
		17	SS15 CORE				
	37.5				Trace cobbles and increasing sand content.		PID = 0.0
		18	SS16 CORE				
40	40.0				Becoming sandier (finer gravels) with depth. Trace cobbles throughout.		PID = 0.0
		16	SS17 CORE				
	42.5				**Silty Sand (SM).** Tan, moist, loose with trace cobbles. Fine sands.		PID = 0.0
		14	SS18 CORE				
45	45.0				Sand becoming medium grained.		PID = 0.0
		18	SS19 CORE				
	47.5				Sand is finer grained with less silt and gravel.		Driller says last part drilled easier. PID = 0.0
		14	SS20 CORE				
50	50.0				**Well-graded Sand with Silt (SW-SM).** Dark gray, moist, loose. Trace coal. Many cobbles greater than 3 inches. Less silt than above and finer sands.		PID = 0.0
		12	SS21 CORE				
	52.5				**Well-graded Sand (SW).** Dark gray, moist, loose. Large cobble at 53.3 feet. Clean medium grained sand.		Rock in shoe. No liner used. PID = 0.0
		16	SS22 CORE		**Well-graded Sand with Silt (SW-SM).** Dark gray, moist, loose. Fine sands and silt.		
55	55.0				**Well-graded Sand (SW).** Gray-tan, moist, loose. Trace cobbles and silt throughout. Sand fine to medium grained. Most gravels subangular to 1 inch in diameter.		PID = 0.0
		18	SS23 CORE				
	57.5				**Well-graded Sand with Silt (SW-SM).** Dark tan-gray, moist, loose. Decreasing silt content and sands becoming finer grained with depth. Trace subround gravel throughout.		PID = 0.0
		20	SS24 CORE				
60	60.0			▽	**Well-graded Sand (SW).** Dark gray, wet, loose.		Sampled 02AVMA34SL, 02AVMA35SL, and 02AVMA36SL on 9/24/02 at 16:45, 16:50, and 17:00 respectively. Triplicate sample. Bagged a sample above silt for later collection.
		30	02AVMA34SL CORE		**Silt (ML).** Tan, moist to dry, very stiff. Increasing sand content with depth.		
	62.5				Wet.		Sampled 02AVMA37SL on 9/25/02 at 09:35. Bottom of boring. No IDW drums of cuttings generated.
		30	02AVMA37SL CORE		**Poorly-graded Sand (SP).** Dark gray, moist, medium dense, trace silt.		
65	65.0				Bottom of boring at 65 feet.		
70							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4342**	Sheet 1 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.42 | NORTHING (M) : 2651681.749 | EASTING (M): 1690320.01

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 92 feet BGS | START : 10/4/02 09:00 | END : 10/10/02 16:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION.) PID (ppmV):
0.0							
	18		CORE		**Organic Silt (OL).** Red-brown, moist, medium stiff. Vegetation on top then silty organic soil with gravel.		PID = 1.9
2.5							
	12		CORE		**Silty Sand with Gravel (SM).** Dark brown, moist, loose. Gravels sub-round to 3". Sand fairly coarse.		PID = 0.6
5 5.0							
	16		CORE		Same as above. Slightly coarser sands. Darker at top then lighter.		PID = 0.0
7.5							
	13		CORE		Same as above. More silty at bottom. Some cobbles. The rest of the gravel is approximately 1.5".		PID = 0.0
10 10.0							
	20		CORE		Same as above. Increased silt, less sand than above.		PID = 0.0
12.5							
	0		CORE		No recovery. Unable to determine soil type by drilling action.		Stuck on a rock. Drilled with rods. No PID sample.
15 15.0							
	20		CORE		**Gravel with Sand (GM).** Brown-gray, very moist, dense, trace silt.		PID = 0.0
17.5							
	18		CORE		**Silty Sand with Gravel (SM).** Gray, moist, dense. Fractured gravel up to 3" in diameter.		PID = 1.1
20 20.0							
	22		CORE		Perched water 20.5' to 21'.		Much chatter in drilling action. PID = 0.6
22.5							
	18		CORE		Same as above.		PID = 0.7
25 25.0							
	18		CORE		**Gravel with Sand (GM).** Brown, moist, dense, trace silt. Minor plasticity.		PID = 0.2
27.5							
	0		CORE		No recovery due to cobbles. All cobbles were crushed.		No PID sample.
30 30.0							

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 293.36	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 1 bag
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : Natural cave-in and silica sand	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : 1 bag	**DEVELOPMENT**
Type : PVC		Method : Bailer
		Time : 1 hour
		Estimated purge volume : 4 gallons

Comments :

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4342	Sheet 2 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.42 | NORTHING (M) : 2651681.749 | EASTING (M): 1690320.01

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 92 feet BGS | START : 10/4/02 09:00 | END : 10/10/02 16:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
		18	CORE		**Gravel with Sand (GM).** Brown, moist, dense, trace silt. Minor plasticity. Same as above. Mix of angular and subround gravel.		PID = 1.3
	32.5						
		16	CORE		Same as above. Gravels to 3", freshly fractured. Trace silt.		PID = 0.9
35	35.0				Same as above. Fractured subround gravel to 3" in diameter.		PID = 2.0
		22	CORE				
	37.5				Same as above.		PID = 0.7. Cuttings showed perched water and 1" subround gravel.
		20	CORE				
40	40.0				Same as above.		PID = 1.1
		20	CORE				
	42.5				Same as above. Gravel to 2.5 inches.		PID = 0.0
		12	CORE				
45	45.0				**Silty Sand with Gravel (SM).** Brown, moist, dense. Gravel is fractured and up to 2.5 inches.		PID = 0.0
		16	CORE				
	47.5				Same as above. Fractured gravel to 2". Trace silt.		PID = 0.7
		14	CORE				
50	50.0				Same as above. Fractured gravel to 2.5".		Rock obstruction in shoe. PID = 0.0
		10	CORE				
	52.5				**Well-graded Sand with Gravel (SW).** Brown, moist, dense. Subround gravel to 1 inch. Fine to coarse sand.		PID = 0.0
		12	CORE				
55	55.0				**Poorly-graded Sand (SP).** Brown, moist, loose. Medium-fine sand.		PID = 0.1
		20	CORE				
	57.5				Same as above. Sand is medium grained. Trace subround gravel to 2" and smaller.		No PID sample.
		14	CORE				
60	60.0				**Well-graded Sand with Gravel (SW).** Dark gray, moist, loose. Medium sand with subround gravel to 1 inch.		PID = 0.1
		26	CORE				
	62.5				Same as above with increased silt and gravel. Gravel is angular.		PID = 0.0
		14	CORE				
65	65.0				**Well-graded Gravel with Sand (GW).** Tan-gray, very moist, loose. Coarser sand and gravel than above.		Rock in shoe. No PID sample.
		12	CORE				
	67.5				No recovery		Driller thinks we may have hit silt at bottom of run. Rock in shoe though. No liner. No PID sample.
		0	CORE				
70	70.0						

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4342**	Sheet 3 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.42 | NORTHING (M) : 2651681.749 | EASTING (M): 1690320.01

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 92 feet BGS | START : 10/4/02 09:00 | END : 10/10/02 16:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
		6	CORE		**Poorly-graded Sand (SP).** Tan-gray, moist, loose, trace silt. Medium-fine sand.		Rock in shoe again. No PID sample.
	72.5						
		28	CORE		Same as above. Medium sand, trace gravel and silt. Subrounded gravel is approximately 0.75" to 1 inches.		PID = 0.3
75	75.0						
		12	CORE		Same as above, less silt, gravels larger than above.		PID = 1.6
	77.5						
		12	CORE		**Well-graded Sand with Gravel (SW).** Dark gray, moist, loose, trace cobbles. Coarse sand.		PID = 1.2
80	80.0						
		24	CORE		Same as above, becoming drier with depth.		PID = 0.8
	82.5						
		14	CORE		**Poorly-graded Sand with Gravel (SP).** Dark gray, moist, loose. Gravel is finer, less graded than above. Sand is medium fine grained. Same as above. Some rusty stained zones. More and larger gravel/cobbles at bottom.		Rock in shoe. PID = 0.3
85	85.0						
		13	CORE		Same as above but increased cobbles and silt.		PID = 1.2
	87.5						
		16	CORE		Same as above.		Possible silt in shoe. PID = 0.0
90	90.0						
		0	CORE	▽			Suspected rock in shoe. No liner. No recovery on rest of run to 92.5'.
	92.5				Wet.		
95	95.0						
		21	02AVMA38SL CORE		**Silt (ML).** Silt.		Samples 02AVMA38SL, 02AVMA39SL, 02AVMA40SL taken at 15:30, 15:35, and 15:40 respectively on 10/10/02. No IDW drums of cuttings generated.
	97.5				Bottom of boring at 97.5 feet.		
100							
105							
110							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4410**	Sheet 1 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.76 | NORTHING (M) : 2651633.745 | EASTING (M): 1690624.69

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 76 feet BGS | START : 5/7/03 09:00 | END : 5/8/03 16:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
0.0							
	0.0 - 2.5	20	CORE		Silty Sand with Gravel (SM); red-brown, moist, medium dense. Gravel bedding, few cobbles.		
2.5							
	2.5 - 5.0	4	CORE		Silty Gravel with Sand (GM): red-brown, moist, medium dense.		Driller reports rocky, harder drilling from 2.5 to 7.5 feet
5							
	5.0 - 7.5	16	CORE		Silty Sand with Gravel (SM); red-brown, moist, loose. Medium to coarse gravel, few cobbles.		
7.5							
	7.5 - 10.0	24	CORE		Well-graded Sand with Silt and Gravel (SW-SM): red-brown, moist, loose. Coarse sand with fine gravel. Transition to poorly-graded with depth.		
10							
	10.0 - 12.5	26	CORE		Silty Sand with Gravel (SM); light brown, moist, loose. Medium to coarse gravel, few broken cobbles.		
12.5							
	12.5 - 15.0	25	CORE		Silty Gravel with Sand (GM): light brown to gray, moist, medium dense. Some broken cobbles and silt cohesions.		
15							
	15.0 - 17.5	26	CORE				
17.5							
	17.5 - 20.0	28	CORE				
20							
	20.0 - 22.5	27	CORE		Silty Sand with Gravel (SM): brown-gray, moist, medium dense. Coarse sand, broken cobbles and some coal pieces.		
22.5							
	22.5 - 25.0	28	CORE		As above, tan-gray color.		
25							
	25.0 - 27.5	22	CORE		As above, gray and loose.		
27.5							Use large diameter sampler from 27.5 to 31 feet
	27.5 - 30.0	20	CORE				
30							

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 290.71	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 5.5 bags
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.020	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : 10/20 Silica Sand	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : 5.5 bags	**DEVELOPMENT**
Type : PVC		Method :
		Time :
		Estimated purge volume :

Comments :

WELL FLUSH METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4410	Sheet 2 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.76 | NORTHING (M) : 2651633.745 | EASTING (M): 1690624.69

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 76 feet BGS | START : 5/7/03 09:00 | END : 5/8/03 16:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
	31.0	8	CORE				
		27	CORE		Silty Gravel with Sand (GM): gray, moist, loose. Fine, sub-angular gravel, less silt with depth.		
35	35.0						
		8	CORE		As above, dark gray color. Coarse sands and fine gravel, some broken cobbles.		Use large diameter sampler from 35 to 40 feet
	37.0						Hit boulder at 37 feet
		12	CORE		As above, many broken cobbles, and some coal pieces.		
40	40.0						
		23	03AVMA01SL CORE		Poorly-graded Sand with Gravel (SP): dark gray, moist, loose. Coarse sand with fine to coarse gravel, sub-angular. Some broken cobbles.		
	42.5						
		24	CORE		Well-graded Sand with Gravel (SW): brown-gray, moist, loose. Med to coarse sand with broken cobbles and fine coal pieces.		
45	45.0						
		26	CORE		Silty Gravel (GM): fine gravel, tan, moist, loose.		
	47.5						
		27	CORE		Well-graded Sand with Gravel (SW): coarse, sub-angular gravel to 3-inches. Medium to coarse sand, coarsening with depth. Brown-gray, moist and loose.		
50	50.0						
		26	CORE		Silty Gravel (GM): tan, moist, loose.		
	52.5				Well-graded Sand with Gravel (SW): brown-gray, moist, loose. Fining with depth.		
		20	CORE		Well-graded Sand with Silt and Gravel (SW-SM): light brown-gray, moist, loose. Fine to medium sand and sub-angular gravels to 2-inches.		
55	55.0						
		10	CORE				
	57.5						
		20	CORE		Well-graded Sand with Gravel (SW): bronw-gray, moist, loose. Broken cobble pieces throughout, medium to coarse sand with trace of tan silt.		
60	60.0						
		26	CORE		Poorly-graded Sand with Gravel (SP): dark gray, moist, loose. Coarse gravel increasing with depth to 0.5-inch.		
	62.5						
		20	CORE		Well-graded Gravel with Sand (GW): brown-gray, moist, loose. Coarse sand and fine to coarse sub-rounded gravel to 2.5-inches. Trace of tan silt.		
65	65.0						
					Well-graded Sand with Gravel (SW): brown-gray, moist, loose. Traces of wet silt. Increase gravel and broken cobbles with depth.		Use large diameter sampler from 65 to 70 feet
		30	CORE				
70	70.0						

WELL FLUSH METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4410	Sheet 3 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.76 | NORTHING (M) : 2651633.745 | EASTING (M): 1690624.69

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 76 feet BGS | START : 5/7/03 09:00 | END : 5/8/03 16:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
		20	CORE		Well-graded Sand with Gravel (SW): brown-gray, moist, loose. Traces of wet silt. Increase gravel and broken cobbles with depth.		
	72.5						
		18	03AVMA02SL CORE		As above, dark gray, increase fine gravel (up to 1.25-inches), sub-rounded.		
75	75.0						
		22	CORE		Silt with Gravel (ML): tan, moist, stiff to very stiff. Trace interbedded fine sands. Decreasing sand and gravel with depth. 17.4 percent moisture.		Set bottom of well screen at 76 feet
	77.0						
		23	03AVMA01GT SPT	12-24-51-5 (75)			
	79.0				As above, some interbeding with fine sand.		
80	80.0	24	CORE		As above, laminated, drier.		
	81.0	18	CORE		Bottom of Boring at 81 feet		
85							
90							
95							
100							
105							
110							

WELL FLUSH METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4411	Sheet 1 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.29 | NORTHING (M) : 2651646.263 | EASTING (M): 1690869.979

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 5/12/03 08:30 | END : 5/13/03 12:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
0.0					Well-graded SAND with Gravel (SW): dark brown, moist, loose. Fill.		
	0.0 - 2.5	16	CORE				
2.5					CLAY (CL): red-brown, moist to wet, stiff. Trace of sand		
	2.5 - 5.0	18	CORE		Well-graded SAND with Gravel (SW): tan-brown to brown, moist, loose. Increasing gravel with depth, fine to coarse, sub-angular. Some broken cobbles to >2-inches		
5							
	5.0 - 7.5	20	03AVMA03SL CORE				
7.5							
	7.5 - 10.0	22	CORE				
10							
	10.0 - 12.5	24	CORE		Well-graded SAND with Silt and Gravel (SW-SM): tan-brown, moist, loose.		
12.5					Silty SAND with Gravel (SM): tan, moist, medium stiff. Coarse gravels, sub-angular to 2-inches.		
	12.5 - 15.0	16	CORE				
15							
	15.0 - 17.5	24	CORE		Silt GRAVEL (GM): tan, moist, dense. Fine to coarse gravels, sub-angular, in cohesive silts. Some cobbles and coal pieces.		
17.5					Well-graded SAND (SW): white, moist, loose.		
	17.5 - 20.0	22	CORE				
20							
	20.0 - 22.5	26	CORE		Silt GRAVEL (GM): olive-tan, moist, dense. Fine to coarse gravels, sub-angular, in cohesive silts. Some cobbles, coal pieces and rusty inclusions.		
	22.5 - 25.0	26	CORE		As above, some coal, more coarse sand.		
25							
	25.0 - 27.5	28	CORE		As above, more coal.		
27.5					As above, more cobbles		
	27.5 - 30.0	20	CORE				
30							

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 292.82	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 3 bags
WELLHEAD PROTECTION COVER	SCREEN	GROUT
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	SCREEN FILTER	Vol. in surface casing : N/A
WELL CASING	Type : 10/20 Silica Sand	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : 8 bags	DEVELOPMENT
Type : PVC		Method :
		Time :
		Estimated purge volume :

Comments :

WELL FLUSH METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4411	Sheet 2 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.29 | NORTHING (M) : 2651646.263 | EASTING (M): 1690869.979

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 5/12/03 08:30 | END : 5/13/03 12:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION	WELL	COMMENTS
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
	32.5	22	CORE		Silt GRAVEL (GM): olive-tan, moist, dense. Fine to coarse gravels, sub-angular, in cohesive silts. Some cobbles, coal pieces and rusty inclusions. As above, fewer cobbles		
	35.0	20	CORE		Silt SAND with Gravel (SM): olive-tan, moist, dense. Medium to coarse sand and sub-rounded gravel to 3/4-inch. Dark rusty zone and coal decrease from top to bottom of sample.		
35	37.5	26	CORE		Silt GRAVEL (GM): olive-tan, moist to wet, loose. Fine angular gravels with some coal pieces and rusty inclusions. Some sub-rounded gravel to 2-inches.		
	40.0	18	CORE		Silty SAND lens at 38 to 39 feet.		
40	42.5	18	CORE				
	45.0	18	CORE		Well-graded SAND with Silt (SW-SM): dark olive-tan, moist to wet, loose. Medium sand with fine gravel.		
45	47.5	20	CORE				
	50.0	20	CORE		Well-graded SAND with Gravel (SW): dark gray, moist, loose. Medium to coarse sand, sub-angular. Some coal.		
50	52.5	16	CORE		As above, some sub-rounded gravel to 2-inches.		
	55.0	22	CORE				
55	58.0	16	CORE				
	60.0	18	CORE		Well-graded SAND with Gravel (SW-SM): tan-gray, moist, loose. Some coal and cobble pieces.		
60	62.5	10	CORE		Well-graded SAND with Gravel (SW): tan-gray, moist to wet, loose. Medium to coarse sand, sub-rounded gravel to 1.5-inches.		
	65.0	18	CORE		Well-graded SAND with Gravel (SW-SM): tan-gray, moist, loose. Medium sand and fine to coarse gravel.		
65	67.5	16	03AVMA04SL CORE		Poorly-graded SAND with Gravel (SP): dark brown-gray, moist, loose. Fine sand with sub-rounded gravel to 3-inches. Occassional cobble. Moisture content 7.1 percent.		
	70.0	28	03AVMA02GT CORE		SILT (ML): olive-tan to gray, moist, very stiff. LL=26, PL=20, PI=6. Moisture content 19.4 percent.		
70							

WELL FLUSH METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4411	Sheet 3 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 89.29 | NORTHING (M) : 2651646.263 | EASTING (M): 1690869.979

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 5/12/03 08:30 | END : 5/13/03 12:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
	72.0	24	03AVMA03GT SS	8-14-24-20/4 (38)	SILT (ML): olive-tan to gray, moist, very stiff. LL=26, PL=20, PI=6. Moisture content 19.4 percent.		
	73.0	12	CORE		Bottom of Boring at 73 feet.		
75							
80							
85							
90							
95							
100							
105							
110							

WELL FLUSH METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4412**	Sheet 1 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 87.96 | NORTHING (M) : 2651400.838 | EASTING (M): 1690492.637

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 70-71 ft & 110 ft BGS | START : 5/13/03 13:00 | END : 5/19/03 13:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
0	0.0 – 2.5	16	CORE		Organic Soil (OL): dark bronw to black, moist, stiff. Some gravel, increasing with depth.		
5	2.5 – 5.0	12	CORE		Well-graded SAND with Gravel (SW): dark brown to tan brown, moist, loose. Coarse, sub-angular sand and sub-rounded gravels to 1.5-inches. Some cobble pieces to 4-inches.		
	5.0 – 7.5	22	CORE				
10	7.5 – 10.0	8	CORE				
	10.0 – 12.5	0	CORE		Silty GRAVEL (GM): tan-brown, moist, dense. Mostly fine gravel, some coarse gravel, and some sub-angular cobbles.		
15	12.5 – 15.0	24	CORE				
	15.0 – 17.0	20	CORE		As above, increasing coarse sand.		
20	17.0 – 20.0	26	CORE		As above, medium dense, fewer cobbles.		
	20.0 – 22.5	28	CORE		As above, medium dense, some coal pieces and increasing sand.		
25	22.5 – 25.0	0	CORE		Poorly-graded SAND (SP): dark gray, moist, loose. Medium sub-angular sand with sub-rounded gravel to 1.5-inches.		
	25.0 – 27.5	30	CORE				
30	27.5 – 30.0	10	CORE		Silty SAND (SM): tan-gray, moist, loose. Coarse sand with coal pieces andsub-rounded gravels to 1.5-inches.		

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 291.51	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 1 bag
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : 10/20 Silica Sand	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : 4 bags	**DEVELOPMENT**
Type : PVC		Method :
		Time :
		Estimated purge volume :

Comments :

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4412	Sheet 2 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 87.96 | NORTHING (M) : 2651400.838 | EASTING (M): 1690492.637

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 70-71 ft & 110 ft BGS | START : 5/13/03 13:00 | END : 5/19/03 13:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
	32.5	18	CORE		Silty GRAVEL (GM): tan, moist, dense. Mostly fine gravel, some coarse gravel, and some coal pieces and sub-angular cobbles.		
35	35.0	14	CORE		Poorly-graded SAND (SP): dark gray, moist, loose. Medium sub-angular sand with sub-rounded gravel to 1.5-inches.		
	37.5	28	CORE		Well-graded SAND with Gravel (SW): dark gray, moist, loose. Medium, sub-angular sand and coal pieces.		
40	40.0	30	CORE		Well-graded SAND with Silt and Gravel (SW-SM): tan-gray, moist, loose. Coal and cobbles throughout.		
	42.5	24	CORE		Silt SAND and Gravel (SM): dark gray to tan-gray, moist, loose. Gravels, sub-rounded to 3-inches. Coal pieces and rusty inclusions present.		
45	45.0	20	CORE				
	47.5	30	03AVMA05SL CORE		As above, more sand and cobbles.		
		27	CORE		Well-graded SAND (SW): dark gray, moist, loose. Some cobbles and a trace of silt.		
50	50.0						
	52.5	14	CORE				
55	55.0	20	CORE		As above, with coal pieces and gravels, sub-rounded to 1-inch.		
	57.5	18	CORE				
60	60.0	24	CORE		As above, medium to coarse sand, layer with more or less gravels.		
	62.5	16	CORE		As above, gravels sub-rounded to 2-inches. More silt than above.		
65	65.0	16	CORE		As above, more coal pieces.		
	67.5	14	03AVMA06SL / 07SL CORE				
70	70.0	16	CORE		As above, increasing coarse gravel and cobbles.		

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4412	Sheet 3 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 87.96 | NORTHING (M) : 2651400.838 | EASTING (M): 1690492.637

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 70-71 ft & 110 ft BGS | START : 5/13/03 13:00 | END : 5/19/03 13:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION	WELL	COMMENTS
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
		18	03AVMA08SL CORE		Well-graded GRAVEL with Sand (GW): tan-gray, wet, loose.		
	72.5						
		18	03AVMA04GT SS	13-37-69/4"	SILT (ML): tan, moist, very stiff. Trace of gravel. Moisture content 22.7 percent.		
	74.0						
75	75.0	12	CORE				
		4	CORE				
	77.5						
		30	CORE				
80	80.0				As above, gray and layered.		
		30	CORE				
	82.5				As above, gray, slightly plastic.		
		26	03AVMA09SL CORE				
85	85.0						
		30	CORE				
90	90.0						
		30	CORE				
	92.5						
		30	CORE				
95	95.0				As above, gray, contains water yeilding layers		
		30	CORE		As above, gray silt with sands and gravels, rounded to 2.5-inches, moist to dry		
	97.5						
		30	CORE				
100	100.0				As above, more gravels, rounded to 2-inches		
		30	CORE				
	102.5						
		30	CORE				
105	105.0						
		30	CORE				
	107.5						
		34	CORE				
110	110.0				Silty GRAVEL (GM): tan, moist to wet, loose. Some cobbles.		

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4412	Sheet 4 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 87.96 | NORTHING (M) : 2651400.838 | EASTING (M): 1690492.637

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 70-71 ft & 110 ft BGS | START : 5/13/03 13:00 | END : 5/19/03 13:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION	WELL	COMMENTS
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
		20	03AVMA10SL CORE		Poorly-graded GRAVEL with Silt and Sand (GP): tan, wet, loose. Some cobbles. 10 percent silt. Moisture content 8.7 percent.		
	112.5						
		20	03AVMA05GT CORE		As above, with some coarse sand and silt.		
115	115.0						
120							
125					Bottom of Boring at 125 feet		
130							
135							
140							
145							
150							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4413**	Sheet 1 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 87.94 | NORTHING (M) : 2651399.594 | EASTING (M): 1690497.764

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 70 feet BGS | START : 5/20/03 08:20 | END : 5/20/03 14:30 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
0.0					Organic Soil (OL): dark bronw to black, moist, stiff. Some gravel, increasing with depth.		From Surface to 65 feet bgs, sampling information and lithology repeated from AP-4412
	0.0 - 2.5	16	CORE				
	2.5 - 5.0	12	CORE		Well-graded SAND with Gravel (SW): dark brown to tan brown, moist, loose. Coarse, sub-angular sand and sub-rounded gravels to 1.5-inches. Some cobble pieces to 4-inches.		
5	5.0 - 7.5	22	CORE				
	7.5 - 10.0	8	CORE				
10	10.0 - 12.5	0	CORE		Silty GRAVEL (GM): tan-brown, moist, dense. Mostly fine gravel, some coarse gravel, and some sub-angular cobbles.		
	12.5 - 15.0	24	CORE				
15	15.0 - 17.0	20	CORE		As above, increasing coarse sand.		
	17.0 - 20.0	26	CORE		As above, medium dense, fewer cobbles.		
20	20.0 - 22.5	28	CORE		As above, medium dense, some coal pieces and increasing sand.		
	22.5 - 25.0	0	CORE				
25	25.0 - 27.5	30	CORE		Poorly-graded SAND (SP): dark gray, moist, loose. Medium sub-angular sand with sub-rounded gravel to 1.5-inches.		
	27.5 - 30.0	10	CORE		Silty SAND (SM): tan-gray, moist, loose. Coarse sand with coal pieces andsub-rounded gravels to 1.5-inches.		
30							

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 291.36	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 1 bag
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Tremie pipe
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : Natural cave-in	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : N/A	**DEVELOPMENT**
Type : PVC		Method :
		Time :
		Estimated purge volume :

Comments :

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4413	Sheet 2 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 87.94 | NORTHING (M) : 2651399.594 | EASTING (M): 1690497.764

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 70 feet BGS | START : 5/20/03 08:20 | END : 5/20/03 14:30 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
	32.5	18	CORE		Silty GRAVEL (GM): tan, moist, dense. Mostly fine gravel, some coarse gravel, and some coal pieces and sub-angular cobbles.		
35	35.0	14	CORE		Poorly-graded SAND (SP): dark gray, moist, loose. Medium sub-angular sand with sub-rounded gravel to 1.5-inches.		
	37.5	28	CORE		Well-graded SAND with Gravel (SW): dark gray, moist, loose. Medium, sub-angular sand and coal pieces.		
40	40.0	30	CORE		Well-graded SAND with Silt and Gravel (SW-SM): tan-gray, moist, loose. Coal and cobbles throughout.		
	42.5	24	CORE		Silty SAND with Gravel (SM): dark gray to tan-gray, moist, loose. Gravels, sub-rounded to 3-inches. Coal pieces and rusty inclusions present.		
45	45.0	20	CORE				
	47.5	30	03AVMA05SC CORE		As above, more sand and cobbles.		
		27	CORE		Well-graded GRAVEL with Sand (GW): dark gray, moist, loose. Some cobbles and a trace of silt. Moisture content 7.2 percent.		
50	50.0						
	52.5	14	CORE				
55	55.0	20	CORE		As above, with coal pieces and gravels, sub-rounded to 1-inch.		
	57.5	18	CORE				
60	60.0	24	CORE		As above, medium to coarse sand, layer with more or less gravels.		
	62.5	16	CORE		As above, gravels sub-rounded to 2-inches. More silt than above.		
65	65.0	16	CORE		As above, more coal pieces.		
	67.5	18	CORE		As above, moist to wet, sub-rounded gravels to 1.5-inches, sub-angular coarse sand.		
70	70.0	20	CORE				

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4413**	Sheet 3 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 87.94 | NORTHING (M) : 2651399.594 | EASTING (M): 1690497.764

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 70 feet BGS | START : 5/20/03 08:20 | END : 5/20/03 14:30 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
					As above, tand-gray, wet, loose.		
	20		03AVMA06CT CORE		SILT (ML): tan, moist, stiff. Trace of sand.		
72.0					Bottom of Boring at 72 feet		
75							
80							
85							
90							
95							
100							
105							
110							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4414	Sheet 1 of 5

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.12 | NORTHING (M) : 2652105.086 | EASTING (M): 1690028.214

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 5/21/03 09:00 | END : 5/28/03 14:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
0.0							
	0.0 - 2.5	10	CORE		ORGANIC SOIL (OL): dark brown to red-brown, moist, firm to stiff. Root zone with increasing gravel with depth		
	2.5 - 5.0	26	CORE		Well-graded SAND with Gravel (SW): dark brown, moist, loose. Mostly medium sand, sub-angular with coal pieces, and sub-rounded gravels.		
5	5.0 - 7.5	20	CORE				
	7.5 - 10.0	12	CORE		Well-graded GRAVEL with Sand (GW): dark brown, moist, loose. Medium to coarse gravel, sub-rounded. Some cobbles.		
10	10.0 - 12.5	16	CORE		Silty GRAVEL (GM): tan-brown, moist, loose. Some silt and coarse sand. Cobbles throughout.		
	12.5 - 15.0	30	CORE		As above, wet at 14 feet. Some coal and rusty sand stone pieces.		
15	15.0 - 17.5	28	CORE				
	17.5 - 20.0	30	CORE				Used large diameter sampler from 17.5 to 20 ft
20	20.0 - 22.5	24	CORE		As above, tan, moist, cobbles throughout.		
	22.5 - 25.0	26	CORE		Silty SAND with Gravel (SM): gray-brown, moist to wet, loose. Coarse sand to fine gravel, some cobbles.		One bag of bentonite chips added to stabilize boring annulus
25	25.0 - 27.5	23	CORE		As above, coal pieces and rusty nodules.		
	27.5 - 30.0	27	CORE		As above, tan-brown, band of reddish silt.		
30							

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 291.95	Dia. : N/A	Type :
Vent hole? : Yes	Type : N/A	Quantity used :
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type :	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used :	**DEVELOPMENT**
Type : PVC		Method :
		Time :
		Estimated purge volume :
Comments :		

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4414	Sheet 2 of 5

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.12 | NORTHING (M) : 2652105.086 | EASTING (M): 1690028.214

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 5/21/03 09:00 | END : 5/28/03 14:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION	WELL	COMMENTS
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
		30	CORE		Poorly-graded SAND (SP): dark brown-gray, moist, very loose. Medium sand with few sub-rounded gravel to 1.25-inch.		
	32.5						
		30	CORE		Silty SAND with Gravel (SM): tan-brown, moist, loose. Sand and gravel coarsens with depth. Some coal pieces, rusty nodules and cobbles.		Augers wedged on rocks.
35	35.0						
		20	CORE				
	37.5						
		24	CORE		Well-graded SAND with Gravel (SW): brownish gray, moist to wet, loose. Coarse sand fining with depth. Gravels, sub-rounded to 1.5-inches. Some cobbles.		
40	40.0						
		4	CORE				
	42.5						
		20	CORE		As above, few cobbles, coal pieces and rusty nodules.		
45	45.0						
		2	CORE				
	47.5						
		4	CORE				
50	50.0						
		16	CORE		Well-graded SAND with Silt and Gravel (SW-SM): tan, moist to wet, loose.		
	52.5						
		20	CORE		As above, sand decreasing, more silt and cobbles with depth.		
55	55.0						
		16	CORE		Well-graded GRAVEL with Sand (GW): tan, moist to wet, loose. More fine to medium gravel, sub-rounded. Some cobbles, coal pieces and rusty nodules.		
	57.5						
		22	CORE				
60	60.0						
		18	CORE		Well-graded SAND with Gravel (SW): tan-gray, moist, loose. More coarse sand and sub-rounded gravels to 1.5-inches. Cobbles throughout.		Add 6 bags of bentonite chips
	62.5						
		24	CORE				
65	65.0						
		18	CORE		As above, more fine to medium sand.		
	67.5						
		22	CORE				
70	70.0				Silty GRAVEL (GM): tan, moist, dense almost appearing slightly cemented.		

