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CAPE ROMANZOF LRRS
ALASKA

ADMINISTRATIVE RECORD
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CAPE ROMANZOF
LONG RANGE RADAR SITE
ALASKA

FINAL REPORT
APR 95

INVESTIGATION, DELINEATION, AND EXCAVATION OF CONTAMINATED SOIL FROM

STOCKPILE NEAR SS15 SITE,
WASTE ACCUMULATION AREA 3 (SS08),
DRUM STORAGE AREA (SS14),
PETROLEUM, OIL, AND LUBRICANTS FILL STAND (ST09),

CONSTRUCTION OF CELLS FOR CONTAMINATED SOIL,

CAPPING OF LANDFILL-2 (LF03),

AND

GEOLOGY / WATER RESOURCES OF NILUMAT CREEK VALLEY

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EXECUTIVE SUMMARY

Field investigations were carried out during Jun through Sep 94 to: (1) delineate and excavate the contaminated soil from four sites (Stockpile (near SS15 site), Waste Accumulation Area 3 (SS08), Drum Storage Area (SS14), and petroleum, oils, and lubricant (POL) Fill Stand (ST09), (2) construct three containment cells for the contaminated soil, (3) cap Landfill-2 (LF03), and (4) to study the geology/hydrology of Nilumat Creek (Encl. 1).

Work was carried out at all sites in accordance with three separate work plans prepared in 1993 and 1994

a. Cape Romanzof Long Range Radar Site - Landfill 2, Work Plan, 12 Aug 93. The 94 work was a continuation of the tasks not completed in 93.

b. Cape Romanzof Long Range Radar Site, Contaminated Soil Excavation, Work Plan, 7 Sep 93 This plan detailed the work to be accomplished during the 93 field season at the former Drum Storage Area. This work was not accomplished due to inclement weather.

c Cape Romanzof Long Range Radar Site, Contaminated Soil Excavation, Work Plan, 2 May 94. This work plan includes the work not completed in 93 (i.e., Landfill Capping, Drum Storage Area, POL Fill Stand, and the soil containment cell construction). Additionally, excavation of POL contaminated soils at Waste Accumulation Area No. 3, and the removal of the stockpile near SS15 were included in the plan.

A total of 4,052 cubic yards of contaminated soil was excavated from the sites. Six hundred cubic yards were excavated from the stockpile (SS15), 722 cubic yards from Waste Accumulation Area 3 (SS08) and 2,730 cubic yards from the drum storage area (SS14). Excavated soils were placed in two storage cells (Cell 1 and Cell 3) (Encl. 1).

Upon investigation, the contaminated soil at POL Fill Stand (ST09) was found to cover approximately 955 cubic yards, a volume much larger than the initially estimated volume of 20 yards as described and budgeted under the scope of the work plan. An additional 2,022 yards of contaminated soil, beyond the scope of the work program, was also found at the Drum Storage area (SS14). These two areas remain to be excavated.

A total of 529 photoionization detector (PID) readings and 42 Polychlorinated Biphenyl (PCB) readings were taken. A total of 132 lab samples were collected and analyzed.

Three containment cells (Cells 1, 2, and 3) were constructed Cells 1 and 3 were filled with the excavated contaminated soils and were closed Cell 2, near the Beaver Pond, remains unused.

The Landfill-2 (LF03) was prepared and capped with hypalon membrane. The top of the hypalon was covered with sand and pit run gravel, then seeded with grass (Encl 1).

1.0 INTRODUCTION

1.1 US AIR FORCE (USAF) INSTALLATION RESTORATION PROGRAM (IRP)

The USAF, due to its primary mission of defense of the United States, has long been engaged in a wide variety of operations dealing with toxic and hazardous materials. Federal, state, and local governments have developed strict regulations to require that disposers identify the locations and contents of past disposal sites and take action to eliminate hazards in an environmentally responsible manner.

The primary Federal legislation governing disposal of hazardous waste is the Resource Conservation and Recovery Act (RCRA) of 1976, as amended. Under Section 6003 of the Act, Federal agencies are directed to assist the Environmental Protection Agency (EPA) and under Section 3012, state agencies are required to inventory past disposal sites, and Federal agencies are required to make the information available to the requesting agencies.

To assure compliance with these hazardous waste regulations, the Department of Defense (DoD) developed the IRP to identify and evaluate past hazardous material disposal and spill sites on DoD property and to develop remedial actions to control hazards to human health and welfare or the environment that resulted from these past operations. The current DoD IRP policy is contained in Defense Environmental Quality Program Policy Memorandum 81-5, dated 11 Dec 81 and implemented by Air Force message dated 21 Jan 82.

The IRP is the basis for response actions on Air Force installations under the provisions of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980. CERCLA is the primary legislation governing remedial action at past hazardous waste disposal sites. The goal of the Air Force IRP is the "complete clean up of the past" as stated by General McPeak, Air Force Chief of Staff.

The IRP (Fig 1) consists of the following:

PA/SI	Preliminary Assessment/Site Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD/DD	Record of Decision/Decision Document
RD/RA	Remedial Design/Remedial Action
NFRAP	No Further Response Action Planned

The decision, whether a potential hazard to health, welfare, or the environment exists at any of the identified sites, was made using the Record Search Flow Chart (Fig 2).

Cape Romanzof is not classified as National Priority List site under the EPA CERCLA Program.

1.2 CAPE ROMANZOF LONG RANGE RADAR SITE (LRRS)

1.2.1 Description of Installation

Cape Romanzof LRRS (hereafter referred to as Cape Romanzof), is a 4,900 acre installation (Fig 3). It was one of the 10 original Aircraft Control and Warning sites in the Alaska Air Defense System. The installation construction was completed in 1952 and operations began in 1953. Communication for the site was initially provided by high frequency radio. This was replaced in 1958 by Airborne Warning Control System 1979, a commercially owned and operated communication system, using a satellite earth terminal, replaced the White Alice Operations.

The site consists of a Lower and an Upper Camp. The Lower Camp has the support facilities (housing, power plant, and bulk fuel storage area) and the Upper Camp contains the Long Range Radar equipment located on top of the mountain. A new composite facility (two dome buildings installed in 1984 and shown in Fig 4) provide industrial and living facilities for station personnel. Most of the older facilities at the Lower Camp and the White Alice site, at Upper Camp, have been demolished. The Lower and Upper Camps are connected by a tramway Since 1977, operations were contracted out to International Telephone Telegraph, Radio Corporation of America Services, General Electric Government Services, and Martin Marietta resulting in reduction of military personnel from 100 to less than 15 (Engineering Science (ES), 1985). A Joint Surveillance System, which allows transmitting radar and beacon data to the Elmendorf Region Operations Control Center by satellite, eliminated the remaining military positions in 1983. Completion of the Minimally Attended Radar unit in mid 1980s further reduced staff levels at the site. In 1990 there were only eight non-military station personnel. In 1994 the station personnel were reduced to six. Effective 1 Sep 94, the contract operations are being carried out by PIQUNIQ Management Corporation.

1.2.2 Location

Cape Romanzof is located on the slopes of Towak Mountain in the Yukon Delta National Wildlife Refuge, approximately 540 miles west of Anchorage, 165 miles northwest of Bethel, and about 170 miles southeast of Nome on a small peninsula that extends into Bering Sea (Fig 5). It has no local population The nearest towns are Scammon Bay (population approximately 326) and Hooper Bay (population approximately 776) which are located about 15 miles east and south respectively. Figure 6 shows a regional location map for reference

1.2.3 Accessibility

Due to its extreme remoteness, access to Cape Romanzof is possible only by air or sea. There are no roads connecting Cape Romanzof with any other towns. The only road on site, built and maintained by the Air Force, is approximately 4.9 miles long and connects the Upper and Lower Camps with the airstrip and the Bering Sea coast barge site (Fig 7).

An Air Force built gravel-surface runway offers a 3,990 by 150 feet landing facility and an automated weather station. The site is accessible by air at all times, subject to weather conditions. No commercial flights connect directly to Cape Romanzof. However, several regular commercial flights into Bethel from where chartered flights can be arranged to fly to the site. In addition to the above options, Air Force planes are used to transport personnel and equipment directly from Elmendorf AFB to the site. Mail is delivered to the site each Tuesday by contract air carrier

During the short ice-free summer, the site is accessible by sea via small boats and barges. Diesel and motor gasoline (MOGAS) is delivered to the site by barge via a cargo loading area at the beach.

1.2.4 Logistics

Due to the remoteness and severe weather conditions at Cape Romanzof, field activities are limited to a 3-months-per year (Jun-Aug) working window. Since there is no community at the site and as Cape Romanzof is not accessible to other local communities; labor, equipment, and materials are provided from Elmendorf AFB.

Air and barge transport is feasible when the weather is favorable Transportation of equipment, materials, and labor is dependent on air transport, whereas diesel and MOGAS supplies (about 90,000 gallons of diesel and 5,000 gallons of MOGAS in 1994) are delivered to the beach by barges once a year.

1.3 SITE HISTORY

Much of the hazardous waste at Cape Romanzof is due to leaks of diesel fuel and MOGAS, either from drums in landfills or from POL tanks and pipelines. Improper disposal of waste oils, hydraulic fluids, solvents, and ethylene glycol was a regular practice from the 1950's to the 1970's.

Fuel supplies for the site were delivered once a year by barge. The barge used to beach south of the runway and then pumped fuel through a pipeline (demolished) which connected to POL bulk storage tanks located north of where Nilumat Creek enters the Bering Sea (Fig 8). Fuel from these tanks (demolished) was loaded into tank trucks at a POL Fill Stand (ST-09) (demolished) near the beach. The tank trucks transported the POL product five miles to Lower Camp bulk storage tanks. Fuel was then distributed at the Lower Camp, through pipelines, to various small tanks near the point of usage.

1.3.1 Past Contamination and Waste Management Practices

The following methods and facilities were adopted at Cape Romanzof to accumulate and dispose of various hazardous wastes and contaminants (Fig 9 and Table 1). Numerous spills and leaks occurred at Cape Romanzof LRRS (Fig 10). Industrial wastes were applied to roads until 1978 Since then, these wastes have been accumulated and transported by air/barge to off-installation disposal locations. Other wastes have been disposed of in landfills (areas receiving solid or semi-solid materials, Fig 11), dumps (Fig 12); hardfills (areas receiving construction debris, wood, used heavy equipment, and other miscellaneous spoil material, Fig 13), sanitary sewerage systems, surface drainage systems, and incinerators.

Landfill 4 and 5; and Hardfills 1, 2, and 3 are considered to have minimal potential for environmental contamination. The incinerator, sanitary sewerage, surface drainage systems, and pesticides were eliminated from further evaluation due to small quantities of wastes involved.

1.3.2 Past Investigative Activities Under the IRP

During 15 Jul through 26 Aug 84, a debris cleanup crew from 5099th Civil Engineering Operations Squadron, removed drums and debris from the hillside northeast of White Alice facilities, and floor tile from the electronics room of the White Alice building. All the transformers from the power plant were removed prior to 1984.

During 5 through 21 Jun 85, ES, under contract F08637 84 C0070, was retained by the USAF to conduct the Phase-I record search for the Alaskan Air Command Southern Region. This record search included Cape Romanzof. An on-site record search conducted during 8 through 9 Jun 85 identified 11 contaminated sites (Fig 14). The sites were evaluated using the Air Force Hazard Assessment Rating Method (HARM). Table 1 discusses conclusions concerning various Cape Romanzof sites evaluated. It was concluded that any site with HARM score ranging from 50 to 74 had a potential to create further environmental contamination In view of the HARM scores, eight spill/leak sites and three waste accumulation areas at Cape Romanzof (Fig 15) were recommended for further investigative activities under IRP.

During 25 through 31 Oct 85, the 5099 CEOS, under Work Order 47060, conducted a pre-abatement asbestos survey as part of an asbestos removal project to identify the condition and layout of facilities, location, quantities, and asbestos bulk sampling at Cape Romanzof (CEOR archives, Cape Romanzof).

During 19 Jun through 15 Sep 87, under Work Order 47060, and 20 Jun through 20 Jul 88, under Work Order 58400, the asbestos abatement crew of 5099 CEOS removed all asbestos containing materials from 22 buildings and 14 connecting hallways located in four different areas (Lower Camp, Top Camp, White Alice, and several beach facilities consisting of a warehouse, fuel tanks, and pipeline).

The asbestos contaminated material consisted of 138,632 square feet of wallboard; 4,082 square feet of siding; 26,288 square feet of shingles on the inside and outside of buildings; and 14,256 linear feet of pipe insulation. It also included 7 insulated tanks and 13 insulated exhaust systems, 5 steam boilers, and several assorted elbows and tees.

During 6 Jul and 30 Sep 87, under Work Order 47060, the PCB removal crew of 5099 CEOS removed all PCB material from the site

Between 3 Jun and 21 Sep 88, the demolition crew of 5099 CEOS was on site. Actual demolition commenced on 13 Jul 88 and was completed on 21 Sep 88.

The crew demolished facilities at White Alice, Upper Camp, and Lower Camp. The crew demolished 24 buildings, 8 building foundations, antennas, and other material totaling 114,269 square feet A total of 765 cubic yards of concrete, 1,456 cubic yards of metal, 21,000 linear feet of pipe and cable; 10, 760 cubic yards of wood and non-metal debris; and 16,903 cubic yards of spoil was moved

All asbestos contaminated material was placed in an asbestos landfill (Fig 8) southeast of Lower Camp, measuring 100 by 15 by 12 feet (667 cubic yards). All debris was placed in another landfill measuring 200 by 150 by 13.3 feet (15,000 cubic yards). All hazardous and PCB contaminated material was shipped from Cape Romanzof to Defense Reutilization and Marketing Office (DRMO) Elmendorf AFB, under Work Order 58185.

During Jun 89, Woodward-Clyde Consultants (WCC) carried out another field reconnaissance survey. From Jul to Sep 89 and in Aug 90, WCC conducted a remedial investigation of soil, surface water, and groundwater contamination at 10 sites (Fig 15). A summary of these sites is shown in Table 3. Table 4 shows a list of contaminated sites. Three sites belong to IRP Category 1, No further IRP action. The remaining eight sites belonging to IRP categories 2 and 3. These sites form the basis of future IRP investigations and/or remediations (see Table 5). During Jul 91, Martin Marietta, contractor for Cape Romanzof site upkeep, reported a diesel fuel seep adjacent to an aboveground storage tank (AST) impoundment near the SS15 spill site (Fig 16). A sump was constructed to collect fuel seeping from surficial soils Buried fuel lines were excavated and the source was located. Recovered fuel and fuel contaminated soils were stored in 85-gallon overpack drums. Contaminated soils were transferred to the containment area, and recovered fuel was pumped into an abandoned 25,000-gallon AST within the tank impoundment. Excavation of buried fuel lines within and north of the AST impoundment was completed by 3 Jul 91.

Two underground storage tanks (UST) and the associated buried piping at SS15 spill site (Fig 16), found north of the AST during the excavation, were excavated. The spill was caused due to leakage of an underground diesel fuel storage tank. The excavated areas were later backfilled by 11 Civil Engineer Squadron (11 CEOS).

Fuel and water from the UST were pumped into the 25,000-gallon AST The USTs were removed, along with approximately 900 cubic yards of contaminated soil. The fuel contaminated soil was placed on and covered with plastic sheeting for temporary storage near the SS15 site (Fig 16). Surplus excavation spoils were stored at SS15 site.

During 9 through 11 Sep 91, ENSR Consulting and Engineering conducted a site reconnaissance survey of Cape Romanzof for the 11 AF/DEPV, Elmendorf AFB, Alaska. The purpose was to develop a scope of work for assessment and restoration of the above mentioned diesel fuel spill at SS15 (Fig 8), (ENSR, 1991).

During Jun and Sep 93, a crew of 11 CEOS (presently known as 611 CES) visited Cape Romanzof to remove, triple rinse, cut-up, and dispose of a 25,000-gallon AST near the Lower Camp, construct two soil containment cells near the coast, close Water Well 3, and cover Landfill-2 (LF03). (CEOR Archives, Trip Report dated 14 Dec 93)

The 25,000-gallon AST was cut into 8-foot sections. An additional 60 feet of 2-inch pipe, connecting the tank and the pump station, was removed and cut into 20-foot sections. All cut up steel and piping was placed in a landfill behind the residential dome at the Lower Camp: A total of 48,000 pounds of steel related material was placed in the landfill. In addition, 1,425 pounds of non-RCRA sludge waste was placed in drums and shipped to DRMO, Elmendorf AFB, for disposal.

Two soil containment cells, utilizing 7,500 cubic yards of pit run material transported from the pit adjacent to the Lower Camp, were constructed near the coast (Fig 8). Due to bad weather the cells were 75 percent complete.

Sixty-two feet of 6-inch casing was extracted from Water Well 3, located near the weather station (Fig 8). The well hole was grouted, plugged, and abandoned. One hundred eighty feet of 2-inch water line was cut into 20-foot sections All debris from the well was placed into the landfill.

Landfill-2 (LF03) covers approximately 43,800 square feet (Fig 8) The debris composed of steel, wood, and paper was collected from a 200 foot width around the periphery of landfill and placed in the landfill. Approximately 500 cubic yards of fill was dumped on the south section of the landfill to cover the debris. The stream parallel to the eastern toe of the landfill was diverted 20 feet away from its original drainage.

During 6 through 20 Jul 93, ENSR Consulting and Engineering was contracted by the 11 CEOS to conduct a field remedial investigation/feasibility study of spill site SS15 at Cape Romanzof. The RI/FS was to evaluate the extent of contamination in soil and groundwater affected by a 1991 diesel spill at SS15 site. Field work was carried out between 6 and 20 Jul 93. Six groundwater monitoring wells and three soil borings were drilled. Five test pits were excavated (Fig 17). According to the IRP, the spill site SS15 was classified as a Category 2 site.

2.0 SCOPE OF PRESENT FIELD PROGRAM

During the summer of 1994, a total of five sites were investigated at Cape Romanzof (Fig 8). Three cells were constructed for placement of contaminated soils. Three of the five sites were excavated and contaminated soil was placed in two of these cells. The excavated pits were backfilled with pit run material from borrow areas at the sites. One site, Landfill-2 (LF03), was capped with hypalon membranes, and another site, POL Fill Stand (ST09), was not excavated as it involved an area far in excess of approved yardage for the fiscal year 1994. Each site is discussed in detail below.

Soil samples were taken and sent to independent labs and analyzed for EPA methods 8240 (volatile organics), 8270 (semi volatile organics), 8015M (gasoline range organics (GRO)), 8100M (diesel range organics, (DRO)), 8020 (aromatic volatile organics, (BTEX)), 7000 (metals), 8010 (halogenated volatile organic compound (HVOC)), and 8080 (organochlorine pesticides and polychlorinated biphenyls (PCBs)) Table 6 shows total number of samples taken for each EPA method at each contaminated site

The PID, a portable organic vapor meter, model 580B manufactured by Thermo Environmental Instruments, was used to screen for residual volatile organic vapors in the samples. A DEXSIL L2000 PCB/Chloride analyzer was used to detect presence of PCB in soils. Table 7 shows total number of PID and PCB readings and soil samples taken for laboratory analyses. Details of investigations, excavations, and remediations at each site are given below.

The field work was carried out during Jun through Sep 94. Equipment used on the project consisted of forklift, dump trucks, dozers, rubber tire backhoe, track backhoe, trucks, etc. Personnel on the project consisted of a project geologist, project foreman, chemist, five equipment operators, one mechanic, and one laborer.

3.0 CONTAMINATED SITES COVERED UNDER THIS WORK PLAN

The following contaminated sites, (Fig 8), were contracted out to 611 CES under Project DBWT-93-79901 and executed under Work Order 94004. A Work Plan dated 2 May 94, developed in compliance with the memorandum of 611 CES/CEVR, dated 24 May 94. The scope of work for the subject project (Tables 8 and 9), the 1994 work plan, and the unfinished work from 1993 included the following:

(a) Investigate, delineate, excavate, and remove contaminated soils from:

1.	Stockpile	Near SS15 site
2.	Waste Accumulation Area 3	SS08
3.	Drum Storage Area	SS14
4.	POL Fill Stand	ST09

(b) Construct and complete the following cells and store the contaminated soils:

1.	Cell 1	near coastline
2.	Cell 2	near Beaver Pond
3.	Cell 3	near Lower Camp, east of Cold Storage

(c) Abandon two monitor wells (MW-3 and MW-4) and place Hypalon membrane and Geotextile fabric at:

1. Landfill-2 (LF03) Approximately 1.5 miles, west of Lower Camp

3.1 STOCKPILE, NEAR SS15 (Old UST Site)

3.1.1 Site Description

The Stockpile, a pile of contaminated soil, was located near the SS15 site, southeast of the Residential Dome at the Lower Camp. The Stockpile, composed of diesel contaminated soil, was excavated from UST at SS15 site and placed on and covered with plastic sheeting for temporary storage. The SS15 site was the location of MOGAS/Diesel tanks and the Pump House (Fig 16). Monitoring water well WW-2 is located at the periphery of the stockpile. Depth to water level in the well was 50 72 feet.

3.1.2 Previous Investigations at Site

During Jul 91, Martin Marietta, excavated the UST and the associated buried piping at SS15 spill site (Fig 16), and removed and placed the contaminated soil on a plastic liner and covered it with plastic for temporary storage.

Based upon ENSR Consulting and Engineering field RI/FS during 6 through 16 Jul 93, and their field work between 6 through 20 Jul 93, the spill site SS15 was classified as a Category 2 site. For more detail see section 1.3.2.

3.1.3 Extent of Contamination

Martin Marietta estimated the contaminated soil to be approximately 900 cubic yards. Our work plan was therefore based on this figure. Upon removing the stockpiled soil it was found that the soil under the liner was also contaminated. Total contaminated soil actually removed from the stockpile (to approximately three feet depth) was 600 cubic yards. The excavated pit area covered an area of approximately 50 feet in diameter

3.1.4. Sampling Grid

A sampling grid was not deemed necessary as it was a stockpile at one location.

3.1.5 Soil Sampling and Field Screening

The contaminated stockpile was field screened with the PID per each truck load (approximately every 8 cubic yards). PID readings of up to 468 ppm were recorded. Table 10 includes the field screening results for the excavated material. After the removal of the whole stockpile, excavation and sampling of soil 2-3 feet below the stockpile was carried out until the PID readings decreased to under 10 ppm. A total of 18 PID samples were taken in the pit. These 18 PID values were not recorded. Confirmation samples were not collected at the stockpile site since it was understood that the stockpile was originally placed in a previously contaminated area

3.1.6 Excavation, and Disposal of Contaminated Soil

The contaminated soil, at the stockpile site, was excavated with a backhoe and transported by dump trucks to containment Cell 3 which is located east of the cold storage building (Fig 8). After removing the entire stockpile to its base, the soil underlying the plastic liner was excavated down to 3-foot depth and was placed in the same cell with the other soil A total of 75 truck loads of excavated contaminated material was placed in the Cell 3 (Table 11).

3.1.7 Laboratory Analysis and Backfilling

Based upon available information, a matrix score of 39 (Level B) was calculated The score represents a cleanup level of 200 ppm for DRO, 100 ppm for GRO, and 15 ppm for BETX (Table 12).

Soil samples of the excavated soil were taken and sent to independent labs and analyzed by EPA methods 8015M GRO, 8100 DRO, 8020 BTEX, 7000 metals. Table 6 shows total number of samples taken for each EPA method at each contaminated site. Laboratory analysis results are shown in Appendix A and summarized in Table 10, Summary of PID and Lab Analysis Results.

Samples for laboratory analysis were taken every 50 yards (every 6 truck loads) or less. A total of 17 samples (sample numbers 401-417) were taken for laboratory analysis.

Based upon non-detect field screening results and when the contamination reached the non-detect (<10 ppm) levels, the excavated pit was backfilled. It took 70 truck loads of pit run material to backfill the pit.

3.2 WASTE ACCUMULATION AREA 3 (SS08)

3.2.1 Site Description

The Waste Accumulation Area 3 site (SS08) is located east of the Residential Dome at the Lower Camp facilities. No stained soils, signs, or odors associated with this former waste accumulation area were visible. The site is covered with fill material consisting of reworked granitoid blocks of small size, sand, and silt. The site is bounded on the south by an engineered drainage ditch which parallels the main access road and flows to the west. There are no wells at the site. The closest water well (WW-2) is over 330 feet to the south, with a water level at 50.72 feet from the ground surface (Table 4 and 18).

3.2.2 Previous Investigations at Site

The Phase 1 records search (ES, 1985) reported presence of several leaks west of POL tanks. During summers of 1989 and 1990, the site was investigated by WCC. Three near-surface soil samples were collected from three small drainage channels These channels flow only during a rainfall and would serve as accumulation points for mobile contaminants in the surrounding soils.

The samples were analyzed for total petroleum hydrocarbons (TPH), metals, volatile organics, semi-volatile organics, and pesticides/PCBs. The results indicated the presence of 11 metals, all of which were within the range of metals normally found in the western United States.

Concentration of organic compounds above detection limits were reported for xylene and TPH. The highest value for xylene was 33 mg/Kg. In all three samples, TPH was detected between 170 and 3,500 mg/Kg No other aromatic hydrocarbons such as toluene, or benzene were detected

3.2.3 Extent of Contamination

Waste Accumulation Area 3 (SS08) was used from the 1950s to 1982 for storing drummed new products and liquid wastes. According to previous reports the area had also received PCBs and leakage/spillage from drums stored on the ground In addition, transformers marked "PCB" and large electrical switch units have been found at this area. Several major spills and leaks of diesel fuel and MOGAS from storage tanks and pump fill nozzles have occurred near the waste area.

The contamination appeared to be held within the soils (WCC, 1992). The base of the contamination was not known because only sampling of the surficial soils, less than 6 inches deep, was conducted.

The area and volume of contamination at this site, estimated by WCC was 3,375 square feet and 380 cubic yards respectively (Table 9). Our work plan was therefore, based upon these estimates. The contaminated soil, actually removed from the site was approximately 722 cubic yards and covered an area of 6,500 square feet enclosed within the contours (Fig 18) (Table 8).

3.2.4 Sampling Grid

In view of possible presence of PCBs, an EPA approved PCB grid sampling method was adopted (EPA, 1986). A 73 point grid design was established. The triangular grid area enclosing the contaminated site was estimated to be 14,437 square feet

3.2.5 Soil Sampling and Field Screening

Samples for PID field screening were obtained and analyzed at approximately every 8 cubic yards (one truck load) through the confirmation sampling stage. The PID and PCB values are shown in Table 13A. A total of 223 PID and 26 PCB readings were taken (Table 14). PCB values were found to be within EPA acceptable range of 10 mg/Kg.

In order to establish the exact perimeter of contaminated area within this large area, pre-excavation samples were taken at several randomly selected locations from depths of 18, 30, and 36 inches. The samples were field screened with PID and a DEXSIL 2000 chloride analyzer. The PID results were then used to plot contours which show boundaries of contaminations (not isoconcentration levels) at 18, 30, and 36 inch depth levels (Fig 18). Once plotted, these contours served as horizontal and vertical guidelines for the excavation of contaminated soil from the area By using this method, excessive excavations, unnecessary samples, time consumption, and related costs were avoided.

3.2.6 Excavation, and Disposal of Contaminated Soil

The zero contour represents the PIDs zero ppm contamination boundary, beyond which no excavation was required. The contaminated soil between the two contours was excavated to 18-inch depth. The area enclosed by the inner contour was then excavated to 3-foot depth. On the basis of laboratory analyses certain areas still contained the contamination and were excavated up to 6-foot depth. Six truckloads of contaminated soil was removed and placed in Cell 3. A summary of the PID and laboratory analysis for the excavated material is shown in Table 13B. A total of 76 truck loads of contaminated soil was excavated and placed in containment Cell 3

3.2.7 Laboratory Analysis and Backfilling

Based upon available information, a matrix score of 39 (Level B) was calculated. The score represents a cleanup level of 200 ppm for DRO, 100 ppm for GRO and 15 ppm for BETX (Table 15). Soil samples were taken and sent to independent labs and analyzed for EPA methods 8015M GRO, 8100 DRO, 8020 BTEX, 7000 metals, 8010 HVOC, and 8080 PCBs. Table 6 shows total number of samples taken for each EPA method at each contaminated site. Laboratory analysis results are shown in Appendix A.

Samples for laboratory analysis were taken as follows: one sample per sample location at surface level (pre-excavation/surface sample at 18-inch depth), one sample per 50 yards (8 truck load) during excavation, and one confirmation sample per 250 square feet of surface area.
All confirmation samples were in compliance with the matrix score, with the exception of the following sample numbers: 224, 234, 236, 239, and 240 (Table 13C)

Due to high hydrocarbon concentration in some samples, and large variation in the values of two duplicate samples 228 and 229/133 and 80 ppm and 240 and 241/603 and 84.0 ppm, new samples from the same locations were collected and analyzed by another laboratory to confirm the above results. In order to maintain a high standard of quality, the samples 240 and 241 (duplicate) were sent to two laboratories for re-analysis. One laboratory results showed DRO values as 544 and 165 ppm whereas the other laboratory showed values as 251 and 104 ppm, respectively.

In order to resolve this confusion, eight reconfirmation samples collected from the same locations (sample numbers: 242, 243, 244, 245, 246, 247, 248, and 249), were sent to a different laboratory. All the results met the verification level requirement with the exception of sample 249, which showed a DRO value of 1,600 ppm.

As a further precaution, the area covered by sample locations with DRO values exceeding the acceptable verification levels was excavated further.

After the excavation, two additional reconfirmation samples 250 and 251 were collected and sent to the laboratory for analysis. Based upon laboratory's and the PID results that the contamination had reached the cleanup verification level, the excavated pit, which in places was 6 feet deep, was backfilled It took 75 truck loads of pit run material to backfill the pit

3.3 Drum Storage Area (SS14)

3.3.1 Site Description

The Drum Storage Area (SS14) is located east of the beaver pond, nearest to the coast and along southside of Nilumat Creek (referred to as Fowler Creek in some literature). The whole site is located in a glaciated valley carved by the ancestral Nilumat River.

The area consisted of black-stained soil with dead vegetation and an odor of fuel. The blackened contaminated area is upgradient of Nilumat Creek and downgradient of several small streams flowing from several seeps to the south which enter the beaver pond, which drains into the Nilumat Creek ultimately flowing into Kokechik Bay.

An access car-track road connects the area with the trunk road which connects Lower Camp with the coast. The access road runs along the northern boundary of the contaminated area (Fig 19). The closest water wells to the site were Water Well 2 and 3, uphill near the weather station, with water levels of 86 and 65 feet below the ground surface.

3.3.2 Previous Investigation at Site

The area was identified by WCC in 1989. Two soil samples were collected and analyzed for TPH, metals, volatile organics, semi-volatile organics, and pesticides/PCBs. The surface water sample was analyzed for TPH, halogenated and aromatic volatile organics, semi-volatile organics, pesticides/PCBs, and recoverable and dissolved metals.

Metals were detected in the two soil samples (nine in one sample, ten in the other) and were found to be within normal ranges. Four metals were detected in the surface water sample, all of which were within normal ranges. PCBs were detected in one soil sample at 0.21 mg/Kg which is well below the EPA clean up level of 10 mg/Kg The two soil samples had TPH detection's of 100,000 and 200,000 mg/Kg. TPH was detected in the surface water sample. No BTEX was found in any sample. The two soil samples collected within the stained area had concentrations representing 10 and 20 percent petroleum hydrocarbons The water samples collected in the Beaver pond indicated little or no contamination. Therefore, it seems that the petroleum products were mostly absorbed and trapped in the native soil.

3.3.3 Extent of Contamination

The black patch was an old POL drummed waste storage staging area dating back to the beginning of Air Force activities on site. The drummed waste was staged at this site for shipment out on the annual barge. Empty drums were stored nearby.

The area and volume of contamination at this site, located south of the access road and estimated by WCC, was 10,300 square feet and estimated to be five feet deep, thus yielding a volume of approximately 1,910 cubic yards (Table 9). Our work plan was based upon these estimates. The contaminated soil actually removed from the site was approximately 2,730 cubic yards which covered an area of about 24,570 square feet (Fig 20, Area A).

Our field investigations indicated contamination extending northward beyond the access road. The additional area (Fig 20, Area B) covers another 18,560 square feet with an approximate volume of 2,062 cubic yards. This area was not excavated as it was not included the 1994 budget.

3.3.4 Sampling Grid

In view of possible presence of PCBs, an EPA approved PCB grid sampling method was adopted (EPA, 1986). A 37 point grid design covering the entire site, including A and B areas, was established (Fig 20). The grid was tied into a bench mark located on a slab in the area. The area excavated under the 1994 work plan was approximately 24,570 square feet (2,730 cubic yards). Area B, to the north, was not covered under the 1994 work plan, but was staked and left for next year Area B covers approximately 18,560 square feet (2,062 cubic yards).

3.3.5 Soil Sampling and Field Screening

Samples for PID field screening were obtained and analyzed at every 8 cubic yards (one truck load) through the confirmation sampling stage. The PID and PCB values are shown in Table 16A. A total of 192 PID and 8 PCB readings were taken (Table 17). PCB values were found to be within EPA acceptable range of 10 mg/Kg.

In order to establish the perimeter of contaminated Area A, a total of 70 samples were taken: 13 surface samples, 23 samples during excavation, 30 soil samples and one water sample taken as confirmation samples. Three reconfirmation samples were sent to the laboratory for analysis.

3.3.6 Excavation and Disposal of Contaminated Soil

Most of the area was excavated down to approximately 3 feet depth. At several locations the contaminated soil was excavated down to the water level at 8-foot depth (Fig 20). On the basis of laboratory analyses certain areas still contained the contamination. The areas with contamination signs were excavated further up to 8-foot depth. A summary of field PID and laboratory analysis for the excavated material is shown in Fig 16B. A total of 144 truck loads of contaminated soil was excavated and placed in containment Cell 1 (which was constructed near the coast) (Fig 8) The excavation was difficult and time consuming due to the presence of large size boulders. The contaminated soil from this site alone filled Cell 1.

3.3.7 Laboratory Analysis and Backfilling

Based upon available information a matrix score of 32 (Level B) was calculated. The score represents a cleanup level of 200 ppm for DRO, 100 ppm for GRO, and 15 ppm for BETX (Table 18).

Soil samples were taken and sent to independent laboratory and analyzed for EPA methods 8015M GRO, 8100M DRO, 8020 BTEX, 7000 metals, 8240 volatile organic compound, 8270 semi-volatile organic compounds, and 8080 organochlorine pesticides and PCBs. Table 6 shows total number of samples taken for each EPA method while Appendix A contains laboratory analysis results.

Samples for laboratory analysis were taken as follows: one sample per sample location at surface level (pre-excavation/surface sample at 18-inch depth), one sample per 50 yards (8 truck load) during excavation. A total of 31 confirmation samples were collected from the bottom of the pit, in accordance with the work plan.

All confirmation samples were in compliance with the matrix score, with the exception of samples at the following sample locations: 8a, 9, 9a, 11, 12, 12a, 19, and 20. The locations were re-excavated to the water table at approximately 8 feet Three re-confirmation samples (68 at location 20, 69 at location 12, and 70 at location 21) were collected from 5- to 6-foot depth and were sent for laboratory analysis (Table 16C, Drum Storage Area SS14, Summary of Field PID and Laboratory Analysis Confirmation).

Based upon laboratory and PID results which showed that contamination had reached the cleanup verification level, the excavated pit was backfilled with accumulated boulders and pit run material. The pit run material was stockpiled at the site from previous year. It took 140 truck loads of pit run material to backfill the pit

A total of 70 samples (sample numbers 1-70) were taken for laboratory analysis. The sampling program including number of samples and methods of analyses is shown in Table 6.

3.4 POL FILL STAND (ST09)

3.4.1 Site Description

The POL contaminated site (ST09) was a truck fill stand located next to the former beach warehouse (now demolished). This site is near the coast, south of the mouth of Nilumat Creek, and west of the beaver pond. The area is located along the northern wall of Cell 1.

At present no accurate point of reference for the location of the fill stand exists. The whole area has been graded and is covered with pit run material Below this cover it is likely that the alluvial deposits of nearby Nilumat Creek may be present. With depth, the surficial soil are likely mixed and interbedded with granitoid colluvium which was laid down by the ancestral Nilumat Creek in the glaciated valley.

After excavating several randomly selected sample locations, the old fill stand site was found under 2-3 foot cover of landfill material. A buried pipeline, when excavated, lead to the fill stand site.

During the course of investigations another very small location with tar was found

3.4.2 Previous Investigation at Site

The Phase 1 records search reported that a number of small POL spills associated with tank filling and transfers occurred at this site. WCC analyzed one sample for TPH and found a concentration of 4,900 mg/Kg. The location of sampling may not be at the fill stand as no features of any kind give any indication of the stand.

3.4.3 Extent of Contamination

In order to establish the extent of the contamination within this large general area, between beaver pond and the coast, several samples were taken at randomly selected locations. The old, decayed grass level was found at an approximate depth of 3-feet from the surface. The grass, along with soil, was found to be contaminated.

