Record of Decision

Operable Unit D

Fort Richardson, Alaska

June 30, 2000

DECLARATION STATEMENT
for
RECORD OF DECISION
OPERABLE UNIT D
FORT RICHARDSON, ALASKA

SITE NAME AND LOCATION

Operable Unit D
Fort Richardson, Alaska

STATEMENT OF BASIS AND PURPOSE

This Record of Decision (ROD) presents the selected remedial actions for Operable Unit D (OUD) at Fort Richardson near Anchorage, Alaska. OUD is the fourth operable unit in the Federal Facilities Agreement for Fort Richardson. OUD originally consisted of 12 sites: Building 35-752 – High Frequency Transmitter Site; Building 45-590 – Auto Hobby Shop; Building 726 – Laundry Facility; Building 796 – Battery Shop; Stormwater Outfall to Ship Creek; Dust Palliative Locations (four separate areas); Landfill Fire Training Area; Grease Pits; Circle Road Drum Site; Building 700/718; Building 704; and Building 955. Action related to Building 35-752 and Building 45-590 will be conducted as part of a new operable unit (E).

This ROD was developed in accordance with CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (42 *United States Code*, Section 9601 *et seq.*) and, to the extent practicable, in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (40 *Code of Federal Regulations* 300 *et seq.*). These decisions are based on the Administrative Record for this operable unit.

The U.S. Army, the U.S. Environmental Protection Agency (EPA), and the State of Alaska, through the Alaska Department of Environmental Conservation, concur with the selected remedies.

DESCRIPTIONS OF SELECTED REMEDIES

This is the fourth operable unit to reach a final-action ROD of the Fort Richardson National Priorities List sites. This ROD documents a No Further Action (NFA) Decision in accordance with EPA Guidance.

The Army and the Alaska Department of Environmental Conservation have a cooperative agreement to address petroleum-contaminated source areas. Three OUD source areas, Building 700/718, Building 704 and Building 955 (petroleum-contaminated soils) are being addressed under

this agreement because the contaminants of concern at these source areas are petroleum related. These source areas do not require any additional action under this ROD.

The no-further action decision is being recommended for other source areas if: no visible sign of contamination was observed during the source area inspection; a removal action eliminated existing and potential risks to human health and the environment; or environmental sampling results showed that contamination if present is at levels below the protective human health-based levels.

No further action is recommended for the following areas: Building 726-Laundry Facility; Stormwater Outfall to Ship Creek; Dust Palliative Location (four separate areas); Landfill Fire Training Area; Grease Pits; and Circle Road.

Two source areas, Building 796-Battery Shop and Building 955 (DDT contaminated soils) will undergo further monitoring. If levels of chemicals of concern at these sites are below MCLs or EPA risk numbers, then 796 and or 955 will be recommended as no-further action sites in OUE. To insure these sites do not pose a threat to human health or the environment, the monitoring data will be evaluated no later than the five-year review, currently scheduled for February 22, 2003, for the first OU at Fort Richardson.

STATUTORY DETERMINATION

No remedial action is necessary to ensure protection of human health and the environment at these 10 sites.

DATA CERTIFICATION CHECKLIST

The following information is included in this ROD. Additional information can be found in the Administrative Record file for Fort Richardson (index for this record is Appendix A).

- Chemicals of concern (COCs) and their respective concentrations
- Semi-qualitative risk represented by the COCs
- Current and future land and groundwater use assumptions used in the risk assessment and ROD
- Land and groundwater use that will be available at the site as a result of the NFA determination

AUTHORIZING SIGNATURES

Signature sheet for the foregoing Operable Unit D at Fort Richardson, Record of Decision between the United States Army and the United States Environmental Protection Agency, Region X, with concurrence by the Alaska Department of Environmental Conservation.

James J. Lovelace, Jr.
Major General, U.S. Army
Commanding Officer

1 August 00
Date

AUTHORIZING SIGNATURES

Signature sheet for the foregoing Operable Unit D at Fort Richardson, Record of Decision between the United States Army and the United States Environmental Protection Agency, Region X, with concurrence by the Alaska Department of Environmental Conservation.

Charles E. Findley
Acting Regional Administrator, Region 10
United States Environmental Protection Agency

9-27-00
Date

AUTHORIZING SIGNATURES

Signature sheet for the foregoing Operable Unit D at Fort Richardson, Record of Decision between the United States Army and the United States Environmental Protection Agency, Region X, with concurrence by the Alaska Department of Environmental Conservation.

Lynn Tomich Kent
Contaminated Sites Program Manager
Division of Spill Prevention and Response
Alaska Department of Environmental Conservation

September 2 2000
Date

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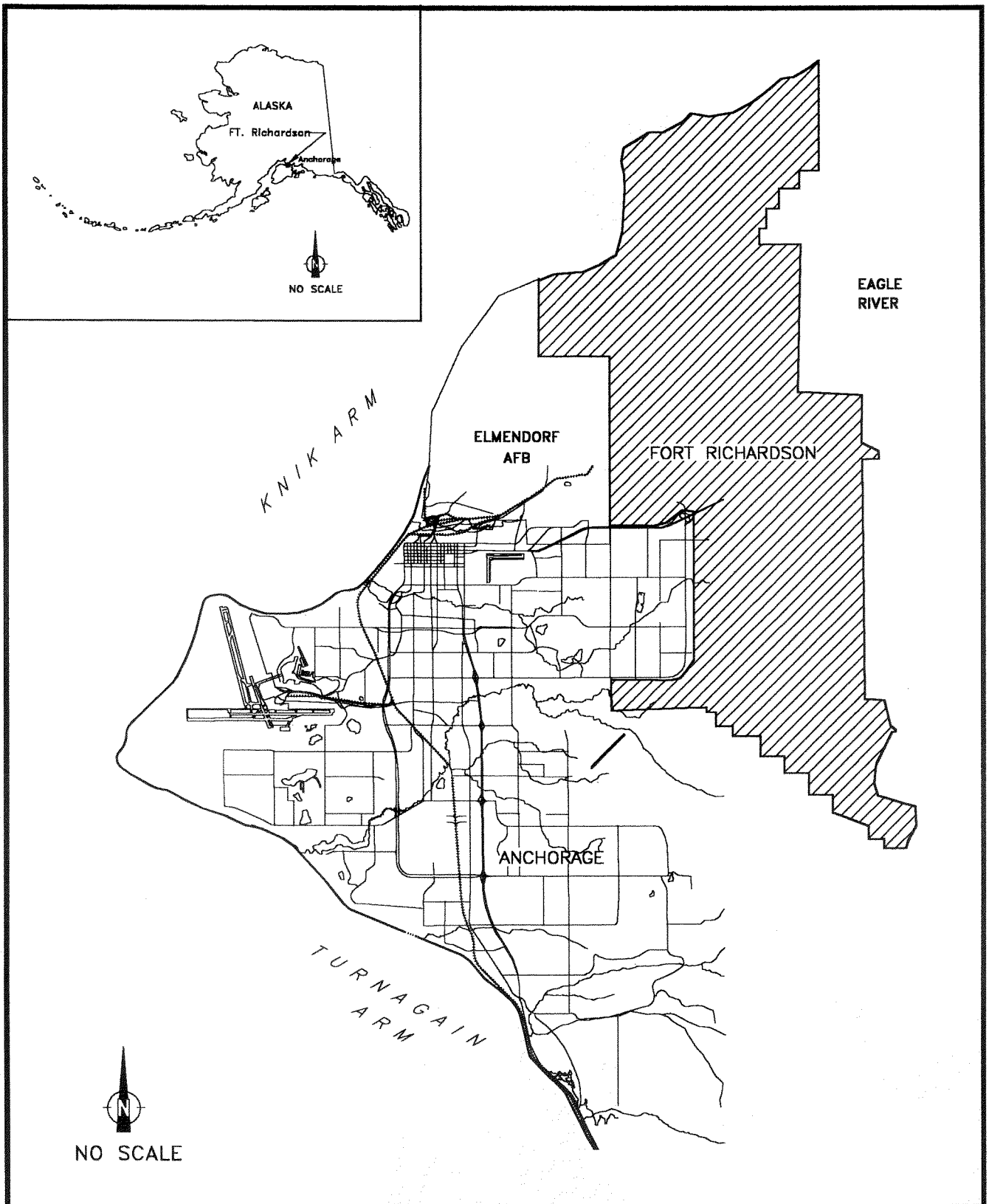
ACRONYMS AND ABBREVIATIONS

AAC	*Alaska Administrative Code*
ADC	Alaskan Defense Command
ADEC	Alaska Department of Environmental Conservation
ADF	Alaskan Defense Force
AFB	Air Force Base
As	Arsenic
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	*Code of Federal Regulations*
COC	Chemical of concern
COPC	Chemical of potential concern
DRMO	Defense Reutilization and Marketing Office
DRO	Diesel range organics
EDB	2-Dibromoethane
EPA	U.S. Environmental Protection Agency
FFA	Federal Facilities Agreement
FFCA	Federal Facility Compliance Agreement
FS	Feasibility Study
ft/ft	Feet per feet
GRO	Gasoline range organics
kVA	Kilovolt-ampere
MCL	Maximum contaminant level
mg/kg	milligram per kilogram
MSL	Mean sea level
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ND	Non detect
NFA	No Further Action
NPL	National Priorities List
OB/OD	Open Burn/Open Detonation
OUD	Operable Unit D
OU	Operable Unit
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PCE	Tetrachloroethene
POL	Petroleum, oil, and lubricants
ppb	Parts per billion
ppm	Parts per million
PRG	Preliminary remediation goal
PSE	Preliminary Source Evaluation
PSE2	Preliminary Source Evaluation 2

ACRONYMS AND ABBREVIATIONS (Cont'd)

RAB	Restoration Advisory Board
RBC	Risk-Based Concentration
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act
SWMU	Solid waste management unit
TRPH	Total residual petroleum hydrocarbons
UST	Underground storage tank
VOC	Volatile organic compound



DRAWING: FTFDLOC DRAWN: SSR C/SC: 1:2 ZIP: 13/97 DATE: 06/20/00 CHECK: M.S.	FIGURE 1-1 FORT RICHARDSON SITE LOCATION MAP	RECORD OF DECISION OPERABLE UNIT D FORT RICHARDSON, ALASKA PROJECT 9000-136

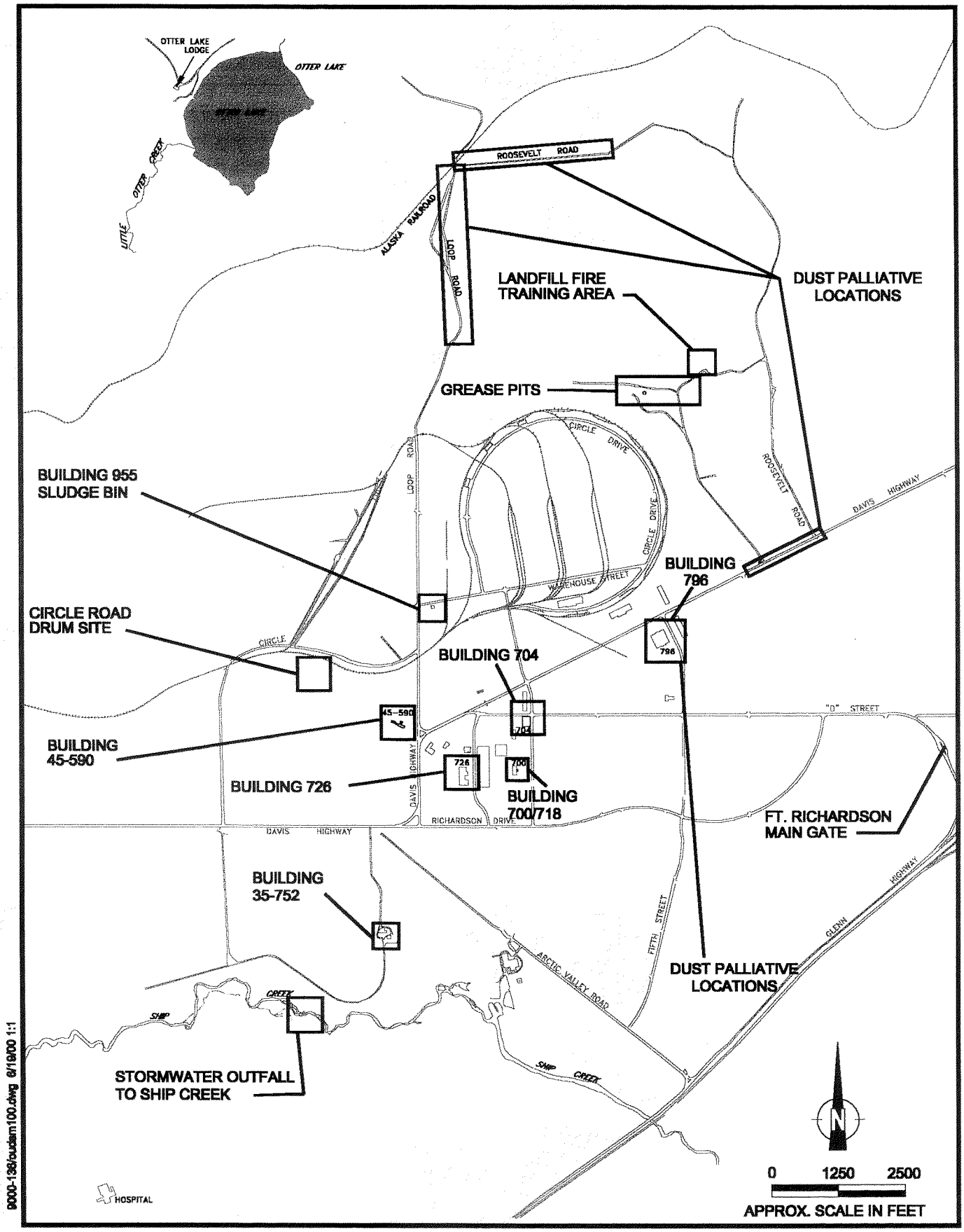


Figure 1-2. Fort Richardson Site Map with Original OUD Source Areas

Environmental Response, Compensation, and Liability Act (CERCLA) after limited monitoring. The two remaining sites are being referred to a newly created Operable Unit E for further evaluation.

1.2.1 Source Areas Requiring No Further Action

Circle Road Drum Site

Circle Road Drum Site is located west of the main Fort Richardson cantonment area and southeast of the intersection of Circle Drive and Totman Road. The origin and use of the drums encountered at the site is unknown. A total of 59 drums were discovered in October 1990. The drums were in poor condition and deposits of tar and other unidentified stains were observed on the surface soil at the site.

Dust Palliative

Road oiling, using waste oils, to control dust on gravel roads and parking areas on Fort Richardson was conducted from the 1950's until the 1980's. The objectives of this investigation were to qualitatively evaluate the impact of road oiling. Petroleum hydrocarbons, polychlorinated biphenyls (PCBs), and metals were evaluated as potential contaminants of concern. No previous investigation of gravel roads or parking lots had been conducted at the Post. Areas selected for sampling were chosen because they were representative of roads that were historically oiled for dust suppression.

Fire Training Pit

This source area is located inside the former Fort Richardson landfill, north of the main cantonment area and northeast of the Grease Pits. Liquid waste fuels were stored at the site then poured into the unlined pit and ignited for fire fighter training exercises. It is estimated that 1,500 to 2,300 gallons of waste fuels were burned at the pit each year.

Grease Pits/Landfill

This source area is located inside the former Fort Richardson landfill, north of main cantonment area and southwest of the Landfill Former Fire Training Area. The history of the grease pits is not well documented. The pits reportedly were used since the opening of the landfill until the 1990's to dispose of cooking grease and other oils from field training exercises, trash, and human waste.

Stormwater Outfall to Ship Creek

This source area is the discharge point for the stormwater drainage system that serves the main cantonment area on Fort Richardson. The stormwater outfall is located approximately 420 yards downstream from cooling ponds at Building 35-752. It was believed that oils, fuels, solvents, herbicides and pesticides, metals, and PCBs may have been carried from the cantonment area by surface runoff and deposited in soil and sediment in the stormwater outfall ditch. The stormwater system has drained through the stormwater outfall into Ship Creek since the construction of the main cantonment area in 1955. Fort Richardson does not have a National Pollutant Discharge Elimination System permit for stormwater discharge.

Building 726 Laundry Facility

Building 726 is located in the western portion of Fort Richardson between Davis Highway and Richardson Drive. Building operations include dry cleaning, clothing washing, and mattress washing. Chemicals used at the site include dry cleaning solvents: tetrachloroethene (PCE) and Stoddard solvent.

1.2.2 Two-Party Agreement Sites

Building 700/718

Building 700/718, the Recurring Maintenance Building and Paint Shop, is located on First Street. During the 1990's, wastes generated from Building 700 were temporarily stored in a drum accumulation area on the east side of Building 718. In 1990, a U.S. Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) inspection noted drums that were not properly handled and resulted in a NOV. The drums had been transported to this location from a warehouse facility in Haines, Alaska. The site is currently active as a supply storage yard but is no longer used to store drummed wastes.

Building 704

Building 704 is located at the northeast corner of the intersection of First Street and D Street. Building 704 and the surrounding parking lot are used for the storage of Department of Public Works vehicles and heavy equipment. Past environmental records and interviews with employees indicate that the site was used as a drum staging area from the 1950's until 1991. Drums at this site contained waste paint, brake fluid, lubricating oil, gasoline, diesel, kerosene, and unused petroleum products. All containers were removed in 1991 and disposed of through the Defense Reutilization and Marketing Office (DRMO).

1.2.3 Source Areas Requiring Additional Sampling

Building 955, Former Sludge Bin

This site is the location of the former sludge bin that was used as a waste-oil transfer station and sludge bin. Waste liquids containing water and small amounts of solids were transported to the bin from various motor pool operations. The waste liquids were allowed to settle and the contents segregated into water, liquid petroleum compounds, and sludge. The water was pumped from the bin, and the used oil was deposited into USTs located adjacent to the bin. A geotechnical investigation was performed in 1993 for closure of the UST. This resulted in the detection of petroleum hydrocarbons, volatile organic compounds, herbicides and pesticides.

Building 796-Battery Shop

Building 796, a battery and vehicle and maintenance weapons repair shop, is located at the southwest corner of Fifth Street and Davis Highway. Former activities at this source area included draining battery fluid into a floor drain that subsequently drained into a dry well located adjacent to the building. This activity took place from the 1950's until the late 1980's.

1.2.4 Source Areas Transferred to OUE

Building 35-752

The RI identified prior activities at this site that may have contributed to a release to the environment to include temporary storage of PCB-contaminated soil within Building 35-752, on-site fueling operations for 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 manmade pond, referred to informally as the "cooling pond". Access to Building 35-752 has been completely restricted, 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.

Building 45-590–Armored Vehicle Maintenance Facility

Groundwater contamination at this site was discovered during a UST release investigation. Previous activities at the site that were considered during the RI to have contributed to a release to the environment included auto craft work, vehicle repair, and other practices associated with vehicle maintenance. The RI indicated that Building 45-590 was not the source of contamination, but that an upgradient source likely existed. This upgradient source will be referred to as the Armored Vehicle Maintenance Facility. For continuity both building 45-590 and the Armored Vehicle Maintenance Facility will be referenced when discussing this area.

1.3 Soils and Geology

The area where Fort Richardson is located has three general geologic terrains: glacial deposits, alluvial deposits, and metamorphic rock. Glacial sediments, deposited in the Cook Inlet basin during a series of five glacial periods in recent geologic history, constitute the north and central portions of Fort Richardson. In particular, terminal moraine deposits (the Elmendorf moraine) are present directly northwest of the main cantonment area. The soils of the Elmendorf moraine are composed of fine-grained, poorly sorted glacial materials (clays, silts, very fine sands), with interbedded heterogeneous layers of boulders, cobbles, gravel, sand, silt, and clays.

In this region, the marine Bootlegger Cove Formation was deposited concurrently with glacial outwash deposits. The Bootlegger Cove Formation consists primarily of thinly bedded gray to light gray silt clay and clayey silt. Where it occurs, the Bootlegger Cove Formation acts as an aquitard to groundwater movement.

Alluvial sediments of the Anchorage Plain extend from northeast of the Fort Richardson main cantonment area, southwest to the city of Anchorage. Metamorphic bedrock outcrops and mountains predominate in the south-central and southern portions of Fort Richardson. In the cantonment area, the alluvial deposits are bounded to the northwest by the Elmendorf Moraine and to the southeast by the metamorphic terrain, as described above. The alluvial sediments comprise both glacial outwash, alluvial fan, and fluvial deposits, grading from gravel in the eastern portion of

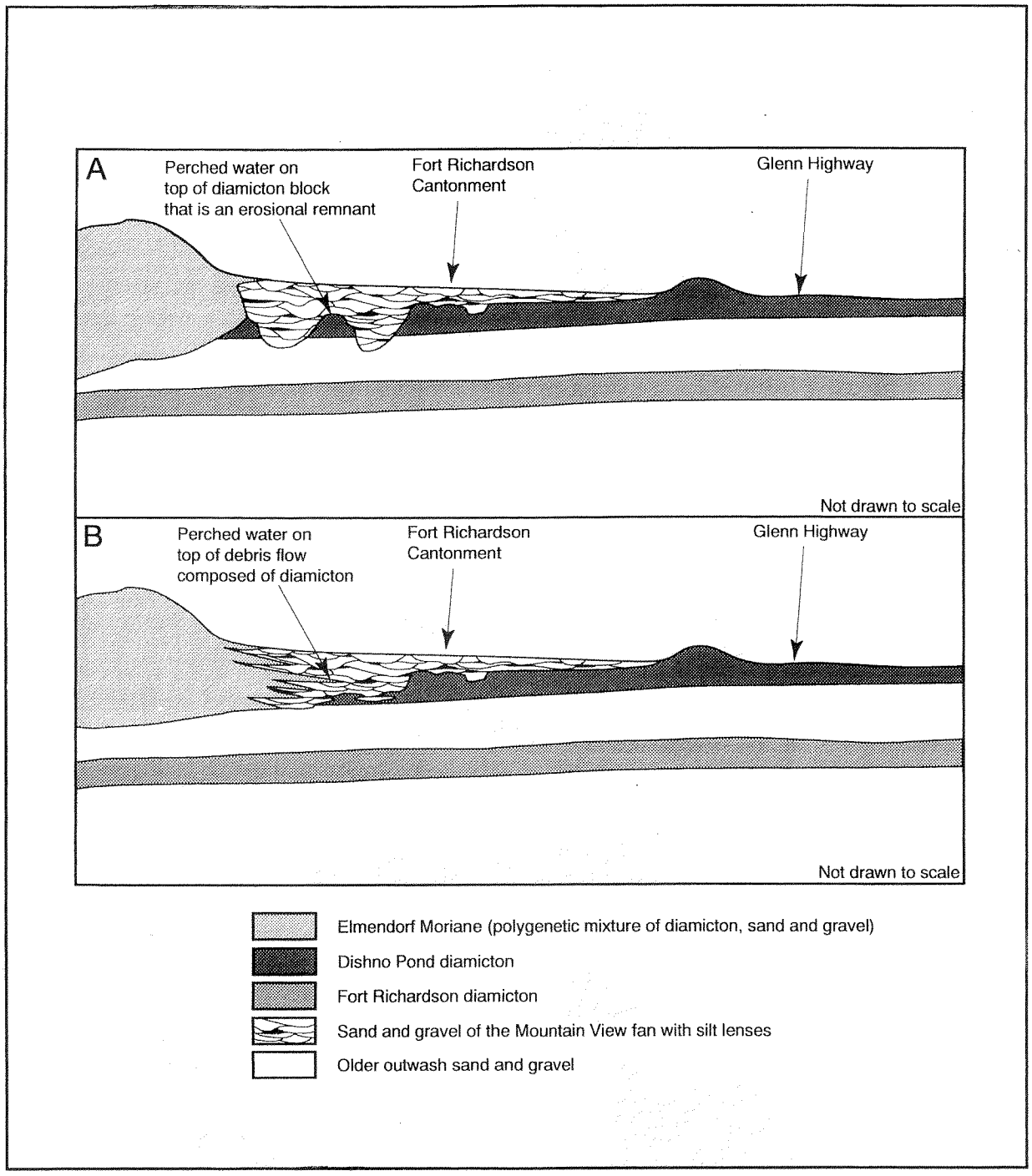


Figure 1-3. Stratigraphic Models for Fort Richardson.

Two proposed stratigraphic models for the Fort Richardson cantonment. The stratigraphic architecture depends on the mode of deposition. Both models demonstrate how different depositional settings can produce similar stratigraphic sequences when viewed through site-specific boreholes. (A) Erosion during deposition of the Mountain View fan cut through the Dishno Pond ground moraine and edges of the Elmendorf Moraine. (B) Erosion and deposition associated with the Mountain View fan was accomplished by sediment failure along the margin of the Elmendorf Moraine, producing an interstratification between sand, gravel, and diamicton.

2.0 SITE ENFORCEMENT ACTIVITIES AND HISTORY

Because a number of sites associated with known or suspected releases of hazardous chemicals were identified on the post, Fort Richardson was placed on the CERCLA National Priorities List (NPL) in 1994. 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.

These activities are being performed to comply with a 1994 Federal Facilities Agreement (FFA) signed by the EPA, the Department of the Army, and the Alaska Department of Environmental Conservation (ADEC). The FFA divided Fort Richardson into 4 operable units and identified the authorities and responsibilities of these parties. The FFA integrated CERCLA requirements with pertinent aspects of other federal and state remedial programs, and defined schedules and general requirements for investigation and/or remediation at areas suspected of being historical sources of hazardous waste.

An additional goal of the FFA was to integrate the Army's CERCLA response obligations and RCRA Corrective Action requirements resulting from the EPA's and Army's 1991 Federal Facilities Compliance Agreement. The Army, EPA and State agree to meet the requirements of 40 *Code of Federal Regulations* (CFR) 265 for closure of sites that are in OUD.

The Army and ADEC signed a Two-Party Agreement in 1993 for USTs and another in 1994 for petroleum contaminated sites not associated with USTs. The agreements define the process by which the Army agrees to investigate and remediate petroleum-contaminated areas. These areas generally are associated with USTs that have leaked or with surface spills of petroleum products, such as lubricating oils/grease, heating fuels, and motor fuels.

Each source area was evaluated through a screening process called a Preliminary Source Evaluation (PSE). The PSE included record searches, interviews, and if warranted, limited field investigations called Preliminary Source Evaluation 2 (PSE2). During the investigations, analytical data was generated for many chemicals. The target analyte list for each site was determined based on site history and previous investigations. In general, target analytes for soil and groundwater at all sites included volatile organic compounds (VOCs) (benzene, toluene, ethylbenzene, xylenes, halogenated aliphatics [e.g., chlorinated solvents]), and metals. Most analyses also included chlorinated pesticides/PCBs, polycyclic aromatic hydrocarbons (PAHs), and petroleum hydrocarbon range compounds (e.g., diesel range and gasoline range organics [DRO/GRO]). Based on this information, the Army, ADEC, and EPA determined that 8 of the 12 sites should be recommended for no further action under CERCLA or should be referred to the Two-Party Agreement that specifically addresses sites contaminated with petroleum only.

The remaining four sites were included in the Remedial Investigation (RI) for OUD. The purpose of the RI was to further characterize the nature and extent of contamination, and to provide enough

information so that risk assessments and feasibility studies could be performed for each site. The four sites evaluated in the RI were:

- Building 35-752 – High Frequency Transmitter Site
- Building 45-590 – Auto Hobby Shop
- Building 726 – Laundry Facility
- Building 796 – Battery Shop

OUD was originally established to be the final OU to be investigated at Fort Richardson. Consequently, this Record of Decision (ROD) was intended to integrate the remaining evaluations at the Post and include the potential cumulative human health and ecological risks that may become evident from the aggregate of source areas and areas not otherwise resolved in previous OUs. However a new OU, OUE, is necessary and will integrate all previous and any new sources not addressed under the RODs for OUA through OUD.

3.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

The *Proposed Plan for Remedial Action at Operable Unit D, Fort Richardson, Alaska* presented combinations of options considered by the Army, EPA, and ADEC for remediation of contamination at OUD sites. The plan was released to the public on April 29, 1999, and was sent to 150 known interested parties, including elected officials, members of the Restoration Advisory Board (RAB), and concerned citizens. The public was encouraged to participate in the selection of remedies for OUD during a public comment period from April 29 to May 28, 1999. A public meeting was held on May 13, 1999, to allow proposed remedial options to be discussed in an open forum.

The Proposed Plan summarized information regarding OUD site histories, risk estimates, and remedial technologies. Additional materials were placed in information repositories established at the Alaska Resources Library. An Administrative Record, including other documents used in the selection of the remedial actions, was established at the Public Works Environmental Resources Office on Fort Richardson. The public is welcome to inspect materials available in the Administrative Record and the information repositories during business hours. Interested citizens were invited to comment on the Proposed Plan and the remedy selection process by mailing comments to the Fort Richardson project manager; by calling a toll-free telephone number to leave a recorded comment, or by attending and commenting at the public meeting on May 13, 1999, at the Russian Jack Chalet in Anchorage. Members of the public and the RAB members attended the meeting. No comments were received from the public during the comment period. The Responsiveness Summary (Appendix B) provides more details regarding community relations activities.

This ROD presents the selected actions for OUD chosen in accordance with CERCLA as amended by SARA and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The decisions for sites in OUD are based on information and documents that are contained in the Administrative Record.

4.0 SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

As with many CERCLA sites at large installations, the RI identified a number of source areas due to the large area and historical uses of the Post. The potential sites and source areas were grouped into OUs based on the amount of existing information, the similarity of potential hazardous waste contamination, and the level of effort required to complete an RI. OUD is the fourth OU to complete the Remedial Investigation/Feasibility (RI/FS) process. OUs A, B, and C have been addressed in previous RODs; only OUD is addressed in this ROD.

The RI fieldwork was completed and reported with the Feasibility Study (FS) and Risk Assessments in the 1998 *Final RI/FS, Operable Unit D – Fort Richardson, Alaska* (three volumes, available at the information repositories). Site-specific human health and ecological risk assessments were performed for each site in OUD.

The no further action decisions for 8 of the sites identified in this ROD are intended to document that the risk to human health and the environment associated with contamination from past activities at Fort Richardson is not present at these sites. Because of new information (aerial photos, interviews with past and present employees, and historical records) discovered after the RI and proposed plan were conducted, two sites (building 35-752, and groundwater beneath and upgradient to Building 45-590-Armored Vehicle Maintenance Area) have been moved to the newly created OUE. In light of the new information, it is apparent that the potential contamination and human health risks have not been adequately addressed at these two sites.

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 site in each of the four OUs and other designated source areas. The objective of the postwide risk assessment was to evaluate potential risks to wide-ranging receptors that may be exposed to multiple sites and source areas, and to fill data gaps that became evident upon thorough review of all data collected during each RI for each OU. The results of this risk assessment will be summarized in OUE.

5.0 SITE CHARACTERISTICS, LAND USES, AND SITE RISKS

A conservative screening process was applied to eliminate those chemicals that did not pose a threat to human health or the environment. First, the frequency of detection for each analyte was determined. Data for chemicals detected in soil at less than 5% frequency of detection were examined to determine if a potential area of high concentration, or hot spot was present. If no high-concentration areas or hot spot were identified, that compound was not considered a threat. Compounds detected at greater than 5% frequency of detection were retained.