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4414**	Sheet 3 of 5

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.12 | NORTHING (M) : 2652105.086 | EASTING (M): 1690028.214

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 5/21/03 09:00 | END : 5/28/03 14:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION (SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.)	WELL	COMMENTS (DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):)
	72.5	18	CORE		Well-graded SAND with Gravel (SW): dark gray, moist, loose. Cobbles and coal pieces throughout.		
	75.0	18	CORE		Poorly-graded SAND with Gravel (SP): dark gray, moist, very loose. Medium sub-angular sand and sub-rounded gravels to 1/2-inch. Trace of silt. Cobbles increasing with depth.		
75	77.5	26	CORE		Well-graded SAND with Gravel (SW): dark gray, moist, loose. Rusty coarse sand and coarse gravel, sub-rounded, trace of silt.		
	80.0	4	CORE				
80	82.5	27	03AVMA09GT CORE		Poorly-graded SAND with Gravel (SP): brown-gray, moist, loose. Medium sand and some gravels to <1-inch, rounded. Moisture content 2.8 percent.		
	85.0	28	CORE		Well-graded GRAVEL with Sand (GW): brown-gray, moist to wet, loose. Fine to coarse gravels and cobbles <3-inches, sub-rounded. Medium sand, sub-angular. Trace of silt.		
85	87.5	27	CORE		Silty GRAVEL with Sand (GM): tan-gray, moist, medium dense. Silt decreasing with depth, cobbles throughout.		
	90.0	18	CORE		Poorly-graded SAND with Gravel (SP): brown-gray, moist, loose. Trace of silt, increasing with depth. Cobbles decreasing.		
90	92.5	24	CORE				
	95.0	12	CORE		As above, mostly medium to coarse sands and gravels to 1/2-inch. Alternating layers with more or less silt.		
95	97.5	26	CORE		As above, some coal gravels to 2-inches.		
	100.0	14	CORE		As above, more coarse gravel and cobbles.		
100	102.5	20	CORE		As above, less cobbles and gravel to 1.5-inches.		
	104.0	18	CORE		As above, gravel increasing.		
105	105.0	18	CORE				
	105.5						
	106.0						
	108.0		CORE				
110	110.0	24	03AVMA11GT CORE		As above, loose. Moisture content 9.5 percent.		

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4414	Sheet 4 of 5

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.12 | NORTHING (M) : 2652105.086 | EASTING (M): 1690028.214

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 5/21/03 09:00 | END : 5/28/03 14:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
	112.0	24	CORE		Poorly-graded SAND with Gravel (SP): brown-gray, moist, loose. Trace of silt, increasing with depth. Cobbles decreasing.		
	114.0	24	03AVMA13SL CORE				Experiencing heaving, 1.5-ft of sand, 6-ft of water.
115	116.0						
	118.0	18	03AVMA14SL & 15SL(dupe) CORE				Experiencing heaving, 1.5-ft of sand, 11-ft of water.
120	120.0	12	CORE				
	122.0	18	CORE		As above, wet, more gravel, 0 to 2-inches.		
	124.0	18	CORE				
125	125.0						
	127.0	12	CORE				
	129.0	18	CORE				
130	130.0						Experiencing heaving
	132.5	12	CORE				
	135.0	12	CORE		As above, more gravel to 3-inches.		
	137.5	0	CORE		As above, less gravel. Moisture content 19.1 percent.		Sample lost downhole, wet and loose
140	140.0	12	03AVMA12GT CORE		No Samples collected 140-150 ft		No samples between 140 and 150 ft
145							
150	150.0						

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4414	Sheet 5 of 5

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 88.12 | NORTHING (M) : 2652105.086 | EASTING (M): 1690028.214

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 5/21/03 09:00 | END : 5/28/03 14:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
	152.5	12			Poorly-graded SAND with Gravel (SP): brown-gray, moist, loose. Trace of silt, increasing with depth. Cobbles decreasing. As above, coarse sand with gravel up to 2-inches.		
					Bottom of boring at 152.5 feet		
155							
160							
165							
170							
175							
180							
185							
190							

WELL STICKUP METRIC_OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4415**	Sheet 1 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 86.89 | NORTHING (M) : 2650924.669 | EASTING (M): 1690092.975

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 77 feet BGS | START : 6/2/03 09:00 | END : 6/3/03 15:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION	WELL	COMMENTS
					SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
0	0.0	12	CORE		ORGANIC SOIL (OL): brown, moist, firm to stiff. Root zone with red-brown silt/clay at base, then increasing gravel with depth.		
	2.5						
		20	CORE		Well-graded SAND with Gravel (SW): brown, moist, loose. Mostly finer sands, sub-rounded gravels to 1/2-inch, few gravels up to 2.5-inches. Trace of silt.		
5	5.0						
		24	CORE				
	7.5				As above, more coarse gravel.		
		26	CORE				
10	10.0				As above, tan-brown, more silt, few rusty inclusions and cobbles.		
		28	CORE				
	12.5				As above, more coarse sand and finer gravels, some coal pieces and cobbles.		
		14	CORE		Silty GRAVEL with Sand (GM): tan-brown, moist, loose to dense with depth. Rounded gravels to 2-inches and some cobbles.		
15	15.0						
		20	CORE				
	17.5						
		26	CORE				
20	20.0				As above, medium to dense with coarse sand, cobbles and some coal pieces.		
		14	CORE				
	22.5				As above, some pockets of slightly cemented silts and sands.		Used large diameter sampler from 22.5 to 25 ft
		16	CORE				
25	25.0				As above, some rusty inclusions.		
		20	CORE				
	27.5						
		30	CORE				
30	30.0				As above, more coarse sand, sub-rounded gravels to 3/4-inch, cobbles and many coal pieces.		

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 287.82	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 1 bag
WELLHEAD PROTECTION COVER	SCREEN	GROUT
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	SCREEN FILTER	Vol. in surface casing : N/A
WELL CASING	Type : 8/12 Silica Sand	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : 8 bags	DEVELOPMENT
Type : PVC		Method :
		Time :
		Estimated purge volume :

Comments :

WELL STICKUP METRIC OUE1.GPJ CH2M ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4415	Sheet 2 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 86.89 | NORTHING (M) : 2650924.669 | EASTING (M): 1690092.975

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 77 feet BGS | START : 6/2/03 09:00 | END : 6/3/03 15:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
32.5		27	CORE		Silty SAND with Gravel (SM): tan-gray, moist, loose. Mostly coarse sand and gravels to 1-inch, many coal pieces.		
35 35.0		24	CORE		Silty GRAVEL with Sand (GM): tan-brown, moist to wet, medium dense. Rounded gravels to 2-inches and some cobbles.		
37.5		20	CORE		Well-graded SAND with Silt and Gravel (SW-SM): gray-tan, moist, loose. Medium to coarse sand with fine to medium gravel. Few cobbles.		
40 40.0		24	CORE		As above, more cobbles.		
42.5		16	CORE		Poorly-graded SAND (SP): light gray, moist to wet, loose. Trace gravels to 1-inch. Trace of silt.		
45 45.0		20	CORE				Augers binding in rocks. Run sampler twice.
47.5		18	03AVMA07GT CORE		As above, more fine to medium sands, trace gravels sub-rounded to 2-inches.		
50 50.0		24	CORE		Well-graded GRAVEL with Sand (GW): tan-gray to dark gray, moist, loose. Fine to coarse sands, some cobbles and coal pieces. Trace of silt.		Run sampler 3 times between 45 and 50 ft
52.5		16	CORE				
55 55.0		16	CORE		As above, tan, moist to wet. Gravels sub-rounded to 2-inches. Some coarse sand and silt.		
57.5		18	CORE		Well-graded SAND with Gravel (SW): tan-gray to dark gray, moist to wet with depth, loose. Fine to medium gravel, sub-rounded. Some silt and cobbles.		
60 60.0		14	CORE				
62.5		16	CORE		As above, more cobbles.		
65 65.0		18	CORE				Augers binding in rocks. Run sampler twice.
67.5			CORE		As above, finer sands, some rusty inclusions.		Run large diameter sampler 3 times.
70 70.0			CORE		As above, more cobbles.		

WELL STICKUP METRIC_OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4415**	Sheet 3 of 3

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 86.89 | NORTHING (M) : 2650924.669 | EASTING (M): 1690092.975

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : 77 feet BGS | START : 6/2/03 09:00 | END : 6/3/03 15:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
	72.5	10	CORE		Well-graded SAND with Gravel (SW): tan-gray to dark gray, moist to wet with depth, loose. Fine to medium gravel, sub-rounded. Some silt and cobbles.		
75	75.0	28	CORE		As above, wet, gravels sub-rounded to 1.5-inches.		
	77.5	14	CORE		Well-graded GRAVEL with Sand (GW): dark gray, wet, loose.		Sample lost due to wet, loose conditions.
80	80.0	20	CORE		Poorly-graded SAND with Silt and Gravel (SP-SM): tan, wet, loose. Layered, fine sands and silts with gravel.		
					Poorly-graded SAND (SP): dark gray, wet, loose. Fine to very fine sand, fining with depth. Trace of silt and trace of gravels.		
	82.5	30	03AVMA11SL CORE		SILT (ML): gray, wet, very stiff. Trace of fine gravel.		
		24	03AVMA08GT SS	8-14-27-42 (41)	SILT with Sand (ML). Moisture content 19.6 percent.		Use large diameter sampler.
85	85.0				Bottom of Boring at 84 feet		
90							
95							
100							
105							
110							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	**AP-4416**	Sheet 1 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 86.83 | NORTHING (M) : 2650926.42 | EASTING (M): 1690086.531

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 7/16/03 08:30 | END : 7/22/03 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
0					ORGANIC SOIL (OL): brown, moist, firm to stiff. Root zone with red-brown silt/clay at base, then increasing gravel with depth.		
5					Well-graded SAND with Gravel (SW): brown, moist, loose. Mostly finer sands, sub-rounded gravels to 1/2-inch, few gravels up to 2.5-inches. Trace of silt.		
					As above, more coarse gravel.		
10					As above, tan-brown, more silt, few rusty inclusions and cobbles.		
					As above, more coarse sand and finer gravels, some coal pieces and cobbles.		
15					Silty GRAVEL with Sand (GM): tan-brown, moist, loose to dense with depth. Rounded gravels to 2-inches and some cobbles.		
20					As above, medium to dense with coarse sand, cobbles and some coal pieces.		
					As above, some pockets of slightly cemented silts and sands.		
25					As above, some rusty inclusions.		
30					As above, more coarse sand, sub-rounded gravels to 3/4-inch, cobbles and many coal pieces.		

WELL COMPLETION INFORMATION

CASING	SURFACE CASING	SEAL
Top elevation (meters): 287.66	Dia. : N/A	Type : Bentonite Chips
Vent hole? : Yes	Type : N/A	Quantity used : 1/3 bag
WELLHEAD PROTECTION COVER	**SCREEN**	**GROUT**
Type : Steel Overcasing	Type : Pre-pack	Mix used : Volclay
Weep hole? : No	Slot size : 0.010	Method of placement : Down auger
Concrete pad dimensions : 24" by 24"	**SCREEN FILTER**	Vol. in surface casing : N/A
WELL CASING	Type : 10/20 Silica Sand	Vol. in well casing : Filled to surface
Dia. : 2"	Quantity used : N/A	**DEVELOPMENT**
Type : PVC		Method :
		Time :
		Estimated purge volume :

Comments :

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4416	Sheet 2 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 86.83 | NORTHING (M) : 2650926.42 | EASTING (M): 1690086.531

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 7/16/03 08:30 | END : 7/22/03 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
					Silty SAND with Gravel (SM): tan-gray, moist, loose. Mostly coarse sand and gravels to 1-inch, many coal pieces.		
					Silty GRAVEL with Sand (GM): tan-brown, moist to wet, medium dense. Rounded gravels to 2-inches and some cobbles.		
35					Well-graded SAND with Silt and Gravel (SW-SM): gray-tan, moist, loose. Medium to coarse sand with fine to medium gravel. Few cobbles.		
40					As above, more cobbles.		
					Well-graded SAND with Gravel (SW): light gray, moist to wet, loose. More coarse sand and gravels to 1-inch. Trace of silt.		
45					As above, more fine to medium sands, gravels sub-rounded to 2-inches.		
					Well-graded GRAVEL with Sand (GW): tan-gray to dark gray, moist, loose. Fine to coarse sands, some cobbles and coal pieces. Trace of silt.		
50					As above, tan, moist to wet. Gravels sub-rounded to 2-inches. Some coarse sand and silt.		
55					Well-graded SAND with Gravel (SW): tan-gray to dark gray, moist to wet with depth, loose. Fine to medium gravel, sub-rounded. Some silt and cobbles.		
60					As above, more cobbles.		
65					As above, finer sands, some rusty inclusions.		
70					As above, more cobbles.		

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4416	Sheet 3 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 86.83 | NORTHING (M) : 2650926.42 | EASTING (M): 1690086.531

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 7/16/03 08:30 | END : 7/22/03 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
75					Well-graded SAND with Gravel (SW): tan-gray to dark gray, moist to wet with depth, loose. Fine to medium gravel, sub-rounded. Some silt and cobbles.		
					As above, wet, gravels sub-rounded to 1.5-inches.		
					Well-graded GRAVEL with Sand (GW): dark gray, wet, loose.		
80					Poorly-graded SAND with Silt and Gravel (SP-SM): tan, wet, loose. Layered, fine sands and silts with gravel.		Driller notes silt at 79 ft
					Poorly-graded SAND (SP): dark gray, wet, loose. Fine to very fine sand, fining with depth. Trace of silt and trace of gravels.		Had to fight heave and a large rock. Drill part with rods, and added water as well.
					SILT (ML): gray, wet, very stiff. Trace of fine gravel.		
85	85.0						
	87.0	26	CORE		SILT with Gravel (ML): gray, moist, very stiff. Silt with some gravel up to 1" subround.		2000 psi to drill. Can't remove from liners.
	89.5	30	CORE				
90	90.0				Silty SAND (SM): gray, wet, loose		
	92.5	30	CORE		Poorly-graded SAND (SP): dark gray, wet, loose.		
					SILT (ML): gray, moist, very stiff.		
					Silty SAND (SM): gray, moist/wet, medium stiff.		
					Sandy SILT (ML): gray, wet to moist with depth, loose to very stiff with depth. Varying degree of sand with constant silt. Fairly wet interbedded.		
95	95.0	30	CORE				
	97.5	30	CORE		As above, but becoming very very stiff. Few subround gravels; did not remove from line. Less wet than above.		
		30	CORE		As above, but SILT with gravel. Medium stiff (crumbles easily). Large white diorite cobble in mid sample. More gravel at bottom.		Use 3-inch sampler due to cobbles
100	100.0						
	102.5	28	CORE		As above, but moist (drier). Becoming very stiff with depth. Slate cobbles.		Use 3-inch sampler due to cobbles
		20	CORE				Run sampler twice with poor recoveries due to rocks in shoe
105	105.0						
	107.5	30	CORE		As above, but fewer cobble.		Run sampler twice with poor recoveries. Tight formation (1200 psi).
		16	CORE				Rock in shoe. Tough drilling - silt is very hard.
110	110.0						

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

PROJECT NUMBER	BORING NUMBER	
171256.A0.03	AP-4416	Sheet 4 of 4

SOIL BORING LOG

PROJECT : Fort Richardson OUE RI | LOCATION : Fort Richardson AVMA | DRILLING CONTRACTOR : Discovery Drilling

GROUND ELEVATION (M) : 86.83 | NORTHING (M) : 2650926.42 | EASTING (M): 1690086.531

DRILLING METHOD AND EQUIPMENT USED : CME 75 Hollow Stem Auger Rig

WATER LEVELS : | START : 7/16/03 08:30 | END : 7/22/03 00:00 | LOGGER : Andy Larson

DEPTH BELOW SURFACE (FT)	INTERVAL (FT)	RECOVERY (IN)	#/TYPE	STANDARD PENETRATION TEST RESULTS 6"-6"-6" (N)	SOIL DESCRIPTION: SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY, OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY.	WELL	COMMENTS: DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION. PID (ppmV):
		16	03AVMA12SL CORE		Silty SAND with Gravel (SM): gray, wet, loose. Some gravel to 2" subround, else well graded fine to medium sand with silt.		
	112.5						
		30	CORE		Well-graded GRAVEL with Silt and Sand: gray, wet, very loose. Second round similar, fluid gravel over drier silt with sand/gravel/cobbles, stiff.		3 ft of heave after rods pulled.
115	115.0						
	116.0	30	03AVMA10GT CORE		As above, moisture content 7.0 percent.		
		20	CORE		SILT: grawy, moist, very stiff. Becoming wet with depth. Also more gravels with depth.		
	118.0						
		14	CORE				
120	120.0						
		20	CORE				
	122.5						
		30	CORE				
125	125.0				Silty GRAVEL: tan, wet, stiff. Becoming moist and very stiff with depth.		
	126.0	16	CORE				
	127.0	10	CORE		Well-graded GRAVEL: tan, wet, loose to medium density. Becoming more gray with depth.		Hard formation, slow advance rate.
	128.0	12	CORE				Drilled without sampler, need rock bit to clear hole.
130							
							No Recovery. Saturated loose formation. As above? Observed fine to medium black sand in outwash.
135					Bottom of Boring at 135 feet		
140							
145							
150							

WELL STICKUP METRIC OUE1.GPJ CH2M_ANC.GDT 4/15/04

Appendix F
Field Forms and Sample Logs

CH2MHILL

SAMPLE TRACKING LOG

Fort Richardson

Operable Unit E, RI - TRENCHES

Date	TIME	Sample Location	Sample ID	Depth (ft)	Matrix	Type
07/22/2002	1100	T1/6'	02AVMA01SL	0.5	SOIL	FIELD
07/22/2002	1120	T1/0'	02AVMA02SL	3.5	SOIL	FIELD
07/22/2002	1340	T1/15'	02AVMA03SL	8	SOIL	FIELD
07/22/2002	1400	T1/15'	02AVMA04SL	16	SOIL	FIELD
07/22/2002	1430	T1/50'	02AVMA05SL	21	SOIL	FIELD
07/22/2002	1520	T2/16'	02AVMA06SL	0.5	SOIL	FIELD
07/22/2002	1540	T2/15'	02AVMA07SL	4	SOIL	FIELD
07/23/2002	850	T2/28'	02AVMA08SL	13	SOIL	FIELD
07/23/2002	855	T2/28'	02AVMA09SL	13	SOIL	FIELD DUPLICATE (08)
07/23/2002	900	T2/28'	02AVMA10SL	13	SOIL	QA DUPLICATE (08)
07/23/2002	925	T2/16'	02AVMA11SL	8	SOIL	FIELD
07/23/2002	955	T2/0'	02AVMA12SL	20	SOIL	FIELD (MS/MSD)
07/23/2002	1135	T3/35'	02AVMA13SL	0.5	SOIL	FIELD
07/23/2002	1155	T3/16'	02AVMA14SL	4	SOIL	FIELD
07/23/2002	1325	T3/45'	02AVMA15SL	20	SOIL	FIELD
07/23/2002	1400	T3/12'	02AVMA16SL	15	SOIL	FIELD
07/23/2002	1620	T3/0'	02AVMA17SL	22	SOIL	FIELD
07/24/2002	830	T4/20'	02AVMA18SL	0.5	SOIL	FIELD
07/24/2002	900	T4/45'	02AVMA19SL	4	SOIL	FIELD
07/24/2002	905	T4/45'	02AVMA20SL	4	SOIL	FIELD DUPLICATE (19)
07/24/2002	915	T4/45'	02AVMA21SL	4	SOIL	QA DUPLICATE (19)
07/24/2002	935	T4/43'	02AVMA22SL	15	SOIL	FIELD
07/24/2002	1100	T4/12'	02AVMA23SL	3	SOIL	FIELD
07/24/2002	1135	T4/12'	02AVMA24SL	4.5	SOIL	FIELD
08/19/2002	950	T5/Q1	OUE02T5LS01	0.5	SOIL	FIELD
08/19/2002	1028	T5/Q1	OUE02T5LS02	15	SOIL	FIELD
08/19/2002	1105	T5/Q2	OUE02T5LS03	20	SOIL	FIELD
08/19/2002	1305	T5/Q3	OUE02T5LS04	25	SOIL	FIELD
08/19/2002	1332	T5/Q4	OUE02T5LS05	10	SOIL	FIELD
08/19/2002	1638	T6/Q1	OUE02T6LS06	15	SOIL	FIELD
08/19/2002	1755	T6/Q2	OUE02T6LS07	25	SOIL	FIELD
08/20/2002	755	T6/Q3	OUE02T6LS08	0.5	SOIL	FIELD
08/20/2002	805	T6/Q3	OUE02T6LS09	5	SOIL	FIELD
08/20/2002	905	T6/Q3	OUE02T6LS10	5	SOIL	FIELD DUPLICATE (9)
08/20/2002	855	T6/Q4	OUE02T6LS11	5	SOIL	FIELD
08/20/2002	1256	T7/Q1	OUE02T7LS12	5	SOIL	FIELD
08/20/2002	1256	T7/Q1	OUE02T7LS12	5	SOIL	QA DUPLICATE (12)
08/20/2002	1305	T7/Q1	OUE02T7LS13	10	SOIL	FIELD
08/20/2002	1400	T7/Q2	OUE02T7LS14	15	SOIL	FIELD
08/20/2002	1505	T7/Q3	OUE02T7LS15	20	SOIL	FIELD
08/20/2002	1610	T7/Q4	OUE02T7LS16	25	SOIL	FIELD
08/21/2002	1020	T8/Q1	OUE02T8LS17	0.5	SOIL	FIELD
08/21/2002	1020	T8/Q1	OUE02T8LS17	0.5	SOIL	QA DUPLICATE (12)
08/21/2002	1130	T8/Q2	OUE02T8LS18	15	SOIL	FIELD
08/21/2002	1407	T8/Q4	OUE02T8LS19	25	SOIL	FIELD
08/21/2002	1500	T8/Q2	OUE02T8LS20	15	SOIL	FIELD DUPLICATE (18)
08/22/2002	915	T9/Q3	OUE02T9LS21	15	SOIL	FIELD
08/22/2002	1005	T9/Q4	OUE02T9LS22	15	SOIL	FIELD
08/22/2002	1005	T9/Q4	OUE02T9LS22	15	SOIL	QA DUPLICATE (22)
08/22/2002	1045	T9/Q4	OUE02T9LS23	1	SOIL	FIELD
08/22/2002	1200	T9/Q3	OUE02T9LS24	15	SOIL	FIELD DUPLICATE (21)
08/21/2002	1700	T9/Q2	OUE02T9LS25	5	SOIL	FIELD

CH2MHILL

SAMPLE TRACKING LOG

Fort Richardson

Operable Unit E, RI - Building 35-752 Soil Borings

Date	TIME	Sample Location	Sample ID	Depth (ft)	Matrix	Type
Transformer Mounting Area						
08/01/2002	12:00	T1	02B75201	0	soil	FIELD
08/01/2002	10:54	T2	02B75204SL	1	soil	FIELD
10/15/2002	11:25	T2	02B752205	1	soil	FIELD
08/01/2002	10:56	T3	02B75207SL	1.5	soil	FIELD
08/01/2002	12:05	T4	02B75210	0	soil	FIELD
08/01/2002	11:12	T5	02B75213SL	1	soil	FIELD
10/15/2002	11:30	T5	02B752214	1	soil	FIELD
08/01/2002	11:10	T6	02B75216SL	1.5	soil	FIELD
10/15/2002	11:35	T6	02B752218	1	soil	FIELD
08/01/2002	12:10	T7	02B75219	0	soil	FIELD
08/01/2002	11:06	T8	02B75222SL	1	soil	FIELD
08/01/2002	12:15	T10	02B75228	0	soil	FIELD
08/01/2002	12:16	T10	02B75229	0	soil	FIELD DUPLICATE
08/01/2002	12:17	T10	02B752256SL	1	soil	QA SAMPLE
08/01/2002	11:24	T11	02B75232SL	1	soil	FIELD
10/15/2002	11:40	T11	02B752233	1	soil	FIELD
08/01/2002	12:20	T13	02B75238	0	soil	FIELD
08/01/2002	11:42	T15	02B75244SL	1.5	soil	FIELD
10/15/2002	11:45	T15	02B752246	1	soil	FIELD
08/01/2002	12:25	T16	02B75247	0	soil	FIELD
08/01/2002	11:46	T17	02B75250SL	1	soil	FIELD
08/01/2002	12:30	T19	02B75256	0	soil	FIELD
Perimeter Road						
07/30/2002	14:57	P1	02B752130SL	0 - 0.5	soil	FIELD
07/30/2002	14:55	P1	02B752132SL	1.5 - 2	soil	NONE
07/30/2002	14:03	P2	02B752134SL	1 - 1.5	soil	FIELD
07/30/2002	12:00	P5	02B752143SL	1 - 1.5	soil	FIELD
07/30/2002	11:05	P6	02B752147SL	1.5 - 2	soil	FIELD
07/30/2002	16:05	P7	02B752148SL	0 - 0.5	soil	FIELD
07/30/2002	16:25	P8	02B752152SL	1 - 1.5	soil	FIELD
07/30/2002	16:30	P9	02B752156SL	1.5 - 2	soil	FIELD
07/30/2002	16:00	P10	02B752157SL	0 - 0.5	soil	FIELD
07/30/2002	16:02	P10	02B752158SL	0 - 0.5	soil	FIELD DUPLICATE
07/30/2002	16:04	P10	02B752255SL	0 - 0.5	soil	QA SAMPLE
07/30/2002	10:50	P11	02B752162SL	1-1.5	soil	FIELD
07/29/2002	16:55	P12	02B752166SL	1.5 - 2	soil	FIELD
07/30/2002	14:40	P13	02B752167SL	0 - 0.5	soil	FIELD
07/30/2002	13:00	P14	02B752171SL	1 - 1.5	soil	FIELD
07/30/2002	12:15	P15	02B752175SL	1.5 - 2	soil	FIELD
07/30/2002	11:39	P16	02B752176SL	0 - 0.5	soil	FIELD
07/30/2002	11:40	P16	02B752177SL	1-1.5	soil	FIELD
07/30/2002	11:41	P16	02B752178SL	1.5-2	soil	FIELD
07/30/2002	16:40	P17	02B752180SL	1 - 1.5	soil	FIELD
07/30/2002	11:00	P18	02B752184SL	1.5-2	soil	FIELD
07/29/2002	16:40	P19	02B752185SL	0 - 0.5	soil	FIELD
07/29/2002	16:20	P20	02B752189SL	1 - 1.5	soil	FIELD
07/29/2002	16:20	P20	02B752190SL	1 - 1.5	soil	FIELD DUPLICATE
07/29/2002	16:20	P20	02B752253SL	1 - 1.5	soil	QA SAMPLE
07/30/2002	15:15	P21	02B752193SL	1 - 1.5	soil	FIELD
07/30/2002	15:05	P22	02B752197SL	1.5 - 2	soil	FIELD
07/30/2002	14:50	P23	02B752198SL	0 - 0.5	soil	FIELD
07/30/2002	14:00	P24	02B752202SL	1 - 1.5	soil	FIELD
07/30/2002	13:50	P25	02B752206SL	1.5 - 2	soil	FIELD
07/30/2002	13:20	P26	02B752207SL	0-0.5	soil	FIELD
07/30/2002	13:21	P26	02B752208SL	0-0.5	soil	FIELD
07/30/2002	12:25	P27	02B752211SL	1 - 1.5	soil	FIELD
07/30/2002	11:20	P28	02B752215SL	1.5 - 2	soil	FIELD
07/30/2002	15:45	P29	02B752216SL	0 - 0.5	soil	FIELD
07/30/2002	15:51	P29	02B752217SL	1-1.5	soil	FIELD
07/30/2002	15:30	P30	02B752220SL	1 - 1.5	soil	FIELD
07/30/2002	15:35	P30	02B752221SL	1 - 1.5	soil	FIELD DUPLICATE
07/30/2002	15:40	P30	02B752254SL	1 - 1.5	soil	QA SAMPLE

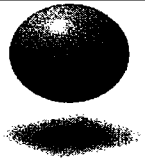
CH2MHILL

SAMPLE TRACKING LOG

Fort Richardson

Operable Unit E, RI - Building 35-752 Soil Borings

Date	TIME	Sample Location	Sample ID	Depth (ft)	Matrix	Type
SOIL STOCKPILE						
07/26/2002	13:25	S30	02B75287SL	1 - 1.5	soil	Field
07/26/2002	13:27	S31	02B75264SL	1 - 1.5	soil	Field
07/26/2002	13:30	S32	02B75265SL	0 - 0.5	soil	Field
07/26/2002	13:35	S34	02B75270SL	1 - 1.5	soil	Field
07/26/2002	13:40	S35	02B75271SL	0 - 0.5	soil	Field
07/26/2002	13:44	S36	02B75273SL	0-0.5	soil	Field
07/26/2002	13:50	S37	02B75275SL	1-1.5	soil	Field
07/26/2002	13:48	S37	02B75276SL	1 - 1.5	soil	Field
07/26/2002	13:52	S38	02B75277SL	0 - 0.5	soil	Field
07/26/2002	13:56	S39	02B75279SL	0 - 0.5	soil	Field
07/26/2002	14:00	S40	02B75281SL	0 - 0.5	soil	Field
07/26/2002	14:04	S41	02B75283SL	0 - 0.5	soil	Field
07/26/2002	14:06	S41	02B75284SL	0 - 0.5	soil	FIELD DUPLICATE
07/26/2002	14:07	S41	02B752250SL	0 - 0.5	soil	QA SAMPLE
BURN PIT						
07/26/2002	15:12	AP-4328	02B75288SL	0 - 0.5	soil	Field
07/26/2002	15:32	AP-4328	02B75290SL	5 - 5.5	soil	Field
07/26/2002	16:08	AP-4329	02B75294SL	2 - 2.5	soil	Field
07/26/2002	16:21	AP-4329	02B75296SL	7 - 7.5	soil	Field
07/29/2002	10:55	AP-4330	02B75298SL	0 - 0.5	soil	Field
07/29/2002	11:20	AP-4330	02B752102SL	10 - 10.5	soil	Field
07/29/2002	11:30	AP-4331	02B752104SL	2 - 2.5	soil	Field
07/29/2002	11:40	AP-4331	02B752105SL	5 - 5.5	soil	Field
07/29/2002	11:45	AP-4331	02B752106SL	5 - 5.5	soil	FIELD DUPLICATE
07/29/2002	12:35	AP-4332	02B752113SL	10 - 10.5	soil	Field
07/29/2002	14:00	AP-4333	02B752114SL	0 - 0.5	soil	Field
07/29/2002	14:05	AP-4333	02B752116SL	5 - 5.5	soil	Field
07/29/2002	14:30	AP-4334	02B752120SL	2 - 2.5	soil	Field
07/29/2002	14:45	AP-4334	02B752123SL	10 - 10.5	soil	Field
07/29/2002	15:10	AP-4335	02B752124SL	0 - 0.5	soil	Field
07/29/2002	15:45	AP-4335	02B752127SL	7 - 7.5	soil	Field
07/29/2002	15:50	AP-4335	02B752128SL	7 - 7.5	soil	FIELD DUPLICATE



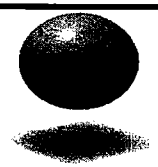
CH2MHILL

SAMPLE TRACKING LOG

Fort Richardson

Operable Unit E, RI - 2002 MONITORING WELL INSTALLATION

Date	TIME	Sample Location	Sample ID	Depth (ft)	Matrix	Type
08/01/2002	1040	AP4336 5 - 7.5	02AVMA25SL	6	5 - 7.5	FIELD
08/02/2002	1030	AP4336 72.5-75	02AVMA26SL	73	72.5 - 75	FIELD
08/06/2002	1030	AP4337 10 -12.5	02AVMA27SL	11	10 - 12.5	FIELD
08/07/2002	1520	AP4337 92.5 - 95	02AVMA28SL	93	92.5 - 95	FIELD
08/19/2002	1345	AP4339 65 - 67.5	02AVMA29SL	66	65 - 67.5	FIELD
08/30/2002	1405	AP4340 117.5-120	02AVMA30SL	119	117.5 - 120	FIELD
09/04/2002	1550	AP4338 115-117.5	02AVMA31SL	116	115 - 117.5	FIELD
09/10/2002	1504	AP4339 112.5-115	02AVMA32SL	113	112.5 - 115	FIELD
09/23/2002	1120	AP4338 135-140	02AVMA33SL	137	135 - 140	FIELD
09/24/2002	1645	AP4341 60-62.5	02AVMA34SL	62	60 - 62.5	FIELD
09/24/2002	1650	AP4341 61-62.5	02AVMA35SL	62	61 - 62.5	DUPLICATE
09/24/2002	1700	AP4341 62-62.5	02AVMA36SL	62	62 - 62.5	QA DUPLICATE
09/25/2002	935	AP4341 62.5-65	02AVMA37SL	65	62.5 - 65	FIELD
10/10/2002	1530	AP4342 95-97.5	02AVMA38SL	95	95-97.5	FIELD
10/10/2002	1535	AP4342 95-97.5	02AVMA39SL	95	95-97.5	DUPLICATE
10/10/2002	1540	AP4342 95-97.5	02AVMA40SL	95	95-97.5	QA DUPLICATE



CH2MHILL

SAMPLE TRACKING LOG

Fort Richardson

Operable Unit E, RI, 2003 MONITORING WELL INSTALLATION

Date	TIME	Sample Location	Sample ID	Depth (ft)	Matrix	Type
05/07/2003	1418	AP-4410	03AVMA01SL	40 - 42.5	SOIL	FIELD
05/08/2003	912	AP-4410	03AVMA02SL	72.5 - 75	SOIL	FIELD
05/12/2003	950	AP-4411	03AVMA03SL	5 - 7.5	SOIL	FIELD
05/12/2003	1415	AP-4411	03AVMA04SL	65 - 67.5	SOIL	FIELD
05/14/2003	1535	AP-4412	03AVMA05SL	45 - 47.5	SOIL	FIELD
05/15/2003	930	AP-4412	03AVMA06SL	65 - 67.5	SOIL	FIELD
05/15/2003	940	AP-4412	03AVMA07SL	65 - 67.5	SOIL	DUPLICATE
05/15/2003	1425	AP-4412	03AVMA08SL	70 - 72.5	SOIL	FIELD
05/16/2003	900	AP-4412	03AVMA09SL	82.5 - 85	SOIL	FIELD
05/19/2003	1200	AP-4412	03AVMA10SL	110 - 112.5	SOIL	FIELD
06/03/2003	1300	AP-4415	03AVMA11SL	80 - 81	SOIL	FIELD
07/21/2003	845	AP-4416	03AVMA12SL	110 - 112.5	SOIL	FIELD
08/18/2003	1015	AP-4414	03AVMA13SL	110 - 112	SOIL	FIELD
08/18/2003	1100	AP-4414	03AVMA14SL	115 - 117	SOIL	FIELD/MS/MSD
08/18/2003	1105	AP-4414	03AVMA15SL	115 - 117	SOIL	DUPLICATE