The surface area and volume of contamination at this site, estimated by WCC, was 170 square feet and 20 cubic yards respectively (Table 9). Our work plan was based upon this estimates. The area of contamination, calculated on the basis of our reconnaissance investigation, covers about 3,630 square feet. A depth of contamination of 3 feet (from the old grass level surface) was estimated to give a total volume of 955 cubic yards of contaminated soil. In addition, a minimum of 2-3 feet of soil overlying the contamination level needs to be excavated.

3.4.4 Sampling Grid

Having established the general boundaries of the contamination, an EPA approved PCB grid sampling method was adopted. A 37 point grid design was established and was tied to a yellow "Buried Telephone" sign pole nearby. The whole area was staked and left for future sampling.

3.4.5 Soil Sampling and Field Screening

In order to establish the boundary of the contamination within this large general area, several randomly selected locations in the area were dug At each location samples from Level A (18 inches) and Level B (36 inches) were collected. The samples were field screened and an approximate outer boundary of the contamination was determined. Please see Figure 21, PCB Sampling Grid, 37 Point Design.

A total of 45 PID and 8 PCB readings were taken. The PCB values were found to be within EPAs acceptable range of 10 mg/Kg However, PID readings of up to 463 ppm were observed.

3.4.6 Excavation and Disposal of Contaminated Soil

Since the work plan did not have provision for such a large area, the excavation at this site was postponed until the next fiscal year.

3.4.7 Laboratory Analysis and Backfilling

The work plan required that surface, excavation, and confirmation soil samples be sent to independent labs and analyzed for EPA method 8015M GRO, 8100 DRO, 8020 BTEX, 7000 metals, 8080 organochlorine pesticides and PCBs. No laboratory samples were gathered.

3.5 CELLS FOR CONTAMINATED SOIL

Three containment cells were constructed at different locations. Cell 1 and 2 were constructed near the beach area, west of the beaver pond. Cell 3 was built near Lower Camp, east of the cold storage building. All cells were designed in compliance with the work plan. The soil containment cell design is shown on Figure 22. Cell 2 remains unused without a liner

The sites for the cells were excavated and the excavated material was used to construct the cells' walls, for bedding below the bottom liner, and cover material. The excavated bottom was compacted prior to placing bedding material for the liner

A sand bedding was installed in 6-inch lifts and was compacted to approximately 90 percent maximum density. The surface of the sand was made free of depressions, ridges, trash, and debris. A trench, 2-feet deep, was dug along the embankment to receive the liner's edge.

A 45-mil Geotextile Hypalon consisting of a chlorosulfonated polyethylene geomembrane (green liner) in Cell 1, and a 45-mil polypropylene scrim-reinforced geomembrane (black liner) in Cell 3. The edges of the liners were covered with 2-feet of sand in the trench around the cells. The top and walls of the liners were then covered with a 6-inch sand bedding. The contaminated soil was then placed over the sand bedding up to 6-feet above the level of the cells walls. The piles of contaminated soil were then covered with 45-mil polypropylene geomembrane top liners. The top liners were secured by placing large rocks along its edges and on its top. Such a measure was adopted as these cells will ultimately be opened to convert them into Biopile treatment cells in the future.

3.5.1 Cell 1

The bottom liner used in Cell 1 is described in Table 22. The specifications of the top liner are given in Table 23. A total of 144 truck loads (approximately 1,152 cubic yards) of contaminated soil, excavated from the drum storage area (SS14), were placed in the cell. The contaminated soil covered the inside of the cell and piled up to 6 feet high above the top of the cells wall. The contaminated soil pile was then covered with the top liner.

3.5.2 Cell 2

Although not used, this cell was made ready for future use by placing the bottom liner.

3.5.3 Cell 3

Cell 3 was constructed as described above The cell was filled up to 6-feet height above its walls and was covered with the top liner. A total of 151 truck loads (1,208 cubic yards) of contaminated soil, excavated from Stockpile SS15 and Waste Accumulation Area 3 (SS08) were placed in the cell.

3.6 LANDFILL-2 (LF03)

3.6.1 Site Description

The landfill is located approximately one mile west of the residential dome, along the south side of the road that connects Lower Camp to the airstrip. The area of contamination was defined by the visual boundaries of the intact landfill. The landfill covers an area of approximately 43,800 square feet.

The native surficial materials underlying the landfill at this site consist of granitoid colluvium, which is at least 13 feet thick. Weathered and fresh granitoid bedrock is probably present at unknown depths below the granitoid colluvium.

3.6.2 Previous Investigation at Site

During the 1989 and 1991 site investigation the landfill was unsightly, with a large amount of exposed metal, wood, and plastic debris exposed. There were several areas of stained soils, several points of effluent emanating from the downslope side of the landfill, and two drainages containing active surface flow just upslope and adjacent to the landfill (Fig 23).

An engineered drainage along the north side of the road flows constantly during the wet season. Several springs near the northeast corner of the landfill provide water to a southward flowing stream which joins another stream flowing east to west, parallel to the eastern toe of the landfill. In addition, several active seeps were present on the landfill surface (lower lift). Surface flow from these seeps extended for up to 100 feet across the landfill surface before terminating and reentering the landfill material. The water table (top of saturated zone) was encountered at 2-3 feet below the landfill (WCC, 1992).

During 1989, four 4-inch groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-4) were installed in the landfill by WCC. The wells were completed at total depths between 10 and 19.3 feet below the ground surface (Table 24). Groundwater samples were taken and recorded (Table 25). During 1990, it was reported that the exposed part of the well MW-3 was tilted in an upslope direction and had sheared at -9.75-foot depth, due to frost heave processes. Sampling of MW-3 was therefore abandoned.

In 1990, water, soil, and sediment samples taken at points of effluent from the face of the landfill were analyzed for TPH, metals, volatile organics, semivolatile organics, pesticides/PCBs and recoverable dissolved metal. In 1990 groundwater samples from the three wells MW-1, MW-2, and MW-4 (MW-3 abandoned) were analyzed for TPH and aromatic volatile organics

During Jun through Sep 93, 11 CEOS collected the debris from 200 feet width around the periphery of the landfill and placed it in the landfill. Approximately 500 cubic yards of fill was dumped on the south section of the landfill to cover the debris. The stream parallel to the eastern toe of the landfill was diverted 20 feet away from its original drainage (Fig 23).

3.6.3 Extent of Contamination

During 1989-1990 WCC carried out field investigations at the landfill site and concluded as follows: Surface water downgradient (southwest) of the landfill was contaminated with TPH and PCBs. Based on soil samples containing contamination above the cleanup level of 100 mg/Kg TPH and visual observations, estimate of the areas requiring remedial action was calculated to be 49,900 square feet and the total volume of fill (soil mixed with debris) was calculated to be 11,530 cubic yards. Surface flow was estimated to be approximately 5 to 10 gpm during the summer (WCC, 1989). The contents of the landfill include an assortment of steel, wood, and paper debris (11 CEOR Archives, Trip Report dated 14 Dec 93).

3.6.4 Remediation of Landfill-2 (LF03)

Our Work Plan for remediation of the landfill was based upon the above mentioned parameters of WCC. The plan included the containment of the landfill and the surface capping/covering of the landfill.

3.6.5 Containment of Landfill-2 (LF03)

During Aug 94, the following measures were adopted to prepare the landfill surface for capping purposes. The surface of the landfill was compacted by running the tractor over its entire surface to flatten piles of material such as old empty rusted drums and metal etc. The surface of the landfill was thoroughly examined visually for any contaminants. Our field investigations located presence of several brown leachates seeping from the periphery of the landfill.

The compacted surface of the landfill was then covered with a 12-inch thick bedding layer of pit run material (a total of 250 truck loads of pit run material) (see Table 8). The new surface was again compacted to give a smooth surface to the landfill.

Well casings of two monitoring water wells (MW-3 and MW-4) were extracted and the wells were grouted, plugged, and abandoned. Details of water level measurements in wells MW-1, MW-2, MW-3, and MW-4 are shown in Table 25 The abandonment procedures are described in section 3.6.8.

The compacted surface of the pit run material was then covered with a 6-inch thick layer of sand (1/2 minus material). A total of 125 truck-loads of sand was placed over the pit run surface This nominal thickness was considered necessary to compensate for loss of finer material through voids between the rocky surface material at the landfill and to completely cover the rough topography prior to covering it with an impervious liner to stop the downward flow of surface water through the contaminated material.

The first sheet of impermeable liner hypalon (50-feet wide) was placed in a north-south direction, along the divide of the landfill (Fig 24). The successive sheets were placed parallel to the first one with a 2-foot overlap in both directions, to the east and west, away from the first sheet. This shingle type arrangement would cause water to run, away from the central part, in easterly, westerly, and southerly directions without penetrating downward into the contaminated landfill.

All the seams of hypalon liners were then covered by 15-feet wide Geotextile fabric strips to hold the overlapping seams intact and to provide, at the same time, a rough base for the overlying sand, which otherwise would slide over the smooth surface of hypalon. Several east-west strips of Geotextile were placed along the steep slope of the landfill to stop the overlying sand from flowing downward (Fig 24) (Fig 25).

Another 6-inch thick layer of sand overlain by 12-inch thick pit run material was placed over the hypalon and Geotextile. A total of 250 truck loads of pit run material was placed over the hypalon and Geotextile. This material was compacted and smoothened by running the tractor over it. Finally, the surface was sprayed with grass seeds (see Table 29). The specifications of the hypalon, Geotextile, and the seeds are shown in Tables 27 and 28.

Based on an arbitrary benchmark elevation of 100 feet above sea level at monitoring well MW-2 (base of casing), elevations were measured at every 25-foot distance along all hypalon seams of the landfill. Elevations of well casings and landfill profile were established by a level survey. Figure 24 shows details of the survey and the locations and exact sizes of hypalon and Geotextile.

The site was monitored during and after the rains for the effectivity of the liners. All the previous leachates sites around the periphery had dried out and no new contaminant seeps were noticed. After each rain one can observe the rain water coming out along the periphery of the landfill. The drying-up of older leachate sites also indicates that no groundwater was flowing from the north through the landfill.

3.6.6 Deviations from the Work Plan

Under the prevailing conditions at the site, certain deviations from the work plan were made without jeopardizing the ultimate results of the landfill The work plan provided digging of a trench around the base of the landfill. This was considered counter-productive as it would have directed the groundwater from the existing streams and springs towards the landfill. The ditch along the roadway adjacent to the landfill was not enlarged and compacted as called for in the workplan. The performance of the ditch was monitored throughout the summer Enlarging or modifying the drainage was considered unnecessary.

The work plan provided placement of Geotextile fabric as a cushion between the landfill surface and the hypalon. This was deemed unnecessary as the 6-inch thick layer of sand, underlying and overlying the hypalon, was soft enough to protect the hypalon from any damages.

The work plan provided coverage of whole hypalon by the Geotextile fabric. Such an extensive coverage was considered costly and unnecessary as most of the landfill had a gentle slope. The present design of Geotextile placement is considered effective for holding the overlying burden of sand and pit run material.

3.6.7 Monitoring-Wells Data Collection

Water levels in MW-1, MW-2, MW-3, and MW-4 were recorded at several occasions (Table 26A and B).

3.6.8 Monitoring-Wells Abandonment

Wells MW-3 and MW-4 were abandoned prior to placement of the hypalon. The well casings were pulled, while simultaneously pumping bentonite into the voids left by the casings, up to the surface.

3.7 QUALITY ASSESSMENT OF CAPE ROMANZOF DATA

3.7.1 Purpose

This assessment provides data validation in support of the site-specific work plan which was developed in accordance with (IAW) technical guidance published by Alaska Department of Environmental Conservation (ADEC).

3.7.2 Introduction

This assessment examines the quality of the laboratory analytical data obtained for hydrocarbon compounds in soil samples (and one water sample) collected from Cape Romanzof during Jul and Aug of 94. All laboratory analyses were performed off-site by a contractor laboratory, Commercial Testing and Engineering Company (CT and E), located in Anchorage, Alaska Samples were collected, extracted, and analyzed IAW US Environmental Protection Agency standard methods. Data validation was performed according to EPA's laboratory data validation guidelines and addresses the following data quality indicators: documentation, completeness, comparability, representativeness, precision, and accuracy. The criteria, or "data quality objectives," for these indicators are summarized in Table 34

3.7.3 Documentation

Data collection and analysis procedures must be accurately documented to substantiate the analyses of samples, conclusions derived from the data, and the reliability of reported analytical data.

3.7.4 Chain of Custody (COC) Records

All COC records are intact, accounted for, and complete, with the exceptions that the sample matrix was not indicated for sample numbers 68-70, and sampling date and time were not indicated for sample number 240.

3.7.5 Sample Labeling

No problems were observed, other than the one noted above for sample number 240. (The field log shows this sample was collected on 10 Aug 94 at 1341)

3.7.6 Holding Times

All holding times for extraction and analysis were met, per ADEC guidelines. Note, however, that samples collected for BTEX analysis should be extracted as soon as possible, whereas actual extraction took place two to nine days after sample collection. For example, samples 210-212 were collected on 4 Aug and extracted on 13 Aug. Ideally, extraction should be done on-site and the extracts shipped off site for analysis.

3.7.7 Sample Preservation

Samples for laboratory analysis were immediately cooled and maintained at or near 4°C from time of collection to analysis at the laboratory. Samples collected to verify cleanup (confirmation samples) were checked for temperature upon arrival at the laboratory.

Site	Sample I.D.	Temperature °C
Drum Storage Area	037-067	2.7
Drum Storage Area	068-070	4.2
Waste Accumulation Area	241-251	0.3

3.7.8 Laboratory Quality Control

The contractor laboratory, CT and E, has in place a quality assurance/quality control (QA/QC) document together with standard operating procedures (SOP)s that address instrument calibration, sample preparation and analysis, method blanks, method spikes, method spike duplicates, and verification (QC) samples. All reported instrument detection limits were equal to or below the contract-required detection limits (the criteria being that the numeric ratio of detection limit to regulatory limit, i.e., DL/RL, is less than or equal to 0.20) except as noted in the following. For benzene, the maximum allowable detection limit is 0.1 mg/Kg, which was exceeded for samples 209 and 401 - 414 (15 samples).

3.7.9 Other Laboratory Observations

The contractor laboratory, CT and E, reported the following:

- Any samples had extractable petroleum hydrocarbon (EPH) patterns that were evidently due to a heavier hydrocarbon than that of the surrogate (48 occurrences)
- Other samples had heavier hydrocarbons contributing to DRO (37 occurrences)
- Some samples had EPH patterns that were not consistent with the pattern expected for unweathered middle distillate fuel (17 occurrences)
- Analyte was found in the associated blank as well as in the sample (5 occurrences of di-n-butylphthalate)
- The observed EPH pattern indicates biogenic matrix interference (4 occurrences)

- An unknown hydrocarbon having several peaks was observed (3 occurrences)

3.7.10 Completeness

Completeness is a measure of the amount of useable data resulting from a data collection activity. For Romanzof, the required level of completeness (per Table 34) is 85 percent. For the project, completeness is reported as 100 percent.

3.7.11 Comparability

Data comparability expresses the confidence with which data are considered to be equivalent. Both sampling comparability and analytical comparability are of importance, and both were addressed during project execution. Two laboratories were utilized for the project, and both laboratories have a QA/QC document together with SOPs based on EPA standards that are widely recognized and accepted. The laboratories used routine (EPA) methods for sample preparation and analysis, and reported results with consistent units of measure and detection limits

3.7.12 Representativeness

For risk assessment, representativeness is the extent to which data define the true risk to human health and the environment; sampling and analysis must adequately represent each exposure area or the definition of an exposure area. At Cape Romanzof, samples were collected to reflect the site's characteristics, and the sample analyses that were performed by CT and E were appropriate for the samples collected. Sampling locations were properly selected, potential hot areas were addressed, and a sufficient number of samples were collected over a specified time span to ensure data representativeness. Use of appropriate sample handling, storage, preservation procedures, and the detection of any artifacts of laboratory analyses were deemed critical to the success of the project and were addressed

3.7.13 Precision

Precision is a quantitative measure of variability, comparing results obtained for duplicate site samples to the mean value, and is usually reported as "relative percent difference" (RPD). For Romanzof, the results for field duplicate sample analyses are summarized in Table 35. As shown, 3 of 12 sets exceed the data quality objectives of 40 percent RPD **and** were above ADEC's cleanup levels

3.7.14 Accuracy

Accuracy is a measure of the closeness of a reported value to the true value. Four samples did not meet the data quality objectives for surrogate recovery due to "matrix interference".

3.7.15 Conclusion/Recommendations

The overall data quality achieved by the laboratory for gas chromatographic analyses is typical for hydrocarbon compounds in soil samples. All data are acceptable for the uses specified in the work plan as qualified in this review, except as noted in the following:

- The extraction of samples intended for BTEX analysis should be as soon as possible after sample collection; otherwise, low results are to be expected and are suspect.
- The observed precision for field duplicates is based on very few observations, and is marginally acceptable (with the qualification that a greater degree of uncertainty is associated with these values than with unqualified data). Duplicate samples were collected as close as possible from the same sampling location. The variability of the "duplicate" samples arise from the heterogeneity of the samples, the size and distribution of the sampling population, and bias from methods of sampling and analysis. The heterogeneous nature of the soils (boulders to silt), and the spatial variability in the concentrations of the contaminates at the site, would account for these samples failing to meet data quality objectives Section 9.1.5 "Field Duplicate Samples" as listed in the State of Alaska Standard Quality Assurance Program Plan are independent samples which are collected as close as possible to the same point in space and time." "The are two separate samples taken from the same source, stored in separate containers, and analyzed independently." There is no requirement to assure the representativeness and homogeneity of these critical samples. Without some requirement to collect homogeneous samples for field duplicates, data quality objectives may not be met.
- For BTEX, the reported detection limits for 15 samples did not meet EPA's recommended objective and are marginally acceptable (again, with the qualification that a greater degree of uncertainty is associated with these data than with unqualified data).

4.0 GEOGRAPHICAL SETTING

4.1 PHYSIOGRAPHY

Cape Romanzof is situated on a bold headland at the western end of the Askinuk Mountains facing the Bering Sea Being located between the extensive Yukon-Kuskokwim delta system, it is likely that it was the westernmost of a chain of offshore islands before delta filling occurred.

The isolated linear mountain mass rises abruptly out of the Yukon-Kuskokwim Delta to a maximum elevation of 2,342 feet above sea level at Towak Mountain (Fig 6). The surrounding lowlands are part of the Yukon-Kuskokwim Coastal Lowland and subprovince of the Bering Shelf Physiographic Province (Fig 26). The lowland surrounded by low rounded unglaciated hills and mountains with locally steep slopes, is a marshy lake dotted deltaic plain that rises from sea level eastward to a maximum elevation of 300 feet. It is crossed by meandering streams of extremely low gradient which flow west into the Bering Sea

It is possible that Kuskokwim River was once a tributary of Yukon River and together formed the delta fan from Pastol Bay to Kuskokwim Bay. Due to later tectonic activities in the area, as the deltaic plain rose from the sea, Yukon and Kuskokwim Rivers separated and Yukon River shifted northward, eroded and disconnected Towak Mountain-Nulato Hill range at Mountain Village site.

The lowland is underlain by a discontinuous layer of permafrost. The area has alpine tundra and barren ground. The soil, composed of sand, silt, and gravels, is normally well drained and permeable.

4.2 TOPOGRAPHY

At Cape Romanzof, the elevation difference from high point to low point is about 2,000 feet (Fig 27). The Upper Camp is situated at the top of a ridge, a cirque, which overlooks a steep-sided U-shaped valley, probably carved in part by a glacier. The longitudinal profile of this valley, Nilumat Creek (also known as Fowler Creek), is irregular and stepped, with steep segments followed by flat segments as seen at the Lower Camp and the airstrip.

4.3 DRAINAGE

The drainage of the Cape Romanzof area is accomplished chiefly by surface flow to Nilumat Creek. The Nilumat Creek has a watershed area of approximately 8.5 square miles. Some Upper Camp drainage is directed to other creeks. The surface waters of the area generally occur as ephemeral streams which drain to Kokechik Bay (Fig 8).

5.0 ENVIRONMENTAL SETTING

5.1 CLIMATE

The state of Alaska encompasses four major climatic zones which have been established on the basis of similar temperature and precipitation values. Rainfall is highly variable across Alaska, ranging from 5 inches annually in the arctic climatic zone to some 300 inches annually along the southeast coast in the maritime zone (National Oceanographic and Atmospheric Administration 1983; Zenone and Anderson 1978). Coastal mountain ranges receive the most rainfall while interior lowlands receive the least amount of precipitation.

Cape Romanzof lies in the maritime climatic zone Table 30 shows temperature, precipitation, snowfall, and wind data at the weather station located at approximately 1,400 feet elevation. The Lower Camp (elevation approximately 1,500 feet) and the Upper Camp (elevation approximately 2,300 feet) experience lower temperatures and higher precipitation, snowfall and winds than shown in the table.

Potential transpiration per year at Cape Romanzof is 14.8 inches and the total mean yearly precipitation is 26.8 inches (Table 30). The net precipitation of 12 inches at Cape Romanzof is therefore potentially available for infiltration into the subsurface to recharge local aquifers every year Due to high surface run off it is assumed that at least one inch of annual precipitation is able to percolate through surface soils and recharge local aquifers Presence of potential permafrost at Cape Romanzof may impact surface soil impermeable (during the winter) until the next melt and thaw cycle.

5.2 DEMOGRAPHICS

The population at Cape Romanzof consists of only the personnel based at the site. The closest neighboring towns are Scammon Bay and Hooper Bay with 100 percent Native Alaskan (Fig 6).

5.3 BIOTA

Vegetation at Cape Romanzof is dominated by an alpine/barren ground community including mountain avens, lichens, low-growing herbs, and grasses.

Cape Romanzof is located within the limits of the Yukon Delta National Wildlife Refuge, a federally protected, pristine natural environment. Dolly Varden inhabit, and pink salmon spawn, in Nilumat (Fowler) Creek, (Crayton 1991). Beaver have constructed several ponds in the creek. Arctic fox, musk-ox, jack rabbit, rock ptarmigan, wolverine and peregrine falcon have been sighted in the area. Mink may be present in the area. Seagulls, geese, and ducks are found along the creek near the coast.

No endangered or threatened species of plants or animals is known to be present at Cape Romanzof.

6.0 GEOLOGY

6.1 REGIONAL GEOLOGY

Geologic units of all the principal time-stratigraphic systems from Precambrian to Quaternary are represented in Alaska. The major interior mountain chains have cores of Precambrian rocks; the core of the Coast Range is generally Mesozoic, bordered by younger sedimentary and volcanic materials. The lower mountains and hills are formed of like materials or of Mesozoic sedimentary rocks (Feulner et al 1971). The coastal plains are formed by sedimentary materials of Mesozoic to Cenozoic age.

Coonrad (1957) describes the mountainous areas within this province (Bering Shelf Physiographic Province) as being underlain by either Cretaceous sedimentary rocks or unknown age crystalline rocks. The surrounding lowlands (Yukon-Kuskokwim lowlands) are comprised of sand and silt floodplain deposits to an unknown depth. Intense structural deformation has continued throughout Alaska's geologic history and has periodically modified the major geologic units by faulting, warping, and folding. The deformational activity is pronounced along the state's Pacific Coast. Active volcanoes are located in the Wrangell Mountains of interior Alaska, in the Alaska Peninsula, and in the Aleutian islands. The predominant structural trend parallels the Pacific Coast.

The very strong geologic processes at work today in Alaska have produced a unique environmental setting reflected in the Quaternary Geologic Map of the state (Fig 28). For example, quaternary glacial deposits represents the extent of materials common to Alaska's glaciated alpine mountains and quaternary alluvium illustrates the distribution of the floodplain alluvium of major stream valleys. Cape Romanzof is located within coastal deposits of interbedded marine and terrestrial sediments

One of the most widely distributed quaternary sediments is loess, a wind-blown silt. Loess occurs in most areas of Alaska below elevations of 1,500 feet, ranging in thickness from fraction of an inch to 200 feet. The thickest loess deposits occur in central and western Alaska (Pewe 1975).

6.2 LOCAL GEOLOGY

The geologic information is based on field mapping in the Nilumat Creek Valley region. Field work done during Jul, Aug, and Sep of 94, included several reconnaissance traverses (Encl. 1) to study the bedrock, glacial/alluvial deposits, drainage patterns and groundwater aquifers. Data from interpretation of aerial photographs and various other sources was utilized.

Cape Romanzof is located in the upper reaches of Nilumat Creek. It is located in a region which consists almost entirely of the flat, low lying land of the Yukon-Kuskokwim River delta, with Askinuk Mountains rising up several hundred to over 2,000 feet above the delta plain. The linear mountain mass containing the Cape Romanzof site is composed dominantly of Cretaceous-age intrusive rocks of felsic composition (granitoid rock), (Beikman 1980). Pewe (1975) describes the region as having been weathered and eroded by ice wedging, underlain by partial permafrost, and to show downslope mass wasting solifluction features.

The country rock is a granodiorite intrusive, probably of Tertiary age. Deep weathering, jointing, exfoliation, and/or frost spalling have produced extensive talus slopes and surface boulder fields. The morainal deposits in cirque and valleys indicate extensive glaciation, probably in Wisconsin time. Overburden on the slopes of the cirque is thin or non-existent, consisting where present, mostly of residual material derived from weathering of the underlying rock.

The geology of the Upper Camp facilities (located on the narrow ridge of a cirque above the valleys) is characterized by a thin accumulation of angular sand, gravel, and boulder residual overlying granitoid bedrock of Towak Mountain. The granitoid rocks appear to have a composition of quartz monzonite to granodiorite. Two major joint sets are apparent in the granitoid bedrock. The dominant set shows a general strike orientation of ranges from N55E to N85W with an average dip of about 80 degrees south. The less dominant set is oriented about N18E and dips about 80 degrees to the northwest

The White Alice site (Upper Camp) lies astride the juncture of three ridges of medium grained grey to pink mottled granodiorite. The principal minerals include sodic plagioclase, microcline, hornblende, biotite, and about 5 percent quartz. Massive jointing occurs with traces of silt along the joint planes. Surface mantle is a reddish brown silt, apparently a decomposition product of the country rock. It varies in thickness from 1-5 feet where it has been removed by construction activities. Detailed logs of two test pits by Foundations and Materials Branch of US Army Engineer District, Alaska, one at operations building and another at White Alice site, show the lithology (Appendix C).

The Lower Camp and adjacent facilities at Cape Romanzof are located in a glacially formed cirque, at an elevation of 1,500 to 1,600 feet above sea level, the surface of which is matted with bouldery alluvium reworked by snow melt runoff from the nearby mountain, and underlain with ground moraine. The area is underlain by deposits of talus and other colluvial material that have been transported down slope into the steep sloping stream valley of Nilumat Creek and its tributaries under the influence of gravity. Seasonal frost was found to a minimum depth of 3 feet.

The existing facilities are located on a lobate morainal deposit occupying the central portion of the upper part of the Nilumat Creek Valley floor. Nearly the whole cirque is composed of a talus-like jumble of angular boulders with the voids filled or partially filled with silt-sand derived from decomposed detritus in the areas of moderate slope The talus layer was 80 feet thick at Well 1 and 74 feet at Well 2 (near the weather station at the airstrip). The talus is underlain by 20 feet thick residuum (sand and gravel) derived from the underlying bed rock by weathering processes.

The colluvial material, a coarse grained material forming a moderately thick accumulation of poorly stratified sediments, consists of granitoid material of a wide range of material sizes, from large granite blocks (1 to 2 feet, minimum dimension) to fine-coarse grained sand, silt, and minor clay. At the base of the steep slope, colluvium forms an apron that extends across part of the low-angle slope on the valley floor adjacent to Nilumat Creek. The Lower Camp, the Landfill-2 (LF03) and the main access road are located at the uphill margin of this apron, near the base of the northern steep slope. Groundwater monitoring wells MW-1 and MW-2 at the Landfill-2 (LF03) penetrated up to 19.5 feet of this colluvial apron.

The central, low-angle slope part of the U-shaped valley is underlain by alluvial and possibly glacial deposits. Well 1, located near the valley axis, shows a sequence of gravely clay with boulders (0 to 43 feet depth) overlying sand and boulders (43 to 57 feet depth). This sequence, in turn, overlies weathered bedrock at a depth of 80 feet, and then fresh granitoid bedrock at a depth of 100 feet (Fig 7). The alluvial/glacial material underlying the valley floor probably interfingers in the subsurface with the colluvial apron along a zone downslope and towards Nilumat Creek from the Lower Camp and Landfill-2 (LF03).

In the valley floor, the finer grained materials have washed out over the original bouldery morainal deposits to varying depths, depending on the topography available at the time of deposition, but in general, increasing in depth from the higher elevations to the lower. No bedrock is exposed anywhere in the valley, either naturally in stream beds or borrow-cuts, except at one area of the ridge between the Upper Camp and White Alice Site and at a road cut west of Landfill-2. It appears that morainal deposits are on the order of 100 feet deep in the central portion of the valley.

Various exploration logs and boreholes in the valley indicate a surface layer of approximately 6 inches of organic topsoil underlain by a bouldry talus formation composed of a mixture of boulders, rock fragments, sands, and silts. This bouldry material caused considerable difficulty as depth of the pit increased. The maximum size of the boulders was approximately 2 feet. Laboratory data indicate frost susceptible material exists throughout the area Include wells in the stock pile area.

The rocks exposed in the area, along and around the Nilumat Creek Valley, consist of bedrock and surficial deposits as follows, (Fig 29).

Surficial Deposits (Quaternary Age):

Young beach deposits (Qyb)
Estuarine deposits (Qe)
Old beach deposits (Qob)
Old flood-plain and delta deposits (Qof)
Glacial and colluvial deposits (Qgc)
Old alluvial deposits (Qoa)

Bedrock (Cretaceous Age):

Granodiorite (Kg) of Upper Cretaceous age
Sandstone, siltstone (Ks) of pre-Upper Cretaceous age

6.2.1 Sandstone and siltstone (Ks)

Sandstone and siltstone are exposed northwest of Nilumat Creek at western end of Towak Mountain, known as "Flat Top." They are surrounded by intrusive rock and are apparently roof pendants (older rock projecting down from the roof and completely surrounded by the rocks of the pluton) in the granodiorite pluton which makes up most of the Towak-Askinuk Mountains. Detail surveys will be required to locate other similar sedimentary outcrops which may be present in the area.

The sandstone and siltstone are interbedded, thermally metamorphosed, and display hornfelsic texture. No pyrite was noticeable. Metamorphic minerals include small crystals and blebs of magnetite, red-brown biotite flakes, and hypersthene. No fossils were noticed. They are assigned a Cretaceous age because they are similar to Cretaceous rocks in the adjoining Kwiguk quadrangle which contain fossil plants and invertebrates of Albian or Cenomanian age (Hoare and Condon, 1963). They are obviously older than the granitoid pluton, which is of Upper Cretaceous age.

6.2.2 Granodiorite (Kg)

A granodiorite pluton is exposed over at least 200 square miles in the region. Geophysical data suggest that the outcrops may be a part of a large intrusive body underlying an area of 1,000 to 1,400 square miles.

The granodiorite is light gray and medium to coarse grained. Approaching the roof pendant it tends to finer grained, darker gray, and somewhat porphyritic. The granodiorite appears to be homogeneous and is cut by dikes of intermediate composition. It consists of euhedral and subhedral plagioclase of Oligoclase-andesine composition with interstitial orthoclase and quartz Biotite and hornblende occur in about equal amounts and are some what chloritized. Accessory minerals include sphene, apatite, and magnetite. Some of the feldspar is slightly sericitized (Hoare and Condon, 1963).

The granodiorite displays at least two well defined, horizontal and vertical, sets of fractures. The horizontal fractures, the most conspicuous, probably resulting from load relief caused by erosion of overlying rock, are well developed and at places resemble horizontally layered sedimentary rock. The vertical fractures trend about east-west. Both sets of fractures have produced rectangular blocks of granodiorite 2-4 feet wide and thick and 10 to 20 feet long.

The age of the granodiorite is Upper Cretaceous (potassium-argon dating of the biotite yielded age of 78.7 to 82 million years), (Kulp, 1961)

The granodiorite displays several northwest trending lineaments which are possible fault traces The southern tributary of Nilumat Creek most probably follows a fault.

6.2.3 Surficial Deposit

The surficial deposits in the area consist of fluvial and glacial deposits. The fluvial deposits include both old coastal-plain deposits and deltaic deposits laid down by the ancestral Yukon River and its tributaries. The fluvial deposits have been reworked by ocean currents and wind to form beaches, bars, spits, etc. Permafrost is present in most of the deposits and apparently extends to a depth of 200 to 300 feet Surficial thawing of the deposits has produced most of the lakes.
The above mentioned units, except for glacial and colluvial deposits, approximately mark various stages in the evolution of the delta region rather than lithologic differences. The map units are commonly sharply defined by erosional scarps, but elsewhere they are transitional stages, and the contacts are drawn arbitrarily.

The maximum thickness of the deposits is not known Water Well 1, drilled in the Nilumat Creek Valley penetrated 57 feet of glacial and colluvial deposits. The age of the surficial deposits ranges from Pleistocene to Recent.

6.2.4 Old Alluvial Deposits

Old alluvial deposits (Qoa) consist chiefly of silt and sand accompanies at depth by clay and minor amounts of fine gravel. A water well drilled at Hooper Bay village to a depth of 349 feet shows 65 feet of unfrozen ground underlain by 70 feet of ice underlain by 201 feet of frozen muck and silt with sand layers. The well bottomed in 12 feet of unfrozen clay containing a 1-foot sand layer (Hoare and Condon, 1963).

The old alluvial deposit form an undulating, barren, tundra-covered plain pitted by many small thaw lakes. The plain is separated from younger deposits by steep outward-facing scarps 10 to 30 feet high. The average elevation of the plain is 30 to 70 feet above sea level with some isolated points 100 to 128 feet high Old alluvial deposits south of Kokechik Bay are apparently the westernmost remnant of a coastal plain which rises gently eastward toward the mountains. Isolated remnants of the plain in the vicinity of the Kokechik River show that the plain formerly extended northward at least to the Askinuk Mountains and probably also extended far south and was removed by the ancient channel of Yukon River. The trend of ancient abandoned river channels in the area suggests that part of the area south of Hooper Bay may also have been an ancient delta of the Yukon River.

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6.2.5 Glacial and Colluvial Deposits

Glacial and colluvial deposits (Qgc) consist mostly of sand, gravel, boulders, and angular talus blocks. The unit also includes a minor amount of fan gravel. These poorly sorted deposits typically occur on the flanks and in the valleys of Towak-Askinuk Mountains.

Water Well 2 and 3 drilled at the airstrip penetrated glacial till and granite slide rock to a depth of 96 feet.

The age of the glacial deposits is not known. They probably were laid down during one of the earlier glacial intervals when sea level was lower and the sea coast was 200 to 300 miles farther west (Hopkins, 1959). The age relationship of the glacial deposits and the old alluvial deposits is unknown as the two units have not been found in contact. On the basis of physiographic expression of these glacial deposits and outwash channels suggests that they may be early Wisconsin in age. They were most certainly preceded by a yet older and more extensive glacial advance which was probably older than at least the upper part of the old coastal plain deposits. These two older glacial advances were succeeded by two or more younger advances which left less modified deposits in the area.

The glacial deposits in the Towak-Askinuk Mountains were probably laid down during one to the earlier glacial intervals, because they are highly modified and largely overlain by colluvial deposits. The glaciated aspect of the mountains has been greatly modified by stream erosion and mass wastage by frost action.

6.2.6 Old Flood-Plain and Delta Deposits

The old flood-plain and delta deposits (Qof) are chiefly silt, sandy silt, and bog deposits The deposits surround Towak-Askinuk Mountains occupying former channels and tributaries of the ancestral Yukon River. These old channels incise the old alluvial deposits and probably were cut when sea level was considerably lower than at present. It probably also includes areas where the old alluvial deposits have been stripped off and reworked by minor distributaries of the ancestral Yukon

The top of the old flood-plain and delta deposits is generally 10 to 25 feet above sea level. They are separated from the preexisting old alluvial deposits by sharp scarp They are commonly separated from younger estuarine and beach deposits by a low scarp but locally transitional. The surface of the deposits is characterized by countless small lakes, a few large lakes, and numerous meander scars and abandoned stream channels.

The age of the old flood-plain and delta deposits is probably Pleistocene; some may be recent.

6.2.7 Old Beach Deposits

The old beach deposits (Qob), composed of marine silt and sandy silt, fringe the old flood-plain and delta deposits both north and south of the Towak-Askinuk Mountains. They are characterized by beach ridges and intervening swales. In the south, the deposits are mostly 6 to 10 feet above sea level and separated from the preexisting old flood-plain and delta deposits by a low scarp. In the northern area the beach ridges are 65 miles long and as much as 25 feet above sea level. The source of the material forming the southern beach ridges appear to be younger than the old flood-plain. They probably formed after sea level rose to about its present height 3,000 to 5,000 years ago (Hopkins, 1959).