Inorganic analytes (i.e., metals and arsenic) were statistically compared to naturally occurring background concentrations using data that are specific to Fort Richardson and the State of Alaska. If analytes detected on OUD sites were statistically greater than naturally occurring background concentrations, they were retained for further consideration. Other detected analytes were compared to nutrient benchmarks based on recommended daily allowances because many detected inorganics are required to sustain human health, such as calcium, iron, and magnesium. Details of the Background Study are located in Appendix C.

Finally, detected analytes were selected as chemicals of potential concern (COPCs) if maximum detected concentrations exceeded predetermined risk-based screening levels. These screening levels were obtained from EPA publications. EPA Region 3 publishes a risk-based concentration (RBC) table for many chemicals. EPA Region 9 has also published a similar listing termed the preliminary remediation goal (PRG) table. Risk-based screening levels for OUD were obtained from these two tables. RBCs and PRGs used for screening purposes were based on conservative residential exposure assumptions. Risk-based screening levels were equal to one-tenth of the values listed in the tables and were selected primarily from the EPA Region 3 RBC table, but were also obtained from the EPA Region 9 PRG table for chemicals absent from the RBC list. Upon completion of the RI, the COPCs that contributed risk greater than the target range or threshold value were determined to be chemicals of concern (COCs).

The NCP requires groundwater to be returned to its beneficial uses. The applicable provision of the NCP [5 CFR 300.430(a)(iii)(F)] reads: "EPA expects to return usable ground waters to their beneficial uses whenever practicable, within a time frame that is reasonable given the particular circumstances of the site. When restoration of ground water to beneficial uses in not practicable, EPA expects to prevent further migration of the plume, prevent exposure to the contaminated ground water, and evaluate further risk reduction." Under state regulations, all groundwater must be considered usable. Title 18 of the *Alaska Administrative Code,* Chapter 75 (18 AAC 75), requires that groundwater at the site be considered a drinking water source unless the groundwater is not used, cannot be used due to hydrogeologic or other limitations, and will not transport contamination to surface water or groundwater used as a drinking water source. Since groundwater must be considered usable, the provisions in the NCP apply, and remediation is required, if there is contamination.

5.1 Source Areas Requiring No Further Action

No Further Action decisions are being made for the following source areas:

Circle Road Drum Site

A Recommended Action Decision Document, which includes a summary of the analytical data and risk analysis, is located in the Administrative Record. Based on the following information, there is no evidence that contaminants remain on site which pose an unacceptable risk to human health or the environment, therefore no further action is warranted at Circle Road Drum Site.

Circle Road Drum Site is located west of the main Fort Richardson cantonment area and southeast of the intersection of Circle Drive and Totman Road. The origin and use of the drums encountered at the site are unknown. A total of 59 drums were discovered in October 1990. The majority of the drums were in poor condition and deposits of tar and other unidentified stains were observed on the surface soil at the site. Wooden pallets and remnants of asphalt piles were also present. After sampling and analysis, the drums were removed by the Army and all identified hazardous wastes and materials disposed through the DRMO.

During a 1991 site investigation, samples were obtained from 11 surface locations and 4 soil boring locations. The results indicated that site soils had been impacted by petroleum hydrocarbons and that trace amounts of volatile and semi-volatile organics were detected in surface soils. Based on the results of this sampling, additional subsurface soil borings were completed in 1992, and samples were analyzed for total residual petroleum hydrocarbons (TRPH), VOCs, halogenated VOCs, pesticides, PCBs, herbicides, and total metals. A summary of analytes detected can be located in Table 1.

Surface and subsurface contamination at the site consisted mainly of TRPH and DRO, no other contaminants were detected. The maximum site-specific concentrations found in the surface soils were 11,000 parts per million (ppm) DRO and 130,000 ppm TRPH. Clean-up action levels of 1000 ppm for DRO and 2000 ppm for TRPH were determined based on the Matrix Score Sheet provided in ADEC's *Interim Guidance for Non-UST Soil Cleanup Levels*, July, 1991. A level C matrix score was calculated for the site based on site specific criteria.

In 1993 and 1994, contaminated debris (tar and wooden pallets) and soil were removed from the site. Areas of soil contamination identified for removal were excavated and sampled until clean-up goals were achieved. Four hundred cubic yards of soil were removed and thermally treated. Sampling of the excavated floor and sidewalls confirmed that cleanup goals had been achieved.

Dust Palliative

A Recommended Action Decision Document, which details the analytical results and risk analysis for this source area is located in the Administrative Record. Based on the following information, there is no evidence that a contaminant release occurred which poses an unacceptable risk to human health or the environment, therefore no further action is warranted at this site.

Prior to the 1970's, road oiling, using waste oils, was a common practice conducted on Fort Richardson to control dust on gravel roads and parking areas. Petroleum hydrocarbons, PCBs, and metals are potential contaminants of concern. No previous investigation of gravel roads or parking lots had been conducted at the Post. The objectives of this investigation were to qualitatively evaluate the impact of road oiling over a large area. During the 1995 PSE investigation three composite samples were collected from four locations known or suspected to have received road oiling in the past. The areas selected for sampling were chosen because they were representative of roads that were historically oiled for dust suppression. The areas included the road to Otter Lake, Roosevelt Road, Davis Highway, and the east side parking lot at Building 796.

Each sample was tested for TRPH, PCBs, pesticides, herbicides, semi-volatile organic compounds, and metals. A semi-quantitative risk assessment was not conducted at this site because all analytes were either 1) not detected, 2) below $1/10^{th}$ of the Region 3 RBC for residential soil, or 3) not statistically different from background sample population, mainly metals. A summary of analytes detected can be found in Table 2.

Arsenic was detected at levels between 5-8 milligrams per kilogram (mg/kg), which is above EPA Region 3 risk screening levels. However, elevated levels of arsenic are naturally occurring in soils at Fort Richardson (6.7 mg/kg avg. background concentration), thus the risk from any contaminants that may have been released due to actions at this site does not exceed the lower benchmark of 10^{-6} risk level.

TRPH values ranged from 39-260 mg/kg. These values do not exceed the State of Alaska Matrix for Level A criteria for non-UST sites. There is no RBC established for petroleum in soils, however, none of the individual constituents exceed 10^{-6} RBC values. PCB's were not detected at this site.

Fire Training Pit

A Recommended Action Decision Document, which details the analytical results and risk analysis for this source area is located in the Administrative Record. Based on the following information, there is no evidence that a contaminant release occurred which poses an unacceptable risk to human health or the environment, therefore no further action is warranted at this site.

This source area is inside the former Fort Richardson landfill north of main cantonment area and northeast of the Grease Pits. The fire training pit is situated over a former landfill. Liquid waste fuels were stored at the site until ready for use. These liquid petroleum hydrocarbons were then poured into the unlined pit and ignited. It is estimated that 1,500 to 2,300 gallons of waste fuels were burned at the pit each year.

A limited field investigation (PSE) was conducted during 1995 that included 10 shallow samples taken below fill material, and 4 borings to depths of 24 feet. All samples were analyzed for petroleum, volatile and semi-volatile organics, PCBs, metals, and dioxins/furans. No groundwater wells were installed because this source is located within an inactive landfill.

This landfill was closed under RCRA Subtitle D of Solid Waste Landfill Regulations and State of Alaska Solid Waste Regulation 18 AAC 60. A soil cap was used as a part of a presumptive remedy for the landfill that includes this site. For this reason, the land use scenario is considered to be only industrial. The cap of soil that covered this area was completed in the summer of 1997. This action creates an incomplete pathway for contact with any contaminants at this site. As part of the closure plan, groundwater sampling has been conducted in wells located around the perimeter of the landfill since 1989. The depth to groundwater under the landfill is 180 feet. In addition, annual inspection of the landfill caps integrity is required. An annual report for groundwater monitoring and cap integrity is provided to the State of Alaska. To date, no contamination has been detected in either the downgradient or upgradient wells. This monitoring program is expected to continue for thirty years under the landfill closure plan.

A semi-quantitative risk assessment was performed at this site. Using both residential and industrial exposure factors, the excess lifetime carcinogenic total risk for soil ingestion was calculated to be 6.1×10^{-6} which does not exceed the EPA Risk Value residential or industrial land scenario. A summary of analytes detected can be found in Table 3.

Arsenic concentrations are representative of background conditions and are not anthropogenic (manmade.) Non-carcinogenic hazard index for the subsurface and surface soil using residential exposure factors were below the estimated threshold for adverse effects (1.0). Arsenic (As) is the main contributor to the risk posed at this site, corresponding to a 10^{-5} excess life time cancer risk. This compound represents 80% of the risk. PCBs account for approximately 18% of the risk. However, As is elevated in the uncontaminated soil at Ft. Richardson (6.7 mg/kg avg. background concentration). Thus, the risk posed by arsenic at this site is due to naturally occurring concentrations of this element found in the soil.

Diesel Range Organics (DRO) were detected in surface samples ranging from 47 to 5370 ppm and in four soil borings ranging from 24 to 1630 ppm at 22 feet bgs. Gasoline Range Organics (GRO) were detected in surface samples ranging from 9 to 12,000 ppm and in one soil boring at 1,200 ppm at 8 to 14 feet bgs. No other contaminants were identified that exceed the State of Alaska Matrix for Level D clean-up for non-UST sites. There is no established RBC for petroleum in soils, however, a constituent analysis of this data does not trigger exceedance of 10^{-6} RBC values.

Grease Pits/Landfill

A Recommended Action Decision Document, which details the analytical results and risk analysis for this source area is located in the Administrative Record. Based on the following information, there is no evidence that a contaminant release occurred which poses an unacceptable risk to human health or the environment, therefore no further action is warranted at this site.

This source area is inside the former Fort Richardson landfill north of main cantonment area and southwest of the Landfill Former Fire Training Area. The history of the grease pits is not well documented. The pits were reportedly used, since the opening of the landfill until 1990's, to dump cooking grease and other oils from field training exercises, trash, and human waste.

A limited field investigation (PSE) was conducted during 1995, which included excavating 7 trenches, that were 5 to 10 feet deep and 12 to 50 feet in length, to locate representative grease pits. Four grease pits were located and samples were collected from the pits. Samples were analyzed for petroleum, volatile and semi-volatile organics, and metals. In addition, soil tensiometers were installed in two of the borings in order to assess groundwater quality in the vadose zone and likelihood of vertical contaminant migration. The result of this assessment indicates that vertical migration of site contaminants to groundwater is not likely to have occurred.

This landfill was closed under RCRA Subtitle D of Solid Waste Landfill Regulations and State of Alaska Solid Waste Regulation 18 AAC 60. A soil cap was used as a part of a presumptive remedy for the landfill that includes this site. For this reason, the land use scenario is considered to be only industrial. The cap of soil that covered this area was completed in the summer of 1997. This action creates an incomplete pathway for contact with any contaminants at this site. As part of the closure plan, groundwater sampling has been conducted in wells located around the perimeter of the landfill since 1989. The depth to groundwater under the landfill is 180 feet. In addition, annual inspection of the landfill caps integrity is required. An annual report for groundwater monitoring and cap integrity is provided to the State of Alaska. No contamination has been detected to date in either the downgradient or upgradient wells. This monitoring program is expected to continue for thirty years under the landfill closure plan.

A total of five groundwater samples were collected for analytical data. Benzene and various VOCs were detected above maximum contaminant levels (MCLs) at depths ranging from 27 to 43 feet. The analytical results for these samples indicate that VOCs attenuate one order of magnitude between 27 and 43 feet bgs. In general, VOCs are located over 100 feet above the average groundwater level of 180 feet bgs. After the cap was installed, the potential for water infiltration was decreased, thus this was deemed a non-plausible pathway.

A semi-quantitative risk assessment was performed at this site for residential and industrial scenarios. Total risk levels of 5.1×10^{-8} for residential and 5.9×10^{-9} for industrial scenarios do not exceed the 10^{-4} EPA risk value for industrial soil ingestion. A summary of analytes detected can be found in Table 4.

Arsenic concentrations are representative of background conditions and are not anthropogenic (manmade). Non-carcinogenic hazard index for the subsurface and surface soil using residential exposure factors were below the estimated threshold for adverse effects (1.0). Arsenic (As) is the main contributor to the risk posed at this site. This compound represents 98% of the risk. However, arsenic is elevated in the uncontaminated soil at Ft. Richardson (6.7 mg/kg avg. background concentration). Thus, the risk posed by As at this site is due to naturally occurring concentrations of this element found in the soil. Note that this semi-quantitative risk assessment assumes the most conservative residential land use scenario.

Stormwater Outfall to Ship Creek

A Recommended Action Decision Document, which details the analytical results and risk analysis for this source area is located in the Administrative Record. Based on the following information, there is no evidence that a contaminant release occurred which poses an unacceptable risk to human health or the environment, therefore no further action is warranted at this site.

This source area is the discharge point for the stormwater drainage system that serves the main cantonment area on Fort Richardson. The stormwater outfall is located approximately 420 yards downstream from cooling ponds at Building 35-752. It was believed that oils, fuels, solvents, herbicides and pesticides, metals, and PCBs may have been carried from the cantonment area by surface runoff and deposited in soil and sediment in the stormwater outfall ditch. The stormwater system has drained through the stormwater outfall into Ship Creek since the construction of the main cantonment area in 1955. Fort Richardson does not have a National Pollutant Discharge Elimination System permit for stormwater discharge.

During the 1995 PSE investigation, sidewall and sediment samples were collected from the outfall drainage ditch and Ship Creek (in the immediate vicinity of the outfall). Samples were also collected further up Ship Creek from the outfall point to assess background constituents or contaminant sources, and downstream to assess potential discharge of contaminants. Two samples were also collected from the stormwater drainage ditch to assess the presence of petroleum hydrocarbons, VOCs, PCBs, pesticides, and metals.

Analytical data indicated that concentrations of some chemicals exceeded the lowest sediment benchmark value. These analyticals were used in the Postwide Ecological Risk Assessment. This assessment addressed risks posed by contaminants from all source areas that could potentially pose an ecological risk. The Post Wide Assessment did not find a risk to aquatic or terrestrial wildlife. This assessment is located in the Administrative Record.

The only detected potential contaminants in sediments were background metals and low level petroleum. A summary of analytes detected can be found in Table 5. A semi-quantitative risk assessment was performed at this site for residential and industrial scenarios. These levels for total risk of 5.1×10^{-8} for residential and 5.9×10^{-9} for industrial scenarios do not exceed the 10^{-4} EPA risk value for industrial soil ingestion. These levels are within the 10^{-4} to 10^{-6} acceptable EPA risk range as specified in 300.430(e)(2)(i)(A)(2) of the NCP.

No contaminants were identified that exceed the State of Alaska Soil Clean-up Matrix Level A criteria. There is no established RBC for petroleum in soils, however, a constituent analysis of this data does not trigger exceedance of 10^{-6} RBC values.

Building 726 Laundry Facility

A Recommended Action Decision Document, which details the analytical results and risk analysis for this source area is located in the Administrative Record. Based on the following information,

there is no evidence that a contaminant release occurred which poses an unacceptable risk to human health or the environment, therefore no further action is warranted at this site.

Building 726 is located in the western portion of Fort Richardson between Davis Highway and Richardson Drive. Building operations include dry cleaning, clothes washing, and mattress washing. Chemicals used at the site include the dry cleaning solvents tetrachloroethene (PCE) and Stoddard solvent.

Dry cleaning solvents were stored on site in three USTs until 1972. These tanks were determined to be leaking and were removed in 1987. As part of the tank removal, contaminated soil was removed, aerated in the adjacent parking lot, then back filled. According to former Post employees, analytical samples were not taken to confirm that the soil was clean.

This source area was investigated in the OUD RI. Soil samples from borings were analyzed for GRO, DRO, VOCs, and metals. Groundwater samples were analyzed for GRO, DRO, VOCs, and total petroleum hydrocarbons. Levels of dry cleaning solvents in the soil for unrestricted use and groundwater were below federal and state drinking water standards for unrestricted use. A summary of analytes detected can be found in Table 6.

Although a release occurred, the Risk Assessment determined that there is no risk to human health and the environment, therefore no action is required. The OUD RI including the risk assessment that contains the analytical data and risk analysis for this source area are located in the Administrative Record.

5.2 Two-Party Agreement Sites

Sites and source areas where only petroleum contamination was identified were referred to the Two-Party Agreement between the Army and the State of Alaska. The Two-Party Agreement is actually two separate agreements which focus on source areas at Fort Richardson contaminated with petroleum for underground storage tank (UST) sites and petroleum sites not associated with USTs. These agreements are part of the FFA for Fort Richardson, which is explained further in Appendix D. Decisions for cleanup within the Two-Party Agreements, officially referred to as the State-Fort Richardson Environmental Restoration Agreement for Non-UST sites signed in 1994 and the State-Fort Richardson Underground Storage Tank Compliance Agreement for USTs signed in 1993. These agreements are part of OUD and will become part of the OUD ROD as required in Part 3.5 of Attachment 1 of the FFA and Section 5 of the State-Fort Richardson Environmental Restoration Agreement. These Two-Party Agreements, which represent the petroleum cleanup strategy, document all known historical petroleum sources on Fort Richardson and their current cleanup status. These agreements verify the Army's commitment to adequately address these petroleum source areas in a manner consistent with state regulations: Alaska Administrative Code Title 18 Chapters 75 Oil & Hazardous Substances Pollution Control and 78 Underground Storage Tanks. A status summary for each site can be found in Appendix E.

Building 700/718

No further action under CERCLA is recommended in the ROD and the site was referred to the State-Fort Richardson Environmental Restoration Agreement for further investigation and/or remedial action. Based on the above information, there is no evidence that a contaminant release occurred which poses an unacceptable risk to human health or the environment.

Building 700/718, the Recurring Maintenance Building and Paint Shop, is located on First Street. During the 1990's, wastes generated from Building 700 were temporarily stored in a drum accumulation area on the east side of Building 718. Additional drums had been transported to this location from a warehouse facility in Haines, Alaska. In 1990, an EPA RCRA inspection noted drums that were not properly handled and resulted in a NOV. A characterization of the wastes stored in the drums was performed in 1990. The results indicated that mineral spirits, Stoddard solvent, gasoline, JP-4, kerosene, fuel oil, lubrication oil, ethylene glycol, and PCBs were detected at the site. Analytical results are summarized in the OUD PSE 2 report dated April 1995. The drums were removed in April 1991 and transported to DRMO for disposal. About 200 cubic yards of contaminated soil were excavated and transported to Alaska Soil Recycling for thermal treatment. The site is currently active as a supply storage yard but is no longer used to store drummed wastes.

During the 1995 PSE2, surface soils and soil borings were sampled for potential contaminants of concern located at this source area. During the sampling event an observational approach was applied to assure samples were taken in areas representing potential worst case contamination.

A semi-quantitative risk assessment was performed at this site for residential and industrial scenarios. Total risk levels of 9.0×10^{-8} for residential and 3.4×10^{-7} for industrial scenarios do not exceed the EPA risk value for residential and industrial soil ingestion. The only contaminants detected were DDT ranging from ND to 0.25 mg/kg, PCB in 2 samples at 0.2 mg/kg, and metals at background levels. A summary of analytes detected can be found in Table 7.

Arsenic concentrations are representative of background conditions and are not anthropogenic (manmade). Non-carcinogenic hazard index for the subsurface and surface soil using residential exposure factors were below the estimated threshold for adverse effects (1.0). Arsenic (As) is the main contributor to the risk posed at this site (corresponding to a 10^{-5} excess life time cancer risk. This compound represents 82% of the risk. PCBs account for 18% of the risk. However, arsenic is elevated in the uncontaminated soil at Ft. Richardson (6.7 mg/kg avg. background concentration). The risk posed by arsenic is due to the arsenic that is naturally occurring in the soil. Note that this semi-quantitative risk assessment assumes the most conservative residential land use scenario.

DRO were detected in surface samples ranging from 12 to 24000 ppm and in one soil boring at 73 ppm (4 to 6 feet bgs). GRO were detected in 1 surface sample at 177 ppm and in one soil boring at 120 ppm (0-4 feet bgs). Petroleum contaminated soil was removed in 1998. No contaminants were identified in the confirmation samples that exceeded the State of Alaska Matrix for Level A

clean-up for non-UST sites. There is no established RBC for petroleum in soils, however, a constituent analysis of this data does not trigger exceedance of 10^{-6} RBC values.

Building 704

No further action under CERCLA is recommended in the ROD and the site was referred to the State-Fort Richardson Environmental Restoration Agreement for further investigation and/or remedial action. Based on the above information, there is no evidence that a contaminant release occurred which poses an unacceptable risk to human health or the environment.

Building 704 is located at the northeast corner of the intersection of First Street and D Street. Building 704 and the surrounding parking lot are used for the storage of Department of Public Works vehicles and heavy equipment. Past environmental records and interviews with employees indicate that the site was used as a drum staging area from the 1950's until 1991. Drums at this site contained waste paint, brake fluid, lubricating oil, gasoline, diesel, kerosene, and unused petroleum products. All containers were removed in 1991 and disposed of through DRMO.

During the April 1995 investigation eight surface samples and two 20-foot borings were sampled for potential contaminants of concern located at this source area. During the sampling event an observational approach was applied to assure samples were taken in areas representing potential worst case contamination.

A semi-quantitative risk assessment was performed at this site for residential and industrial scenarios. The levels for total risk for soil ingestion was $9.6x10^{-7}$ for residential scenarios and $1.1x10^{-7}$ for industrial scenarios. These values do no exceed the EPA risk value for residential or industrial soil ingestion. The only contaminants detected at the site were DDT at levels ranging from ND to 0.57 mg/kg (estimated value), chlordane at levels ranging from ND to 2.5 mg/kg (estimated value), and background metals. A summary of analytes detected can be found in Table 8.

Arsenic concentrations are representative of background conditions and are not anthropogenic (manmade). Non-carcinogenic hazard index for the subsurface and surface soil using residential exposure factors were below the estimated threshold for adverse effects (1.0). Arsenic (As) is the main contributor to the risk posed at this site (corresponding to a 10^{-5} excess life time cancer risk. This compound represents 94% of the risk. However, arsenic is elevated in the uncontaminated soil at Ft. Richardson (6.7 mg/kg avg. background concentration). The risk posed by arsenic is due to naturally occurring concentrations in the soil. Note that this semi-quantitative risk assessment assumes the most conservative residential land use scenario.

DRO were detected in surface samples ranging from 20 to 1454 ppm and in one boring at 14 ppm (9 to11 feet bgs). No other contaminants were identified that exceed the State of Alaska Matrix for Level A clean-up for non-UST sites. There is no established RBC for petroleum in soils, however, a constituent analysis of this data does not trigger exceedance of 10^{-6} RBC values.

TABLE 1 Summary of Analytes Detected
Circle Road Drum Site Soil Sample Analytical Results

	Location:	AP-3027			AP 3028				AP-3029	A	A
	Sample Depth:	5'	10'	15'	6-24"	5'	10'	15'	6-24"	6-24"	6-24"
	Sample ID:	91FTMS-01SL	91FTMS-02SL	91FTMS-03SL	91FTMS-04SL	91FTMS-05SL	91FTMS-06SL	91FTMS-07SL	91FTMS-08SL	91FTMS-09SL	91FTMS-10SL
	Lab Code:	K3914-1	K3914-2	K3914-3	K3914-4	K3914-5	K3914-6	K3914-7	K3946-1	K3946-2	K3946-1
	Date Collected:	7/13/91	7/13/91	7/13/91	7/13/91	7/13/91	7/13/91	7/13/91	7/16/91	7/11/91	91A004575
Compound	**Residential RBC**										
Petroleum Hydrocarbons (mg/Kg)											
TRPH	none	290	100	74	150	170	54	63	130000	NA	NA
DRO	none	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EPH	none	67	ND	ND	ND	ND	ND	ND	11000	NA	NA
Organochlorine Pesticides (mg/Kg)											
2,4-D		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)											
Acetone	7,800,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	85,000	ND	5000 JB	ND	ND	ND	ND	ND	ND	ND	0.12
Dichloropropanol	none	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	7,800,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	none	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethane	12,000	ND	ND	ND	ND	ND	ND	ND	0.16	0.23	0.038
2-Methylnaphthalene	none	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	3,100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
NA = Not analyzed for.
J = Value is considered an estimate.
B = The analyte was detected in the blank.

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TABLE 1 Summary of Analytes Detected (cont.)
Circle Road Drum Site Soil Sample Analytical Results

Location:		AP-3029		AP-3030						
Sample Depth:		10'	15'	6-24"	6-24"	6-24"	5'	10'	15'	20'
Sample ID:		91FTMS-11SL	91FTMS-12SL	91FTMS-13SL	91FTMS-14SL	91FTMS-15SL	91FTMS-16SL	91FTMS-17SL	91FTMS-18SL	91FTMS-19SL
Lab Code:		K3946-3	K3946-4	K3946-5	K3946-6	91A004576	K3946-7	K3946-8	K3946-9	K3946-10
Date Collected:		7/13/91	7/13/91	7/13/91	7/13/91	7/13/91	7/13/91	7/13/91	7/13/91	7/16/91
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
TRPH	none	160	290	470	380	26	220	270	30	ND
DRO	none	NA	NA	NA	NA	ND	NA	NA	NA	NA
EPH	none	35	37	78	43	NA	44	34	49	29
Organochlorine Pesticides (mg/Kg)										
2,4-D		ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)										
Acetone	7,800,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	85,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichloropropanol	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	7,800,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethane	12,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	3,100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
NA = Not analyzed for.
J = Value is considered an estimate.
B = The analyte was detected in the blank.

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TABLE 1 Summary of Analytes Detected (cont.)
Circle Road Drum Site Soil Sample Analytical Results

	Location:	B	B	B	C	D	D	D	E	E	E
	Sample Depth:	6-24"	6-24"	6-24"	6-24"	6-24"	6-24"	6-24"	6-24"	6-24"	6-24"
	Sample ID:	91FTMS-20SL	91FTMS-21SL	91FTMS-22SL	91FTMS-23SL	91FTMS-24SL	91FTMS-25SL	91FTMS-26SL	91FTMS-27SL	91FTMS-29SL	91FTMS-30SL
	Lab Code:	K3946-11	K3946-12	91A004577	K3946-13	K3946-14	K3946-15	936-8	K3946-16	91A004378	936-3
	Date Collected:	7/16/91	7/16/91	7/16/91	7/16/91	7/16/91	7/11/91	7/11/91	7/16/91	7/11/91	7/12/91
Compound	**Residential RBC**										
Petroleum Hydrocarbons (mg/Kg)											
TRPH	none	97	160	2500	51	NA	NA	NA	NA	NA	NA
DRO	none	NA	NA	1.8	NA	NA	NA	NA	NA	NA	NA
EPH	none	62	41	NA	42	17	NA	NA	1,700	1,700	NA
Organochlorine Pesticides (mg/Kg)											
2,4-D		ND	ND	ND	ND	ND	ND	0.021 J	ND	ND	ND
Volatile Organic Compounds (µg/Kg)											
Acetone	7,800,000	23000 B	17000 B	ND	ND	ND	ND	ND	ND	ND	28000 B
Methylene Chloride	85,000	5000 JB	6000 B	ND	ND	ND	ND	ND	ND	ND	7000 B
Dichloropropanol	none	ND	ND	ND	ND	ND	ND	0.034 J	15	ND	ND
Toluene	16,000,000	ND	ND	ND	ND	ND	ND	ND	ND	0.012	ND
Ethylbenzene	7,800,000	ND	ND	ND	ND	ND	ND	ND	ND	0.095	ND
Total Xylenes	160,000,000	ND	ND	35000	ND	ND	ND	ND	ND	1.12	6 J
1,2,4-Trichlorobenzene	none	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethane	12,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	none	ND	ND	ND	ND	ND	ND	ND	18	ND	ND
Naphthalene	3,100,000	ND	ND	ND	ND	ND	ND	ND	5.4	ND	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
NA = Not analyzed for.
J = Value is considered an estimate.
B = The analyte was detected in the blank.

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TABLE 1 Summary of Analytes Detected (cont.)
Circle Road Drum Site Soil Sample Analytical Results

	Location:	G	G	G	H	I	J	K	K	K
	Sample Depth:	6-24"	6-24"	6-24"	6-24"	6-24"	6-24"	6-24"	6-24"	6-24"
	Sample ID:	91FTMS-31SL	91FTMS-32SL	91FTMS-33SL	91FTMS-34SL	91FTMS-35SL	91FTMS-36SL	91FTMS-37SL	91FTMS-38SL	91FTMS-39SL
	Lab Code:	K3946-19	K3946-20	91A004579	K3946-21	K3946-22	K3946-23	K3946-24	936-4	K3946-27
	Date Collected:	7/16/91	7/16/91	7/16/91	7/16/91	7/16/91	7/16/91	7/16/91	7/17/91	7/16/91
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
TRPH	none	110	120	96	950	7,400	260	300	300	300
DRO	none	NA	NA	1.4	NA	NA	NA	NA	NA	NA
EPH	none	42	43	NA	43	160	32	48	48	48
Organochlorine Pesticides (mg/Kg)										
2,4-D		ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)										
Acetone	7,800,000	ND	ND	ND	ND	ND	ND	ND	31000 B	31 B
Methylene Chloride	85,000	ND	ND	ND	ND	ND	ND	ND	9000 B	9 B
Dichloropropanol	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	7,800,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	ND	ND	ND	ND	ND	ND	ND	ND	91000
1,2,4-Trichlorobenzene	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethane	12,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	3,100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
NA = Not analyzed for.
J = Value is considered an estimate.
B = The analyte was detected in the blank.