CH2MHILL

SAMPLE TRACKING LOG

Fort Richardson

Operable Unit E, RI - 2002 WATER SAMPLING

Date	TIME	Sample Location	Sample ID	Depth (ft)	Matrix	Type
08/15/2002	1510	AP-3503	02B75201WA	22	WATER	FIELD
08/15/2002	1630	AP-2982	02B75202WA	19	WATER	FIELD
08/16/2002	1000	AP-2983	02B75203WA	20	WATER	FIELD, MS/MSD
08/16/2002	1350	AP-3458	02B75204WA	32	WATER	FIELD
08/16/2002	1400	NA	02B75205WA	NA	WATER	RINSATE
08/16/2002	1505	AP-2987	02B75206WA	15	WATER	FIELD
08/16/2002	1600	AP-3231	02B75207WA	19	WATER	FIELD
08/19/2002	1100	AP-3232	02B75208WA	18.3	WATER	FIELD
08/19/2002	1105	AP-3232	02B75209WA	18.3	WATER	DUPLICATE
08/19/2002	1330	AP-3534	02AVMA01WA	117	WATER	FIELD
08/19/2002	1445	AP-3532	02AVMA02WA	120	WATER	FIELD
08/19/2002	1600	NA	02AVMA03WA	NA	WATER	RINSATE
08/20/2002	1110	AP-3232	02B75210WA	117	WATER	QA/QC
08/20/2002	1215	AP-4154	02AVMA04WA	150	WATER	FIELD
08/20/2002	1325	AP-4155	02AVMA05WA	125	WATER	FIELD
08/20/2002	1500	AP-3871	02AVMA06WA	115	WATER	FIELD
08/20/2002	1530	NA	02AVMA07WA	NA	WATER	RINSATE
08/21/2002	1145	AP-3776	02AVMA08WA	108	WATER	FIELD
08/22/2002	830	AP-3532	02AVMA02WA	120	WATER	FIELD-PAH ONLY
08/22/2002	915	AP-3534	02AVMA01WA	117	WATER	FIELD-PAH ONLY
08/22/2002	1000	AP-2983	02B75203WA	20	WATER	FIELD-PAH ONLY
08/22/2002	1050	AP-2987	02B75206WA	15	WATER	FIELD-PAH ONLY
08/22/2002	1145	AP-2982	02B75202WA	19	WATER	FIELD-PAH ONLY
08/22/2002	1240	AP-3503	02B75201WA	22	WATER	FIELD-PAH ONLY
08/22/2002	1345	AP-3231	02B75207WA	19	WATER	FIELD-PAH ONLY
08/22/2002	1430	AP-3458	02B75204WA	32	WATER	FIELD-PAH ONLY
08/22/2002	1445	NA	02AVMA09WA	NA	WATER	RINSATE
08/23/2002	930	AP-3872	02AVMA10WA	120	WATER	FIELD
08/23/2002	1110	AP-3789	02AVMA11WA	118	WATER	FIELD
08/23/2002	1230	AP-3650	02AVMA12WA	120	WATER	FIELD
08/23/2002	1400	AP-3468	02AVMA13WA	113	WATER	FIELD
08/26/2002	1255	AP-3232	02B75208WA	17	WATER	FIELD
08/26/2002	1255	AP-3232	02B75209WA	17	WATER	DUPLICATE, QA/QC, PAHs
08/26/2002	1510	AP-3895	02AVMA14WA	165	WATER	FIELD, MS/MSD
08/26/2002	1515	AP-3895	02AVMA15WA	165	WATER	DUPLICATE, QA/QC
08/27/2002	915	AP-3896	02AVMA16WA	121	WATER	FIELD
08/27/2002	1145	AP-3894	02AVMA17WA	163	WATER	FIELD
08/27/2002	1150	AP-3894	02AVMA18WA	163	WATER	DUPLICATE, QA/QC
08/27/2002	1230	AP-3893	02AVMA19WA	120	WATER	FIELD
09/24/2002	1030	AP-4339	02AVMA20WA	132	WATER	FIELD, MS/MSD (Missed PAHs)
09/26/2002	1730	AP-4340	02AVMA21WA	134	WATER	FIELD, MS/MSD (PAHs only)
10/23/2002	1400	AP-4342	02AVMA22WA	100	WATER	FIELD
10/23/2002	1405	AP-4342	02AVMA23WA	100	WATER	DUPLICATE, QA/QC
10/24/2002	930	AP-4341	02AVMA24WA	67	WATER	FIELD
10/24/2002	1430	AP-4336	02AVMA25WA	133	WATER	FIELD
10/24/2002	1600	AP-4339	02AVMA20WA	132	WATER	FIELD, PESTICIDES ONLY
10/25/2002	1000	AP-4338	02AVMA26WA	140	WATER	FIELD
10/25/2002	1030	NA	02AVMA27WA	NA	WATER	RINSATE
10/25/2002	1300	AP-4340	02AVMA21WA	135	WATER	FIELD, PESTICIDES ONLY
10/25/2002	1400	AP-4337	02AVMA28WA	120	WATER	FIELD
11/14/2002	1400	AP-4342	02AVMA29WA	100	WATER	FIELD

Appendix G
Detailed Sampling Location and Analysis Tables

Appendix G: Detailed Sampling Location and Analysis Tables

Appendix G consists of four tables that provide information about soil and groundwater sampling locations and analyses performed on the samples collected for the Fort Richardson Operable Unit E (OUE) Remedial Investigation (RI).

Tables:

G-1: Details about Groundwater Monitoring Well Sample Locations at the Building 35-752 Area

G-2: Details about Groundwater Monitoring Well Sample Locations at the AVMA

G-3: Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA

G-4: Details about Groundwater Sample Analyses Performed at the Building 35-752 Area and the AVMA

TABLE G-1
Details about Groundwater Monitoring Well Sample Locations at the Building 35-752 Area
Operable Unit E Remedial Investigation
Fort Richardson, Alaska

OUE RI Well Type	AQUIFER	Well ID	Sampling Event				Screened Interval Depth (ft bgs)			Ground Elevation (ft amsl, NGVD29)	Screened Interval Elevation (ft amsl, NGVD29)			Survey Coordinates (Alaska State Plane)		Boring Log for Existing Monitor Well?
			Initial OUE RI August 2002	MOD 5 and FTRGWMP June and August 2003	MOD 7 July 2003	September 2003	Top		Bottom		Top		Bottom	Northing	Easting	
Existing	Shallow	AP-2982	X	X		X	14.3	-	24.3	262.2	247.9	-	237.9			Yes
Existing	Shallow	AP-2983	X	X		X	13.8	-	23.8	262.7	248.9	-	238.9	807069.5	514944.719	Yes
Existing	Shallow	AP-2987	X				8.8	-	18.8	260.1	251.3	-	241.3			Yes
Existing	Shallow	AP-3231	X				10.65	-	20.65	284.41	273.76	-	263.76			No
Existing	Shallow	AP-3232	X				4.97	-	14.97	248.35	243.38	-	233.38			No
Existing	Shallow	AP-3458	X		X		25	-	35	262.65	237.65	-	227.65	807192.313	514848.063	Yes
Existing	Shallow	AP-3503	X	X		X	9	-	19	263.57	254.57	-	244.57	807059.875	514892.031	Yes

Notes:
amsl = above mean sea level
bgs = below ground surface
FTRGWMP = Fort Richardson Ground Water Monitoring Project
ft = feet
MOD 5 = OUE RI Contract Modification 5
MOD 7 = OUE RI Contract Modification 7
OUE = Operable Unit E
RI = Remedial Investigation
X = groundwater sampling conducted during this time period.

TABLE G-2
Details about Groundwater Monitoring Well Sample Locations at the AVMA
OUE Remedial Investigation
Fort Richardson, Alaska

OUE RI Well Type	AQUIFER	WELL ID	Sampling				SCREENED INTERVAL (ft bgs)			Ground Elevation (ft amsl, NGVD29)	Ground Elevation (ft amsl, NAVD88)	Screened Interval Elevation			Survey Coordinates (Alaska State Plane)	
			Initial OUE RI August - November 2002	MOD 5 and FTRGWMP June and August 2003	MOD 7 July 2003	September 2003	Top		Bottom			Top		Bottom	Northing	Easting
Existing	Shallow	AP-2980	X				18	-	28							
Existing	Deep Unconfined	AP-3441	X				93	-	113	282.23	286.58	189.23	-	169.23	808389.5	514966.094
Existing	Deep Confined	AP-3467	X	X			89	-	99	287.5	291.23	198.50	-	188.50	807933.875	515379.5
Existing	Shallow	AP-3468	X	X			101	-	111	286.86	290.86	185.86	-	175.86	808326.813	515205.531
Existing	Deep Confined	AP-3469	X				114	-	124	287.43	289.93	173.43	-	163.43	515309.219	808101
Existing	Deep Confined	AP-3483	X				104	-	114	274.69	278.76	170.69	-	160.69	514820.5	808055.375
Existing	Unconfined	AP-3532	X		X		113.5		133.7	302.1	306.23	188.60	-		808544.313	515687.938
Existing	Deep Confined	AP-3534	X	X		X	116	-	136	286.09	290.4	170.09	-	150.09	515200.063	808323.75
Existing	Unconfined	AP-3650	X				?	-	119.8	290.96	295.15	?	-	171.16	808804.5111	515138.5788
Existing	Deep Confined	AP-3772	X				107	-	117	278.6	282.72	171.60	-	161.60	514973.094	808190.813
Existing	Deep Confined	AP-3773	X	X		X	108	-	118	281.7	284.8	173.70	-	163.70	515060.438	808234.375
Existing	Deep Unconfined	AP-3774	X		X	X	103	-	113	281.7	286.01	178.70	-	168.70	808350.875	514891.531
Existing	Deep Unconfined	AP-3775	X				101	-	111	281.6	285.77	180.60	-	170.60	808264.625	515083.188
Existing	Deep Unconfined	AP-3776	X		X		98	-	108	279.6	284.11	181.60	-	171.60	808303.25	514854.5
Existing	Deep Confined	AP-3789	X	X	X		107	-	117	280.5	289.599	173.50	-	163.50	515235.719	808222.688
Existing	Shallow	AP-3790	X		X		69	-	79	292.2	296.49	223.20	-	213.20	808265.125	515467.5
Existing	Deep Unconfined	AP-3870			X	X	97	-	107	275.1	278.72	178.10	-	168.10	808360.063	514683.656
Existing	Deep Unconfined	AP-3871	X		X		108	-	118	287.7	291.36	179.70	-	169.70	808484.063	515072.188
Existing	Deep Unconfined	AP-3872	X		X		110	-	120	289.6	293.23	179.60	-	169.60	808513.0981	515226.6141
Existing	Deep Confined	AP-3893	X				119	-	124		304.71	185.71	-	180.71	808333.813	515837.594
Existing	Confined	AP-3894	X				159	-	164		307.29	148.29	-	143.29	808333.813	515835.156
Existing	Confined	AP-3895	X				158.8	-	168.8		296.88	138.08	-	128.08	808303.188	515469.844
Existing	Deep Confined	AP-3896	X				121	-	126		296.82	175.82	-	170.82	808296.813	515477.781
Existing	Deep Confined	AP-3901		X			Data Unavailable				289.69				808028.688	515291.313
Existing	Deep Unconfined	AP-3916		X			139	-	149		284.31	145.31	-	135.31	808341.375	514960.4375
Existing	Confined	AP-4154	X				156	-	176	299.7	303.70	147.70	-	127.70	808748.81	515603.69
Existing	Deep Unconfined	AP-4155	X				108.5	-	128.5	299.7	303.69	195.19	-	175.19	808749.56	515600.88
New - Mod 5	Shallow	AP-4410	**Not sampled, well is dry**				62	-	81		291.19	229.19	-	210.19	808232.60	515209.54
New - Mod 5	Shallow	AP-4411		X		X	53	-	73		292.95	239.95	-	219.95	808219.5819	515303.4361
New - Mod 5	Deep Confined	AP-4412		X			110	-	125		288.57	178.57	-	163.57	808223.3974	515378.2004
New - Mod 5	Shallow	AP-4413		X		X	57	-	72		288.51	231.51	-	216.51	808148.5917	515263.1863
New - Mod 5	Deep Unconfined	AP-4414		X			138	-	153		289.09	151.09	-	136.09	808148.2125	515264.749
New - Mod 5	Shallow	AP-4415		X			69	-	84		285.06	216.06	-	201.06	808363.2469	515121.6299
New - Mod 5	Confined	AP-4416		X			118	-	133		284.86	166.86	-	151.86	808003.4551	515141.3691
New - Initial RI	Deep Unconfined	AP-4336 (MW-2)	X		X		120	-	135		306.14	186.14	-	171.14	808003.9888	515139.4049
New - Initial RI	Deep Unconfined	AP-4337 (MW-1)	X				105	-	120		299.49	194.49	-	179.49	808493.93	515492.06
New - Initial RI	Deep Unconfined	AP-4338 (MW-5)	X				125	-	140		306.67	181.67	-	166.67	808544.62	515755.15
New - Initial RI	Deep Unconfined	AP-4339 (MW-7)	X				118.5	-	133.5		294.53	176.03	-	161.03	808904.50	515600.23
New - Initial RI	Deep Unconfined	AP-4340 (MW-6)	X				118	-	133		299.84	181.84	-	166.84	808700.76	515124.38
New - Initial RI	Shallow	AP-4341 (MW-4)	X	X			50	-	65		291.13	241.13	-	226.13	808780.80	515379.66
New - Initial RI	Shallow	AP-4342 (MW-3)	X	X	X	X	82	-	97		289.55	207.55	-	192.55	808091.66	515306.90

Notes:
amsl = above mean sea level
AVMA = Armored Vehicle Maintenance Area
bgs = below ground surface
FTRGWMP = Fort Richardson Ground Water Monitoring Project
ft = feet
MOD 5 = OUE RI Contract Modification 5
MOD 7 = OUE RI Contract Modification 7
MW-3 OUE RI = sampling in October and November 2002.
MW-6 OUE RI = sampling in September and October 2002. **X** = groundwater sampling conducted during this time period.
MW-7 OUE RI = sampling in September and October 2002.
OUE = Operable Unit E
RI = Remedial Investigation

TABLE G-3

Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA

OUE Remedial Investigation

Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	DIOXIN/ FURANS (SW8290D)	METAL (SW6000/7000)1	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
Building 35-752 Area														
Bldg. 35-752, Transformer Oil Discharge Area	T1	02B75201SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T10	02B75228SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T10	02B75229SL	FD	0 - 0.5	01-Aug-02		X			X				
Bldg. 35-752, Transformer Oil Discharge Area	T11	02B752233	N	0.5 - 1	15-Oct-02		X			X				
Bldg. 35-752, Transformer Oil Discharge Area	T11	02B75232SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T2	02B75204SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T2	02B752205SL	N	0.5 - 1	15-Oct-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T3	02B75207SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T4	02B75210SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T5	02B75213SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T5	02B752214SL	N	0.5 - 1	15-Oct-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T6	02B75216SL	N	0 - 0.5	01-Aug-02		X			X				
Bldg. 35-752, Transformer Oil Discharge Area	T6	02B752218SL	N	0.5 - 1	15-Oct-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T7	02B75219SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Oil Discharge Area	T8	02B75222SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Mounting Area	T13	02B75238SL	N	0 - 0.5	01-Aug-02		X			X				
Bldg. 35-752, Transformer Mounting Area	T15	02B752246SL	N	0.5 - 1	15-Oct-02					X				
Bldg. 35-752, Transformer Mounting Area	T15	02B75244SL	N	0 - 0.5	01-Aug-02		X			X				
Bldg. 35-752, Transformer Mounting Area	T16	02B75247SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Mounting Area	T17	02B75250SL	N	0 - 0.5	01-Aug-02					X				
Bldg. 35-752, Transformer Mounting Area	T19	02B75256SL	N	0 - 0.5	01-Aug-02					X				

TABLE G-3

Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA

OUE Remedial Investigation

Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	DIOXIN/ FURANS (SW8290D)	METAL (SW6000/7000)1	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
Bldg. 35-752, Burn Pit Area	AP-4328	02B75288SL	N	0 - 0.5	26-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4328	02B75290SL	N	5 - 5.5	26-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4329	02B75294SL	N	2 - 2.5	26-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4329	02B75296SL	N	7 - 7.5	26-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4330	02B752102SL	N	10 - 10.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4330	02B75298SL	N	0 - 0.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4331	02B752104SL	N	2 - 2.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4331	02B752105SL	N	5 - 5.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4331	02B752106SL	FD	5 - 5.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4332	02B752113SL	N	10 - 10.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4333	02B752114SL	N	0 - 0.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4333	02B752116SL	N	5 - 5.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4334	02B752120SL	N	2 - 2.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4334	02B752123SL	N	10 - 10.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4335	02B752124SL	N	0 - 0.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4335	02B752127SL	N	7 - 7.5	29-Jul-02		X			X		X	X	X
Bldg. 35-752, Burn Pit Area	AP-4335	02B752128SL	FD	7 - 7.5	29-Jul-02		X			X		X	X	X

TABLE G-3

Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA

OUE Remedial Investigation

Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	DIOXIN/ FURANS (SW8290D)	METAL (SW6000/7000)1	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
Bldg. 35-752, Peripheral Road	P1	02B752130SL	N	0 - 0.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P1	02B752132SL	N	1.5 - 2	30-Jul-02		X			X			X	
Bldg. 35-752, Peripheral Road	P10	02B752157SL	N	0 - 0.5	30-Jul-02		X			X			X	
Bldg. 35-752, Peripheral Road	P10	02B752158SL	FD	0 - 0.5	30-Jul-02		X			X			X	
Bldg. 35-752, Peripheral Road	P11	02B752162SL	N	1 - 1.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P12	02B752166SL	N	1.5 - 2	29-Jul-02		X			X			X	
Bldg. 35-752, Peripheral Road	P13	02B752167SL	N	0 - 0.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P14	02B752171SL	N	1 - 1.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P15	02B752175SL	N	1.5 - 2	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P16	02B752176SL	N	0 - 0.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P16	02B752177SL	FD	0 - 0.5	30-Jul-02		X						X	
Bldg. 35-752, Peripheral Road	P16	02B752178SL	FD	0 - 0.5	30-Jul-02		X						X	
Bldg. 35-752, Peripheral Road	P17	02B752180SL	N	1 - 1.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P18	02B752184SL	N	1.5 - 2	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P19	02B752185SL	N	0 - 0.5	29-Jul-02					X				
Bldg. 35-752, Peripheral Road	P2	02B752134SL	N	1 - 1.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P20	02B752189SL	N	1 - 1.5	29-Jul-02					X				
Bldg. 35-752, Peripheral Road	P20	02B752190SL	FD	1 - 1.5	29-Jul-02					X				
Bldg. 35-752, Peripheral Road	P21	02B752193SL	N	1 - 1.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P22	02B752197SL	N	1.5 - 2	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P23	02B752198SL	N	0 - 0.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P24	02B752202SL	N	1 - 1.5	30-Jul-02		X			X			X	
Bldg. 35-752, Peripheral Road	P25	02B752206SL	N	1.5 - 2	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P26	02B752207SL	N	0 - 0.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P26	02B752208SL	FD	0 - 0.5	30-Jul-02		X						X	
Bldg. 35-752, Peripheral Road	P27	02B752211SL	N	1 - 1.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P28	02B752215SL	N	1.5 - 2	30-Jul-02		X			X			X	
Bldg. 35-752, Peripheral Road	P29	02B752216SL	N	0 - 0.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P29	02B752217SL	FD	0 - 0.5	30-Jul-02		X			X			X	
Bldg. 35-752, Peripheral Road	P30	02B752220SL	N	1 - 1.5	30-Jul-02		X			X			X	
Bldg. 35-752, Peripheral Road	P30	02B752221SL	FD	1 - 1.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P5	02B752143SL	N	1 - 1.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P6	02B752147SL	N	1.5 - 2	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P7	02B752148SL	N	0 - 0.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P8	02B752152SL	N	1 - 1.5	30-Jul-02					X				
Bldg. 35-752, Peripheral Road	P9	02B752156SL	N	1.5 - 2	30-Jul-02					X				

TABLE G-3

Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA

OUE Remedial Investigation

Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	DIOXIN/ FURANS (SW8290D)	METAL (SW6000/7000)1	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
Bldg. 35-752, Soil Stockpile Area	S30	02B75287SL	N	1 - 1.5	26-Jul-02					X				
Bldg. 35-752, Soil Stockpile Area	S31	02B75264SL	N	1 - 1.5	26-Jul-02		X			X			X	
Bldg. 35-752, Soil Stockpile Area	S32	02B75265SL	N	0 - 0.5	26-Jul-02					X				
Bldg. 35-752, Soil Stockpile Area	S34	02B75270SL	N	1 - 1.5	26-Jul-02		X			X			X	
Bldg. 35-752, Soil Stockpile Area	S35	02B75271SL	N	0 - 0.5	26-Jul-02					X				
Bldg. 35-752, Soil Stockpile Area	S36	02B75273SL	N	0 - 0.5	26-Jul-02					X				
Bldg. 35-752, Soil Stockpile Area	S37	02B75275SL	N	0 - 0.5	26-Jul-02					X				
Bldg. 35-752, Soil Stockpile Area	S37	02B75276SL	N	1 - 1.5	26-Jul-02					X				
Bldg. 35-752, Soil Stockpile Area	S38	02B75277SL	N	0 - 0.5	26-Jul-02		X			X			X	
Bldg. 35-752, Soil Stockpile Area	S39	02B75279SL	N	0 - 0.5	26-Jul-02					X				
Bldg. 35-752, Soil Stockpile Area	S40	02B75281SL	N	0 - 0.5	26-Jul-02					X				
Bldg. 35-752, Soil Stockpile Area	S41	02B75283SL	N	0 - 0.5	26-Jul-02		X			X			X	
Bldg. 35-752, Soil Stockpile Area	S41	02B75284SL	FD	0 - 0.5	26-Jul-02		X			X			X	

TABLE G-3

Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA

OUE Remedial Investigation

Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	DIOXIN/ FURANS (SW8290D)	METAL (SW6000/7000)1	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
AVMA														
AVMA - Trench T1	AVMAT1	02AVMA01SL	N	0.5	22-Jul-02			X		X	X	X	X	X
AVMA - Trench T1	AVMAT1	02AVMA02SL	N	3.5	22-Jul-02			X		X	X	X	X	X
AVMA - Trench T1	AVMAT1	02AVMA03SL	N	8	22-Jul-02			X		X	X	X	X	X
AVMA - Trench T1	AVMAT1	02AVMA04SL	N	16	22-Jul-02			X		X	X	X	X	X
AVMA - Trench T1	AVMAT1	02AVMA05SL	N	21	22-Jul-02			X		X	X	X	X	X
AVMA - Trench T2	AVMAT2	02AVMA06SL	N	0.5	22-Jul-02			X		X	X	X	X	X
AVMA - Trench T2	AVMAT2	02AVMA07SL	N	4	22-Jul-02			X		X	X	X	X	X
AVMA - Trench T2	AVMAT2	02AVMA08SL	N	13	23-Jul-02			X		X	X	X	X	X
AVMA - Trench T2	AVMAT2	02AVMA09SL	FD	13	23-Jul-02			X		X	X	X	X	X
AVMA - Trench T2	AVMAT2	02AVMA11SL	N	8	23-Jul-02			X		X	X	X	X	X
AVMA - Trench T2	AVMAT2	02AVMA12SL	N	20	23-Jul-02			X		X	X	X	X	X
AVMA - Trench T3	AVMAT3	02AVMA13SL	N	0.5	23-Jul-02			X		X	X	X	X	X
AVMA - Trench T3	AVMAT3	02AVMA14SL	N	4	23-Jul-02			X		X	X	X	X	X
AVMA - Trench T3	AVMAT3	02AVMA15SL	N	20	23-Jul-02			X		X	X	X	X	X
AVMA - Trench T3	AVMAT3	02AVMA16SL	N	15	23-Jul-02			X		X	X	X	X	X
AVMA - Trench T3	AVMAT3	02AVMA17SL	N	22	23-Jul-02			X		X	X	X	X	X
AVMA - Trench T4	AVMAT4	02AVMA18SL	N	0.5	24-Jul-02			X		X	X	X	X	X
AVMA - Trench T4	AVMAT4	02AVMA19SL	N	4	24-Jul-02			X		X	X	X	X	X
AVMA - Trench T4	AVMAT4	02AVMA20SL	FD	4	24-Jul-02			X		X	X	X	X	X
AVMA - Trench T4	AVMAT4	02AVMA22SL	N	15	24-Jul-02			X		X	X	X	X	X
AVMA - Trench T4	AVMAT4	02AVMA23SL	N	3	24-Jul-02			X		X	X	X	X	
AVMA - Trench T4	AVMAT4	02AVMA24SL	N	4.5	24-Jul-02			X		X	X	X	X	X
AVMA - Trench T5	AVMAT5	OUE02T5LS01	N	15	19-Aug-02			X		X	X	X	X	X
AVMA - Trench T5	AVMAT5	OUE02T5LS02	N	25	19-Aug-02			X		X	X	X	X	X
AVMA - Trench T5	AVMAT5	OUE02T5LS03	N	25	19-Aug-02			X		X	X	X	X	X
AVMA - Trench T5	AVMAT5	OUE02T5LS04	N	25	19-Aug-02			X		X	X	X	X	X
AVMA - Trench T5	AVMAT5	OUE02T5LS05	N	25	19-Aug-02			X		X	X	X	X	X
AVMA - Trench T6	AVMAT6	OUE02T6LS06	N	15	19-Aug-02			X				X	X	X
AVMA - Trench T6	AVMAT6	OUE02T6LS06	N	15	20-Aug-02					X	X			
AVMA - Trench T6	AVMAT6	OUE02T6LS07	N	25	19-Aug-02			X				X	X	X
AVMA - Trench T6	AVMAT6	OUE02T6LS07	N	25	20-Aug-02					X	X			
AVMA - Trench T6	AVMAT6	OUE02T6LS08	N	0.5	20-Aug-02			X		X	X	X	X	X
AVMA - Trench T6	AVMAT6	OUE02T6LS09	N	5	20-Aug-02			X		X	X	X	X	X
AVMA - Trench T6	AVMAT6	OUE02T6LS10	FD	5	20-Aug-02			X		X	X	X	X	X
AVMA - Trench T6	AVMAT6	OUE02T6LS11	N	5	20-Aug-02			X		X	X	X	X	X
AVMA - Trench T7	AVMAT7	OUE02T7LS12	N	5	20-Aug-02			X		X	X	X	X	X
AVMA - Trench T7	AVMAT7	OUE02T7LS13	N	10	20-Aug-02			X		X	X	X	X	X
AVMA - Trench T7	AVMAT7	OUE02T7LS14	N	15	20-Aug-02			X		X	X	X	X	X
AVMA - Trench T7	AVMAT7	OUE02T7LS15	N	20	20-Aug-02			X		X	X	X	X	X
AVMA - Trench T7	AVMAT7	OUE02T7LS16	N	25	20-Aug-02			X		X	X	X	X	X
AVMA - Trench T8	AVMAT8	OUE02T8LS17	N	0.5	21-Aug-02			X		X	X	X	X	X
AVMA - Trench T8	AVMAT8	OUE02T8LS18	FD	0.5	21-Aug-02			X		X	X	X	X	X
AVMA - Trench T8	AVMAT8	OUE02T8LS19	N	25	21-Aug-02			X		X	X	X	X	X
AVMA - Trench T8	AVMAT8	OUE02T8LS20	FD	15	21-Aug-02			X		X	X	X	X	X
AVMA - Trench T9	AVMAT9	OUE02T8LS21	N	15	22-Aug-02			X		X	X	X	X	X
AVMA - Trench T9	AVMAT9	OUE02T8LS22	N	15	22-Aug-02			X		X	X	X	X	X
AVMA - Trench T9	AVMAT9	OUE02T8LS23	N	1	22-Aug-02			X		X	X	X	X	X

TABLE G-3

Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA

OUE Remedial Investigation

Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	DIOXIN/ FURANS (SW8290D)	METAL (SW6000/7000)1	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
AVMA - Trench T9	AVMAT9	OUE02T8LS24	FD	15	22-Aug-02			X		X	X	X	X	X
AVMA - Trench T9	AVMAT9	OUE02T8LS25	N	5	21-Aug-02			X		X	X	X	X	X

TABLE G-3
Details about Soil Sample Analyses Performed at the Building 35-752 Area and the AVMA
OUE Remedial Investigation
Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	DIOXIN/ FURANS (SW8290D)	METAL (SW6000/7000)1	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
AVMA Initial OUE RI New Wells	AP-4336	02AVMA25SL	N	5 - 7.5	01-Aug-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4336	02AVMA26SL	N	72.5 - 75	02-Aug-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4337	02AVMA27SL	N	10 - 12.5	06-Aug-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4337	02AVMA28SL	N	92.5 - 95	07-Aug-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4338	02AVMA31SL	N	115 - 117.5	04-Sep-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4338	02AVMA33SL	N	135-140	23-Sep-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4339	02AVMA29SL	N	65 - 67.5	19-Aug-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4339	02AVMA32SL	N	112.5 - 115	10-Sep-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4340	02AVMA30SL	N	117.5 - 120	30-Aug-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4341	02AVMA34SL	N	60 - 62.5	24-Sep-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4341	02AVMA35SL	FD	60 - 62.5	24-Sep-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4341	02AVMA37SL	N	62.5 - 65	25-Sep-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4342	02AVMA38SL	N	95 - 97.5	10-Oct-02			X				X	X	X
AVMA Initial OUE RI New Wells	AP-4342	02AVMA39SL	FD	95 - 97.5	10-Oct-02			X				X	X	X
AVMA - Mod 5 Wells	AP-4410	03AVMA01SL	N	40 - 42.5	07-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4410	03AVMA02SL	N	72.5 - 75	08-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4411	03AVMA03SL	N	5 - 7.5	12-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4411	03AVMA04SL	N	65 - 67.5	12-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4412	03AVMA05SL	N	45 - 47.5	14-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4412	03AVMA06SL	N	65 - 67.5	15-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4412	03AVMA07SL	FD	65 - 67.5	15-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4412	03AVMA08SL	N	70 -72.5	15-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4412	03AVMA09SL	N	82.5 - 85	16-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4412	03AVMA10SL	N	110 - 112.5	19-May-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4414	03AVMA13SL	N	110 - 112	18-Aug-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4414	03AVMA14SL	N	115 - 117	18-Aug-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4414	03AVMA15SL	FD	115 - 117	18-Aug-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4415	03AVMA11SL	N	80 - 81	03-Jun-03	X			X			X	X	X
AVMA - Mod 5 Wells	AP-4416	03AVMA12SL	N	110 - 112.5	21-Jul-03	X			X			X	X	X

Notes:
[1] SW6010B, SW7041, SW7191, SW7471A, SW7841

AVMA = Armored Vehicle Maintenance Area
bgs = below ground surface
bldg = building
BTEX = benzene, toluene, ethylbenzene, and xylenes
FD = field duplicate
ft = feet
FTRGWMP = Fort Richardson Ground Water Monitoring Project
Mod 5 = OUE RI Contract Modification 5
N = none
OUE = Operable Unit E
PAH = polynuclear aromatic hydrocarbon
PCB = polychlorinated biphenyl
QA/QC = quality assurance/quality control
RI = Remedial Investigation
SVOC = semivolatile organic compound
VOC = volatile organic compound

TABLE G-4

Details about Groundwater Sample Analyses Performed at the Building 35-752 Area and the AVMA

OUE Remedial Investigation

Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	METAL (SW6000/7000)1	METAL_DISS (SW6010B/ SW7470A)	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
Building 35-752 Area														
Bldg 35-752	AP-2982	02B75202WA	N	--	15-Aug-02		X			X		X	X	X
Bldg 35-752	AP-2982	02B75202WA	N	--	22-Aug-02				X					
Bldg 35-752	AP-2982	03FROEWA08	N	--	09-Jun-03	X			X			X	X	X
Bldg 35-752	AP-2982	03FROEWA21	N	--	21-Sep-03	X			X			X	X	X
Bldg 35-752	AP-2982	03FROEWA22	FD	--	21-Sep-03	X			X			X	X	X
Bldg 35-752	AP-2983	02B75203WA	N	--	16-Aug-02		X	X		X		X	X	X
Bldg 35-752	AP-2983	02B75203WA	N	--	22-Aug-02				X					
Bldg 35-752	AP-2983	03FROEWA07	N	--	09-Jun-03	X			X			X	X	X
Bldg 35-752	AP-2983	03FROEWA23	N	--	21-Sep-03	X			X			X	X	X
Bldg 35-752	AP-2987	02B75206WA	N	--	16-Aug-02		X			X		X	X	X
Bldg 35-752	AP-2987	02B75206WA	N	--	22-Aug-02				X					
Bldg 35-752	AP-3231	02B75207WA	N	--	16-Aug-02		X			X		X	X	X
Bldg 35-752	AP-3231	02B75207WA	N	--	22-Aug-02				X					
Bldg 35-752	AP-3232	02B75208WA	N	--	19-Aug-02		X			X		X	X	X
Bldg 35-752	AP-3232	02B75209WA	FD	--	19-Aug-02		X			X		X	X	X
Bldg 35-752	AP-3232	02B75208WA	N	--	26-Aug-02				X					
Bldg 35-752	AP-3232	02B75209WA	FD	--	26-Aug-02				X					
Bldg 35-752	AP-3458	02B75204WA	N	--	16-Aug-02		X			X		X	X	X
Bldg 35-752	AP-3458	02B75204WA	N	--	22-Aug-02				X					
Bldg 35-752	AP-3458	03AVMA08WA	N	31.5	21-Jul-03	X			X			X	X	X
Bldg 35-752	AP-3503	02B75201WA	N	--	15-Aug-02		X	X		X		X	X	X
Bldg 35-752	AP-3503	02B75201WA	N	--	22-Aug-02				X					
Bldg 35-752	AP-3503	03FROEWA04	N	--	09-Jun-03	X			X			X	X	X
Bldg 35-752	AP-3503	03FROEWA20	N	--	21-Sep-03	X			X			X	X	X