6.2.8 Estuarine Deposits

Estuarine deposits (Qe) consist of fluvial silt and sandy silt which has been reworked and redeposited by tidal currents and wave action. They surround numerous residual island of the older deposits. They range in elevation from 3 to 10 feet above sea level, slope gently seaward, and are now generally above normal tide range. East and north of the Hooper Bay, they extend far inland in former estuarine channels of the ancestral Yukon and merge with the old flood-plain and delta deposits.

The estuarine deposits are pitted by innumerable tiny thaw lakes and traversed by many small straight streams and a few large meandering streams At their contact with the present-day mud flat on the northeast side of Hooper Bay, there are five or six small conical mounds perhaps 10 to 20 feet high. They are either mud volcanoes or pingos. The oldest of the estuarine deposits were laid down in the former mouths of ancestral channels of the Yukon River. Deposition probably began with the rise in sea level following a major glacial interval and has continued up to the present. Most of the deposits are younger than the latest rise in the sea level which ended 3,000 to 5,000 years ago (Hopkins, 1959). Some may date from earlier high stands of sea level.

6.2.9 Young Beach Deposits

The young beach deposits (Qyb) composed of silt, sand, and sandy silt, are transported and deposited by ocean currents, although some wind-reworked material is included They form narrow beaches on some of the headlands, baymouth spits, bars, and islands. The deposit represent a very small part of the great amount of alluvium being deposited in the Bering Sea by the Yukon River, about 30 miles north of Hooper Bay.

7.0 GLACIATION

During Quaternary time, Alaska's landscapes have been reworked by the advance and retreat of the extensive continental glaciers. Remnants of the glaciers are present today in the higher elevations of the Coast and Alaska Ranges However, some great expanses had no glacial activity (the Intermountain Plateaus, the Arctic Foothills, and the Arctic Coastal Plain) (Fig 30).

The glacial activity is significant in that its advance eroded the uplands into block-like groups of mountains with rounded crests separated by U-shaped valleys and low passes. The mountain ranges exhibit dramatic relief and their valleys head in near vertical glacier covered cirques. Glaciated lowlands tend to be inconsistent and include such features as moraines, drumlins, kames, eskers, and glacial lake plains. Rock basin and glacial deposit dammed lakes of great size and depth are common features of the glaciated lowland margins. The retreat and melting of the large glaciers produced great quantities of outwash sediment, which has resulted in the filling of many basins and lowlands. Each spring, large quantities of sediment continue to clog many of Alaska's major rivers and streams. The sediments are transported downstream with the flow and are eventually deposited many miles from their points of origin.

The Cape Romanzof site exhibits the characteristics of past intense glaciation. Glaciated zones are bounded by well defined moraines with little gully development along morainal ridges. The local drainage pattern in the Nilumat Creek is erratic and often non-integrated. New streams are super imposed on the old ones. Several small ponds, lakes and old drainage lines, faintly visible, are apparently not related to present-day Nilumat Creek. The present tributaries of the creek are interpreted to be much younger features, which have incised through the old glacial surface and are slowly eroding the mass of glacial material.

7.1 TYPE OF GLACIAL DEPOSITS IN NILUMAT CREEK VALLEY

The Cape Romanzof is located within the valley of Nilumat (Fowler) Creek. The upper part of this valley has very steep sides and a relatively shallow-sloped valley floor. This U-shaped valley cross section and the stepped longitudinal profile of Nilumat Creek are typical of glaciated valleys. The valley head in near vertical glacial cirque.

The upland areas consist of glacial moraine and drift materials, mixed, unsorted and generally unstratified clay, silt, sand gravel, cobbles and boulders. The slopes and terraces overlooking the valleys of streams and rivers consist of glaciofluvial sediments, which are slightly to moderately well sorted outwash and moraine materials, i e., unconsolidated materials deposited by the melting glacier or by erosion of older moraines. The lowland areas adjacent to the streams are dominated by well-sorted recent alluvium, consisting of sand, silt, and clay in reasonably well-stratified layers.

Several features along the Nilumat Creek valley were observed A prominent terrace-like feature was observed on the south side of Nilumat Creek valley, across from the Lower Camp. This feature is interpreted to be a remnant of a lateral moraine. It is not known whether this moraine was related to the period of glaciation that preceded the lake deposits. On the opposite (north) side of Nilumat Creek valley, similar but smaller terrace-like features were observed which may be lateral moraine remnants.

7.1.1 Lake Deposits

Most of the shot holes up to 3 feet deep, drilled at various points in the valley for seismic refraction investigations, contained an upper 1 foot of tundra vegetation, and a lower 1-2 feet of soft blue gray water saturated clay Such a wide spread clay was probably formed in an old post glacial lake, which probably was ponded behind coarser terminal moraine deposits located downstream. The Nilumat Creek valley displays an erratic and often non integrated drainage pattern along with several small ponds and faintly visible drainage lines which apparently do not belong to present-day Nilumat Creek. At least two different glacial periods are represented by presence of two U-shape valleys, one incised in the other, at the Beaver Pond close to the coast along the creek. The present tributaries of the creek are younger features which have incised through the old glacial surface, and are now slowly eroding the mass of glacial material.

7.1.2 Lateral Moraines

A prominent terrace-like feature present on the south side of Nilumat Creek valley, across from the Lower Camp, is interpreted to be a remnant of a lateral moraine. Similar but smaller terrace-like features, present on the opposite side (north side), may also be lateral moraine remnants.

7.1.3 Terminal Moraine

Terminal moraine of older glacier may be present offshore in the Kokechik Bay. Some of the sand bars presently seen above the water surface could very well be overlying the terminal moraine site. Such an environment during the glacial time may have formed a lake between the coast and the terminal moraine thus causing a shallow (4-6 feet) water of today.

7.2 EXTENT OF GLACIAL DEPOSITS IN NILUMAT CREEK VALLEY

The glacial deposits underlying Nilumat Creek valley and Lower Camp area were found to extend downstream from Lower Camp for approximately 1 mile or more, nearly to the junction with a southern tributary of Nilumat Creek. The western end of these deposits was identified based on geomorphic evidence, namely the abrupt steep slope at the western terminus of an elongate topographic mass, which extends up the valley and contains known glacial deposits at Lower Camp

Solifluction lobes and fronts (flows of soil due to frost action i.e. repeated cycles of freezing and thawing) can also be seen moving down the steep-fronted terminus. Linear welts of solifluction are commonly seen north of Lower Camp and northwest of the airstrip across the Nilumat Creek.

8.0 HYDROGEOLOGY

The water-bearing geologic units at Cape Romanzof include: (1) granitoid colluvium on the steep valley sides and adjacent parts of valley floor, (2) alluvial/glacial deposits underlying the central part of the valley floor, and (3) weathered granitoid bedrock which underlies the surficial deposits of colluvium and alluvial/glacial deposits.

8.1 GEOPHYSICAL SURVEYS

Three seismic refraction lines were shot during 1990 by Woodward-Clyde Consultants, (Fig 31). The profiles' elevations were taken from the USAF Base Plan Map (1 inch =

400 feet). The profiles show three layers - the top layer, 40 to 70 feet thick, with an average velocity of 2,800 feet per second (fps); the middle layer with an average velocity of 8,500 fps; and the bottom layer with a high velocity material averaging 15,500 fps with its top found typically at -180 to -250 feet depths (Fig 32). The velocity deviations in bottom and middle layers on profile RS90-3 are caused due to demolition and reworking of the soils in the area

The above interpretation can be extended throughout the Lower Camp and across most of Nilumat Creek Valley beyond the refraction lines. The upper velocity contrast boundary "A" is interpreted to be related primarily to the top of the water saturated zone. This boundary is generally parallel with the ground surface, except for a slight convergence to the northwest, toward the lowest part of the valley. Based on the confined hydrologic conditions apparent at Water Well 1, this boundary may also represent the base of the upper aquitard layer, below which confined water likely occurs in permeable glacial deposits, in weathered bedrock, and in fresh fractured bedrock.

The lower velocity contrast "B" is probably related to the base of weathered bedrock. Although this level may be deeper than a visual determination of "base of weathering" would indicate, this level provides a general structural form line that is likely parallel to other shallower geologic boundaries, such as base of glacial deposits. Therefore, using the driller's log for Water Well 1 and the deeper level "B" as a form line, a probable base of glacial deposits can be plotted (Fig 33). This plot suggests that a greater thickness of glacial deposits below the phreatic surface is present downstream from Water Well 1 than at this well.

Other seismic profiles, RS90-2 and RS90-3, indicate that the above described conditions probably extend across most of Nilumat Creek Valley. The driller's log of Water Well 1, and wells A and B can be matched closely with the profiles' data (Fig 33). The depth to weathered bedrock on this log can be correlated with the depth to the middle seismic layer (57 feet on log versus 60 feet on seismic profile). The depth to probable unweathered bedrock on this log does not correlate well with the depth to the high velocity layer (150 feet on log versus about 190 feet on seismic profile) (Fig 34). This difference could be due to the difficulty of the identifying the base of weathering in terms of seismic velocity.

The following conclusions are drawn on the basis of correlations Any water within the top layer (2,800 fps) must be in thin perched zones, because the overall velocity is well below that expected in saturated materials (Fig 33) The presence of multiple and often complex arrivals indicate possible lateral and vertical variation in lithology, presence of discontinuous localized boulders or block layers and reflect occurrence of local and discontinuous thin perched water aquifers, perhaps located within discontinuous porous strata above the continuously saturated zone.

The top of the continuously saturated zone (phreatic surface) is usually associated with the top of a layer having seismic velocity greater that 5,000 fps (Fig 33). The top of this zone may not be readily apparent if it occurs in high-velocity materials. The interpreted phreatic surface shown on seismic profile RS90-1 is nearly flat in the Water Well 1 area. Such a configuration may represent the base of the overlying aquitard layer, a piezometric surface for the confined aquifer, rather than a gradient within the underlying confined aquifer.

Such variations imply that the valley fill materials in the top layer become somewhat thinner northwestward; however, the overall slope is still to the west due to the decrease in elevation. Minor thinning of the top layer occurs near the perimeter of the valley. Similarly, the fresh bedrock interface seems to rise toward the valley perimeter and can be seen west of Landfill-2 (LF03)

The middle layer (8,500 fps) could contain water under saturated conditions, as the overall velocity is greater than that of water. However, no inference is made as to the depth or extent of any groundwater within this layer based on the available data.

8.2 GRANITOID COLLUVIUM

The granitoid colluvium is present as a surficial mantle covering the steep valley slopes of Nilumat Creek and the adjacent parts of the low-slope valley floor. This mantle is prism shaped mass, being thin near the ridge tops and thickening to perhaps several tens of feet at the base of the steep valley slopes. The maximum thickness is unknown but wells at Landfill-2 (LF03) penetrated up to 19.5 feet of this colluvium In the subsurface, colluvium, based on the four groundwater monitoring wells at Landfill-2 (LF03), consists of alternating layers of finer grained colluvium (coarse to fine sand, silt, minor clay) and large granitoid blocks. Two of the wells MW1 and MW2 at Landfill-2 (LF03) encountered two separate layers of granite blocks between finer grained colluvium, within a total depth less than 20 feet (Fig 23). Water Well 3 drilled approximately 76 feet of colluvium (Fig 5).

The composition of the granitoid colluvium consists of alternating areas and layers of large singular granitoid blocks (1 to 2 feet minimum dimension), and decomposed granitic debris (coarse to fine sand silt, and minor clay). At ground surface, distinct areas of each lithologic type (up to several acres or more in extent) are visible. Areas of angular granitic blocks alternate with areas of tundra which is rooted in the finer grained colluvial material. Downslope solifluction processes are clearly active on the valley slopes of Nilumat Creek. In some cases solifluction has resulted in movement of the finer grained colluvium and tundra downslope over the top of granitoid block areas. More commonly, solifluction lobes are seen on broad steeply-sloping surfaces as a series of linear welts, similar to ocean waves.

Structurally, the granitoid colluvium layers are oriented subparallel to the valley slopes and floor on which they are deposited. Thus, these layers are steep on the steep valley slopes of Nilumat Creek and gradually flatten to low dips where colluvium extends out over the margins of the low-sloping valley floor. This colluvial material probably interfingers, in the subsurface, with alluvial/glacial deposits underlying the central part of Nilumat Creek valley.

The steep-sided U-shaped valley, related to the former glaciers, provides the topographic relief conducive to the development of an extensive colluvial mantle. The subarctic climate provides conditions for weathering by frost action (freeze-thaw cycles) promoting physical disintegration of granitoid rocks into sand-size material, and active downslope gravity-driven processes, such as solifluction.

8.3 ALLUVIAL/GLACIAL DEPOSITS

These deposits are located within and underlying the central part of Nilumat Creek valley. Their presence is known mostly from geologic data of water Well 1. This well is located near the head of Nilumat Creek valley and upstream from Lower Camp. The geomorphic features in the central part of Nilumat Creek valley, broad to nearly flat surfaces devoid of granite blocks and stepped geometry of longitudinal stream profile, indicate presence of underlying alluvial and possibly glacial deposits. Also, the yield of Well 1, capable of 60 gallons per minute, (Feulner, 1966) indicates that the aquifer consists of a more uniform and better sorted material than observed in the granitoid colluvium.

The alluvial/glacial deposits based on Well 1, consist of at least 57 feet of gravelly clay with boulders and boulders with clay, overlying a lower unit of sand with boulders (Fig 35). The upper clay-rich and boulder-rich unit may be glacial till (in non-glacial deposits these two size range end members, clay and boulders, are normally found in separate units). The lower unit described as sand with boulders (43-57 feet) may possibly be alluvium or glacial outwash deposits possibly related to an advancing glacier that later overrode the outwash and deposited a glacial till It is likely that these deposits are confined to the central part of Nilumat Creek valley, dip generally downstream, and interfinger with the granitoid colluvium toward the valley margins. The central part of Nilumat Creek valley is located in a cirque, with nearly flat surface devoid of granite blocks and covered by glacial deposits underlying tundra.

Two open, unsealed wells (Well A/1S-2 and Well B/1S-1), in the central part of the creek, about 400 feet downstream from Well 1, most probably have penetrated part of the alluvial/glacial deposits. Information regarding these wells' histories and lithologies are described under section 10.3.

8.4 WEATHERED GRANITOID BEDROCK

Weathered granitoid bedrock, variable in thickness, overlies the fresh unweathered bedrock and underlies the surficial materials consisting of granitoid colluvium and alluvium/glacial deposits. Weathered bedrock is exposed as a narrow ridgetop of the cirque at upper reaches of the Nilumat Creek valley (at Upper Camp and White Alice sites) where abundant outcrops of granitoid bedrock containing distinctive joint sets are present. The weathered bedrock zone increases in thickness downslope, as does the overlying granitoid colluvium, and seems to attain maximum thickness under the surficial deposits of the valley floor. At Well 1, weathered bedrock is reported to be 43 feet thick at 57 to 100 feet depth Water Well 3 was completed within a 16 feet zone containing weathered bedrock and bedrock. Water Well 2 was completed within weathered granitoid bedrock

9.0 PERMAFROST

Permafrost is defined by the Glossary of Geology and Related Sciences (American Geological Institute) as "any soil, subsoil, or other surficial deposit, or even bedrock, occurring in arctic or subarctic regions at a variable depth beneath the Earth's surface in which a temperature below freezing has existed continuously for a long time (from two years to thousands of years)." This definition is based exclusively on temperature and disregards the texture, degree of compaction, water content, and lithologic permafrost is reported to underlie twenty percent of the world's land area.

Presence of certain ground surface features may indicate the presence and continuity of permafrost in a given area. Pingos, conical ice-cored hills, 65 to 1300 feet in diameter and 30 to 230 feet high, form when massive layers of ice develop near land surface in permafrost. Closed system pingos develop in a level, continuous permafrost areas generally north of the Arctic Circle when unfrozen groundwater migrates under pressure to a site, forcing the permafrost to dome upward, forming a large mound. Open system pingos are common to the discontinuous permafrost zone and are the smaller of the two. They are formed in sloping areas at the bases of hills due to the penetration of the permafrost by groundwater under high hydraulic pressure, which in concert with crystallization pressure, heaves the overlying materials to form a mound. Pingo distribution is shown in Figure 36.

Although groundwater in permafrost regions occurs according to the same geologic and hydrologic principles present in temperate areas, the hydrologic regime is modified in the following ways (Fig 37).

Permafrost acts as an impermeable barrier to the movement of groundwater because pore spaces are ice-filled in the zone of saturation. Recharge and discharge are therefore limited to the unfrozen channels penetrating the permafrost zone. The unfrozen channels are termed perforating taliks.

Permafrost acts as a barrier to downward percolation of water, thus increasing runoff, enhancing the creation of lakes and swamps (Feulner, et al, 1971). It also acts as a barrier to lateral movement and as a confining layer to sub-permafrost water. Confined sub-permafrost water usually has an equipotential surface within the permafrost zone, but locally, the static level may be above land surface (Williams, 1970).

Permafrost ranges in thickness from a few inches to more than 2,000 feet. Therefore, it restricts an aquifer's storage capacity and the number of locations from which groundwater may be withdrawn. It is commonly necessary to drill to greater depths than in similar geologic settings occurring in warm climates Sub-permafrost groundwater occurs beneath the permafrost zone and is usually dependable Supra-permafrost water occurs in the active zone, above the permafrost table and tends to be seasonal, it freezes solid during the cold winter months (Fig 36).

The groundwater temperature varies from 0 degrees to 4 5 degrees Celsius in permafrost regions (Williams, 1970). Because of the low ground temperatures, water tends to be more viscous in this temperature range and therefore moves more slowly than in temperate regions.

Permafrost zones tend to reduce evapotranspiration. The generally low ground temperatures tend to reduce direct evaporation and also transpiration be retarding the growth of vegetation locally. Vegetation growth is enhanced near large surface water bodies where permafrost is absent.

Ground temperatures create the necessary environment in which permafrost can form. Figure-37 compares the temperature isotherm of permafrost regions and temperate zones (Williams, 1970). The segment above the permafrost table is called the active zone because it freezes and thaws with each seasonal weather change. The permafrost zone remains constant. The active zone is significant because supra-permafrost groundwater exists in it.

Surface features may have dramatic impacts on the subsurface distribution of permafrost as they influence heat transfer. Heat flow through surface water is greater than through land. Permafrost may be discontinuous or absent near large bodies of water such as rivers or deep lakes. Smaller bodies of water may effect the configuration of the permafrost surface or the total thickness of the condition at any given point. Figure-38 is a generalized representation of the relationship of surface features to the underlying permafrost.

Permafrost has created a significant impact on the relationship of surface water and groundwater in Alaska. Alaska's generally cold climate regime has produced "Permafrost". Permafrost occurs in both unconsolidated sediments and bedrock and its distribution includes most of the state, except its Pacific Coastal area, where it is mapped as continuous, discontinuous, or absent (Fig 36). The occurrence of permafrost varies from thin, scattered zones in the central Alaskan lowlands to sections more than 2,132 feet thick near Prudhoe Bay (Selkregg, 1975).

Cape Romanzof is located in a section of western coastal Alaska where thin to moderately thick (up to 600 feet thick) permafrost zone may occur in predominately fine grained sediments (Ferrians, 1965). The nearest known permanently frozen ground is in the vicinity of Bethel on the lower Kuskokwim River At the site it may be non-existent or not be evident in rock formations where the moisture content is low. Seasonal frost penetrating surface soils would turn all surficial materials relatively impermeable until the next melt and thaw cycle Potential permafrost present at Cape Romanzof would be expected to impact surface soil permeability locally, especially during the winter. Permafrost may be generally absent from wells in cirques and protected hollows of Cape Romanzof (Williams, 1970). Fragments of ice were retrieved during bailing of wells MW-1, MW-2, MW-3, and MW-4, indicating some frozen groundwater in the wells' casings (Fig 23).

No permanently frozen ground was seen in the area, probably due to the warming influence of the adjacent Bering Sea. From information derived from previous construction, and water wells drilled in the area up to a depth of 162 feet in the glacial cirque, it is apparent that the permanently frozen ground exists in the area. Due to snow cover, seasonal frost penetration is not excessive. It varies from 4 feet at the Lower Camp areas to 6 feet at the White Alice site.

10.0 HYDROLOGY

10.1 SURFACE WATER RESOURCES

The surface waters of the state of Alaska have been classified in accordance with their present or potential utilization in order to maintain the highest quality standards possible. The classification system makes distinctions between inland and marine waters and further subdivides these broad categories. The classification system is detailed in Water Quality Standards (Alaska Department of Environmental Conservation, 1979). The classification of waters receiving discharge of runoff or effluent is as follows:

1. Fresh Waters
   a. Water supply
   b. Water recreation
   c Aquatic life and wildlife propagation

2. Marine Waters
   a. Water supply (aquaculture, seafood processing, etc.)
   b. Water recreation
   c. Aquatic life and wildlife propagation
   d. Consumptive harvesting of raw aquatic life

At Cape Romanzof, the receiving stream, Nilumat Creek, starting from its upper reaches near the Lower Camp area, flows westward and drains into Kokechik Bay. All of the freshwater streams in the area are classified for high quality as shown above in category 1a. The marine waters occurring adjacent to the coastal areas are assigned the high quality use classification in category 2a.

During the field activities the following three types of surface water flows were observed. All are present in the vicinity of Landfill-2 (LF03), (Fig. 23).

a. Continuous flowing drainages with well defined drainage courses.

For example, the eastern drainage (D1) which originated to the east of Landfill-2 (LF03) flowed continuously in a well defined channel, and descended to Nilumat Creek through a well defined small canyon through the steep slope adjacent to the Creek.

Near surface flowing water was seen at some points about 2 to 3 feet below the surface, and the flow was heard at many other places up the mountain slope.

b. Intermittently flowing stream drainages with poorly defined courses, some of which disappeared into the tundra just short of a downgradient junction with an established stream.

Such streams are found in areas disturbed by excavation or road embankments where flow was often fed by springs in the deeper parts of excavations For example, the western drainage (D2) originated from several springs located in the excavations east of Landfill-2 (LF03), became locally ponded and broken into several distributive courses in the disturbed area south of the landfill, then became reintegrated into a main floor that passed over the tundra surface without a defined channel, and finally disappeared into the tundra at the top of the steep slope adjacent to Nilumat Creek. The course of this drainage was dredged and moved south, away and around the periphery of the landfill, and was connected to Nilumat Creek.

Several active springs exist outside the northeastern periphery of the landfill indicating that ground water occurs at shallow depths beneath the tundra surface in these areas. Some have water gushing out of them indicating presence of shallow water table and hydrostatic head.

c. Engineered drainages which were dug to divert or drain waters.

At Landfill-2 (LF03), an engineered (man made) drainage along the north side of the road (Fig. 23) flows constantly during wet weather. However, during dry weather it flows sporadically. This cyclic pattern suggests that heat flow caused by surface water and above freezing temperatures thaws the active zone (suprapermafrost ground water above the permafrost table) of the mountain slopes, north of the road, and provides water for the drainage to flow from time to time. The permafrost acts as a barrier to downward percolation of the active zone water. The water in the drainage is therefore not considered to be connected to the potentiometric surface of springs and the streams to the south of the road in the Landfill-2 (LF03) area. Several springs at various levels up the mountain slope, north of the road, show such thawing.

10.2 GROUNDWATER RESOURCES

10.2.1 General

Alaska's groundwater resources are reported to be highly variable. The most productive groundwater sources are the unconsolidated alluvial aquifers of the flood plains, terraces, and fans in major river valleys and the glacial outwash aquifers underlying coastal basins and some coastal lowland areas. Aquifers in glacial and glaciolacustrine formations of the interior valley or in deltaic deposits tend to be poor water producers (Zenone and Anderson, 1978). Major bedrock aquifers are restricted to the carbonate rocks of the Brooks Range of Arctic Alaska and along the north side of the Alaska Range. Most bedrock aquifers of the uplands and mountain ranges exhibit poor hydraulic qualities and produce only small yields locally.

In general there are four geohydrologic environments of Alaska (Williams, 1970). They are: (1) Alluvium of floodplains, terraces, and fans in major valleys and in upland and mountain areas; (2) Coastal lowland deposits; (3) Glacial and glaciolacustrine deposits of the interior valleys; and (4) Bedrock aquifers of the uplands and mountain ranges (Fig 39)

10.2.2 Groundwater Recharge, Discharge and Movement

Precipitation is the primary source of groundwater recharge in Cape Romanzof. Most recharge occurs beneath the reaches of stream channels that lose flow to underlying aquifers. Recharge also occurs beneath lakes and summits and slopes of low hills.

Most discharge takes place from aquifers to gaining streams or other water bodies through permeable zones, faults, fractures, solution channels, etc. It is possible that taliks (unfrozen ground layers, between the seasonal frozen ground "active layer" and the permafrost or within/between the permafrost) extending partially or even completely through permafrost zones along river channels facilitate recharge and discharge in the permafrost zones.

Sub-permafrost water is normally fresh, indicating a surface source and circulation (Fig 37). The effect of permafrost in the discontinuous permafrost zones is not quite so pronounced (Fig 36). Permafrost thickness is normally much less than the total aquifer thickness. While the storage capacity of major alluvial aquifers may be reduced by the presence of permafrost conditions, the entire water bearing zone is not completely frozen. Therefore, water can usually be obtained from that portion of the aquifer above or beneath any existing permafrost zone. In coastal areas of Cape Romanzof region, brackish water may underlie any permafrost zones.

The discharge of groundwater in the Cape Romanzof area, indicated by presence of circular lakes or in winter, by icing caused by the successive freezing of thin water sheets formed by upward seeping of water from the ground, springs, etc. or earthen mounds or hummocks, without vegetation, (composed of earth with lots of burrows), is directed to Nilumat Creek via local streams.

10.2.3 Extent of Groundwater Resources at Cape Romanzof Site

Hydrogeologic data pertaining to Cape Romanzof were derived from geological, hydrological, geomorphological, and geophysical studies of the Nilumat Creek Valley. It includes data from seismic surveys within the cirque area at the Lower Camp; Water Wells 1, 2, and 3 (Fig 8); monitoring wells A and B (Fig 4); six monitoring wells WW-1, WW-2, WW-3, WW-4, WW-5, and WW-6 (Fig 17 and Appendix D) northeast of Wells A and B, four monitoring wells MW-1, MW-2, MW-3 and MW-4 at Landfill-2 (LF03) in the valley (Fig 23) and Appendix D.

At Cape Romanzof, most significant groundwater resources seem to be contained within the central part of Nilumat Creek Valley, in permeable unconsolidated alluvial and glacial deposits (sand and gravel) that underlie the valley floor of the upper part of Nilumat Creek, and fractured granitoid bedrock. Weathered granitoid bedrock may also provide groundwater if weathered products such as clay have been removed from the material by groundwater percolation, and a disaggregated mass called "grus" remains in place. In addition, small amounts of groundwater may be available from granitoid colluvium, particularly at its basal contact with in-place granitoid materials and weathered bedrock. Greater thickness of glacial deposits may be found downstream from Water Well 1 in the central part of the valley

Along the steep valley slopes the permeable glacial deposits are expected to be thinner, and may be truncated by the overlying clay-rich aquitard. The top of phreatic zone along the valley slopes may pass downward, below the glacial deposits, within the weathered zone of the bedrock, thus limiting the groundwater resources to water bearing zones within the weathered bedrock Minor amounts of groundwater may be present as local perched water, in glacial deposits, on the valley slopes, within the vadose zone as seen at wells A and B (Fig 4).

Well yields in granitoid terrains may range from less than 10 gpm to 90+ gpm (Le Grand, 1954). Such yields are limited to fractured granitoid rocks with fracture permeability. The fracture permeability zone is limited to a surficial zone within tens of feet of ground surface. Well yields in granitoid terrains have been found to vary with topography. Higher yields are found in valleys and lower yields are found along slopes of valleys, on hills, or ridges.

10.2.4 Groundwater Aquifer - Composition and Boundary

The aquifer data for Cape Romanzof Area are available from Water Well 1, the deepest well in Nilumat Creek Valley, where the aquifer, from top to bottom, consists of the following deposits:

a. 14 feet of glacial deposits including an upper 3-foot thick water bearing sand

b. 93 feet of weathered granitoid bedrock, containing two water bearing zones

c. One central 20-foot zone and one lower 2-foot zone

d. An unknown thickness of granitoid bedrock with likely groundwater in fractures

The glacial deposits are likely to be thickest in the central part of Nilumat Creek Valley, where they probably occur as old stream channel deposits. These deposits become thinner and may be locally absent toward the valley sides, valley's headwaters, and cirque's head. Similarly, the weathered bedrock and its internal water bearing zones are likely to be thickest in the central part of the valley.

The aquifer encountered in Water Well 1 seems to be present beneath an upper confining aquitard zone across most of the Nilumat Creek Valley (Fig 34). The top of the aquifer is approximately 42 to 78 feet below the ground surface and the base of the aquifer is probably located somewhere below 150 feet depth within granitoid bedrock (Fig 34). The lateral extent of the aquifer is defined by the steep bedrock sidewalls of Nilumat Creek Valley and its cirque.

10.2.5 Groundwater in Granitoid Colluvium

Groundwater occurs within granitoid colluvium at all locations where wells penetrate this material. This colluvial mantle provides the main pathway for transport of precipitation from the ridge tops and valley sides to the alluvial/glacial deposits located in the central part of the flat valley floor. At Landfill-2 (LF03), groundwater was found in four wells in colluvium under water table (unconfined) conditions Groundwater occurred in wells at shallow depths (5-8 feet) beneath the ground surface and beneath the landfill material. Permeability is irregular within the granitoid colluvium, as indicated by variation in recharge times noted during several rains. Springs representing water table are present on the eastern periphery of the Landfill-2 (LF03)

10.2.6 Groundwater in Alluvial/Glacial Deposits

Groundwater is present within alluvial/glacial deposits in Water Well 1 which is located near the head of the Nilumat Creek valley and upstream from Lower Camp. The wells capability of yielding 60 gallons per minute indicates that the aquifer consists of a more uniform and better sorted material than observed in the granitoid colluvium (Feulner, 1966).

Two thin water bearing units were identified at 30 to 34 feet depths interval (gravelly clay) and at 43 to 46 feet depths interval (granite sand). The 3 feet thick sand zone reportedly produced 12 to 15 gallons per minute during a test (bailer test) conducted while drilling. As the casing across this zone was not perforated, its long term producing capability is not known (US Geological Survey Water Resources Division, unpublished file data, Anchorage, Alaska).

Groundwater aquifers are probably the sand/boulder lower unit between 43-57 feet depth and the underlying weathered granite bedrock. The upper clay-rich unit (0-43 feet depth) probably constitutes an aquitard. It was noted that static water level at Well 1 was at 29 feet depth, or within the aquitard and 14 feet above the top of the probable aquifer. This static water level represents a piezometric level, and thus groundwater exists in the sand/boulder aquifer under confined conditions.

10.2.7 Groundwater in Weathered Granitoid Bedrock

Water Well 1 was drilled and cased to a depth of 98 feet Presumably, the screened interval in this casing extended to 98 feet including most of 43 feet thickness of weathered bedrock shown in geologic log between 57 to 100 feet depth interval. It is likely that some of the potential 60 gallon per minute yield from this well comes from the weathered bedrock zone. Groundwater present in this zone probably migrated downslope from the ridges above Nilumat Creek valley, granitiod colluvium, alluvial/ glacial and other surficial deposits into the weathered bedrock zone.

10.3 WELLS IN NILUMAT CREEK VALLEY

Three water wells (Water Wells 1, 2, and 3); two groundwater monitoring wells (A and B) north of the Water Well 1; four groundwater monitoring wells MW-1, MW-2, MW-3, and MW-4 at Landfill-2 site; and six groundwater monitoring wells (WW-1, WW-2, WW-3, WW-4, WW-5, and WW-6) northeast of wells A and B in the central part of Nilumat Creek valley's cirque area, were drilled in the valley at Cape Romanzof site.

10.3.1 Water Well 1

Water Well 1 was drilled in Aug/Sep 57, near the Lower Camp, to a depth of 154 feet within the weathered granitoid bedrock (Fig 31) The well located on the nearly flat valley floor of Nilumat Creek, in the cirque area, penetrated alluvial and glacial deposits consisting of an upper unit of "gravelly clay with boulders", 43 feet thick, overlying a lower unit of "sand and boulders", 14 feet thick, (Fig 40).

The well is located in a wood frame pumphouse about half way out of the water line utilidor from the power house to the water storage reservoir dam (Huson dam) intake which is no longer used. The well is fed underground from the lake behind the dam and its use allows some filtration through the natural ground materials and eliminates some sources of surface contamination.

The drilling was completed in two attempts. During the first attempt in Jul 57, the well was abandoned within the weathered bedrock zone at 71 feet depth. During the second attempt in Aug/Sep 57, the well was drilled deeper and on 18 Sep 57, reached a total depth of 154 feet into "fresh" granitoid rock. Extreme difficulties were experienced while drilling within the weathered bedrock zone Dynamite blasting was necessary locally to advance the hole.

The well was drilled using driven casing. An 8-inch casing extends from surface to 98-feet, and a 6-inch casing extends from 98 to 154 feet. Water bearing zones were identified in both the weathered bedrock and the overlying glacial deposits during drilling. The casing perforations were made at two separate water bearing zones at 82 to 102 feet depths (20 feet thick zone) and at 146 to 148 feet depth (2 feet thick zone), in weathered bedrock (Fig 40). No data are available from glacial deposits as no screen or perforations were placed across this zone.

After well completion, a pumping test conducted for 25-1/2 hours, during 23 through 24 Sep 57, produced 100,000 gallons of water. The test in the 20 foot water bearing zone (80-100 feet depth) achieved a varied pumping rates from 60 to 67 gallons per minute, with an accompanying drawdown of 18 to 24 inches. The water level recovered to within 0.5 foot of the original level in 1 minute soon after the test (US Geological Survey Water Resources Division, unpublished file data, Anchorage, Alaska). A submersible 3 horsepower 3450 RPM pump was installed having a capacity of 30 gpm pumping to the upper storage tank room at 60% efficiency.

The water bearing glacial deposits (43-46 feet interval) were tested during drilling. The 3-feet zone produced 12-15 gallons per minute, or about two-third of the 60 gpm produced from a similar test of the 20-foot zone in the weathered bedrock (Fig 40). This suggests that significant additional water production could have been obtained from this glacial deposit unit, had this interval been perforated.

Static water level was found at 30-foot depth (when boring depth was 97 feet) and at 29-foot depth (when boring depth was 110 feet) during drilling, suggesting that it occurs under artesian (confined) pressure. The upper, mostly clayey materials above 43 feet depth are acting as an aquitard which provides confining conditions within the underlying aquifer. Confining conditions in the well are shown by the piezometric level at 24 feet depth, which is 19 feet above the top of the aquifer During drilling, the thin water-bearing sand between -43 to -46 feet depth interval reportedly produced 12-15 gpm.

The interpreted phreatic surface shown on seismic refraction profile RS90-1 is nearly flat in the area (Fig 33), representing the base of the overlying aquitard layer rather than a gradient within the underlying confined aquifer Water samples were analyzed and water levels were recorded (Table 31).

10.3.2 Water Well 2

Water Well 2 was drilled from 25 Oct to 17 Nov 62 by F and M Branch, close to the weather station above the airstrip on the south valley slope, to serve only the Weather Station Building (Fig 41), (US Army Corps of Engineers, 1963). The surficial soil is native materials with a pad of fill material for the weather station building. Location of this well was not found. The area around the weather station building has been extensively reworked and it is believed that the well may have been buried or destroyed.

The well was drilled to a depth of 96 feet, within a zone containing both granitoid colluvium or weathered granitoid bedrock. The well was completed with a 6-inch diameter, 20-slot, 5.5-foot long screen which was set within weathered bedrock at the contact with "fresh" granitoid bedrock at 95.5 feet depth (Fig 42)

A 4-day pumping test (Table 32), conducted in 1962, achieved pumping rates ranging from an initial 14.5 gpm to a minimum of 2 gpm. On 27 Nov 62, the last day of testing, the well was developed by surging and bailing for 2 hours and 10 minutes, achieving a pumping rate (apparent yield) of 3 gpm with an accompanying drawdown of 9 feet to a level of 90-foot depth (the top of screen), (US Army Corps of Engineers, 1963).

Prior to the 4-day pumping test static water level was found to be 9 feet above the top of the screen at 82 feet depth. Later on, at some unknown time after this test period, static water level was found to be 4 feet above the top of the screen at 86.1 feet depth.

The well reportedly became contaminated with POL products in 1964 (Feulner, 1966) In late 1965, efforts to purify the water for continued use utilizing a charcoal filtration device were not successful (Feulner, 1966).

10.3.3 Water Well 3

Water Well 3, located approximately 200 feet northeast of the weather station building, was completed in 1972 (US Army Corps of Engineers, unpublished file data, Anchorage, Alaska), (Fig 41).