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TABLE 2 Summary of Analytes Detected
Dust Palliative Roadway Soil Sample Analytical Results

Part 1 of 2

	Location:	Building 796				Roosevelt Road			
	Sample:	Surface 1		Surface 2	Surface 3	Surface 1		Surface 2	Surface 3
	Sample ID:	94DUST09SL	94DUST10SL	94DUST11SL	94DUST12SL	94DUST01SL	94DUST02SL	94DUST04SL	94DUST05SL
	Lab Code:	K946743-001	K946743-002	K946743-003	K946743-004	K946450-001	K946450-002	K946450-003	K946450-004
	Date Collected:	10/26/94	10/26/94	10/26/94	10/26/94	10/15/94	10/15/94	10/15/94	10/15/94
Compound	**Residential RBC**								
Petroleum Hydrocarbons (mg/Kg)									
TPH	none	52	66	130	71	76	94	140	87
Organochlorine Pesticides (mg/Kg)									
4,4'-DDT	1.9	ND	ND	0.01	0.02	0.07	0.13	0.18	0.1
Semivolatile Organic Compounds (mg/Kg)									
Bis(2-ethylhexyl) Phthalate	46	ND	ND	ND	ND	ND	0.6	0.9	ND
Total Metals (mg/Kg)									
Arsenic	0.37	7	7	5	6	6	7	6	6
Barium	5,500	51	41	41	54	81	81	48	50
Chromium	390	23 J	23 J	23 J	18 J	34	42	43	31
Lead	none	20 J	17 J	25 J	14 J	9	11	13	10
Nickel	1,600	40	32	30	23	35	34	42	40

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Dust Palliative Roadway Appendix for MRL values.)
J = Value is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 2 Summary of Analytes Detected (cont.)
Dust Palliative Roadway Soil Sample Analytical Results

Part 2 of 2

	Location:	UC 5497			UC 5997		
	Sample:	Surface 1	Surface 2	Surface 3	Surface 1	Surface 2	Surface 3
	Sample ID:	94DUST06SL	94DUST07SL	94DUST08SL	94DUST13SL	94DUST14SL	94DUST15SL
	Lab Code:	K946450-005	K946450-006	K946450-007	K946743-005	K946743-006	K946743-007
	Date Collected:	10/15/94	10/15/94	10/15/94	10/26/94	10/26/94	10/26/94
Compound	**Residential RBC**						
Petroleum Hydrocarbons (mg/Kg)							
TPH	none	59	136	39	98	114	260
Organochlorine Pesticides (mg/Kg)							
4,4'-DDT	1.9	ND	ND	ND	0.09	0.04	0.05
Semivolatile Organic Compounds (mg/Kg)							
Bis(2-ethylhexyl) Phthalate	46	ND	ND	ND	<0.6	ND	ND
Total Metals (mg/Kg)							
Arsenic	0.37	6	6	6	8	7	5
Barium	5,500	60	65	70	43	58	46
Chromium	390	31	36	30	20 J	17 J	16 J
Lead	none	7	7	7	13 J	16 J	27 J
Nickel	1,600	36	40	33	42	28	22

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Dust Palliative Roadway Appendix for MRL values.)
J = Value is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 3 Summary of Analytes Detected
Fire Training Area Soil Sample Analytical Results

Part 1 of 9

Location:		SB AP 3518				SB AP 3519				
Sample Depth:		2'-6'	6'-10'	10'-18'	18'-22'	2'-8'		8'-14'	14'-18'	20'-22'
Sample ID:		94FTP112SL	94FTP113SL	94FTP114SL	94FTP115SL	94FTP116SL	94FTP117SL	94FTP118SL	94FTP119SL	94FTP120SL
Lab Code:		K7227-001	K7227-002	K7227-003	K7227-004	K7227-005	K7276-009	K7276-010	K7276-011	7276-012
Date Collected:		11/15/94	11/15/94	11/15/94	11/15/94	11/15/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
GRO	none	ND	ND	91	ND	1,800	1,900	1,200	ND	ND
DRO	none	461	1,630	1,250	315	1,120	1,180	360	ND	ND
TPH	none	490 J	2,900 J	17,000 J	2,700 J	2,100 J	1,700 J	470 J	10 J	10 UJ
Organochlorine Pesticides (mg/Kg)										
4,4'-DDD	2.7	ND	0.04	<0.03	<0.02	ND	ND	<0.02	ND	ND
4,4'-DDE	1.9	ND	<0.03	<0.02	<0.02	ND	ND	0.07	ND	ND
Polychlorinated Biphenyls (PCBs) (mg/Kg)										
Aroclor 1232	none	ND	<3.5	<0.7	<1.2	ND	ND	3.6	ND	ND
Aroclor 1248	none	ND	<1.5	0.2	<0.6	ND	ND	<0.3	ND	ND
Aroclor 1254	1.6	ND	<0.7	<0.7	<0.6	ND	ND	0.4	ND	ND
Aroclor 1260	none	ND	<0.7	0.5	<0.3	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)										
Acetone	7,800,000	ND	110	<13,000	81	240	<6,500	200	97	6,800
Methylene Chloride	85,000	ND	ND	<2,600	ND	ND	<1,300	ND	ND	ND
2-Butanone (MEK)	47,000,000	ND	ND	<5,200	ND	75	<2,600	57	73	3200
Benzene	22,000	ND	ND	<1,300	ND	9	<650	ND	ND	ND
2-Hexanone	none	ND	ND	<5,200	ND	ND	<2,600	ND	ND	ND
Toluene	16,000,000	8	11	<1,300	ND	310	1,500	50	17	12
4-Methyl-2-pentanone (MIBK)	none	ND	ND	<5,200	ND	ND	<2,600	72	ND	ND
Ethylbenzene	7,800,000	ND	ND	1,700	ND	120	840	45	5	ND
Total Xylenes	160,000,000	7	ND	10,000	17	810	6,400	340	35	11
Isopropylbenzene	3,100,000	ND	ND	<5,200	ND	48	<2,600	ND	ND	ND
n-Propylbenzene	none	ND	ND	<5,200	ND	150	<2,600	84	ND	ND
1,3,5-Trimethylbenzene	31,000	ND	ND	6,500	ND	270	<2,600	150	ND	ND
1,2,4-Trimethylbenzene	39,000	ND	ND	18,000	ND	810	6,700	400	41	ND
sec-Butylbenzene	780,000	ND	ND	<5,200	ND	68	<2,600	ND	ND	ND
4-Isopropyltoluene	none	ND	ND	5,600	ND	55	<2,600	60	ND	ND
1,4-Dichlorobenzene	27,000	ND	ND	2,900	73	ND	<650	ND	ND	ND
Naphthalene	3,100,000	ND	ND	<5,200	37	730	3,100	ND	ND	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
J = Value is considered an estimate.
UJ = The analyte was not detected at the MRL, however, the MRL is considered an estimate.

TABLE 3 Summary of Analytes Detected (cont.)
Fire Training Area Soil Sample Analytical Results

Location:		SB AP 3518				SB AP 3519				
Sample Depth:		2'-6'	6'-10'	10'-18'	18'-22'	2'-8'		8'-14'	14'-18'	20'-22'
Sample ID:		94FTP112SL	94FTP113SL	94FTP114SL	94FTP115SL	94FTP116SL	94FTP117SL	94FTP118SL	94FTP119SL	94FTP120SL
Lab Code:		K7227-001	K7227-002	K7227-003	K7227-004	K7227-005	K7276-009	K7276-010	K7276-011	7276-012
Date Collected:		11/15/94	11/15/94	11/15/94	11/15/94	11/15/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94
Compound	**Residential RBC**									
Semivolatile Organic Compounds (mg/Kg)										
Naphthalene	3,100	ND	2.2	<1.5	0.4	5	8	0.7	ND	ND
2-Methylnaphthalene	none	ND	<1.5	<1.5	ND	8	10	1	ND	ND
Diethyl Phthalate	63,000	ND	<1.5	<1.5	0.3	<3	<3	ND	ND	ND
Di-n-butyl Phthalate	none	ND	<1.5	<1.5	0.4	<3	<3	ND	ND	ND
Butylbenzyl Phthalate	16,000	ND	<1.5	4.9	0.5	<3	<3	ND	ND	ND
Bis(2-ethylhexyl) Phthalate	46	ND	<1.5	1.7	0.7	<3	<3	ND	ND	ND
3- and 4-Methylphenol	390	ND	<1.5	2.7	0.7	<3	<3	ND	ND	ND
Total Metals (mg/Kg)										
Arsenic	0.37	5	6	6	5	4	7	10	7	8
Barium	5,500	65	76	76	51	46	50	49	58	41
Cadmium	39	ND	4	ND	ND	ND	ND	ND	ND	ND
Chromium	390	35	34	41	41	30	46	30	24	22
Lead	none	15	111	87	18	10	15	8	7	6
Mercury	23	ND	0.3	0.3	ND	ND	ND	ND	ND	ND
Nickel	1,600	37	37	37	34	37	46	33	30	26
Silver	390	ND	2	ND	ND	ND	ND	ND	ND	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

TABLE 3 Summary of Analytes Detected (cont.)
Fire Training Area Soil Sample Analytical Results

	Location:	SB AP 3518				SB AP 3519				
	Sample Depth:	2'-6'	6'-10'	10'-18'	18'-22'	2'-8'		8'-14'	14'-18'	20'-22'
	Sample ID:	94FTP112SL	94FTP113SL	94FTP114SL	94FTP115SL	94FTP116SL	94FTP117SL	94FTP118SL	94FTP119SL	94FTP120SL
	Lab Code:	K7227-001	K7227-002	K7227-003	K7227-004	K7227-005	K7276-009	K7276-010	K7276-011	7276-012
	Date Collected:	11/15/94	11/15/94	11/15/94	11/15/94	11/15/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94
Compound	**Residential RBC**									
Dioxins & Furans (pg/g)										
2,3,7,8-TCDD	4,000	ND	1.6	ND	ND	ND	ND	ND	ND	ND
Total TCDD	none	ND	21	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-PeCDD	none	ND	5.5	ND	ND	ND	ND	ND	ND	ND
Total PeCDD	none	ND	42	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-HxCDD	none	ND	7.4	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-HxCDD	none	ND	100	20	2.7	ND	ND	ND	ND	ND
1,2,3,7,8,9-HxCDD	none	ND	25	5.6	ND	ND	ND	ND	ND	ND
Total HxCDD	none	ND	480	99	13	ND	ND	1.4	ND	ND
1,2,3,4,6,7,8-HpCDD	none	5.1	1,200	340	70	4.3	4	7.2	ND	ND
Total HpCDD	none	8.8	2,000	580	150	7.9	7.5	12	ND	ND
OCDD	none	35	10,000	3,200	1,300	32	40	84	1	0.99
2,3,7,8-TCDF	none	ND	4.4	ND	ND	ND	ND	ND	ND	ND
Total TCDF	none	1.9	61	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-PeCDF	none	ND	2.5	ND	ND	ND	ND	ND	ND	ND
2,3,4,7,8-PeCDF	none	ND	4.3	ND	ND	ND	ND	ND	ND	ND
Total PeCDF	none	3.6	61	6.4	ND	0.7	ND	ND	ND	ND
1,2,3,4,7,8-HxCDF	none	ND	10	4.8	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-HxCDF	none	ND	14	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-HxCDF	none	ND	11	3.4	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-HxCDF	none	ND	2.2	ND	ND	ND	ND	ND	ND	ND
Total HxCDF	none	2.1	680	150	11	ND	ND	1.5	ND	ND
1,2,3,4,6,7,8-HpCDF	none	2.1	560	110	14	1.4	1.1	1.2	ND	ND
1,2,3,4,7,8,9-HpCDF	none	ND	17	6.1	ND	ND	ND	ND	ND	ND
Total HpCDF	none	5	2,200	450	65	2.2	3.6	3.7	ND	ND
OCDF	none	5	2,200	530	62	ND	2.8	2.3	ND	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
TCDD = Tetrachlorodibenzo-p-dioxin
PeCDD = Pentachlorodibenzo-p-dioxin
HxCDD = Hexachlorodibenzo-p-dioxin
HpCDD = Heptachlorodibenzo-p-dioxin
TCDF = Tetrachlorodibenzofuran
PeCDF = 1,2,3,7,8-Pentachlorodibenzofuran
HxCDF = Hexachlorodibenzofuran
HpCDF = Heptachlorodibenzofuran

TABLE 3 Summary of Analytes Detected (cont.)
Fire Training Area Soil Sample Analytical Results

	Location:	SB AP 3520				SB AP 3521			Surface 1	Surface 2
	Sample Depth:	2'-10'	13'-17'	17'-23'		2'-6'	12'-16'	16'-20'	2.5'-4.5'	2'-6'
	Sample ID:	94FTP121SL	94FTP122SL	94FTP123SL	94FTP124SL	94FTP125SL	94FTP126SL	94FTP127SL	94FTP101SL	94FTP102SL
	Lab Code:	K7276-005	K7276-006	K7276-007	K7276-008	K7276-001	K7276-002	K7276-003	K946749-007	K946749-008
	Date Collected:	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	10/27/94	10/27/94
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
GRO	none	920	ND	ND	ND	634	ND	ND	1,800	9
DRO	none	985	ND	ND	ND	764	208	24	3,610	64
TPH	none	1,300 J	16 J	10 UJ	16 J	1,100	430	35	5,800	89
Organochlorine Pesticides (mg/Kg)										
4,4'-DDD	2.7	ND	ND	ND	ND	ND	ND	0.01	ND	ND
4,4'-DDE	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls (PCBs) (mg/Kg)										
Aroclor 1232	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1260	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)										
Acetone	7,800,000	<6,500	120	330	310	<13,000	52	460	<13,000	ND
Methylene Chloride	85,000	<1,300	ND	ND	ND	<2,600	19	ND	<2,600	31
2-Butanone (MEK)	47,000,000	<2,600	210	330	1700	<5,200	ND	300	<5,200	ND
Benzene	22,000	<650	ND	ND	ND	<1,300	ND	ND	<1,300	ND
2-Hexanone	none	<2,600	ND	ND	ND	<5,200	ND	84	<5,200	ND
Toluene	16,000,000	2,900	8	10	25	<1,300	6	13	1,900	7
4-Methyl-2-pentanone (MIBK)	none	<2,600	ND	25	30	<5,200	ND	ND	<5,200	ND
Ethylbenzene	7,800,000	1,600	ND	ND	6	2,100	ND	9	<1,300	ND
Total Xylenes	160,000,000	13,000	10	7	41	10,000	13	71	68,000	18
Isopropylbenzene	3,100,000	<2,600	ND	ND	ND	<5,200	ND	ND	<5,200	ND
n-Propylbenzene	none	<2,600	ND	ND	ND	<5,200	ND	ND	<5,200	ND
1,3,5-Trimethylbenzene	31,000	<2,600	ND	ND	ND	24,000	ND	ND	30,000	ND
1,2,4-Trimethylbenzene	39,000	5,400	ND	ND	ND	47,000	ND	40	39,000	ND
sec-Butylbenzene	780,000	<2,600	ND	ND	ND	<5,200	ND	ND	<5,200	ND
4-Isopropyltoluene	none	<2,600	ND	ND	ND	<5,200	ND	39	<5,200	ND
1,4-Dichlorobenzene	27,000	<650	ND	ND	ND	<1,300	ND	ND	<1,300	ND
Naphthalene	3,100,000	3,100	ND	ND	ND	15,000	ND	ND	<5,200	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
J = Value is considered an estimate.
UJ = The analyte was not detected at the MRL, however, the MRL is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

TABLE 3 Summary of Analytes Detected (cont.)
Fire Training Area Soil Sample Analytical Results

	Location:	SB AP 3520				SB AP 3521			Surface 1	Surface 2
	Sample Depth:	2'-10'	13'-17'	17'-23'		2'-6'	12'-16'	16'-20'	2.5'-4.5'	2'-6'
	Sample ID:	94FTP121SL	94FTP122SL	94FTP123SL	94FTP124SL	94FTP125SL	94FTP126SL	94FTP127SL	94FTP101SL	94FTP102SL
	Lab Code:	K7276-005	K7276-006	K7276-007	K7276-008	K7276-001	K7276-002	K7276-003	K946749-007	K946749-008
	Date Collected:	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	10/27/94	10/27/94
Compound	**Residential RBC**									
Semivolatile Organic Compounds (mg/Kg)										
Naphthalene	3,100	3	ND	ND	ND	<3	ND	ND	9	ND
2-Methylnaphthalene	none	5	ND	ND	ND	5	ND	ND	8	ND
Diethyl Phthalate	63,000	<3	ND	ND	ND	<3	ND	ND	<2	ND
Di-n-butyl Phthalate	none	<3	ND	ND	ND	<3	ND	ND	<2	ND
Butylbenzyl Phthalate	16,000	<3	ND	ND	ND	<3	ND	ND	<2	ND
Bis(2-ethylhexyl) Phthalate	46	<3	ND	ND	ND	<3	ND	ND	<2	ND
3- and 4-Methylphenol	390	<3	ND	ND	ND	<3	ND	ND	<2	ND
Total Metals (mg/Kg)										
Arsenic	0.37	9	7	8	7	7	6	6	6	7
Barium	5,500	47	39	62	73	64	38	44	80	64
Cadmium	39	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	390	33	28	41	30	41	32	31	35	31
Lead	none	9	7	9	6	9	7	8	15	10
Mercury	23	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	1,600	40	35	44	34	78	40	46	47	39
Silver	390	ND	ND	ND	ND	ND	ND	ND	ND	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

TABLE 3 Summary of Analytes Detected (cont.)
Fire Training Area Soil Sample Analytical Results

	Location:	SB AP 3520				SB AP 3521			Surface 1	Surface 2
	Sample Depth:	2'-10'	13'-17'	17'-23'		2'-6'	12'-16'	16'-20'	2.5'-4.5'	2'-6'
	Sample ID:	94FTP121SL	94FTP122SL	94FTP123SL	94FTP124SL	94FTP125SL	94FTP126SL	94FTP127SL	94FTP101SL	94FTP102SL
	Lab Code:	K7276-005	K7276-006	K7276-007	K7276-008	K7276-001	K7276-002	K7276-003	K946749-007	K946749-008
	Date Collected:	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	11/15,16/94	10/27/94	10/27/94
Compound	**Residential RBC**									
Dioxins & Furans (pg/g)										
2,3,7,8-TCDD	4,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total TCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-PeCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PeCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-HxCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-HxCDD	none	ND	ND	ND	ND	ND	1.5	ND	ND	ND
1,2,3,7,8,9-HxCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total HxCDD	none	ND	ND	ND	ND	ND	5.7	ND	ND	ND
1,2,3,4,6,7,8-HpCDD	none	3.3	ND	ND	ND	3.6	36	4.5	2.2	3.8
Total HpCDD	none	6.3	ND	ND	ND	6.8	69	7.9	3.9	6.8
OCDD	none	24	1.3	1.2	1.1	26	490	38	17	29
2,3,7,8-TCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total TCDF	none	ND	ND	ND	ND	1.6	ND	ND	ND	0.57
1,2,3,7,8-PeCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,7,8-PeCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PeCDF	none	ND	ND	ND	ND	1.8	ND	ND	0.34	2.5
1,2,3,4,7,8-HxCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-HxCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-HxCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8,9-HxCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total HxCDF	none	ND	ND	ND	ND	1.9	5.9	ND	0.95	2.3
1,2,3,4,6,7,8-HpCDF	none	ND	ND	ND	ND	1.4	4.9	ND	0.76	1.3
1,2,3,4,7,8,9-HpCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total HpCDF	none	1.5	ND	ND	ND	3.8	22	ND	2.1	3.8
OCDF	none	3.2	ND	ND	ND	3.4	15	2.9	2	3.7

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)

TCDD = Tetrachlorodibenzo-p-dioxin
PeCDD = Pentachlorodibenzo-p-dioxin
HxCDD = Hexachlorodibenzo-p-dioxin
HpCDD = Heptachlorodibenzo-p-dioxin

TCDF = Tetrachlorodibenzofuran
PeCDF = 1,2,3,7,8-Pentachlorodibenzofuran
HxCDF = Hexachlorodibenzofuran
HpCDF = Heptachlorodibenzofuran

TABLE 3 Summary of Analytes Detected (cont.)
Fire Training Area Soil Sample Analytical Results

	Location:	Surface 3	Surface 4		Surface 5	Surface 6	Surface 7	Surface 8	Surface 9	Surface 10
	Sample Depth:	2'-6'	3.5'9.5'	3.5'9.5'	2'-6'	4'-6'	2'-6'	2.5'-6.5'	0-2'	0-4'
	Sample ID:	94FTP103SL	94FTP104SL	94FTP105SL	94FTP106SL	94FTP107SL	94FTP108SL	94FTP109SL	94FTP110SL	94FTP111SL
	Lab Code:	K946749-009	K946749-010	K946749-011	K946749-001	K946749-002	K946749-003	K946749-004	K946749-005	K946749-006
	Date Collected:	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
GRO	none	ND	28	9	2,000	453	12,000	522	4,200	4,200
DRO	none	247	47	49	472	755	2,250	2,650	5,370	3,870
TPH	none	430	77	93	1,100	1,500	3,700	3,900	8,100	6,100
Organochlorine Pesticides (mg/Kg)										
4,4'-DDD	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls (PCBs) (mg/Kg)										
Aroclor 1232	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1248	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1254	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aroclor 1260	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)										
Acetone	7,800,000	ND	360	98	<6,500	<14,000	<14,000	<7,000	<14,000	<6,500
Methylene Chloride	85,000	39	31	ND	<1,300	<2,700	<2,700	<1,400	<2,700	<1,300
2-Butanone (MEK)	47,000,000	ND	56	ND	<2,600	<5,400	<5,400	<2,800	<5,400	<2,600
Benzene	22,000	ND	7	ND	<650	<1,400	3,800	1,000	<1,400	5,200
2-Hexanone	none	ND	ND	ND	<2,600	<5,400	<5,400	<2,800	<5,400	41,000
Toluene	16,000,000	12	9	5	<650	<1,400	180,000	850	25,000	240,000
4-Methyl-2-pentanone (MIBK)	none	ND	ND	ND	<2,600	<5,400	<5,400	<2,800	<5,400	<2,600
Ethylbenzene	7,800,000	ND	77	38	3,900	<1,400	39,000	7,500	2,500	16,000
Total Xylenes	160,000,000	7	240	95	17,000	9,000	380,000	43,000	200,000	180,000
Isopropylbenzene	3,100,000	ND	43	ND	3,500	<5,400	9,200	<2,800	<5,400	4,800
n-Propylbenzene	none	ND	43	ND	7,100	<5,400	17,000	5,700	<5,400	7,300
1,3,5-Trimethylbenzene	31,000	ND	190	59	23,000	25,000	22,000	15,000	36,000	15,000
1,2,4-Trimethylbenzene	39,000	ND	290	34	74,000	32,000	57,000	28,000	93,000	46,000
sec-Butylbenzene	780,000	ND	ND	ND	4,600	<5,400	5,800	<2,800	<5,400	3,400
4-Isopropyltoluene	none	ND	ND	ND	4,400	<5,400	<5,400	<2,800	<5,400	3,000
1,4-Dichlorobenzene	27,000	ND	ND	ND	<650	<1,400	<1,400	<700	<1,400	<650
Naphthalene	3,100,000	ND	ND	ND	28,000	8,000	24,000	12,000	31,000	12,000

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

TABLE 3 Summary of Analytes Detected (cont.)
Fire Training Area Soil Sample Analytical Results

	Location:	Surface 3	Surface 4		Surface 5	Surface 6	Surface 7	Surface 8	Surface 9	Surface 10
	Sample Depth:	2'-6'	3.5'9.5'	3.5'9.5'	2'-6'	4'-6'	2'-6'	2.5'-6.5'	0-2'	0-4'
	Sample ID:	94FTP103SL	94FTP104SL	94FTP105SL	94FTP106SL	94FTP107SL	94FTP108SL	94FTP109SL	94FTP110SL	94FTP111SL
	Lab Code:	K946749-009	K946749-010	K946749-011	K946749-001	K946749-002	K946749-003	K946749-004	K946749-005	K946749-006
	Date Collected:	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94
Compound	**Residential RBC**									
Semivolatile Organic Compounds (mg/Kg)										
Naphthalene	3,100	ND	ND	ND	0.9	0.31	9	4	17	12
2-Methylnaphthalene	none	ND	ND	ND	2.0	0.91	9	4	13	11
Diethyl Phthalate	63,000	ND	ND	ND	ND	ND	<2	<2	<2	<2
Di-n-butyl Phthalate	none	ND	ND	ND	ND	ND	<2	<2	<2	<2
Butylbenzyl Phthalate	16,000	ND	ND	ND	ND	ND	<2	<2	<2	<2
Bis(2-ethylhexyl) Phthalate	46	ND	ND	ND	ND	ND	<2	<2	<2	<2
3- and 4-Methylphenol	390	ND	ND	ND	ND	ND	<2	<2	<2	<2
Total Metals (mg/Kg)										
Arsenic	0.37	7	7	7	6	7	6	6	6	9
Barium	5,500	86	100	86	89	90	64	78	72	68
Cadmium	39	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium	390	46	42	34	38	39	43	40	34	39
Lead	none	12	8	8	11	8	11	15	17	29
Mercury	23	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	1,600	43	49	41	37	47	46	56	37	48
Silver	390	ND	ND	ND	ND	ND	ND	ND	ND	ND

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 3 Summary of Analytes Detected (cont.)
Fire Training Area Soil Sample Analytical Results

	Location:	Surface 3	Surface 4		Surface 5	Surface 6	Surface 7	Surface 8	Surface 9	Surface 10
	Sample Depth:	2'-6'	3.5'9.5'	3.5'9.5'	2'-6'	4'-6'	2'-6'	2.5'-6.5'	0-2'	0-4'
	Sample ID:	94FTP103SL	94FTP104SL	94FTP105SL	94FTP106SL	94FTP107SL	94FTP108SL	94FTP109SL	94FTP110SL	94FTP111SL
	Lab Code:	K946749-009	K946749-010	K946749-011	K946749-001	K946749-002	K946749-003	K946749-004	K946749-005	K946749-006
	Date Collected:	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94	10/27/94
Compound	**Residential RBC**									
Dioxins & Furans (pg/g)										
2,3,7,8-TCDD	4,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total TCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,7,8-PeCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total PeCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,4,7,8-HxCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-HxCDD	none	ND	ND	ND	ND	ND	0.54	0.68	ND	ND
1,2,3,7,8,9-HxCDD	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total HxCDD	none	ND	ND	ND	1.1	ND	2.3	3.1	ND	2.2
1,2,3,4,6,7,8-HpCDD	none	5.2	2.9	3.7	4.4	2.5	11	14	5.3	8.8
Total HpCDD	none	13	5.8	7.8	11	4.3	21	25	12	18
OCDD	none	41	21	29	36	19	110	100	48	80
2,3,7,8-TCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total TCDF	none	2.7	ND	ND	1.2	ND	ND	5.8	ND	ND
1,2,3,7,8-PeCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,7,8-PeCDF	none	0.43	ND	ND	0.34	ND	ND	0.56	ND	ND
Total PeCDF	none	5.7	0.94	2.2	4.4	0.54	1.3	10	0.73	0.84
1,2,3,4,7,8-HxCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3,6,7,8-HxCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,4,6,7,8-HxCDF	none	0.55	0.37	0.41	0.48	0.4	ND	0.64	ND	ND
1,2,3,7,8,9-HxCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total HxCDF	none	3.6	1.2	2.1	2	1.2	1.5	7.5	1.2	2
1,2,3,4,6,7,8-HpCDF	none	1.8	0.8	1.2	1.4	0.86	2.4	4.7	1.3	1.9
1,2,3,4,7,8,9-HpCDF	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total HpCDF	none	4.7	2.4	3.6	3.9	2.6	8	15	3.8	6.7
OCDF	none	4.1	2	3.2	3.2	2.2	5.2	13	2.8	5

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Fire Training Area Appendix for MRL values.)

TCDD = Tetrachlorodibenzo-p-dioxin
PeCDD = Pentachlorodibenzo-p-dioxin
HxCDD = Hexachlorodibenzo-p-dioxin
HpCDD = Heptachlorodibenzo-p-dioxin

TCDF = Tetrachlorodibenzofuran
PeCDF = 1,2,3,7,8-Pentachlorodibenzofuran
HxCDF = Hexachlorodibenzofuran
HpCDF = Heptachlorodibenzofuran

TABLE 4 Summary of Analytes Detected
Grease Pits Groundwater Sample Analytical Results

	Sample ID:	95GP1226Mi	95GP1227Mi
	Lab Code:	K950816-001	K950816-003
	Date Collected:	2/8/95	2/8/95
Compound	**Residential RBC**		
Petroleum Hydrocarbons (µg/L)			
DRO	none	347	750
TPH	none	580	1,400
Volatile Organic Compounds (µg/L)			
Chloroform	0.15	<2.5	2.4
Toluene	750	<2.5	0.8
Total Xylenes	12,000	<2.5	0.7
Total Metals (µg/L)			
Arsenic	0.038	20	15
Barium	2,600	462	1,110
Cadmium	18	<8	15
Chromium	180	103	195
Lead	none	128	244
Mercury	11	ND	ND
Nickel	730	110	231
Selenium	180	<10	ND
Silver	180	<20	ND
Other Analyses (µg/L)			
Ammonia as Nitrogen	none	0.07	ND
Nitrate + Nitrite as Nitrogen	none	ND	0.5

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL).
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 4 Summary of Analytes Detected
Grease Pits Soil Sample Analytical Results

	Location:	SB AP 3522						
	Sample Depth:	10'		17.8'-18.6'	27.3'-29.2'	37.8'-38.9'	48.6'-49.6'	57.8'-58.8'
	Sample ID:	95GP1201SL	95GP1202SL	95GP1203SL	95GP1204SL	95GP1205SL	95GP1206SL	95GP1207SL
	Lab Code:	K950397-001	K950397-002	K950447-001	K950447-002	K950447-003	K950476-002	K950476-001
	Date Collected:	1/20/95	1/20/95	1/23/95	1/23/95	1/23/95	1/24/95	1/24/95
Compound	**Residential RBC**							
Petroleum Hydrocarbons (mg/Kg)								
GRO	none	NA	NA	NA	NA	NA	NA	NA
DRO	none	NA	NA	NA	NA	NA	NA	NA
TPH	none	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (µg/Kg)								
Acetone	7,800,000	<12,000	<6,000	<12,000	110	57	ND	ND
2-Butanone (MEK)	47,000,000	<5,000	<2,400	<5,000	25	ND	ND	ND
Benzene	22,000	<1,200	<600	<1,200	18	ND	ND	ND
Toluene	16,000,000	<1,200	<600	39,000	9	ND	ND	ND
Tetrachloroethene (PCE)	12,000	<1,200	<600	2,200	ND	ND	ND	ND
Ethylbenzene	7,800,000	<1,200	<600	25,000	6	ND	ND	ND
Total Xylenes	160,000,000	<1,200	<600	94,000	23	ND	ND	ND
Isopropylbenzene	3,100,000	<5,000	<2,400	5,500	ND	ND	ND	ND
n-Propylbenzene	none	<5,000	<2,400	11,000	ND	ND	ND	ND
1,3,5-Trimethylbenzene	31,000	<5,000	<2,400	14,000	ND	ND	ND	ND
1,2,4-Trimethylbenzene	39,000	<5,000	<2,400	39,000	ND	ND	ND	ND
Naphthalene	3,100,000	<5,000	<2,400	8,500	ND	ND	ND	ND
Semivolatile Organic Compounds (mg/Kg)								
Naphthalene	3,100	<3	<3	0.6	ND	ND	ND	ND
2-Methylnaphthalene	none	<3	<3	1.4	ND	ND	ND	ND
Bis(2-ethylhexyl) Phthalate	46	<3	<3	ND	ND	ND	ND	ND
Di-n-octyl Phthalate	1,600	<3	<3	ND	ND	ND	ND	ND
Total Metals (mg/Kg)								
Arsenic	0.37	4	4	NA	6 J	7 J	NA	NA
Barium	5,500	28	31	NA	79	68	NA	NA
Chromium	390	24	25	NA	ND	ND	NA	NA
Lead	none	13	15	NA	42	34	NA	NA
Mercury	23	ND	ND	NA	6	6	NA	NA
Nickel	1,600	27	28	NA	ND	ND	NA	NA
Selenium	390	ND	ND	NA	31	55	NA	NA
Other Analyses (mg/Kg)								
Ammonia as Nitrogen	none	0.4	0.5	NA	0.4	0.4	0.7	0.3
Nitrate + Nitrite as Nitrogen	none	ND	ND	NA	ND	ND	ND	ND

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Grease Pits Appendix for MRL values.)
NA = Analysis not performed on this sample.
J = Value is considered an estimate.
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

TABLE 4 Summary of Analytes Detected (cont.)
Grease Pits Soil Sample Analytical Results