TABLE G-4

Details about Groundwater Sample Analyses Performed at the Building 35-752 Area and the AVMA

OUE Remedial Investigation

Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	METAL (SW6000/7000)1	METAL_DISS (SW6010B/ SW7470A)	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
AVMA														
AVMA	AP-2980	02FROEWA24	N	--	29-Aug-02	X			X			X	X	X
AVMA	AP-3441	02FROEWA15	N	--	28-Aug-02	X			X			X	X	X
AVMA	AP-3467	02FROEWA19	N	--	29-Aug-02	X			X			X	X	X
AVMA	AP-3467	02FROEWA20	FD	--	29-Aug-02	X			X			X	X	X
AVMA	AP-3467	03FROEWA01	N	--	06-Jun-03	X			X			X	X	X
AVMA	AP-3468	02AVMA13WA	N	--	23-Aug-02		X		X			X	X	X
AVMA	AP-3468	03FROEWA03	N	--	06-Jun-03	X			X			X	X	X
AVMA	AP-3469	02FROEWA18	N	--	28-Aug-02	X			X			X	X	X
AVMA	AP-3483	02FROEWA17	N	--	28-Aug-02	X			X			X	X	X
AVMA	AP-3532	02AVMA02WA	N	--	19-Aug-02		X		X			X	X	X
AVMA	AP-3532	02AVMA02WAD	FD	--	22-Aug-02				X					
AVMA	AP-3532	03AVMA11WA	N	--	23-Jul-03	X			X			X	X	X
AVMA	AP-3534	02AVMA01WA	N	--	19-Aug-02		X		X			X	X	X
AVMA	AP-3534	02AVMA01WAD	FD	--	22-Aug-02				X					
AVMA	AP-3534	03FROEWA02	N	--	06-Jun-03	X			X			X	X	X
AVMA	AP-3534	03FROEWA13	N	--	19-Sep-03	X			X			X	X	X
AVMA	AP-3650	02AVMA12WA	N	--	23-Aug-02		X		X			X	X	X
AVMA	AP-3772	02FROEWA13	N	--	28-Aug-02	X			X			X	X	X
AVMA	AP-3773	02FROEWA21	N	--	29-Aug-02	X			X			X	X	X
AVMA	AP-3773	02FROEWA22	FD	--	29-Aug-02	X			X			X	X	X
AVMA	AP-3773	03AVMA02WA	N	107.15	11-Jun-03	X			X			X	X	X
AVMA	AP-3773	03FROEWA19	N	--	20-Sep-03	X			X			X	X	X
AVMA	AP-3774	02FROEWA16	N	--	28-Aug-02	X			X			X	X	X
AVMA	AP-3774	03AVMA15WA	N	112	24-Jul-03	X			X			X	X	X
AVMA	AP-3774	03FROEWA17	N	--	20-Sep-03	X			X			X	X	X
AVMA	AP-3775	02FROEWA14	N	--	28-Aug-02	X			X			X	X	X
AVMA	AP-3776	02AVMA08WA	N	--	21-Aug-02		X	X	X			X	X	X
AVMA	AP-3776	03AVMA09WA	N	105.1	22-Jul-03	X			X			X	X	X
AVMA	AP-3776	03AVMA10WA	FD	105.1	22-Jul-03	X			X			X	X	X
AVMA	AP-3789	02AVMA11WA	N	--	23-Aug-02		X		X			X	X	X
AVMA	AP-3789	03FROEWA10	N	--	10-Jun-03	X						X	X	X
AVMA	AP-3789	03FROEWA10	N	--	21-Jul-03							X		
AVMA	AP-3790	02FROEWA23	N	--	29-Aug-02	X			X			X	X	X
AVMA	AP-3790	03AVMA12WA	N	84.81	23-Jul-03	X			X			X	X	X
AVMA	AP-3870	03AVMA16WA	N	104.82	24-Jul-03	X			X			X	X	X
AVMA	AP-3870	03FROEWA18	N	--	20-Sep-03	X			X			X	X	X
AVMA	AP-3871	02BAVMA06WA	N	--	20-Aug-02		X		X			X	X	X
AVMA	AP-3871	03AVMA14WA	N	111	23-Jul-03	X			X			X	X	X
AVMA	AP-3872	02AVMA10WA	N	--	23-Aug-02		X	X	X			X	X	X
AVMA	AP-3872	03AVMA13WA	N	110.87	23-Jul-03	X			X			X	X	X
AVMA	AP-3893	02AVMA19WA	N	--	27-Aug-02		X		X			X	X	X
AVMA	AP-3894	02AVMA17WA	N	--	27-Aug-02		X		X			X	X	X
AVMA	AP-3894	02AVMA18WA	FD	--	27-Aug-02		X		X			X	X	X
AVMA	AP-3895	02AVMA14WA	N	--	26-Aug-02		X		X			X	X	X
AVMA	AP-3895	02AVMA15WA	FD	--	26-Aug-02		X		X			X	X	X
AVMA	AP-3896	02AVMA16WA	N	--	27-Aug-02		X	X	X			X	X	X

TABLE G-4
Details about Groundwater Sample Analyses Performed at the Building 35-752 Area and the AVMA
OUE Remedial Investigation
Fort Richardson, Alaska

Investigation Area	Location	Sample ID	QA/QC Sample	Depth (ft bgs)	Date Collected	BTEX (SW8021B)	METAL (SW6000/7000)1	METAL_DISS (SW6010B/ SW7470A)	PAH (SW8270 SIM)	PCB (SW8082)	PESTICIDE (SW8081A)	SVOC (SW8270C)	TPH (AK101/ AK102/ AK103)	VOC (SW8260B)
AVMA	AP-3901	03FROEWA09	N		10-Jun-03	X			X			X	X	X
AVMA	AP-3916	03FROEWA05	N	--	09-Jun-03	X			X			X	X	X
AVMA	AP-3916	03FROEWA06	FD	--	09-Jun-03	X			X			X	X	X
AVMA	AP-4154	02BAVMA04WA	N	--	20-Aug-02		X	X	X			X	X	X
AVMA	AP-4155	02BAVMA05WA	N	--	20-Aug-02		X		X			X	X	X
AVMA	AP-4336	02AVMA25WA	N	--	24-Oct-02		X		X		X	X	X	X
AVMA	AP-4336	03AVMA17WA	N	130	24-Jul-03	X			X			X	X	X
AVMA	AP-4337	02AVMA28WA	N	--	25-Oct-02		X		X		X	X	X	X
AVMA	AP-4338	02AVMA26WA	N	--	25-Oct-02		X		X		X	X	X	X
AVMA	AP-4339	02AVMA20WA	N	--	24-Sep-02		X		X			X	X	X
AVMA	AP-4339	02AVMA20WA	N	--	24-Oct-02						X			
AVMA	AP-4340	02AVMA21WA	N	--	26-Sep-02		X	X	X			X	X	X
AVMA	AP-4340	02AVMA21WA	N	--	25-Oct-02						X			
AVMA	AP-4341	02AVMA24WA	N	--	24-Oct-02		X		X		X	X	X	X
AVMA	AP-4341	03FROEWA11	N		10-Jun-03	X			X			X	X	X
AVMA	AP-4342	02AVMA22WA	N	--	23-Oct-02		X	X	X		X	X	X	X
AVMA	AP-4342	02AVMA23WA	FD	--	23-Oct-02		X	X	X		X	X	X	X
AVMA	AP-4342	02AVMA29WA	N	--	14-Nov-02									X
AVMA	AP-4342	03AVMA01WA	N	99.6	10-Jun-03	X			X				X	X
AVMA	AP-4342	03AVMA07WA	FD	97.41	10-Jun-03	X			X				X	X
AVMA	AP-4342	03AVMA01WA	N	99.6	21-Jul-03							X		
AVMA	AP-4342	03AVMA07WA	FD	97.41	21-Jul-03							X		
AVMA	AP-4342	03FROEWA15	N	--	20-Sep-03	X			X			X	X	X
AVMA	AP-4411	03AVMA04WA	N	69.2	11-Jun-03	X			X			X	X	X
AVMA	AP-4411	03FROEWA14	N	--	20-Sep-03	X			X			X	X	X
AVMA	AP-4412	03AVMA03WA	N	107.1	11-Jun-03	X			X			X	X	X
AVMA	AP-4413	03AVMA05WA	N	72.43	11-Jun-03	X			X			X	X	X
AVMA	AP-4413	03FROEWA16	N	--	20-Sep-03	X			X			X	X	X
AVMA	AP-4414	03AVMA20WA	N	145	20-Aug-03	X			X			X	X	X
AVMA	AP-4415	03AVMA06WA	N	81.87	12-Jun-03	X			X				X	X
AVMA	AP-4416	03AVMA18WA	N	122	20-Aug-03	X			X			X	X	X

Notes:
[1] SW6010B, SW7041, SW7191, SW7471A, SW7841

AVMA = Armored Vehicle Maintenance Area
bgs = below ground surface
bldg = building
BTEX = benzene, toluene, ethylbenzene, and xylenes
FD = field duplicate
ft = feet
FTRGWMP = Fort Richardson Ground Water Monitoring Project
Mod 5 = OUE RI Contract Modification 5
N = none
OUE = Operable Unit E
PAH = polynuclear aromatic hydrocarbon
PCB = polychlorinated biphenyl
QA/QC = quality assurance/quality control
RI = Remedial Investigation
SVOC = semivolatile organic compound
VOC = volatile organic compound
TPH = total petroleum hydrocarbon

Appendix H
Geotechnical Investigation Results

CH2MHILL

SAMPLE TRACKING LOG

Fort Richardson

Operable Unit E, RI, Geotechnical Samples

Date	TIME	Sample Location	Sample ID	Depth (ft)	Matrix	Type
2002 FIELD SEASON						
07/24/2002	1250	T2 - 16 deep, 10 horizontal	T2-02AVMA00GT	16	SOIL	GEOTECH
08/02/2002	1530	AP4336 110-112	02AVMA01GT	111	SOIL	GEOTECH
08/07/2002	1740	AP4337 100 - 102	02AVMA02GT	101	SOIL	GEOTECH
09/10/2002	1520	AP4339 115-117	02AVMA03GT	116	SOIL	GEOTECH
2003 FIELD SEASON						
05/08/2003	948	AP-4410	03AVMA01GT	77 - 79	SOIL	FIELD
05/12/2003	1430	AP-4411	03AVMA02GT	67.5 - 68	SOIL	FIELD
05/12/2003	1450	AP-4411	03AVMA03GT	70 - 72	SOIL	FIELD
05/15/2003	1430	AP-4412	03AVMA04GT	72.5 - 74	SOIL	FIELD
05/19/2003	1215	AP-4412	03AVMA05GT	112.5 - 115	SOIL	FIELD
05/20/2003	1340	AP-4413	03AVMA06GT	70 - 71	SOIL	FIELD
05/23/2003	840	AP-4414	03AVMA09GT	80 - 82.5	SOIL	FIELD
06/02/2003	1250	AP-4415	03AVMA07GT	47 - 47.5	SOIL	FIELD
06/03/2003	1315	AP-4415	03AVMA08GT	82.5 - 84.5	SOIL	FIELD
07/21/2003	1000	AP-4416	03AVMA10GT	115 - 116	SOIL	FIELD
08/18/2003	940	AP-4414	03AVMA11GT	108 - 110	SOIL	FIELD
08/18/2003	1345	AP-4414	03AVMA12GT	137.5 - 140	SOIL	FIELD

801 East 82nd, Suite #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
e-mail: terrafir@alaska.net

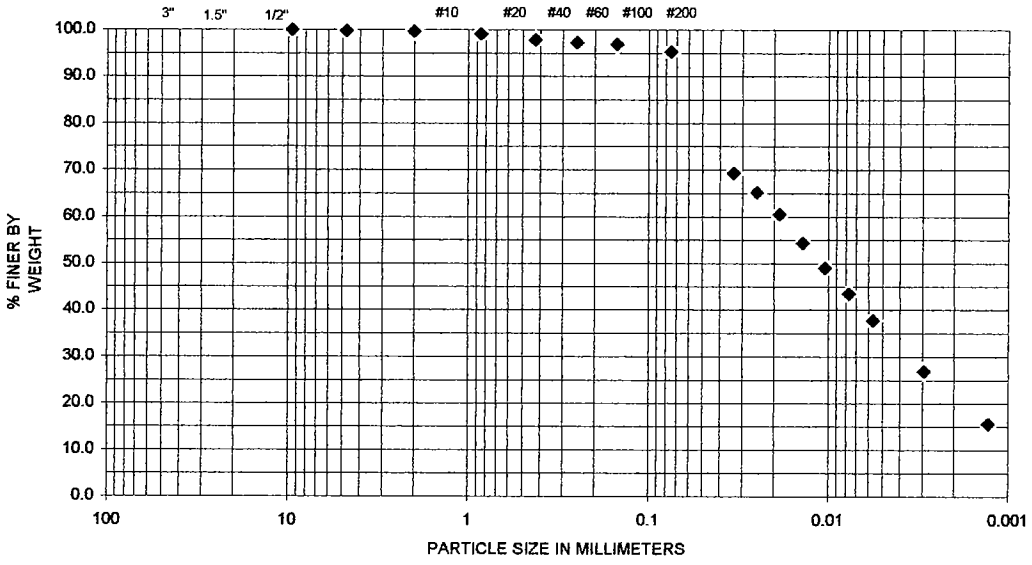
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**Ft. Richardson (171256.A0.03)**
PROJECT NO.:	**ANC 1340**
SAMPLE LOCATION:	.
SAMPLE NO.:	**T2- 02AVMA00GT (16')**
DESCRIPTION:	**Silt**
DATE TESTED:	**8/22/2002**
TESTED BY:	**CL**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**0.2**	USC:	**ML**
% SAND:	**4.5**	FC:	
% SILT/CLAY:	**95.3**	.02 mm:	**62.1**

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**35.6**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136

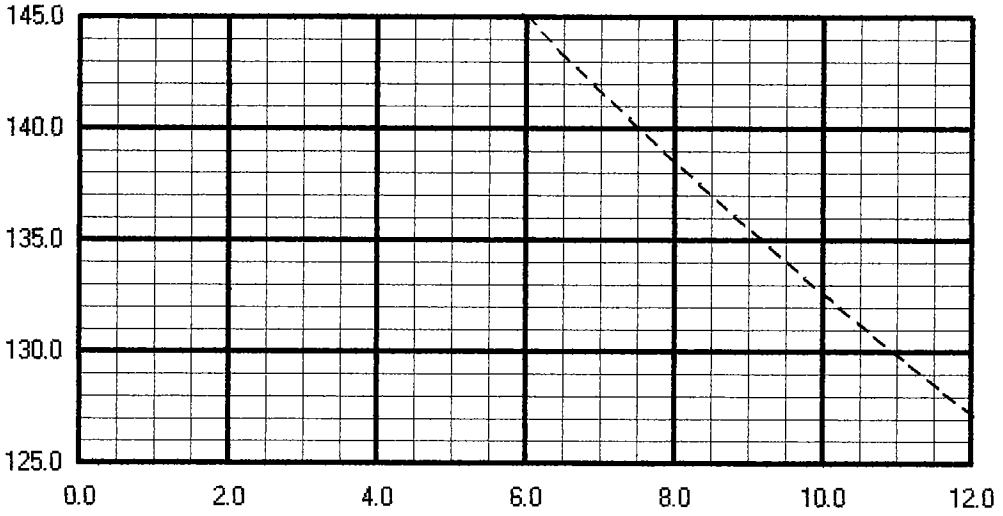


SIEVE ANALYSIS TEST

SIEVE SIZE	TOTAL % PASSING	SPECIFICATION
6"		
3"		
1.5"		
3/4"		
1/2"		
3/8"	**100**	
# 4	**100**	
#10	**100**	
#20	**99**	
#40	**98**	
# 60	**97**	
#100	**97**	
#200	**95.3**	

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



HYDROMETER TEST

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1	0.0336	69.3
2	0.0249	65.2
4	0.0186	60.5
8	0.0138	54.3
15	0.0104	49.1
30	0.0077	43.4
60	0.0056	37.8
250	0.0029	26.9
1440	0.0013	15.5

Atterberg Limits (ASTM D4318)	**LL=34** **PI=12**
Specific Gravity (ASTM D854)	
L.A. Abrasion (AASHTO T 96)	

The testing services reported herein have been peformed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd, Suite #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
e-mail: terrafir@alaska.net

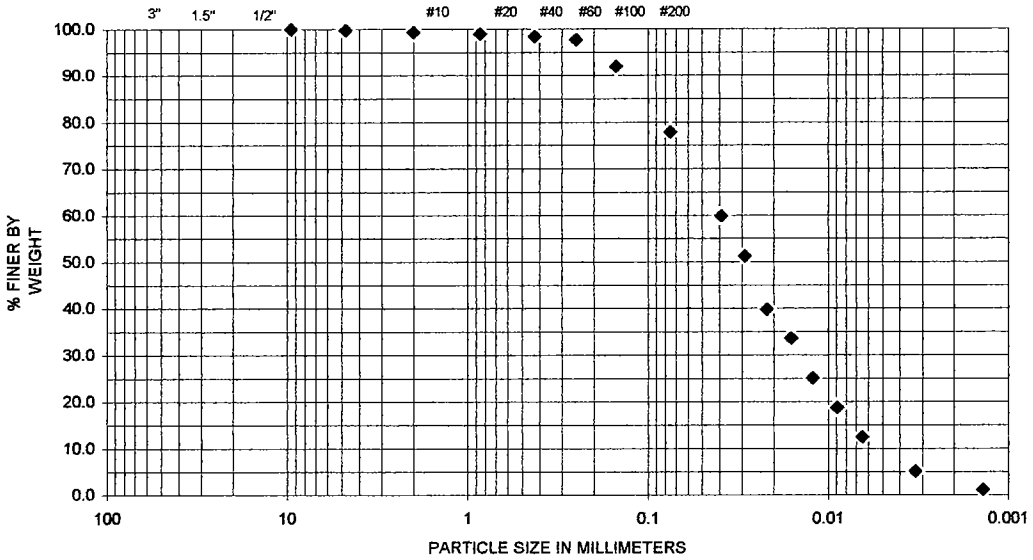
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**Ft. Richardson (171256.A0.03)**
PROJECT NO.:	**ANC 1340**
SAMPLE LOCATION:	
SAMPLE NO.:	**AP-4336 02AVMA01GT (111.5')**
DESCRIPTION:	**Silt with sand**
DATE TESTED:	**8/22/2002**
TESTED BY:	**CL**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**0.3**	USC:	**ML**
% SAND:	**21.8**	FC:	
% SILT/CLAY:	**77.9**	.02 mm:	**38.1**

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**15.7**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136

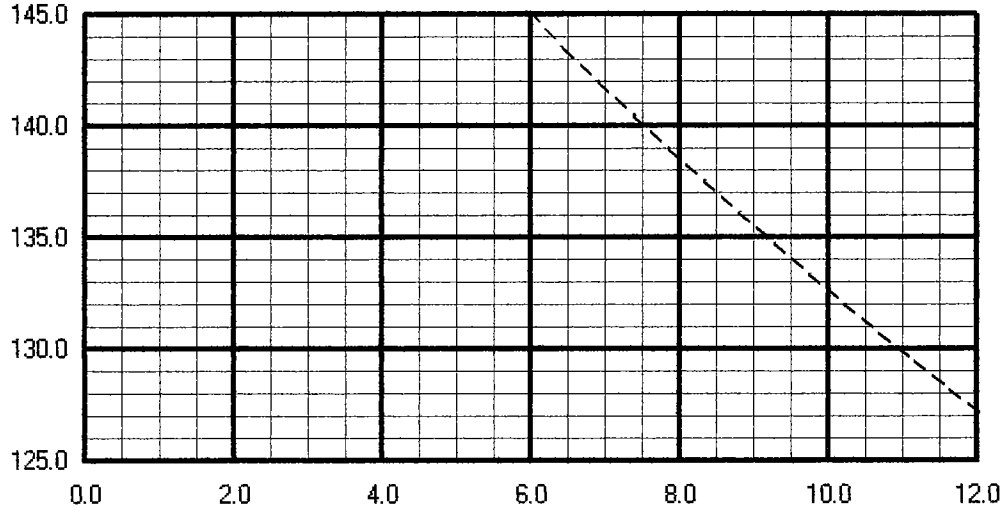


SIEVE ANALYSIS TEST

SIEVE SIZE	TOTAL % PASSING	SPECIFICATION
6"		
3"		
1.5"		
3/4"		
1/2"		
3/8"	**100**	
# 4	**100**	
#10	**99**	
#20	**99**	
#40	**98**	
# 60	**98**	
#100	**92**	
#200	**77.9**	

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



HYDROMETER TEST

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1	0.0391	59.8
2	0.0289	51.3
4	0.0218	39.9
8	0.0160	33.6
15	0.0122	25.1
30	0.0089	18.8
60	0.0064	12.5
250	0.0033	5.1
1440	0.0014	1.1

Atterberg Limits (ASTM D4318)	**NP**
Specific Gravity (ASTM D854)	**2.680**
L.A. Abrasion (AASHTO T 96)	

The testing services reported herein have been peformed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd, Suite #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
e-mail: terrafir@alaska.net

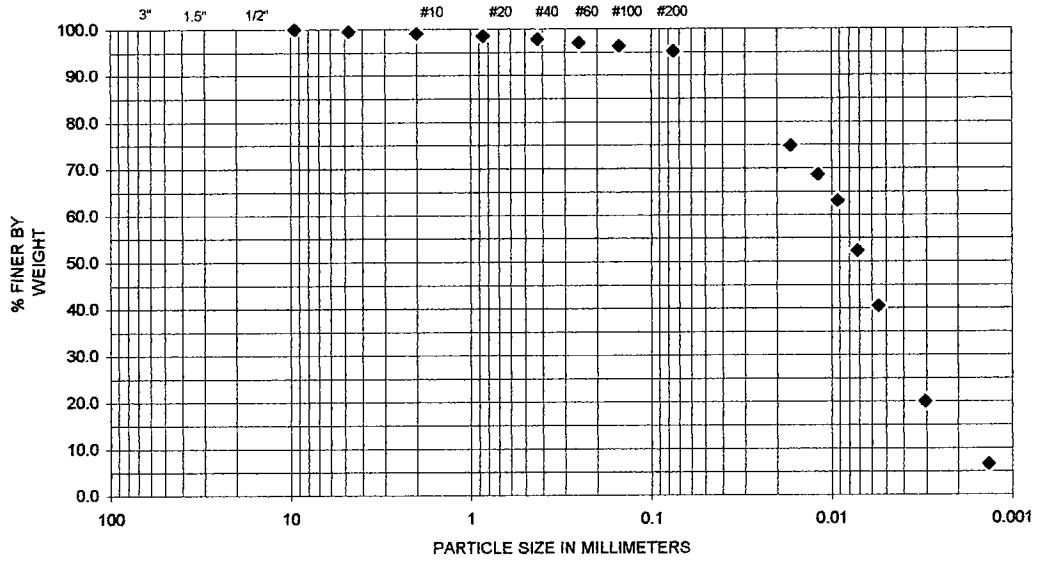
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**Ft. Richardson (171256.A0.03)**
PROJECT NO.:	**ANC 1340**
SAMPLE LOCATION:	
SAMPLE NO.:	**AP-4337 02AVMA02GT (101')**
DESCRIPTION:	**Silt**
DATE TESTED:	**8/22/2002**
TESTED BY:	**CL**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**0.4**	USC:	**ML**
% SAND:	**4.4**	FC:	
% SILT/CLAY:	**95.2**	.02 mm:	**78.0**

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**19.6**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136

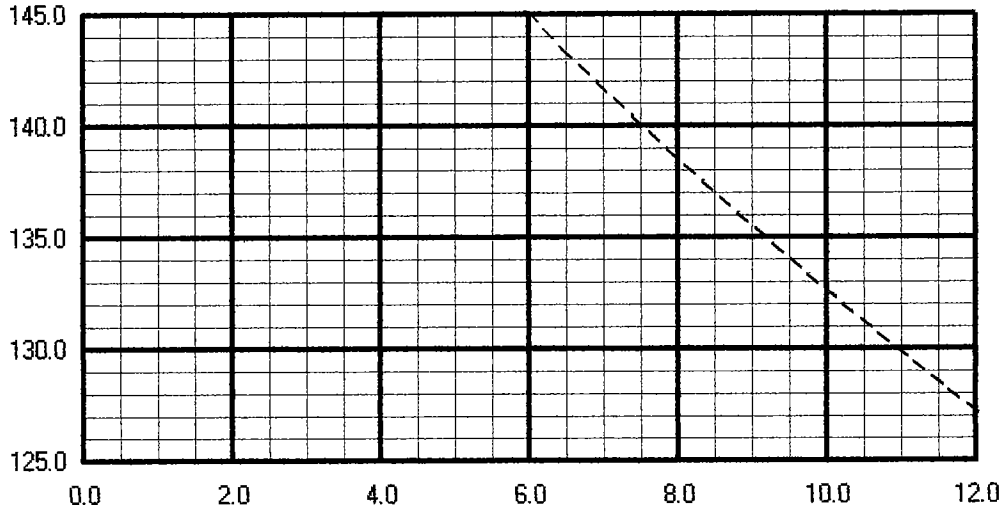


SIEVE ANALYSIS TEST

SIEVE SIZE	TOTAL % PASSING	SPECIFICATION
6"		
3"		
1.5"		
3/4"		
1/2"		
3/8"	**100**	
# 4	**100**	
#10	**99**	
#20	**98**	
#40	**98**	
# 60	**97**	
#100	**96**	
#200	**95.2**	

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



HYDROMETER TEST

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4	0.0168	74.8
8	0.0119	68.7
15	0.0092	63.1
30	0.0071	52.3
60	0.0055	40.5
250	0.0030	20.0
1440	0.0013	6.7

Atterberg Limits (ASTM D4318)	**LL=29** **PI=10**
Specific Gravity (ASTM D854)	**2.660**
L.A. Abrasion (AASHTO T 96)	

The testing services reported herein have been peformed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd, Suite #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5934
e-mail: terrafir@alaska.net

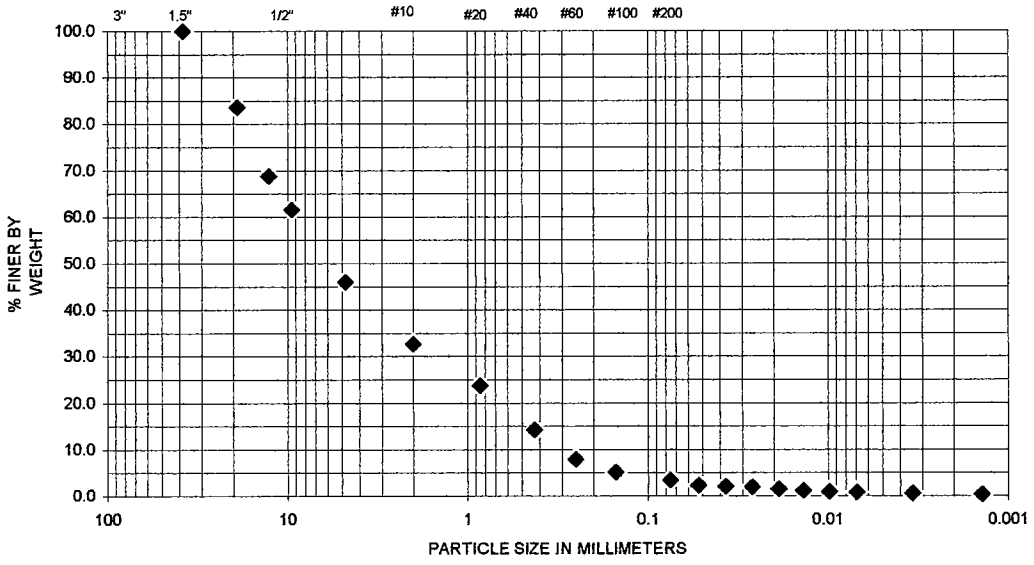
PROJECT CLIENT:	CH2M Hill
PROJECT NAME:	Ft Richardson (171256.A0.03
PROJECT NO.:	ANC 1340
SAMPLE LOCATION:	Depth: -115' to -117'
SAMPLE NO.:	02AVMA03GT
DESCRIPTION:	Well grd. gravel w/ sand
DATE TESTED:	9/27/2002
TESTED BY:	RJPC
REVIEWED BY:	Ron Caron C.E.T.

% GRAVEL:	54.0	USC:	GW
% SAND:	42.5	FC:	
% SILT/CLAY:	3.5	.02 mm:	1.6

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	7.0

PARTICLE SIZE ANALYSIS

ASTM D422/ C136

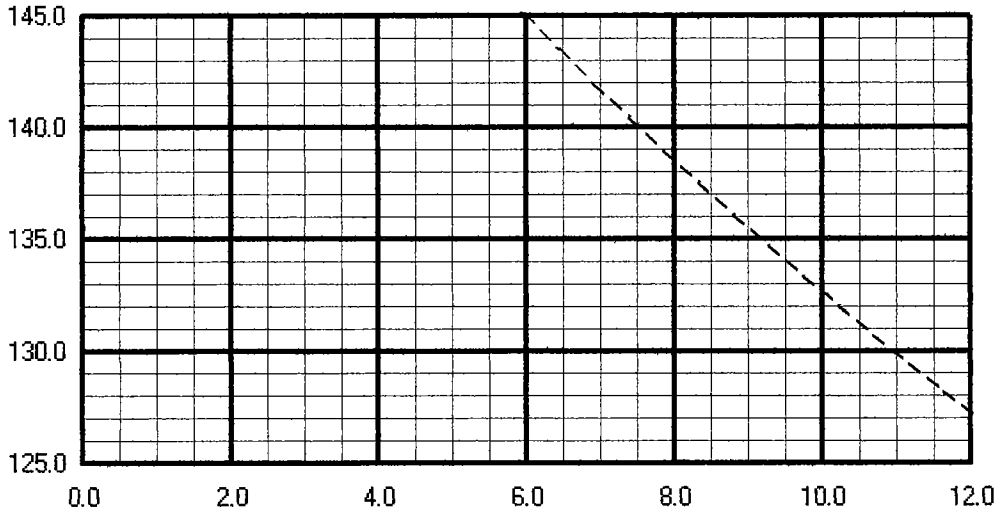


SIEVE ANALYSIS TEST

SIEVE SIZE	TOTAL % PASSING	SPECIFICATION
6"		
3"		
1.5"	100	
3/4"	84	
1/2"	69	
3/8"	62	
# 4	46	
#10	33	
#20	24	
#40	14	
# 60	8	
#100	5	
#200	3.5	

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



HYDROMETER TEST

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1	0.0524	2.3
2	0.0371	2.1
4	0.0262	1.9
8	0.0187	1.5
15	0.0137	1.2
30	0.0098	1.0
60	0.0069	0.8
250	0.0034	0.6
1440	0.0014	0.4

Specific Gravity (ASTM C127)	See Attached Summary
Degradation (ATM T-13)	
L.A. Abrasion (AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

CH2M HILL
Ft. Richardson Soil Testing
Project No. 171256.A0.03

Sample I.D (Field)	Depth Interval Top	Bottom	Moisture Content (%)	Atterberg Limits LL	PL	PI	Particle Size Analysis Gravel	Sand	Silt	Specific Gravity	Passing 0.02mm (%)	Unified Soil Classification
T2-02AVMA00GT		16'	35.6	34	22	12	0.2	4.5	95.3		62.1	ML (Brown Silt)
AP-433702AVMA02GT		101'	19.6	29	19	10	0.4	4.4	95.2	2.66	78.0	ML (Brown Silt)
AP-433602AVMA01GT		111.5'	15.7		N.P.		0.3	21.8	77.9	2.68	38.1	ML (Brown Silt with sand)
02AVMA02GT	115.0	117	7.0				54.0	42.5	3.5	Gsb = 2.733		GW (Well Grd. Gravel w/Sand)
02AVMA02GT										SSD = 2.749		
02AVMA02GT										Gsa = 2.776		
02AVMA02GT									Asbptn = 0.57%			

TERRA FIRMA INC.