The well was apparently drilled to a total depth of 92 feet containing both granitoid colluvium or weathered bedrock and bedrock and was completed within granitoid bedrock The only water bearing zone was reportedly confined to a 1/2 foot thick layer at the contact between bedrock and overlying material (colluvium or weathered bedrock) at 77 feet depth. The well is equipped with 6 inch diameter casing to a depth of 76 feet (one foot above this material) and a 16-foot open hole from 76 to total depth at 92 feet (Fig 42). The well house is 75 inches square at the base and stands 98 inches tall. It is of wood construction resting on an 8-inch slab of concrete. The well head is cased in 36-inch diameter section of galvanized culvert

During a pumping test of unknown duration in 1972, a pumping rate of 5 gallons per minute (apparent yield) was achieved with an accompanying drawdown of 15 feet (to 1-foot above the casing) (US Army Corps of Engineers, unpublished file data, Anchorage, Alaska).

In 1972, before the test, the static water level was at 60 feet below ground surface. On 9 Aug 90, prior to a pumping test, static water level in the well was found to be at 65.8 feet depth i.e. 16 feet above the base of casing In Jun 93 the static water level was found to be at 65 feet. Water samples were analyzed and water levels were recorded (Table 31).

In 1990, the well was opened and sampled by WCC. The well was purged of three casing volumes with a 3-inch submersible pump and a sample was collected using a decontaminated Teflon bailer. The sample was analyzed for TPH and aromatic volatile organics. Therefore, the source of minor contamination into the well is uncertain. The well is uphill from and up groundwater gradient from any visible sources of contamination. Presently, use of groundwater from this well is reportedly confined to non-drinking purposes at the weather station building.

10.3.4 Wells A and B

These wells were drilled before the Sep 57 testing of Water Well 1 by US Geological Survey-Water Resources Division in Anchorage (Fig 31). Very little information regarding these wells is available.

The wells' site is underlain by alluvial and glacial deposits similar to those penetrated in Water Well 1 located about 300 feet to the southeast. Based on the available geologic and hydrogeologic data, gamma log for wells A and B (Fig 43) and the geophysical surveys conducted in 1990 (Fig 33 and 34), it is concluded that the top of the phreatic zone occurs at approximately 60 feet (+/- 18 feet) below ground surface. Wells A and B represent perched water conditions within the upper aquitard zone, whereas Water Well 1 represent water conditions in the underlying confined aquifer. The aquitard zone in Wells A and B is composed of lenticular and laterally discontinuous bodies of permeable material (sand/gravel) enclosed within relatively impermeable materials (clay, bouldery clay) under complex lithological conditions, as are typical in continental glacial deposits, causing lack of correlation between the thin sandy water-bearing zone in Water Well 1 (-43 to -46 feet interval) and the thicker interpreted permeable zone in Well A (-20 to -36 feet interval), (Fig 44).

Wells A and B seem to be located within the clay-rich upper aquitard zone. Water levels in these wells were found at 22 and 21 feet depths within the one identified permeable zone (Fig 44). These water levels are near but below the top contact of this zone, representing perched water conditions within the permeable zone overlain and underlain by aquitard material, whereas, the deeper Water Well 1 represents conditions in the underlying confined aquifer. Therefore, the perched water levels in wells A and B can not be correlated with the confined aquifer of Water Well 1. On the basis of all the available data the general direction of groundwater flow is northwestward, from Water Well 1 to wells A and B, following the topographic gradient of Nilumat Creek Valley Water samples were analyzed and water levels were recorded (Table 31).

The gamma log plots of wells A and B indicate presence of a zone, having higher permeability than the overlying and underlying aquitard layers, between 20 and 36 feet depth interval (Fig 43).

10.3.5 Wells MW-1, MW-2, MW-3 and MW-4

The four 4-inch monitoring wells were installed and sampled in 1989 by WCC: two wells (MW-1 and MW-2) on the north, upgradient side of the Landfill-2 (LF03), along the road and two wells (MW-3 and MW-4) are located downgradient of the landfill. Well MW-3 is located within the southwestern margin and MW-4 is located within the southeastern margin of the Landfill (Fig 23). The wells were completed at total depths between 10 and 19.3 feet below ground surface. Groundwater levels measured at various times were recorded and water samples were analyzed (Fig 23) (Table 26).

All the wells were drilled in granitoid colluvium, identified as alternating layers of large granitoid blocks (1-2 feet vertical dimension) and zones of fine grained well-graded granular material composed of sand and silt with a trace of clay. Large granitoid blocks were encountered at 8.5 and 14 feet depth in MW-1, at 5 and 13 feet depth at MW-2, at 7.5 feet depth in MW-3, and at 10 feet depth in MW-4.

The wells were inspected in 1990. Fragments of ice were retrieved during bailing, indicating some frozen groundwater in the wells' casings. Less than 3 inches of water was present in MW-3 casing at 9.75 feet. The exposed part of the MW-3 casing was found to be deformed and tilted in an upslope direction rather than being vertical as installed in 1989. This condition indicates the lower part of the casing had rotated and/or the upper part had moved downslope, possibly due to shifting of a boulder previously drilled through under the action of frost heave processes.

In 1994, 611 CES under Work Order 94004 recorded water levels in the four wells, and extracted casings from and plugged and abandoned wells MW-3 and MW-4. The casings were pulled with an excavator while simultaneously pumping bentonite grout into the void left by the casings. A 2-inch tremmie pipe attached to the grout pump was used. MW-3 and MW-4 wells consumed 13 bags and 2 bags respectively of 50 lb grout. A total of 16 feet and 10 inches casing and screen (7-foot 6 inch section casing and 9-foot 4-inch section of screen) were recovered from the MW-3 well. A total of 12 feet and 5 inches casing and screen (6-foot 2 inch section casing and 6-foot 4-inch section of screen) were recovered from the MW-3 well.

10.3.6 Wells WW-1, WW-2, WW-3, WW-4, WW-5, and WW-6

Six monitoring wells (WW-1 through WW-6) were drilled by ENSR Consulting and Engineering (ENSR, 1993), to assess the quality of groundwater in the area (Fig 17) The details of the wells' construction are shown in Figure 45 and Table 33. The monitoring wells were sounded and purged immediately prior to groundwater sampling. Rapid and significant fluctuations in groundwater levels were noted, as new wells were drilled, due to possible recharge from frequent intermittent rainfall. Attempts were made to collect soil samples from the well borings at -2.5, -5.0, -7.5, -10.0, -15.0, and -20.0 foot depths and at approximately 10-foot depth intervals below 20 feet. In some cases, drilling conditions prevented collection of well samples at the specified depths. Individual well logs with description are shown in Appendix D.

10.4 WATER UTILIZATION

Operations at Cape Romanzof started in 1953 (ES, 1985). Water requirements until 1958 were met by a surface water reservoir, presumably the lake behind Huson Dam (Fig 8), (Feulner (1960, 1962). During 1955 through 1957 water consumption from the lake ranged from 162,000 to 849,000 gallons per month. From 1958 to 1965 monthly water consumption, using mostly Water Well 1, ranged from 241,000 to 1.2 million gallons (Feulner, 1960, 1962, 1966). The higher consumption rates occurred during Jul through Sep summer months, when weather conditions allowed field operations Water consumption in 1990 was 38,000 to 174,000 gallons per month. During 1994, water consumption was 15,00 to 30,000 gallons per month depending on the number of people staying at the site.

At present all water needs for the site are met by Well 1. Water Well 1 is pumped only intermittently once every several days to fill a storage reservoir adjacent to the Industrial Dome.

11.0 RECOMMENDATIONS

1. The additional contaminated soil at Drum Storage Area (SS14), adjoining north of excavated area, should be excavated and removed. The volume of contaminated soil is estimated to be 2,022 cubic yards (Fig 20).

2. The contaminated soil at POL Fill Stand site (ST09) should be excavated and removed. The volume of the contaminated soil is estimated to be 955 cubic yards (Fig 21).

3. Cell 2 located near the Beaver Pond should be used for containment of the contaminated soil from the above mentioned two sites.

4. Spill/Leak 5 (SS13), a major spill near Lower Camp, requires investigation and delineation (Fig 31). The contaminated soil should be excavated and removed A new cell should be built near Cell 3 to contain the excavated soil.

5. Long term monitoring at Landfill-2 (LF03) to monitor for leachate through the landfill.

6. All the cells should be converted into biotreatment systems.

12.0 REFERENCES

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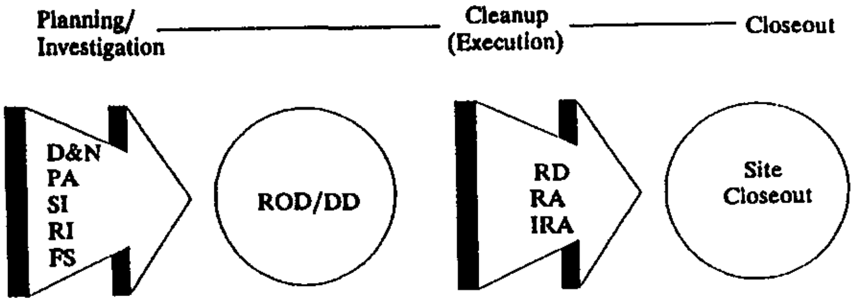
FIGURES



DISCOVERY AND NOTIFICATION (D & N)
The D & N procedures initiate the IRP for the site The D & N step characterizes past releases according to information obtained during record searches and reports hazardous waste releases in excess of reportable quantities to the National Response Center, the governor of the state, and the EPA region.

PRELIMINARY ASSESSMENT/SITE INSPECTION (PA/SI)
The PA is the initial evaluation of existing information. The PA describes the source and nature of releases, threats to public health and welfare or the environment, and recommends subsequent steps for the IRP process.

The SI satisfies data requirements for revised HRS scoring that are not met in the PA step, characterizes any releases for effective initiation of the Remedial Investigation/Feasibility Study (RI/FS), and determines the next appropriate step The SI provides the first opportunity to generate more detailed site characterization data by collecting and analyzing samples

REMEDIAL INVESTIGATION (RI)
The RI determines the nature and extent of the contamination and the nature and extent of any threat to human health and the environment. The RI requires a comprehensive sampling and analysis plan to support decisions about site, waste characteristics, potential hazards, and applicable treatment options.

FEASIBILITY STUDIES (FS)
During the FS step, potential remedial alternatives to address any threats to human health and the environment are developed and evaluated. Treatability studies can be performed and other activities include selecting a cost-effective remedial action alternative to mitigate the threat.

RECORD OF DECISION OR DECISION DOCUMENT (ROD/DD)
After review by appropriate regulators, the remedial alternative proposed during the FS is revised as needed and documented in a ROD for NPL-site remediation or in a similarly formatted DD for non-NPL sites, interim operable units, or NPL-site removals RODs and DDs are submitted to the Installation Commander for approval and signature, and to higher authority as required.

EXECUTION STAGES OF IRP (Post-DD/ROD)

REMEDIAL DESIGN (RD)
The RD stage begins after the optimum remedial design alternative has been selected and documented in the ROD The RD includes establishing information requirements, obtaining design information form the base, and discussing the design concept with a contractor A construction cost estimate, Quality Assurance Project Plan, and other plans for the subsequent RA usually accompany the final design plans and specifications. A Remedial Design Fact Sheet also must be made available

REMEDIAL ACTION (RA)
The RA is the implementation of the cleanup design and includes competitive bidding, contract award, construction oversight, and evaluation of contractor performance A site is "finished" or "complete" when the remedial treatment system is constructed and fully operational.

POST-PROJECT ACTIVITIES
PPA include ongoing treatment and cleanup operations after site remediation is complete

SITE CLOSE-OUT
Close-out refers to a point in the IRP process when the regulating authority no longer considers a site to be a threat to human health or the environment A site can be closed out at any point during the remedial investigation, characterization, monitoring, or treatment process A document specific to the governing regulations must be prepared (ROD for NPL or DD for non-NPL sites) Regulatory concurrence must be obtained for NPL sites.

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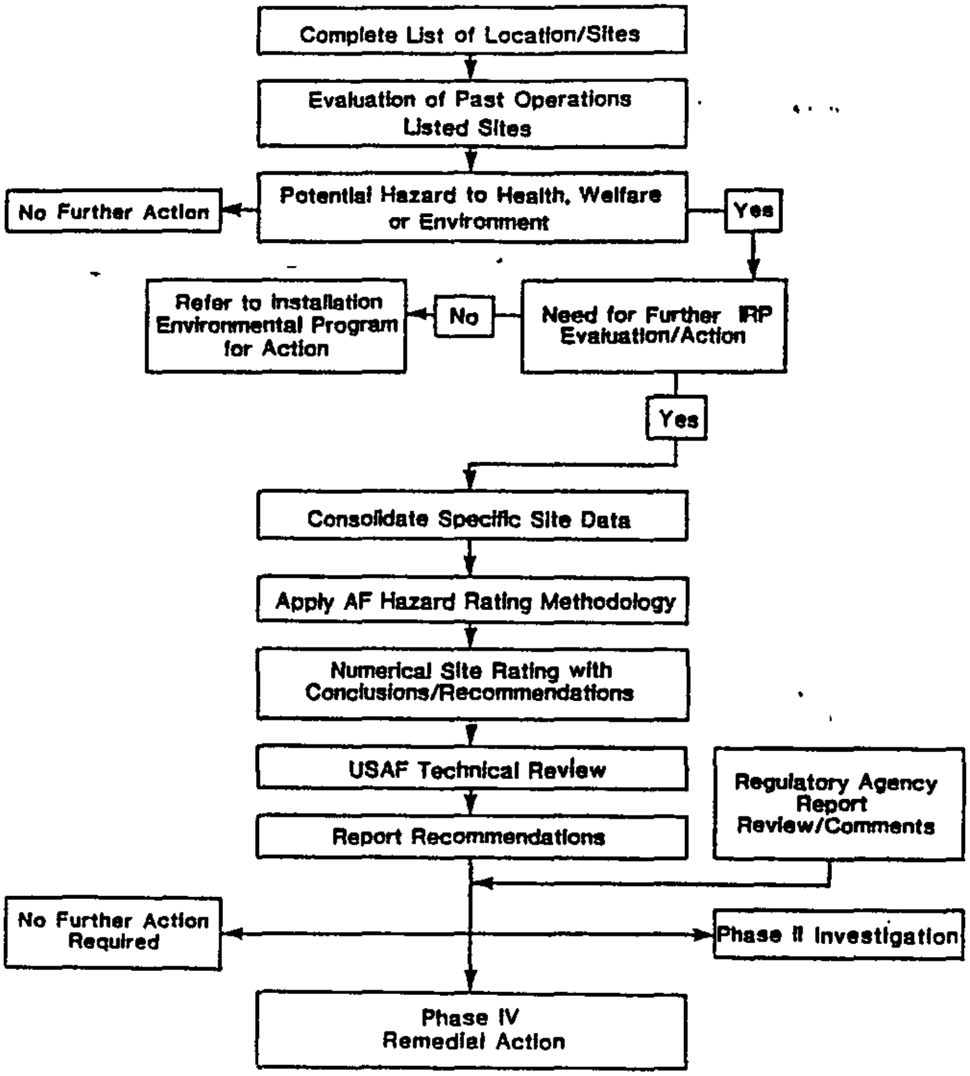
611 CIVIL ENGINEER SQUADRON
OPERATING ENGINEERS

CAPE ROMANZOF LRRS
U.S. AIR FORCE
INSTALLATION RESTORATION
PROGRAM

S SIRTAJuddin AHMED	Nov 1994	Figure - 1



Source: AFESC

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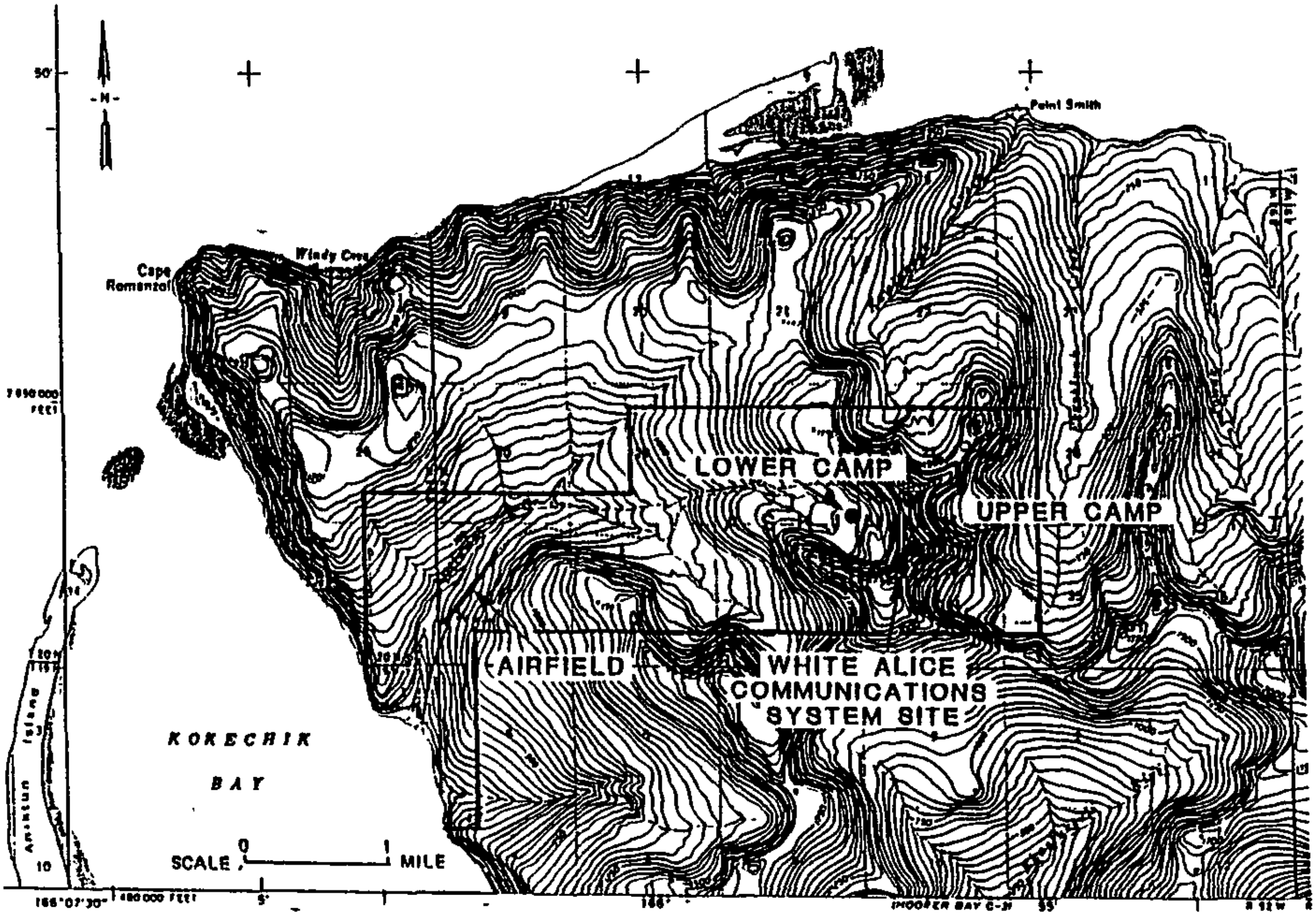
OPERATING ENGINEERS

CAPE ROMANZOF LRRS
PHASE I INSTALLATION RESTORATION PROGRAM
RECORDS SEARCH FLOW CHART

S SIRTAJuddin AHMED	Nov 1994	Figure – 2



Source: USGS Topographic Maps 1;63,360 Series Hooper Bay D-3, Alaska, 1953 and Installation Documents.

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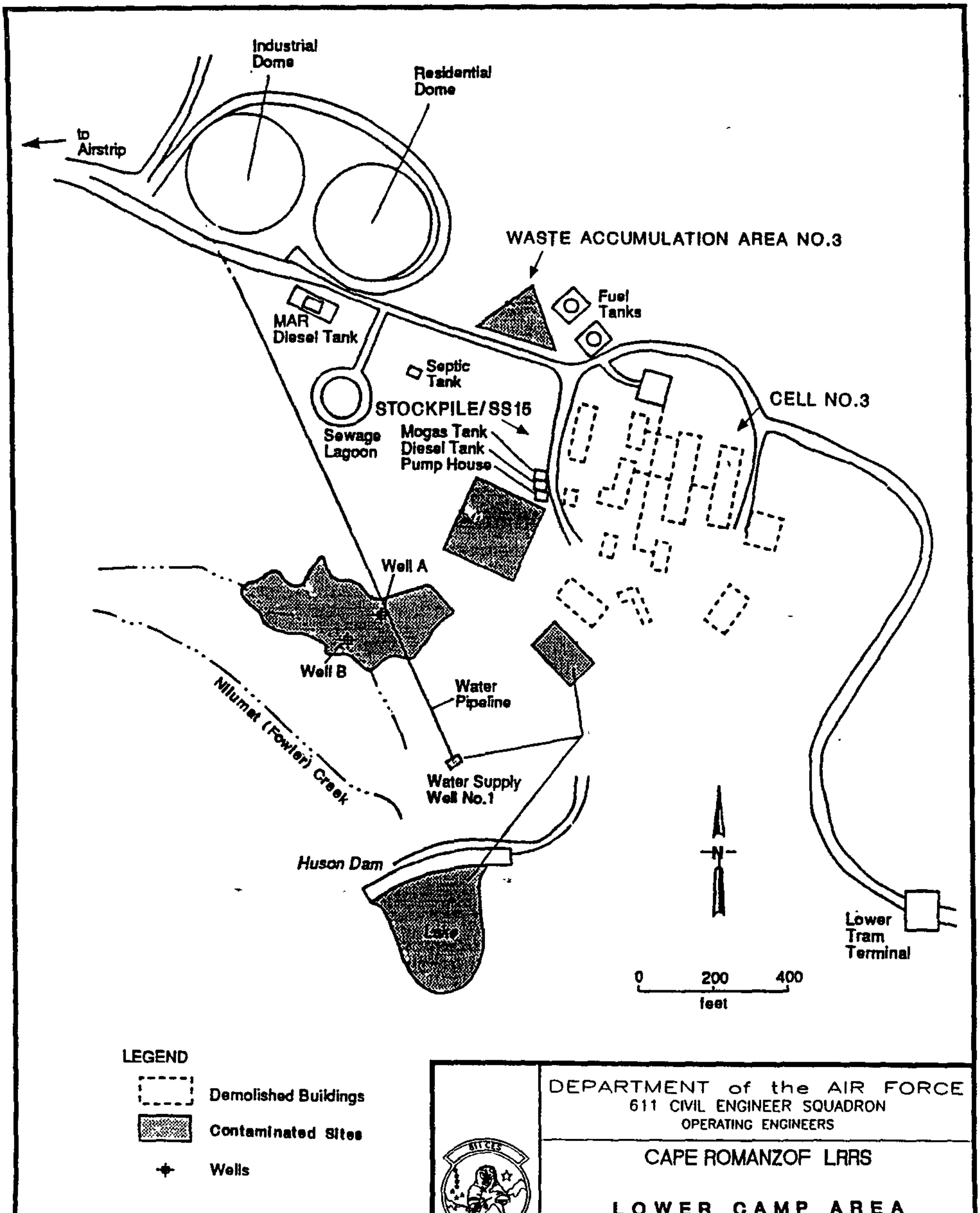
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

AREA LOCATION

S SIRTAJuddin AHMED	Nov 1994	Figure – 3



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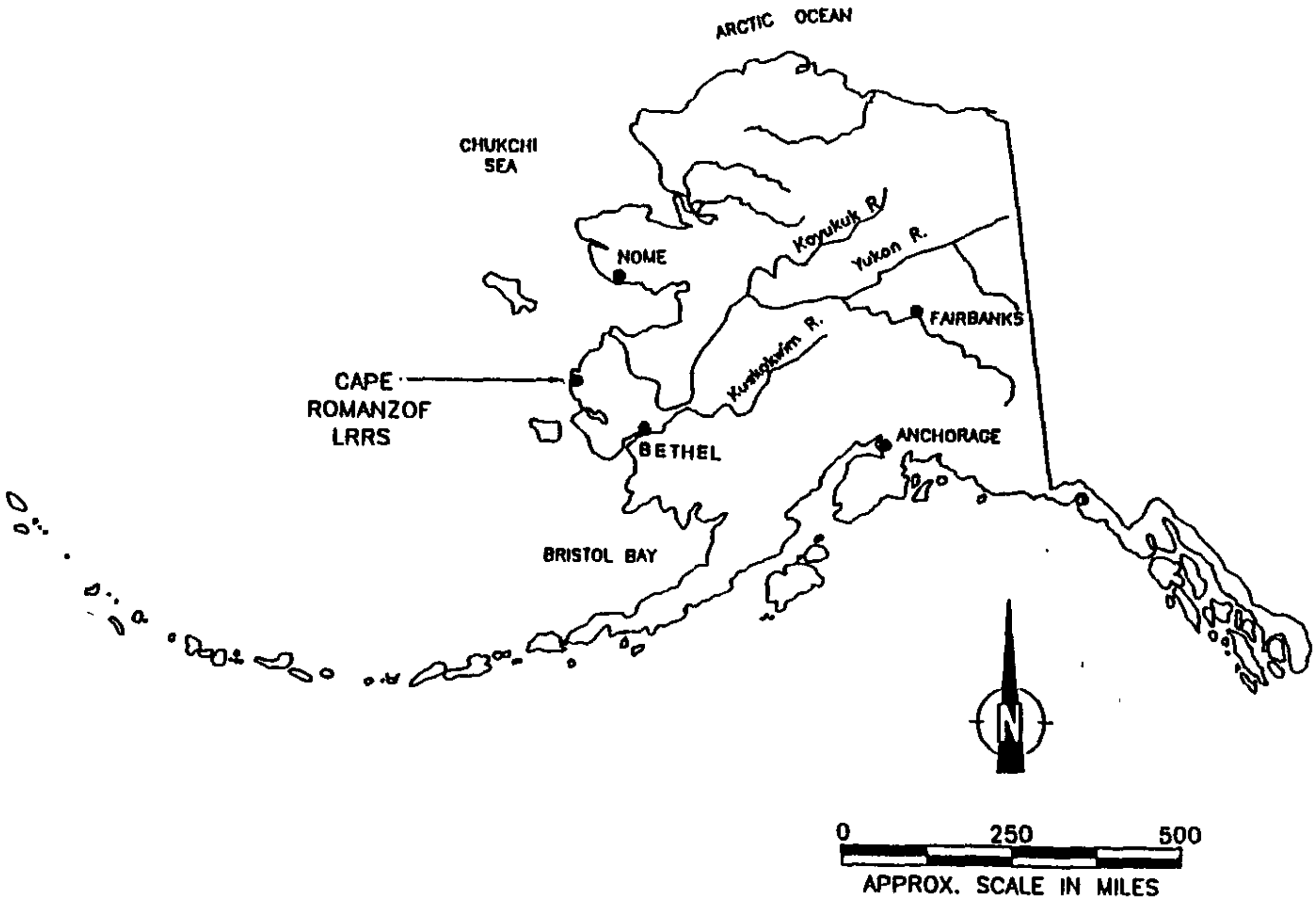
CAPE ROMANZOF LRRS

LOWER CAMP AREA

S SIRTAJuddin AHMED	Nov 1994	Figure – 4



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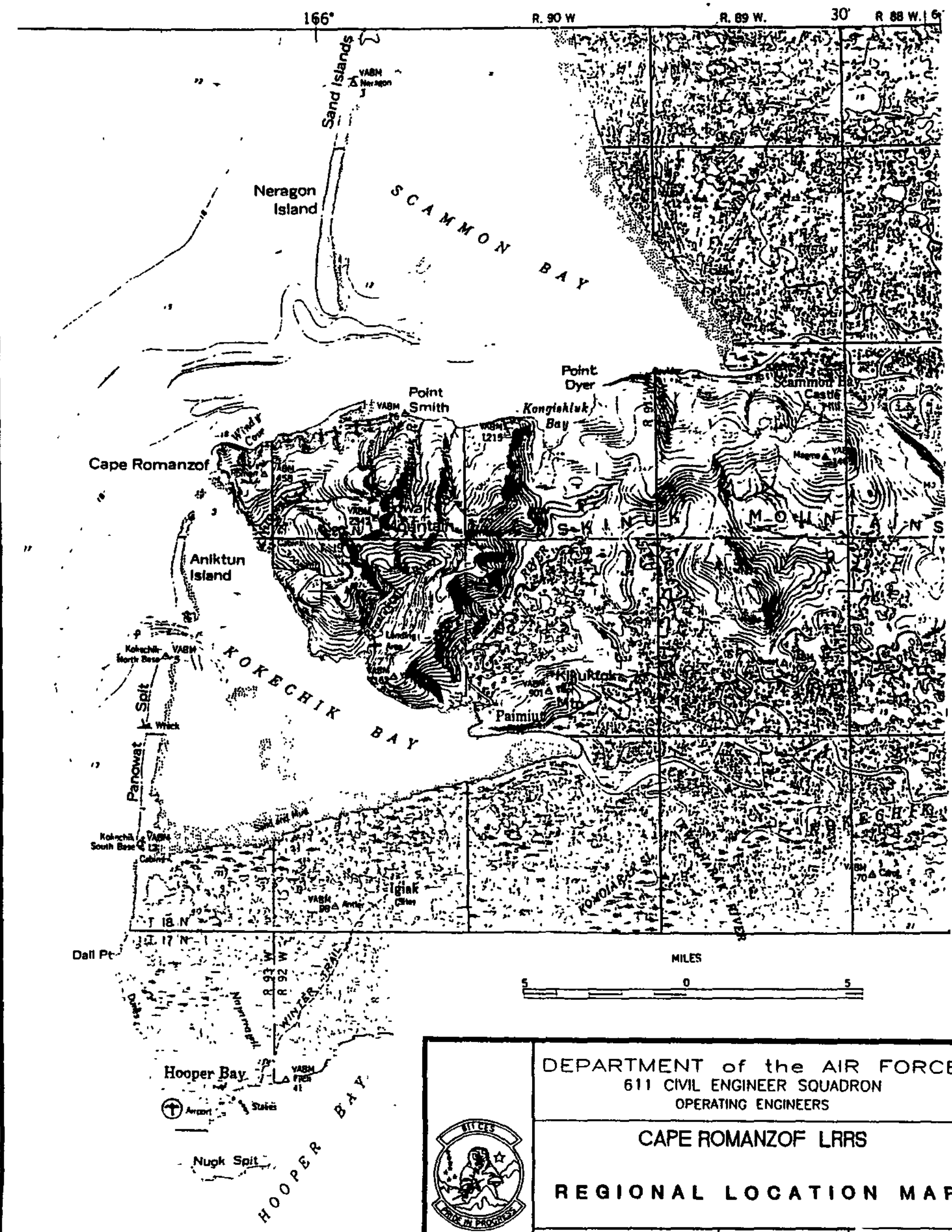
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

MAP OF ALASKA

S. SIRTAJuddin AHMED	Nov 1994	Figure – 5



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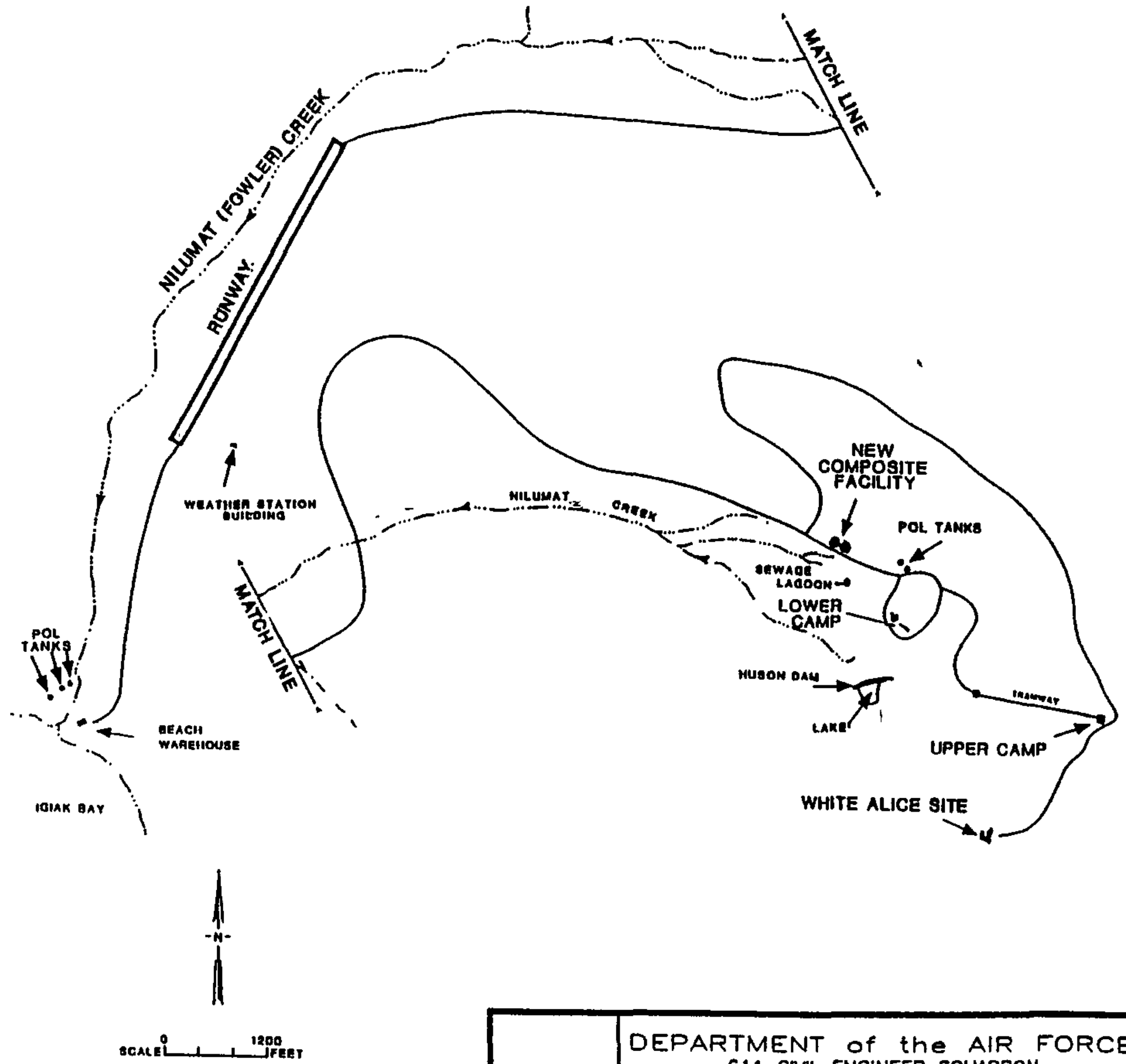
611 CES
PRIDE IN PROGRESS

CAPE ROMANZOF LRRS

REGIONAL LOCATION MAP

S SIRTAJuddin AHMED	Nov 1994	Figure – 6

U S GEOLOGICAL SURVEY



NOTE: THE INSTALLATION BOUNDARY IS SEVERAL THOUSAND FEET BEYOND THE FACILITIES SHOWN

SOURCE: INSTALLATION DOCUMENTS

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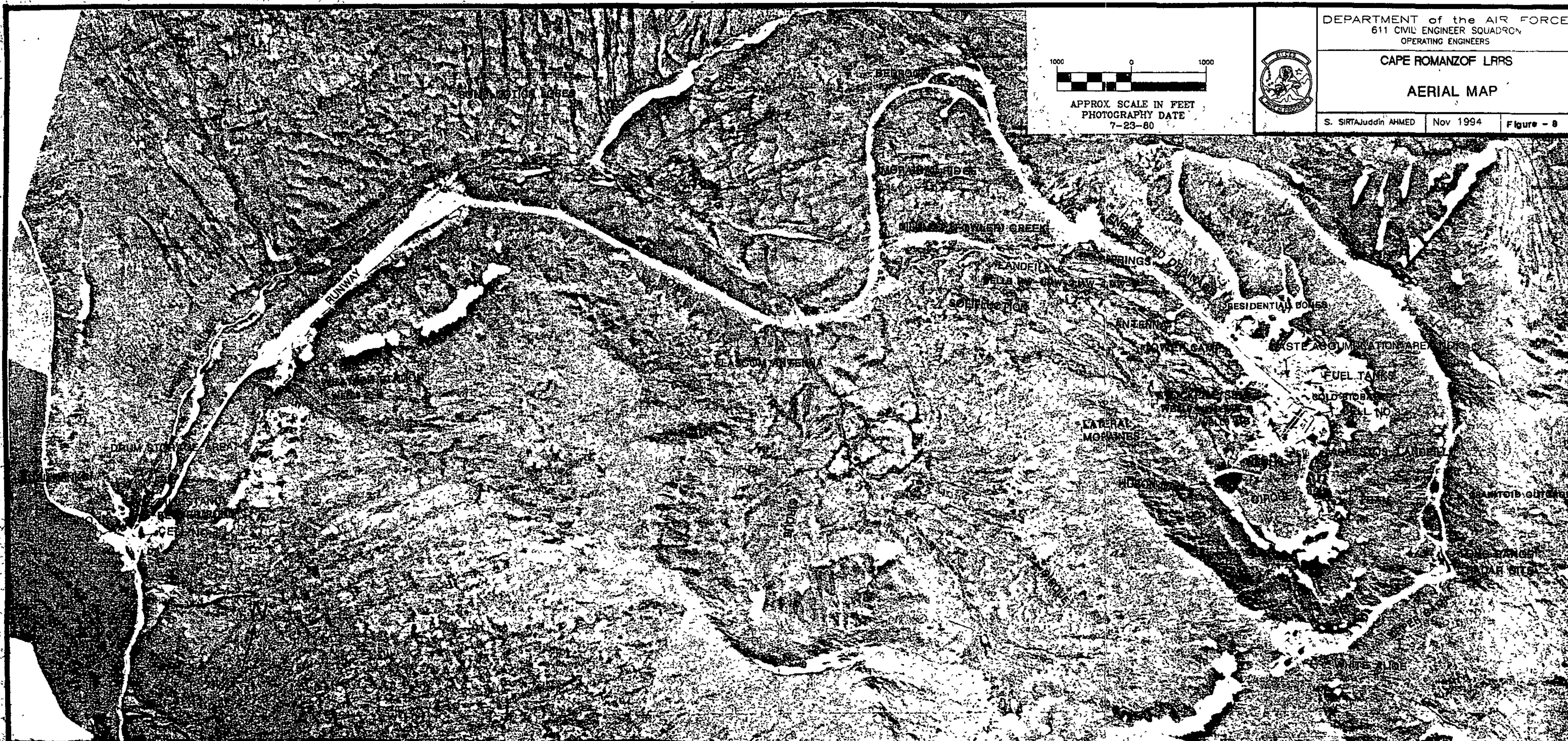
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