	Location:	SB AP 3523				SB AP 3524				
	Sample Depth:	10'		17.3'-18.3'	27.3'-28.3'	10'	17.3'-18.2'	27.3'	37.3'-38.2'	47.3'-48.1'
	Sample ID:	95GP1208SL	95GP1209SL	95GP1210SL	95GP1211SL	95GP1212SL	95GP1215SL	95GP1216SL	95GP1217SL	95GP1218SL
	Lab Code:	K950502-001	K950502-002	K950601-001	K950601-002	K950638-001	K950667-004	K950667-003	K950667-002	K950667-001
	Date Collected:	1/25/95	1/25/95	1/30/95	1/30/95	1/31/95	2/1/95	2/1/95	2/1/95	2/1/95
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
GRO	none	NA	NA	NA	NA	NA	NA	NA	NA	NA
DRO	none	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPH	none	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds (µg/Kg)										
Acetone	7,800,000	ND	ND	ND	ND	83	ND	ND	79	ND
2-Butanone (MEK)	47,000,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	22,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	12,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	7,800,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	ND	ND	ND	ND	6	ND	ND	ND	ND
Isopropylbenzene	3,100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	31,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	39,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	3,100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semivolatile Organic Compounds (mg/Kg)										
Naphthalene	3,100	ND	ND	ND	ND	ND	ND	NA	ND	ND
2-Methylnaphthalene	none	ND	ND	ND	ND	ND	ND	NA	ND	ND
Bis(2-ethylhexyl) Phthalate	46	ND	ND	ND	0.4	ND	ND	NA	ND	0.3
Di-n-octyl Phthalate	1,600	ND	ND	ND	ND	ND	0.3	NA	ND	0.4
Total Metals (mg/Kg)										
Arsenic	0.37	5	5	5	4	8	NA	NA	6	NA
Barium	5,500	28	29	51	62	39	NA	NA	82	NA
Chromium	390	21	25	30	35	25	NA	NA	35	NA
Lead	none	5	7	5	6	4	NA	NA	5	NA
Mercury	23	ND	ND	ND	ND	ND	NA	NA	ND	NA
Nickel	1,600	29	32	43	44	34	NA	NA	46	NA
Selenium	390	ND	ND	ND	ND	ND	NA	NA	1 UJ	NA
Other Analyses (mg/Kg)										
Ammonia as Nitrogen	none	0.5	0.3	0.2	0.5	0.2	NA	NA	ND	NA
Nitrate + Nitrite as Nitrogen	none	ND	ND	ND	ND	ND	ND	NA	ND	NA

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Grease Pits Appendix for MRL values.)
NA = Analysis not performed on this sample.
J = Value is considered an estimate.
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

TABLE 4 Summary of Analytes Detected (cont.)
Grease Pits Soil Sample Analytical Results

	Location:	SB AP 3525							Trench 5	Trench 6	Trench 7
	Sample Depth:	10'		17.3'-18.3'	27.3'-27.9'	37.3'	47.3'-47.9'	57.3'-57.7'	4'	4'	6'
	Sample ID:	95GP1213SL	95GP1214SL	95GP1219SL	95GP1220SL	95GP1221SL	95GP1222SL	95GP1223SLa	95GP1223SLb	95GP1224SL	95GP1225SL
	Lab Code:	K950638-003	K950638-002	K950694-003	K950694-002	K950694-001	K950717-002	K950717-001	K950778-001	K950778-002	K950778-003
	Date Collected:	1/31/95	1/31/95	2/2/95	2/2/95	2/2/95	2/9/95	2/3/95	2/7/95	2/7/95	2/7/95
Compound	**Residential RBC**										
Petroleum Hydrocarbons (mg/Kg)											
GRO	none	NA	NA	NA	NA	NA	NA	NA	ND	NA	800
DRO	none	NA	NA	NA	NA	NA	NA	NA	ND	NA	3,600
TPH	none	NA	NA	NA	NA	NA	NA	NA	ND	ND	5,600
Volatile Organic Compounds (µg/Kg)											
Acetone	7,800,000	50	ND	68	73	65 J	ND	51	ND	ND	<12,000
2-Butanone (MEK)	47,000,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	<5,000
Benzene	22,000	ND	ND	ND	6	110 J	ND	ND	ND	ND	<1,200
Toluene	16,000,000	ND	ND	ND	ND	11 J	ND	ND	ND	ND	<1,200
Tetrachloroethene (PCE)	12,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1,200
Ethylbenzene	7,800,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	<1,200
Total Xylenes	160,000,000	ND	ND	6	ND	14 J	ND	ND	ND	ND	19,000
Isopropylbenzene	3,100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	<5,000
n-Propylbenzene	none	ND	ND	ND	ND	ND	ND	ND	ND	ND	<5,000
1,3,5-Trimethylbenzene	31,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	5,900
1,2,4-Trimethylbenzene	39,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	17,000
Naphthalene	3,100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	<5,000
Semivolatile Organic Compounds (mg/Kg)											
Naphthalene	3,100	ND	ND	ND	ND	ND	NA	NA	ND	ND	4
2-Methylnaphthalene	none	ND	ND	ND	ND	ND	NA	NA	ND	ND	7
Bis(2-ethylhexyl) Phthalate	46	ND	ND	0.3	ND	ND	NA	NA	ND	ND	<3
Di-n-octyl Phthalate	1,600	ND	ND	0.3	0.6	0.7	NA	NA	ND	ND	<3
Total Metals (mg/Kg)											
Arsenic	0.37	3	4	7	NA	NA	NA	NA	4	NA	7
Barium	5,500	32	29	69	NA	NA	NA	NA	32	NA	38
Chromium	390	23	20	53	NA	NA	NA	NA	37 J	NA	28 J
Lead	none	4	6	7	NA	NA	NA	NA	9	NA	22
Mercury	23	ND	ND	ND	NA	NA	NA	NA	ND	NA	ND
Nickel	1,600	60	37	48	NA	NA	NA	NA	41	NA	43
Selenium	390	ND	ND	ND	NA	NA	NA	NA	ND	NA	ND
Other Analyses (mg/Kg)											
Ammonia as Nitrogen	none	ND	ND	NA	NA	NA	NA	NA	ND	ND	<0.8
Nitrate + Nitrite as Nitrogen	none	ND	ND	ND	NA	12	NA	NA	ND	2.2	ND

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Grease Pits Appendix for MRL values.)
NA = Analysis not performed on this sample.
J = Value is considered an estimate.
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
UJ = Analyte was not detected at the MRL, however, the MRL is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

TABLE 5 Summary of Detected Analytes
Ship Creek Stormwater Outfall Soil Sample Analytical Results

Sample Depth:	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Sample ID:	94SWOF01SD	94SWOF02SD	94SWOF03SD	94SWOF04SD	94SWOF05SD	94SWOF06SL	94SWOF07SL	94SWOF08SL
Lab Code:	K947379-001	K947379-002	K947379-003	K947379-004	K947370-005	K947370-006	K947370-007	K947370-008
Date Collected:	11/22/94	11/22/94	11/22/94	11/22/94	11/22/94	11/22/94	11/22/94	11/22/94
Petroleum Hydrocarbons (mg/Kg)								
DRO	16 J	ND	ND	ND	ND	ND	ND	ND
TPH	29	13	ND	ND	ND	ND	ND	ND
Total Metals (mg/Kg)								
Arsenic	5	4	4	3	3	4	4	5
Barium	52	32	42	34	31	41	43	39
Chromium	35	31	33	28	29	29	31	37
Lead	7	5	5	4	4	5	4	5
Nickel	29	24	25	21	23	24	26	30

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See Stormwater Outfall Appendix for MRL values.)
J = Value is considered an estimate.

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TABLE 6 Summary of Analytes Detected
Building 726 Soil Sample Analytical Results

	Location:	96-SS01	96-SS02	96-SS03	96-SS01	96-SS02	96-SS03	96-SS01	96-SS02	96-SS03
	Sample Depth:	0.5'	0.5'	0.5'	1'	1'	1'	2'	2'	2'
	Sample ID:	96B72601SL	96B72602SL	96B72603SL	96B72604SL	96B72605SL	96B72606SL	96B72607SL	96B72608SL	96B72609SL
	Lab Code:	K96614907	K96614908	K96614909	K96614910	K96614911	K96614912	K96614913	K96614914	K96614915
	Date Collected:	9/27/96	9/27/96	9/27/96	9/27/96	9/27/96	9/27/96	9/27/96	9/27/96	9/27/96
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
GRO	none	NA	4	8	55	12	9	71	19	14
DRO	none	89	98	38	66	36	50	36	35	29
Volatile Organic Compounds (µg/Kg)										
Acetone	780,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	7,800,000	6	5	4	5	75	3	54	55	3
Toluene	1,600,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	12,000	16	12	5	100	ND	12	ND	ND	11

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 796 Appendix for MRL values.)
A shaded value indicates result exceeds the residential risk based concentration (RBC).
J = Value reported is considered an estimate.
B = Analyte was detected in the blank.

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TABLE 6 Summary of Analytes Detected
Building 726 Soil Sample Analytical Results

	Location:	96-SS02	AP-3860	AP-3860	AP-3860	AP-3860	AP-3860	AP-3860	AP-3861	AP-3861
	Sample Depth:	0.5'	2-4'	4-6'	10-12'	10-12'	55-57'	63-64'	0-2'	55-57
	Sample ID:	96B72610SL	97B72601SL	97B72602SL	97B72603SL	97B72604SL	97B72605SL	97B72606SL	97B72619SL	97B72633SL
	Lab Code:	K96614916	K97706901	K97706902	K97706903	K97706904	K97706905	K97706906	K97709702	K97709705
	Date Collected:	9/24/97	9/24/97	9/24/97	9/24/97	9/24/97	9/24/97	9/25/97	9/25/97	9/25/97
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
GRO	none	10	17	ND	ND	NA	2200	ND	72	27
DRO	none	98	20	5	ND	ND	2890	6	19	5
Volatile Organic Compounds (µg/Kg)										
Acetone	780,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene chloride	7,800,000	ND	ND	ND	ND	3 J	ND	4 J	ND	ND
Toluene	1,600,000	ND	ND	ND	ND	ND	ND	2 J	ND	ND
Tetrachloroethene	12,000	23	7	8	8	33	880	ND	ND	4 J

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 796 Appendix for MRL values.)
A shaded value indicates result exceeds the residential risk based concentration (RBC).
J = Value reported is considered an estimate.
B = Analyte was detected in the blank.

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TABLE 6 Summary of Analytes Detected
Building 726 Soil Sample Analytical Results

		Location:	AP-3861	AP-3862	AP-3862	AP-3862	AP-3862	AP-3862	AP-3862	AP-3863	AP-3863
		Sample Depth:	57.5-58.5	0-2'	4-6'	10-12'	55-57'	55-57'	57.5-59'	0-2'	10-12'
		Sample ID:	97B72634SL	97B72635SL	97B72637SL	97B72640SL	97B72649SL	97B72608SL	97B72650SL	97B72654SL	97B72659SL
		Lab Code:	K97709706	K97714403	K97714404	K97714405	K97714406	K97714408	K97714407	K97719501	K97719503
		Date Collected:	9/25/97	9/26/97	9/26/97	9/26/97	9/26/97	9/26/97	9/26/97	9/29/97	9/29/97
Compound	**Residential RBC**							DUPLICATE			
Petroleum Hydrocarbons (mg/Kg)											
GRO	none		ND	9	ND	ND	150	270	ND	ND	ND
DRO	none		4	19	ND	ND	73	334	ND	ND	3 J
Volatile Organic Compounds (µg/Kg)											
Acetone	780,000		ND	ND	ND	ND	40 J	ND	ND	ND	ND
Methylene chloride	7,800,000		ND	ND	5 J	3 J	4 J	ND	8 JB	3 JB	7 JB
Toluene	1,600,000		ND	ND	ND	ND	ND	ND	ND	ND	2 J
Tetrachloroethene	12,000		1 J	2 J	1 J	ND	19	60	1 J	ND	ND

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 796 Appendix for MRL values.)
A shaded value indicates result exceeds the residential risk based concentration (RBC).
J = Value reported is considered an estimate.
B = Analyte was detected in the blank.

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TABLE 7 Summary of Analytes Detected
Building 700/718 Soil Sample Analytical Results

Part 1 of 3

	Location:	SB AP 3507						SB AP 3508				
	Depth (feet):	0-4	0-4	4-6	8-12	14-16	18-20	0-4	4-6	9-11	12-16	18-20
	Sample ID:	94B71819SL	94B71820SL	94B71821SL	94B71822SL	94B71823SL	94B71824SL	94B71825SL	94B71826SL	94B71827SL	94B71828SL	94B71829SL
	Lab Code:	K946935-001	K946935-002	K946935-003	K946935-004	K946935-005	K946937-001	K946937-002	K946937-003	K946937-004	K946937-005	K946937-006
	Date Collected:	11/4/94	11/4/94	11/4/94	11/4/94	11/4/94	11/4/94	11/4/94	11/4/94	11/4/94	11/4/94	11/4/94
Compound	**Residential RBC**											
Petroleum Hydrocarbons (mg/Kg)												
GRO	none	120	63	ND	ND	ND	ND	ND	ND	ND	ND	ND
DRO	none	4,840	4,430	73	ND	ND	ND	16	ND	ND	ND	ND
TPH	none	8,800	10,000	200	ND	ND	ND	31	ND	ND	ND	ND
Organochlorine Pesticides (mg/Kg)												
4,4'-DDD	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	1.9	ND	ND	ND	ND	ND	ND	0.03	ND	ND	ND	ND
4,4'-DDE	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls (PCBs) (mg/Kg)												
Aroclor 1260	none	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)												
Acetone	7,800,000	ND	ND	ND	64	68	ND	ND	ND	ND	ND	52
Toluene	16,000,000	ND	6	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	12,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	ND	ND	ND	ND	ND	ND	5	ND	ND	ND	ND
Total Metals (mg/Kg)												
Arsenic	0.37	9	7	5	7	6	9	6	6	7	8	5
Barium	5,500	52	32	33	30	44	52	62	35	41	59	51
Chromium	390	42	24	30	26	29	50	30	29	31	30	38
Lead	none	10	5	5	5	5	6	8	5	6	6	5
Nickel	1,600	63	35	40	32	39	63	32	37	30	28	38

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 700/718 Appendix for MRL values.)
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
UJ = The analyte was not detected at the MRL, however, the MRL is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 7 Summary of Analytes Detected (cont.)
Building 700/718 Soil Sample Analytical Results

Part 2 of 3

	Location:	Surface 1		Surface 2		Surface 3		Surface 4		Surface 5		
	Depth (feet):	0.5	2	0.5	2	0.5	2	0.5	2	0.5	2	2
	Sample ID:	94B71818SL	94B71817SL	94B71816SL	94B71815SL	94B71814SL	94B71813SL	94B71804SL	94B71805SL	94B71801SL	94B71802SL	94B71803SL
	Lab Code:	K946431-009	K946431-008	K946431-007	K946431-006	K946431-005	K946431-004	K946386-004	K946386-005	K946386-001	K946386-002	K946386-003
	Date Collected:	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	10/13/94	10/12/94	10/12/94	10/12/94	10/12/94	10/12/94
Compound	**Residential RBC**											
Petroleum Hydrocarbons (mg/Kg)												
GRO	none	151	177	ND	ND	ND	ND	ND	ND	ND	ND	ND
DRO	none	24,000	10,300	559	167	56	589	12	13	104	28	20
TPH	none	34,000	31,000	360	330	78	1500	30	34	45	33	36
Organochlorine Pesticides (mg/Kg)												
4,4'-DDD	2.7	<0.02	<0.02	ND	ND	ND	ND	ND	ND	0.01	ND	ND
4,4'-DDT	1.9	<0.02	<0.02	0.12	0.1	0.03	0.01	0.01	ND	0.05	0.02	0.01
4,4'-DDE	1.9	<0.02	<0.02	ND	ND	ND	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls (PCBs) (mg/Kg)												
Aroclor 1260	none	ND	ND	ND	0.2	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)												
Acetone	7,800,000	<5,000	<5,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	<500	<500	ND	ND	7	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	12,000	<500	<500	100	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	<500	<500	ND	ND	10	ND	ND	7	ND	ND	ND
Total Metals (mg/Kg)												
Arsenic	0.37	7	6	6	6	7	8	6	6	7	8	6
Barium	5,500	56	39	44	54	61	69	45	52	51	50	41
Chromium	390	33	30	26	32	34	27	30	29	31	29	27
Lead	none	267	67	12	10	9	9	8	8	12	10	9
Nickel	1,600	49	38	29	37	44	34	42	39	47	47	36

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 700/718 Appendix for MRL values.)
< = Less than. Analytical reporting limit has been elevated due to matrix interferences c
UJ = The analyte was not detected at the MRL, however, the MRL is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 7 Summary of Analytes Detected (cont.)
Building 700/718 Soil Sample Analytical Results

Part 3 of 3

	Location:	Surface 6		Surface 7			Surface 8	
	Depth (feet):	0.5	2	0.5	2	2	0.5	2
	Sample ID:	94B71806SL	94B71807SL	94B71812SL	94B71810SL	94B71811SL	94B71808SL	94B71809SL
	Lab Code:	K946386-006	K946386-007	K946431-003	K946431-001	K946431-002	K946386-008	K946386-009
	Date Collected:	10/12/94	10/12/94	10/13/94	10/13/94	10/13/94	10/12/94	10/12/94
Compound	**Residential RBC**							
Petroleum Hydrocarbons (mg/Kg)								
GRO	none	ND	ND	ND	ND	ND	ND	ND
DRO	none	108	24	92	198	345	37	32
TPH	none	70	45	750	500	1,400	98	62
Organochlorine Pesticides (mg/Kg)								
4,4'-DDD	2.7	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	1.9	0.25	ND	0.03	0.01	0.02	ND	ND
4,4'-DDE	1.9	0.01	ND	ND	ND	ND	ND	ND
Polychlorinated Biphenyls (PCBs) (mg/Kg)								
Aroclor 1260	none	ND	ND	0.2	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)								
Acetone	7,800,000	ND	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	ND	6	5	ND	ND	ND	7
Tetrachloroethene (PCE)	12,000	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	8	6	ND	ND	ND	ND	7
Total Metals (mg/Kg)								
Arsenic	0.37	7	6	7	7	7	5	6
Barium	5,500	53	61	53	52	53	50	61
Chromium	390	26	22	35	27	27	30	23
Lead	none	15	9	8	7	7	8	8
Nickel	1,600	33	29	35	33	37	41	27

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 700/718 Appendix for MRL values.)
< = Less than. Analytical reporting
UJ = The analyte was not detected at the MRL, however, the MRL is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 8 Summary of Analytes Detected
Building 704 Soil Sample Analytical Results

Part 1 of 5

	Location:	SB AP 3509					
	Depth (feet):	0-4	0-4	4-6	9-11	12-16	18-20
	Sample ID:	94B70419SL	94B70420SL	94B70421SL	94B70422SL	94B70423SL	94B70424SL
	Lab Code:	K946936-001	K946936-002	K946936-003	K946936-004	K946936-005	K946936-006
	Date Collected:	11/4/94	11/4/94	11/4/94	11/4/94	11/4/94	11/4/94
Compound	**Residential RBC**						
Petroleum Hydrocarbons (mg/Kg)							
GRO	none	ND	ND	ND	ND	ND	ND
DRO	none	ND	ND	ND	ND	ND	ND
TPH	none	ND	16	ND	ND	ND	ND
Organochlorine Pesticides (mg/Kg)							
4,4'-DDD	2.7	ND	ND	ND	ND	ND	ND
4,4'-DDT	1.9	0.04	0.02	0.05	ND	ND	ND
4,4'-DDE	1.9	ND	ND	ND	ND	ND	ND
Chlordane	0.49	ND	ND	<0.3	ND	ND	ND
Volatile Organic Compounds (µg/Kg)							
Acetone	7,800,000	ND	ND	69	60	61	ND
Toluene	16,000,000	ND	ND	ND	ND	ND	8
Tetrachloroethene (PCE)	12,000	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	ND	ND	ND	ND	ND	9
Total Metals (mg/Kg)							
Arsenic	0.37	10	5	4	18	8	6
Barium	5,500	38	28	30	28	33	40
Chromium	390	28	30	23	17	19	19
Lead	none	10	6	5	6	4	6
Nickel	1,600	48	47	50	25	28	28

FOOTNOTES:

ND = Non-detected at the method reporting limit (MRL). (See the Building 704 Appendix for MRL values.)

< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.

A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 8 Summary of Analytes Detected (cont.)
Building 704 Soil Sample Analytical Results

Part 2 of 5

	Location:	SB AP 3510					
	Depth (feet):	0-4	4-8	4-8	9-11	14-16	18-20
	Sample ID:	94B70425SL	94B70426SL	94B70427SL	94B70428SL	94B70429SL	94B70430SL
	Lab Code:	K947000-001	K947000-002	K947000-003	K947000-004	K947000-005	K947000-006
	Date Collected:	11/7/94	11/7/94	11/7/94	11/7/94	11/7/94	11/7/94
Compound	**Residential RBC**						
Petroleum Hydrocarbons (mg/Kg)							
GRO	none	5	ND	ND	ND	ND	ND
DRO	none	270	33	27	14	ND	ND
TPH	none	190	16	20	ND	ND	ND
Organochlorine Pesticides (mg/Kg)							
4,4'-DDD	2.7	0.01	ND	ND	ND	ND	ND
4,4'-DDT	1.9	0.02	ND	ND	ND	ND	ND
4,4'-DDE	1.9	ND	ND	ND	ND	ND	ND
Chlordane	0.49	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)							
Acetone	7,800,000	88	ND	ND	ND	ND	ND
Toluene	16,000,000	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	12,000	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	ND	ND	6	ND	ND	6
Total Metals (mg/Kg)							
Arsenic	0.37	5	5	6	5	6	7
Barium	5,500	77	47	53	55	54	96
Chromium	390	37	28	31	36	38	44
Lead	none	13	7	7	7	7	7
Nickel	1,600	48	35	38	35	38	48

FOOTNOTES:

ND = Non-detected at the method reporting limit (MRL). (See the Building 704 Appendix for MRL values.)

< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.

A shaded value indicates result exceeds the residential risk based concentration (RBC),

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TABLE 8 Summary of Analytes Detected (cont.)
Building 704 Soil Sample Analytical Results

Part 3 of 5

	Location:	Surface 1		Surface 2		Surface 3	
	Depth (feet):	0.5	2	1	2.5	0.5	2
	Sample ID:	94B70404SL	94B70405SL	94B70408SL	94B70409SL	94B70413SL	94B70414SL
	Lab Code:	K946366-004	K946366-005	K946366-008	K946366-009	K946366-013	K946366-014
	Date Collected:	10/11/94	10/11/94	10/11/94	10/11/94	10/11/94	10/11/94
Compound	**Residential RBC**						
Petroleum Hydrocarbons (mg/Kg)							
GRO	none	11	ND	ND	ND	ND	ND
DRO	none	1,454	293	ND	133	372	291
TPH	none	1,600	650	500	400	680	360
Organochlorine Pesticides (mg/Kg)							
4,4'-DDD	2.7	0.08 J	0.02 J	ND	0.03 J	0.05 J	0.02 J
4,4'-DDT	1.9	0.19 J	0.03 J	ND	0.58 J	0.67 J	0.28 J
4,4'-DDE	1.9	<0.05	ND	ND	0.05 J	0.01 J	ND
Chlordane	0.49	<0.5	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)							
Acetone	7,800,000	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	12	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	12,000	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	12	ND	ND	ND	ND	ND
Total Metals (mg/Kg)							
Arsenic	0.37	6	6	6	9	7	6
Barium	5,500	109	55	80	60	47	44
Chromium	390	24	40	28	41	31	30
Lead	none	85	17	23	18	18	13
Nickel	1,600	28	42	36	46	40	38

FOOTNOTES:

ND = Non-detected at the method reporting limit (MRL). (See the Building 704 Appendix for MRL values.)

J = Value is considered an estimate.

< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.

A shaded value indicates result exceeds the residential risk based concentration (RBC),

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TABLE 8 Summary of Analytes Detected (cont.)
Building 704 Soil Sample Analytical Results

Part 4 of 5

	Location:	Surface 4			Surface 5	
	Depth (feet):	0.5	2	2	0.5	2
	Sample ID:	94B70410SL	94B70411SL	94B70412SL	94B70406SL	94B70407SL
	Lab Code:	K946366-010	K946366-011	K946366-012	K946366-006	K946366-007
	Date Collected:	10/11/94	10/11/94	10/11/94	10/11/94	10/11/94
Compound	**Residential RBC**					
Petroleum Hydrocarbons (mg/Kg)						
GRO	none	ND	ND	ND	ND	ND
DRO	none	50	22	41	63	63
TPH	none	430	160	132	310	290
Organochlorine Pesticides (mg/Kg)						
4,4'-DDD	2.7	0.04 J	0.01 J	0.01 J	0.08 J	0.04 J
4,4'-DDT	1.9	0.52 J	0.17 J	0.16 J	1.54 J	0.61 J
4,4'-DDE	1.9	ND	ND	ND	0.09 J	0.03 J
Chlordane	0.49	ND	ND	ND	ND	ND
Volatile Organic Compounds (µg/Kg)						
Acetone	7,800,000	ND	ND	ND	ND	ND
Toluene	16,000,000	5	ND	ND	8	ND
Tetrachloroethene (PCE)	12,000	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	ND	6	ND	9	ND
Total Metals (mg/Kg)						
Arsenic	0.37	6	12	12	7	6
Barium	5,500	92	45	42	72	47
Chromium	390	38	34	28	36	28
Lead	none	28	12	8	29	16
Nickel	1,600	40	48	44	44	31

FOOTNOTES:

ND = Non-detected at the method reporting limit (MRL). (See the Building 704 Appendix for MRL values.)

J = Value is considered an estimate.

< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.

A shaded value indicates result exceeds the residential risk based concentration (RBC),

\QAQC\COMMON\RICH\FINALS\REPTABLE\BLD704-F.XLS|704 6/21/00

TABLE 8 Summary of Analytes Detected (cont.)
Building 704 Soil Sample Analytical Results

Part 5 of 5

	Location:	Surface 6			Surface 7		Surface 8	
	Depth (feet):	1	1	2.5	1	2.5	0.5	2
	Sample ID:	94B70401SL	94B70402SL	94B70403SL	94B70415SL	94B70416SL	94B70417SL	94B70418SL
	Lab Code:	K946366-001	K946366-002	K946366-003	K946366-015	K946366-016	K946366-017	K946366-018
	Date Collected:	10/11/94	10/11/94	10/11/94	10/11/94	10/11/94	10/11/94	10/11/94
Compound	**Residential RBC**							
Petroleum Hydrocarbons (mg/Kg)								
GRO	none	ND	ND	ND	ND	ND	ND	ND
DRO	none	442	473	20	501	103	89	28
TPH	none	850	730	22	370	310	200	71
Organochlorine Pesticides (mg/Kg)								
4,4'-DDD	2.7	0.04 J	0.02 J	ND	0.05 J	0.02 J	0.05 J	<0.05
4,4'-DDT	1.9	0.46 J	0.27 J	0.02 J	0.44 J	0.31 J	1.12 J	0.67 J
4,4'-DDE	1.9	ND	ND	ND	0.02 J	ND	0.07 J	<0.05
Chlordane	0.49	ND	ND	ND	0.2 J	0.4 J	2.3 J	2.5 J
Volatile Organic Compounds (µg/Kg)								
Acetone	7,800,000	ND	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	12,000	ND	ND	ND	ND	6	ND	ND
Total Xylenes	160,000,000	ND	ND	ND	ND	ND	ND	ND
Total Metals (mg/Kg)								
Arsenic	0.37	6	6	6	7	8	8	6
Barium	5,500	79	76	39	80	68	89	53
Chromium	390	33	32	28	31	29	36	32
Lead	none	48	60	9	26	28	36	15
Nickel	1,600	38	34	33	34	36	26	36

FOOTNOTES:

ND = Non-detected at the method reporting limit (MRL). (See the Building 704 Appendix for MRL values.)

J = Value is considered an estimate.

< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.