(Additional Test Requested)

10/2/02

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

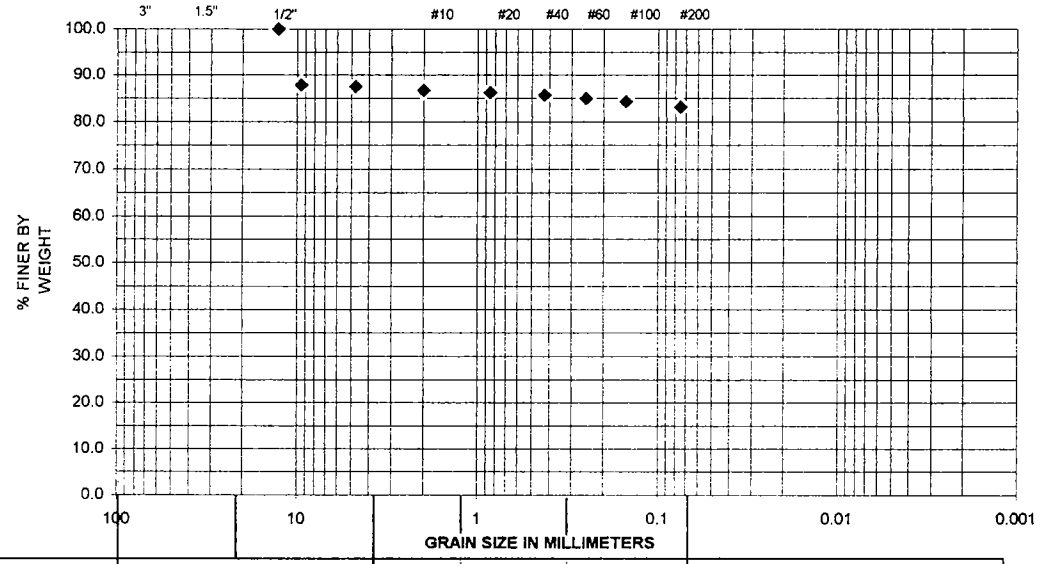
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**OUE R1 Additional Wells**
PROJECT NO.:	**ANC 1403**
SAMPLE LOCATION:	**03AVMA01GT**
SAMPLE NO/ DEPTH	**78'**
DESCRIPTION:	**Silt with gravel**
DATE TESTED:	**7/19/2003**
TESTED BY:	**RC**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**12.5**	USC:	**ML**
% SAND:	**4.3**	FC:	
% SILT/CLAY:	**83.2**	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**17.4**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

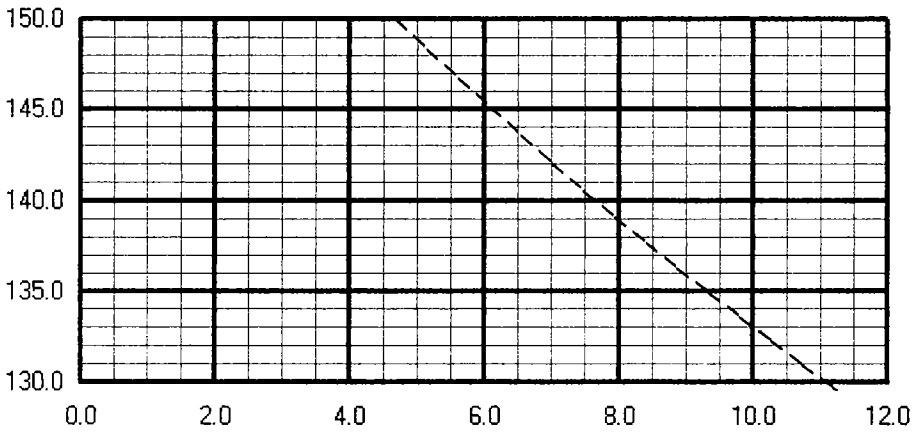
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"		
19.05	3/4"		
12.7	1/2"	**100**	
9.5	3/8"	**88**	
4.75	# 4	**88**	
2	#10	**87**	
0.85	#20	**86**	
0.425	#40	**86**	
0.25	# 60	**85**	
0.15	#100	**84**	
0.075	#200	**83.2**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity	
ASTM D854	
Atterberg Limits	
ASTM D4318	**Non Plastic**
L.A. Abrasion	
(AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

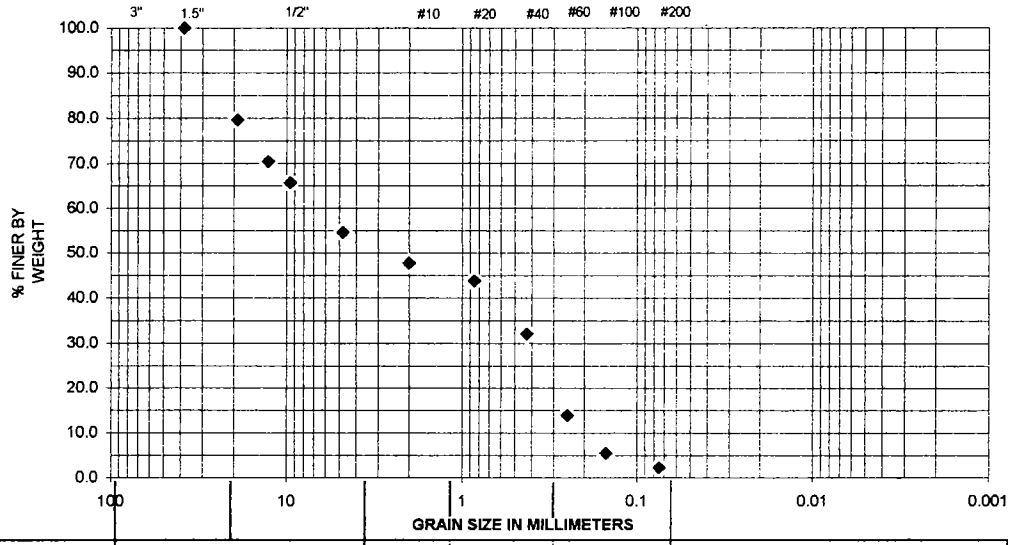
PROJECT CLIENT:	CH2M Hill
PROJECT NAME:	OUE R1 Additional Wells
PROJECT NO.:	ANC 1403
SAMPLE LOCATION:	03AVMA02GT
SAMPLE NO/ DEPTH	68'
DESCRIPTION:	Poorly grd. sand w/ gravel.
DATE TESTED:	7/19/2003
TESTED BY:	R. Caron / T. Selmer
REVIEWED BY:	Ron Caron C.E.T.

% GRAVEL:	45.4	USC:	SP
% SAND:	52.4	FC:	
% SILT/CLAY:	2.2	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	7.1

PARTICLE SIZE ANALYSIS

ASTM D422/ C138



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

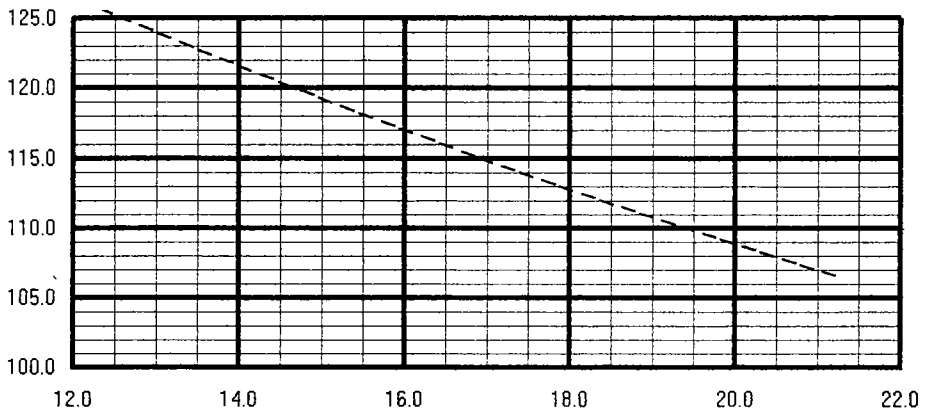
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"	**100**	
19.05	3/4"	**80**	
12.7	1/2"	**70**	
9.5	3/8"	**66**	
4.75	# 4	**55**	
2	#10	**48**	
0.85	#20	**44**	
0.425	#40	**32**	
0.25	# 60	**14**	
0.015	#100	**5**	
0.075	#200	**2.2**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity (ASTM D854)	2.704
Degradation (ATM T-13)	
Atterberg Limit ASTM 4318	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

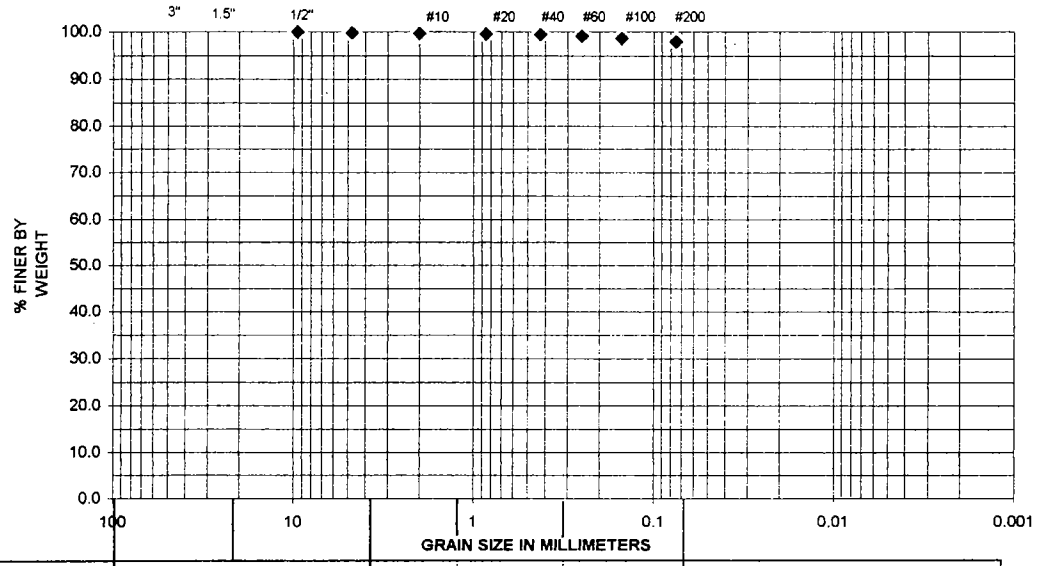
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**OUE R1 Additional Wells**
PROJECT NO.:	**ANC 1403**
SAMPLE LOCATION:	**03AVMA03GT**
SAMPLE NO/ DEPTH	**70' - 72'**
DESCRIPTION:	**Silt**
DATE TESTED:	**7/19/2003**
TESTED BY:	**RC**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**0.2**	USC:	**ML**
% SAND:	**1.9**	FC:	
% SILT/CLAY:	**97.9**	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**19.4**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

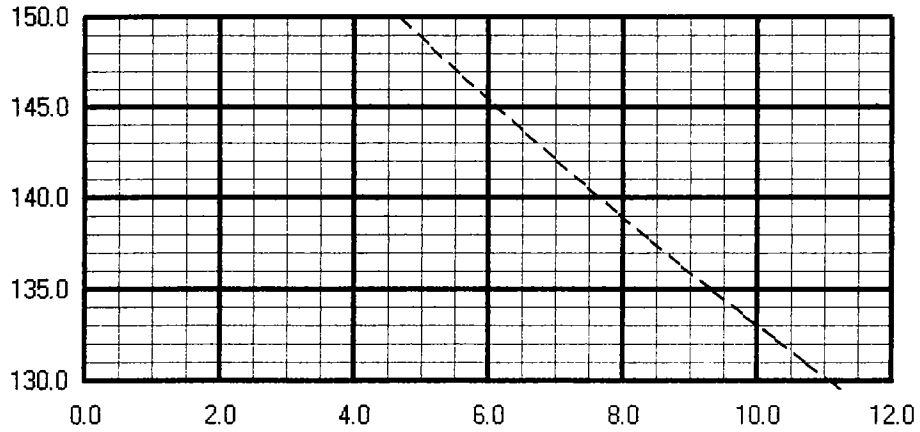
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"		
19.05	3/4"		
12.7	1/2"		
9.5	3/8"	**100**	
4.75	# 4	**100**	
2	#10	**100**	
0.85	#20	**100**	
0.425	#40	**99**	
0.25	# 60	**99**	
0.15	#100	**99**	
0.075	#200	**97.9**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Atterberg Limits	
ASTM 4318	**LL=26 PI=6**
Specific Gravity	
ASTM D854	
L.A. Abrasion	
(AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

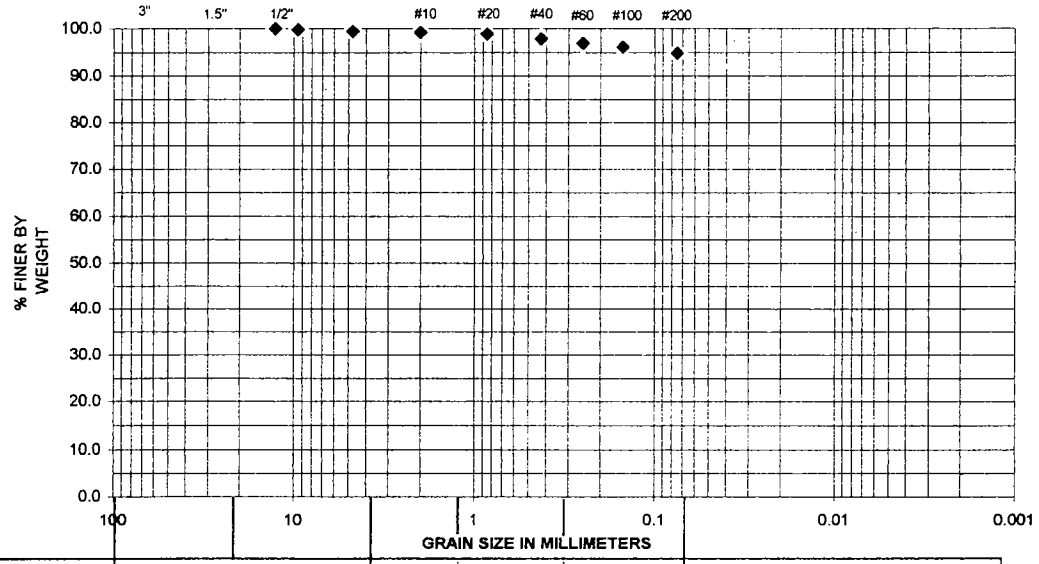
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**OUE R1 Additional Wells**
PROJECT NO.:	**ANC 1403**
SAMPLE LOCATION:	**03AVMA04GT**
SAMPLE NO/ DEPTH	**72' - 74'**
DESCRIPTION:	**Silt**
DATE TESTED:	**7/19/2003**
TESTED BY:	**RC**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**0.5**	USC:	**ML**
% SAND:	**4.6**	FC:	
% SILT/CLAY:	**94.9**	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**22.7**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

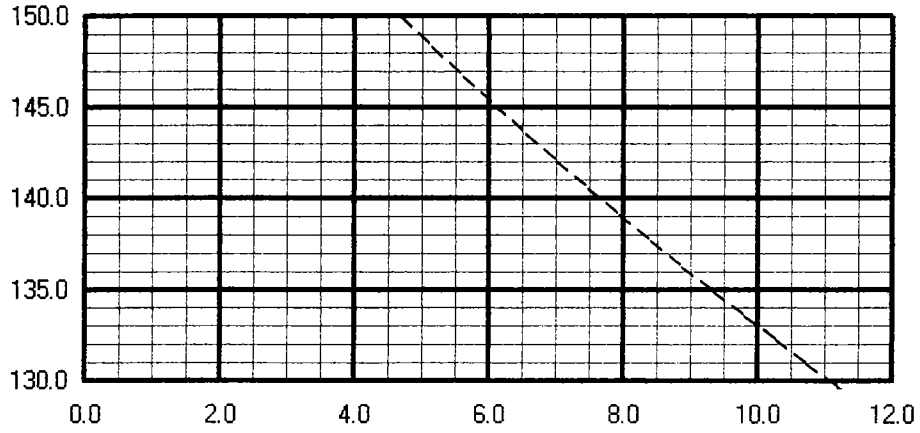
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"		
19.05	3/4"		
12.7	1/2"	**100**	
9.5	3/8"	**100**	
4.75	# 4	**99**	
2	#10	**99**	
0.85	#20	**99**	
0.425	#40	**98**	
0.25	# 60	**97**	
0.15	#100	**96**	
0.075	#200	**94.9**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Atterberg Limits	
ASTM 4318	**Non Plastic**
Specific Gravity	
ASTM D854	
L.A. Abrasion	
(AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

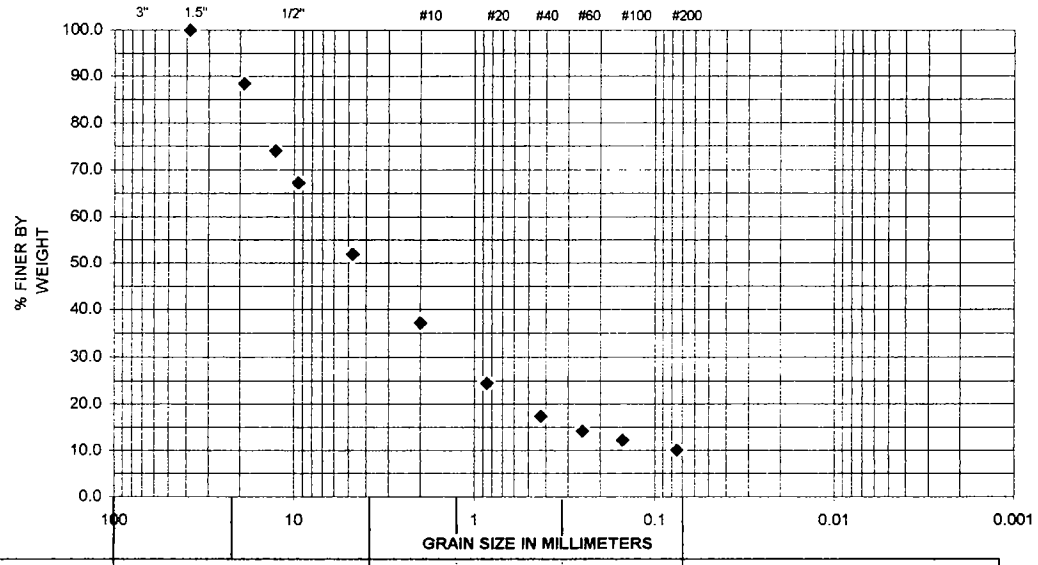
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**OUE R1 Additional Wells**
PROJECT NO.:	**ANC 1403**
SAMPLE LOCATION:	**03AVMA05GT**
SAMPLE NO/ DEPTH	**112.5' - 115'**
DESCRIPTION:	**Poorly grd. gravel w/ silt & sand.**
DATE TESTED:	**7/19/2003**
TESTED BY:	**RC**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**48.0**	USC:	**GP-GM**
% SAND:	**41.9**	FC:	
% SILT/CLAY:	**10.1**	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**8.7**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

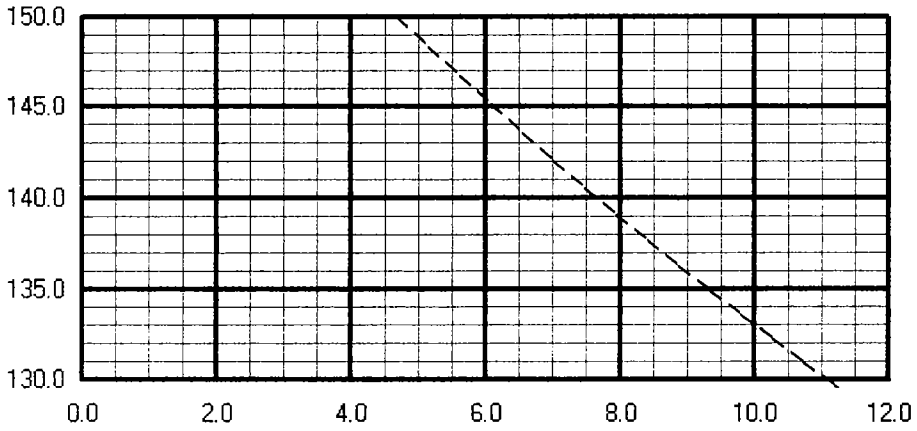
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"	**100**	
19.05	3/4"	**88**	
12.7	1/2"	**74**	
9.5	3/8"	**67**	
4.75	# 4	**52**	
2	#10	**37**	
0.85	#20	**24**	
0.425	#40	**17**	
0.25	# 60	**14**	
0.15	#100	**12**	
0.075	#200	**10.1**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity (ASTM D854)	**2.741**
Degradation (ATM T-13)	
L.A. Abrasion (AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

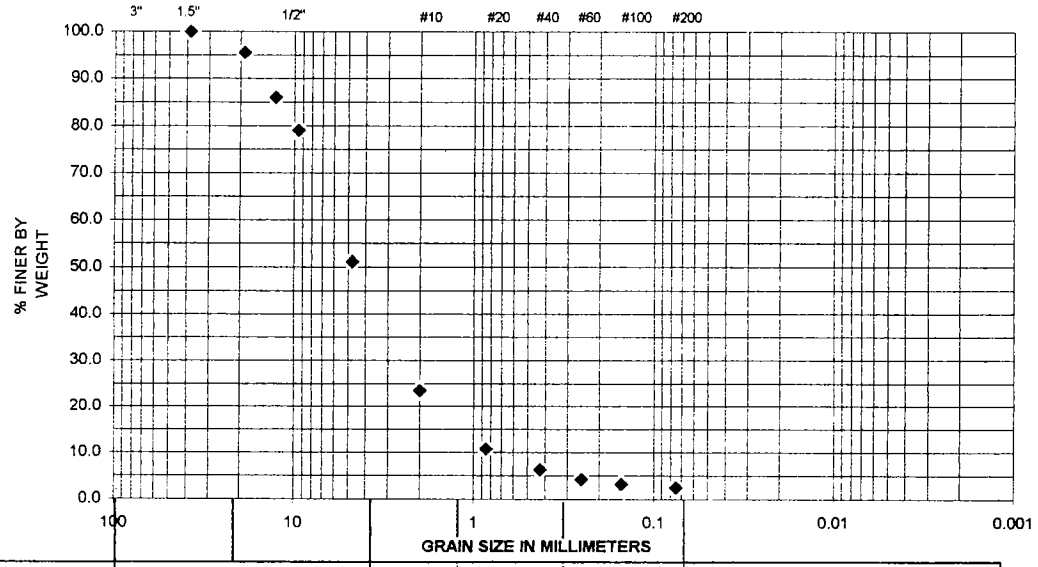
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**OUE R1 Additional Wells**
PROJECT NO.:	**ANC 1403**
SAMPLE LOCATION:	**03AVMA06GT**
SAMPLE NO/ DEPTH	**70' - 71'**
DESCRIPTION:	**Well grd. gravel w/ sand**
DATE TESTED:	**7/19/2003**
TESTED BY:	**RC**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**48.9**	USC:	**GW**
% SAND:	**48.6**	FC:	
% SILT/CLAY:	**2.5**	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**7.2**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

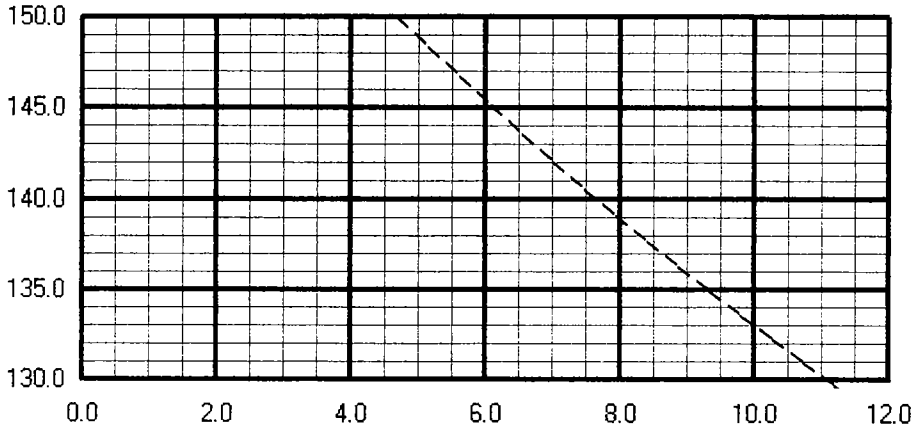
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"	**100**	
19.05	3/4"	**96**	
12.7	1/2"	**86**	
9.5	3/8"	**79**	
4.75	# 4	**51**	
2	#10	**23**	
0.85	#20	**11**	
0.425	#40	**6**	
0.25	# 60	**4**	
0.15	#100	**3**	
0.075	#200	**2.5**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity (ASTM D854)	**2.787**
Degradation (ATM T-13)	
L.A. Abrasion (AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

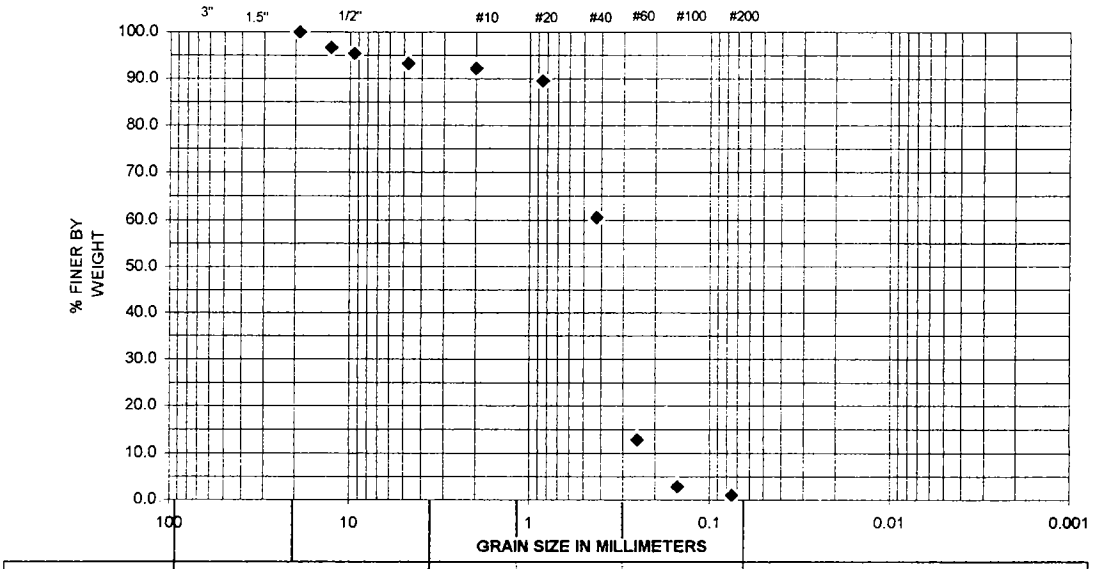
PROJECT CLIENT:	CH2M Hill
PROJECT NAME:	OUE R1 Additional Wells
PROJECT NO.:	ANC 1403
SAMPLE LOCATION:	03AVMA07GT
SAMPLE NO/ DEPTH	47' - 47.5'
DESCRIPTION:	Poorly grd. sand
DATE TESTED:	7/19/2003
TESTED BY:	R. Caron / T. Selmer
REVIEWED BY:	Ron Caron C.E.T.

% GRAVEL:	6.7	USC:	SP
% SAND:	92.3	FC:	
% SILT/CLAY:	1.0	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	3.8

PARTICLE SIZE ANALYSIS

ASTM D422/ C138



SIEVE ANALYSIS RESULT

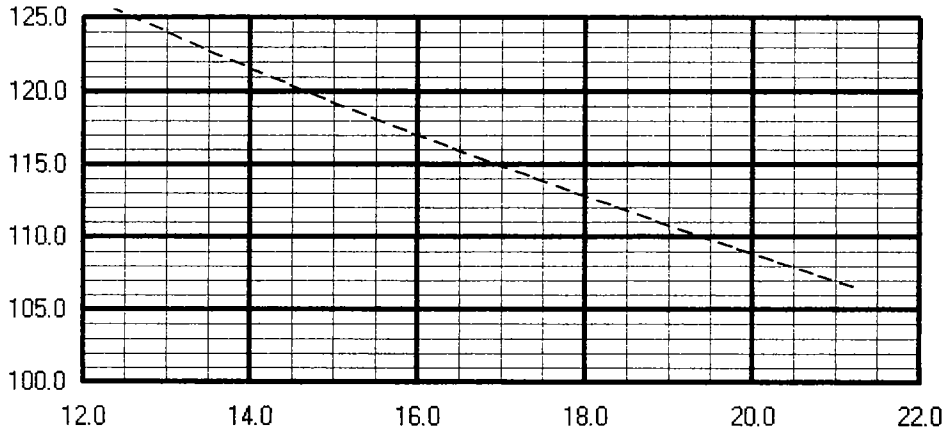
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"		
19.05	3/4"	**100**	
12.7	1/2"	**97**	
9.5	3/8"	**95**	
4.75	# 4	**93**	
2	#10	**92**	
0.85	#20	**90**	
0.425	#40	**61**	
0.25	# 60	**13**	
0.015	#100	**3**	
0.075	#200	**1.0**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity (ASTM D854)	2.719
Degradation (ATM T-13)	
Atterberg Limit ASTM 4318	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

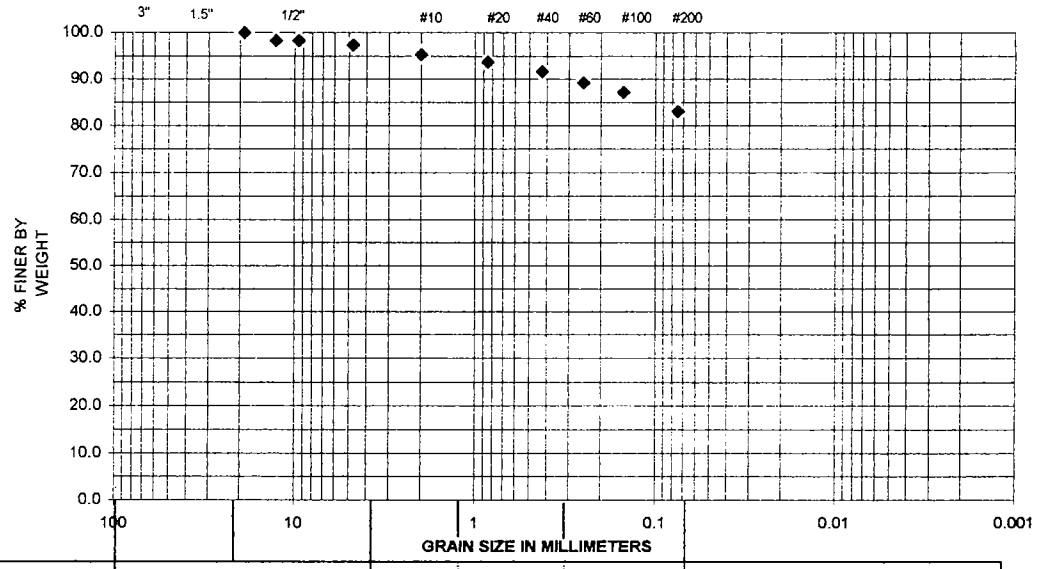
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**OUE R1 Additional Wells**
PROJECT NO.:	**ANC 1403**
SAMPLE LOCATION:	**03AVMA08GT**
SAMPLE NO/ DEPTH	**82.5' - 84.5'**
DESCRIPTION:	**Silt with sand**
DATE TESTED:	**7/19/2003**
TESTED BY:	**RC**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**2.6**	USC:	**ML**
% SAND:	**14.3**	FC:	
% SILT/CLAY:	**83.1**	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**19.6**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

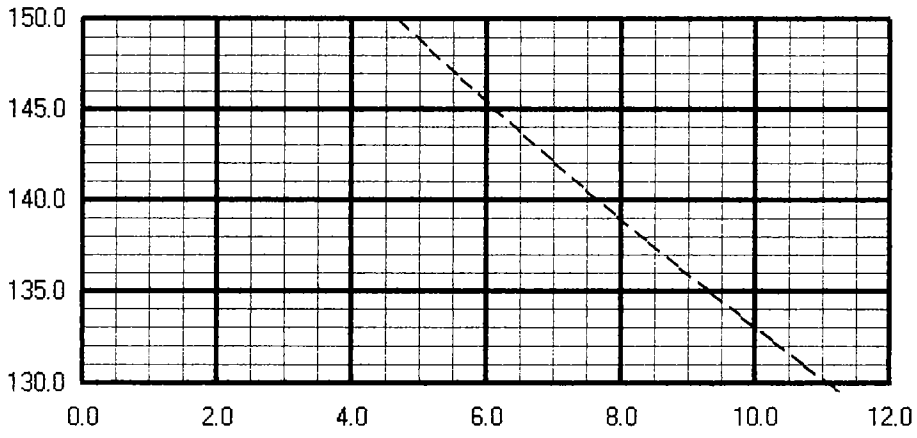
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"		
19.05	3/4"	**100**	
12.7	1/2"	**98**	
9.5	3/8"	**98**	
4.75	# 4	**97**	
2	#10	**95**	
0.85	#20	**94**	
0.425	#40	**92**	
0.25	# 60	**89**	
0.15	#100	**87**	
0.075	#200	**83.1**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity	
ASTM D854	
Atterberg Limits	
ASTM D4318	**Non Plastic**
L.A. Abrasion	
(AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

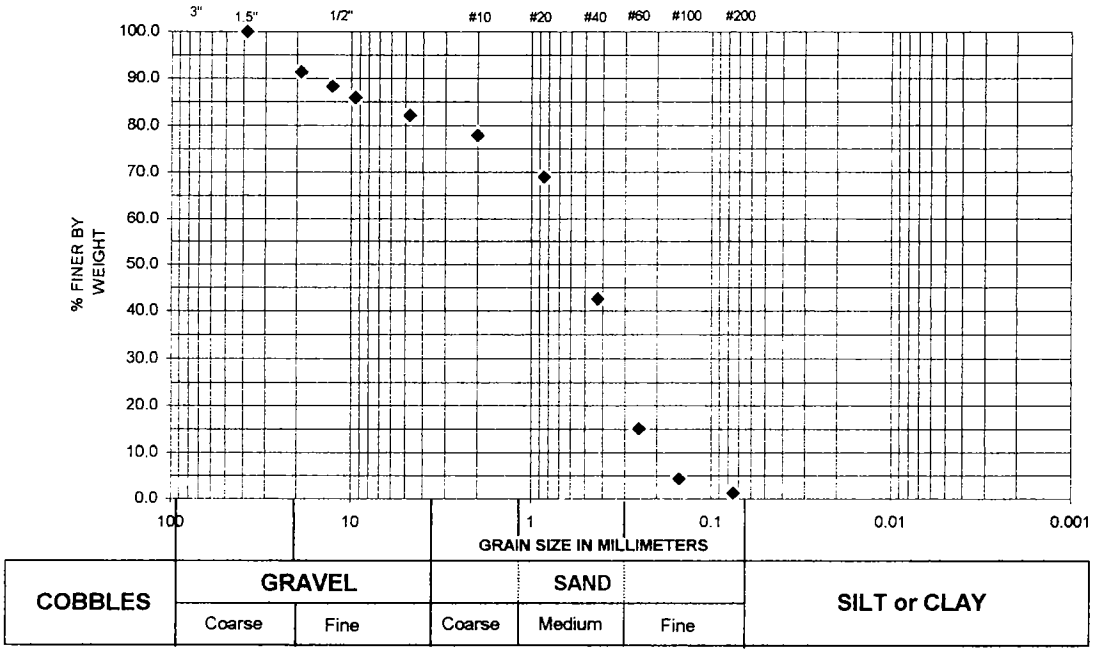
PROJECT CLIENT:	CH2M Hill
PROJECT NAME:	OUE R1 Additional Wells
PROJECT NO.:	ANC 1403
SAMPLE LOCATION:	03AVMA09GT
SAMPLE NO/ DEPTH	80' - 82.5'
DESCRIPTION:	Poorly grd. sand w/ gravel.
DATE TESTED:	7/19/2003
TESTED BY:	R. Caron / T. Selmer
REVIEWED BY:	Ron Caron C.E.T.