INSTALLATION SITE

S. SIRTAJuddin AHMED	Nov 1994	Figure – 7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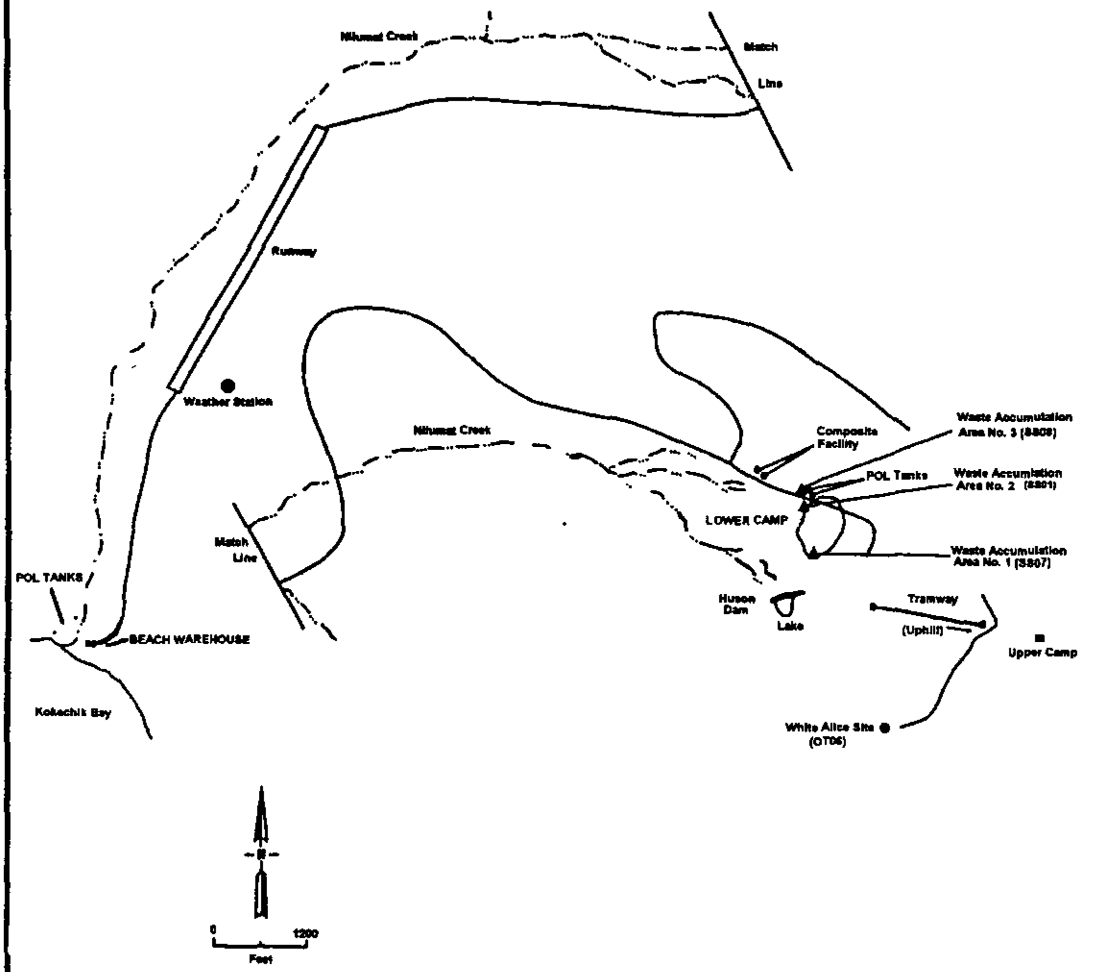
OPERATING ENGINEERS
CAPE ROMANZOF LRRS
AERIAL MAP
S. SIRTAJuddin AHMED
Nov 1994
Figure - 8
1000
0
1000
APPROX SCALE IN FEET
PHOTOGRAPHY DATE
7-23-80
RUNWAY
LANDFILL
SPRINGS
ANTENNA
FUEL TANKS
LATERAL MORAINES



Note: THE INSTALLATION BOUNDARY IS SEVERAL THOUSAND FEET BEYOND THE FACILITIES SHOWN

SOURCE: INSTALLATION DOCUMENTS

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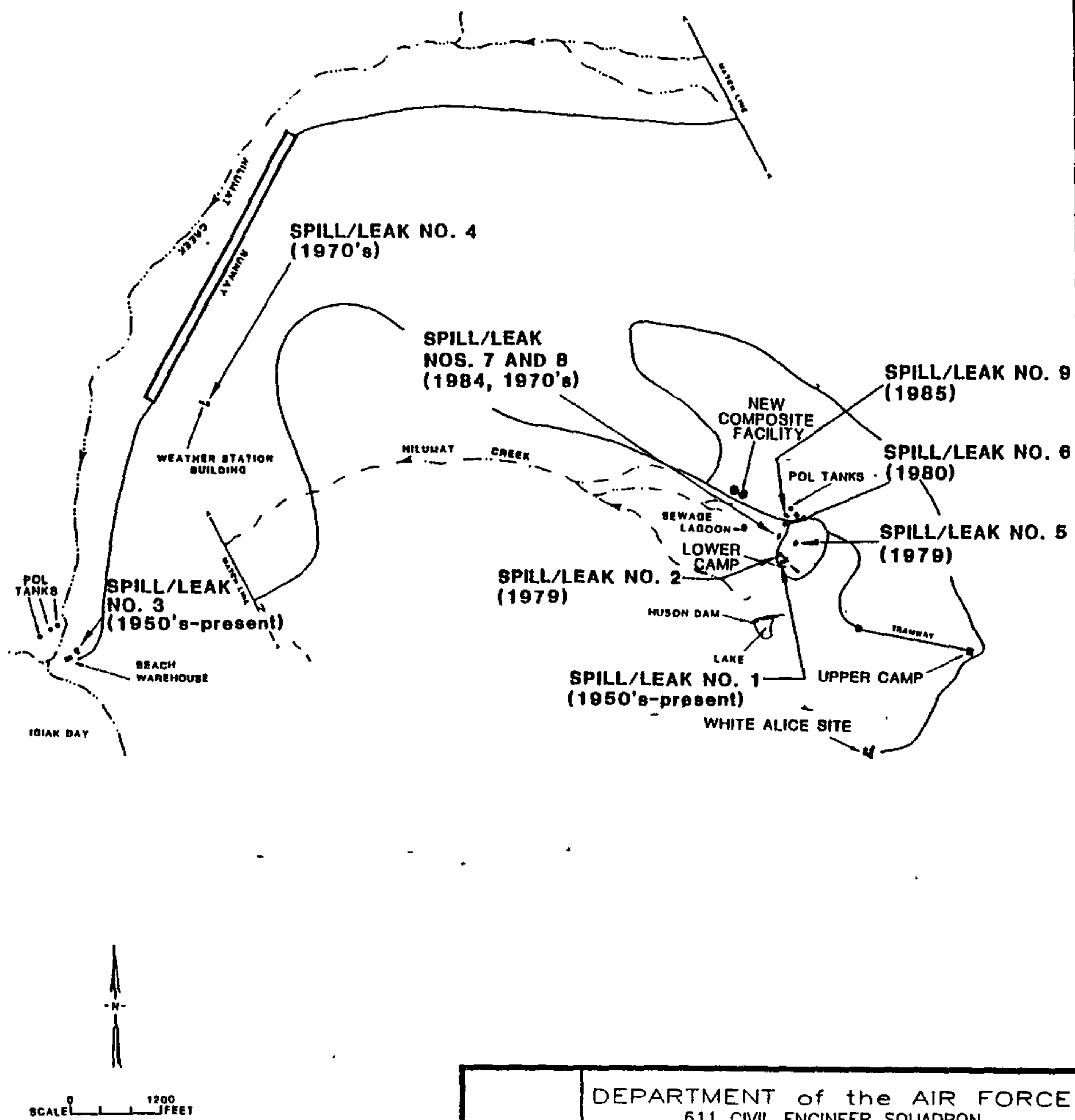
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

WASTE ACCUMULATION AREAS

S SIRTAJuddin AHMED	Nov 1994	Figure – 9



NOTE THE INSTALLATION BOUNDARY IS SEVERAL THOUSAND FEET BEYOND THE FACILITIES SHOWN

SOURCE: INSTALLATION DOCUMENTS

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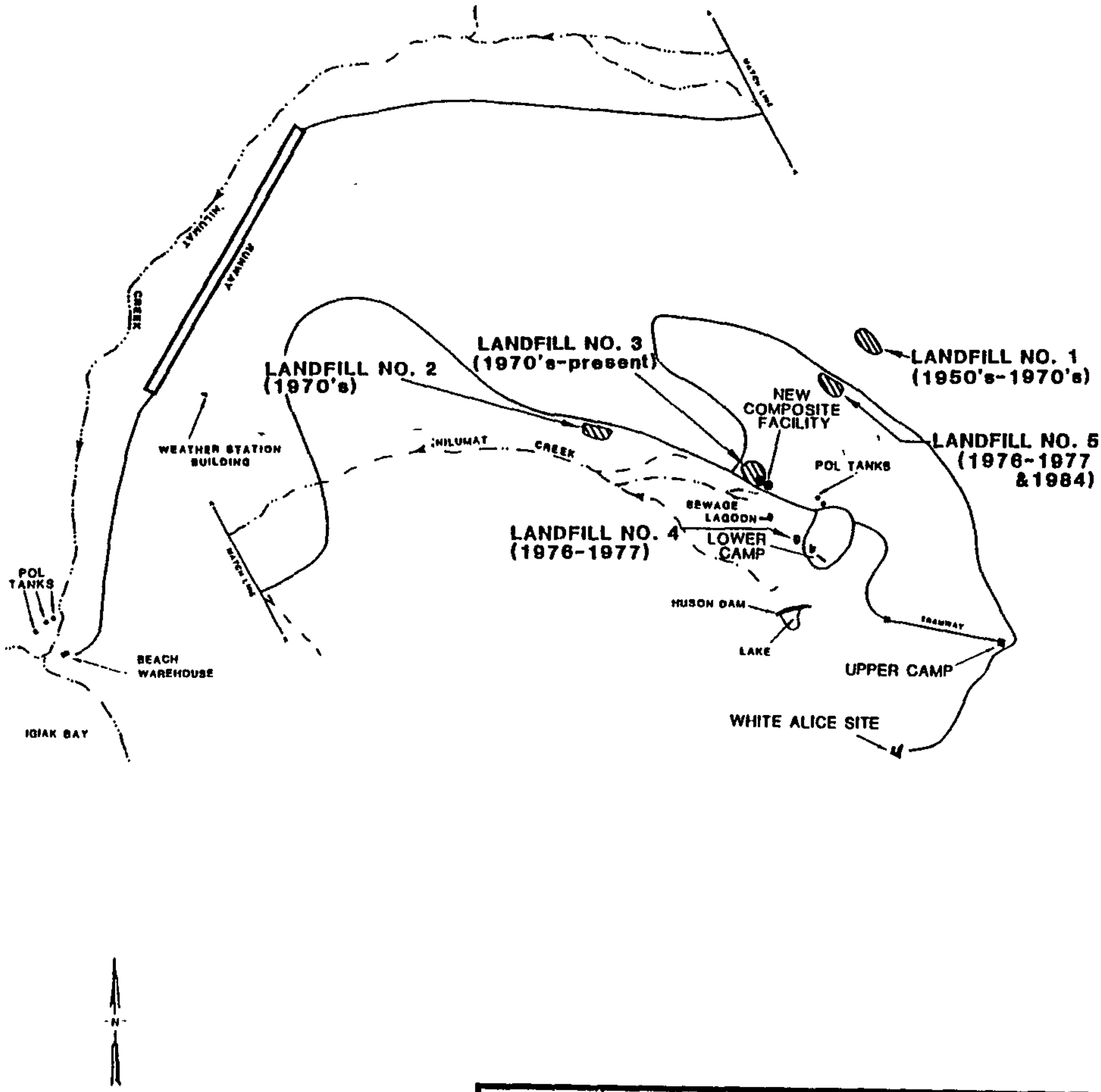
CAPE ROMANZOF LRRS

SPILLS & LEAKS

S SIRTAJuddin AHMED	Nov 1994	Figure – 10



SCALE 0 1200 FEET

NOTE THE INSTALLATION BOUNDARY IS SEVERAL THOUSAND FEET BEYOND THE FACILITIES SHOWN

SOURCE: INSTALLATION DOCUMENTS

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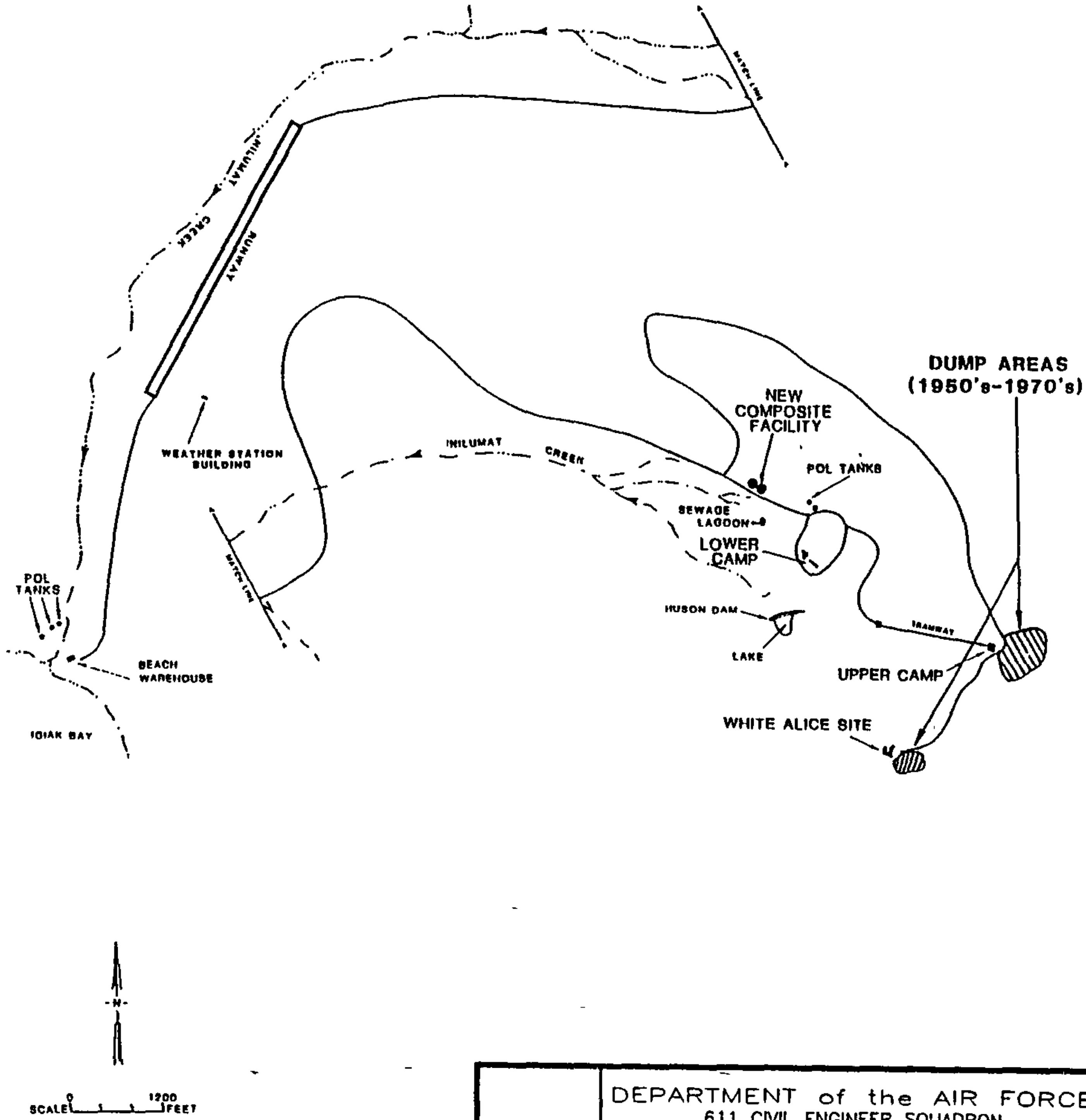
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

LANDFILLS

S SIRTAJuddin AHMED	Nov 1994	Figure – 11



NOTE THE INSTALLATION BOUNDARY IS SEVERAL THOUSAND FEET BEYOND THE FACILITIES SHOWN

SOURCE: INSTALLATION DOCUMENTS

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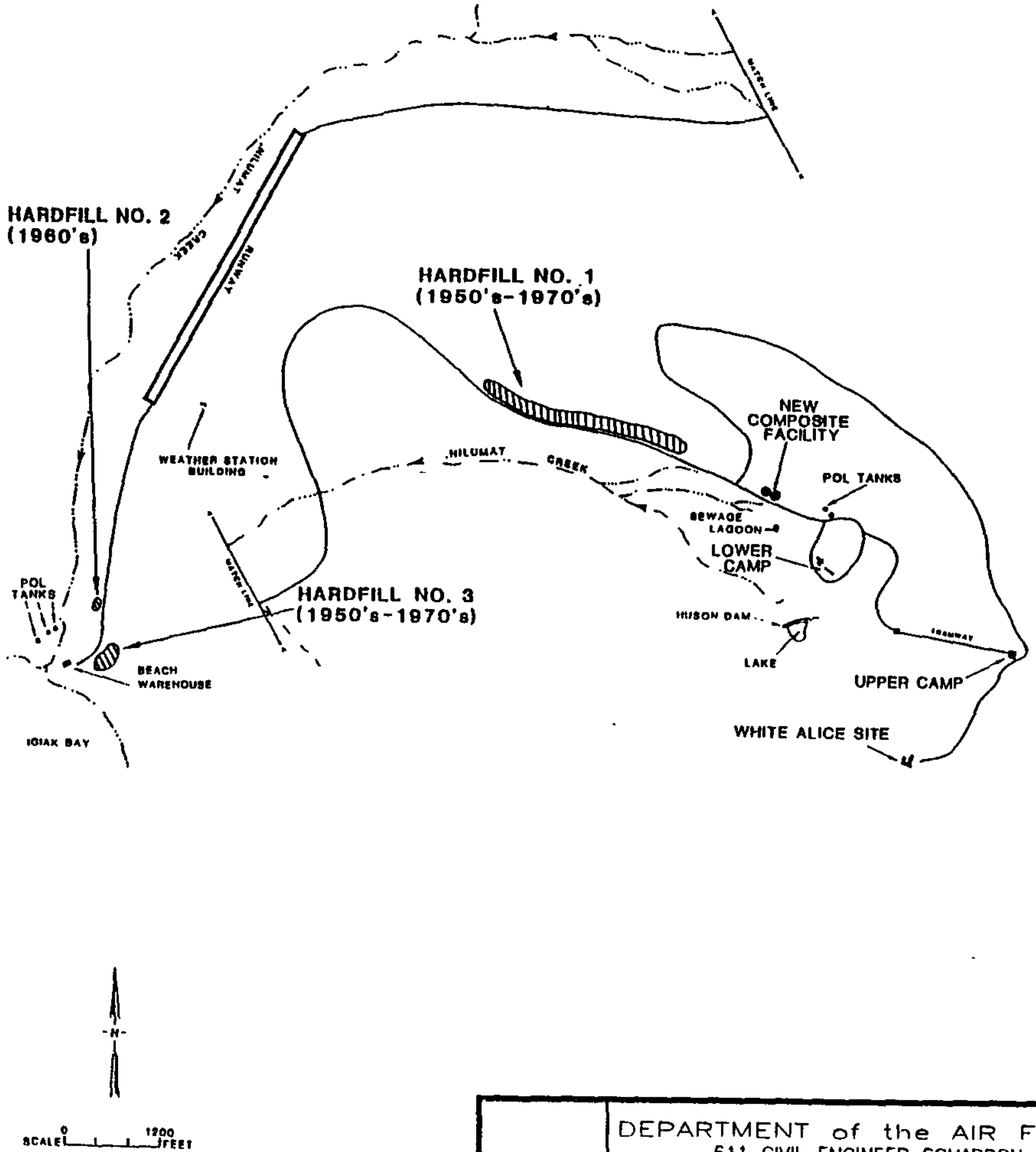
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

DUMPS

S SIRTAJuddin AHMED	Nov 1994	Figure – 12



NOTE: THE INSTALLATION BOUNDARY IS SEVERAL THOUSAND FEET BEYOND THE FACILITIES SHOWN

SOURCE: INSTALLATION DOCUMENTS

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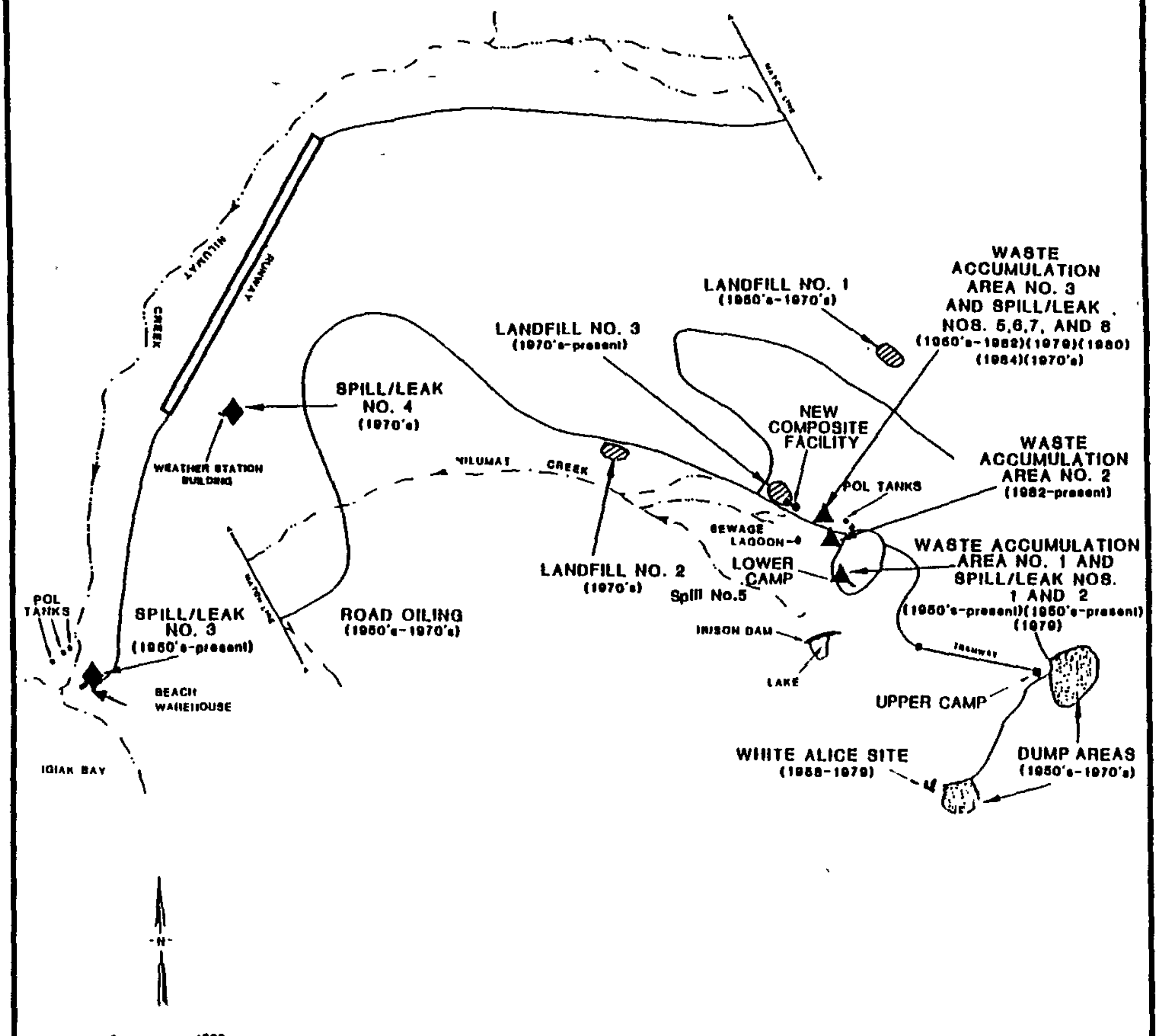
HARDFILLS

S SIRTAJuddin AHMED	Nov 1994	Figure – 13



NOTE THE INSTALLATION BOUNDARY IS SEVERAL THOUSAND FEET BEYOND THE FACILITIES SHOWN

SOURCE: INSTALLATION DOCUMENTS

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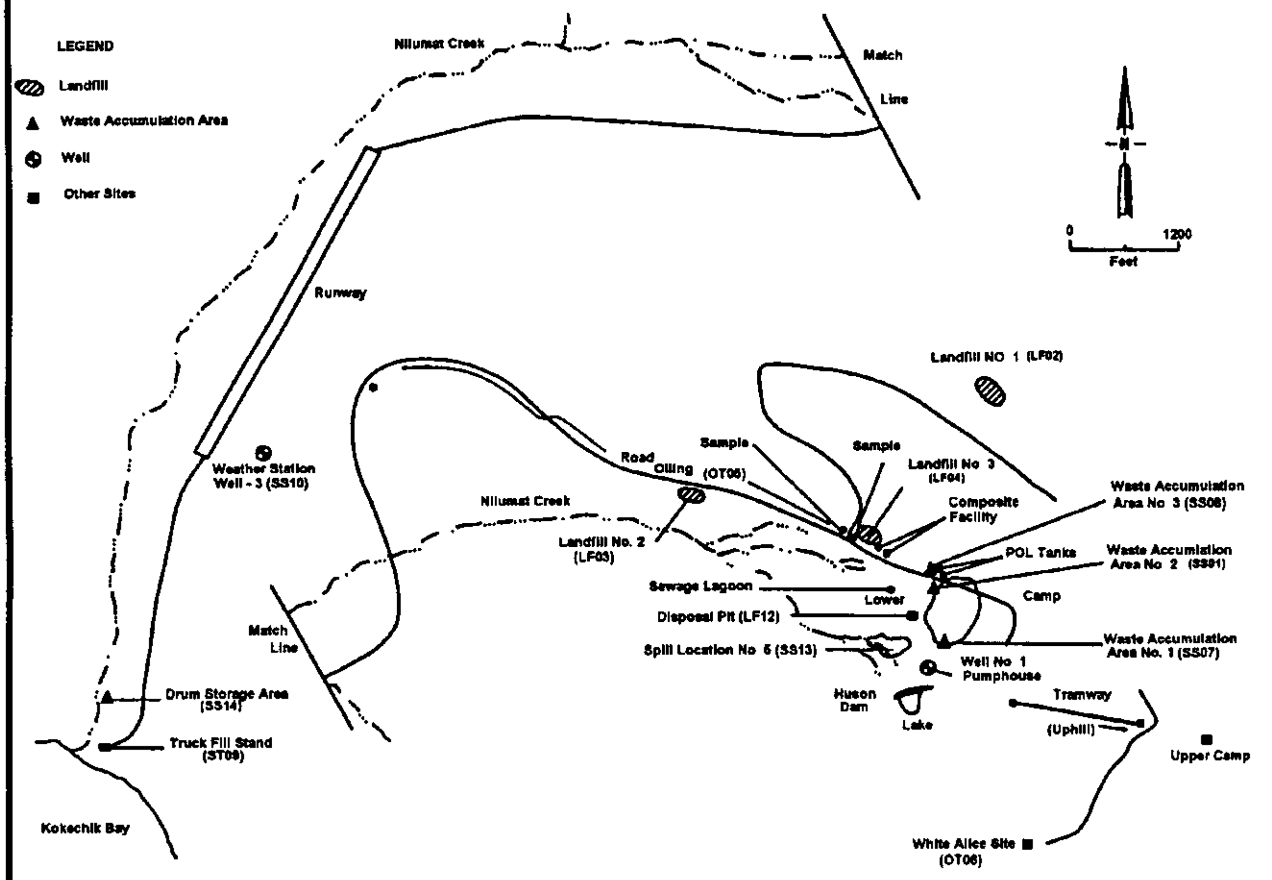
OPERATING ENGINEERS

CAPE ROMANZOF LRRS
POTENTIAL ENVIRONMENTAL CONTAMINATION SITES

S SIRTAJuddin AHMED	Nov 1994	Figure – 14



Note The installation boundary is several thousand feet beyond the facilities shown

Source Installation Documents and 1989 Field Investigation

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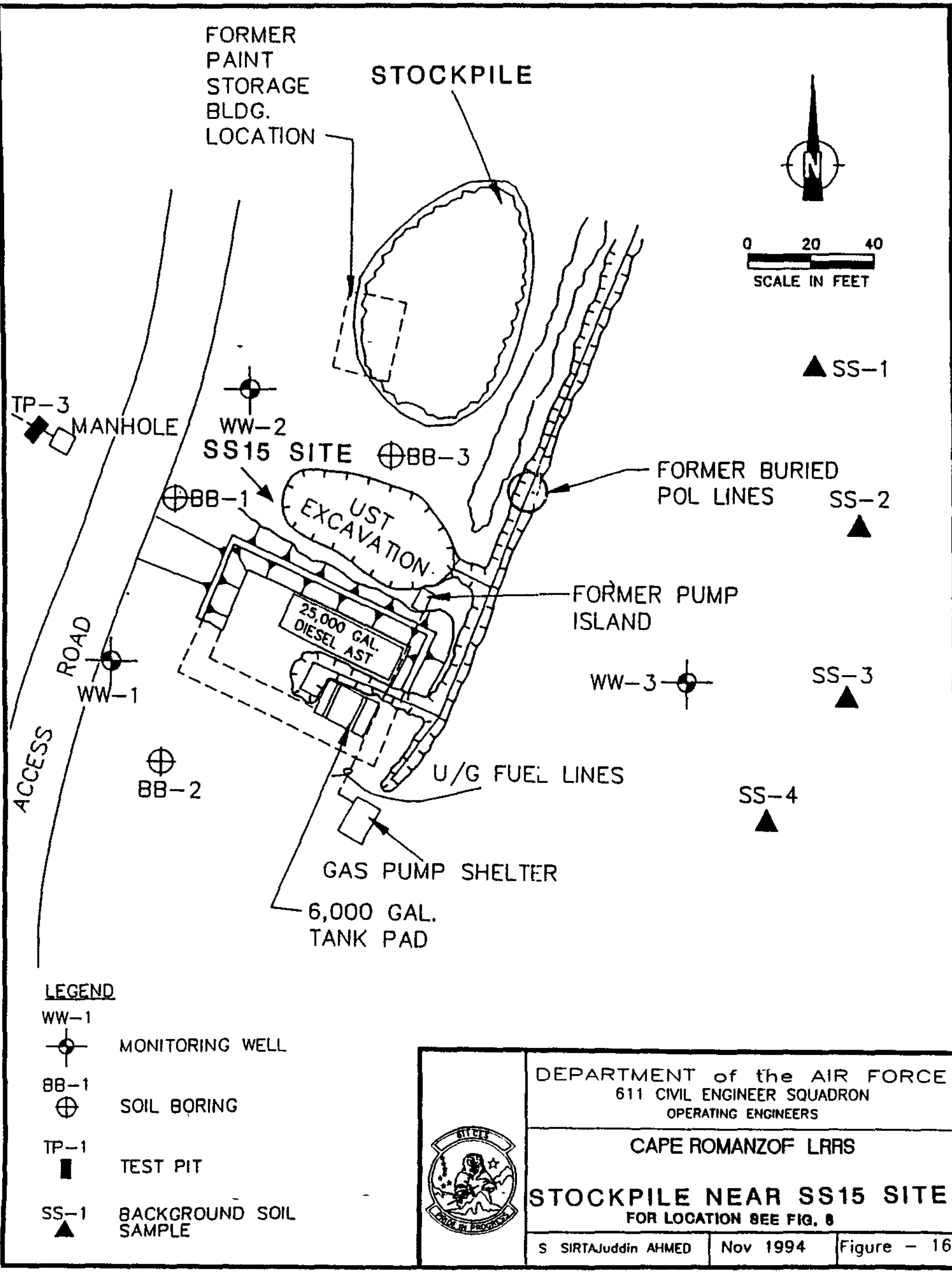
CAPE ROMANZOF LRRS

CONTAMINATION SITES

S SIRTAJuddin AHMED | Nov 1994 | Figure – 15



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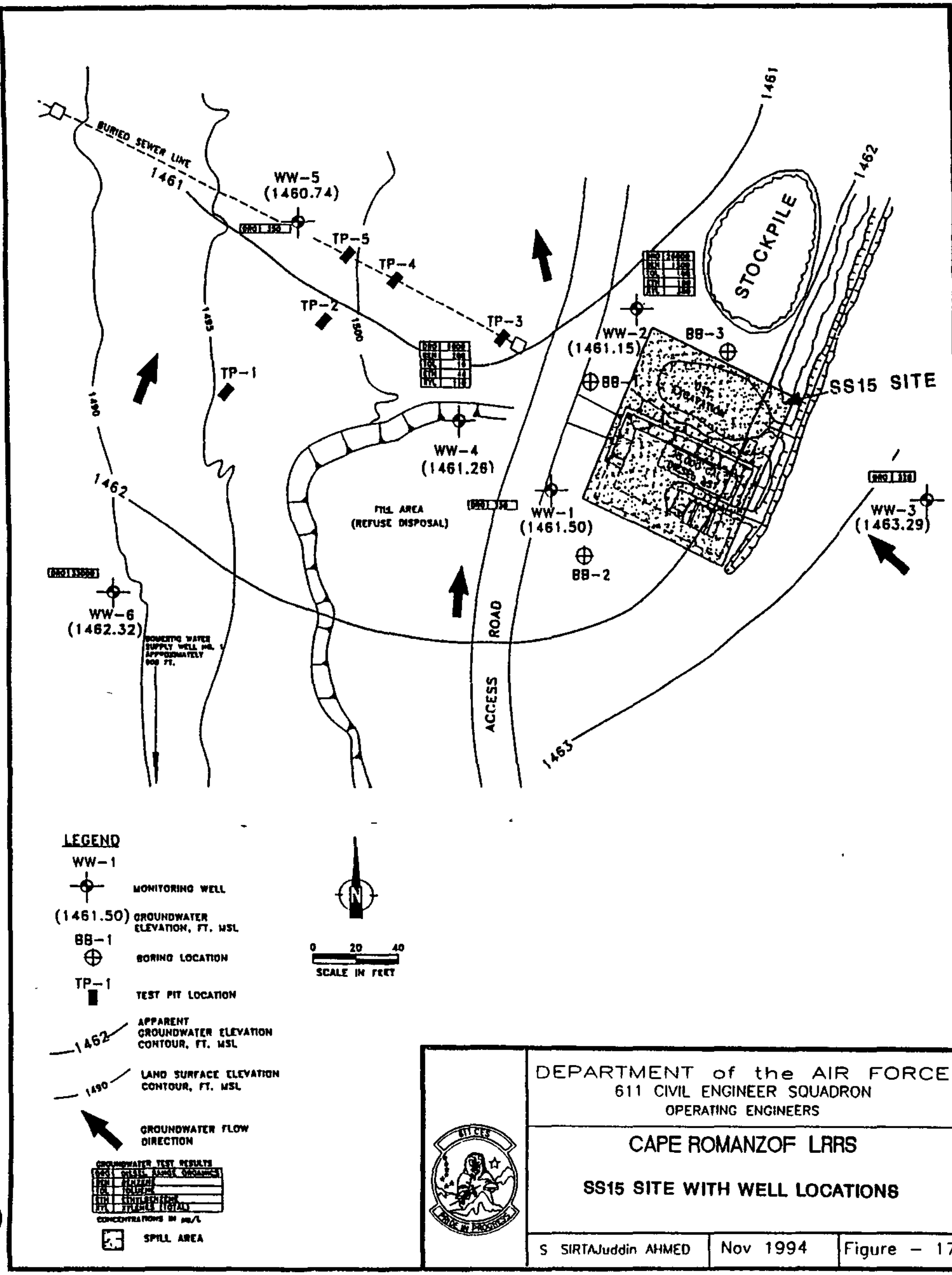
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