A shaded value indicates result exceeds the residential risk based concentration (RBC),

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TABLE 9 Summary of Analytes Detected
Building 955 Soil Sample Analytical Results

Location:		SB AP 3514				SB AP 3515				
Sample Depth:		0-4'	8'-12'	12'-16'	16'-20'	0-6'	0-6'	8'-12'	12'-16'	16'-20'
Sample ID:		94B95501SL	94B95502SL	94B95503SL	94B95504SL	94B95505SL	94B95506SL	94B95507SL	94B95508SL	94B95509SL
Lab Code:		K946767-001	K946767-002	K946767-003	K946767-004	K946767-005	K946767-006	K946767-007	K946767-008	K946767-009
Date Collected:		10/28/94	10/28/94	10/28/94	10/28/94	10/28/94	10/28/94	10/28/94	10/28/94	10/28/94
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
GRO	none	ND	ND	60	20	ND	ND	ND	ND	ND
DRO	none	353	646	1,720	486	ND	ND	ND	ND	18
TPH	none	260	300	740	190	ND	ND	ND	ND	ND
Organochlorine Pesticides (mg/Kg)										
4,4'-DDT	1.9	0.06	0.04	ND	ND	0.25	0.33	ND	ND	ND
4,4'-DDE	1.9	ND	ND	ND	ND	0.02	0.02	ND	ND	ND
Volatile Organic Compounds (µg/Kg)										
Acetone	7,800,000	ND	ND	<14,000	<7,000	67	79	ND	59	ND
Toluene	16,000,000	ND	ND	<1,400	<700	ND	8	ND	ND	13
Total Xylenes	160,000,000	6	6	<1,400	<700	ND	5	ND	ND	13
Semivolatile Organic Compounds (mg/Kg)										
Bis(2-ethylhexyl) Phthala	46	ND	ND	<1.5	ND	ND	ND	ND	ND	ND
Total Metals (mg/Kg)										
Arsenic	0.37	6	7	7	6	7	8	5	7	7
Barium	5,500	52	50	70	51	59	58	52	61	60
Chromium	390	34	31	36	31	41	34	33	37	36
Lead	none	6	6	8	5	7	8	6	6	7
Nickel	1,600	43	39	34	59	49	46	40	39	41

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Building 955 Appendix for MRL values.)
< = Less than. Analytical reporting limit has been elevated due to matrix interferences or sample requiring dilution.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 9 Summary of Analytes Detected (cont.)
Building 955 Soil Sample Analytical Results

Location:		SB AP 3516					SB AP 3517			
Sample Depth:		0-8'	0-8'	8'-12'	12'-16'	16'-18'	0-6'	8'-12'	12'-16'	16'-20'
Sample ID:		94B95510SL	94B95511SL	94B95512SL	94B95513SL	94B95514SL	94B95515SL	94B95516SL	94B95517SL	94B95518SL
Lab Code:		K946799-005	K946799-006	K946799-007	K946799-008	K946799-009	K946799-001	K946799-002	K946799-003	K946799-004
Date Collected:		10/29/94	10/29/94	10/29/94	10/29/94	10/29/94	10/29/94	10/29/94	10/29/94	10/29/94
Compound	**Residential RBC**									
Petroleum Hydrocarbons (mg/Kg)										
GRO	none	ND	ND	ND	ND	ND	ND	ND	ND	ND
DRO	none	18	22	ND	ND	27	62	ND	ND	ND
TPH	none	31	37	ND	ND	10	31	ND	ND	ND
Organochlorine Pesticides (mg/Kg)										
4,4'-DDT	1.9	0.01	0.01	ND	ND	ND	95	0.4	0.11	ND
4,4'-DDE	1.9	ND	ND	ND	ND	ND	1.27	ND	ND	ND
Volatile Organic Compounds (µg/Kg)										
Acetone	7,800,000	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	ND	ND	ND	7	6	9	ND	ND	5
Total Xylenes	160,000,000	ND	ND	6	6	ND	7	5	ND	8
Semivolatile Organic Compounds (mg/Kg)										
Bis(2-ethylhex	46	ND	2	ND	ND	ND	ND	ND	ND	ND
Total Metals (mg/Kg)										
Arsenic	0.37	5	6	5	4	4	5	5	6	5
Barium	5,500	157 J	146 J	46 J	54 J	64 J	141 J	51 J	59 J	56 J
Chromium	390	31	37	38	33	47	34	24	21	33
Lead	none	5 J	6 J	4 J	4 J	4 J	9 J	5 J	6 J	5 J
Nickel	1,600	38	39	38	41	50	45	58	31	37

FOOTNOTES: ND = Non-detected at the method reporting limit (MRL). (See the Building 955 Appendix for MRL values.)
J = Value is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 10 Summary of Analytes Detected
Building 796 Groundwater Sample Analytical Results

	Location:	MW AP 3513		
	Sample ID:	94B79628GW	94B79628GW	94B79629GW
	Lab Code:	K948014-001	K948049-001	K948049-003
	Date Collected:	12/21/94	12/21/94	12/21/94
Compound	**Residential RBC**			
Petroleum Hydrocarbons (µg/L)				
DRO	none	199	132	238
TPH	none	ND	0.5	0.8
Volatile Organic Compounds (µg/L)				
Chloroform	0.15	4	3.4	3.6
Carbon Tetrachloride	0.16	0.7	0.6	0.7
Toluene	750	1	0.6	0.8
Semivolatile Organic Compounds (µg/L)				
Bis(2-ethylhexyl) Phthalate	4.8	ND	15	ND
Total Metals (µg/L)				
Arsenic	0.038	13	14	17
Barium	2,600	323	342	426
Chromium	180	81	99	129
Lead	none	14	21	26
Nickel	730	100	114	151
Other Analyses				
Sulfate (mg/L)	none	32	NA	33

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 796 Appendix for MRL values.)
NA = Analysis not performed on that sample.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 10 Summary of Analytes Detected
Building 796 Soil Sample Analytical Results

	Location:	SB AP 3511							
	Sample Depth:	0-9'		10'-12'	12'-14'		14'-16'		16'-18'
	Sample ID:	94B79606SL	94B79607SL	94B79608SL	94B79609SL	94B79610SL	94B79611SL	94B79612SL	94B79613SL
	Lab Code:	K946693-008	K946693-009	K946693-010	K946693-011	K946693-012	K946693-013	K946693-014	K946693-001
	Date Collected:	10/25/94	10/25/94	10/25/94	10/25/94	10/25/94	10/25/94	10/25/94	10/25/94
Compound	**Residential RBC**								
Petroleum Hydrocarbons (mg/Kg)									
DRO	none	NA	NA	NA	ND	12	ND	NA	ND
TPH	none	NA	NA	NA	14	21	16	NA	11
Organochlorine Pesticides (mg/Kg)									
4,4'-DDT	1.9	NA	NA	NA	ND	ND	ND	NA	ND
Volatile Organic Compounds (µg/Kg)									
Acetone	7,800,000	ND	ND	ND	NA	NA	ND	NA	ND
Chloroform	100,000	ND	ND	ND	NA	NA	ND	NA	ND
Carbon Tetrachloride	4,900	ND	ND	ND	NA	NA	ND	NA	ND
Trichloroethene (TCE)	58,000	ND	ND	ND	NA	NA	8	NA	ND
Toluene	16,000,000	ND	ND	ND	NA	NA	ND	NA	ND
Total Xylenes	160,000,000	ND	ND	ND	NA	NA	ND	NA	ND
1,2,4-Trichlorobenzene	780,000	ND	ND	ND	NA	NA	ND	NA	ND
Total Metals (mg/Kg)									
Arsenic	0.37	NA	NA	7	7	8	8	NA	5
Barium	5,500	NA	NA	59	64	54	43	NA	47
Chromium	390	NA	NA	129	48	48	35	NA	34
Lead	none	NA	NA	357	37	44	35	NA	18
Nickel	1,600	NA	NA	13	25	23	20	NA	22
Other Analyses									
pH (units)	none	NA	NA	NA	6.80	6.91	7.37	7.30	6.81
Redox Potential (mV)	none	NA	NA	NA	NA	NA	NA	NA	NA
Sulfate (mg/Kg)	none	NA	NA	200	580	540	1800	NA	930

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 796 Appendix for MRL values.)
NA = not analyzed.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

TABLE 10 Summary of Analytes Detected (cont.)
Building 796 Soil Sample Analytical Results

Location:		SB AP 3512					SS 1		SS 2		
Sample Depth:		0-2'	7'-9'	9'-11'	15'-17'	17'-19'	32"-40"		32"-36"	48"	
Sample ID:		94B79614SL	94B79616SL	94B79617SL	94B79618SL	94B79619SL	94B79601SL	94B79602SL	94B79603SL	94B79604SL	94B79605SL
Lab Code:		K946693-002	K946693-004	K946693-005	K946693-006	K946693-007	K946524-001	K946524-002	K946524-003	K946565-001	K946565-002
Date Collected:		10/25/94	10/25/94	10/25/94	10/25/94	10/25/94	10/18/94	10/18/94	10/18/94	10/19/94	10/19/94
Compound	**Residential RBC**										
Petroleum Hydrocarbons (mg/Kg)											
DRO	none	ND	NA	ND	ND	ND	364	302	ND	ND	ND
TPH	none	950	ND	ND	ND	ND	240	730	14	ND	ND
Organochlorine Pesticides (mg/Kg)											
4,4'-DDT	1.9	0.01	NA	ND	ND	ND	NA	NA	NA	ND	ND
Volatile Organic Compounds (µg/Kg)											
Acetone	7,800,000	ND	ND	ND	65	83	ND	55	ND	ND	ND
Chloroform	100,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	4,900	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	58,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	16,000,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	160,000,000	ND	ND	ND	ND	ND	5	ND	ND	ND	ND
1,2,4-Trichlorobenzene	780,000	ND	ND	ND	ND	ND	20	25	ND	ND	ND
Total Metals (mg/Kg)											
Arsenic	0.37	10	6	6	6	12	8	7	7	6	6
Barium	5,500	55	33	40	40	44	52	56	32	27	26
Chromium	390	37	25	30	26	29	37	37	31	28	20
Lead	none	10	5	5	6	5	45	164	6	7	6
Nickel	1,600	51	32	48	26	42	52	56	56	51	36
Other Analyses											
pH (units)	none	7.47	7.11	7.40	7.05	7.19	4.73	5.2	6.1	6.09	6.29
Redox Potential (mV)	none	NA	NA	NA	NA	NA	290	270	240	310	270
Sulfate (mg/Kg)	none	5.2	37	10	9.9	6.3	2100	3500	55	48	18

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 796 Appendix for MRL values.)
NA = not analyzed.
J = Value is considered an estimate.
UJ = The analyte was not detected at the MRL, however, the MRL is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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TABLE 10 Summary of Analytes Detected (cont.)
Building 796 Soil Sample Analytical Results

	Location:	MW AP 3513							
	Sample Depth:	18'-19'	28'-29.8'		38'-39.8'	48'-49.5'	58'-59.9'	68'-68.8'	80'-81.7'
	Sample ID:	94B79620SL	94B79621SL	94B79622SL	94B79623SL	94B79624SL	94B79625SL	94B79626SL	94B79627SL
	Lab Code:	K947757-002	K947757-001	K947757-003	K947757-004	K947797-001	K947797-002	K947797-003	K947797-004
	Date Collected:	12/12/94	12/12/94	12/12/94	12/12/94	12/13/94	12/13/94	12/13/94	12/13/94
Compound	**Residential RBC**								
Petroleum Hydrocarbons (mg/Kg)									
DRO	none	ND	16	18	ND	NA	33	NA	19
TPH	none	28	48	52	11	NA	63	NA	NA
Organochlorine Pesticides (mg/Kg)									
4,4'-DDT	1.9	ND	ND	ND	ND	NA	ND	NA	ND
Volatile Organic Compounds (µg/Kg)									
Acetone	7,800,000	ND	ND	ND	ND	ND	ND	NA	71 J
Chloroform	100,000	ND	ND	ND	ND	ND	ND	NA	5 J
Carbon Tetrachloride	4,900	ND	ND	ND	ND	ND	ND	NA	30 J
Trichloroethene (TCE)	58,000	ND	ND	ND	ND	ND	ND	NA	5 UJ
Toluene	16,000,000	ND	ND	ND	ND	ND	6	NA	10 J
Total Xylenes	160,000,000	ND	ND	ND	ND	ND	14	NA	11 J
1,2,4-Trichlorobenzene	780,000	ND	ND	ND	ND	ND	ND	NA	20 UJ
Total Metals (mg/Kg)									
Arsenic	0.37	6	4	4	4	NA	6	NA	4
Barium	5,500	58	64	72	51	NA	50	NA	44
Chromium	390	34	34	38	22	NA	36	NA	24
Lead	none	5	6	6	5	NA	5	NA	5
Nickel	1,600	33	85	94	33	NA	46	NA	23
Other Analyses									
pH (units)	none	7.16	7.31	7.23	7.16	NA	7.77	NA	7.73
Redox Potential (mV)	none	220	230	200	220	NA	210	NA	200
Sulfate (mg/Kg)	none	210	150	170	110	NA	53	NA	60

FOOTNOTES:
ND = Non-detected at the method reporting limit (MRL). (See the Building 796 Appendix for MRL values.)
NA = not analyzed.
J = Value is considered an estimate.
UJ = The analyte was not detected at the MRL, however, the MRL is considered an estimate.
A shaded value indicates result exceeds the residential risk based concentration (RBC).

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6.0 RCRA HAZARDOUS WASTE SITES

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. Sites addressed under the FFCA, known as solid waste management units (SWMUs) include, but are not limited to, the following sites (the ROD under which RCRA corrective action requirements are being addressed for each SWMU is indicated in parentheses): Circle Road Drum Site (OUD), Building 700/718 (OUD), Building 704 (OUD), Building 955 (OUD), Building 35-752 (OUD), Building 45-590 (OUD), the Open Burn/Open Demolition (OB/OD) Pad (OUC), Building 755, and Building 986 (OUA). The applicable closure requirements of the 1991 FFCA for each SWMU which is determined to be a RCRA regulated unit, will be met under the RCRA program and the 1991 FFCA, separately from CERCLA.

In accordance with FFCA, the Army was required to determine if hazardous wastes were disposed of at Building 755. Because site characterization studies conducted in 1991 and 1994 did not detect hazardous wastes at the site, the Army determined that hazardous wastes were not being stored or disposed of at Building 755 and thus Building 755 was not subject to RCRA closure/post closure requirements. As such, the Army did not submit closure plans and determined the site to require no further action under RCRA in accordance with the FFCA.

Pursuant to investigations that did not detect hazardous substances or constituents at Building 986, the site was considered by the Army to require no further action for purposes of RCRA corrective action. However, due to non-RCRA related petroleum, oil, and lubricants (POL) contamination at the site, remedial action was conducted under the Army and State of Alaska Two-Party Agreement. That remedial action is currently on-going, but expected to cease after confirmation soil samples are collected in the fall 2000. Since Building 986 was specifically identified in the 1991 FFCA as requiring closure, the Army was required to submit a closure plan to EPA for Building 986, pursuant to the 1991 FFCA. However, the Army will be recommending that Building 986 should be considered to be "clean closed" based on the CERCLA investigations performed at the site. Similarly, Building 704 was specifically identified in the 1991 FFCA as requiring closure under RCRA, and as such the Army was required to submit a closure plan to EPA for Building 704 as well.

The OB/OD Pad was originally investigated as part of OUC. The OUC ROD, signed in September 1998, selected the final remedial action for OUC and the EPA decision under RCRA regarding closure of the OB/OD Pad. Sampling and analysis at this source area was completed during several field investigations as part of the remedial investigation for OUC conducted during 1996. A RCRA Interim Status Closure Plan, reflecting the results of the 1996 CERCLA investigation at OUC, was completed and submitted to EPA RCRA in 1999. The OB/OD Pad will be closed in accordance with 40 CFR Part 265.

For the remaining five solid waste management units identified above, the Army conducted sampling activities to establish whether or not hazardous wastes were managed at these units, and in some instances, prepared closure plans under 40 CFR Subpart G of Part 265. These closure plans, developed under the RCRA program guidelines, were used as an integral part of the CERCLA cleanup actions.

6.1 Closure Process

Pursuant to the terms of the 1994 CERCLA FFA, the Army, ADEC, and EPA agreed that, where feasible, any RCRA corrective actions required at solid waste management units at Fort Richardson would be integrated with any ongoing CERCLA response actions so that duplication of effort would not occur and the Army could realize cost savings as a result. The 1994 FFA specified that such integration efforts would not obviate the need for the Army to meet its RCRA closure obligations under the 1991 FFCA. However, work performed at these sites under CERCLA was intended to meet or exceed the requirements of the RCRA corrective action program.

Closure plans were developed for many of the solid waste management units and submitted to EPA. Final closure plans that incorporated comments and recommendations from EPA and the State of Alaska were submitted for the Circle Road Drum Site on September 8, 1993; for Building 700/718 on December 30, 1992; for Building 704 on February 4, 1994; for Building 955 on February 23, 1994; and for Buildings 35-752 and 45-590 on March 2, 1994. As noted in Section 6.0, a RCRA Interim Status Closure Plan for the OB/OD Pad was submitted to EPA in 1999. Subsequent to their submission, none of these plans have received final approval from EPA or the State of Alaska. As part of the CERCLA/RCRA integration effort under the 1994 FFA, the Army has completed investigative sampling, and in some cases performed removal work, at these sites. RCRA corrective action, if necessary, at these sites will be integrated with CERCLA response actions that have been or will be performed by the Army pursuant to the1994 FFA.

7.0 DOCUMENTATION OF SIGNIFICANT CHANGE

CERCLA Section 117(b) requires an explanation of any significant changes from the preferred alternatives originally presented in the Proposed Plan. The proposed remedies for Building 35-752, 45-590 and 796 are being changed.

PROPOSED ALTERNATIVE

The alternative proposed for soil and sediment contamination at Building 35-752 includes: phytoremediation of PCB-Contaminated soil, installing a fence and sealing of windows and doors of 35-752 and filling in cooling pond with clean soil.

The alternative proposed for groundwater contamination at Building 35-752, 796 and 45-590 was institutional controls and monitored natural attenuation.

SIGNIFICANT CHANGES

The Army, EPA and State of Alaska have agreed to defer selection of final remedy for Building 35-752 and investigate the source of the groundwater contamination beneath and upgradient of 45-590. These source areas will be investigated and addressed in the ROD for OUE.

The Army, EPA and State of Alaska have agreed to conduct another sampling event for COCs at Building 796. If those results show levels of COCs in the groundwater to be "non detect" (ND) then the Army, EPA and ADEC will recommend a no further action decision for Building 796 in the OUE ROD.

REASON FOR CHANGE

During the pre-ROD review for Building 35-752 and 45-590, additional information was discovered that indicate that significant areas of contamination were not investigated. The disposal area east of Building 45-590 was discovered by interviews with former employees and air photos. The information indicates that potential contaminants of concern were not evaluated thus making the remedial action chosen for this site incomplete.

It was determined by the project managers that there is not a source of contamination from Building 45-590 to the groundwater, therefore, this site is considered no further action. The source of contamination of groundwater beneath and upgradient of this building will be referred to as the Armored Vehicle Maintenance Facility because of the practices that were potentially conducted at this location.

After evaluation of the chemical data for Building 796, it was determined that the risk were overestimated for the contaminants EDB and PAHs. Sampling was completed post-RI and no COCs were in any samples. To confirm these results, one additional sampling event for COCs will be conducted. If the COCs in the groundwater at this source area continues to be non detect, this site will be considered no further action under CERCLA and will be documented in the OUE ROD.

A revised Proposed Plan is not needed because the change for Building 796 is a logical outgrowth of the information available in the proposed plan and administrative record. Additional public comment on 35-752 and 45-590 will be sought when the proposed plan for OUE is issued.

APPENDIX A

ADMINISTRATIVE RECORD INDEX

Fort Richardson, Alaska Administrative Record Index Update for 1999

Page Numbers	OU	Cat No	Date	Title	Abstract	Author	Recipient
12519 12522 OU-D Book 1	D	1.0	9/20/90	Site Discovery, Circle Road Drum Site	Description of the abandoned drums discovered in a wooded area near Circle Drive on Fort Richardson.	Edwin Ruff DEH	Kurt Eilo EPA
12523 12524 OU-D Book 1	D	1.1	7/12/88	Waste Disposal Pits, Landfill Site	Description of waste disposal pits at the Fort Richardson landfill area.	Carl Gysler	None Given
12525 12526 OU-D Book 1	D	1.3.2	10/5/94	Initial Project Schedule	Initial project schedule for the OU-D PSEs.	Stephen Wing ENSR	Teresa Cansler USAED Alaska
12527 12530 OU-D Book 1	D	1.3.2	4/10/95	Monthly Progress Report, OU-D	Report of work accomplished for each assigned subtask, March 1 through 31, 1995.	Stephen Wing ENSR	Jim Levine USAED Alaska
12531 12879 OU-D Book 1	D	1.3.4	9/15/94	PSE, OU-D, Final Work Plan and Health and Safety Plan	Work and health and safety procedures for the PSE for OU-D.	ENSR	USAED Alaska
12880 13818 OU-D Books 1 - 3	D	1.3.4	4/15/95	Analytical Data for PSE 2, OU-D, Volume I of III	Presents analytical data for Building Nos. 35-752, 700/718, and 704, and the storm water outfall to Ship Creek.	ENSR	USAED Alaska

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Page Numbers	OU	Cat No	Date	Title	Abstract	Author	Recipient
13819 14679 OU-D Books 3 & 4	D	1.3.4	4/15/95	Analytical Data for PSE 2, OU-D, Volume II of III	Presents analytical data for Building Nos. 796 and 955, the dust palliative roadways, and the Fire Training Pit.	ENSR	USAED Alaska
14680 15495 OU-D Books 5 & 6	D	1.3.4	4/15/95	Analytical Data for PSE 2, OU-D, Volume III of III	Presents analytical data for the grease pits, background, and decontamination water.	ENSR	USAED Alaska
25420 25420 OU-D Book 12 **'97 Update**	D	1.3.4	6/19/96	Comments on draft-final PSE-2, OU-D, Fort Richardson, Alaska	Review comments.	Matthew Wilkening EPA	Kevin Gardner DPW
25421 25421 OU-D Book 12 **'97 Update**	D	1.3.4	6/24/96	Comments on draft-final PSE-2, OU-D, Fort Richardson, Alaska	Review comments.	Louis Howard ADEC	Kevin Gardner DPW
25422 25422 OU-D Book 12 **'97 Update**	D	1.3.4	7/9/96	Comments on draft-final PSE-2, OU-D, Fort Richardson, Alaska	Review comments.	Arthur Lee Army	Kevin Gardner DPW
25423 26068 OU-D Books 12 & 13 **'97 Update**	D	1.3.4	10/16/96	Final PSE-2, OU-D, Fort Richardson, Alaska	This document presents the field investigation results for the PSE-2 conducted at nine OU-D sites.	Chris Humphrey ENSR	JoAnn Walls USAED Alaska

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15496 15497 OU-D Book 6	D	1.3.5	11/15/93	Comments, Building 726 Sampling and Analysis Plan	Review comments on the draft sampling and analysis plan for Building No. 726.	Louis Howard ADEC	Kevin Gardner DPW
15498 15499 OU-D Book 6	D	1.3.5	11/19/93	Comments, Building 726 Sampling and Analysis Plan	Review comments on the draft sampling and analysis plan for Building No. 726.	Matthew Wilkening EPA	Kevin Gardner DPW
15500 15506 OU-D Book 6	D	1.3.5	7/28/94	Work Plan for Preliminary Evaluation of Building 726--Post Laundry, OU-D, Fort Richardson, Alaska	Review comments on the draft work plan for Building No. 726.	Matthew Wilkening EPA	Kevin Gardner DPW
15507 15509 OU-D Book 6	D	1.3.5	8/11/94	OU-D PSE 2 Draft Work Plan, Comments	Review comments on the draft PSE-2 work plan.	Kevin Gardner DPW	Craig Martin USAED Alaska
15777 15778 OU-D Book 7	D	1.3.5	8/19/94	Work Plan for the Preliminary Site Evaluations, OU-D, Fort Richardson, Comments	Review comments on the draft PSE-2 work plan.	Matthew Wilkening EPA	Kevin Gardner DPW
15779 15781 OU-D Book 7	D	1.3.5	8/22/94	Draft July 1994 OU-D PSE 2 Work Plans, Comments	Review comments on the draft PSE-2 work plan.	Louis Howard ADEC	Kevin Gardner DPW

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15782 15784 OU-D Book 7	D	1.3.5	5/1/95	OU-D Draft PSE 2, Comments	Review comments on the draft PSE-2.	Louis Howard ADEC	Kevin Gardner DPW
15785 15786 OU-D Book 7	D	1.3.5	6/1/95	PSE 2, OU-D, Building 726, Comments	Review comments on the draft PSE-2 for Building No. 726.	Louis Howard ADEC	Kevin Gardner DPW
15787 15795 OU-D Book 7	D	1.3.5	6/13/95	PSE 2, OU-D, Comments	Review comments on the draft PSE-2.	Matthew Wilkening EPA	Kevin Gardner DPW
15796 15797 OU-D Book 7	D	1.3.5	6/19/95	PSE 2, Building 45-590, OU-D, Comments	Review comments on the PSE-2, Building No. 45-590.	Louis Howard ADEC	Kevin Gardner DPW
15798 15800 OU-D Book 7	D	1.3.5	6/20/95	PSE 2, Building 45-590, OU-D, Comments	Review comments on the PSE-2, Building No. 45-590.	Matthew Wilkening EPA	Kevin Gardner DPW
15510 15776 OU-D Book 7	D	1.3.5	7/15/95	Final Report, PSE, Building 726--Post Laundry, Fort Richardson, Alaska	Discusses results of the PSE in which subsurface contamination was detected but did not appear to be migratory or to pose a significant threat.	USAED Alaska	

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15801 15832 OU-D Book 7	D	1.4.2	9/15/94	Draft Field Report/Site Assessment for Circle Road Drum Site	A summary of soil screening conducted at the Circle Road Drum Site.	EMI	USAED Alaska
15833 15835 OU-D Book 7	D	1.6	11/2/94	New Information for OU-D Sites	Summary of new information for the grease pits, fire training areas, and Building No. 955.	Stephen Wing ENSR	Jim Levine USAED Alaska
15836 15844 OU-D Book 7	D	2.1.4	12/13/93	Disposal of IDW, UST Investigation, Site 4, Building 35-752	Contamination information concerning IDW resulting from the Building No. 35-752 UST investigation.	Claude Vining USAED Alaska	None Given
15845 15867 OU-D Book 7	D	2.1.4	8/24/95	Chemical Data Results from 8/10/95 Sampling at Building 45-590	Results of a sample collected during the demolition of Building No. 45-590. The sample was of an unknown liquid located in a well discovered under the building's floor slab.	Delwyn Thomas USAED Alaska	None Given
30398 30461 OU-D Book 16 **'98 Update**	D	3.1.1	3/15/97	OU-D Risk Assessment Approach Document, Fort Richardson, Alaska	As part of the RI/FS for OU-D, this is an approach document presenting the methodologies to be used in the HHRA and ERA for evaluation of the contaminants detected in environmental media at the individual sites and source areas.	ENSR	USAED Alaska
30462 30466 OU-D Book 16 **'98 Update**	D	3.1.2	1/29/97	OU-D RI/FS Monthly Progress Report No. 3	Progress report for November 1 to December 31, 1996, on implementation of the RI/FS at OU-D.	Stephen Wrenn ENSR	Jim Levine USAED Alaska

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15982 16099 OU-D Book 7	D	3.1.3	3/15/93	Closure Plan for the Circle Road Drum Site	A closure plan to bring the drum site into compliance with RCRA and closure plan regulations.	EMCON	USAED Alaska
16100 16197 OU-D Book 8	D	3.1.3	6/23/93	Sampling/Analysis and QA/QC Plan, Circle Road Drum Site	Work plan to define the presence and extent of contamination at the Circle Road Drum Site.	EMCON	USAED Alaska
16198 16381 OU-D Book 8	D	3.1.3	8/3/93	Sampling and Analysis Plan, Site 4, Building 35-752, High Frequency Transmitter Site, Fort Richardson, Alaska	Presents the plans to guide field and laboratory operations for the UST site assessment/RI at Building No. 35-752.	HLA	USAED Alaska
16382 16435 OU-D Book 8	D	3.1.3	9/24/93	Sampling and Analysis Plan, PSE, Building 726, Post Laundry	Work plan to perform a PSE of the plume of chlorinated dry-cleaning solvents.	USAED Alaska	None Given
16436 16585 OU-D Book 8	D	3.1.3	12/15/93	Closure Plan for Building 704, Fort Richardson, Alaska	Presents the procedures and analytical guidelines to be used during the closure activities at Building No. 704 (central storage building for Army vehicles and heavy equipment).	ENSR	None Given
16586 16697 OU-D Book 8	D	3.1.3	1/14/94	Closure Plan for Building 700, Fort Richardson, Alaska	Presents the procedures and analytical guidelines to be used during the closure activities at Building Nos. 700 and 718 (general storage buildings).	ENSR	None Given

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16698 16750 OU-D Book 9	D	3.1.3	1/15/94	Draft QA Project Plan for the Closure of Building 704	Presents the procedures and analytical guidelines to be used during the course of closure activities at the Building No. 704 (vehicle storage area) closure area.	ENSR	USAED Alaska
16751 16802 OU-D Book 9	D	3.1.3	1/15/94	QA Project Plan for the Closure of Building 700	Presents the procedures and analytical guidelines to be used during the course of closure activities at Building No. 700, within the facility engineering complex.	ENSR	USAED Alaska
15868 15981 OU-D Book 7	D	3.1.3	2/15/94	Closure Plan for Building 35-752	Presents the procedures and analytical guidelines to be used during the course of closure activities at Building No. 35-752 (former generator building).	None Given	None Given
16803 16906 OU-D Book 9	D	3.1.3	2/15/94	Closure Plan for Building 45-590	Presents the plan for final closure of Building No. 45-590 at Fort Richardson.	ENSR	USAED Alaska
16907 16956 OU-D Book 9	D	3.1.3	2/15/94	Draft QA Project Plan for the Closure of Building 35-752	Presents the procedures and analytical guidelines to be used during the course of closure activities at Building No. 35-752 (generator building).	ENSR	USAED Alaska
16957 17010 OU-D Book 9	D	3.1.3	2/15/94	Draft QA Project Plan for the Closure of Building 45-590	Presents the procedures and analytical guidelines to be used during the course of closure activities at the Building No. 45-590 (auto craft shop) closure area.	ENSR	USAED Alaska

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17011 17115 OU-D Book 9	D	3.1.3	10/15/95	Closure Plan for the Landfill, Fort Richardson, Alaska	Describes the Fort Richardson landfill; surroundings; and previous investigations, closure plans, the recommended closure design, and the sampling and analysis plan for the required monitoring.	E & E	USAED Alaska
30467 30483 OU-D Book 16 **'98 Update**	D	3.1.3	8/14/97	Field Sampling Plan, OU-D Modification 2	An addendum to the management plan for the RI/FS ENSR will conduct at OU-D. Sampling pertains to Building 45-590, Building 726, and the fish hatchery.	ENSR	USAED Alaska
17116 17124 OU-D Book 9	D	3.1.4	4/28/91	Review of Available Data and Site Visit, Circle Road Drum Site	Summary of a field visit and available background data for the Circle Road Drum Site.	America North	Robert Johnson USAED Alaska
17125 17149 OU-D Book 9	D	3.1.4	9/30/91	Chemical Data Report, Circle Road Drum Site	Summary of fieldwork and sample data results for summer 1991 field activities at the Circle Road Drum Site.	Delwyn Thomas USAED Alaska	None Given
17150 17322 OU-D Book 10	D	3.1.4	2/15/93	Draft Site Investigation Report (RI/FS), Circle Road Drum Site	Report of findings of a subsurface investigation in support of RI/FS and closure actions at the Circle Road Drum Site.	EMCON	USAED Alaska
17323 17333 OU-D Book 10	D	3.1.4	11/4/93	Additional Information Regarding OU-D Sites	Background information for battery acid handling at Building No. 796 and oiling practices for the dust palliative area.	Kevin Gardner DPW	None Given

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17334 17340 OU-D Book 10	D	3.1.4	11/15/93	Chemical Data Report, Circle Road Drum Site	Results of soil sampling conducted to identify contamination discovered during a removal action at the Circle Road Drum Site.	Delwyn Thomas USAED Alaska	None Given
17341 17341 OU-D Book 10	D	3.1.4	11/23/93	Synopsis of Findings: Draft Interim Site Assessment/RI, Site 4, Building 35-752	Summary of significant field results, Building No. 35-752.	Kevin Gardner DPW	None Given
17342 17351 OU-D Book 10	D	3.1.4	12/15/93	RCRA Closure Status for Buildings 700, 704, and 755	Site history and closure costs for Building Nos. 700, 704, and 755.	ENSR	None Given
17352 17567 OU-D Book 10	D	3.1.4	4/13/94	Final Site Assessment/Release Investigation and Corrective Action Plan, Site 4, Building 35-752, High Frequency Transmitter Site, Fort Richardson, Alaska	Presents the results of the UST release investigation.	Stephen Johnson HLA	USAED Alaska
17568 17722 OU-D Book 11	D	3.1.4	10/15/94	Final Closure Report, Building 45-590, Fort Richardson, Alaska	Results of the investigation to verify that an area of hazardous waste storage near Building No. 45-590 was categorized as "clean closed" according to RCRA.	EMCON	USAED Alaska
17723 17754 OU-D Book 11	D	3.1.4	11/3/94	Federal Facilities Agreement Meeting Summary, OU-D, November 3, 1994	A summary of all actions taken at those sites within OU-D.	None Given	None Given

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17755 17889 OU-D Book 11	D	3.1.4	3/15/95	Draft Quarterly Groundwater Monitoring Report, July 1995 Sampling Event, Building 45-590	Presents results of groundwater sampling at Building No. 45-590.	EMCON	USAED Alaska
17890 17990 OU-D Book 11	D	3.1.4	3/15/95	Draft Quarterly Groundwater Monitoring Report, March 1995 Sampling Event, Building 45-590	Presents results of groundwater sampling at Building No. 45-590.	EMCON	USAED Alaska
17991 17991 OU-D Book 11	D	3.1.4	8/15/95	Comments, PSE, Building 726, OU-D	Comments on the final PSE for Building No. 726.	Matthew Wilkening EPA	Kevin Gardner DPW
17992 18121 OU-D Book 11	D	3.1.4	8/15/95	Final PSE-2, Building 45-590	Review of existing data and documents, and a recommended course of action for the site.	EMCON	USAED Alaska
30484 30523 OU-D Book 16 **'98 Update**	D	3.1.4	2/11/97	Draft Chemical Data Quality Review Report, Remedial Investigation, OU-D, Fort Richardson, Alaska	An evaluation of the quality of laboratory analytical results for environmental samples collected by ENSR as part of the RI for OU-D.	HLA	USAED Alaska
30524 30557 OU-D Book 16 **'98 Update**	D	3.1.4	7/9/97	Final OU-D Field Sampling Plan, Addendum 2	Includes comments and responses to comments on the draft (Addendum 1). As part of the postwide RA, this plan was prepared as an addendum to the management plan for the RI/FS to be conducted at OU-D.	ENSR	USAED Alaska