% GRAVEL:	17.8	USC:	SP
% SAND:	80.9	FC:	
% SILT/CLAY:	1.3	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	2.8

PARTICLE SIZE ANALYSIS

ASTM D422/ C138



SIEVE ANALYSIS RESULT

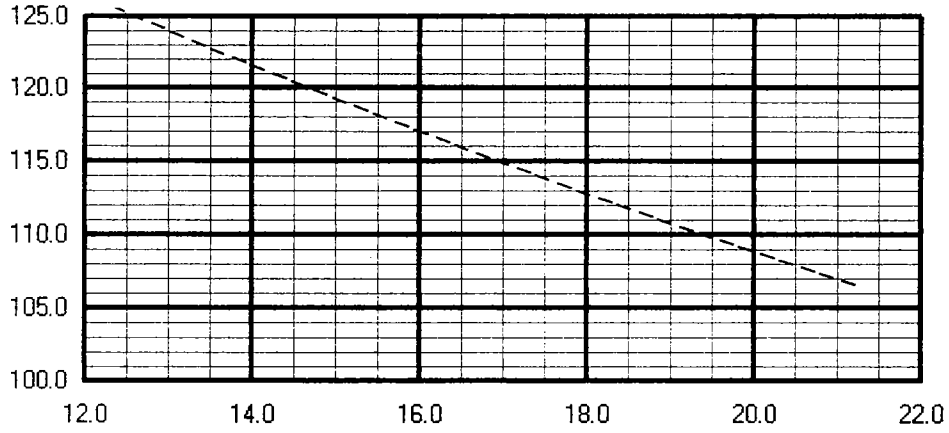
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"	**100**	
19.05	3/4"	**91**	
12.7	1/2"	**88**	
9.5	3/8"	**86**	
4.75	# 4	**82**	
2	#10	**78**	
0.85	#20	**69**	
0.425	#40	**43**	
0.25	# 60	**15**	
0.015	#100	**4**	
0.075	#200	**1.3**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity (ASTM D854)	**2.758**
Degradation (ATM T-13)	
Atterberg Limit ASTM 4318	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

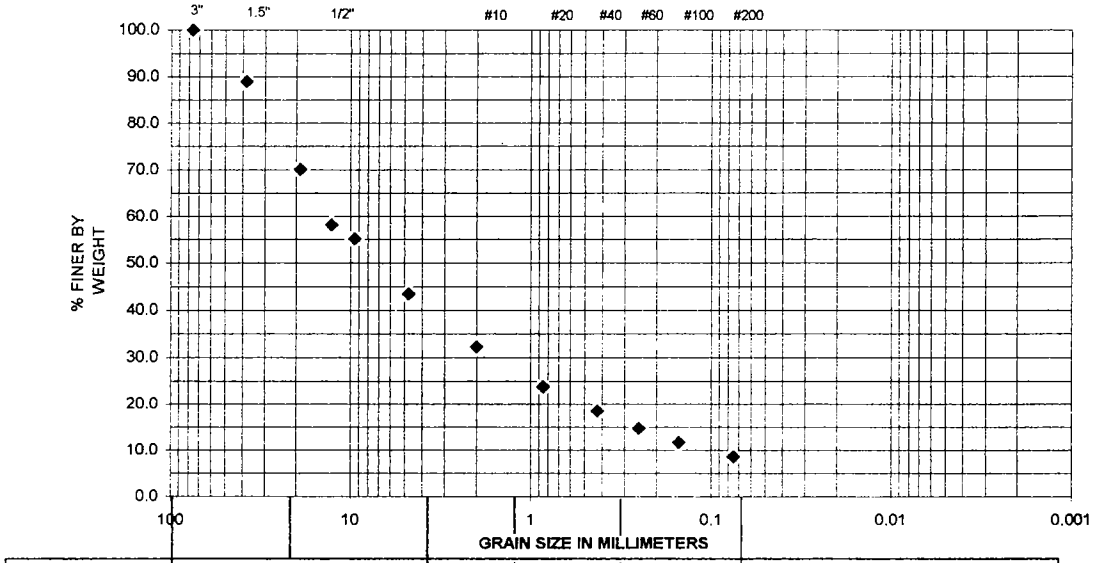
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**OUE R1 Additional Wells**
PROJECT NO.:	**ANC 1403**
SAMPLE LOCATION:	**03AVMA10GT**
SAMPLE NO/ DEPTH	**115' - 116'**
DESCRIPTION:	**Well grd. gravel w/ silt & sand**
DATE TESTED:	**7/19/2003**
TESTED BY:	**RC**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**56.5**	USC:	**GW-GM**
% SAND:	**34.9**	FC:	
% SILT/CLAY:	**8.6**	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**7.0**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

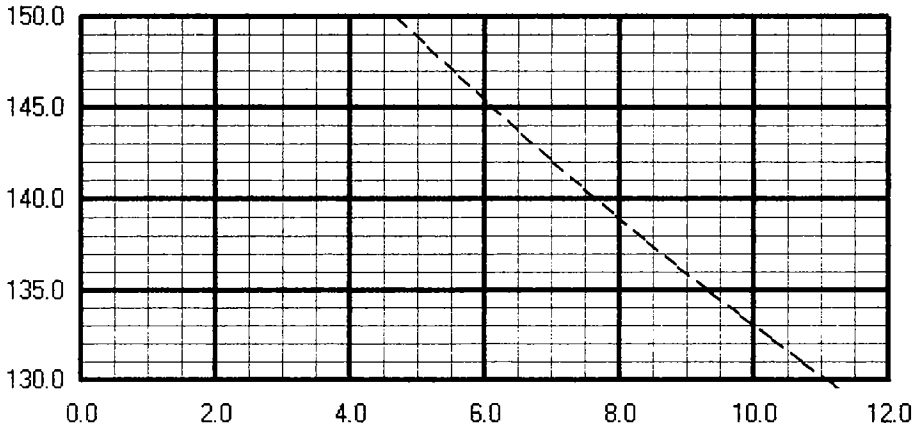
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"	**100**	
38.1	1.5"	**89**	
19.05	3/4"	**70**	
12.7	1/2"	**58**	
9.5	3/8"	**55**	
4.75	# 4	**44**	
2	#10	**32**	
0.85	#20	**24**	
0.425	#40	**18**	
0.25	# 60	**15**	
0.15	#100	**12**	
0.075	#200	**8.6**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity ASTM D854	**2.708**
Degradation (ATM T-13)	
L.A. Abrasion (AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

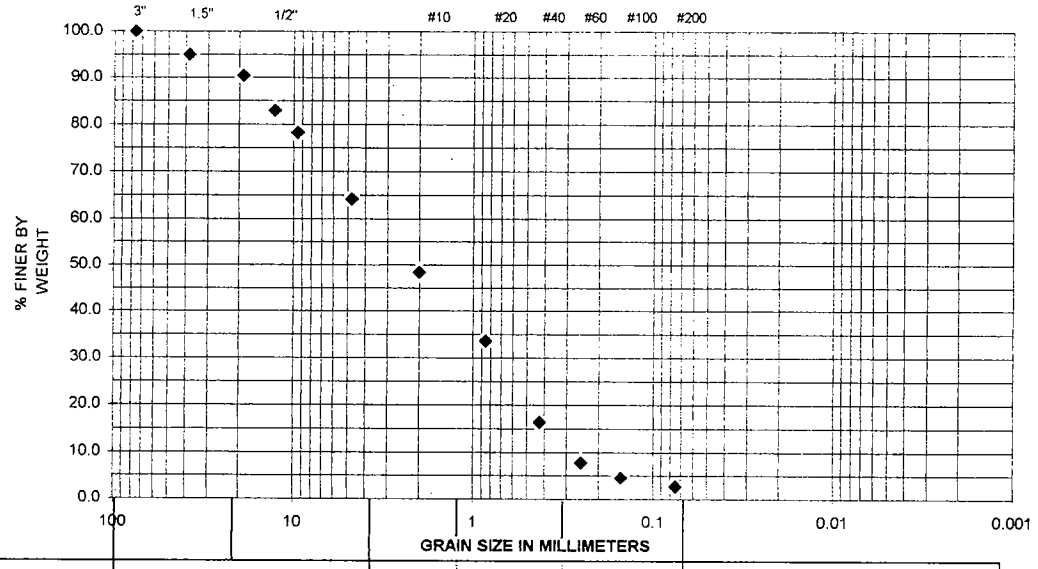
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**OUE R1 Additional Wells**
PROJECT NO.:	**ANC 1403**
SAMPLE LOCATION:	**03AVMA11GT**
SAMPLE NO/ DEPTH	**110'**
DESCRIPTION:	**Poorly grd. sand w/ gravel.**
DATE TESTED:	**8/21/2003**
TESTED BY:	**RC**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**35.8**	USC:	**SP**
% SAND:	**61.5**	FC:	
% SILT/CLAY:	**2.7**	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**9.5**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

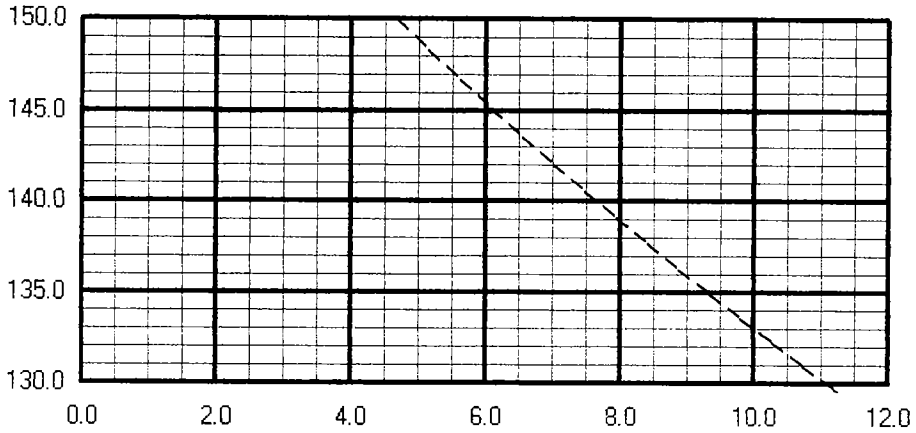
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"	**100**	
38.1	1.5"	**95**	
19.05	3/4"	**91**	
12.7	1/2"	**83**	
9.5	3/8"	**78**	
4.75	# 4	**64**	
2	#10	**48**	
0.85	#20	**34**	
0.425	#40	**16**	
0.25	# 60	**8**	
0.15	#100	**5**	
0.075	#200	**2.7**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity ASTM D854	**2.736**
Degradation (ATM T-13)	
L.A. Abrasion (AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

801 East 82nd Avenue, #A-9
Anchorage, AK 99518

TERRA FIRMA INC.

Laboratory Testing / Construction Monitoring

Telephone: (907) 344-5934
Fax: (907) 344-5993
terrafirma@alaska.net

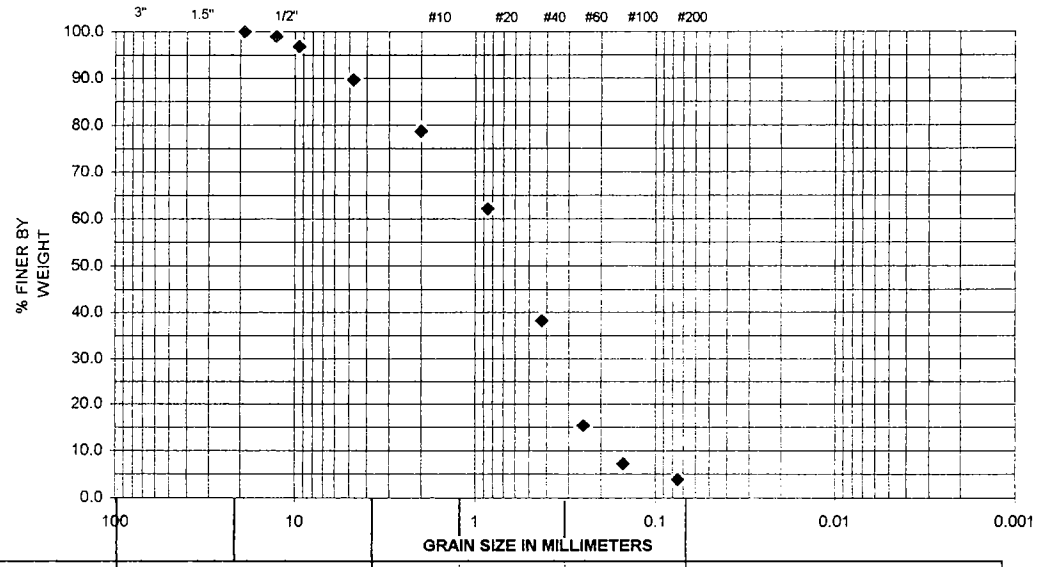
PROJECT CLIENT:	**CH2M Hill**
PROJECT NAME:	**OUE R1 Additional Wells**
PROJECT NO.:	**ANC 1403**
SAMPLE LOCATION:	**03AVMA12GT**
SAMPLE NO/ DEPTH	**140'**
DESCRIPTION:	**Poorly grd. sand**
DATE TESTED:	**8/21/2003**
TESTED BY:	**RC**
REVIEWED BY:	**Ron Caron C.E.T.**

% GRAVEL:	**10.3**	USC:	**SP**
% SAND:	**85.9**	FC:	
% SILT/CLAY:	**3.8**	.02 mm:	

ASTM D1557(uncorrected)	pcf
ASTM D4718 (corrected)	pcf
OPTIMUM M.C.% (corrected)	
NATURAL M.C. %	**19.1**

PARTICLE SIZE ANALYSIS

ASTM D422/ C136



COBBLES	GRAVEL		SAND			SILT or CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SIEVE ANALYSIS RESULT

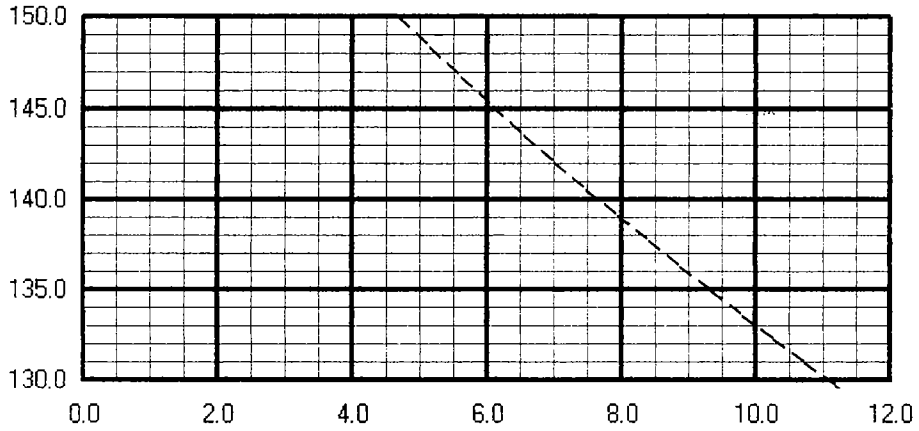
SIEVE SIZE (mm)	SIEVE SIZE (in.)	TOTAL % PASSING	SPEC
152.4	6"		
76.2	3"		
38.1	1.5"		
19.05	3/4"	**100**	
12.7	1/2"	**99**	
9.5	3/8"	**97**	
4.75	# 4	**90**	
2	#10	**79**	
0.85	#20	**62**	
0.425	#40	**38**	
0.25	# 60	**15**	
0.15	#100	**7**	
0.075	#200	**3.8**	

HYDROMETER RESULT

ELAPSED TIME	DIAMETER (mm)	TOTAL % PASSING
0		
0.5		
1		
2		
4		
8		
15		
30		
60		
250		
1440		

MOISTURE-DENSITY RELATIONSHIP

ASTM D1557



Specific Gravity ASTM D854	**2.735**
Degradation (ATM T-13)	
L.A. Abrasion (AASHTO T 96)	

The testing services reported herein have been performed to recognized industry standards, unless otherwise noted. No other warranty is made. Should engineering interpretation or opinion be required, TFI will provide upon written request.

CH2M HILL
OUE R1 Additional Wells, Ft. Richardson Alaska
Project # 171256.B0.02

Boring I.D (Field)	Sample Number	Depth Interval Top	Bottom	Moisture Content (%)	Bulk Dry Density (pcf)	Specific Gravity	Organic Content (%)	Atterberg Limits LL	PL	PI	Particle Size Analysis Gravel	Sand	Silt	Passing -#200 (%)	Passing 0.02mm (%)	Frost Class.	Unified Soil Classification
	03AVMA01GT	78'		**17.4**					**NP**		**12.5**	**4.3**	**83.2**				**(ML) Silt with gravel**
	03AVMA02GT	68'		**7.1**		**2.704**					**45.4**	**52.4**	**2.2**				**(SP) Poorly graded sand w/ gravel**
	03AVMA03GT	70'	72'	**19.4**				**26**	**20**	**6**	**0.2**	**1.9**	**97.9**				**(ML) Silt**
	03AVMA04GT	72'	74'	**22.7**					**NP**		**0.5**	**4.6**	**94.9**				**(ML) Silt**
	03AVMA05GT	112.5'	115'	**8.7**		**2.741**					**48.0**	**41.9**	**10.1**				**(GP-GM) Poorly graded gravel w/ silt & san**
	03AVMA06GT	70'	71'	**7.2**		**2.787**					**48.9**	**48.6**	**2.5**				**(GW) Well graded gravel w/ sand**
	03AVMA07GT	47'	47.5'	**3.8**		**2.719**					**6.7**	**92.3**	**1.0**				**(SP) Poorly graded sand**
	03AVMA08GT	82.5'	84.5'	**19.6**					**NP**		**2.6**	**14.3**	**83.1**				**(ML) Silt with sand**
	03AVMA09GT	80'	82.5'	**2.8**		**2.758**					**17.8**	**80.9**	**1.3**				**(SP) Poorly graded sand w/ gravel**
	03AVMA10GT	115'	116'	**7.0**		**2.708**					**56.5**	**34.9**	**8.6**				**(GW-GM) Well graded gravel w/ silt & sand**
	03AVMA11GT	110		**9.5**		**2.736**					**35.8**	**61.5**	**2.7**				**(SP) Poorly graded sand w/ gravel**
	03AVMA12GT	140		**19.1**		**2.735**					**10.3**	**85.9**	**3.8**				**(SP) Poorly graded sand**

Appendix I
Chemical Quality Assurance Report

CQAR on CD

Appendix J
Review Comments and Responses

REVIEW COMMENTS AND DRAFT RESPONSES
Draft Remedial Investigation Report for Operable Unit E
Fort Richardson, Alaska
Reviewers: All Reviewers as of February 4, 2004

Item	Section	Page	Para.	Comment	CH2M HILL Response
General					
1				Grammatical and general editing comments were received throughout the document.	These have not all been addressed here, but have been handled during the edit/revision of the document to a final version.
Figures					
2				There were a number of comments on the figures.	These are being addressed separately from the text of the RI and responses to these comments will not be provided at a later time.
Reviewer: Doug Simpleman					
3	1			The entire document is placed backwards and upside down in the binder.	Will be addressed as part of revision.
4	1			There should be brief Executive Summary that summarizes work and results at the beginning of the document.	An executive summary will be added.
5	1.2			Perhaps a bit more on the inclusion of FTR to the NPL, date, docket number, etc.	Will add this to revised final version.
6	1.4			Please rework this section. It starts by discussing location, then COC, then location, then back to COCs. Perhaps move all but the first paragraph to 1.4.1 and 1.4.2.	This will be addressed in the edit/revision to the final document.
7	1.4			I thought 35-750 was occupied.	Building 35-750 is currently occupied. Text will be updated accordingly.
8	1.4.1.4			State the MCL. Is it really a MCL or the ADEC Cleanup Level?	Changed end of sentence to indicate that PCBs were not detected above regulatory levels.
9	1.4.3.1			Elevated PAH? Low levels VOCs, please provide ranges and a cleanup levels in order to begin to form a picture of the degree of contamination.	The referenced documents will be reviewed and where available, the ranges will be included in the text.

Item	Section	Page	Para.	Comment	CH2M HILL Response
10	1.4.3.2			How many borings and wells. Is the 2001 USACE data provided in a report?, please reference. Please reference all other reports as well (ex. E&E, 1996).	Fifteen shallow borings and two new wells (AP-4154 and AP-4155) were installed. The information is provided in a report. CH2M HILL will locate a proper reference for the 1996 E&E work.
11	1.4.4			What is an outwash area?, Selective soil sampling near the ditches? Does this mean the soil borings? Please clarify. Break into a least 2 sentences.	See previous response for revisions to the text.
12	1.4.4			How many existing wells were sampled?	27 existing wells were sampled. This information will be included in the final report.
13	2.2			What is the average snow fall? If the 15 inches / yr of precip. is important so should the snow pack that leads to infiltration. Does the 15 inches include snow fall?	Yes, this includes snowfall. Average snowfall per year is 77.0 in. Note that it is about a 10:1 ratio for snow:water.
14	2.3			Provide some transition between general surface water features and facility water discharge and contaminant discussions.	The hydrogeology section will be revised in the final document to address these comments.
15	2.5			Rework this entire section for clarity.	Will be addressed as part of revision.
16	2.5			The reference to Ship Creek as drinking water is really a surface Hydrology issue (Sec 2.3). Perhaps add a section regarding potable water sources.	The hydrogeology and hydrology sections will be revised in the final document to address these comments. Per discussions at meetings, a separate potable water section will not be added. However, more discussion of the potability or non-potability of the groundwater will be provided.
17	2.5			The geology is complex, please rework the long para on page 2-4 to clarify the geology/hydrogeologic units. Ties in the unnamed geologic units (confining layer etc . .) to the named units referenced in the Geology Section.	The hydrogeology section will be revised in the final document to address these comments.
18	3.1			Many of the 3.1 subsections should be reworked; reduced, clarified and edited. .	This will be completed as part of the edits to the revised, final document.
19	3.1			If the methods did not vary from the Work Plan they don't need to be detailed here.	This will be completed as part of the edits to the revised, final document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
20	3.1.1			Near surface defined as?	Near surface is defined as 0 to 1.5 feet below the surface. This clarification will be added to the text.
21	3.1.1			The last sentence could be deleted. I don't believe it states what was meant to be stated.	The sentence was revised to read, “backfilled with native material”.
22	3.1.2			The purpose was to document... and collected - The subject and infinitive do not agree. Please correct grammatically.	This will be completed as part of the edits to the revised, final document.
23	3.1.2			What was the action level for "elevated PID readings" that required sampling? Please include.	There was not a specific action level. PID readings that were observed to be higher than at adjacent locations were used in the decision process to determine when to collect soil samples.
24	3.1.5			What was the action level for PID VOC detections in the trench to mandate sampling?	There was not a specific action level. As during the installation of the monitoring wells, PID readings that were observed to be higher than at adjacent locations were used in the decision process to determine when to collect soil samples.
25	3.2.1			Rework these sections.	This will be completed as part of the edits to the revised, final document.
26	3.2.1			This section needs more detail.	This will be completed as part of the edits to the revised, final document.
27	3.2.1			The last part of Section 3.2 is the same as 3.2.1.	This will be completed as part of the edits to the revised, final document.
28	3.2.1			Were trip blanks collected and included in the VOCs?	Yes, the data were included in the two completed CQARs and will be summarized in the revised, final document.
29	3.2.1			What about MS and MSDs and LS/LSDS?	Yes, the data were included in the two completed CQARs and will be summarized in the revised, final document.
30	3.2.1			The second para would flow better if the next to last sentence were moved to after the first sentence.	This will be completed as part of the edits to the revised, final document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
31	3.2.1			At what frequency were QA/QC samples collected?	As outlined in the management plan. Duplicates and triplicates (QA) were collected at a frequency of 1 for every 10 field samples. MS/MSD samples were collected at a frequency of 1 for every 20 field samples. Rinsate and trip blanks were collected as needed based on equipment usage and field days. Those data were included in the two completed CQARs and will be summarized in the RI.
32	3.2.1			Provide a separate para that discusses QA/QC analysis.	A summary of the two CQARs completed as part of this project will be included in the revised, final document.
33	3.2.2			Who performed the data validation? This information should be included.	A summary of the two CQARs completed as part of this project will be included in the revised, final document.
34	3.5.1			This section needs to be broken out into separate paragraphs for water and soil.	This will be completed as part of the edits to the revised, final document.
35	3.5.1			How did CH2 properly label soil drums without characterization? It could be possible to say generator knowledge for listed wastes, but the soil could have been a characteristic waste. This section needs more detail.	The drums were labeled with the standard IDW form. The form contains generator information, contract information, and location generated. This section will be expanded to better explain the IDW processes followed.
36	4			The statement regarding risk could be deleted.	The purpose of the comparison to the screening values would not be as clear if the statement regarding risk were deleted.
37	4			Clarify ADEC petroleum criteria for soil.	The Alaska standards were used as screening values for GRO, DRO, and RRO constituents as no other criteria are available for those constituents.
38	4.1			The first para. on page 4-2 seems to come out of nowhere. Please rework this section	This will be completed as part of the edits to the revised, final document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
39	4.1.1.1			Check headings.	This will be completed as part of the edits to the revised, final document.
40	4.1.1.1			Consider combining other Nature and extent Sections	This will be completed as part of the edits to the revised, final document.
41	4.1.1.1			Again, not familiar with "contaminant screening level", please define the basis for the Action Level.	Not necessarily an action level, but a comparison tool to determine which locations and concentrations will be evaluated in a risk assessment. More explanation will be provided in the revised, final document.
42	4.1.1.1 and 4.1.1.2			These are tough to separate into 2 sections. Consider combining them.	This will be completed as part of the edits to the revised, final document.
43	4.1.2.1			Overall section seems to shortchange the contamination detected. Rework this section.	This will be completed as part of the edits to the revised, final document.
44	4.1.3.1			This section refers to TPH whereas the previous section uses the DRO RRO GRO terms. Please use the same terms throughout the document. TPH also refers to EPA 1662 and 8015B.	This will be completed as part of the edits to the revised, final document. GRO, DRO, and RRO will be used in place of TPH.
45	4.1.4			The other sections describe exceedances and detections, yet this one refers the reader to tables. Include referenced limits in the text. Rework this section, expand to provide more details.	This will be completed as part of the edits to the revised, final document.
46	4.1.4.5			Please rework this section. Specifically the 2 "In addition . . ." sentences.	This will be completed as part of the edits to the revised, final document.
47	4.1.5.1			Why are we referring to exceedances as "above screening levels?" These are exceedances above "cleanup values" that are established by regulatory agencies.	Not necessarily a cleanup level, but a comparison tool to determine which locations and concentrations will be evaluated in a risk assessment.
48	4.2.1			Dissolved groundwater plume? (VOCs, POLs)?	VOCs – chlorinated solvents. This will be clarified in the revised, final document.
49	4.2.1			Probably best to say unidentified and unknown sources, without trying to name a source.	Per discussions in meetings, the possible sources will be discussed in order to evaluate some of the observed contaminants.

Item	Section	Page	Para.	Comment	CH2M HILL Response
50	4.2.2			Provide a data summary table, move large tables to an Appendix.	This will be completed as part of the edits to the revised, final document.
51	4.2.2			Edit to correct grammar. Rework section, apply this comment to entire document.	This will be completed as part of the edits to the revised, final document.
52	5			Section 5.1 to 5.3 could be greatly reduced.	This will be completed as part of the edits to the revised, final document.
53	5.1			The Fate and Transport section of this document describes the science behind fate and transport, but does very little for describing the fate and transport of contamination at OUE. Please provide a synopsis of the fate and transport of the COCs at the site.	This will be completed as part of the edits to the revised, final document.
54	6.2			Environmental Health .. . is that a term synonymous to Ecological Risks?	And human health risk assessment.
55	6.2.2.3			It is stated that aluminum should not pose an eco risk because of low solubility at observed pH ranges. Is there a citation or justification for this position? If so, please incorporate it.	This citation did not make it into the conclusions section (Section 5) of the ERA because it is discussed fully in Section 4. The reference is Mulder et al. (1989 in USEPA, 2003) - see full description at end of first paragraph on page 4-11 of the ERA. These are the two complete references: Mulder J., N. Van Breeman, L. Rasmussen, and C. T. Driscoll. 1989. "Aluminum Chemistry of Acidic Sandy Soils with Various Inputs of Acidic Deposition in the Netherlands and Denmark." Chapter 10 in T. E. Lewis (ed.) Environmental Chemistry and Toxicology of Aluminum. Lewis Publishers, pp. 171-194. U.S. Environmental Protection Agency (USEPA). 2003. Ecological Soil Screening Level for Aluminum Interim Final. OSWER Directive 9285.7-60. August.

Item	Section	Page	Para.	Comment	CH2M HILL Response
56	7			Looks like some "stick-ums" were left on some pages and then copied.	This will be completed as part of the edits to the revised, final document.
57	7.1			Add some details to the summary sections. (Levels of contamination, over EPA or ADEC criteria)	This will be completed as part of the edits to the revised, final document.
58	4.1.1.1			Please do not split this section [4.1.1.1] with 9 figures. It complicates the document. Place large figures at the end of the document.	This will be completed as part of the edits to the revised, final document.
59	Table 3-1			What lab did the 8270c SIM?	Analytica Alaska. This will be added as part of the edits to the revised, final document.
60	Table 3-2			There is no discussion of characterizing waste; how it was determined that waste was nonhazardous?	That characterization is made by the IDW facility operator after the results from samples collected from the same boring location are received.
61	Table 3-2			How much waste was generated?	The revised text will include the amount of waste generated.
62	Table 4-1 and -2			Would work great as an Appendix. Could the data be reduced to more manageable tables?	This will be completed as part of the edits to the revised, final document.
63	Table 4-4			Another Table for an Appendix? Less data is needed with the text	This will be completed as part of the edits to the revised, final document.
64	Table 4-5			Typo Mnl?	This will be completed as part of the edits to the revised, final document.
Reviewer: Beth Astley, Cold Regions Research and Engineering Laboratory					
65				I would like electronic (.pdf) copies of all monitoring well logs for our database.	These have been provided.
66	1.4.1.4	Page 1-11		First sentence: (CRREL) conducted geophysical investigations in 2000 to determine possible locations of buried trenches or depressions that lead to a suspected former burn pit or natural depression where PCB oils were reported to have been disposed.	Text will be revised to reflect this change in the final version.
67	1.4.2			For more detail, see Site Background section of Astley et al. 2000a.	Background information from this document will be included in the revised, final document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
68	1.4.2			1982- four 750 kVA transformers were drained into the parking lot and burned with 4 drums of diesel fuel. The burn area was either a natural low area in the parking lot or a shallow burn pit. A soil berm was constructed to protect the cooling pond from contamination from the PCB oils.	This information will be incorporated into the revised, final document.
69	1.4.2			1984- The larger, 150-kVA transformer was likely drained onto the ground and flowed to the east of Building 35-750 into a natural depression east of the driveway that circles the building.	This information will be incorporated into the revised, final document.
70	1.4.3.1			AP-4155 was drilled in 2001 by the AK District, and is therefore not part of the 1996 soil and groundwater investigation by E&E.	The reference to AP-4155's installation will be moved to the following section.
71	1.4.3.2			The geophysical investigation employed the techniques of ELECTROMAGNETICS AND GROUND-PENETRATING RADAR to identify probable locations of buried materials and debris. NEAR-SURFACE SEISMIC REFLECTION AND DIRECT CURRENT RESISTIVITY METHODS WERE USED TO BETTER DEFINE THE SITE GEOLOGY, SPECIFICALLY FOCUSING ON THE CONFINING UNIT.	The text will be updated to include this information.
72	1.4.4			Selective soil sampling. THE TRENCH LOCATIONS WERE PLACED NEAR AREAS CONTAINING BURIED METALLIC DEBRIS, USING THE ELECTROMAGNETIC SURVEY RESULTS, AND NEAR DITCHES AND FORMER VEHICLE wash (not washout) areas identified in the aerial HISTORICAL PHOTOGRAPH review.	CH2M HILL will update the text to include these suggestions.
73	2.3			Water in the cooling pond DRAINED THROUGH A DRAINAGE CHANNELS THAT DISCHARGED INTO SHIP CREEK SOUTHWEST OF THE SITE. (historical photos show this)	CH2M HILL will correct this section to show that the cooling pond discharged to Ship Creek.