STOCKPILE NEAR SS15 SITE

FOR LOCATION SEE FIG. 8

S SIRTAJuddin AHMED	Nov 1994	Figure – 16



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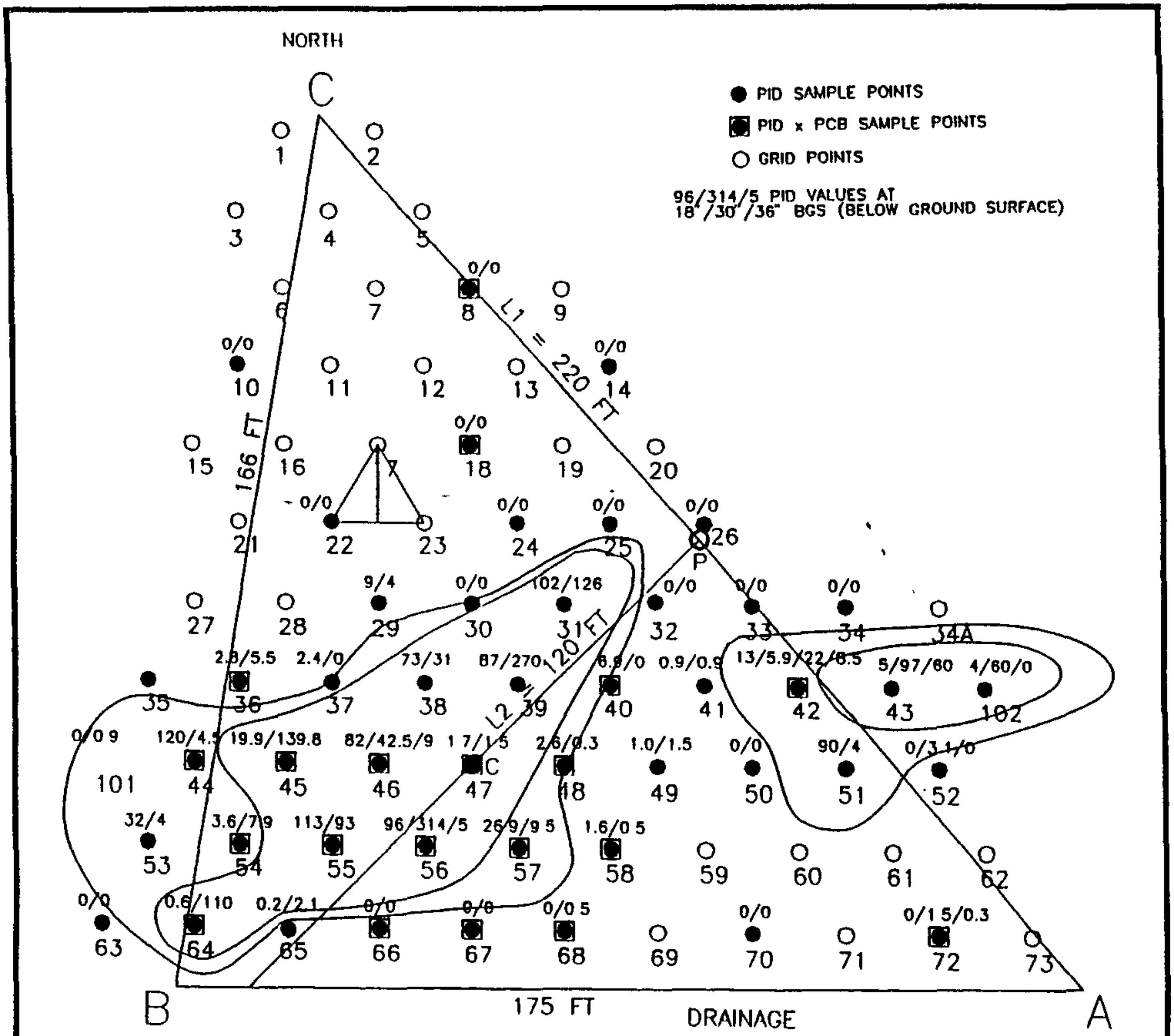
SS15 SITE WITH WELL LOCATIONS

S SIRTAJuddin AHMED	Nov 1994	Figure – 17



R = C = 60 FT
S = (0.3) R = (0.3)(60) = 18 FT
U = (0.26) R = (0.26)(60) = 15.6 FT
= 15.6 FT

L1 = 220 FT
P = 110 FT
L2 = 120 FT

EXCAVATED AREA = 14,262 f^2
= 1,584 yd^3
= 528 yd^3

FOR LOCATION SEE FIGS. 4 & 8

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OPERATING ENGINEERS

CAPE ROMANZOF LRRS
WASTE ACCUMULATION AREA NO.3

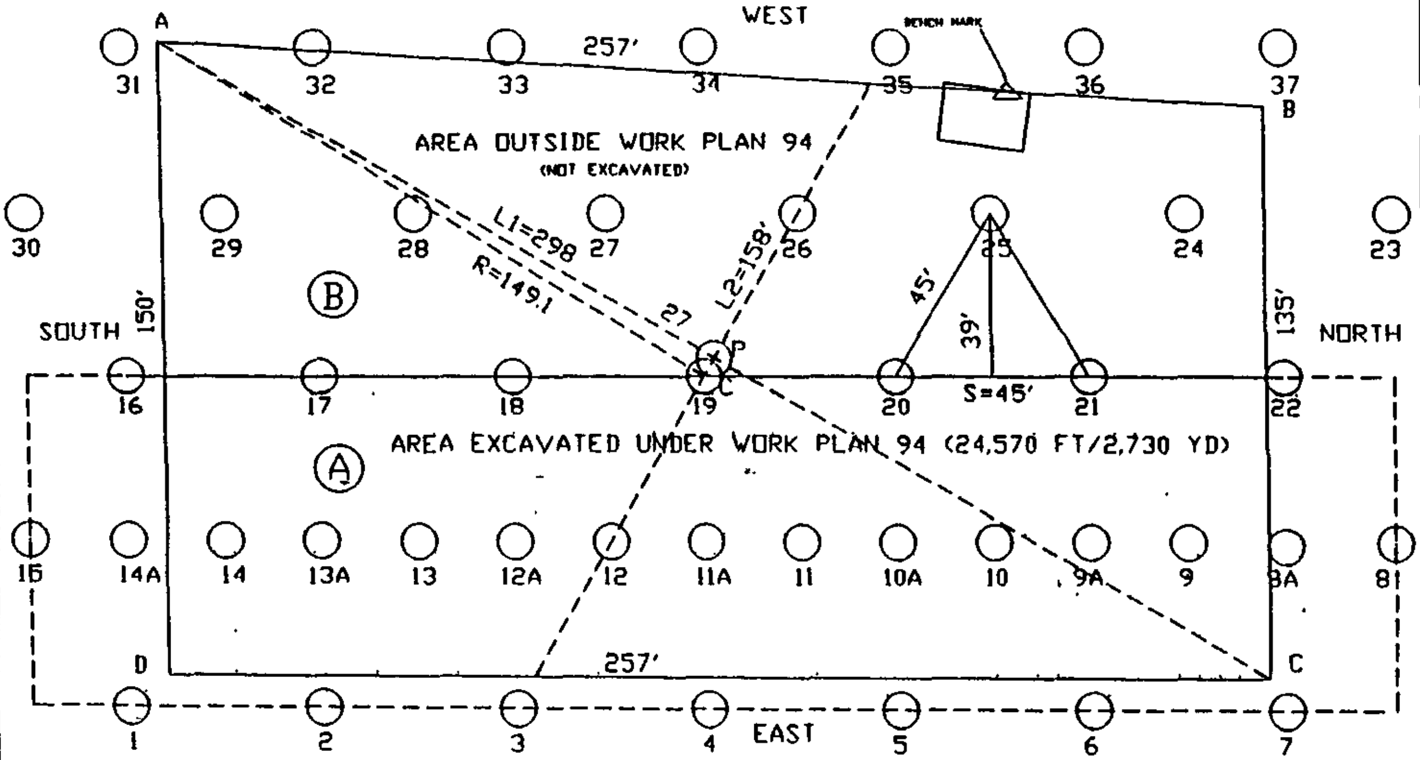
PCB SAMPLING GRID, 73 POINT DESIGN

S SIRTAJuddin AHMED	Nov 1994	Figure – 18

SCALE

200' 0 200' 400

DEPARTMENT of the AIR FORCE 611 CIVIL ENGINEER SQUADRON OPERATING ENGINEERS		
CAPE ROMANZOF LRRS AERIAL MAP DRUM STORAGE AREA SS14 POL FILL STAND ST-09		
S SIRTAJuddin AHMED	Nov 1994	Figure – 19



Ⓑ UNEXCAVATED AREA = 70 x 260 = 2,200 FT

LI = 298'
P = 149'
L2 = 158'
C = 79'
R = 149.1 = 149.00 (SAMPLE RADIUS)
NO. OF SAMPLES = 37 (PER FORMULA)

S = 0.30r = DIST. BETWEEN ADJACENT PTS.
= 0.30 (149) = 44.7 = 45'
U = 0.26r = DIST. BETWEEN ROWS
= 0.26 (149) = 38.74 = 39'

0 30'
SCALE

○ GRID POINTS

⊙ PID SAMPLING

FOR LOCATION SEE FIG. 8

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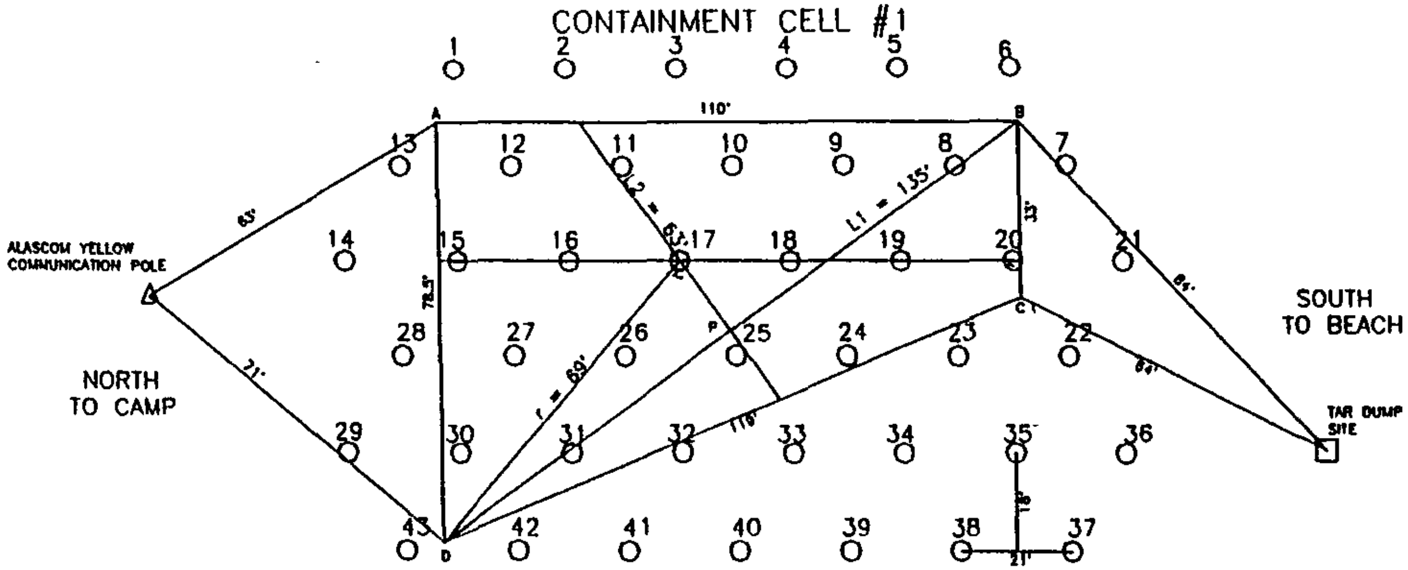
OPERATING ENGINEERS

CAPE ROMANZOF LRRS
DRUM STORAGE AREA SS14
PCB SAMPLING GRID 37 POINT DESIGN

S SIRTAJuddin AHMED	Nov 1994	Figure – 20



S = 0.30r (DISTANCE BETWEEN ADJACENT POINTS)
= 0.30 x 69 = 20.7 = 21'
U = 0.26r (DISTANCE BETWEEN ROWS)
= 0.26 x 69 = 17.9 = 18'

TOTAL AREA ABCD = 8,600 FT (955 YD)

L1 = 135
P = 67.5
L2 = 63
C = 31
r = 69

0 300'
SCALE

AREA = 33 x 110 = 3630
110 x 45 = 4950
8580
= 8600 f
= 955 yd

FOR LOCATION SEE FIG. 8

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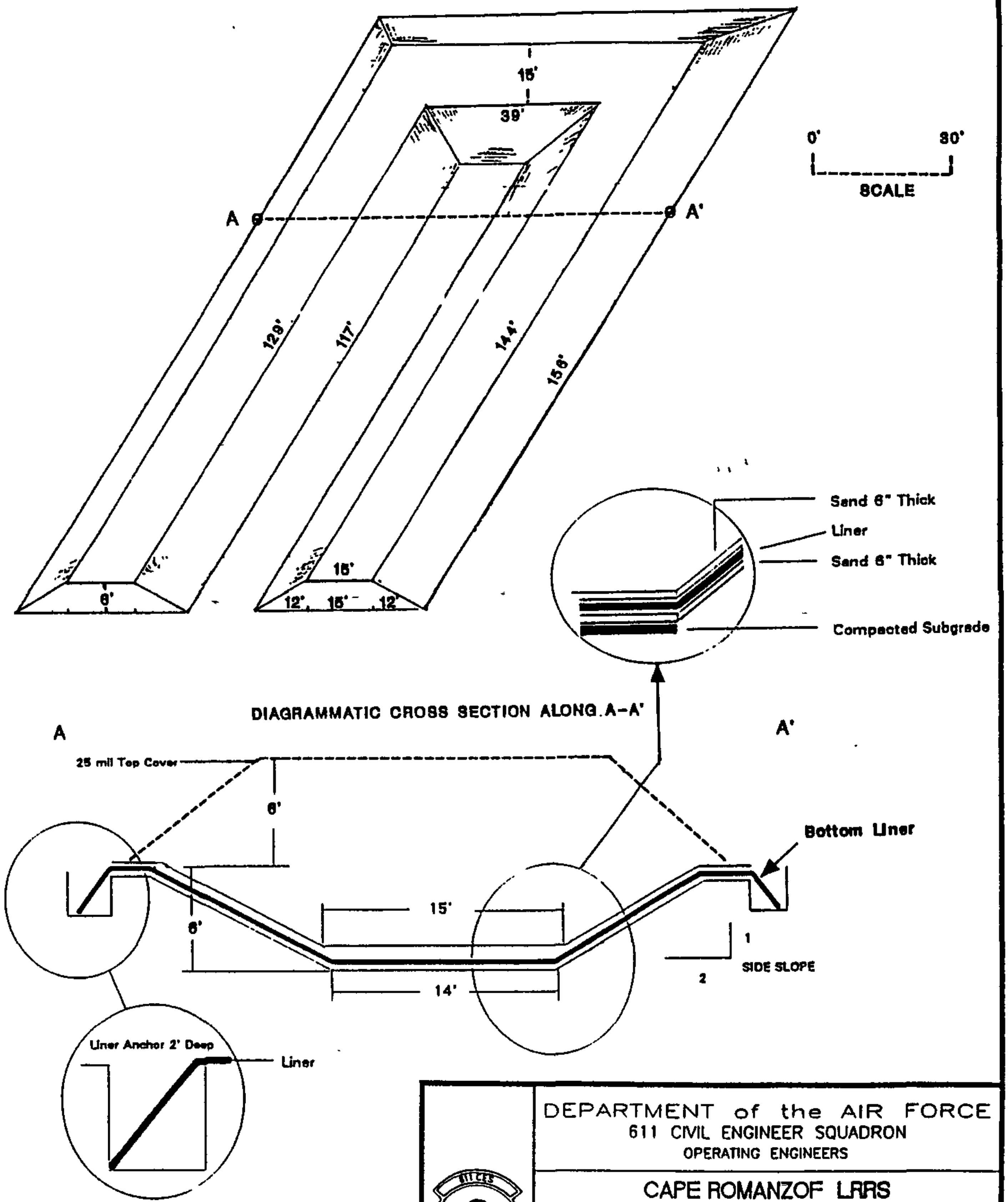
OPERATING ENGINEERS

CAPE ROMANZOF LRRS
POL FILL STAND ST-09
PCB SAMPLING GRID, 37 POINT DESIGN

S. SIRTAJuddin AHMED	Nov 1994	Figure – 21



SEE TABLES-22,23 FOR LINERS DESCRIPTION

FOR LOCATION OF CELLS SEE FIG.8

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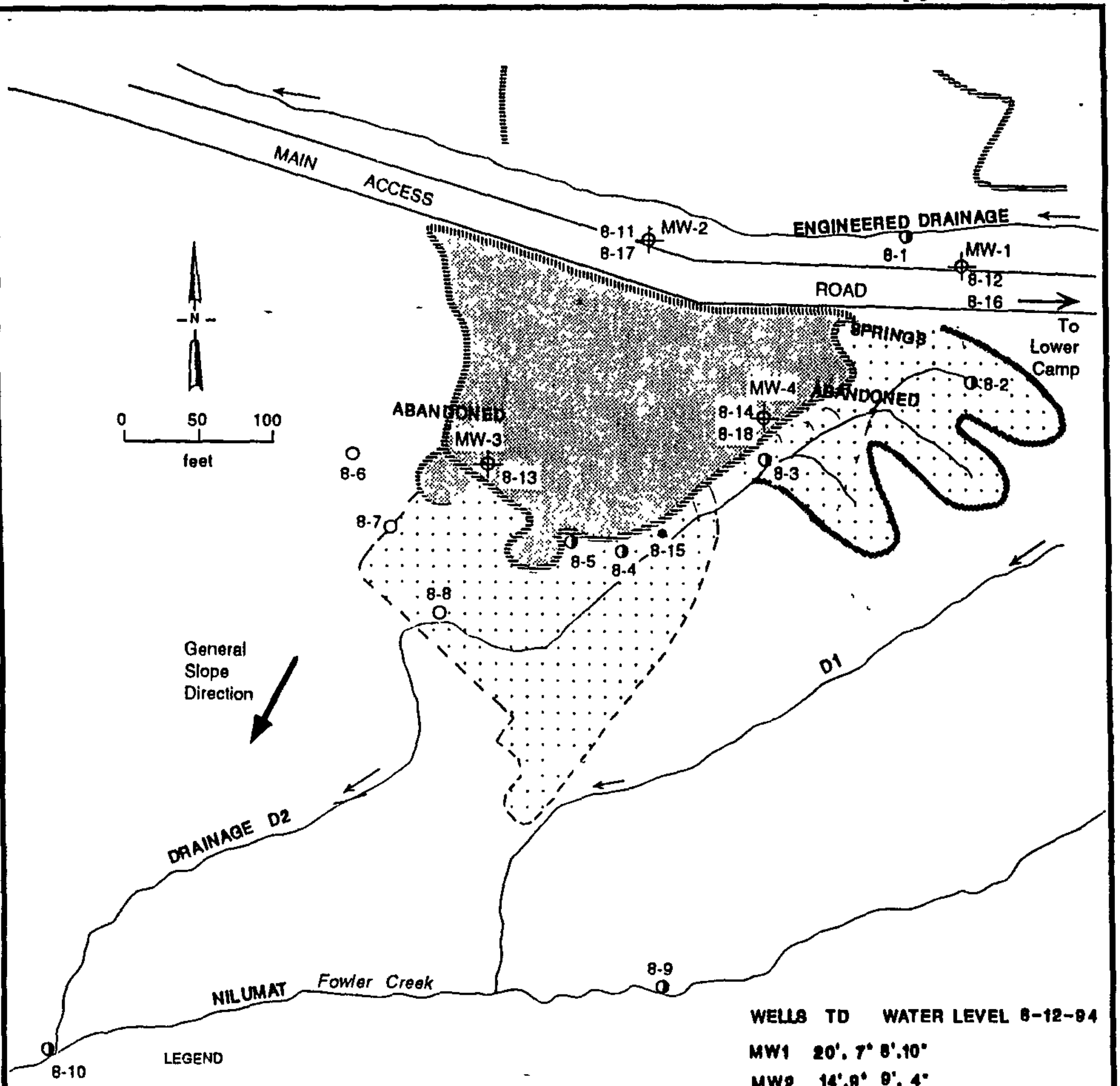
CAPE ROMANZOF LRRS
SOIL CONTAINMENT CELL DESIGN
CELLS 1, 2 & 3

S SIRTAJuddin AHMED	Nov 1994	Figure - 22



WELLS	TD	WATER LEVEL 8-12-94
MW1	20'. 7"	8'.10"
MW2	14'.9"	9'. 4"
MW3	17'.6"	12'.6"
MW4	12'.5"	8'.0

SEE FIG. 8 FOR LOCATION

LEGEND

- Boundary of landfill
- Boundary of excavation adjacent to landfill
- Boundary of man-disturbed area downslope from landfill
- Streams, arrows showing direction of flow
- Landfill
- Disturbed areas
- Soil sample
- Soil and surface water sample
- Surface water sample
- Groundwater sample in well
- MW-3 Monitoring well

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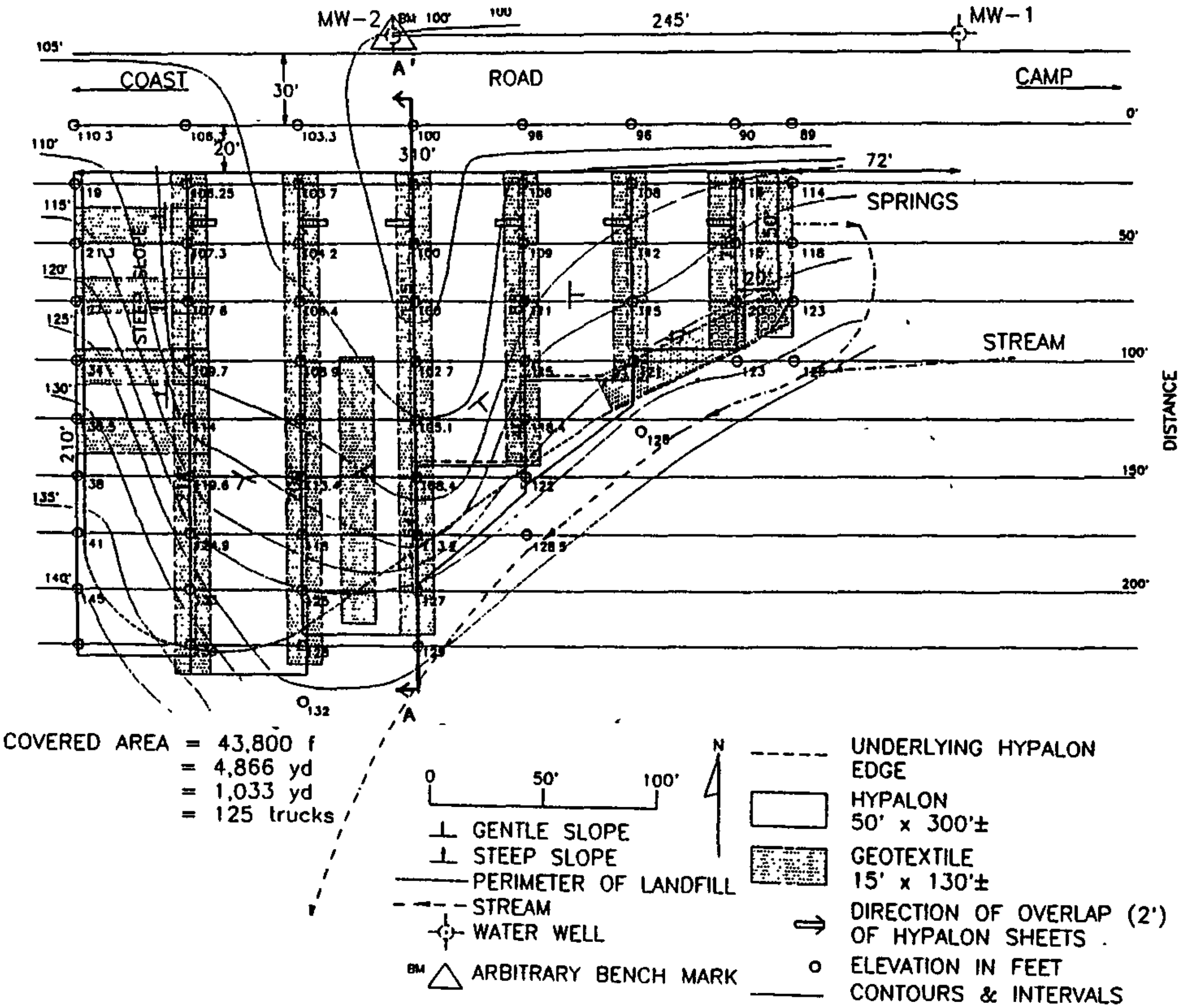
CAPE ROMANZOF LRRS
LANDFILL-2
GROUND WATER MONITORING WELLS AND SAMPLING LOCATIONS

S SIRTAJuddin AHMED	Nov 1994	Figure – 23



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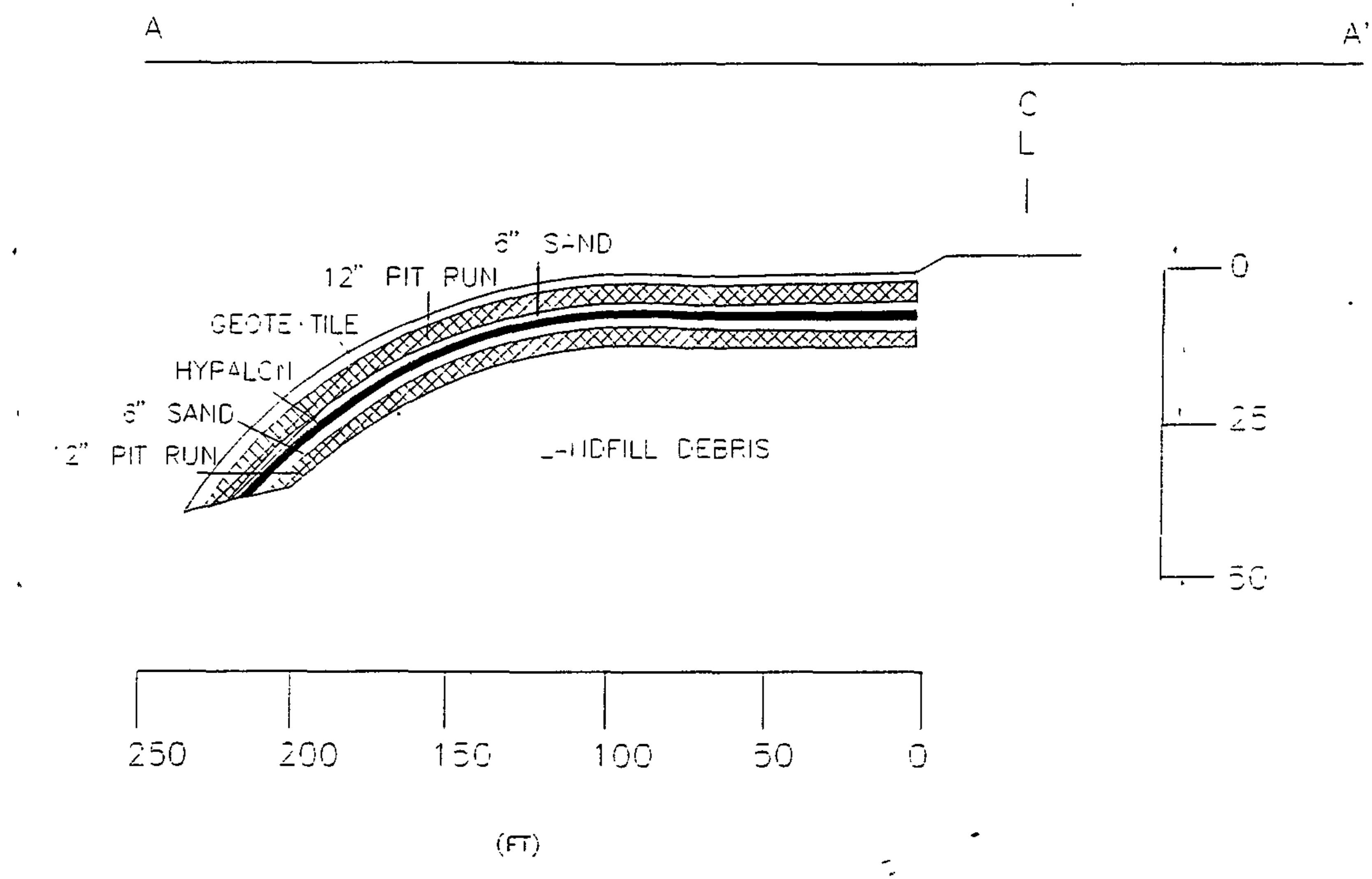
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

LANDFILL-2

TOPOGRAPHY AND HYPALON COVER

S. SIRTAJuddin AHMED	Nov 1994	Figure - 24



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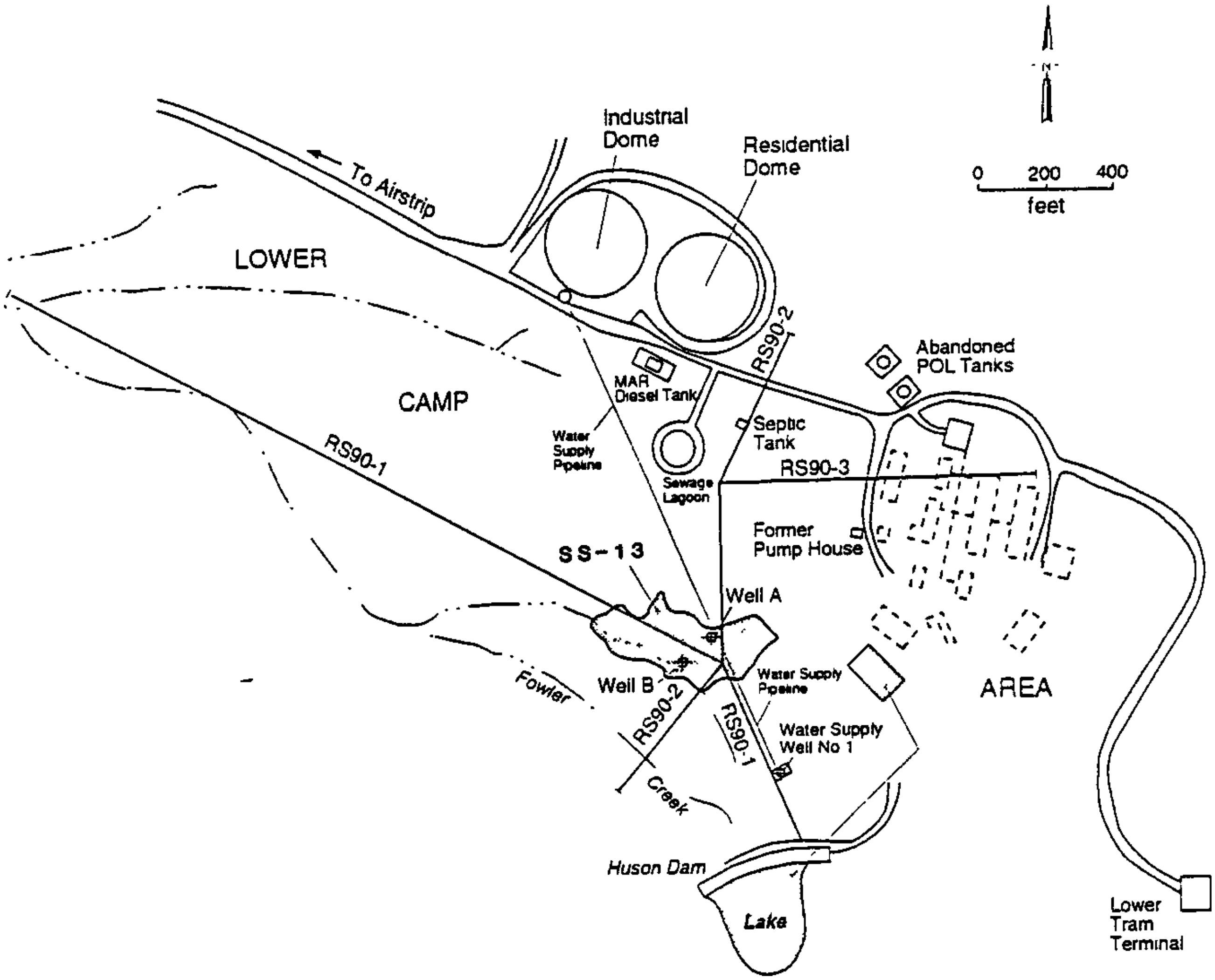
CAPE ROMANZOF LRRS

LANDFILL-2

LANDFILL CAP X-SECTION

OPERATING ENGINEERS | Figure 25

40 86



LEGEND

Demolished Buildings

ROM Sites

Wells Having Downhole Geophysical Surveys (Wells A and B)

RS90-1 Location of Seismic Refraction Survey Line

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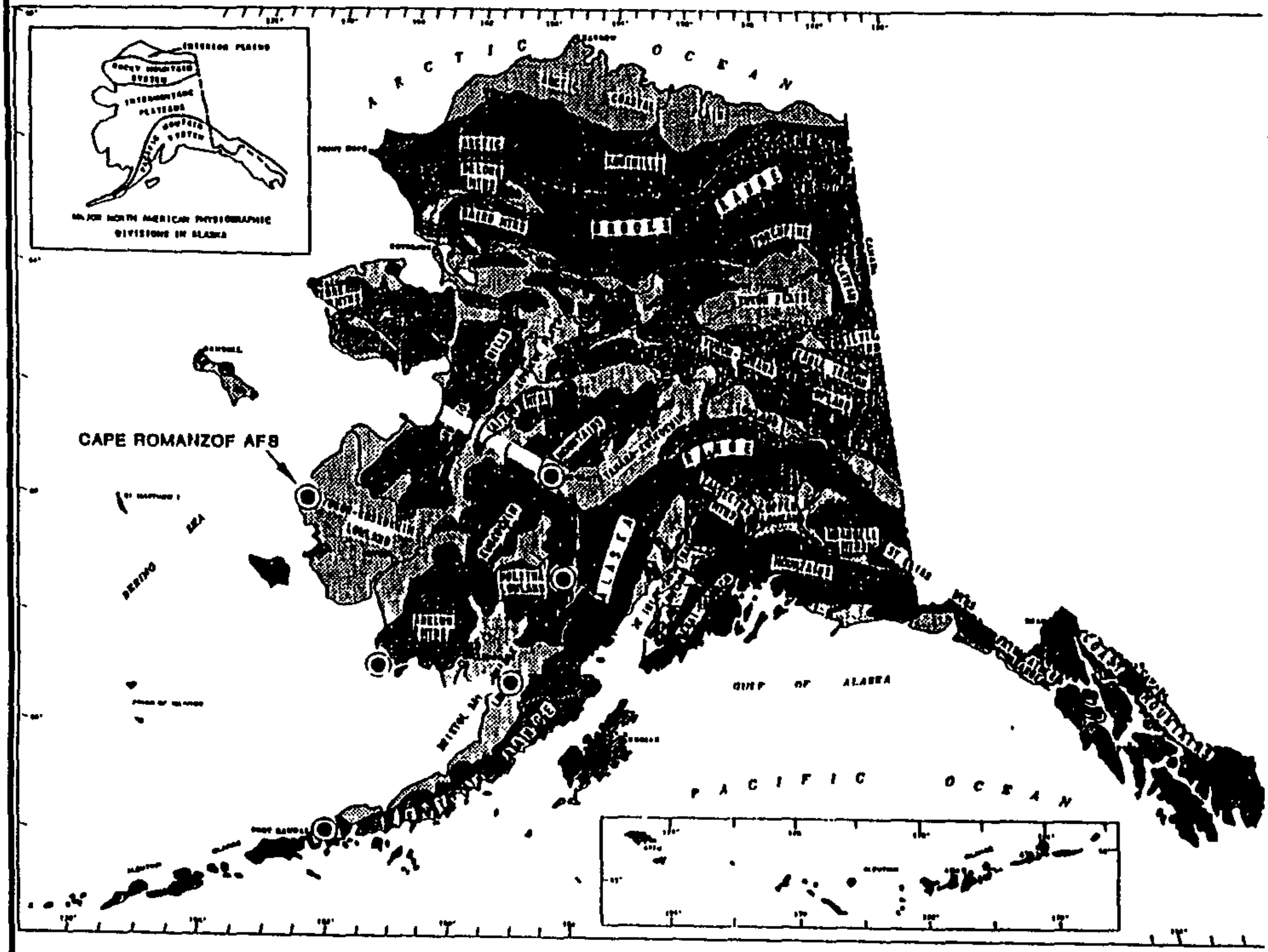
611 CIVIL ENGINEER SQUADRON
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