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30558 30717 OU-D Book 16 **'98 Update**	D	3.1.4	8/15/97	Draft Remedial Investigation Report, OpeRestoration Advisory Boardle Unit D	Presents the results of the RI for OU-D. The RI included Buildings 35-752, 45-590, 726, and 796.	ENSR	USAED Alaska
30718 31184 OU-D Book 16 & 17 **'98 Update**	D	3.1.4	9/23/97	Risk Assessment Report, OU-D, Draft	Provides HHRA and ERA results based on analytical data collected under previous investigations and the RI.	ENSR	USAED Alaska
31185 31189 OU-D Book 17 **'98 Update**	D	3.1.4	10/13/97	Building 35-752 Laboratory Analysis Report	Analytical results for three soil samples collected at Building 35-752. Analysis was for PCBs only.	CT&E Environmental	Richard Ragle USAED Alaska
18122 18123 OU-D Book 11	D	3.1.5	2/14/92	Comments, Sampling/Analysis and QA/QC Plan, Draft Closure Plan, Circle Road Drum Site	Concerns and comments on the Circle Road Drum Site sampling and analysis and QA/QC plans, and the Circle Road Drum Site draft closure plan.	Jennifer Roberts ADEC	Jane Smith DEH
18124 18140 OU-D Book 11	D	3.1.5	6/16/93	Comments, Circle Road Drum Site and Building 700 Closure Plans	EPA comments on the Circle Road Drum Site closure plan, and the Building No. 700 closure plan.	Kurt Eilo EPA	Robert Wrentmore DPW
18141 18144 OU-D Book 11	D	3.1.5	7/6/93	Comments, Fort Richardson Landfill Closure Plan	ADEC comments on the February 1992 Fort Richardson landfill closure plan.	Kevin Kleweno ADEC	Robert Wrentmore DPW

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18145 18170 OU-D Book 11	D	3.1.5	8/23/93	Comments, Closure Plans for Buildings 35-752, 45-590, and 704	Transmittal of EPA's comments on the Building No. 35-752 closure plan, Building No. 45-590 closure plan, and Building No. 704 closure plan.	Robert Wrentmore DPW	Bob Wilson ENSR
18171 18172 OU-D Book 11	D	3.1.5	11/30/93	Draft Interim Site Assessment/Remedial Investigation, Site 4, Building 35-752, High Frequency Transmitter Site, Comments	Review comments on Draft Interim Site Assessment/Remedial Investigation Site 4, Building 35-752, High Frequency Transmitter Site.	Louis Howard ADEC	Cristal Fosbrook DPW
18173 18178 OU-D Book 11	D	3.1.5	2/24/94	Draft Interim Site Assessment/Remedial Investigation, Site 4, Building 35-752, High Frequency Transmitter Site, Comments	Review comments on Draft Interim Site Assessment/Remedial Investigation Site 4, Building 35-752, High Frequency Transmitter Site.	Matthew Wilkening EPA	Kevin Gardner DPW
18179 18184 OU-D Book 11	D	3.1.5	3/7/94	Comments, Ft. Richardson Landfill Closure Plan	ADEC comments on the Fort Richardson landfill closure plan.	Kevin Kleweno ADEC	Robert Wrentmore DPW
18185 18191 OU-D Book 11	D	3.1.5	8/8/94	Response to Comments, Building 726 PSE-2 Work Plan	Response to EPA comments on the PSE-2 work plan for Building No. 726.	Kevin Gardner DPW	Matthew Wilkening EPA
18192 18196 OU-D Book 11	D	3.1.5	9/9/94	Response to Comments, OU-D Work Plan	A response to EPA and ADEC comments on the OU-D work plan.	Steve Wing ENSR	Kevin Gardner DPW

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18197 18198 OU-D Book 11	D	3.1.5	1/15/95	Response to Comments, Ft. Richardson Landfill Closure Plan	Response to ADEC comments of March 7, 1994.	Louise Flynn E & E	Jim Levine USAED Alaska
18199 18201 OU-D Book 11	D	3.1.5	3/10/95	Meeting Request/Meeting Notes, Ft. Richardson Landfill Closure Plan	A letter requesting a meeting concerning the landfill and an attached summary of the meeting with personnel from DPW, USAED Alaska, ADEC, and E & E.	Albert Kraus DPW	Kevin Kleweno ADEC
18202 18202 OU-D Book 11	D	3.1.5	10/25/95	Comments, Ft. Richardson Fourth Quarterly Report, 1995	Comments concerning the Army's delay of the OU-D RI/FS management plan pending a Federal Facilities Agreement project managers' determination of which sites will be included in the plan.	Louis Howard ADEC	Kevin Gardner DPW
18203 18203 OU-D Book 11	D	3.1.5	10/31/95	Comments, Ft. Richardson Fourth Quarterly Report, 1995	Comments concerning the Army's delay of the OU-D RI/FS management plan pending a Federal Facilities Agreement project managers' determination of which sites will be included in the plan.	Matthew Wilkening EPA	Cristal Fosbrook DPW
18204 18205 OU-D Book 11	D	3.1.5	11/14/95	Response to Comments, OU-D RI/FS Management Plan	A response to EPA's letter of October 31, 1995, concerning preparation of the OU-D RI/FS management plan, and the OU-D redlined final PSE-2.	Albert Kraus DPW	Wilkening, Howard EPA, ADEC
23399 23403 OU-D Book 13 **'97 Update**	D	3.1.5	1/10/96	Comments on OU-B Approach Document and OU-D Management Plan	Includes review comments on the OU-D management plan, OU-B groundwater modeling approach document, and the OU-B baseline RA approach document.	Matthew Wilkening EPA	Kevin Gardner DPW

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26069 26085 OU-D Book 13 **'97 Update**	D	3.1.5	6/14/96	draft-final RI/FS Management Plan Transmittal Letter Plus Annotated Comments	Response to comments.	Jerry Williams ENSR	Jim Levine USAED Alaska
31190 31190 OU-D Book 17 **'98 Update**	D	3.1.5	4/29/97	Comments, Draft Approach Document Risk Assessment, OU-D	Comments on the draft approach document and RA report for OU-D.	Louis Howard ADEC	Kevin Gardner DPW
31191 31191 OU-D Book 17 **'98 Update**	D	3.1.5	5/6/97	Comments, Draft Field Sampling Plan, Addendum 1, OU-D	CHPPM comments on the draft OU-D field sampling plan, Addendum 1.	Arthur Lee CHPPM	Kevin Gardner DPW
31192 31197 OU-D Book 17 **'98 Update**	D	3.1.5	5/6/97	Comments, OU-D Risk Assessment Approach Document	EPA comments on the OU-D risk assessment approach document.	Matthew Wilkening EPA	Kevin Gardner DPW
31198 31199 OU-D Book 17 **'98 Update**	D	3.1.5	5/28/97	Comments, OU-D, Draft Field Sampling Plan, Addendum 1	EPA comments on the draft OU-D field sampling plan.	Matthew Wilkening EPA	Kevin Gardner DPW
31200 31200 OU-D Book 17 **'98 Update**	D	3.1.5	5/29/97	Comments, OU-D, Draft Field Sampling Plan, Addendum 1	ADEC comments on the draft OU-D field sampling plan.	Louis Howard ADEC	Kevin Gardner DPW

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31201 31201 OU-D Book 17 **'98 Update**	D	3.1.5	6/4/97	Comments, OU-D, Risk Assessment Approach Document	CHPPM comments on the draft OU-D RA approach document.	Dennis Druck CHPPM	Kevin Gardner DPW
31202 31202 OU-D Book 17 **'98 Update**	D	3.1.5	6/6/97	Comments, Draft Field Sampling Plan, Addendum 1, OU-D	CHPPM comments on the draft OU-D field sampling plan.	Dennis Druck CHPPM	Kevin Gardner DPW
31203 31203 OU-D Book 17 **'98 Update**	D	3.1.5	8/18/97	Comments, OU-D, Draft Field Sampling Plan, Addendum 2	ADEC comments on the draft OU-D field sampling plan, Addendum 2.	Louis Howard ADEC	Kevin Gardner DPW
31204 31205 OU-D Book 17 **'98 Update**	D	3.1.5	8/18/97	Comments, OU-D, Draft Remedial Investigation Report	ADEC comments on the draft OU-D RI report, dated August 26, 1997.	Louis Howard ADEC	Kevin Gardner DPW
31206 31207 OU-D Book 17 **'98 Update**	D	3.1.5	10/30/97	Comments, Draft OU-D, Risk Assessment, September 1997	Review comments.	Louis Howard ADEC	Kevin Gardner DPW
31208 31224 OU-D Book 17 **'98 Update**	D	3.1.5	10/31/97	Comments, OU-D, Draft RI and Baseline RA	Review comments.	Matthew Wilkening EPA	Kevin Gardner DPW

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31225 31230 OU-D Book 17 **'98 Update**	D	3.1.5	12/12/97	Comments, Draft Risk Assessment Report, OU-D, September 1997	Review comments.	Dennis Druck CHPPM	Kevin Gardner DPW
26086 26115 OU-D Book 13 **'97 Update**	D	3.2	1/15/96	Draft Pilot Bioventing Remediation System One Year Shut Down Test Summary Report, Building 45-590, Fort Richardson, Alaska	Presents results of a December 1995 and May 1995 shutdown of the Building 45-590 bioventing system.	EMCON	USAED Alaska
31231 31270 OU-D Book 17 **'98 Update**	D	3.2	1/21/97	Draft Pilot Bioventing Remediation System, Fourth Semiannual Shutdown Test Summary Report, Building 45590	As part of the corrective action plan for Building 45-590, this report presents a history of the program and results of the December 1996 respiration tests.	EMCON	USAED Alaska
18206 18214 OU-D Book 11	D	3.3	6/8/95	Clean Soils and Water from Field Investigation on Fort Richardson	Summary of "clean" IDW from OU-D.	Stacey LeBlanc ENSR	Louis Howard ADEC
18215 18215 OU-D Book 11	D	3.3	6/12/95	Disposal of IDWs from Field Investigation at Fort Richardson	No need for further treatment required for IDW to be disposed of onsite.	Louis Howard ADEC	Kevin Gardner DPW
33071 33191 OU-D Book 18 **'99 Update**	D	3.3	9/30/97	OUD Field Sampling Plan Addendum 2 - Final	Review of proposed sampling plan for the postwide risk assessment at OUD.	Chris Humphrey ENSR	Jim Levine USAED Alaska

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33192 33197 OU-D Book 18 **'99 Update**	D	3.3	10/31/97	Draft Risk Assessment Report, Operable Unit D, Fort Richardson, Alaska, September 1997	U.S. Army Center for Health Promotion and Preventive Medicine's review and comments of Draft Risk Assessment Report for OUD	Dennis Druck Army	Kevin Gardner USAED Alaska
33198 33203 OU-D Book 18 **'99 Update**	D	3.3	12/12/97	Draft Risk Assessment Report, Operable Unit D, Fort Richardson, Alaska	Review and comments of Dragt Risk Assessment Report for OUD.	Dennis Druck Army	Kevin Gardner USAED Alaska
33204 33214 OU-D Book 18 **'99 Update**	D	3.3	6/3/98	Operable Unit D, Draft Post Wide Risk Assessment	USEPA comments on the draft postwide Risk Assessment for OUD.	R. Matthew Wilkening EPA	Kevin Gardner USAED Alaska
33215 33222 OU-D Book 18 **'99 Update**	D	3.3	6/22/98	Draft Postwide Risk Assessment, Fort Richardson, Alaska, April 1998	U.S. Army Center for Health Promotion and Preventive Medicine's comments to the Draft Postwide Risk Assessment for OUD.	Dennis Druck Army	Kevin Gardner USAED Alaska
33223 33244 OU-D Book 18 **'99 Update**	D	4.1	12/24/97	Remedial action objectives technical Memorandum for Operable Unit d, Feasibility Study, Fort Richardson, Alaska	Highlihgts ARARs based on status of the RI and RA for OUD.	Chris Humphrey ENSR	Jim Levine USAED Alaska
31271 31292 OU-D Book 17 **'98 Update**	D	4.1	12/24/97	Remedial Action Objectives Technical Memorandum for the FS for OU-D	Technical memorandum includes draft ARARs, and demonstrated effective treatment technologies for sites within OU-D.	Chris Humphrey ENSR	Jim Levine USAED Alaska

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33245 36909 OU-D Books 19-25 **'99 Update**	D	4.2	11/23/98	Final RI/FS Operable Unit D, Fort Richardson, Alaska	Presents the findings fo the RI/FS in six volumes. Includes all pertinent data to support all RI, FS, and risk assessments for all sites in OUD. (Vol. 1a: 33245-34018 (Book 19); Ib: 34019-35563 (Book 20) ; II a & b: 34564-36705 (Books 20 - 25), III: 36706-36909 (Book 25).	Chris Humphrey ENSR	Brian West USAED Alaska
26116 26958 OU-D Books 13 -15 **'97 Update**	D	4.3	8/15/96	Final Management Plan, OU-D, RI/FS, Fort Richardson, Alaska	Presents the approach and methodologies to be used to conduct the RI for OU-D.	ENSR	USAED Alaska
36910 36918 OU-D Book 26 **'99 Update**	D	4.3	12/9/97	Overview Letter and Schedule for Operable Unit D, Feasibility Study, Fort Richardson, Alaska	Provides a description of each area in OUD that the Feasibillity Study will investigate. Highlights the objectives of the feasibility study.	Chris Humphrey ENSR	Jim Levine USAED Alaska
26959 26960 OU-D Book 15 **'97 Update**	D	4.4	9/24/96	Proposed Amendment to the OU-D Field Sampling Plan	This letter modifies the field sampling plan to include tissue analysis of pond macrophytes and benthic macroinvertebrates, and drops the single sediment toxicity test and replaces it with a quantitative and qualitative evaluation of the benthic macroinvertebrate community composition of the pond.	Stephen Wrenn ENSR	Kevin Gardner DPW
36919 36927 OU-D Book 26 **'99 Update**	D	4.4	5/7/98	Draft Final Remedial Investigation/Feasibility Study, Operable Unit D, Fort Richardson, Alaska, February 1998: Volumes I, II, III	Review and comments of Draft Final Remedial Investigation/Feasibility Study for OUD.	Dennis Druck Army	Kevin Gardner USAED Alaska
26963 26964 OU-D Book 15 **'97 Update**	D	4.5	1/5/96	ADEC Comments on Draft CSMs, DQOs, ARARs, OU-D, December 1995	Review comments.	Louis Howard ADEC	Kevin Gardner DPW

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26961 26962 OU-D Book 15 **'97 Update**	D	4.5	1/5/96	Comments, Draft OU-D Management Plan	Review comments.	Louis Howard ADEC	Kevin Gardner DPW
26965 26966 OU-D Book 15 **'97 Update**	D	4.5	1/29/96	Comments, OU-D Draft CSMs, DQOs, and ARARs, December 1995	Review comments.	Louis Howard ADEC	Kevin Gardner DPW
26967 26968 OU-D Book 15 **'97 Update**	D	4.5	3/22/96	Comments, OU-D Draft Management Plan, February 1996	Review comments.	Louis Howard ADEC	Kevin Gardner DPW
26969 26974 OU-D Book 15 **'97 Update**	D	4.5	3/28/96	Comments, OU-D Draft Management Plan, February 1996	Review comments.	Matthew Wilkening EPA	Kevin Gardner DPW
26975 26976 OU-D Book 15 **'97 Update**	D	4.5	4/10/96	Comments, OU-D Draft Management plan, February 1996	Review comments.	Arthur Lee CHPPM	Kevin Gardner DPW
26977 26983 OU-D Book 15 **'97 Update**	D	4.5	10/10/96	Monthly Progress Report No. 1-August 1-Sept. 30, 1996 for OU-D RI/FS	This letter outlines the work accomplished during the reporting period.	Stephen Wrenn ENSR	JoAnn Walls USAED Alaska

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36928 36928 OU-D Book 26 **'99 Update**	D	4.5	1/14/98	Remedial Action Objectives Technical Memorandum for OUD, Fort Richardson, Alaska dated December 30, 1997.	Alaska DEC comments to Remedial Action Objectives Technical Memorandum for OUD.	Louis Howard ADEC	Kevin Gardner USAED Alaska
36929 36931 OU-D Book 26 **'99 Update**	D	4.5	1/27/98	Operable Unit D, Remedial Action Objectices Technical Memorandum	USEPA comments on the remedial action objectives, as part of the Feasibility study for OUD.	R. Matthew Wilkening EPA	Kevin Gardner USAED Alaska
36932 36941 OU-D Book 26 **'99 Update**	D	4.5	3/23/98	Operable Unit D, Draft Remedial Investigation/Feasibility Study Report	USEPA comments on the draft Remedial Investigation/Feasibility Study for OUD.	R. Matthew Wilkening EPA	Kevin Gardner USAED Alaska
36942 36944 OU-D Book 26 **'99 Update**	D	4.5	3/24/98	Draft final RI/FS VolumesI Remeidal Investigation, II Risk Assessment, and III Feasibility Study for Operable Unti D, Fort Richardson, Alaska, February 1998	Alaska DEC comments to the Draft Final RI/FS for OUD.	Louis Howard ADEC	Kevin Gardner USAED Alaska
36945 36947 OU-D Book 26 **'99 Update**	D	4.5	10/8/98	OUD Remedial Investigation/Feasibility Study Draft Final, Fort Richardson, Alaska, September 1998	Alaska DEC comments to the Draft Final Remedial Investigation/ Feasibility Studyfor OUD	Louis Howard ADEC	Kevin Gardner USAED Alaska
36948 36955 OU-D Book 26 **'99 Update**	D	4.5	10/23/98	Operable Unit D, Draft Final Remedial Investigation/Feasibility Study Report and Tech Memo	USEPA comments to the draft final RI/FS for OUD.	R. Matthew Wilkening EPA	Kevin Gardner USAED Alaska

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Page Numbers	OU	Cat No	Date	Title	Abstract	Author	Recipient
36956 36957 OU-D Book 26 **'99 Update**	D	4.5	1/15/99	Draft Final Feasibility Study, Volume III, RI/FS Operable Unit D, Fort Richardson, Alaska, November 1998	The U.S. Army Center for Health Promotin and Preventive Medicine's comments to the draft final RI/FS for OUD.	Rodgers Rudolph Army	Kevin Gardner USAED Alaska
36958 36960 OU-D Book 26 **'99 Update**	D	5.5	6/1/98	Schedule Change for Operable Unit D, Fort Richardson, Alaska	Request by the U.S. Army for an extension to the delivery date of the draft ROD for OUD.	David Brown USAED Alaska	R. Matthew Wilkeni EPA
36961 36961 OU-D Book 26 **'99 Update**	D	5.5	6/11/98	Request for Schedule Change for Operable Unit D, Fort Richardson, Alaska	Alaska DEC agreement to Army's request for extension on the draft ROD delivery date.	Louis Howard ADEC	Kevin Gardner USAED Alaska
36962 36963 OU-D Book 26 **'99 Update**	D	5.5	6/19/98	Operable Unit D Enforceable Schedule Extension Request	USEPA agreement to the Army's request for extension on the draft ROD delivery date.	Michael Gearheard EPA	Kevin Gardner USAED Alaska
36964 36965 OU-D Book 26 **'99 Update**	D	5.5	7/16/98	Draft Proposed Plan for Operable Unit D, Fort Richardson, Alaska July 1, 1998	Alaska DEC comments on the draft Proposed Plan for Operable Unit D.	Louis Howard ADEC	Kevin Gardner USAED Alaska
36966 36968 OU-D Book 26 **'99 Update**	D	5.5	8/31/98	Schedule Change for Operable Unit D, Fort Richardson, Alaska.	Request by the Army for an extension to the delivery date for the Draft ROD.	Mark Nelson USAED Alaska	Louis Howard ADEC

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Page Numbers	OU	Cat No	Date	Title	Abstract	Author	Recipient
36969 36969 OU-D Book 26 **'99 Update**	D	5.5	9/4/98	Request for Schedule Change for Operable Unit-D, Fort Richardson, Alaska, August 1998	Alaska DEC agreement to the Army's request for an extension to the draft ROD delivery date.	Louis Howard ADEC	Kevin Gardner USAED Alaska
36970 36971 OU-D Book 26 **'99 Update**	D	5.5	9/17/98	OUD Enforceable Schedule Extension Request	USEPA agreement to the Army's request for an extension to the draft ROD delivery date.	Ann Williamson EPA	Kevin Gardner USAED Alaska

APPENDIX B

RESPONSIVENESS SUMMARY FOR THE RECORD OF DECISION FOR REMEDIAL ACTION AT OPERABLE UNIT D, FORT RICHARDSON, ALASKA

APPENDIX B
RESPONSIVENESS SUMMARY FOR THE RECORD OF DECISION FOR REMEDIAL ACTION AT OPERABLE UNIT D, FORT RICHARDSON, ALASKA

OVERVIEW

U.S. Army Alaska (the Army), the U.S. Environmental Protection Agency (EPA), and the Alaska Department of Environmental Conservation (ADEC), collectively referred to as *the Agencies*, distributed a Proposed Plan for remedial action at Operable Unit D (OUD), Fort Richardson, Alaska. OUD comprises 12 sites: Building 35-752 – High Frequency Transmitter Site; Building 45-590 – Auto Hobby Shop; Building 726 – Laundry Facility; Building 796 – Battery Shop; Stormwater Outfall to Ship Creek; Dust Palliative Locations; Landfill Fire Training Area; Grease Pits; Circle Road Drum Site; Building 700/718; Building 704; and Building 955. However, after a thorough screening and investigative process, only four sites were evaluated during the Remedial Investigation (RI) and three of these four sites have been determined to require remediation.

The Proposed Plan identified remedial alternatives for Buildings 35-752, 45-590, and 796. Building 726 was not considered for remedial action in the Proposed Plan based on the results of the human health risk assessment. Buildings 700/718, 704, and 955 were moved under the conditions of the State-Fort Richardson Environmental Restoration Agreement (Two-Party Agreement) between the Army and ADEC. Soil at Building 35-752 was scheduled to be remediated to comply with state regulations. Groundwater at Building 796 was to be monitored with the Two-Party Agreement sites. All of the remaining sites were recommended for no further action.

The major components of the selected remedial alternatives for Buildings 35-752 and 45-590 were:

- Sitewide institutional controls;
- Natural attenuation of groundwater contaminants; and
- Long-term groundwater monitoring.

No formal comments regarding the Proposed Plan for the OUD remedial actions were received during the public comment period.

Since the time of the Proposed Plan, changes have be made to the recommendations in the Proposed Plan, see section 7.0. The Restoration Advisory Board was notified at the February 2000 meeting. No other public notice has occurred on the revised changes, since the Proposed Plan.

BACKGROUND OF COMMUNITY INVOLVEMENT

The public was encouraged to participate in the selection of the final remedies for OUD during a public comment period from April 29 to May 28, 1999. The *Fort Richardson Proposed Plan for Remedial Action at Operable Unit D* presents six options considered by the Agencies to address contamination in soil and groundwater at OUD. The Proposed Plan was released to the public on

April 27, 1999, and copies were sent to all known interested parties, including elected officials and concerned citizens. Information Fact Sheets, prepared quarterly since June 1995, provided information about the Army's entire cleanup program at Fort Richardson and were mailed to the addresses on the same mailing list.

The Proposed Plan summarized available information regarding OUD. Additional materials were placed into three information repositories: the University of Alaska Anchorage Consortium Library, Alaska Resources Library, and Fort Richardson Post Library. An Administrative Record, including all items placed in the information repositories and other documents used in the selection of the remedial actions, was established in Building 724 on Fort Richardson. The public was welcome to inspect materials available in the Administrative Record and the information repositories during business hours.

Interested citizens were invited to comment on the Proposed Plan and the remedy selection process by mailing comments to the Fort Richardson project manager; by calling a toll-free telephone number to record a comment; or by attending and commenting at a public meeting conducted on May 13, 1999, at the Russian Jack Chalet in Anchorage.

Postwide community relations activities conducted for Fort Richardson, which include OUD have included:

- December 1994 – Community interviews with local officials and interested parties
- April 1995 – Preparation of the Community Relations Plan
- June 1995 through November 1999 – Distribution of an informational Fact Sheets covering all OUs at Fort Richardson
- June 29, 1995 – An informational public meeting covering all OUs
- March 1996 – Establishment of information repositories at the University of Alaska Anchorage Consortium Library, Alaska Resources Library, and Fort Richardson Post Library, and the Administrative Record at Building 724 on Fort Richardson
- March 14, 1996 – An informational public meeting covering all OUs
- October 1997 through November 1999 - Restoration Advisory Board meetings covering all OUs

Community relations activities specifically conducted for OUD included:

- OUD Proposed Plan 30-Day Public Comment Period, April 29 - May 28, 1999
  - Toll-free comment line, 888-343-9460, active from 4/28/99 to 6/1/99 – no messages.

    Purpose: For public comment and request copies of OUD Proposed Plan or information regarding Fort Richardson Environmental Restoration Program.

- Press release dated 4/28/99, entitled Army, EPA, ADEC Seek Public Input on Fort Richardson Environmental Cleanup Plan.

  Purpose: Written and provided to Chuck Canterbury, Public Affairs, Fort Richardson on 4/22/99, providing information on the document availability and the May 13, 1999, Public Meeting.

- Postcard sent 5/12/99 to recipients of OUD Proposed Plan, entitled Notice to Recipients of the Proposed Plan for Remedial Action at Operable Unit D, Fort Richardson, Alaska, April 1999.

  Purpose: Corrected telephone numbers and addresses for the Information Repositories listed on Page 31 of the Proposed Plan. Additionally, pages with corrected information were inserted into remaining documents made available at the May 13 Public Meeting.

- Public Notice Display Advertisement, entitled the U.S. Army Announces a Public Comment Period and a Public Information Meeting.

  - Alaska Star – Advertisement ran April 22 and April 29, 1999.
  - Anchorage Daily News – Advertisement ran April 24, 25, 27, and May 9, 10, 13, 1999.

  Purpose: Advertising the availability of the OUD Proposed Plan document, dates of the 30-day public comment period, address to send written comments, toll-free comment line telephone number, the May 13 public informational meeting, and listing of information repositories.

- Public Informational Meeting on OUD Proposed Plan, May 13, 1999, Russian Jack Chalet.

  Purpose: Provide an opportunity for members of the public to meet with Army, ADEC, EPA and contractor ENSR, and opportunity to provide public comment. Court reporter attended the meeting to take public comments and transcription of meeting proceedings for the Administrative Record. No public comments provided during the meeting.

APPENDIX C

BACKGROUND STUDY

APPENDIX C
BACKGROUND STUDY

There are two types of background chemicals: 1) naturally occurring chemicals that have not been influenced by humans, and 2) chemicals that are present due to anthropogenic sources. Soils in the alluvial outwash plain on which the main cantonment of Fort Richardson resides frequently contain coal. Background chemicals are usually eliminated from the RI/FS process, since risks associated with background chemicals are often small when compared to site-related compounds. However, if background risk is significant, this information may be important for risk-management decisions. As a result, where background chemicals are significant, background risks should be calculated separately from site-related risks (Risk Assessment Guidance Manual, EPA 1989a).

In human health risk assessment, inorganic chemicals that are present at naturally occurring levels may be eliminated from further consideration. Comparison with naturally occurring levels is generally applicable only for inorganic chemicals, because most organic chemicals found at contaminated sites are not naturally occurring (EPA 1989a). With the exception of metals, all other analytes are organic chemicals. As a result, background statistical comparisons were performed only for metal analytes. All other analytes were included in the semi-quantitative risk assessment process.

The results of the background metals evaluation are presented in Table B-1 which were determined using statistical comparisons based on background sampling. The study, *Final RI/FS, Operable Unit D, Fort Richardson, Alaska, Volume IIb, Postwide Risk Assessment* (ENSR, 1998), can be located in the Administrative Record

Table B-1. Average Background Metal Concentrations

Analyte	Number of Samples	Average Concentration (ppm)	95% Confidence Limit (+/-)
Arsenic	163	7.86	4.43
Barium	156	85.8	32.8
Chromium	164	31.3	19.92
Lead	163	8.39	3.0
Nickel	137	32.8	10.22

Key:
ppm = parts per million.

APPENDIX D

FORT RICHARDSON PETROLEUM CLEANUP SITES

APPENDIX D
FORT RICHARDSON PETROLEUM CLEANUP SITES

This appendix provides supporting information regarding actions taken by the U.S. Army to investigate, remediate, and/or close out actual or potential sources of petroleum, oil, and lubricants (POL) contamination. These releases stem from either the past use of underground storage tanks (UST) on Fort Richardson or releases from non-underground storage tank POL sources. Two-Party Agreements between the Department of the Army (Army) and Alaska Department of Environmental Conservation (ADEC) are part of the Federal Facility Agreement (FFA) for Operable Unit D. These agreements, which present the petroleum cleanup strategy, document all known historical petroleum sources on Fort Richardson and their current cleanup status. Since 1994, the Army at Fort Richardson has investigated 88 sites. Of those sites, 44 have been closed out by the State of Alaska as posing no threat to human health or the environment, thus, requiring no further action. Of the remaining sites, 4 are under consideration for closure; remedial investigation/actions are ongoing at 11 sites; long-term groundwater monitoring at 1 site, and institutional controls are in place for the remaining 28 sites.

APPENDIX E

FORT RICHARDSON TWO-PARTY AGREEMENT SITES

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FORT RICHARDSON TWO-PARTY AGREEMENT SITES

Table E-1. Fort Richardson Two-Party Agreement Sites.