Item	Section	Page	Para.	Comment	CH2M HILL Response
74	2.5			Are the Anchorage Plain and Mt. View Fan deposits the same thing?	The Anchorage Plain is a glacial moraine that extends from the Chugach Mountain Front westward and northwestward. Ft. Rich. straddles both the alluvial fan of the Anchorage Plain and the moraine and glacial alluvium complex near the shore of Knik Arm. The gravel alluvium of the Anchorage Plain underlies the main cantonment. Alluvial Fans...The largest of these deposits on Ft. Rich. is the Mountain View fan, which emerges from the Chugach Mountains at the south edge of Eagle River Valley. The Mountain View fan extends from the Chugach Mts. to the Knik Arm in the area between the Port of Anchorage and Turnagain Heights and lies below most of the Ft. Richardson cantonment. The Mountain View fan is the gravel alluvium of the Anchorage Plain that underlies Ft. Rich. The Anchorage Plain is more a topographical feature and the Mountain View fan is within the Anchorage Plain.
75	2.5			The confined aquifer WATER TABLE is generally found AT ABOUT 80-100 FEET DEPTH within the central part of the cantonment area.	This information will be included in the revised, final document.
76	2.5			What is the source for information on the deep confined system? A gradient of .02 to .0025 ft/ft is presented without a reference.	The reference for this is: USACE. 1991. Groundwater Monitoring Network, Fort Richardson. This reference will be added to the final, revised document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
77	4.1.2			Burn Pit. Reports from former site workers indicate that PCB-containing transformer cooling oil WAS DUMPED ONTO THE GROUND AT THE TRANSFORMER OIL MOUNTING AREA FROM FOUR 750 kVA TRANSFORMERS IN 1982. THE OIL REPORTEDLY RAN THROUGH A SHALLOW TRENCH TO A SHALLOW PIT OR PRE-EXISTING DEPRESSION IN THE PARKING LOT SOUTH OF BUILDING 35-750 (FIG.)	This information will be included in the final document.
78	4.1.2			IN 1997, APPROXIMATELY THE TOP 3 FEET OF SOIL (1500 YD3) WAS REMOVED AND STOCKPILED FROM THE PARKING LOT SOUTH OF BUILDING 35-750 BEFORE CONSTRUCTION OF AN ASPHALT SURFACE (ENSR 2000-OUD ROD, PAGE 5-12). THE STOCKPILED SOIL WAS SAMPLED AND FOUND TO CONTAIN PCB'S. A geophysical study conducted in 2000 by CRREL REPORTED A DEPTH OF 2.6 FEET TO THE BASE OF THE DISTURBED SOIL BENEATH THE PARKING LOT IN THE VICINITY OF THE SUSPECTED BURN PIT AREA (Astley et al., 2000a). SOIL GREATER THAN 2.6 FEET BELOW THE ASPHALT SURFACE WAS DESCRIBED AS UNDISTURBED WITH THE EXCEPTION OF UTILITY TRENCHES. THE BURN PIT SURFACE WAS NOT DELINEATED, MOST LIKELY BECAUSE OF REGRADING AND SOIL REMOVAL PRIOR TO THE GEOPHYSICAL STUDY.	This information will be included in the final document.
79	4.1.4			The origin and fate of the PCB-contaminated parking lot soil that later became soil piles on site was not discussed in detail.	This information will be included in the final document.
80	5.3.2			Groundwater velocity should be changed to groundwater flow rate. A velocity implies both a rate and direction.	This will be completed as part of the edits to the revised, final document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
81	5.3.2			Explain how the estimated groundwater flow rate of 4.6 ft/day was calculated. Seems that the unconfined aquifer at AVMA vs. unconfined aquifer at 35-750 have different groundwater velocities and should have separate calculations. Because there isn't much water at the AVMA site within the shallow unconfined aquifer, ground water velocity may range from 0 to over 4.6 feet per day depending on the season. At 35-750, the unconfined aquifer flows year-round and contains more groundwater, so the velocity would is likely more consistent. This may be too much detail for this document, but at least show how the ground water flow rate was calculated.	This will be completed as part of the edits to the revised, final document. The calculations will be reviewed and revisions will be made as needed.
82	7.1			Check all instances of Building 35-752 to make sure the right number is used.	This will be completed as part of the edits to the revised, final document.
83	8			CRREL citations- please check to make sure you have the complete citation including report number and source (CRREL).	This will be completed as part of the edits to the revised, final document.
84	Table 1-1			AVMA AP-4341 was not developed completely. Could you try again in the spring/early summer when water levels come up? How does this affect the chemical data?	Noted and has been discussed in meetings.
85	Table 1-1			AVMA AP-4410 did not contain enough water for sample collection. In December, 2003, there was approx. 3.92 feet of water in the well during CRREL's December quarterly water level measurements. It is possible that this well only has a seasonal water table and could be sampled in the future.	Noted and has been discussed in meetings.
86	Table 4-4			Survey coordinates missing for several wells.	This will be completed as part of the edits to the revised, final document.
87	Table 4-7			AP-3871, change ground elevation (NAVD88) to 291.36	This will be completed as part of the edits to the revised, final document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
Reviewer: Bill Adams, U.S. Environmental Protection Agency					
88				The monitoring well system at Building 35-752 does not appear to have groundwater monitoring wells located directly downgradient of the building. In the opinion of EPA, well AP-3231, at the western corner of the building, may not be intercepting the most concentrated portion of the plume. Any additional wells located downgradient of this area should be identified in the report and the data summarized.	This has been discussed in recent meetings. CH2M HILL plans to include some of the available historical data from the Building 35-752 site to enhance the discussion of contamination issues there.
89				In addition, groundwater quality monitoring appears warranted downgradient of the Transformer Mounting and the Transformer Discharge Areas as well as Building 35-750 based on the number and concentrations of contaminants detected in the soil. It also appears that there is movement of the TCE plume from the Building 35-752 area downrange towards Building 35-750. While PCBs are not highly mobile in and of themselves the presence of PCE and TCE may have or be contributing to increased mobility through the on site soils raising the potential for these compounds to reach groundwater.	See previous response.
90				In the AVMA area the silt unit that separates the on site confined and unconfined aquifers is absent to the northwest of the release locations, which is the same direction as the unconfined aquifer flows. Where the silt is absent the contaminants can be expected to migrate to the deeper groundwater aquifer as they move with the regional groundwater gradients. Groundwater monitoring in both deep and shallow aquifers should be continued downgradient of the contaminant plumes in the area where the silt layer is absent to insure that the contaminant plumes are not migrating from the shallow to the deeper aquifer.	This has been discussed at meetings and it was agreed that adequate downgradient monitoring has taken place. The revised text will include additional information on the local hydrogeology.

Item	Section	Page	Para.	Comment	CH2M HILL Response
91				The as yet unidentified sources of the contamination at Building 32-752 and AVMA presents an impediment towards a comprehensive Feasibility Study. How will the data necessary to conduct FS be collected without further work to identify contaminant sources at these sites as proposed in the Conclusion Section of this report.	This will be addressed in the revised text.
92	3.1.3	Page 3-4	First Para.	In describing the development of the new wells this section of the text states that "...wells with extremely turbid water or high levels of suspended solids were not compatible with pumping and were therefore hand bailed.". Hand bailing will generally not result in adequate development for newly constructed monitoring wells; in the opinion of EPA, hand bailing can produce adverse results by increasing the suspended solids in fine grain formations. An effort to attempt to develop the wells that are producing the "high levels of suspended solids should be conducted so that these wells will produce groundwater of sufficient quantity and quality to perform as groundwater monitoring locations.	See previous response regarding the 1/29/04 FFA meeting where sampling procedures were discussed. The sampling methodologies, difficulties in well development, low yielding wells, and turbidity issues will be discussed in greater detail in the final report. Particularly with regard to how these factors affect the observed elevated metals concentrations.
93	3.1.3	Page 3-4	First Para.	For the fine silt and sand formations encountered while drilling the new monitoring wells, the 20-60 silica gravel pack may be too coarse and for future installations EPA suggests that this specification be changed to an option for at least a 20-40 gravel pack material or finer if the field conditions warrant.	That is noted for future well installations.

Item	Section	Page	Para.	Comment	CH2M HILL Response
94	4.1.5.4	Page 4-44	Last Para.	The text discusses the trend of contaminant concentrations in the vicinity of Building 35-752 as decreasing or static while concentrations are apparently increasing at downgradient well AP-3458. While there are daughter products present indicating degradation of TCE in the vicinity of Building 35-752 the conclusion these trends indicate "...degradation of the TCE plume in the general direction of regional groundwater flow. " does not address or discuss TCE plume migration. The improving groundwater quality at Building 35-752 is most likely due, in part to attenuation, but the increasing contaminant concentrations in the downgradient well suggests that the plume is moving in a downgradient direction away from Building 35-752. The text should include additional discussion of this trend, recognizing that the main body of the plume may be moving downrange and that the apparent improvement in groundwater quality at Building 35-752 may be due plume migration as well as attenuation.	The final document will include discussion of this possibility.
95	7.1.2	Page 7-4		Both the contaminant plumes of PCE at AVMA and TCE at Building 32-752 discussed in this section of the text and biodegradation is suggested as an adequate remediation strategy for these plumes. In the case of AVMA, however, no daughter products are present to indicate that biodegradation is occurring, while at Building 32-752 only localized areas of attenuation are occurring. Without data that indicates that the ratio of daughter products to contaminants is increasing over the extent of the plumes, that the plumes have reached stasis, and identification of the mechanism by which the reductive dechlorination is occurring, the conclusion that this process will continue until cleanup goals are met is not well supported.	The available data, including historical data at the Building 35-752 site will be reviewed in order to provide clarity to this comment.

Item	Section	Page	Para.	Comment	CH2M HILL Response
96	7.1.3	Page 7-4		This section presents the conclusions from the risk assessments. The section states "Risks to human health were not found in association with exposure to soils in OUE." This statement is misleading and should be revised. The soils in OUE were found to be within the target risk range (1x10-4 to 1x10-6) for many of the sites and scenarios. Thus, risks from soils do exist. The magnitude of the potential risk from soil for each site and scenario should be discussed in the conclusions.	The text will be revised to state that unacceptable risks to human health were not found…
Reviewer: Mark Prieksat, U.S. Army Directorate of Public Works					
97	1.2			Use text from 5-yr. Review.	Text from the five year review has been provided and will be included in the revised final version.
98	1.2			Data tables from the USGS (Glass, 1999) report, and text files from 5-Yr review and EIS are attached. Should be able to use some of that text in the intro sections.	See previous response.
99	1.2			Also provides a pretty good description of why we are looking at the two sites (transition from OUD to OUE).	See previous response.
100	1.4.1.3			Need to include information on construction of the parking lot and generation of the soil pile. Add info on soil pile!	This information will be incorporated into the revised, final document.
101	1.4.3.3			OUD? Bldg 45-590.	CH2M HILL will add another section on the investigation completed at Building 45-590 as part of the OUD RI.
102	2.3			Concentrate on a better description of the hydrology at AVMA. Tend to not discuss 35752 at all. [This comment followed Section 2.5 Hydrogeology.]	The hydrogeology section will be revised in the final document to address these comments.

Item	Section	Page	Para.	Comment	CH2M HILL Response
103	2.4			The following is an excerpt from an EIS recently developed for Army transformation in AK: The principal features transecting Fort Richardson are the Elmendorf moraine, the Mountain View alluvial fan, ground moraines, and Eagle River Flats tidal marsh. The Mountain View fan originates at the mouth of the Eagle River Valley. The fan slopes gently to the west-southwest and underlies most of the main cantonment area of Fort Richardson (Hunter et al., 1999). The fan is composed of outwash deposited by streams and floods that occurred when ice-dammed lakes in the Eagle River Valley drained. The main deposits of the Elmendorf moraine form a low lying ridge that tends to run east to west across the region immediately north of the main cantonment area of Fort Richardson. The Elmendorf moraine is an end moraine that was formed when the Matanuska-Knik lobe of the Naptowne glacier advanced from the northeast towards modern-day Anchorage.	Please see response to following comment. The information provided in this comment matches the information located by CH2M HILL and includes additional information that will be included in the revised text.
104	3			Need extended discussion of data quality!	A summary of the two Chemical Quality Assurance Report completed as part of this project will be included in the final document.
105	3.1.3			Address sampling procedures and why parameters don't appear to have stabilized prior to sampling.	This is an excerpt from the summary of the 1/29/04 FFA meeting: Sampling methodologies, particularly in wells with high turbidity values, were discussed. CH2M HILL provided the groundwater sample collection section from the QAPP that was used during the RI, where possible. The typical low yields observed in the shallow wells made proper development difficult and often required sample collection by bailer, rather than by pump. CH2M HILL will provide additional details about the sampling methodology in the final RI report.

Item	Section	Page	Para.	Comment	CH2M HILL Response
106	3.1.6			Did not sample this many wells for the RI.	Final document will contain additional text explaining that additional wells that were not sampled were surveyed as part of the RI effort.
107	3.2.1			Need to expand this section. QA/QC will be important!	A summary of the two CQARs completed as part of this project will be included in the final document.
108	4			Mark Prieksat crossed out "Area" [after Building 35-752] and wrote "Site"	This will be completed as part of the edits to the revised, final document.
109	4.1.5.1			Turbidity - need to address the issue and offer comparisons to filter sample data if available.	This will be addressed, possibly in a separate section, where the sampling methodologies, difficulties in well development, low yielding wells, and turbidity issues will be discussed in greater detail in the final report, Particularly with regard to how these factors affect the observed high metals concentrations.
110	4.1.5.1			Why weren't the samples filtered? High turbidity?	The collection of filtered samples for dissolved analysis was not in the management plan or the scope of work. Additionally, only total metals results can be used in a risk assessment.
111	4.1.5.1			Compare to background metals levels?	This is being pursued and will be presented in the beginning of the HHRA document and possibly at the end of the RI document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
112	4.2.2.4			In reference to arsenic levels in groundwater: USGS (Glass, 1999) reported that arsenic levels in groundwater from 69 previously sampled wells (not sampled during 1999 effort) on the northern Kenai Peninsula contained arsenic with a median conc. of 7 ug/l but had conc. as high as 94 ug/l (similar to 4338 and greater than 3896). Water from public supply wells on the Kenai Peninsula had concentrations of about 24 ug/l (similar to 4336 and 4337). Water samples collected from the Matanuska-Susitna area had arsenic conc. as high as 29 ug/l and water in Anch area contained arsenic conc. around 10 ug/l. Frenzel (2000) reported that arsenic, copper, chromium, and nickel appear in naturally large concentrations in streambed sediments in the Cook Inlet Basin. This would include the Mountain View fan (Eagle River outwash) underlying the AVMA site and the Ship Creek drainage at the 35752 site. The following is an excerpt from an EIS recently developed for Army transformation in AK:	This information, along with the background data information from Elmendorf has been compiled in a database and will be compared to the values observed at OUE.
113	4.2.3.1			Metals should be considered background-compare to USGS GW studies in the Anch Basin.	This information, along with the background data information from Elmendorf has been compiled in a database and will be compared to the values observed at OUE.
114	5.4.2.1			[Paragraph] What would be a source for arsenic? Nothing identified at AVMA or elsewhere. This suggests it is naturally occurring. We have also seen arsenic values much higher than those seen in the background study. Suggest we compare to the USGS data for the Anchorage Basin.	This information, along with the background data information from Elmendorf has been compiled in a database and will be compared to the values observed at OUE.
115	6.1.1			Wells 2987 and 3458 are listed in section 6.1.1 (also in the risk assessment) as containing groundwater with high manganese levels, but section 4.1.5.1 (6th paragraph) indicated that samples from wells 2982 and 3458 contained high manganese. Check the well numbers.	The well numbers are 2987 and 3458. Section 4.1.51 will be corrected.

Item	Section	Page	Para.	Comment	CH2M HILL Response
116	6.1.1			Background and should be eliminated. Re: The primary contributors to risk (chemicals with ELCR greater than 10-6) at these 8 monitoring wells]	This information, along with the background data information from Elmendorf has been compiled in a database and will be compared to the values observed at OUE.
117	7.1.3			Conclusions: Need to indicate that under current and reasonably anticipated land use (industrial) that there are no risks associated with either site. Only have risk for groundwater under hypothetical residential land use at AVMA. Need to sum up in context of the land use assumptions made in the document. Indicate that current land use is controlled through the Master Planning process and that future residential use of the OUE land is not reasonable. Neither site fits the criteria for residential land use as outlined in Army Regulation 210-20 (AR-210-20). Only way that residential land use would be considered, would be under base realignment and closure (BRAC) and each site would undergo additional evaluation as part of the BRAC process.	This text will be included in the conclusions. This discussion is also provided in the FS, which is currently under review.
118	8			Reference for the USGS doc: Ground-Water Quality in the Cook Inlet Basin, AK 1999, Water-Resources Investigations Report 01-4208, National Water-Quality Assessment Program, Roy Glass (USGS), 1999. Report published in 2001.	This will be included in the final document.
Reviewer: Cristal Fosbrook, U.S. Army Directorate of Public Works					
119	1.3			Total land and cantonment area. Use FFA lang.	Will revise accordingly.
120	1.3			Acres [instead of square miles]	Will revise accordingly.
121	2.1			Closest drinking water-->	CH2M HILL will include this information in the final report.
122	2.5			How about the others? [besides the 7 wells installed during 2003]	The hydrogeology section will be revised in the final document to address these comments.
123	3			Delete from "under Mod..." to end of sentence.	The references to the different modifications of the contract will be removed in the final version.
124	3.1.2			What range >10, >1000	See previous response.

Item	Section	Page	Para.	Comment	CH2M HILL Response
125	4			These do not apply. Re: Alaska Water Quality Standards for groundwater	The Alaska standards were used as screening values for GRO, DRO, and RRO constituents as no other criteria are available for those constituents.
126	2.5			The drinking water source for Fort Richardson is Ship Creek. (Section 2.5). "A deep aquifer serves as a secondary source for the Municipality of Anchorage, Elmendorf AFB, and Fort Richardson when there is low stream flow." "One shallow and one deep groundwater system have been identified in the area of Fort Richardson...". The location of the aforementioned drinking water sources must be discussed in detail to determine whether or not there are completed pathways to receptors for site contaminants found in groundwater, i.e. define the location of the aquifers used for a secondary potable source with respect to the sampled groundwater at Bldg. 35-752.	See previous response. These two comments are related and the revised, final document will reflect these changes.

Item	Section	Page	Para.	Comment	CH2M HILL Response
127	6.1.1			The following are comments and discussion on the AVMA site. A review of the well purge and sampling field sheets in Appendix F reveal that very few monitoring wells have acceptable turbidity levels for accurate analysis of chemical constituents. Section 3.1.3 of the RI stated that, "wells with extremely turbid water or high levels of suspended solids were not compatible with pumping and therefore were hand bailed". Based on the Table ES-4, the wells that have large HI numbers are wells that have metals as the primary contributors to the HI. The review of the well purge and sampling field sheets in Appendix F are wells with the very high turbidity levels. Proper implementation of low flow sampling with in-line water quality parameter monitoring, will assist in collecting groundwater samples that have stable parameters and low levels of turbidity. Additional low flow sampling should be conducted to attempt to reduce the amount of suspended solids then re-run the risk calculations with the new results. If low flow sampling cannot be implemented to reduce turbidity levels, then filtered samples should be collected and analyzed. In Section 6.1.2 of the RI, it's stated that, "due to the presence of naturally occurring levels of metals and the groundwater sample turbidity that could bias groundwater concentrations, the measured levels of metals in groundwater are believed to be unrelated to site releases". If the metals are background, then they should have been screened out and not included in the risk calculations, which drove the HI's for groundwater at the AVMA.	This is going to be addressed, possibly in a separate section, where the sampling methodologies, difficulties in well development, low yielding wells, and turbidity issues will be discussed in greater detail in the final report, Particularly with regard to how these factors affect the observed high metals concentrations.

Item	Section	Page	Para.	Comment	CH2M HILL Response
128	7			Section 3.1.2 of the HHRA mentions that, "there are no wells serving as sources of potable water in the vicinity of Bldg. 35-752. In addition, it is stated that, "groundwater at OUE is unlikely to be used for drinking water purposes...turbidity levels seen in this zone during the RI sampling were very high (greater than 100 NTUs), making this water non-potable." Does the sampled groundwater at Bldg. 35-752 achieve the water quality criteria for suspended solids for a potable source? Figure 3-1 depicts the hypothetical future resident as a potential receptor for groundwater. Yet, the statement has already been made that groundwater is too turbid for potable use, thereby eliminating groundwater as a source. In addition, there are no current or predicted future drinking water wells at Bldg. 35-752, thereby eliminating a pathway. Furthermore, Section 3.1.3.3 of the HHRA states that "it is unlikely residents will live at OUE in the future, thereby eliminating a receptor. For an unacceptable risk to be present there must be a source, pathway, and receptor. The absence of a source, pathway, or receptor precludes the presence of an unacceptable risk. For Bldg. 35-752 there is no current or predicted future source, pathway or receptor for groundwater. In conclusion, there is not an unacceptable risk from groundwater that would require the Army to take a remedial action. What are the definitions of an aquifer and potable groundwater pursuant to Alaska regulations? Does the impacted groundwater meet those definitions?	As discussed in meetings, it appears unlikely that the groundwater at OUE could be regulatorily designated non-potable. This issue will be addressed as discussed in previous comments. More detail will be provided on the sampling methodologies and hydrogeological characteristics. Background metals concentrations will also be compared to those observed in OUE wells.

Item	Section	Page	Para.	Comment	CH2M HILL Response
129	7.2.1			Based on the information provided in Section 6.1.1, the soils at building 35-752 are within or below the regulatory risk target risk range of 1 X 10-4 to 1 X 10-6. Based on the information provided in Section 6.2.1.1 to 6.2.1.3 of the RI, risk is not discussed in terms of acceptable or unacceptable. The text in the report refers to risk as: no risk; no significant risk; risk is unlikely to be significant, risk is considered low. Following CERCLA guidance, a remedy is not required for sites already protective of human health and the environment. Since no unacceptable risks to human health and the environment from soils at Bldg. 35-752 have been identified, a remedy is not required. Under CERCLA, compliance with ARARs is only triggered when a remedy is implemented resulting from an unacceptable risk and not based on the initiation of the CERCLA process. Since there are no unacceptable risks from soils that require a remedy under CERCLA, then compliance with ARARs is not a requirement. Therefore, soils at Bldg. 35-752 do not require a remedial action objective and should be deleted from the RI. There should be a decision of no further action for soils at Bldg. 35-752.	The RAOs will be removed from the final document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
130	7.2.2			In conclusion, the remedial action objective for groundwater at the AVMA site is premature. The RI does not define the groundwater with respect to the State's criteria of being an aquifer for potable use. The amount of suspended solids, in the majority of the samples, may not achieve the criteria for potable groundwater. An analysis of the Alaska ground water quality criteria for suspended solids should be conducted. In addition, the sampling techniques need to be re-evaluated to assist in the collection of less turbid samples. As mentioned above, the wells that have large HI numbers are wells that have metals as the primary contributors to the HI. The review of the well purge and sampling field sheets in Appendix F are wells with the very high turbidity levels. Another round of sampling using improved low flow technique and or the use of filtered samples to reduce turbidity should be conducted. The sample results should see lower levels of contaminants that may have been bound up in particulates in the previous sampling efforts. It is further recommended to re-run the risk calculations using the improved low sampling or filtered sampling results, should those results yield dramatic changes in concentrations.	The RAOs for groundwater will be removed from the final version of the document. As stated in previous responses, the issues raised in this comment will be addressed in the final document.

Item	Section	Page	Para.	Comment	CH2M HILL Response
131	7.2.2			The second half of the groundwater remedial action objective for Bldg. 35-752 is to minimize the potential offsite migration of contaminated GW. Based on a review of the VOC data for the sampled wells (Table A-20), the majority of the analytes were non detect. There were 38 highlighted values in Table A-20 that show a detection above the PRG for tap water. Out of those 38 values, 28 of them (or 73.68%) were a "J" or estimated value. The detected values should be compared to the State drinking water standards, not PRGs for tap water and decisions to evaluate risk and compliance with promulgated standards should be performed with data that has a higher level of confidence than estimated values. The RI does not present any data to suggest that groundwater with contaminants from operations at Bldg 35-752 has migrated to off the installation. Given the values of the detected compounds and the distance groundwater has to travel to get off-post, the likelihood of an unacceptable risk occurring or exceedance of the State groundwater standards from contaminants originating at Bldg. 35-752 are very low.	As stated in a previous response, the RAOs will be removed from the final document.

REVIEW COMMENTS AND DRAFT RESPONSES
Draft Human Health Risk Assessment Report for Operable Unit E
Fort Richardson, Alaska
Reviewers: All Reviewers as of February 4, 2004

HUMAN HEALTH RISK ASSESSMENT REPORT

Item	Section	Page	Para.	Comment	CH2M HILL Response
Figures					
1	Figure 1-1			Please identify the OUE area on the map.	Figure revisions will address this comment.
2	Figure 2-3			If you refer to laundry and motor pool facilities in the text (pages 3-3 and 3-7), please mark their locations on the figure. Note: previous comment suggest the references to the locations be removed.	Figure revisions will address this comment.
Tables					
3	Tables			Aroclor is used in the text whereas Arochlor is used throughout the tables. Please choose one.	The appropriate term Aroclor will be used throughout.
4	Table 2-1			Please explain the significance of highlighting the various xylene species.	The highlighting will be removed.
5	Tables 2-1 and 2-2			Is anything in the table marked with "a." as explained in the notes? I was unable to locate anything marked "a."	The footnote will be removed.
6	Table 4-2			Please update the notes to include information from Table 4-1 and to define all abbreviations and symbols.	The suggested revisions will be made.
Reviewer: Beth Astley, Cold Regions Research and Engineering Laboratory					
7	Figure 1-1			Figure does not show location of OUE as stated in caption.	Figure revisions will address this comment.
8	Figure 2-2			Add blue triangles and purple squares, dashed lines (are these buried cables or roads?) to the legend.	Figure revisions will address this comment.
9	Figure 2-3			Change location of wells with incorrect locations listed under general comments #3.	Figure revisions will address this comment.
10	Figure 2-3			Pan map to the left slightly so it touches the border.	Figure revisions will address this comment.
11	Figure 2-3			Existing and new monitoring well symbols are difficult to differentiate. Change the color or shape of one of them.	Figure revisions will address this comment.

Item	Section	Page	Para.	Comment	CH2M HILL Response
12	3.1.2			Define Anchorage Plain deposits. What are they composed of? Where do they occur within Fort Richardson? How do they differ from the Mountain View Fan deposits discussed in the previous section?	The HHRA will be revised to point the reader to a more detailed discussion of regional hydrogeology, presented in Section 2 of the RI Report.
13	3.1.2			The statement that says that unconfined groundwater within the Anchorage Plain deposits occurs between 10 to 20 feet bgs and groundwater flow tends to be westerly toward Ship Creek is probably referring to an area on Elmendorf close to Ship Creek. Unconfined ground water theoretically flows away from Ship Creek everywhere on Ft. Rich (it's a losing stream) and the depth to groundwater is generally deeper than 10 to 20 feet except for wells within a few hundred meters of Ship Creek (including 35-752). A good reference for this section would be the recently published USARAK EIS that explains groundwater conditions on FRA. If you don't have a copy, you can get one from DPW.	The hydrogeology section in the RI Report will be revised in the final document to address comments received on that document. The revised section will be included in the final ERA Report.
Reviewer: Bill Adams, U.S. Environmental Protection Agency					
14				The baseline Human Health Risk Assessment (HHRA) dismisses the potential risk from metals at the site because of "naturally occurring levels." However, the report does not present the naturally occurring or background levels of metals in either soil or groundwater. The accepted background concentrations for the site should be provided. The background concentrations should then be used as a screening step in the criteria for the selection of contaminants of potential concern (COPCs). Without presentation of accepted background concentrations for the site, it is not possible to determine whether the levels of metals detected in site samples can be attributed to site contamination or are truly naturally occurring.	The background concentration for metals in soil are provided in Tables 2-8 through 2-11 of the ERA. Site-specific metals concentrations were carried through the HHRA calculations, and none were found to be significant contributors to unacceptable risk. Therefore, using background to remove COPCs would have inconsequential effects on the HHRA conclusions. For groundwater, the USGS and Elmendorf AFB background metals reports will be evaluated and considered for use in interpretation of the risk assessment results, as discussed at the 1/29/04 and 2/27/04 meetings. MAY NEED TO REVISE BASED ON LAST CONF CALL

Item	Section	Page	Para.	Comment	CH2M HILL Response
15				The report defines surface soil as zero to 0.5 feet below ground surface (bgs) and subsurface soil as zero to 10 feet bgs. However, review of Tables A-1 and A-2 in Appendix A indicate that samples collected from other depths than the defined depths were used in the risk assessment. Only samples collected from the defined depths should be used in the HHRA.	The report will be changed to note that any sample interval that included soil from 10 ft bgs (from anywhere within the sample interval) was included in the HHRA calculations.
16				The conceptual site model does not include consideration of a current off-site residential scenario. The report indicates on Page ES-2 that housing currently exists 0.5 miles from Operable Unit E. A rationale for not including this scenario should be provided.	Since any offsite residents that access the site would be considered trespassers, these receptors are addressed in the trespasser scenario.
17				The conceptual site model for Building 35-752 does not include potential incidental exposure to shallow groundwater by the future industrial worker during excavation. The description of the groundwater depth of 5 to 20 feet bgs in the Building 35-752 area indicates that this pathway should be considered. This pathway should be added to the conceptual site model for Building 35-752 or a rationale for not including this pathway should be discussed in the report.	As discussed at the 1/29/04 Review Meeting, significant exposure to water accumulating in an excavation trench is unlikely, since any water in a trench would be pumped out in accordance with standard practice for these activities at Ft Richardson. Also, unauthorized excavations are not reasonably likely.
18				The conceptual site model for Building 35-752 does not include potential exposure to volatile organic compounds (VOCs) in shallow groundwater through inhalation from infiltration through foundations into living areas (basements) in the residential scenario. The description of the groundwater depth of 5 to 20 feet bgs in the Building 35-752 area indicates that this pathway should be considered. This pathway should be added to the conceptual site model for the residential scenario for Building 35-752 or a rationale for not including this pathway should be included.	In accordance with early planning discussions, the same exposure pathways accepted and evaluated at OUD were considered for the conceptual site model for OUE and provided in the *Human Health Risk Assessment Approach Document for Operable Unit E* (CH2M HILL September 2003). This document was reviewed by EPA prior to completing the HHRA.

Item	Section	Page	Para.	Comment	CH2M HILL Response
19				The conceptual site models for Building 35-752 and the Armored Vehicle Maintenance Area (AVMA) do not include potential incidental exposure to subsurface soil by a future resident. Occasional incidental exposure during excavation is possible and this pathway should be considered. The subsurface soil pathway should be added to the conceptual site models for future residents for Building 35-752 and AVMA or a rationale for not including this pathway should be included.	In accordance with EPA risk assessment guidance (RAGS), residential exposure would be limited to surface soil (i.e., the top 6 inches of soil), therefore deeper soil exposures for hypothetical future residents are not listed in the conceptual site models. Deeper soil exposures are addressed as part of the excavation worker scenario. This scenario assumes an incidental ingestion rate considerably higher than the assumed residential ingestion rate.
20				The HHRA does not present the combined risk from exposure to soil and groundwater for the residential scenario. The risks from all media should be added and presented to facilitate decision making by risk managers.	See response to Comment 8
21				The HHRA presents the risk from groundwater on a well by well basis. The results from the wells should be added to the soil results from the appropriate exposure areas to facilitate decision making by risk managers. Furthermore, it would be helpful in the case of "entire area" for Building 35-752 and the AVMA if statistical exposure point concentrations were calculated for groundwater contaminants and used to calculate risk from groundwater exposure.	Groundwater risks were estimated on a well-specific basis by assuming that each well point could serve as a potential exposure point in the future. Since only a hypothetical future residential scenario was considered for groundwater, any summing of groundwater with soil risks would be limited to this scenario. If a potentially exposed individual (i.e., in this case a hypothetical future resident) was exposed to sitewide soil at the Building 35-752 Area and at the same time consumed water from a specific well point in that area, the combined ELCR and HI could be estimated. The HHRA will be revised to include combined risk estimates for both Building 25-752 and AVMA.

Item	Section	Page	Para.	Comment	CH2M HILL Response
22				The sediment samples collected from the drained cooling ponds were not included in the HHRA. Because the cooling ponds have been drained (as indicated in the ecological risk assessment), the sediment samples should be included as surface soil samples in the HHRA as they are representative of the surface soil in the cooling ponds area.	The HHRA will be revised to include the sediment samples.
23				The exposure to dust generation should properly be grouped with exposure to surface soil in the conceptual site models.	The conceptual site models separate individual pathways according to mechanism of release. Therefore, dust generation through wind is listed separately from direct contact pathways associated with surface soil. Dust inhalation exposure was considered for both surface soil (i.e., for surface receptors) and subsurface soil (i.e., for excavation workers).
24	2.1.1.1	Page 2-2 and Fig 2-2		Section 2.1.1.1, Page 2-2 and Figure 2-2. This section and figure present the soil sampling locations for the Building 35-752 area. The text in Section 2.1.1.1 repeatedly refers the reader to Figure 2-2 but the figure does not present all the information the text indicates it should. For example, the text discussing the Cooling Pond, Former Drum Accumulation Area, and the Former Tank Location all refer to Figure 2-2, but are none of these sites are shown on the figure. In addition, the number of samples indicated in the text for each exposure are less than the number shown on the figure for each area. Figure 2-2 should be revised to be consistent with the text in Section 2.1.1.1 (assuming the text is correct) and only those sample locations used in the HHRA should be indicated on the figure.	Figure revisions will address this comment.
25	Figure 2-2	Page 2-2 and Fig 2-2		The figure does not include the location of the six surface soil samples collected for Building 35-752. All sample locations should be included.	Figure revisions will address this comment.