LOCATIONS OF GEOPHYSICAL SURVEYS

S SIRTAJuddin AHMED	Nov 1994	Figure-31



Source: Wahrhaftig, 1965

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

ALASKA

EXPLANATION

High rugged mountains
(Summits more than 6,000 feet)

Low mountains, plateaus, and highlands
of generally rolling topography
(Summits 1,000-6,000 feet)

Plains and lowlands
(Generally less than 1,000 feet)

Boundary between major physiographic
divisions

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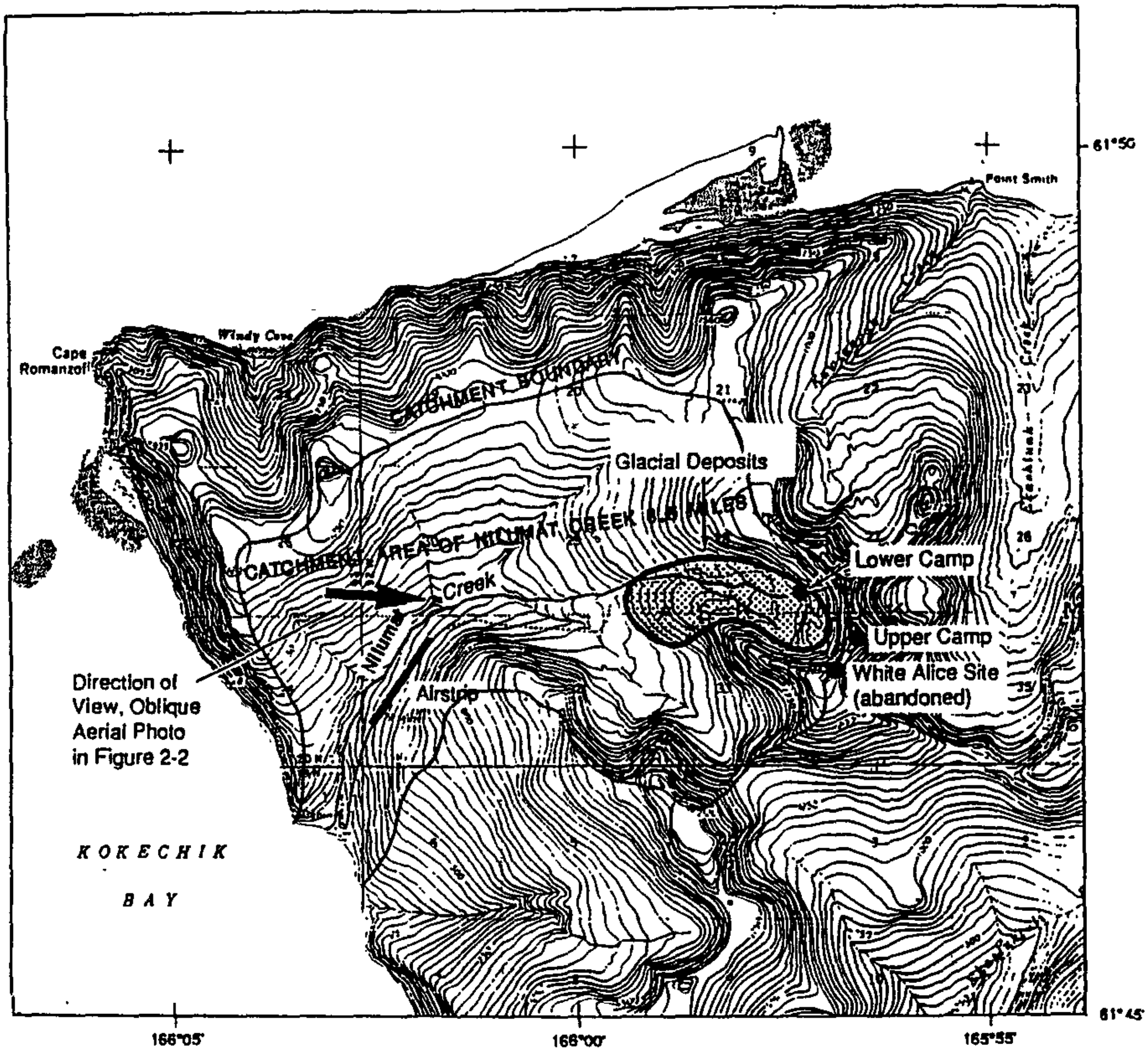
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

PHYSIOGRAPHIC DIVISIONS OF ALASKA

S. SIRTAJuddin AHMED	Nov 1994	Figure – 26



Source: U.S. Geological Survey Topographic Map, Hooper Bay (D-3) Quadrangle, Scale 1:63,360

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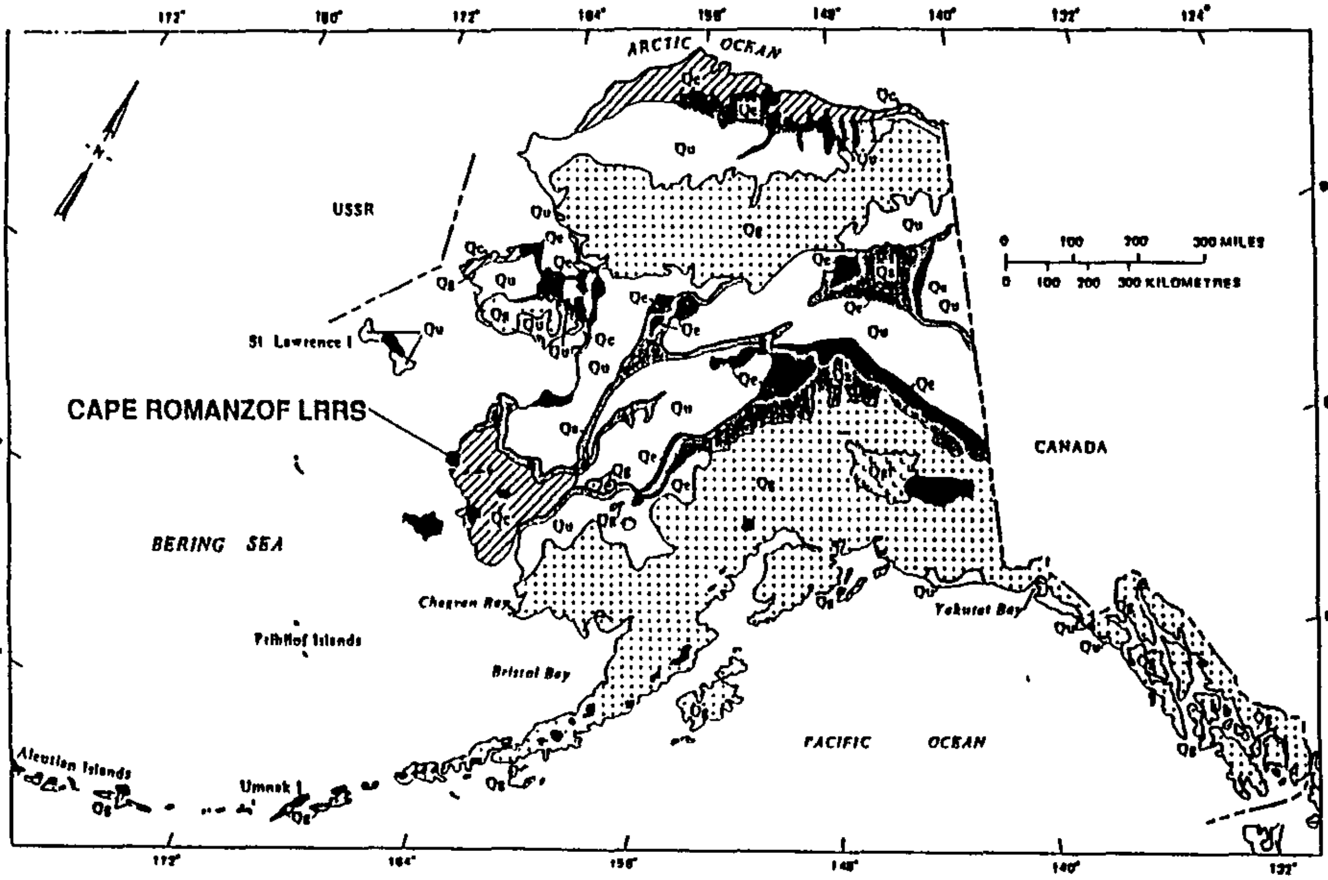
OPERATING ENGINEERS

CAPE ROMANZOF LRRS

TOPOGRAPHY AND DRAINAGE PATTERN MAP

S SIRTAJuddin AHMED	Nov 1994	Figure – 27



Sketch map of major regional groups of surficial deposits in Alaska. Qg, glacial and other deposits associated with heavily glaciated alpine mountains; Qgl, glaciolacustrine deposits of larger Pleistocene proglacial lakes; Qu, undifferentiated deposits associated with generally unglaciated uplands and lowlands of the Interior and North Slope; Qa, fluvial deposits; Qe, eolian deposits; Qc, coastal deposits of interbedded marine and terrestial sediments. Solid black areas are deposits associated with volcanic peaks and flows.

Source: Modified from Péwé, 1975

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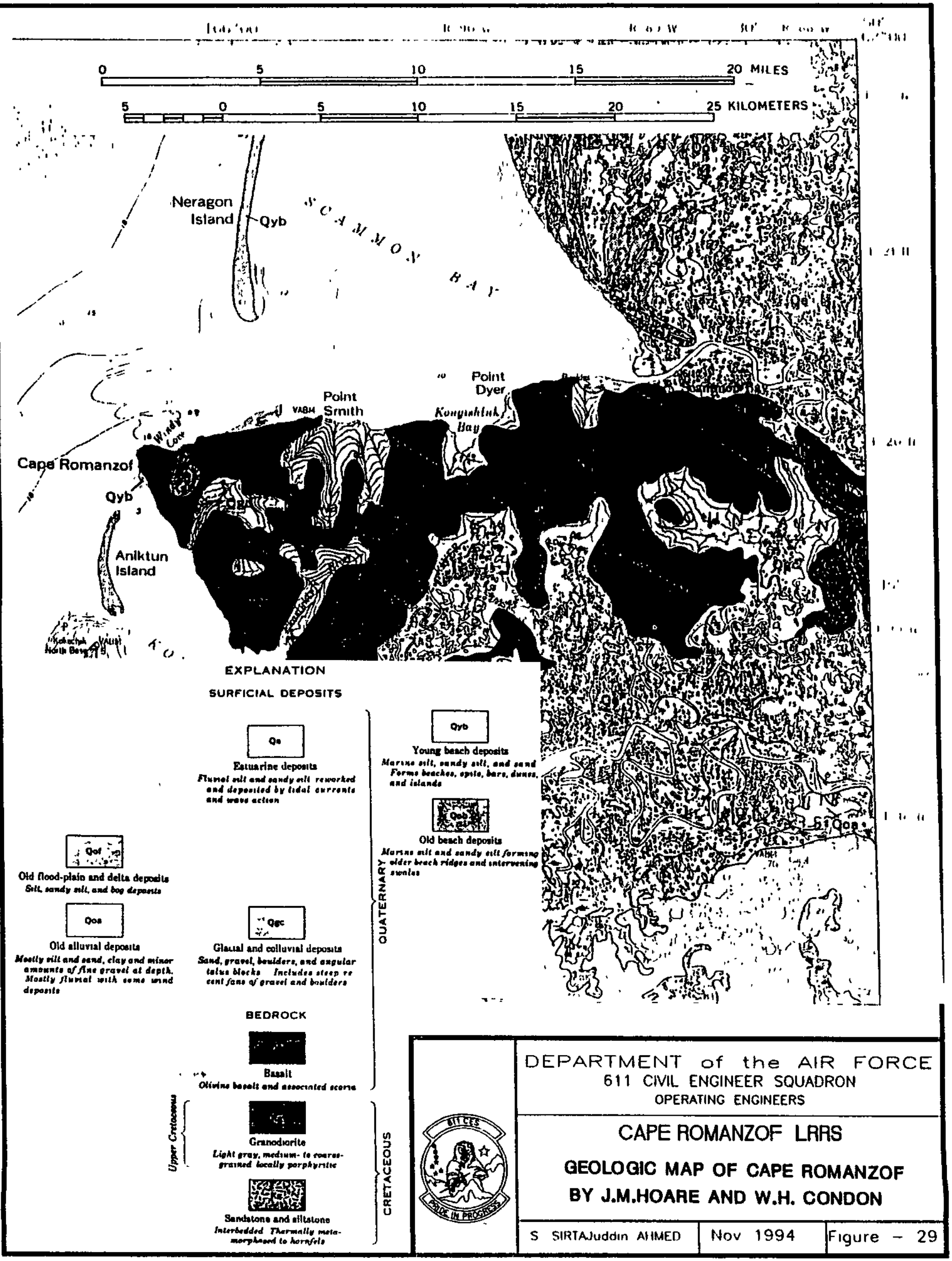
	CAPE ROMANZOF LRRS QUATERNARY GEOLOGIC MAP OF ALASKA

S SIRTAJuddin AHMED	Nov 1994	Figure – 28



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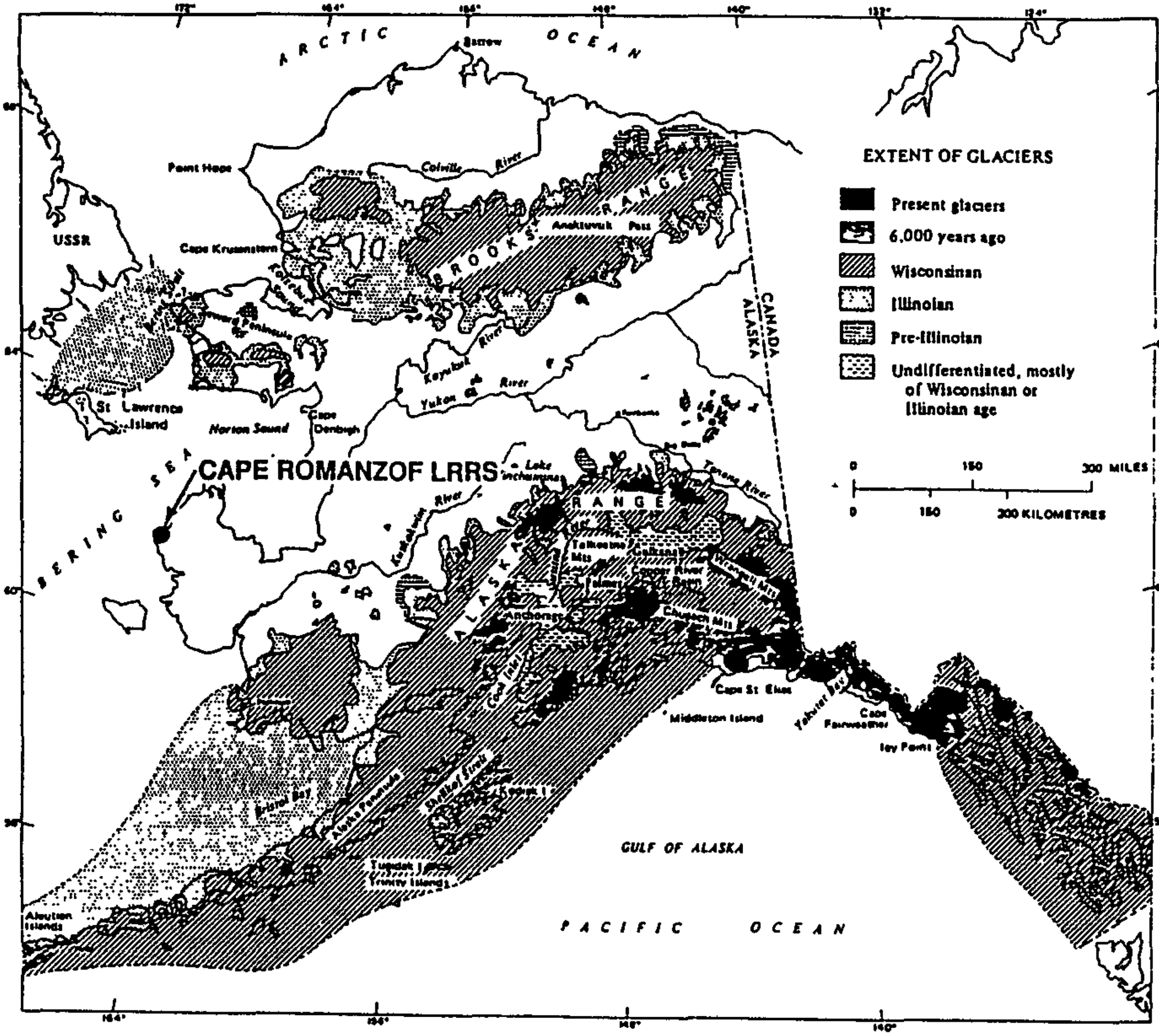
CAPE ROMANZOF LRRS

GEOLOGIC MAP OF CAPE ROMANZOF
BY J.M.HOARE AND W.H. CONDON

S SIRTAJuddin AHMED	Nov 1994	Figure - 29



Source: Modified from Péwé, 1975

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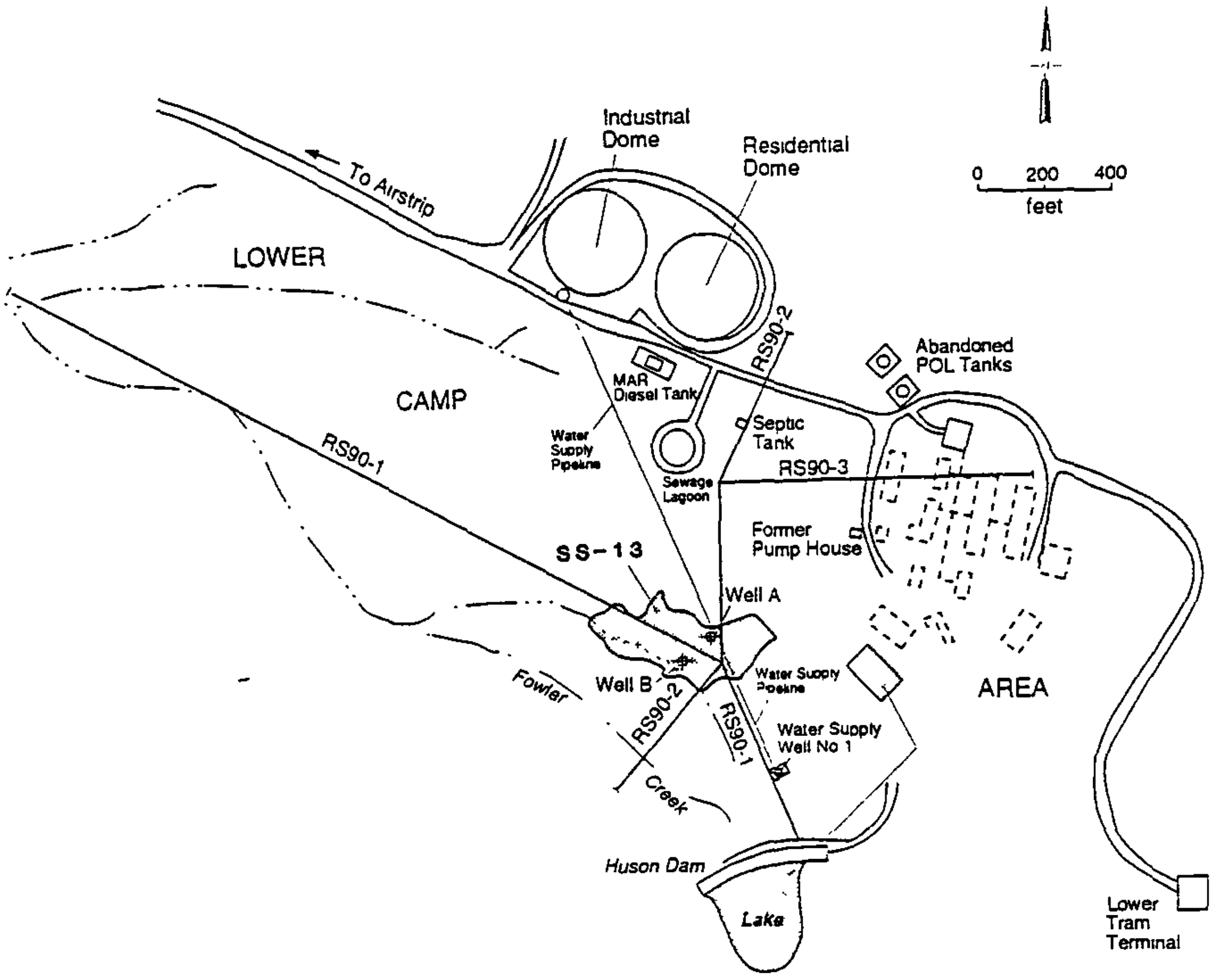
CAPE ROMANZOF LRRS

QUATERNARY GLACIATION IN ALASKA

S. SIRTAJuddin AHMED	Nov 1994	Figure – 30



LEGEND

Demolished Buildings

ROM Sites

Wells Having Downhole Geophysical Surveys (Wells A and B)

RS90-1 Location of Seismic Refraction Survey Line

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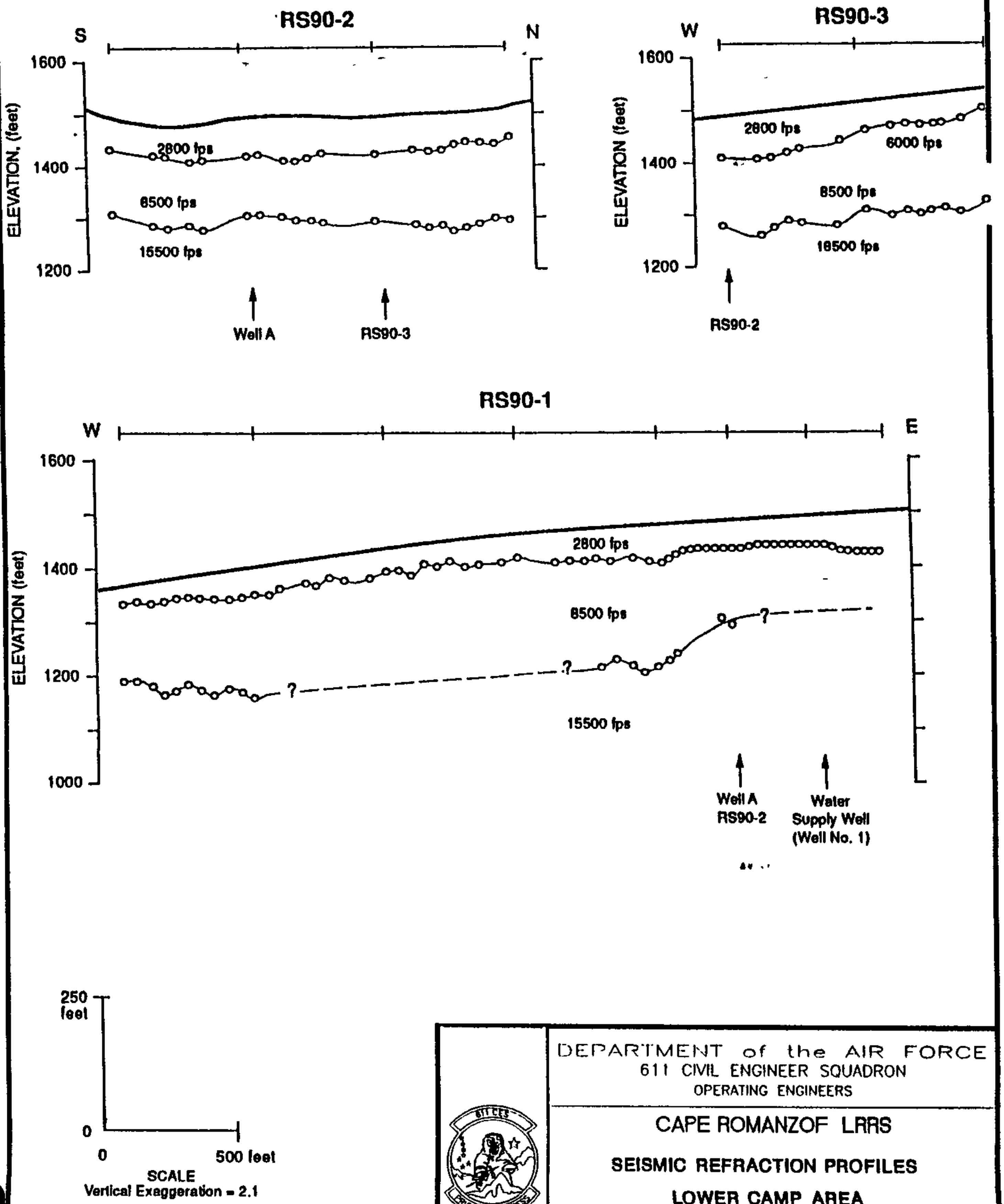
CAPE ROMANZOF LRRS

LOCATIONS OF GEOPHYSICAL SURVEYS

S SIRTAJuddin AHMED	Nov 1994	**Figure-31**



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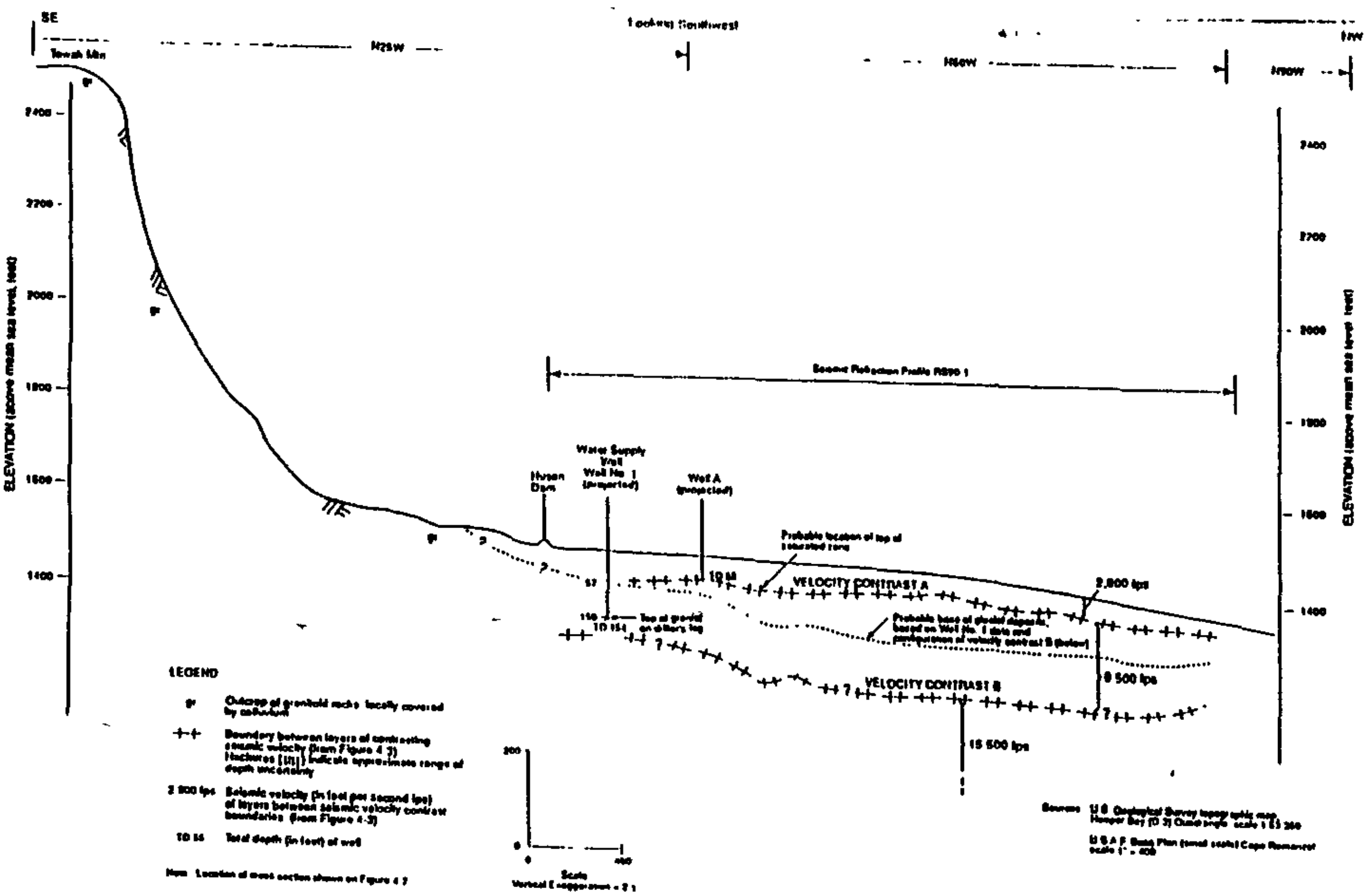
CAPE ROMANZOF LRRS

SEISMIC REFRACTION PROFILES

LOWER CAMP AREA

S SIRTAJuddin AHMED	Nov 1994	Figure-82



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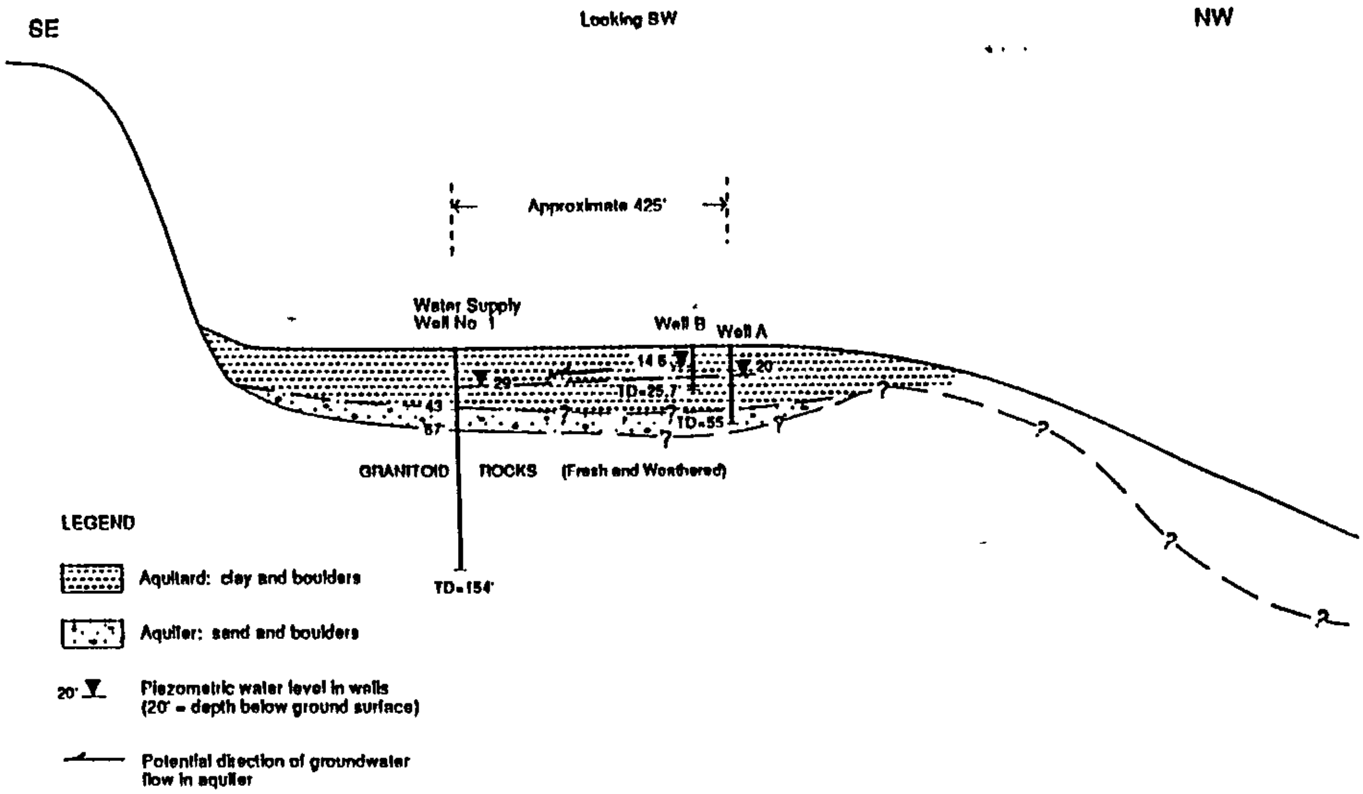
611 CES
PRIDE IN PROGRESS

CAPE ROMANZOF LRRS
GEOLOGIC CROSS SECTION ALONG
NILUMAT CREEK

S. SIRTAJuddin AHMED	Nov 1994	Figure 33



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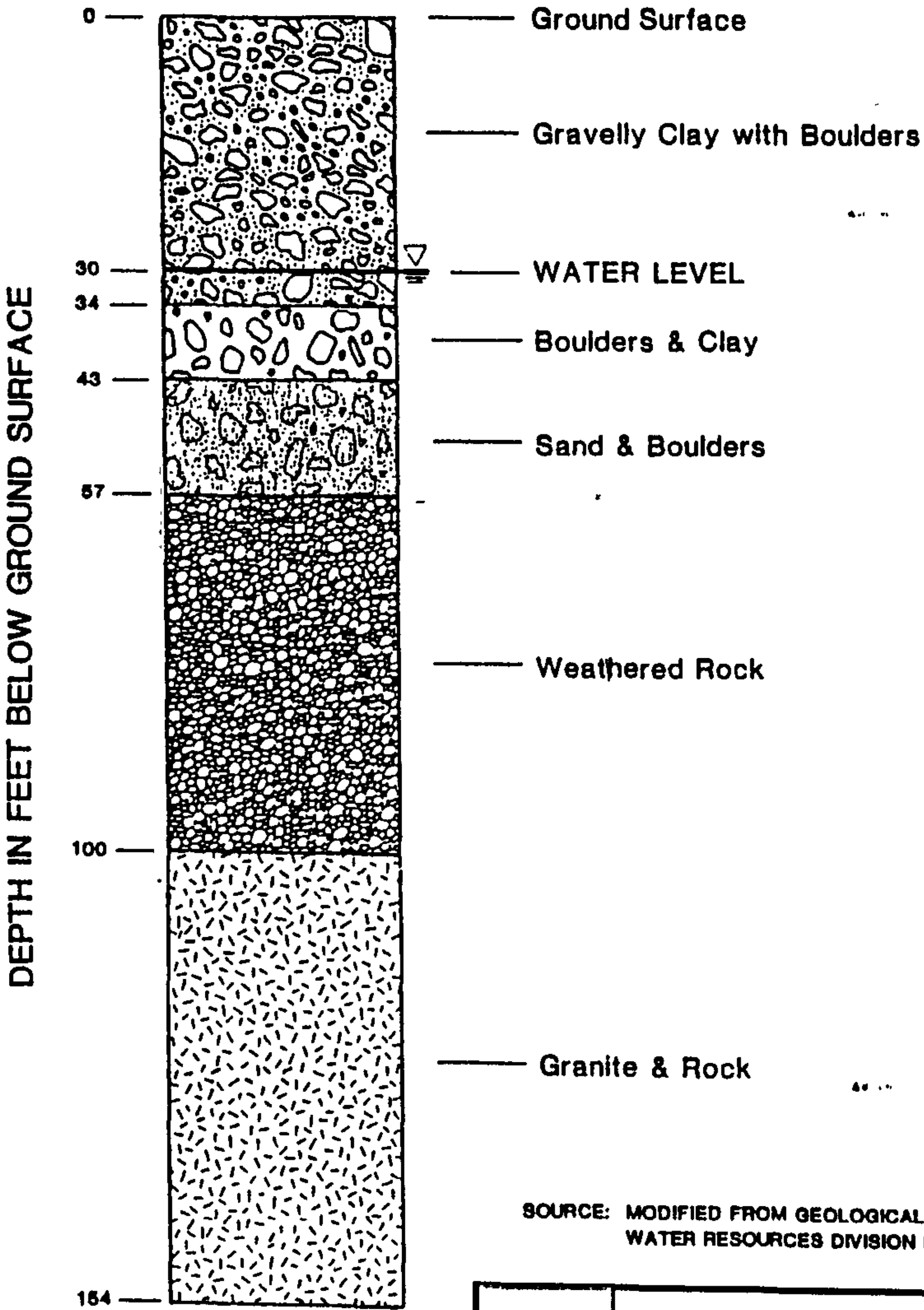
CAPE ROMANZOF LRRS
DIAGRAMATIC CROSS SECTION ALONG NILUMAT CREEK SHOWING GROUND WATER FLOW FROM WELL-A TO WELL-1