POL Source Areas Recommended for Closure		
Building 712 (IC only)		Building 1175
Building 794-UST (IC only)		Building T139

POL Source Areas Requiring No Further Action		
Building 604	Building 789	Building 45005
Building 700	Building 798	Building 45580
Building 704	Building 812	Building 45590
Building 730	Building 908N	Building 45726
Building 732	Building 920	Building 47431
Building 750	Building 972	Building 47641
Building 754	Building 974	Building 47811
Building 756	Building 979	Building 55295
Building 760	Building 980	Building 55804
Building 770	Building 8102	Building 59011
Building 772	Building 27004	Building 59068
Building 778	Building 35610	Black Spruce Camp
Building 782	Building 35750-UST	Circle Road Drum Site
Building 784	Building 35752-UST	UST Landfill Soil Piles
Building 786	Building 36012	

POL Source Areas Closed with Institutional Controls Only		
Building 740	Building 946	Building 987-UST
Building 755	Building 950	Building 39225-NSS-UST
Building 908S	Building 952	Building 39600-NSS-UST
Building 914	Building 955-UST	Building 47022
Building 926	Building 956	Building 47203
Building 932	Building 962	Building 47662
Building 934	Building 968	Building 794-Cann Yd.
Building 936	Building 975	Roosevelt Road FTS
Building 944	Building 986-UST	

POL Source Areas Closed with Institutional Controls and/or Long Term Monitoring
Building 702

POL Source Areas Currently Active		
Building 762	Building 28008	Building 59000
Building 955-DDT	Building 35620	Nike Site Summit (NSS)
Building 986-Dry Well	Building 45070	Ruff Road FFTA
Building 987-Spill	Building 47220	

Fort Richardson Status Report - Active Sites

DSERTS	*SITE ID*	*TANK #*	*IC/LTM*	*SITE NARRATIVE*
FTRS-58	Building 762	19 and 20	Y	Bldg 762 is the site of GSA's gasoline station and is located east of the intersection of C and Second Streets in the main industrial area of Fort Richardson. The two tanks (#s 19 & 20) were removed in July 1995. A bioventing/air sparging system was installed in 1994, the interim remedial report showed no progress and system was abandoned. A leachability study was completed in 1997 and recommended closure of this site. Alaska Department of Environmental Conservation comment, requested installation of a groundwater well on site to assess groundwater contamination impact. Soil borings were drilled and monitor well AP-3797 was installed in 1997. Analytical results from tests on soil boring samples indicated that contamination was below ADEC's most stringent cleanup levels. Laboratory results from tests on groundwater samples indicate that Benzene exceeded ADEC cleanup levels. However, the site profile indicated that groundwater contamination likely did not originate from UST's 19 or 20. DEC requested installation of 2 additional GW wells and additional soil sampling to assess contamination and source. IC's have been implemented and the site is capped. Because analysis of the soil samples from the borings indicated that contamination may not have come from this site, further investigation at this site may include areas around buildings 770 and 772.
FTRS-54	Building 955-DDT		Y	Building 955 is located near the junction of Warehouse Street and Circle Drive and was used as a Petroleum storage facility. During the 1995 RI for the petroleum sites, DDT was detected in one of the soil borings. About 100 cy's of DDT contaminated soil was removed and transported to a permitted disposal facility. DDT soil was removed in 1998, but confirmation soil samples were not collected. Recommendation in OU-D ROD is to perform confirmation sampling and then NFA site if contamination below regulated limits. If contamination above limits, then site will be referred to OU-D.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-09	Building 986-POL Dry Well		Y	Bldg 986 is located at the intersection of Loop Road and Warehouse Street, which is on the northern end of the Post's cantonment area. The drywell is approximately 15 feet from the southeast side of Building 986, 4 feet in diameter, and approximately 15 feet deep. The laboratory began operations in the mid-1950's and provided analyses of various fuels used by the military to assure overall and arctic grade quality was maintained. One sink in the lab was connected directly to the well. Initial concern centered on potential groundwater contamination with heavy metals, solvents, and petroleum, however, RI results indicate that this situation has not occurred. Contamination is limited to drywell sludge and approximately 230 cy of soil beneath it. The dry well and soil/sludge beneath it were removed, and SVE of petroleum-contaminated soil commenced in 1998. In August 1999, fifteen confirmation soil samples were collected to determine the the level of remaining contamination after 1 year of SVE. GRO was detected in 10 of the 15 samples, but only 4 samples exceeded the ADEC cleanup level of 500 mg/kg. DRO was detected in 14 of the 15 samples, and 5 samples exceeded the regulated limit of 1,000 mg/kg. Based on confirmation sample results, ADEC approved a switch from SVE to bioventing for FY2000.
FTRS-81	Building 987-Spill		Y	Bldg 987 is located in the western portion of Ft Richardson near Loop Road. The site included a pumphouse, former waste fuel UST, and three 225,000 gallon above ground storage tanks. Petroleum contamination was found to be between 30-60 feet bgs. The COE has finalized a formal RI for the site. Soil samples were found to contain petroleum, TPH, and BTEX. Groundwater samples were found to contain petroleum, TPH and BTEX. In 1999, building 987 and the three AST's were demolished. Demolition included dismantling the tanks and removing 1560 feet of fuel piping. The entire fenced area that contained the tanks and Building 987 was paved and converted into a vehicle storage area. Investigations and sampling during site demolition in FY99 revealed additional areas of contamination in the soil. Contamination is associated with a prior spill at the site and will be funded under compliance (not DERA eligible). An effective strategy for the site is being developed in FY00.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 28008	48, 49, and 111	Y	Bldg 28008 is located off of Arctic Valley Road, south of the Glenn Highway and is Fort Richardson's water treatment plant. Two 10,000 gallon UST's (#48 &49) were installed on the east side of building 28008 and were used for diesel fuel. They were buried to a depth of three feet and were removed in 1995 and replaced by a single tank. The area of excavation was approximately 750 sq. ft The RI was received on October 1996. The site showed petroleum up to 39,000 ppm and total BTEX up to 27.70 ppm. Benzene was found in the groundwater at up to 16 ppb. Additional groundwater wells were installed in 1997, downgrading of the Bldg 28-008. Groundwater contamination and small quantities of free product were discovered. Three additional wells installed in July/August 1997 were found to be contaminated. AP-3764 and 3765 both contained free product. AP-3765 reportedly contained three and one-half bailers full of product. Ten additional groundwater wells were installed in 1998. Data collected from soil and water samples was used to develop a groundwater contaminant map of the area. The groundwater map indicates that a contaminant plume about 400 feet loang and 200 feet wide extends to the northwest from building 28-008. RD/RA is currently being developed to address GW contamination.Site Assessment:(9/13/91) UST appears to have been removed on or around September of 1991. Soil samples taken from the excavation were found to contain EPH at 1400 mg/kg. Release Investigation for tank 111 was conducted 3/18/94. ADEC site closure was received on November 29, 1994. A release investigation of the site was conducted by HLA, and consisted of four (4) soil borings ranging in depth from 5 to 51.5 feet bgs. Surface samples were found to contain GRPH, DRPH and TRPH in excess of the ADEC clean up standards. No other samples were found to exceed ADEC clean up standards.
NA	Building 35620	1101	Y	UST 1101 was removed 30 July 1996. SA indicated contamination present and RI conducted. Final RI report received 1998. Contaminated soils were excavated and thermally remediated off-site. Remediated soil returned to site and used as backfill. Additional monitor wells were installed in 1999. GW samples collected in fall 1999 indicated that DRO exceeded ADEC cleanup standards. GW monitoring for wells at 35620 and 35610 to be perfomed FY00 to determine if site can be closed.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-88	Building 45070	136	Y	Bldg 45070 is located on Circle Drive, west of Loop Road. A 1,000 gallon UST was installed on the west side of the building and was found to contain heating oil. The tank was buried to a depth of three feet and was removed and replaced in 1995. Soil samples collected during the SA (08/21/95) were found to contain upto 30,000 mg/kg of DRO and upto 42,000 mg/kg of TPH. The RI (10/22/96) was received on October 1996. The RI consisted of five soil borings down to 90 feet bgs, and two ground water wells down to 95 feet. DRO was found in soil samples at upto 70 feet bgs. Water results showed DRO upto 1,600 ug/l. Alaska Department of Environmental Conservation comments requested addition of two (2) groundwater monitoring wells to determine the lateral extent of groundwater contamination. Based upon location of the building, and lack of groundwater usage in the area, the site appeared to be a good candidate for natural attenuation. Three additional wells were installed during July 1998. Groundwater sampling of the five monitor wells indicated that DRO and PAH's continue to be detected at levels exceeding ADEC regulated limits. Wells were sampled bi-annually for 98-99 and will be sampled annually FY00. If COC's are below cleanup levels, LTM will be discontinued and site petitioned for NFA.
NA	Building 47220	145 and 1159	Y	UST 145 was removed 27 June 1995. SA found no contamination associated with UST 145 and the tank site was closed with NFA 20 Sept 1995. Tank 1159 associated with building 47-220 was discovered in 1998. The building had been demolished prior to discovery of the tank, but the foundation was still in place. The tank was removed in 1998 and an SA performed. The SA indicated that DRO contamination (46,000 mg/kg) at the site greatly exceeded DEC limits. DEC requested a release investigation to be performed in FY00. SOW being prepared for action in FY00.
NA	Building 59000	80, 80A, 81 and 8	Y	UST's 80 and 81 were removed in 1995. SA indicated that tank 81 had not leaked, but there was an indication that tank 80 may have leaked. ADEC granted NFA for Tank 81, but required RI for tank 80. Tanks 80A and 81A were installed to replace tanks 80 and 81. Tanks 80A and 81A were removed in 1998. Final RI received on 30 March 1998. Multiple soil borings were drilled and 3 groundwater wells were installed at the site. GW monitoring indicated presence of free product during 1999 sampling. SOW being prepared, for implementation in FY00, to perform free product recovery and drill soil borings directly under former tank locations. Pending soil boring results, additional GW wells or a soil remediation system may be installed.

DSERTS	*SITE ID*	*TANK #*	*IC/LTM*	*SITE NARRATIVE*
FTRS-47	NIKE SITE SUMMIT	57, 112, and 129	Y	Closed under FTRS-84 and transferred to FTRS-47. Nike Site Summit. Work will be conducted under Two Party Non-UST Agreement per ADEC on 8 August 1995. Nike Site Summit is located on the southwestern flank of Mt. Gordon Lyon at an elevation of 3,500 to 3,900 feet above sea level, approximately five miles east of the Fort Richardson cantonment area. The site consists of numerous buildings, foundations, roads, ammunition bunkers, missile launch pads, underground storage tanks, and landfills associated with the former Nike missile site. The facilities are scattered over an area which may be as large as one square mile. The site was active from 1959 to 1979. The USTs at the site were removed during the summer 1994, 1995 and 1996. UST 129 was removed on 19 July 1995. SA was received 20 Sept 95, and recommended further investigation. UST 112 was removed 19 July 1995. SA was received 12 Sept 95. UST 57 was removed on 22 June 1994. DRO 4,100-8,700 ppm. ADEC comments requested RI/CAP. The site was closed under the UST Compliance Agreement and incorporated into the Two-Party Petroleum Agreement in 1995, with Alaska Department of Environmental Conservation concurrence. Two-party POL (non-UST) PA/SI completed July 1996. Evaluted during OU-D postwide risk assessment in 1998. POL contamination to be addressed through removal actions. Based upon minimal chance of exposure to contaminants at the site, the site may be closed or placed into LTM, versus conducting removal actions using a risk evaluation. Additional RI work needs to be completed in order to complete risk assessment. Work plan is expected to be started in FY03 to meet DPG goals.
FTRS-29	Ruff Road		Y	Ruff Road is located among gravel pits east of Bryant Airfield, south of Davis Highway and west of Glenn Highway. The area under investigation is 50 feet in diameter and in the vicinity of a former landfill whose closure report was recently approved by the State of Alaska. It is estimated that over 85,000 gallons of jet fuel, waste oil, diesel, brake fluid, and solvents were burned in the fire circle over the training area's 40 year lifespan. RI results indicate that Groundwater contamination is well below conservative risk-based concentrations and does not require remediation. A treatment system design and verification study using bioventing was initiated in 1998 and was completed in 1999. The draft report on the treatment system was submitted in January 2000 and is being reviewed. Further remedial action is pending a full review of the report.

Fort Richardson Status Report - Inactive Sites

DSERTS	*SITE ID*	*TANK #*	*IC/LTM*	*SITE NARRATIVE*
NA	Building T139: DPW Laydown Yard Steam Condensate Tank	T139	N	Site Assessment: (10/23/95) Tank T139, was discovered near the railroad tracks in the Public Works Laydown Yard during July 1995. The tank was removed on 21 August 1995. The site assessment showed that contaminants did not exceed the most stringent ADEC cleanup standards. The site will be recommended as NFA. ADEC comments dated 31 October 1995 request additional soil sampling be conducted for VOCs, PCBs and leachable metals. The tank was listed as an used oil tank, but the contents were unknown. Material samples collected from inside the tank indicated that the tank did not contain a regulated hazardous waste. VOC's, PCB's and metals were not detected in the liquid waste from inside the tank. ADEC will be petitioned to NFA the site in FY00.
NA	Building 604	2	N	Site Assessment: (06/16/95) ADEC closure was obtained for this site on June 28, 1995. UST 2 was removed and replaced by Southfork Construction, under contract to BRSC, on 17 May 1995. Soil samples taken at the site were found to contain DRO at a maximum of 34 mg/kg, benzene at less than 0.029 mg/kg and BTEX at less than 0.116 mg/kg.
FTRS-16	Building 700		N	Building 700/718 was used to store about 27 containers of wastes and unused petroleum products that were moved to the location in the late 1980's from the Haines facility. Per the FFCA the drums were sampled tested. The drums were removed in April 1991 and transported to DRMO for disposal. About 200 cubic yards of contaminated soil were excavated and transported to Alaska Soil Recycling for thermal treatment. With the concurrence of EPA and Alaska Department of Environmental Conservation, this site was identified in the 1994 Fort Richardson Federal Facility Agreement as requiring no further action. Site was formally closed with a letter from ADEC dated 17 Feb 1999.

DSERTS	*SITE ID*	*TANK #*	*IC/LTM*	*SITE NARRATIVE*
FTRS-68	Building 702	4 and 5	Y	UST 4 and 5 removed in 1994 and 1989, respectively. Tanks were replaced with 5A (5,000 gallon diesel tank). Draft RI/CAP was received 3/14/96. GW wells installed 97. Site closure with IC's and LTM obtained December 1996. LTM required semi-annual GW sampling for 97-98, then annual for 99-01. FY99 sampling results showed contaminants below regulated limits. Annual GW sampling will be performed for FY00. If COC's are below regulated limits for FY00, site will be recommended for closure with IC. DD or ROD required. Site Assessment:(9/9/94) UST 4 was removed on June 6, 1994. Sample collected from the excavation contained upto 6300 mg/kg diesel range organics (DRO) and 33 mg/kg of gasoline range organics (GRO). Release Investigation: (3/14/96) Alaska District Corps of Engineers (COE) conducted a release investigation consisting of approximately 10 soil borings down to a level of 75 feet bgs. Borings were stopped at this point due to encountering a impermeable clay lens. COE did not want to carry, or permit entrance, of contamination to the soils below the clay layer. .Draft RI/CAP was received. Maximum DRO/GRO reading were 6330 mg/kg and 3240 mg/kg, respectively.
FTRS-48	Building 704		N	FTRS-48 is located in the outdoor storage yard of the Fort Richardson Public Works Roads and Grounds facility and was formerly used for storing drums of waste fuels, PCB oils, waste paints, and other automotive waste products. The site was investigated as part of a Preliminary Source Evaluation 2 (PSE 2) in 1994 in accordance with the Fort Richardson Federal Facility Agreement. During the summer 1996, a contractor replacing an oil/water separator in the facility discovered a new dry well off the southern end of the facilities washrack. This dry well measured approximately 8 feet in diameter and 15 feet deep. Soil sampling indicated that contamination was not present. Site will be recommended for NFA with concurrence by ADEC in accordance with POL (non-UST) 2-party agreement. Site closed under OU-D ROD.
FTRS-60	Building 712	Lube Rack adjacent to AAFES station at Bldg 710	Y	Building 712 was an old PX gas station/lube rack. Towards the North side of the building a surface spill was investigated, during the building 710 RI. This surface spill was investigated with 7 soil borings. The following contaminants were found: DRO from 4.1 to 7800 ppm; TRPH from 14 to 39200 ppm; PCB at 2.36 ppm. Bldg 712 demo'ed in 1996 and the area capped. Leachability Assessment, received 26 May 1998, recommended closure with IC's. Site will be recommended for closure with IC. NFA letter to DEC and DD (or ROD) required.
NA	Building 730	124	N	Site Assessment:(9/9/94) ADEC site closure was obtained September 28, 1994. UST 124 was removed on June 9, 1994, and was not replaced. Samples collected during the tank removal were found to contain DRO upto 600 mg/kg.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 732	13 and 13A	N	Site Assessment:(7/19/94) UST 13A was removed on June 13, 1994. Soil samples collected during the removal contained DRO upto 5300 mg/kg. Release Investigation:(10/12/94) ADEC site closure was obtained October 28, 1994. EMCON Alaska, Inc., conducted the release investigation (RI), consisting of four soil borings advanced to a maximum depth of 52 feet below ground surface (bgs). Samples contained no analytes of concern above the ADEC allowable clean up standards. Note this closure also covers UST 13.
FTRS-64	Building 740	14	Y	A formal site assessment does not appear to have been conducted on this site. UST 14 was removed in 1987. Soil samples taken during removal were found to contain total petroleum hydrocarbons (TPH) ranging from 50 mg/kg to 1080 mg/kg. Benzene, toluene, ethyl benzene and Xylene (BTEX) were below ADEC clean up standards. Release Investigation: (7/12/94) EMCON Alaska, Inc., conducted the RI, consisting of ten (10) soil borings advanced to a maximum depth of 36.5 feet bgs. GRO, DRO, residual range organics (RRO) and tetrachloroethylene were reported in the samples. A leachability assessment was also conducted for this site. ADEC comments dated May 17, 1994, indicate the site will be considered closed if a monitoring well is established at the site to test groundwater, and the site is covered with asphalt to impede leachate development. Groundwater monitoring well AP 3532 was installed during the summer of 1995. Carbon tetrachloride and Chloroform is was found at over the MCL/RBC. There is no apparent link to the site for the groundwater contamination. A letter requesting site closure, and inclusion of the groundwater in a separate operable unit was forwarded to ADEC. Concurrence with site closure was obtained on 8 May 1996. ADEC concurred with the NFRAP determination, contingent upon groundwater being investigated as part of OU-D. ADEC further requested IC's for soil and groundwater at bldg 740. IC's are outlined in the decision document signed 9 June 1997.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 750	15, 16, 16A, and 108	N	Site Assessment:(7/26/94) ADEC site closure was obtained September 6, 1994. UST 15 and 16 were removed and replaced with new double walled STI-P3 tanks (15A and 16A) on May 10, 1994. Samples taken during the tank removal were found to contain GRO, BTEX, DRO and TPH below ADEC level C clean up standards. Site Assessment: (8/7/98) Brown and Root removed UST 16A on 13 May 1998. The tank was removed due to lack of usage since installation of the new aboveground oil water separator. Samples taken during the removal by OSC, Inc., indicate that the excavation meets level A, clean-up standards. Formal closure from ADEc has never been received. Site Assessment:(11/4/91) UST 108 was removed in July 1991. Samples taken during the removal were found to contain TRPH at 29,000 mg/kg. Release Investigation: (3/18/94) ADEC site closure was received for this site on 10 May 1994. HLA conducted the RI, consisting of three (3) soil borings ranging in depth from 21.5 to 45.5 feet bgs. TRPH was the only analyte of concern detected, ranging from 14 mg/kg upto 74 mg/kg.
NA	Building 754	754A	N	Site Assessment: (06/15/95) UST 754A was discovered by the Fort Richardson Directorate of Public Works on 30 September 1994, during a round of tank tightness testing. UST 754A failed tank tightness testing, and was report to ADEC as a leaking UST. Due to finding the tank late in the work season, a waiver from the USTMP was requested and granted for the UST to be removed. Site assessment work to begin NLT May 15, 1995. The UST was removed by Southfork Construction on 9 May 1995. Soil samples taken from the excavation were found to contain GRO, DRO and TPH, at 3.7, 32 and 210 mg/kg respectively. ADEC site closure was obtained on 21 June 1995.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-19	Building 755	17	Y	Site Assessment:(11/4/91) UST 17 was removed in July of 1991, and replaced with tank 17A. Samples taken during the tank removal were found to contain extractable petroleum hydrocarbons(EPH) upto 29,000 mg/kg. Release Investigation:(3/18/94) ADEC site closure was obtain November 11, 1994. Harding Lawson and Associates (HLA) conducted the RI, consisting of three soil borings ranging from 24.5 to 51.5 feet bgs. Diesel range petroleum hydrocarbon (DRPH) was detected at 15 feet bgs, at 1990 mg/kg. A perched water table was encountered at 21 feet bgs, but did not contain enough water to develop a monitoring well or take ground water samples. A verbal NFA was received from ADEC for the TWO-Party POL site associated with this facility in May 1998. USARAK is currently awaiting the written NFA before generating the DD. FTRS-019 is located at the intersection of Richardson Drive and Second Street. UST 17 was removed in July of 1991. Samples taken during the tank removal were found to contain extractable petroleum hydrocarbons (EPH) up to 29,000 mg/kg. Alaska Department of Environmental Conservation site closure was received 11 November 1994, based upon an RI completed in March 1994. Harding Lawson and Associates (HLA) conducted the RI, consisting of three soil borings ranging from 24.5 to 51.5 feet bgs. Diesel range petroleum hydrocarbons (DRPH) were detected at 15 feet bgs, at 1990 mg/kg. A perched water table was encountered at 21 feet bgs, but did not contain enough water to develop a monitoring well or take groundwater samples. The No Further Remedial Action Planned (NFRAP) decision document for UST 17 was signed on 21 May 97. ADEC Closure received based upon Draft Leaching Assessment, 06/02/98. Decision document signed 12 February 1997. ADEC requested that monitor well AP-3167 be included into long-term GW monitoring program. Thus IC's for GW exist at this site. Soil contamination is below regulated limits for this site and the site is capped.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-03	Building 756	18, 109, and 109A	N	Site Assessment:() UST 18 appears to have been removed in September of 1991. UST 109 was removed on July 19, 1991. Soil samples taken during removal were found to contain benzene ranging from 3.1 to 12.6 mg/kg, and BTEX ranging from 3.1 to 32.6 mg/kg. RRO were also found upto 5109 mg/kg. A letter from Colonel Wrentmore to Mr. John Halverson of the ADEC indicates that a formal site assessment was conducted on UST 109, but a copy of this document is not currently in Public Works files. A copy of this document was requested from ADEC on September 22, 1995. Release Investigation:(3/18/94) ADEC Closure was obtained for UST 18 on November 16, 1994. HLA conducted the RI consisting of three (3) soil borings ranging in depth from 21.5 to 51.5 feet bgs. DRO was detected in one (1) sample at 33 mg/kg. TRPH was detected ranging from 40 mg/kg to 650 mg/kg. Site Assessment for tank 109(4/26/94). ADEC Closure was obtained on UST 109 on 14 November 1994. Based upon samples taken by Oil Spill Consultants, Inc., level C cleanup levels were not exceeded. Site Assessment (8/7/98): Brown and Root removed UST 109A on 14 May 1998. The tank was remove due to lack of use since installation of the new oil water separator. Based upon samples taken by OSC, Inc., during the removal, the excavation meets level A standards. A formal closure letter has not been received from DEC.
FTRS-04	Building 760		N	FTRS-04 is one of the troop motor pools along D Street. With the concurrence of EPA and Alaska Department of Environmental Conservation, this site was identified in the 1994 Fort Richardson Federal Facility Agreement as requiring no further action.
NA	Building 770	21, 21A, and 21B	N	Site Assessment:(12/2/92) ADEC site closure was obtained on February 5, 1994. The site assessment was conducted by the COE. Analytes of concern were detected in the samples at ranges lower than the ADEC level A clean up standards. UST 21A and 21B removed on September 6, 1997. Additional RI work perfomed 98-99. Final site investigation report received March 1999. Three additional monitor wells were installed and sampled in 98-99. GW contamination at the site cannot be definitely associated with the site. Wells associated with this site will be sampled as part of FTRS-58 investigation.
NA	Building 772	130	N	UST 130 Final RI Received on 30 March 1998. Soil borings and monitor well installed 1998 indicated GW contamination not associated with site. Wells associated with this site will be sampled as part of FTRS-58 investigation.
NA	Building 778	22	N	Site Assessment: (7/25/94) ADEC site closure was obtained August 8, 1994. UST 22 was removed on May 17, 1994, and replaced with a double walled STI-P3 tank number 22A. Samples taken during the replacement were found to contain DRO, GRO, TPH and BTEX below ADEC level C clean up standards.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-82	Building 782	23 and 24	N	Site Assessment:(6/29/90) UST 23 and 24 were removed from service on June 1, 1990. Samples taken during the removal detected TPH upto 410 mg/kg. Release Investigation:(8/12/94)ADEC Site Closure was obtained for this site on November 16, 1994.. Dames and Moore, Inc., conducted the RI, consisting of eight(8) soil borings ranging in depth from 27 to 45 feet bgs. Sample results indicated that the site did not exceed the ADEC level C clean up standards. However, due to the DRAFT RI Report indicating that water supply wells were located within one half mile of the site ADEC was not willing to close the site out. (Per ADEC comments dated May 17, 1994) Dames and Moore, Inc., investigated the supposed supply wells, and reported in the FINAL RI REPORT that there were no water supply wells within one-half mile of the site. The ADEC has not commented on the final report.
NA	Building 784	25	N	Site Assessment:(7/26/94) ADEC site closure was obtained on September 6, 1994. UST 25 was removed and replaced with UST 25A on May 18, 1994. Samples taken from the site were found to contain DRO, GRO, RRO and BTEX at less than the ADEC level B clean up standards.
NA	Building 786	26	N	Site Assessment:(9/9/94) ADEC site closure was obtained on September 21, 1994. UST 26 was removed on June 1, 1994. Samples taken during the removal were found to contain DRO upto 810 mg/kg.
NA	Building 789	789A	N	Piping for UST 789A was removed and replaced on July 12, 1995. Site assessment was received on October 23, 1995. However, site not assessed as used oil. Tank and piping removed in 1998 and SA performed. No significant contamination was found and DPW will request closure of the site from DEC in FY00. SA sent to DEC to determine if site can be closed with NFA required. Awaiting closure letter from DEC.
FTRS-07	Building 794, Cannabalization Yard		Y	Site was once a vehicle cannibalization yard where used parts were removed from otherwise unserviceable vehicles. Period of use is unknown. Site/risk assessment was performed in 1995. 20 soil samples were collected and tested for contamination. RA showed minimal risk associated with the site. ADEC Closure with IC received on 8/7/98. DD being developed for signature FY00.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 794-UST	35, 36, 37, and 37A	Y	Site Assessment:(11/25/91) UST 35 was remove on or about July 15, 1991. Soil samples taken from the excavation were found to contain TPH, BTEX and chlorobenzene above acceptable levels. Release Investigation:(3/18/94) ADEC site closure was obtained 12 September 1994. HLA conducted the RI consisting of three (3) soil borings along the perimeter of the excavation. Soil samples were found to contain TPH, GRO and DRO below the ADEC level C clean up standards. Site Assessment:(9/9/94) ADEC site closure was obtained September 28, 1994. UST 36 and 37 was removed from service on July 14, 1994. Soil samples taken from the excavation were found to contain DRO, TPH, GRO, BTEX and benzene at less than the ADEC level C clean up standards. UST 37A (actually an OWS) was removed in 1998. SA received 25 September 1998 (Weldin Const). No contamination was found, but the site has not been officially closed by DEC.
FTRS-61	Building 798	30A and 30B	N	Site Assessment (8/31/95) ADEC Site Closure obtained 20 September 1995. UST 30B was removed on 11 July 1995. Samples taken during the removal, as part of the site assessment, were found to contain DRO, and TPH at 79.5 mg/kg and 186 mg/kg, respectively. UST 30 A which had been removed in September 1989 had an in-house SA conducted and samples were found to contain TPH and TEX, at less than ADEC level C cleanup standards. Release Investigation(7/14/94) The site was investigated by the EMCON Inc., as part of a five site release investigation report. The RI consisted of three soil borings to a maximum of 35 feet bgs. No analytes were discovered at over the laboratories minimum reporting limit.
FTRS-08	Building 812	32	N	Building 812 is the ESSM BACE located on Warehouse Street. UST 32 was removed from the site and replace with UST 32A on 4 May 1994. Samples taken during the removal found diesel range organic compounds ranging up to 63.3 parts per million. BTEX was detected up to 0.021 ppm. These levels are well below the standards specified in 18 AAC 78, and Alaska Department of Environmental Conservation site closure was received on 26 July 1994.
FTRS-72	Building 908 S	82	Y	Site Assessment/Release Investigation:(12/7/92) UST 82 appears to have been removed in September of 1989. The site assessment/RI was conducted by the COE. It consisted of five(5) soil borings advanced to a maximum depth of 50 feet bgs. Samples were found to contain DRO, ortho- and para- dichlorobenzene in excess of RCRA standards, and BTEX. The heaviest contamination, DRO at 5300 mg/kg, was found within five (5) feet of the surface. UST 82 removed 1989. SA found PAH and BTEX exceeding limits. Bioventing system installed in 95 and operated until 97. System operated successfully and post-remedial investigation conducted August 98. PRI recommended NFA based on leach study. NFA received from DEC 6-2-99.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-02	Building 908 N	33	N	UST 33 removed 1989. SA indicated contamination less than regulated limits. NFA closure from DEC 2-5-95.
FTRS-83	Building 914	137	Y	Site Assessment:(9/9/94) UST 137 was removed on June 21, 1994. Samples taken at the at time were found to contain DRO ranging from 2200 mg/kg to 6100 mg/kg. A RI was requested on June 30, 1994. Release Investigation: (03/06/96) Shannon and Wilson, Inc., was selected by the COE to conduct the Circle Road release investigations. Shannon and Wilson supplied a Site Work Plan, QAPP/SAPP and Site Safety and Health Plan for review on October 21, 1994. Comments were received from Louis Howard of the ADEC on November 9, 1994. Shannon and Wilson initiated the RI work plan on February 15, and completed the initial investigative work at all twelve (12) sites by 3/20/95. They were then tasked to perform additional borings at a number of sites to investigate contamination possibly migrating deeper than expected. Further, extra groundwater monitoring wells were added to the scope of the project. The release investigation report for these sites is currently due to be delivered to the COE on 30 September 1995. The RI for this consisted of eight (8) soil borings, with one completed as a monitoring well. DRO up to 6,910 ppm was found at the site. BTEX was less than 50 ppm, with no benzene detected. Some Poly Aromatic Hydrocarbons (PAHs) were found on site. The surface imprint of the contamination is 875 square feet. ADEC Closure was received for this site on 22 March 1996.
NA	Building 920	95	N	Site Assessment:(9/9/94) ADEC site closure was obtained on September 28, 1994. UST 95 was removed on June 20, 1994. Sample taken from the excavation were found to contain DRO ranging from 800 mg/kg to 1900 mg/kg.
FTRS-77	Building 926	96	Y	Site Assessment:(9/9/94) UST 96 was removed on June 20, 1994. Soil Samples taken from the excavation were found to contain DRO at 7400 mg/kg. A RI was requested for this site on June 30, 1994. Release Investigation: (03/06/96) Shannon and Wilson, Inc., was selected by the COE to conduct the Circle Road release investigations. Shannon and Wilson supplied a Site Work Plan, QAPP/SAPP and Site Safety and Health Plan for review on October 21, 1994. Comments were received from Louis Howard of the ADEC on November 9, 1994. With final work plan approval the contractor is planning to start work in December 1994/January 1995. They were then tasked to perform additional borings at a number of sites to investigate contamination possibly migrating deeper than expected. Further, extra groundwater monitoring wells were added to the scope of the project. The RI for this site consisted of five (5) soil borings. DRO was detected at up to 6,000 ppm, and total BTEX was found to be less than 50 ppm. Benzene was not detected at the site. The total surface area impacted was 300 square feet. ADEC Closure was received for this site on 22 March 1996.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-75	Building 932	97	Y	Site Assessment(9/9/94) UST 97 was removed on June 17, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 430 mg/kg to 10,000 mg/kg. Release Investigation: (03/06/96) Shannon and Wilson, Inc., conducted the RI consisting of four (4) soil borings to a maximum depth of 50 feet bgs. Soil samples were found to contain DRO upto a maximum of 3,890 ppm, and BTEX concentrations were found to be below the 50 ppm regulatory guideline. A leachability study was conducted on this site as part of the RI, and based upon its analysis of the plume migration in soil, this site has been recommended for closure by ADEC. ADEC Closure was received for this site on 22 March 1996.
FTRS-70	Building 934	98	Y	Site Assessment:(9/9/94) UST 98 was removed on June 17, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 510 mg/kg to 5700 mg/kg. A RI was requested for this site on June 30, 1994. Release Investigation: (03/06/96) Shannon and Wilson, Inc., was selected by the COE to conduct the Circle Road release investigations. Shannon and Wilson supplied a Site Work Plan, QAPP/SAPP and Site Safety and Health Plan for review on October 21, 1994. Comments were received from Louis Howard of the ADEC on November 9, 1994. With final work plan approval the contractor is planning to start work in December 1994/January 1995. They were then tasked to perform additional borings at a number of sites to investigate contamination possibly migrating deeper than expected. Further, extra groundwater monitoring wells were added to the scope of the project. The RI for this site consisted of six (6) soil borings. DRO was detected at up to 7, 140 ppm, with total BTEX concentrations below 50 ppm. Benzene was not reported in any of the samples. The total aerial extent of contamination is 1200 square feet. ADEC Closure was received for this site on 22 March 1996.
FTRS-73	Building 936	99	Y	Site Assessment(9/9/94) UST 99 was removed on June 16, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 800 mg/kg to 3000 mg/kg. A RI was requested on September 28, 1994. Release Investigation: (03/06/96) Shannon and Wilson, Inc., conducted the RI consisting of five (5) soil borings to a maximum depth of 50 feet bgs. Contaminants found during the RI include DRO and BTEX, at maximum concentrations of 3820 ppm and 9.48 ppm respectively. A leachability assessment of the site conducted during the RI, shows xylene reaching the groundwater table in 90 years (2085 AD) in the worst case scenario. This site has been recommended for no further action. ADEC Closure was received for this site on 22 March 1996.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 944	100	Y	Site Assessment:(9/9/94) UST 100 was removed from service on June 14, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 230 mg/kg to 1100 mg/kg. A RI was requested for this site on September 28, 1994. Release Investigation: (03/06/96) Shannon and Wilson, Inc., was selected by the COE to conduct the Circle Road release investigations. The RI consisted of 5 soil borings drilled to a maximum depth of 40-42 feet bgs. DRO was found a maximum contaminant level of 3,800 ppm at 20-22 feet bgs, and BTEX upto 1.95 ppm. Ground water samples from the area contained di-ethylhexyl phthalate at 0.012 ppm, higher than the 0.006ppm maximum contaminant level (MCL). This is thought to be a contaminant from the sampling gloves. A leaching assessment conducted as part of the RI, recommends the site for NFA. ADEC Closure was received for this site on 22 March 1996.
FTRS-76	Building 946	101	Y	Site Assessment:(9/12/94) UST 101 was removed from service on June 15, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 430 mg/kg to 10,000 mg/kg. A RI was requested for this site on June 30, 1994. Release Investigation: (03/06/96) Shannon and Wilson, Inc., was selected by the COE to conduct the Circle Road release investigations. Shannon and Wilson supplied a Site Work Plan, QAPP/SAPP and Site Safety and Health Plan for review on October 21, 1994. Comments were received from Louis Howard of the ADEC on November 9, 1994. With final work plan approval the contractor is planning to start work in December 1994/January 1995. They were then tasked to perform additional borings at a number of sites to investigate contamination possibly migrating deeper than expected. Further, extra groundwater monitoring wells were added to the scope of the project. The release investigation report for these sites is currently due to be delivered to the COE on 30 September 1995. The RI for this site consisted of five (5) soil borings. DRO was detected at up to 3, 010 ppm, with total BTEX concentrations at less than 50 ppm. Benzene was not detected at the site. The total surface impact of the contamination is estimated at 1,000 square feet. ADEC Closure was received for this site on 22 March 1996.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-74	Building 950	102	Y	Site Assessment:(9/12/94) UST 102 was removed from service on June 15, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 2200 mg/kg to 7900 mg/kg. A RI was requested for this site on June 30, 1994. Release Investigation: (03/06/96) Shannon and Wilson, Inc., was selected by the COE to conduct the Circle Road release investigations. Shannon and Wilson supplied a Site Work Plan, QAPP/SAPP and Site Safety and Health Plan for review on October 21, 1994. Comments were received from Louis Howard of the ADEC on November 9, 1994. With final work plan approval the contractor is planning to start work in December 1994/January 1995. They were then tasked to perform additional borings at a number of sites to investigate contamination possibly migrating deeper than expected. Further, extra groundwater monitoring wells were added to the scope of the project. The RI for this site consisted of five (5) soil borings. DRO was detected at up to 5, 410 ppm, with total BTEX at less than 50 ppm. Benzene was not reported in any of the samples. The total surface impact was estimated at 750 square feet. ADEC Closure was received for this site on 22 March 1996.
NA	Building 952	103	Y	Site Assessment:(8/23/94) UST 103 was removed from service on July 19, 1993. Soil samples taken from the excavation were found to contain TPH ranging from 201 mg/kg to 10,000 mg/kg. Release Investigation:(7/24/94) ADEC has agreed to site closure as of June 16, 1994, if Fort Richardson agrees to add monitoring well AP-3375 to the regular groundwater sampling program. EMCON Alaska, Inc., conducted the RI, consisting of eight soil borings. One soil boring, AP-3375, was converted into a monitoring well with a depth of 163 feet bgs. Soil samples from the site were found to contain DRO, BTEX and naphthalene. Groundwater samples were found to contain acetone at 4 ppb., and DRO at 140 ppb.
FTRS-54	Building 955-UST	43 and 84	Y	Building 955 is located near the junction of Warehouse Street and Circle Drive and was used as a Petroleum storage facility. Tanks 43 and 84 (10,000 gallon) were used to store used oil and fuel that was collected on post. These tanks were removed and replaced with 43A and 84A. Tank removals were accomplished in 1994. Completion of the Release Investigation in October 1996, has lead to Alaska Department of Environmental Conservation concurring with No Further Remedial Action Planned on 13 November 1996.
NA	Building 956	104	Y	Site Assessment:(7/17/93) UST 104 was removed from service on July 17, 1993. Soil samples taken from the excavation were found to contain DRO ranging from 47 mg/kg to 12100 mg/kg. Release Investigation:(6/13/94) ADEC site closure was obtained on July 25, 1994. EMCON Alaska, Inc., conducted the RI consisting of eight soil borings advanced to a maximum depth of 32 feet bgs. Soil samples were found to contain DRO at upto 16,000 mg/kg. EMCON Alaska, Inc., also conducted a leachability assessment, which was the basis for the site closure.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-71	Building 962	105	Y	Site Assessment:(9/9/94) UST 105 was removed from service on June 14, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 880 mg/kg to 3600 mg/kg. Release Investigation: (03/06/96) Shannon and Wilson, Inc., was selected by the COE to conduct the Circle Road release investigations. Shannon and Wilson supplied a Site Work Plan, QAPP/SAPP and Site Safety and Health Plan for review on October 21, 1994. Comments were received from Louis Howard of the ADEC on November 9, 1994. With final work plan approval the contractor is planning to start work in December 1994/January 1995. They were then tasked to perform additional borings at a number of sites to investigate contamination possibly migrating deeper than expected. Further, extra groundwater monitoring wells were added to the scope of the project. The release investigation report for these sites is currently due to be delivered to the COE on 30 September 1995. Nine (9) soil borings were installed at this site. DRO was detected at up to 6,330 ppm, with total BTEX at less than 50 ppm. Benzene was not reported in any of the samples. Some PAHs were detected. The total surface impact at the site is estimated at 2,000 square feet, with 800 cubic yards of contaminated soil, total. ADEC Closure was received for this site on 22 March 1996.
FTRS-82	Building 968	34	Y	Site Assessment:(9/9/94) ADEC comments date September 28, 1994, have requested a RI be conducted on the site. UST 34 was removed on June 2, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 2900 mg/kg to 14,000 mg/kg. Release Investigation: (03/06/96) Shannon and Wilson, Inc., was selected by the COE to conduct the Circle Road release investigations. Shannon and Wilson supplied a Site Work Plan, QAPP/SAPP and Site Safety and Health Plan for review on October 21, 1994. Comments were received from Louis Howard of the ADEC on November 9, 1994. With final work plan approval the contractor is planning to start work in December 1994/January 1995. They were then tasked to perform additional borings at a number of sites to investigate contamination possibly migrating deeper than expected. Further, extra groundwater monitoring wells were added to the scope of the project. The release investigation report for these sites is currently due to be delivered to the COE on 30 September 1995. Six (6) soil borings were installed at this site, with DRO being detected at up to 4, 330 ppm. BTEX was found to be less than 50 ppm and no benzene was detected. Some PAHs were found. The total surface impact of the site was estimated at 1,500 square feet, with approximately 500 cubic yards of contaminated soil exceeding ADEC standards. ADEC Closure was received for this site on 22 March 1996.
FTRS-85	Building 972	106	N	Site Assessment: (7/26/94) ADEC site closure was obtained on September 28, 1994. UST 106 was removed from service on June 14, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 390 mg/kg to 700 mg/kg.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 974	35, 36 and 37	N	Site Assessment:(9/9/94) ADEC site closure was obtained September 28, 1994. UST 36 and 37 was removed from service on July 14, 1994. Soil samples taken from the excavation were found to contain DRO, TPH, GRO, BTEX and benzene at less than the ADEC level C clean up standards. Site Assessment:(11/25/91) UST 35 was remove on or about July 15, 1991. Soil samples taken from the excavation were found to contain TPH, BTEX and chlorobenzene above acceptable levels. Release Investigation:(3/18/94) ADEC site closure was obtained 12 September 1994. HLA conducted the RI consisting of three (3) soil borings along the perimeter of the excavation. Soil samples were found to contain TPH, GRO and DRO below the ADEC level C clean up standards.
FTRS-66	Building 975	38	Y	Site Assessment: (7/26/94) ADEC comments dated August 5, 1994, request a RI be conducted on this site. UST 38 was removed on May 6, 1994. Soil samples from the excavation were found to contain DRO and TPH above the ADEC level D clean up standards. Release Investigation :(08/18/96) A release investigation was awarded to Dowl/Ogden JV in the Fourth quarter of 1995. On 8 November DOJV submitted a WP to the COE for review and comment. Comments were received from ADEC and other parties. A review conference was conducted on 11 December 1995. Final RI Workplan and Site Safety and Health Plan were received on 03 January 1996. The draft RI was received on 18 August 1996. Five (5) soil borings were conducted as part of the RI, down to maximum depth of 30 feet bgs. DRO was found at upto 1400 ppm and TRPH at upto 8500 ppm. A leachability assessment will be conducted to close out the site. ADEC concurrence with closure was received on 13 November 1996.
NA	Building 979	40 and 41	N	Site Assessment:(8/23/93) UST 40 and 41 were removed from service on July 20, 1993, by BRSC. Soil samples taken from the excavation were found to contain DRO at less than the ADEC level D clean up standard. SA was sent to ADEC in summer of 1995, due to ADEC reporting that they had never received a copy. ADEC comments indicated that due to failure of contractor to comply with their own QAPP and the high level of contaminant a RI was being requested. Release Investigation:(10/22/96) A RI was awarded to Dowl/Ogden JV in the Fourth quarter of 1995. On 8 November DOJV submitted a WP to the COE for review and comment. Comments were received from ADEC and other parties. A review conference was conducted on 11 December 1995. Final RI Workplan and Site Safety and Health Plan were received on 03 January 1996. The draft RI was received on 18 August 1996. The RI consisted of five (5) soil borings. DRO was detected at upto 700 ppm. Site was recommended for NFA, and ADEC concurrence was received on 13 November 1996.
NA	Building 980	42	N	Site Assessment: (7/25/94) ADEC site closure was obtained on September 9, 1994. UST 42 was removed on May 2, 1994. Soil samples taken from the excavation were found to contain EPH, TPH and BTEX at levels less than the ADEC level C clean up standard.