Item	Section	Page	Para.	Comment	CH2M HILL Response
26	2.1.2.2, Figure 2-3, and Appendix A, Tables A-6 and A-28.	Page 2-9		Section 2.1.2.2, Page 2-9, Figure 2-3, and Appendix A, Tables A-6 and A-28. This section describes the groundwater sample locations in the AVMA. The section indicates that 34 wells were sampled. Figure 2-3 shows 39 sampling identifications at 31 locations. Table A-6 shows 38 sample identifications and Table A-28 indicates that 37 groundwater samples were collected in the AVMA. The number of samples should be clarified and made consistent throughout the report. Furthermore, Table A-6 includes four samples collected from greater than 81 feet bgs, the remainder of the results do not include the sample depth. The conceptual site model includes potential exposure to shallow groundwater. Shallow groundwater should be defined and only those samples representative of the definition should be used in the risk assessment. Alternatively, the description of the conceptual site model could be revised to remove the reference to shallow groundwater.	Figure revisions will address this comment.
27	Table A-2, Appendix A.			Samples from sample location AP-3504 are included in the Building 35-752 exposure area. Figure 2-2 shows this sample location adjacent to the Burn Pit Area and the Periphery Road, but not adjacent to Building 35-752. The location of this sample should be verified. Based on the verified sample location, grouping the sample in the Burn Pit Area or Periphery Road exposure units should be considered.	Figure revisions will address this comment.

Item	Section	Page	Para.	Comment	CH2M HILL Response
Reviewer: Jeffrey Leach, **USACHPMP**					
28	3.1.3.3	Page 3-8		Hypothetical Future Residential Scenario Comment: The text in this section calls into question the validity of this scenario for the purposes of risk assessment. The argument is made that it is unlikely residents will live in the area in the future due to some existing radio towers that will continue to be used. However, the future residential pathway is included because future residents could potentially gain access to the site. While this is true, it would be more applicable to evaluate this as a future trespasser scenario. It certainly does not justify evaluating the groundwater pathways since it is unlikely that any future trespassers are going to drill a drinking water well on the site. Recommendation: Please revise or remove this pathway from the risk assessment.	Text will be added to note that the trespasser scenario is intended to address the possibility that nearby residents could gain unauthorized access to the site. As stated in Section 3.1.3, the hypothetical future residential scenario was considered as a conservative estimate for site decision making in the HHRA, as requested by EPA during the planning phase. The text states that "the results from evaluation of this scenario will provide a frame of reference to indicate the potential significance of future land-use changes, if any."
29	Table 3-1			Summary of Exposure Assumptions for Soil Risk Assessment. Comment: The exposure frequency for the resident is given as 200 days per year due to climate conditions (i.e., the soil would be frozen and unavailable for contact). Using this logic, it seems that the frequency for the industrial scenario would be limited to this number of days as well. In addition, the ingestion rate for the onsite excavation worker should be revised to 330 mg/day per the latest EPA soil screening guidance. Recommendation: Please revise the assumptions.	Agree. However, inclusion of these assumptions into the risk calculations will not affect the conclusions of the HHRA, since risk estimates will be lower than currently reported.
30	3.2.5	Page 3-13		Onsite Excavation Worker. Comment: The source of the 6.6 year exposure duration for onsite excavation workers should reference the Exposure Factors Handbook Volume 3, Activity Factors instead of Volume 1, General Factors. Recommendation: Please correct.	Agree. A correction will be made.

Item	Section	Page	Para.	Comment	CH2M HILL Response
31	Table 5-6			Summary of Risk Estimates for Residential Groundwater. Comment: Several of the results listed in this table are somewhat atypical and raise questions about the accuracy of the risk calculations. For all of the wells listed in this table, any unacceptable findings are attributed to non-cancer effects while the cancer risk estimates are within acceptable ranges. It is unusual to have elevated non cancer hazard quotients and not have an associated elevated cancer risk. In addition, the inhalation and dermal hazard quotients are considerably greater than the ingestion hazard in several instances. While not impossible, it seems unlikely that the inhalation and dermal hazard due to showering would be greater than the hazard due to drinking the water on a daily basis. Finally, the formatting of the table should be revised for clarity. In its current format, it gives the impression that manganese is contributing 24% of the HI for inhalation at AP 2987. Recommendation: Please review risk quantification and verify that all calculations were carried out correctly.	The well points where HI estimates are more elevated than corresponding cancer risks are being influenced by noncancer constituents that occur at relatively high concentrations. The list of primary contributors indicates which chemicals these are. For the inorganics (e.g., manganese in AP-2987), much of the elevated HI is due to the potential influence from suspended particulates in the unfiltered samples, as mentioned in the uncertainties section. In most cases where the inhalation pathway risks dominate, the COPCs have more stringent toxicity factors via inhalation versus via the ingestion route. For example, the oral RfD for 1,2,4-trimethylbenzene is 0.05 mg/kg-d, versus 0.0017 mg/kg-d for the inhalation RfD. The risk calculations will be double-checked. Table 5-6 will be revised to clarify that the risk contributors refer to the total risk, rather than to route-specific risks.
32	7	Page 7-1		Conclusions and Recommendations. Comment: Several of the wells at the building 35-752 area had elevated hazard quotients that were primarily attributed to 1,2,4 and 1,3,5-trimethylbenzene. These two compounds were specifically noted in the uncertainty section as having provisional toxicity reference values only. As such, there is a high degree of uncertainty associated with these findings. In addition, no attempt was made to further refine the risk estimates by segregating them according to target organs. Including this step could alter the outcome of the risk assessment. Recommendation: Please revise the risk assessment accordingly.	Agree, regarding the added uncertainty for trimethylbenzenes. The hazard quotients listed in the right column of Table 5-6 indicate where there were exceedances of 1.0 for individual HI-contributors. Since individual HQs were greater than 1, segregating by target organ would not provide added benefit. There were no cases where HI exceeded 1, but no HQ exceeded 1.

Item	Section	Page	Para.	Comment	CH2M HILL Response
Reviewer: AEC					
33	3.2			Section 3.2 (Human Exposure Assumptions) states that, "site-specific scenarios are consistent with the current and reasonably anticipated land uses". Section 3.2.4 states that, "hypothetical adult and child residents could potentially be exposed to site-related constituents in groundwater through ingestion, dermal contact, and inhalation of volatiles during showering or other household activities". However, it was stated earlier in the report and mentioned above that there currently is no pathway for the OUE groundwater and that it is unlikely residents will live in OUE in the future. Therefore, the statement in Section 3.2 that site-specific scenarios are consistent with the current and reasonably anticipated land uses, is not an accurate or correct statement.	See response to Item 1. The hypothetical residential scenario is not considered a site-specific scenario. Rather the text notes in Section 3.1.3 that the hypothetical future residential scenario was considered to "provide a frame of reference to indicate the potential significance of future land-use changes, if any", as requested by EPA during the planning phase.
34	7.1			Section 7.0 states, " for groundwater at the Building 35-752 area, none of the constituent concentrations in the seven wells evaluated results in ELCR estimates that exceed the regulatory threshold of 1 X 10?6 to 1 X 10?4." Section 7.0 continues to state that, "the HI at three of these wells (AP-2982, AP-2987, and 3458) exceed the regulatory threshold value of 1.0". A HI is not an indicator of an unacceptable risk and is not the appropriate decision criteria to determine the need for remedial action. Pursuant to 18 AAC 70.025 Human health risk levels for carcinogenic substances, "to protect human health, the department adopts water quality criteria for a carcinogenic substance, the criteria will be based on a lifetime incremental cancer risk level of 1 in 100,000 for exposed individuals. Further review of the Alaska Administrative Code has identified the following: Chapter 70 Groundwater Quality Standards, Article 1 Statewide Standards	In accordance with EPA guidance in *Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions* OSWER Directive 9355.0-30 (EPA 1991), when the carcinogenic risk is <10-4 and the noncarcinogenic HI is < 1, action is generally not warranted. Thus, both the cancer risk and noncancer hazard are used for site decision-making.

Item	Section	Page	Para.	Comment	CH2M HILL Response
				(a) Except as provided in (b) of this section (18 AAC 70.005. Non-applicability of groundwater provisions), the provisions of this chapter that are applicable to groundwater do not apply to a response, a cleanup, or a corrective action approved by (1) the department under 18 AAC 60.440, 18 AAC 60.860, 18 AAC 75, or 18 AAC 78, except as this chapter is specifically made applicable by 18 AAC 60, 18 AAC 75, or 18 AAC 78; or (2) the United States Environmental Protection Agency (EPA) under 42 U.S.C. 9601 - 9675 (Comprehensive Environmental Response, Compensation, and Liability Act of 1980) or 42 U.S.C. 6901 - 6992k (Solid Waste Disposal Act, as amended by the Resource Conservation Recovery Act), if the response, cleanup, or corrective action meets, at a minimum, the site cleanup rules at 18 AAC 75.325 - 18 AAC 75.390. The above reference would appear to allow for risk-based strategy to remedial actions. Risk should be defined as acceptable or unacceptable. In addition, a HI above 1.0 is not an indicator of unacceptable risk, rather it suggest further site-specific investigation and analysis. Based on information provided in the RI, a re-evaluation on source, pathway, and receptors should be conducted to accurately state whether not an unacceptable risk to groundwater is present that would require a remedy. A thorough legal review by USAEC house counsel is recommended to verify the assessment of legal and risk drivers presented above is correct.	
Reviewer: Melissa Markel, U.S. Army Corps of Engineers					
35				The report is well-organized and well-written.	

Item	Section	Page	Para.	Comment	CH2M HILL Response
36				USEPA specifies that ELCRs and HIs are to be presented with one significant digit only (RAGS, Vol. 1, Part A, Chapter 8). ELCRs and HIs in this document are consistently presented with two significant digits. Please correct to comply with USEPA guidance.	The main text will be revised to report ELCR and HI estimates as one significant figure.
37				Reference is made throughout the document to naturally high background levels of metals in groundwater, but no supporting data are offered. Data were presented to support that high metals levels in groundwater were due to turbidity in unfiltered samples. If you are unable to support high background levels with local or regional data, please revise the text to highlight the theory your data can support.	For groundwater, the USGS and Elmendorf AFB background metals reports will be evaluated and considered for use in interpretation of the risk assessment results, as discussed at the 1/29/04 and 2/27/04 Review Meetings.
38				Units – The risk documents use meters, and miles for distances and feet and inches for depths. The RI uses feet and miles for distance and inches / feet for depth. Coordinate units between documents.	The reports have been written using standard conventions for the different work tasks. Where possible, units will be coordinated in the final reports.
39		Page ES-1		Accumulation "Area", and Mounting "Area" for consistency.	The suggested revisions will be made.
40		Page ES-3		Edit first bullet.	The suggested revision will be made.
41	Table ES-Tables			Could these tables be formatted "portrait" and left justified the last two columns of text?	The suggested revisions will be made.
42	2.1	Page 2-1		Please define data qualifier flags in the abbreviations list.	The suggested revisions will be made.
43	2.1	Page 2-1		The text discusses duplicate sample data evaluation, specifying that the higher of the primary and duplicate results will be used. Tables A-1 and A-2 present sample IDs used in the risk assessment, but some of these IDs have an "-AVG" suffix. The suffix is not defined, but it implies that the sample results are averaged. Were sample results averaged? Primary and duplicate results? Please clarify.	The text will be changed to indicate that if there were two detections in duplicate analyses, the average of the two concentrations was used.

Item	Section	Page	Para.	Comment	CH2M HILL Response
44	2.1.2.1 and 2.1.2.2	Page 2-9		Please provide more detailed rationale for using only the last two rounds of groundwater sampling data instead of all groundwater data. Were significantly different concentrations detected in previous sampling events? Were analytes detected previously that were not detected in 2002/2003?	In concurrence with early planning discussions with EPA, data from the last 2 years of sampling were used to provide the most current representation of exposure and risk at OUE. Elevated concentrations in much of the earlier data are no longer present, and the reported detection limits were considerably higher than for more recent data. Use of these older data would have introduced unnecessary bias in the risk estimates.
45	2.2.1.1	Page 2-11		Please correct "p.p'-DDD" to read "p,p'-DDD".	The suggested revision will be made.
46	2.2.3	Page 2-13		Please state explicitly that TPH was not included in the risk assessment and include text (as at bottom of page 4-2) explaining that components of TPH are included as they were detected by other analytical methods.	The suggested revisions will be made.
47	2.2.3	Page 2-13		Is TPH being defined in this report as the sum of DRO RRO and GRO. Is that the same value as would result from TPH analysis by EPA 1664 or 8015B?	TPH in this report is being used generically to refer to fuel mixtures such as GRO, DRO, and RRO. The purpose of Section 2.2.3 is to indicate that quantitative risk evaluation was not conducted for these specific contaminants.
48	Table 2-1			Groupings of 2 or 3 lines (with every other group shaded would make this table usable.	The table will be revised to enhance reading clarity.
49	3.1.1	Page 3-2		The second sentence in the first paragraph is redundant. Please revise to read "Future land-use considerations include potential closure of Fort Richardson, with…."	The suggested revision will be made.
50	3.1.1	Page 3-2		Also, the fourth sentence would be less wordy as "…deemed unsuitable for agricultural use." Deemed by whom? Please provide a reference.	The suggested revision will be made.

Item	Section	Page	Para.	Comment	CH2M HILL Response
51	3.1.2	Page 3-2		Please add text to explain how far the sites are from Ship Creek; whether the sites are upgradient, downgradient, or cross-gradient to the creek; and whether Ship Creek is a gaining or losing stream (i.e., could groundwater contamination at the site find its way into Ship Creek?).	The suggested revisions will be made.
52	3.1.2	Page 3-3		Bootlegger "Cover" should be "Cove". Please correct.	This typo will be corrected.
53	3.1.3.1	Page 3-7		Remove the speculation regarding sources.	Per discussions in meetings, the possible sources will be discussed in order to evaluate some of the observed contaminants.
54	3.1.3.2	Page 3-7		"All of these sources . ." implies known sources, perhaps a more theoretical statement should start this section.	The text will be replaced with "It is possible that both known and unknown sources may have discharged…"
55	Table 3-1 and 3-2			Larger text and some dividing lines please.	The tables will be revised to enhance reading clarity.
56	5.1	Page 5-1		Please remove the sentence "Any actual risks are likely to be lower than these estimates." Alternatively, add text to explain why (see "upper bound estimates" discussion in USEPA RAGS Vol. I A, 1989, page 8-6).	The suggested revisions will be made.
57	5.1	Page 5-1		Also, delete "EPA and the COE with".	The suggested revision will be made.
58	5.1	Page 5-1		Also, please add a sentence at the end of the paragraph telling the reader that uncertainty is addressed in detail in Section 6.	The suggested revision will be made.
59	Table 5-1			Could these tables be formatted "portrait" and left justified the last two columns of text? Apply to similar tables throughout.	The tables will be revised to enhance reading clarity.
60	Table 5-7			Format error.	The table will be revised.
61	5.1	Page 5-1		First bullet: please cite which regulatory agencies use the "'point of departure' range of 10-6 to 10-4" and cite the reference.	Text will be added to indicate that these are EPA's target risks, and the reference (EPA 1991c) will be added.
62		Page 5-20		Fourth bullet: Please revise or remove the discussion of manganese (see Item 3 above).	See response to Item 3.

Item	Section	Page	Para.	Comment	CH2M HILL Response
63		Pages 5-11 to 5-17		Accumulation "Area", and Mounting "Area" for consistency.	The suggested revisions will be made.
64	5.3.1.1			Please correct exponent text to superscript format.	The suggested revisions will be made.
65		Page 6-5		Note that soil background metals data are presented in the OU E Draft Ecological Risk Assessment Report. Only groundwater background data are lacking.	The following text will be added: "The background concentrations for metals in soil are provided in Tables 2-8 through 2-11 of the ERA."

REVIEW COMMENTS AND DRAFT RESPONSES
Draft Ecological Risk Assessment Report for Operable Unit E
Fort Richardson, Alaska
Reviewers: All Reviewers as of February 4, 2004

Item	Section	Page	Para.	Comment	CH2M HILL Response
Reviewer: Bill Adams, U.S. Environmental Protection Agency					
1				The risk to the Bald Eagle and the Coyote is underestimated. Bioaccumulation factors play a pivotal role in ecological risk calculations. The bioaccumulation factors used to calculate the small mammal tissue concentration underestimate the prey tissue concentration and need to be revised. The model used to predict the organic chemical bioaccumulation factors (BAFs) only estimates the chemical transfer from vegetation to mammal and does not include the chemical transfer from soil to mammal. For example, as presented in Table 4-3, the acetone BAF is 2.359 and the DDT BAF is 0.24 thus indicating that acetone is expected to bioconcentrate into muscle significantly more (an order of magnitude) than DDT. These numbers do not make logical sense. The model used in the ecological risk assessment is a model to estimate chemical specific diet-to-mammal BAFs based on Kow as presented in Appendix 4-1 of the Draft Ecological Soil Screening Level Guidance, USEPA 2000. Page 1-7 in Appendix 4-1 of this guidance document states, "Results of these analyses indicate that diet-to-mammal BAFs cannot be accurately estimated based on Kow". Literature values from field sampling derived BAFs should be used for those chemicals known to bioaccumulate. The Bald Eagle and Coyote risk needs to be recalculated with the revised BAFs.	Because there is little to no BAF information available for estimating whole-body small mammal tissue concentrations directly from soil concentrations, a two-step modeling process must be used to estimate these BAFs (as noted in this comment). The model has been updated and corrected to use a two-step approach to estimate soil to small mammal BAFs and resulting receptor exposure concentrations. This approach requires determining the diet of the small mammal prey and using this diet to determine a contaminant concentration in the prey based on detected concentrations in the soil. For example, the coyote is assumed to eat 100 percent small mammals. Based on the habitat and site conditions, the available small mammals are most likely omnivorous, eating an assumed diet of 75 percent plants and 25 percent invertebrates.

Item	Section	Page	Para.	Comment	CH2M HILL Response
					Known BAFs for soil-to-plants and soil-to-invertebrates are multiplied by the soil concentration to determine the expected concentration in each dietary component. These concentrations are summed and the resulting total represents the concentration in the prey item, in this case the small mammals. From here this concentration is then multiplied by the modeled diet-to-small-mammal BAF to estimate an exposure concentration for the coyote.
2	2.1.1 and Table 2-3			Section 2.1.1. and Table 2-3. It appears as if some of the appropriate soil sample data points have not been included in the ecological risk assessment. Both the text and Figure 2-2 indicate that this PCB oil burning area (Burn Pit) is being evaluated as part of Buildings 35-752. However, the data included in Appendix A, Chemical Database, does not include the samples from the Burn pit, at least no sample designations as presented on Figure 2.2. The chemical data used to derive the exposure point concentrations need to be checked to ensure that all appropriate data are included, especially, the PCB and dioxin data from the Burn Pit. Exposure point concentrations will need to be recalculated if the burn pit area soil data were not included.	This discrepancy is the result of an error (reversal) between the symbols in the map and those in the map legend. According to the legend, sample locations used in the ERA should have been indicated with a triangle; however, these were identified with a square in the map. This has been corrected. As a side note, the samples within the burn pit were not used because this area is paved over and ecological exposure pathways from this portion of the site are now considered incomplete.

Item	Section	Page	Para.	Comment	CH2M HILL Response
3	2.2.2			This section needs expansion to provide sufficient information for evaluation of the conceptual site model. It would be beneficial for the reader, if this section informed the reader that the cooling ponds have been drained and no longer contain surface water. Also, a rationale for not evaluating the surface water transport pathway from the former cooling ponds to Ship Creek should be provided. For example, what site information supports the assertion that contaminant transport would have been minimal due to the discharge of cooling water into Ship Creek?	Section 2.2.2 has been expanded to provide additional information related to the conceptual site model.
4	3.1.3			The exposure equation presented on page 3-3 is not consistent with general ecological risk assessment practice as it does not indicate a division by body weight. The equation should be reviewed and revised as necessary. The risk calculation should be reviewed to ensure that receptor body weight was appropriately included and that the values in Table 4-3 are accurate.	The general exposure equation from the cited reference was used, though water ingestion was excluded as explained in the text in Section 2.3.4. Area use was also considered 100% for all receptors as a conservative measure. Body weight is incorporated into the exposure model through the food ingestion rate (i.e., food ingestion is normalized to body weight). As presented on page 3-3, the total exposure is expressed on a body weight basis (mg contaminant/kilogram body weight/day).
5	3.1.3			Section 3.1.3. The text does not adequately explain the derivation of the biota tissue concentration (Bij). The equation to derive Bij should be presented separately and explained fully. The derivation of the BAF is presented in Table 4-3. How the BAF is used to calculate the biota tissue concentration is what is lacking. Although, generally the BAF is simply multiplied by the soil concentration to derive the biota tissue concentration, the text should make this clear.	Text has been added to explain the derivation of the tissue concentration in biota.

Item	Section	Page	Para.	Comment	CH2M HILL Response
6	3.2.2			Section 3.2.2. The uncertainty factors used in deriving the terrestrial invertebrate benchmarks when values from Efroymson et al. are not available are not explained in the table or the text. The uncertainty factors need to be explained. For example, an uncertainty factor of 4 is used for PCB 1260. Presumably this is applied because of a lethal endpoint; however, the basis needs to be specified.	Uncertainty factors applied to terrestrial invertebrate and plant benchmarks have been footnoted in the tables and explained in the text.
7	Table 3-2			Table 3-2. The food ingestion rate for the Bald Eagle is underestimated thereby underestimating the risk The value presented in the table is 0.0192 Kg/Kg-day dry weight. According to the footnote on Table 3-2, the Bald Eagle food ingestion rate is based on the ingestion rate of a jack rabbit. The Wildlife Exposure Handbook (USEPA 1993) includes food ingestion rates for the Bald Eagle. The value used in the risk calculations needs to be revised and the risk recalculated.	The food ingestion rate used for the bald eagle is correct. The footnote has been modified to state more clearly that the ingestion rate for the bald eagle was based on its consuming a diet consisting of jackrabbits. The food ingestion rate in USEPA (1993) is for bald eagles foraging on fish. As no aquatic habitat is available at OUE, fish are not considered a component of the bald eagle diet for these sites. The rate used comes from the same study cited in USEPA (1993), which presents rates for eagles fed an exclusively fish diet or fed an exclusively jackrabbit diet.
8	Table 4-3			Table 4-3. This table does not provide sufficient supporting information to fully define the exposure estimates presented in the table. Exposure estimates presented in this table are receptor and chemical specific. Additional explanation would clarify why the small mammal tissue concentration is different for the coyote and the eagle. It would appear it is because the value presented is not the small mammal tissue concentration, but is actually the small mammal tissue concentration multiplied by the coyote or eagle ingestion rate. The units of the exposure values should be verified and revised as appropriate. Additional explanation to link the values in the table to the exposure estimate equation should be added to the table.	The column heading explicitly states that this value represents the exposure estimate by pathway and does not suggest a tissue concentration. This value represents the estimated dose experienced by the receptor via the plant pathway, invertebrate pathway, etc. and sums all the exposures via each pathway to get a total estimated exposure experienced by the receptor. Explanation has been added in footnote b to clarify this.

Item	Section	Page	Para.	Comment	CH2M HILL Response
Reviewer: Melissa Markel, U.S. Army Corps of Engineers					
9				Please include an Executive Summary.	An Executive Summary has been added.
10				Throughout the text are lists in the format "x and y as well as z." (See pages 1-1, 1-4, 2-1, 2-13, 4-5, etc.) This format is awkward and it slows down the flow of the text. Please revise to read "x, y, and z."	Language has been modified as suggested wherever appropriate.
11				The qualitative risk evaluations rely heavily on soluble salts (used in laboratory toxicity tests) having higher bioavailability than forms found naturally in soil. Please include a reference supporting this.	References were added as requested. Efroymson et al. (in press) noted the following three reasons for tests using salt solutions added to soil (i.e., laboratory toxicity tests) potentially not being representative of tests of metalliferous wastes or background elements in soil: 1) chemicals in the field may have aged in soil and sorbed to soil particles or been transformed to less soluble forms, making them less bioavailable than those that have been freshly added to soil; 2) some metalliferous wastes may have intrinsically lower bioavailability than salts; or 3) specific interactions of metal mixtures may inhibit uptake of individual metals. Additionally, Efroymson et al. state that various studies (Tagami and Uchida 1998, Hamon et al. 1998) have demonstrated that aging of inorganic chemicals added as salts or other forms to soil reduced bioavailability to plants or soil organisms.
12	Introduc-tion	Page 1-1		Please move the second sentence to Section 2.1.	This sentence has been removed from Section 1.1 and replaced in Section 2.1.
13	1.1	Page 1-1		Please briefly discuss the background of OU E as it pertains to the need for a risk assessment and move the general discussion of Fort Richardson's history to Section 2.1.	Text has been added to Section 1.1 and the general history text has been moved to Section 2.1.

Item	Section	Page	Para.	Comment	CH2M HILL Response
14	2.1.1	Page 2-2		Last paragraph: does "…Building 35-750 was associated with the post sewer system" mean that the building was connected to the sewer system? Does "… cooling system was not associated with the post sewer system" mean that there was no connection to the sewer? If so, please revise text to be more explicit. If not, please explain "associated with."	The building was connected to the post sewer system at that time but the cooling water was still sent to the cooling pond. At the current time, the cooling water also goes to the post sewer system.
15	2.2.3	Page 2-3		Please shorten the geology description. The reader has to go through 5 paragraphs before there is any mention of geology relevant to OU E.	The hydrogeology section in the RI Report will be revised in the final document to address comments received on that document. The revised section will be included in the final ERA Report.
16	2.2.4	Page 2-4		Please shorten the general hydrogeology description and add text about the hydrogeology in the study area. No need for this to be extensive as surface water is not present and groundwater is too deep to be included in the ERA.	The hydrogeology section in the RI Report will be revised in the final document to address comments received on that document. The revised section will be included in the final ERA Report.
17	2.2.5	Page 2-5		Please shorten the Ecological Features description and try to keep it relevant to OU E. (For example, no need to discuss beluga whales or Dall sheep or species of salmon that do not occur in Ship Creek or Eagle River.)	Text has been modified to reflect only ecological features that pertain to OUE and nearby areas.
18	2.3.1.2	Page 2-9		Please provide a reference supporting that ecological exposure to VOCs in air is not considered significant except for burrowing animals.	Two references were added to the text. Hope (1995) states that "exposure via inhalation is most important to organisms that inhabit subsurface burrows in contaminated soils, given the limited amounts of air present to dilute vapors and an absence of air movement to disperse gases." Additionally, Carlsen (1996) found that exposure to TCE through inhalation was three orders of magnitude greater for burrowing vertebrates than non-burrowing species.

Item	Section	Page	Para.	Comment	CH2M HILL Response
19	2.3.2	Page 2-10		Last Paragraph: Please provide a reference for the information presented in the first sentence. Please revise the last sentence to list potential exposure pathways that match those presented in the bulleted list at the top of the page. For example, "direct contact" is listed in the last sentence but does not appear on the bullet list. It is unclear what "direct contact" means, especially since dermal contact was discounted in the first sentence of the paragraph.	'Exposure pathways' was similarly defined in the glossary of USEPA (1997) and this reference has been included in the text. Additionally, text has been clarified regarding potential exposure pathways and those used to evaluate receptors at OUE.
20	3.1.3	Page 3-3		Please revise the discussion after the presentation of the first Suter et al. model to: " Oral exposure occurs through the consumption of contaminated food, water, or soil. Because freshwater sources are not available on-site, water and associated sediments are not considered a complete exposure pathway. Therefore, only consumption of food and soil are considered for the oral exposure pathway. (new paragraph) Dermal exposure occurs when contaminants are absorbed directly through the skin, and inhalation exposure occurs when volatile compounds or fine particulates are inhaled into the lungs. As previously discussed, both dermal and inhalation exposure are insignificant except for burrowing animals, which do not occur at the OUE sites. Therefore, exposure of birds and mammals to site contaminants through these pathways is not considered further. (new paragraph) Because dermal and inhalation exposures have been eliminated, total chemical exposure experienced by wildlife (Et) is equal to oral exposure (Eo).	Text has been modified as requested.
21	Exposure Point Concentrations	Page 3-4		Please provide a reference for the RATS.	The following reference has been provided in text: Risk Assessment Tool Set (RATS). CH2M HILL Risk Assessment Tool Set. Version 3.02. Release 010406.

Item	Section	Page	Para.	Comment	CH2M HILL Response
22	4.1.2	Page 4-3		First Paragraph: Please revise "to predict a more reasonable potential for" to "to refine the predicted potential for"; in the next sentence, please add "concentration" after "maximum detected".	Text has been modified as requested.
23	4.1.2	Page 4-3		Fourth Paragraph: If HQs exceeded 1, the maximum detected concentration was compared to background again – with the background subtracted to assess the incremental risk? When incremental risk was determined to be "low", does that mean that the incremental risk HQ was < 1? Please clarify.	Text has been added to clarify the incremental risk evaluation.
24	Masked Shrew	Page 4-9		Equating bioavailability of lead ingested by masked shrews to bioavailability of lead ingested by humans is a stretch. Please cite research performed on rodents.	Lead bioavailability studies with rodents have been added. In two rodent studies reviewed, the bioavailability of lead in field soils ranged from <10 percent to 26.8 percent (Freeman et al. 1992, 1996). These values are similar to the 26.2 percent that was used in the risk evaluation. It should be noted that the shrew is not a rodent, and is more closely related to primates than to rodents, based on taxonomics. Therefore, rodent studies would not necessarily be more applicable than the human study used. However, the information for the rodent studies has been added to the text to provide a range of values over different taxonomic groups. It should also be noted that the HQ for lead exposures in shrews was only 1.2, indicating a very low magnitude of exceedance. There was no change in the risk conclusions based on this bioavailability information.

Item	Section	Page	Para.	Comment	CH2M HILL Response
25	Masked Shrew	Page 4-16		Second Paragraph: Was the Owen (1990) study based on research on rodents? Please see Item 16.	The selenium bioavailability value for mammals presented by Owen is based on human data. As discussed above, the shrew is not a rodent and primate data may be more relevant for this receptor. However, these data may be less relevant for the red-backed vole, which is a rodent. Additional studies on the bioavailability of selenium in rodents have not been identified. Therefore, the human study will be used and the limitation and uncertainties associated with this use have been described in the uncertainties section (Section 4.3.1). It should also be noted that the HQs for selenium exposures in shrews and voles were only 1.6 and 2.2, respectively, indicating a very low magnitude of exceedance. Bioavailability is only one of several pieces of information considered in the risk conclusions, which are unchanged.
26	5			Please include a summary table of ERA conclusions for each area. List each species/group evaluated and summarize which constituents exceeded what benchmarks. List HQs and indicate major factors considered in the qualitative assessments. List COECs and show results of the qualitative risk evaluation (none, negligible, low, moderate, etc.).	A summary table has been included as requested.
27	Figure 1-1			Please identify the OU E area on the map.	This figure is not meant to present the OUE location, but rather the location of Fort Richardson. The title of this figure has been corrected. Additionally, Figure 2-1 has been modified and all references to OUE site location now include reference to this figure.

Item	Section	Page	Para.	Comment	CH2M HILL Response
28	Tables			Most of the Table seem better suited for Appendices. Also most could use some sort of row separation (lines, alternating shading)	The tables included are necessary for interpretation of the ERA and have been kept with text; however, modifications have been made to aid in row separation.
29	Table 2-3			Please add footnotes explaining what "-AVG" means and give units for the sample depths.	AVG is the average of the native sample and the field duplicate sample. This has been clarified in a footnote and units have been assigned.
30	Table 3-12			Please provide a footnote explaining the significance of the shaded rows.	A footnote has been added as requested.
Reviewer: Beth Astley, Cold Regions Research and Engineering Laboratory					
31	2.2.3			4th paragraph, last sentence ….during outburst–flooding events from the ice-dammed lakes in the Eagle River Valley. SHOULD REFERENCE (HUNTER ET AL., 1999) HERE. I THINK THESE ARE HIS THOUGHTS DIRECTLY FROM HIS REPORT.	The text has been referenced as requested.
32	2.2.4			Same as comment for human risk assessment.	The hydrogeology section in the RI Report will be revised in the final document to address comments received on that document. The revised section will be included in the final ERA Report.
33	Figure 1-1			Figure does not show location of OUE as stated in caption.	This statement has been corrected. Figure 1-1 shows the location of Fort Richardson and Figure 2-1 shows the OUE site locations. Text referring to the figures has been modified accordingly.

References:

Carlsen, T.M. 1996. Ecological Risks to Fossorial Vertebrates from Volatile Organic Compounds in Soil. *Risk Analysis* 16: 211-219.

Efroymson, R.A., B.E. Sample, and G.W. Suter. In press. Bioaccumulation of Inorganic Chemicals from Soil by Plants: Spiked Soils Versus Field Contamination or Background. *Hum. Ecol. Risk Assess.* In press

Freeman, G.B., J.D. Johnson, J.M. Killinger, S.C. Liao, P.I. Feder, A.O. Davis, M.V. Ruby, R.L. Chaney, S.C. Lovre, and P.D. Bergstrom. 1992. Relative Bioavailability of Lead from Mining Waste Soil in Rats. *Fund. Appl. Toxicol.* 19: 388-398.

Freeman, G.B., J.A. Dill, J.D. Johnson, P.J. Kurtz, F. Parham, and H.B. Matthews. 1996. Comparative Absorption of Lead from Contaminated Soil and Lead Salts by Weanling Fischer 344 Rats. *Fund. Appl. Toxicol.* 33: 109-119.

Hamon R.E., M.J. McLaughlin, R. Naidu, and R. Correll. 1998. Long-term Changes in Cadmium Availability in Soil. *Environ. Sci. Technol.* 32: 3699-3703.

Hope, B.K. 1995. A Review of Models for Estimating Terrestrial Ecological Receptor Exposure to Chemical Contaminants. *Chemosphere* 30: 2267-2287.

Tagami, K., and S. Uchida. 1998. Aging Effect on Bioavailability of Mn, Co, Zn, and Tc in Japanese Agricultural Soils under Waterlogged Conditions. *Geoderma* 84: 3-13.

U. S. Environmental Protection Agency (USEPA). 1997. Ecological Risk Assessment Guidance for Superfund Sites: Process for Designing and Conducting Ecological Risk Assessments, Interim Final. Office of Solid Waste and Emergency Response. EPA 540-R-97-006. June.