DSERTS	*SITE ID*	*TANK #*	*IC/LTM*	*SITE NARRATIVE*
NA	Building 986-UST	44	Y	Building 986 is the petroleum, oil and lubricants laboratory on Warehouse Street. Alaska Department of Environmental Conservation site closure was obtained on August 5, 1994. UST 44 was removed on November 12, 1992. The final SA was submitted on July 25, 1994. A letter closing the tank site was received from ADEC on August 5, 1994.
FTRS-81	Building 987-UST	45 and 45A	Y	Bldg 987 is located in the western portion of Ft Richardson near Loop Road. The site included a pumphouse, former waste fuel UST, and three 225,000 gallon above ground storage tanks. Petroleum contamination was found to be between 30-60 feet bgs. The COE has finalized a formal RI for the site. Soil samples were found to contain petroleum, TPH, and BTEX. Groundwater samples were found to contain petroleum, TPH and BTEX. An air sparging/soil vapor extraction system was installed in May 1997 to remediate soils in the vadose zone. The system was operated for one year and achieved removal of 2,250 pounds of contamination from the soil. In 1998, tests were conducted on the system to determine the effective future use. Because vapor recovery had dropped significantly and tests indicated that the system was not diffusion limited, the system was shut down. After the SVE system was shut down, a soil boring was drilled to determine resultant contaminant levels. At 30 feet bgs, contaminant levels exceeded ADEC level A cleanup standards. Groundwater samples collected from down-gradient monitor wells in 1998 indicated that contamination exceeded ADEC regulated levels for DRO and benzene. The wells were resampled in 1999 and results showed that the DRO level in well AP-3235 still exceeded ADEC regulated levels, but had decreased from prior 1998 levels.
NA	Building 1175	1112	N	UST 1112 removed 8 July 1997. Revised soil matrix sheet and letter requesting NFRAP has been submitted to ADEC for approval (3-29-00).

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 8102, Arctic Valley Ski Area	46 and 46A	N	Site Assessment:(6/4/90) UST 46 was removed and replaced with UST 46A on May 29, 1994. soil samples taken at that time were found to contain DRO ranging from 20 mg/kg to 600 mg/kg. A formal site assessment has not been received from BRSC. Therefore ADEC comments and/or concurrence with site closure has not been obtained. Release Investigation:(8/12/94) ADEC site closure of UST 46 was obtained on May 11, 1994. A CAP was requested for the AST fuel oil release. A RI was conducted by Dames and Moore, Inc., covering both UST 46 and a fuel oil release believed to have occurred from an old aboveground storage tank(AST). Two (2) soil boring were advanced in the area of UST 46 to a depth of 15.25 feet bgs and 18 feet bgs respectively. Soil samples were found to contain DRO upto 5.8 mg/kg. The fuel oil release area RI consisted of nine (9) soil borings, three (3) of which became monitoring wells. Soil and ground water samples were found to contain TPH, DRO and BTEX. PW Roads and Grounds prepared the site during August/September 1995 by relocating Bldg 8126, and conducting a partial demolition of Bldg 8100. Soil was excavated and removed from two source areas as the corrective action. Soil was stockpiled and thermally remediated. Non-UST site was closed by DEC 29 August 1996. Tank 46A was installed in 1994 to replace tank 46. Tank 46 was a 1,000 gallon diesel fule tank used as a fuel supply for building 8102 at Arctic Valley. UST 46A was removed in 1999. SA conducted in 199 indicated that hydrocarbon contamination was not present at the tank site. This site has not been formally closed by DEC.
FTRS-63	Building 27004	47	N	UST 47 was removed in 1989 after the tank failed a tightness test and was replaced with UST 47A. An RI was conducted to in 1994 and contamination was below level C cleanup stds. ADEC closed site 9 May 1994. A release Investigation:(7/8/94) ADEC site closure was obtained August 5, 1994. A RI was conducted on UST 47 while the UST was still in service by Dames and Moore, Inc. The RI consisted of two (2) soil borings both drilled to approximately 22 feet bgs. GRO and BTEX were not detected in any of the samples.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 35610	1100	N	Site Assessment:(7/30/96) This tank was removed by Brown and Root Service Corporation on 30 July 1996. The site assessment was performed by Oil Spill Consultants. Soil samples taken at the time of the removal were found to contain DRO upto 3,000 ppm. A release investigation will be initiated along with a leachability assessment to attempt to close the site. Comments from ADEC, dated 1 October 1996, request us to conduct an RI. Release Investigation (): Dowl/Ogden JV conducted a RI consisting of five soil borings, three of which were completed as wells. The maximum depth of drilling was 10 feet bgs, and the maximum contaminant level found was 2080 mg/kg diesel range organics, with 61.2 ug/kg in groundwater. The site is currently recommended for excavation with ex-situ thermal remediation of soils. The SOW for this work is currently being developed by the COE. Final RI received on 30 March 1998. Recommends excavation of contaminated soils. Contaminated soils were excavated and removed for off-site thermal remediation. New monitor wells installed 1999. Soil and GW contamination are below ADEC cleanup levels. ADEC approved closure 10-22-98.
NA	Building 35750-UST	55, 55A, 85, 85A, and 1113	Y	Building 35750 houses the electronic support group for the antenna field. Four former and one current UST have been in place at the site. Tank 55 was a heating oil tank that was removed in 1995. Only minimal petroleum contamination was deiscovered during the SA and ADEC granted NFA on 4 October 1995. Tank 55A replaced tank 55 and is still operable today (6-1-00). A decision document for tanks 55 and 85 was signed 27 August 1997. Tank 85 was removed in 1995 and ADEC approved closure with NFA on 14 September 1995. Tank 85A replaced tank 85. Tank 85A was removed in 1998 and ADEC approved closure with NFA. Tank 1113 was a diesel fuel tank that was discovered in 1994. The tank was removed in 1995 and ADEC granted closure with NFA on 9 October 1995.
NA	Building 35752-UST	51, 52, 53, 54, 86, 87, and 88	Y	Building 35752 was formerly the High Frequency Transmitter site that housed three generator units that supplied power for the antenna grid. Seven UST's were located at the site. The UST's were removed in May 1990 and soil samples collected during the SA were found to contain TPH and BTEX but not DRO or GRO. During tank removal, soil and groundwater contamination was encountered. The contaminated soil was excavated and stockpiled on-site. PCB's were discovered at the site and the site was trasferred to OU-D for final disposition. Stockpiled soil at the site awaits removal and characterization.
FTRS-55	Building 36012	56	N	Site Assessment:(9/8/89) UST 56 was removed and replaced with UST 56A in September of 1990. Soil Samples taken from the site were found to contain TPH, BTEX and benzene. Release Investigation:(7/12/94) ADEC site closure was obtained May 5, 1994. A RI was conducted by EMCON Alaska, Inc., consisting of two (2) borings ranging in depth from 19 feet bgs to 22 feet bgs. TPH upto 280 mg/kg and MEK upto 0.018 mg/kg were the only analytes detected.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 39225 (SITE SUMMIT)	113 and T39225	Y	Site Assessment: () UST 113 & T39225 were removed on 26 July 95, with site assessment being received on 12 September 95. Contaminants in the UST 113 & T39225 excavation did not exceed level A clean-up standards. No further action is expected for these USTs. ADEC Closure was received 20 September 1995. Per letter from Louis Howard of ADEC dated 8 August 1995, USTs at Site Summit will be incorporated under the Two -Party POL Agreement, and removed from the Two-Party UST agreement.
NA	Building 39600 (SITE SUMMIT)	58	Y	Site Assessment: (11/27/90) ADEC site closure received 03 October 1995. UST 58 was removed on June 15, 1994. Soil samples taken from the excavation were found to contain BTEX at less than 1 mg/kg. Per letter from Louis Howard of ADEC dated 8 August 1995, USTs at Site Summit will be incorporated under the Two -Party POL Agreement, and removed from the Two-Party UST agreement.
NA	Building 45005	1107 and 1121	N	Site Assessment: (07/29/96) A UST was discovered here approximately 12 July 1995. The tank appears to be an automotive gasoline tank, but its past use is unknown. While removing the tank 1107, which was 60 gallons, a second UST, 1121, was discovered. This is a six hundred gallon gasoline tank. Both tanks were removed by Brown and Root Service Corporation on 29 July 1996. Samples taken during the removal showed no contaminants of concern. Both these tanks are recommended for No Further Action. ADEC site closure obtained 18 September 1996.
FTRS-79	Building 45580		N	The site is located approximately 300 feet northeast of Building 45580, which is near the intersection of the Davis Highway and D Street. Building 45580 was constructed in 1994-95, during excavation of the sanitary sewer line the contractor noted a petroleum smell around the disturbed soil. PA/SI conducted at the site confirmed the presence of low-levels of Petroleum contamination in the soil. Site closure requiring no further action was received from ADEC on 22 September 1997.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-05	Building 45590	59 and 59A	N	UST 59 & 59A removed in 1991 and 1996, respectively. RI/CAP was conducted for tank 59 and a bioventing system was installed in 1994. Bioventing system was operated for 2 years then shut down. Groundwater contamination did not appear to be related to contamination from this site. Site was referred to OU-D and closed. SA for tank 59A performed in 1996 and DEC granted closure with NFA 18 Sept 1996.Site Assessment:(10/21/91) UST 59 was removed and replaced with UST 59A in July of 1991. Soil samples taken from the excavation were found to contain TPH upto 4592 mg/kg. Release Investigation:(9/1/94) A RI was conducted by HLA and completed on 3/18/94. It consisted of three(3) soil borings in the area of UST 59. Four more soil borings were placed into an area with an unknown source of contamination. Samples from the area of UST 59 were found to contain DRPH, TRPH, trichloroflouromethane, Xylene, lead, PCB and DDT. Samples from the area of unknown contamination contained DRPH and GRPH. A second RI was conducted by EMCON Alaska, Inc., consisting of thirteen (13) soil borings. Four soil borings were converted into monitoring wells. one into a soil vent well and four others into soil gas monitoring points. Soil samples were found to contain DRO, GRO, BTEX and a variety of solvents. Groundwater samples were found to contain TPH, GRO, DRO, acetone, MEK, PCE and MIBK. Remedial Action:(9/1/94) EMCON Alaska, Inc., developed a CAP based upon bioventing/air sparging to remediate the soil from ground water to 40 feet above ground water. An ACL will then be used to attempt to close the site. ADEC comments, dated September 12, 1994, placed all of building 45590 into the three party CERCLA FFA, and concurred with bioventing as a suitable corrective action. EMCON finished installation of the equipment on November 15, 1994. The first interim report for this project was received and indicated that the system was functioning as expected. Bldg was demolished during August1995. The second six month interim report was received in January 1996, and indicates that the bioventing was going favorably.
FTRS-13	Building 45726	62, 63 and 117	N	Site Assessment:(?) Both UST 62 and 63 were removed and replaced with UST 62A and UST 63A possibly around 1990. However, a formal site assessment was not conducted. Release Investigation:(7/12/94) ADEC site closure was obtained on May 16, 1994. A RI was conducted by EMCON Alaska, Inc., consisting of four (4) soil borings advanced to a maximum depth of 29 feet bgs. Samples were found to contain TPH, GRO, DRO, BTEX, Xylene, acetone, MEK, methylene chloride and 1,2 -dichloropropene at levels less than the ADEC level D clean up standards. Site Assessment:(7/26/94) ADEC site closure was obtained on September 16, 1994. UST 117 was removed and replaced with UST 117A on May 12, 1994. Soil samples taken from the excavation were found to contain DRO, GRO, Benzene and BTEX at levels less than the ADEC level C clean up standards.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
NA	Building 47022	1110	Y	Site Assessment: (06/14/96) Mr. Mario Frisbee reported that a UST was discovered in association with the foundation of building 47022. Mr. Frisbee reported that the tank appears to be filling with water, slowly forcing the contents of the tank back up the drain. This tank removal contract was awarded during September of 1995. This tank was removed on 14 June 1996 by Brown and Root Service, Inc.. Soil samples taken at the time of the removal showed 9,270 ppm DRO. This site will be recommended for RI and leaching assessment. . Comments from ADEC, dated 1 October 1996, request us to conduct an RI. Release Investigation (): Dowl/Ogden JV is currently under contract to conduct this work. Work should be conducted during summer 1997. Six borings were installed at Building 47-022, with a maximum depth of approximately 40 feet below ground surface. The maximum contaminant levels found were upto 2000 milligram/kilogram (mg/kg) diesel, 2 ug/l toluene, 0.033 mg/kg xylene. The aromatic and aliphatic portions of the diesel were below the proposed ADEC guidance. A letter requesting closure of the site under these new proposed regulations was forwarded to Louis Howard for review. Currently awaiting an answer. ADEC Closure with ACL's received on 15 April 1998.
FTRS-69	Building 47203	93	Y	Site Assessment: (9/9/94) UST 93 was removed on June 13, 1994. Soil samples taken from the excavation were found to contain DRO ranging from 3600 mg/kg to 12, 000 mg/kg. ADEC comments dated September 28, 1994, request a RI and CAP be developed for the site. A RI was requested for the site on June 30, 1994. Release Investigation: (10/22/96) A RI was awarded to Dowl/Ogden JV in the Fourth quarter of 1995. On 8 November DOJV submitted a WP to the COE for review and comment. Comments were received from ADEC and other parties. A review conference was conducted on 11 December 1995. Final RI Workplan and Site Safety and Health Plan were received on 03 January 1996. The draft RI was received on 18 August 1996, and indicated that the soil at the site is contaminated with DRO upto 39,000 mg/kg. The RI consisted of five (5) soil borings down to a maximum of 35 feet bgs, and one groundwater well down to 135 feet bgs. DRO was found down to 30 feet bgs at upto 7,400 ppm. No groundwater contamination was found. A cap will be initiated at the site. Dowl ogden conducted a risk assessment for the site based upon the draft ADEC Risk Assessment regulations. This document was received and forwarded to Louis Howard on 12 March 1998. ADEC has approved closure with ACL's on 15 April 1998.
FTRS-78	Building 47431		N	Building 47431 is located at Bryant Army Airfield on the Fort Richardson main cantonment area and is a former aircraft facility. There have been no documented releases at this location and the site was closed under the FFA.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-56	Building 47641	70 and 70A	N	Site Assessment: UST 70 was removed and replace with UST 70A in 1989. A SA was not done. Release Investigation:(8/12/94) ADEC site closure was obtained on May 9, 1994. Dames and Moore, Inc., conducted the RI consisting of two (2) soil borings advanced to a depth of 22 feet bgs. Soil samples were found to contain no analytes of interest. Site Assessment: (9/12/95) Building 47641 was demo'ed in 1995. The tank was removed by BRSC on 5 July 1995, and the site assessment conducted by Oil Spill Consultants was received on 12 Sept 1995. Contamination in the excavation was found at less than the Level A clean-up standards. ADEC Closure was received on 20 September 1995.
FTRS-57	Building 47662	89, 90, and 91	Y	Site Assessment:(9/28/90) UST 89, 90 and 91 were removed on September 14, 1990. Soil samples taken from the excavation were found to contain BTEX and TPH at less than the ADEC level B clean up standards. Release Investigation: (8/12/94) ADEC comments request a CAP be initiated to the site. Dames and Moore, Inc., conducted the RI consisting of ten (10) soil borings ranging from 39 to 47 feet bgs. A perched water table was encountered at 20 feet bgs. DRO GRO, TRPH and BTEX were found in the soil samples at less than the ADEC level C clean up standards. Ground water samples were not recoverable. Remedial Activities: (01/03/96) The draft CAP for this site was received approximately 27 November 1995. It recommended that intrinsic remediation be used at the site. ADEC did not concur with this approach and requested a leaching assessment. DPW does not concur with the ADEC comments, due to the only contaminant above clean-up standards being gasoline at 550 ppm, 50ppm above the clean-up standard. This result was from a QA/QC duplicate and was not found in the original sample. It is quite possible that we will end up in negotiation over this site, and/or end up conducting a leachability assessment. Dowl/Ogden JV prepared a position paper on this site which has been forwarded to ADEC on 13 March 1996. ADEC concurrence with closure with institutional controls was received on 8 May 1996.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-53	Building 47811	72	N	Site Assessment:(8/14/91) UST 72 appears to have been removed on August 1, 1991. Soil samples taken from the excavation were found to contain TPH ranging from 262 mg/kg to 8989.5 mg/kg. Release Investigation:(3/18/94) HLA conducted the RI consisting of eight (8) soil borings, one of which was turned into a monitoring well when a perched water table was encountered at approximately 20 feet bgs. Soil samples were found to contain DRO upto 11,000 mg/kg. Groundwater samples were not recoverable. Remedial Action:(working) HLA developed a CAP under this same contract, that recommended a bioventing/air spargin/ system be used to remediate the soil. The draft CAP is dated September 14, 1993, but no ADEC comment has been received on it. Meanwhile, the COE has issued a contract to Linder Construction who is teamed with RZA Agra to construct and install a bioventing system. Linder developed a conceptual site model and work plan, and received ADEC approval to proceed with the installation of the bioventing system on October 28, 1994. Linder has constructed the bioventing system and started the system up on February 20, 1995. The six month interim status report is currently due to the COE in September of 1995. Latest data indicates deminishing returns from the bioventing system. We have negotiated closure sampling at this site down to one well with sampling every five feet . The SOW is currently being developed by COE, and should take place summer 98. NFA is expected upon completion of this work.
NA	Building 55295	73	N	Site Assessment:(7/25/94) ADEC site closure was obtained on September 6, 1994. UST 73 was removed on July 25, 1994. Soil sample taken from the excavation were found to contain DRO at less than the ADEC level B clean up standards.
NA	Building 55804	74 and 74A	N	Site Assessment/Release Investigation:(12/7/92) UST 74 appears to have been removed in June of 1990. The SA/RI was conducted by the COE, and consisted of six (6) soil borings advanced to 30 feet bgs. Samples were found to contain DRO, benzene and BTEX below ADEC level C clean up standards. ADEC comments dated May 18, 1994, state that ADEC will consider the site closed if the ADEC's questions in this letter are answered. The SA/RI would then have to be resubmitted. Site Assessment: (09/15/95)UST 74A was removed and replaced with UST 74B due to damage sustained during installation. Soil Samples taken during the excavation were found to contain no analytes of concern above the ADEC level A cleanup standards. ADEC site closure was obtained 28 September 1995.

DSERTS	SITE ID	TANK #	IC/LTM	SITE NARRATIVE
FTRS-87	Building 59011	119	N	Site Assessment: (08/21/95) UST 119 was removed on 9 June 1995, due to not having proper release/spill/overfill detection. It will not be replaced, as the structure is being converted to electric heat. The site assessment was received and soil samples indicate that DRO, TRPH and BTEX are present at 1,050 ppm, 712 ppm, and 1.75 ppm respectively. ADEC comments dated 31 August 1995 request an RI. ADEC Closure on the site was received based upon a corrected soil matrix score sheet. Closure received on 4 June 1997.
NA	Building 59068	123	N	Site Assessment: (08/21/95) UST 123 was removed on June 28, 1995. Site assessment samples indicate that DRO, Benzene and BTEX were found at the site at 15.9 ppm, 0.05 ppm and 0.25 ppm respectively. ADEC Closure was obtained 20 September 1995.
FTRS-80	Black Spruce Camp		N	Black Spruce Travel Camp is located in a wooded area adjacent to a RV travel camp in the vicinity of Loop Road and building 45594. The camp is a popular area frequented by active and retired military personnel and is scheduled to be expanded in 1996. Approximately 15 exposed and disturbed drums were discovered at the site, many had "Aircraft Gasoline" and "Lead Tetraethyl" markings on them. A removal action was begun on 06 October and completed on 25 October 1995. In all, a total of 16 drums were discovered, with removal and disposal actions completed under the supervision of Omaha District's Rapid Response Program.
FTRS-42	Circle Road Drum Site		N	Circle Road Drum Site is located in a remote industrial area of the Fort Richardson main cantonment area and was used to store waste fuels, tars, and other petroleum by-products. A 1993 removal action successfully removed drums and petroleum-contaminated soil from the site. NFA required as site was closed under OU-D ROD. This site has been closed under CERCLA, but is subject ro RCRA closure.
NA	Roosevelt Road	1111	Y	Site Assessment: (?) A UST was discovered in the leach field area of the Roosevelt Road bunker complex during drilling by Ecology and Environment, Inc. This UST removal contract will be awarded in September of 1995, with the actual removal scheduled for May of 1995. A request for a waiver to the site assessment requirements of 18 AAC 78 was sent to Louis Howard on 3 August 1995. The rationale being that the site is currently under PA/SI or RI by E&E Inc. The request was rebutted on 8 August 1995, and the UST will be incorporated in the Two-Party USTMP time table. Brown and Root attempted a removal of this tank, in June 1996. However, upon excavation they discovered that a tank was not present and had already been removed.
FTRS-40	UST Landfill Soil Piles		N	The UST soil piles consisted of approximately 8000 cubic yards of Petroleum contaminated soil and 3250 tons of filter material. The stockpiled soil and old filter media are products of UST removal excavations and an abandoned bioremediation effort. The present plan for remediation is for off-site thermal remediation and will begin in the 3rd quarter 1996. These soils piles were treated off-site through thermal remediation, during the summer 1996.