S. SIRTAJuddin AHMED	Nov 1994	Figure 34



SOURCE: MODIFIED FROM GEOLOGICAL SURVEY WATER RESOURCES DIVISION FILE DATA, UNDATED

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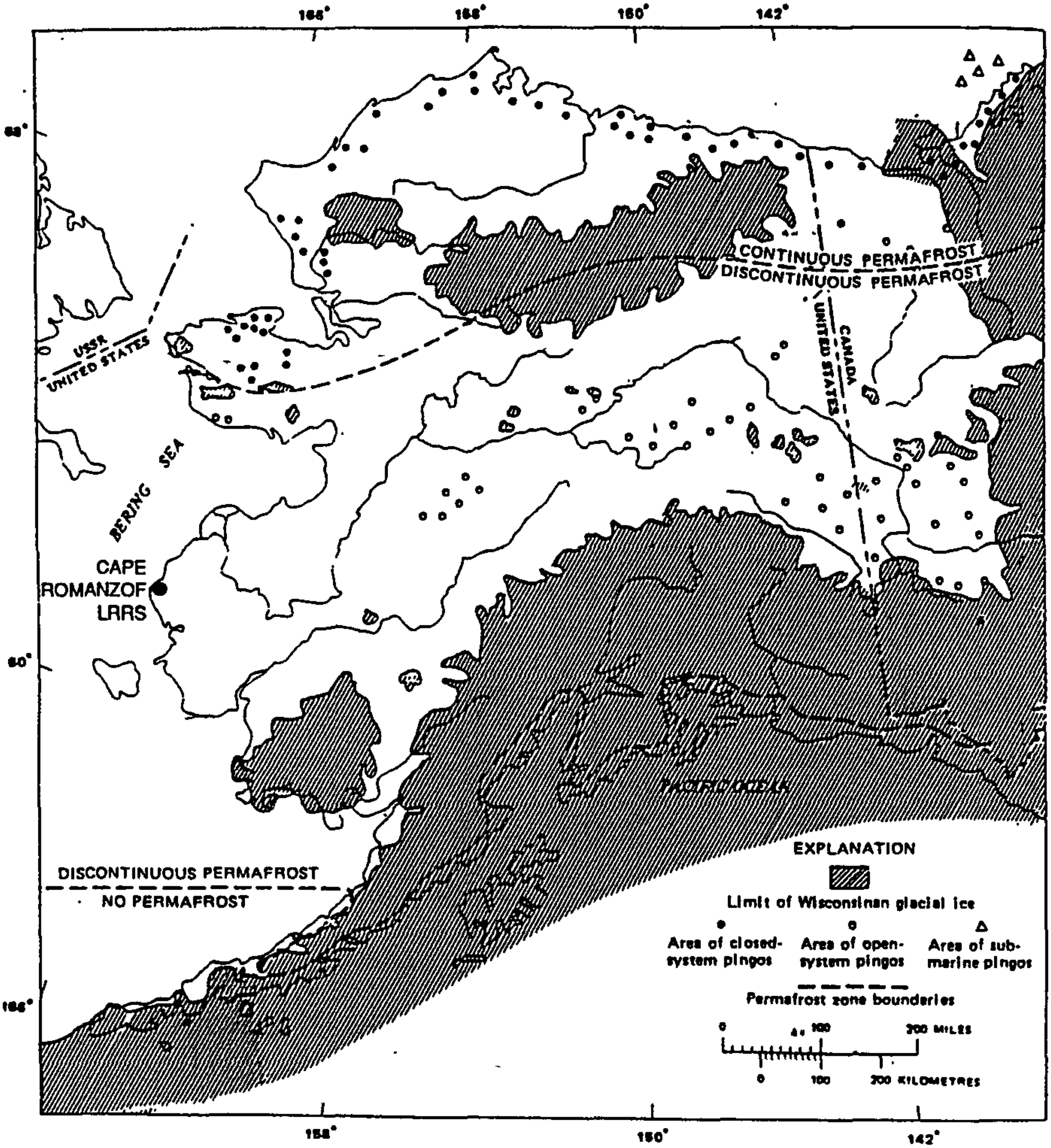
CAPE ROMANZOF LRRS	
GENERALIZED LOG OF WATER WELL-1	

S SIRTAJuddin AHMED	Nov 1994	Figure-85



Source: Modified from Péwé, 1975

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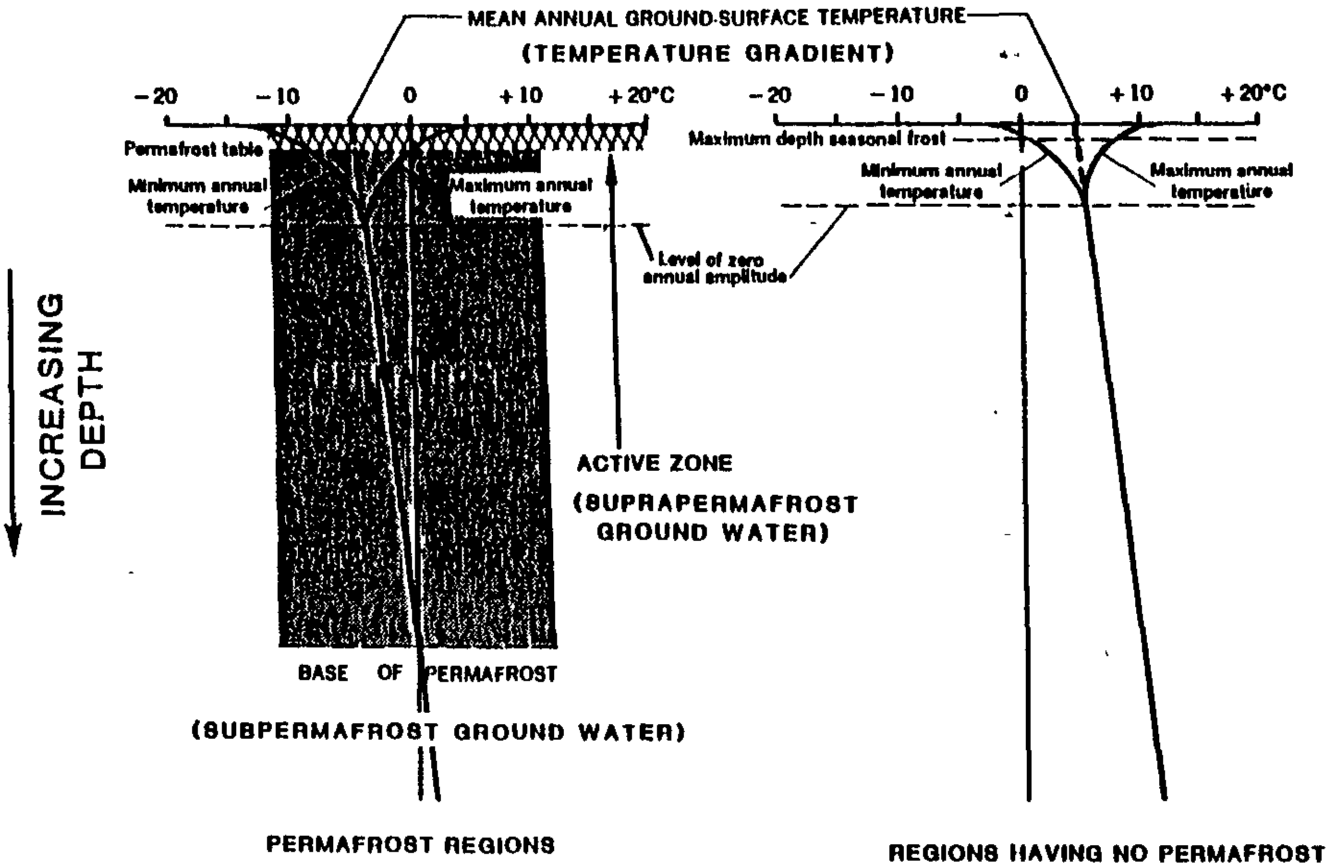
CAPE ROMANZOF LRRS

PERMAFROST ZONES OF ALASKA

S. SIRTAJuddin AHMED	Nov 1994	Figure-38



SOURCE: MODIFIED FROM WILLIAMS, 1970

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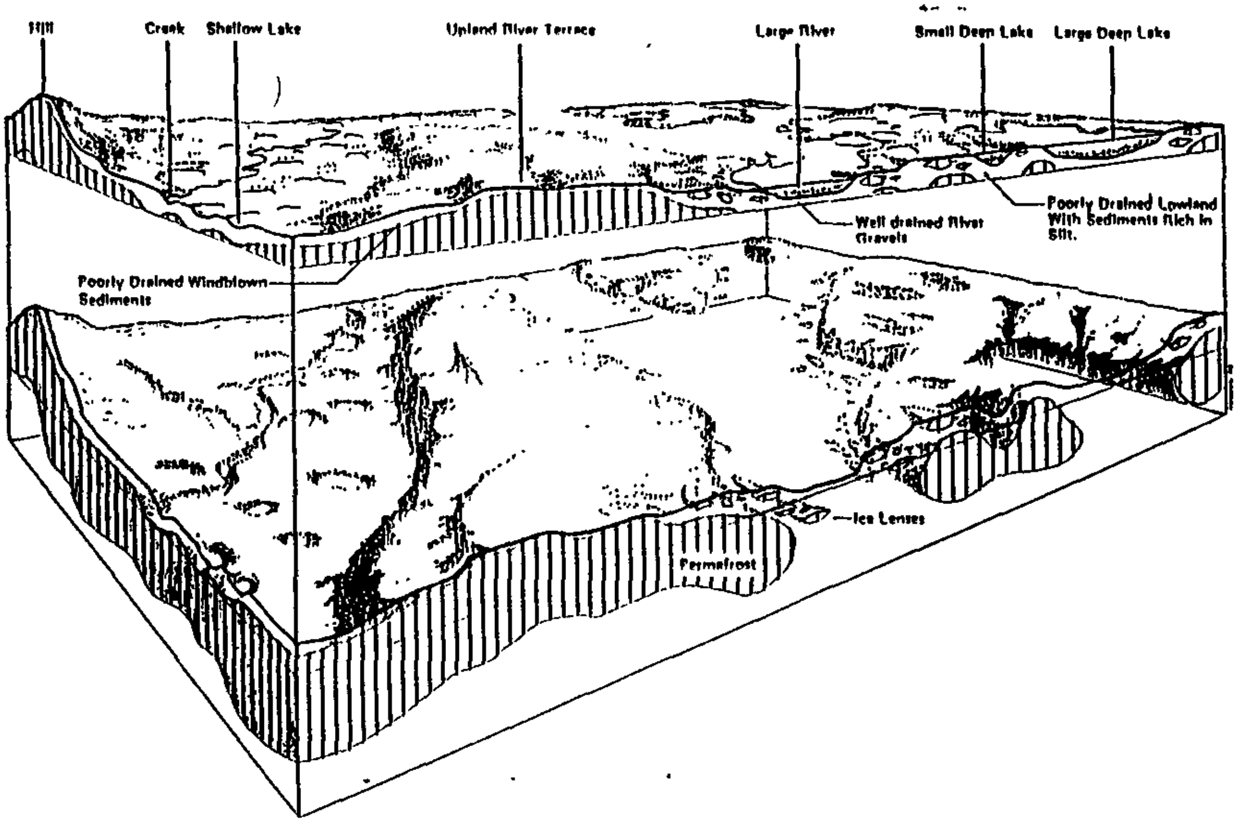
CAPE ROMANZOF LRRS

GENERALIZED TEMPERATURE RELATIONSHIP OF PERMAFROST

S SIRTAJuddin AHMED	Nov 1994	Figure -37



SOURCE: MODIFIED FROM SELKREGG, 1976c

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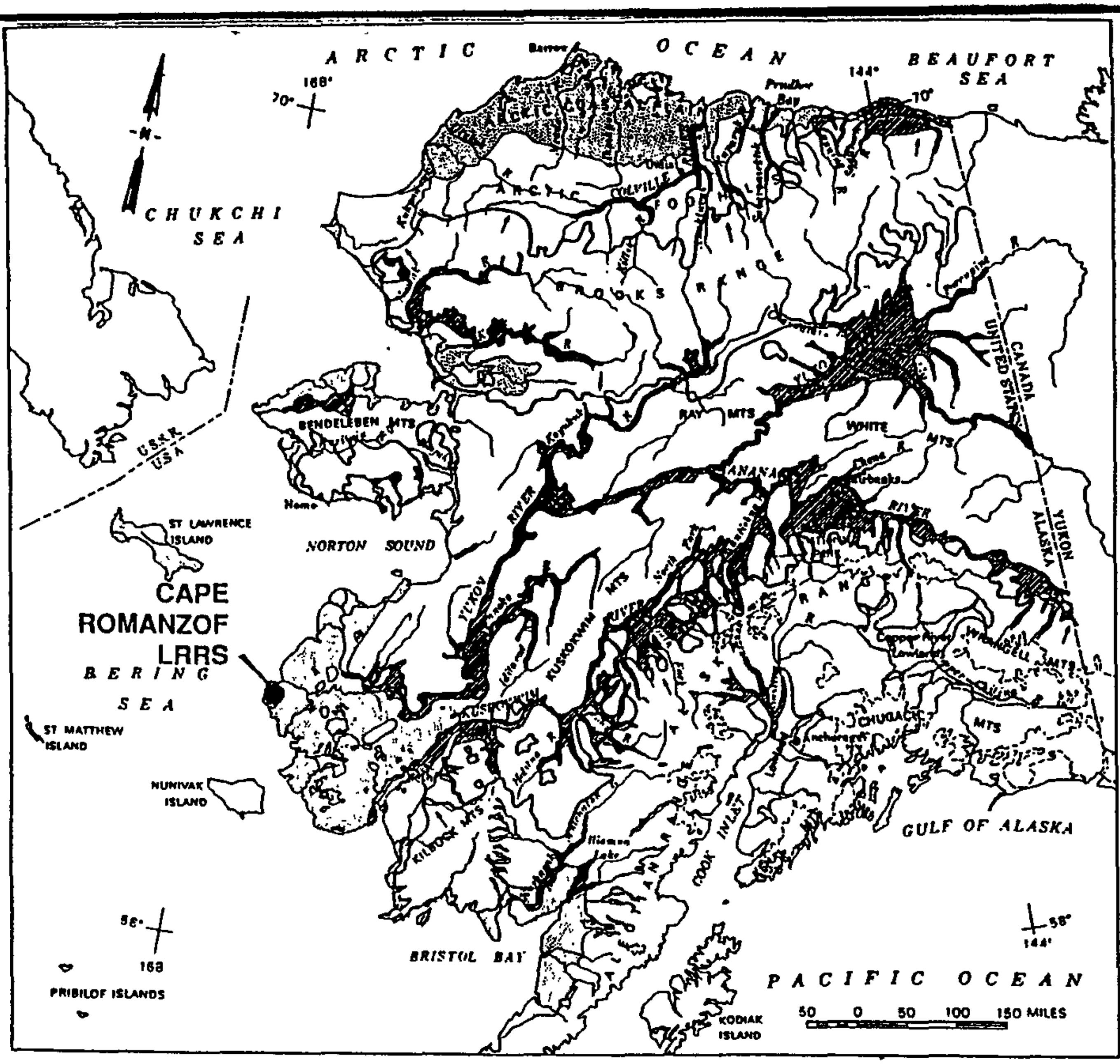
CAPE ROMANZOF LRRS
SURFACE FEATURE IMPACTS
ON PERMAFROST DISTRIBUTION

S SIRTAJuddin AHMED	Nov 1994	Figure 38



Alluvium of major valleys
Sand, gravel, and silt of flood plains, low terraces, and alluvial fans

Coastal-lowland deposits
Chiefly silt and sand, and subordinate amounts of gravel; includes sand and gravel of bars, beaches and spits, and sand, silt, and gravel of deltas Within limits of Pleistocene glaciation, include till, glaciomarine, and glacioestuarine deposits

Bedrock of mountains and uplands
Chiefly bedrock mantled locally by weathered bedrock rubble reworked by frost action, alluvium, and eolian deposits, and, within limit of Pleistocene glaciation, by glacial deposits

Limit of Pleistocene glaciation
Unconsolidated deposits within this limit may include till, sand and gravel, and silt and clay of glacial, glaciolacustrine, glaciomarine, or glacioestuarine origin. (Coulter and others, 1965)

Cook Inlet and Copper River Lowlands
Approximate upper limit of lacustrine silt, clay, sand, gravel and stony silt and clay of extensive glacial lakes in Copper River Lowland and of glaciolacustrine, glacioestuarine, and glaciomarine deposits in the Cook Inlet lowland

Major glaciers and ice fields

Contact

Source: Modified from Williams, 1970

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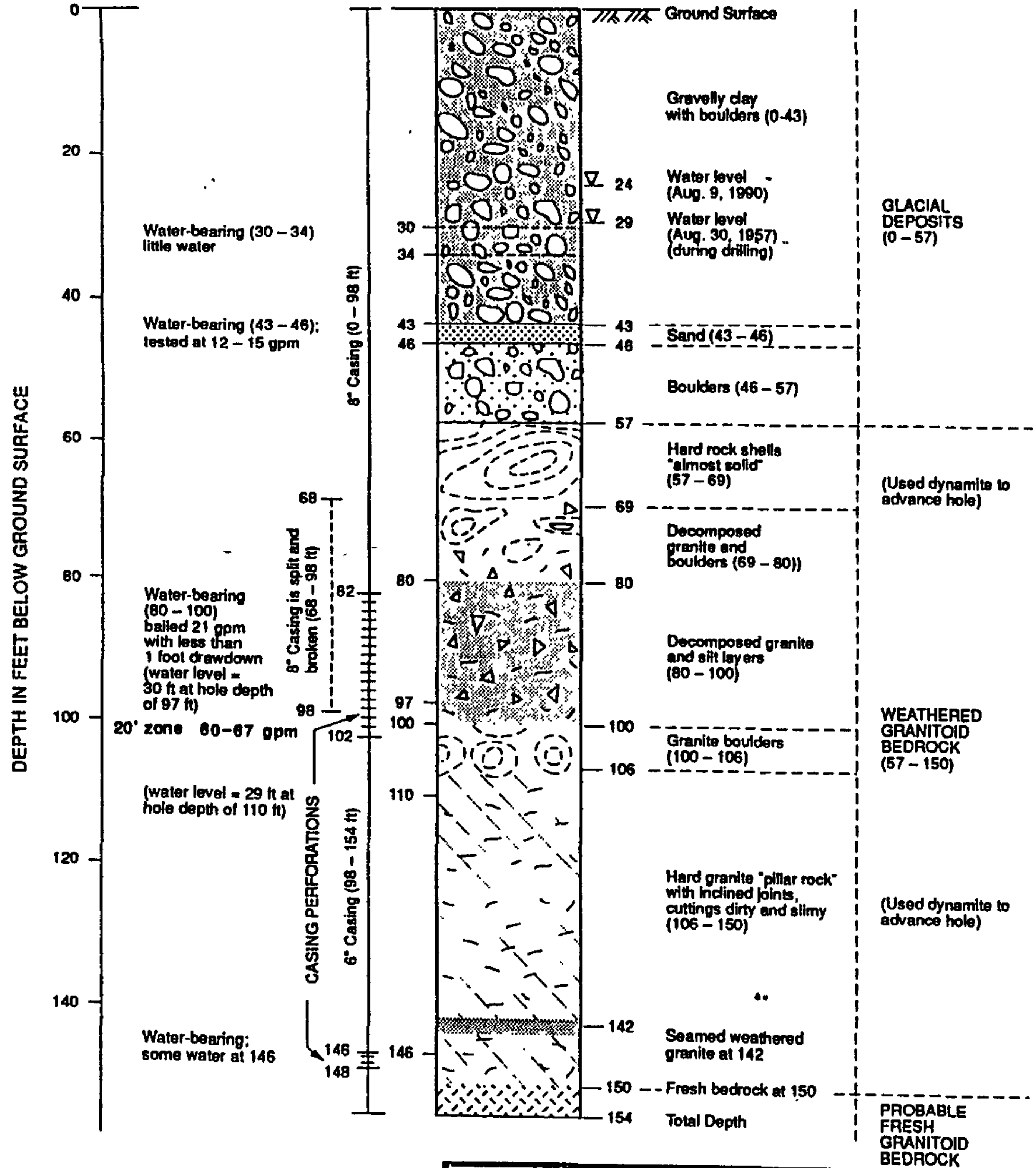
611 CES
PRIDE IN PROGRESS

CAPE ROMANZOF LRRS

GEOHYDROLOGIC UNITS OF ALASKA

S SIRTAJuddin AHMED	Nov 1994	Figure -39



Note: Well No. 1 drilled in August/September 1957

Source: Modified from U.S. Geological Survey Water Resources Division File Data, Undated

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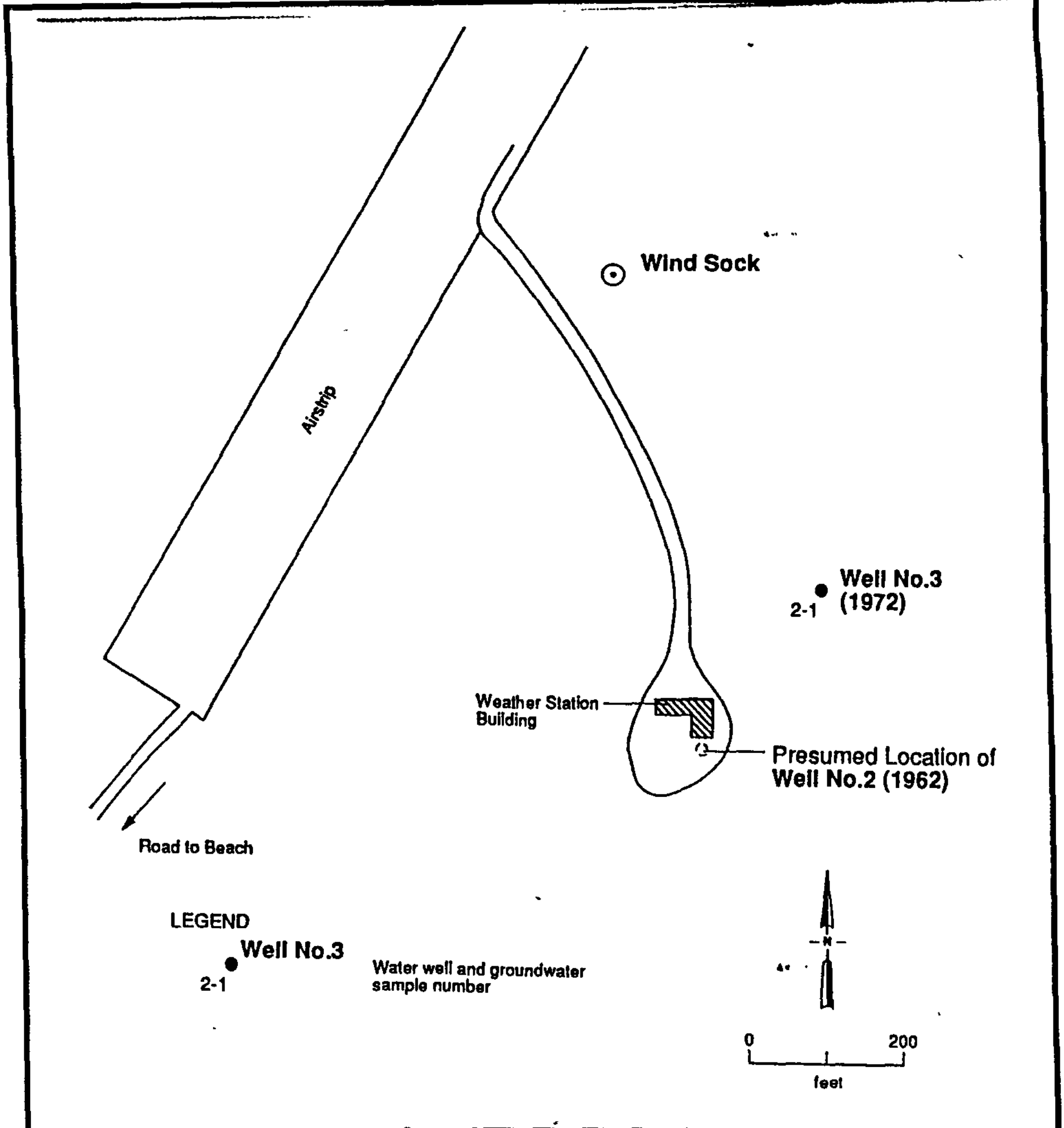
CAPE ROMANZOF LRRS

WATER WELL NO.1

LOG AND WELL CONSTRUCTION DATA

S SIRTAJuddin AHMED	Nov 1994	Figure -40



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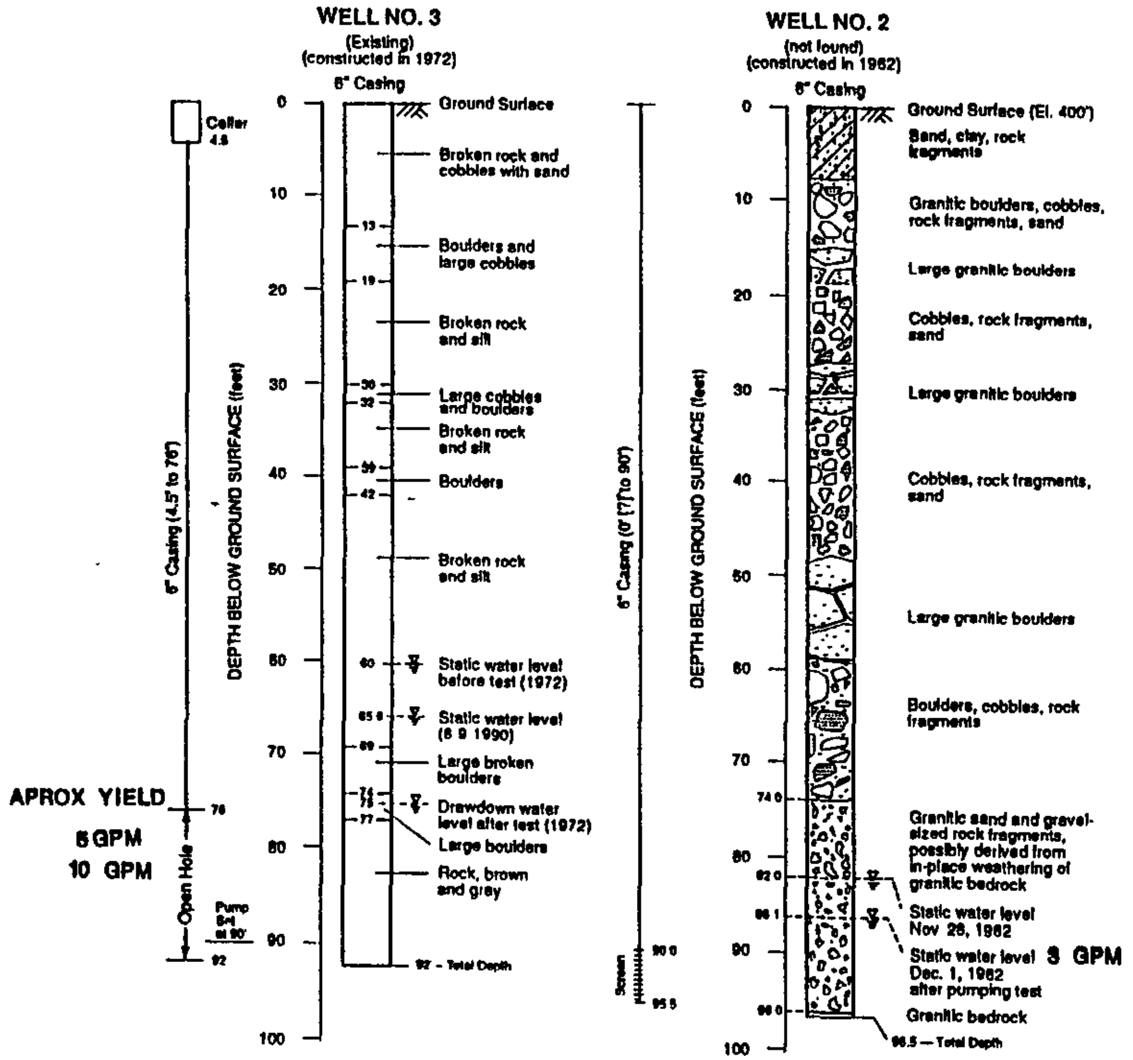
CAPE ROMANZOF LRRS
LOCATION MAP
WATER WELL NO.2 AND 3

S SIRTAJuddin AHMED	Nov 1994	Figure -41



Source U S Corps of Engineers (unpublished file data)

Note Water-bearing stratum was encountered at 77 0 to 77 5 foot depth

Well was drilled Aug 23 to Nov 8, 1972. The hole was surged and bailed with casing to 76 ft and open hole at 76 to 92 ft.

Source U S Corps of Engineers (1963)

Note: No frozen formations reported during drilling

Well was drilled Oct. 25 – Nov. 17, 1962 by F&M Braneb. A 6" dia. 20 slot screen, 5.5 ft long was set with bottom at 95.5 ft, and well was developed by surging and bailing 2 hrs 10 min Nov 27 1962

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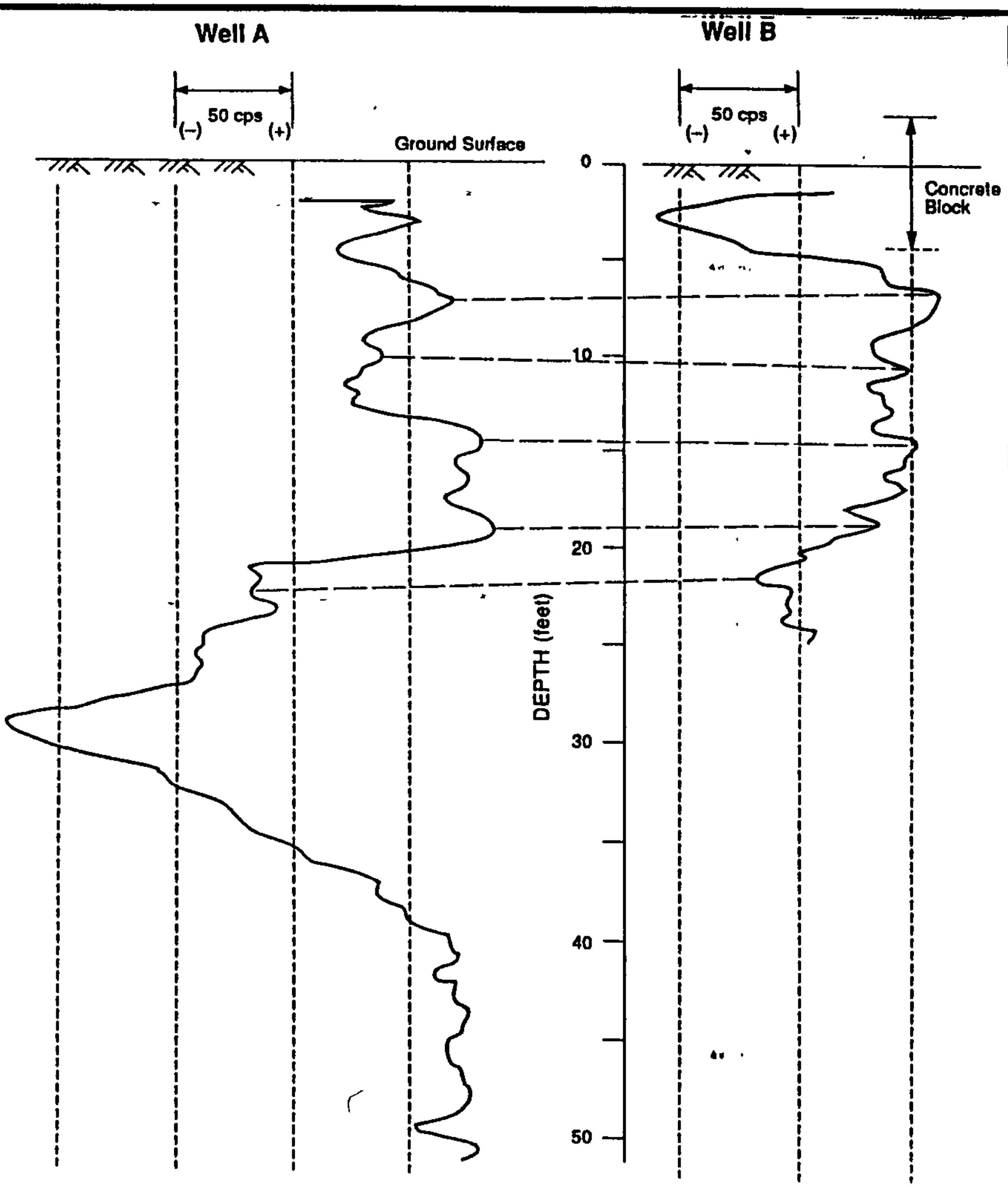
CAPE ROMANZOF LRRS
WATER WELL NO.2 AND 3
LOGS AND WELL CONSTRUCTION DATA

S SIRTAJuddin AHMED	Nov 1994	Figure -42



LEGEND

cps Count per second

— — Correlation lines between logs

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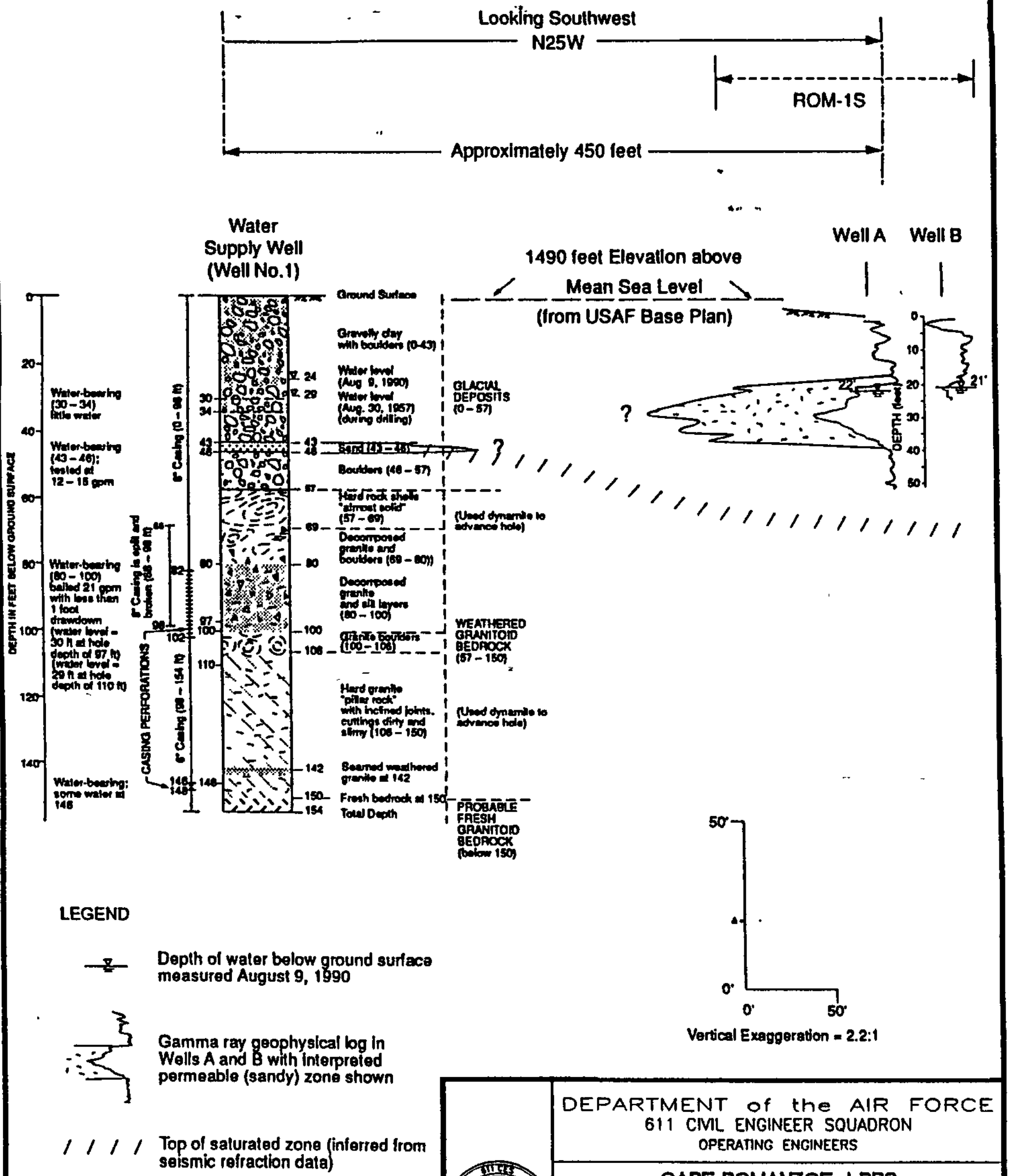
CAPE ROMANZOF LRRS

WELLS A AND B GAMMA LOG

S SIRTAJuddin AHMED	Nov 1994	Figure -43



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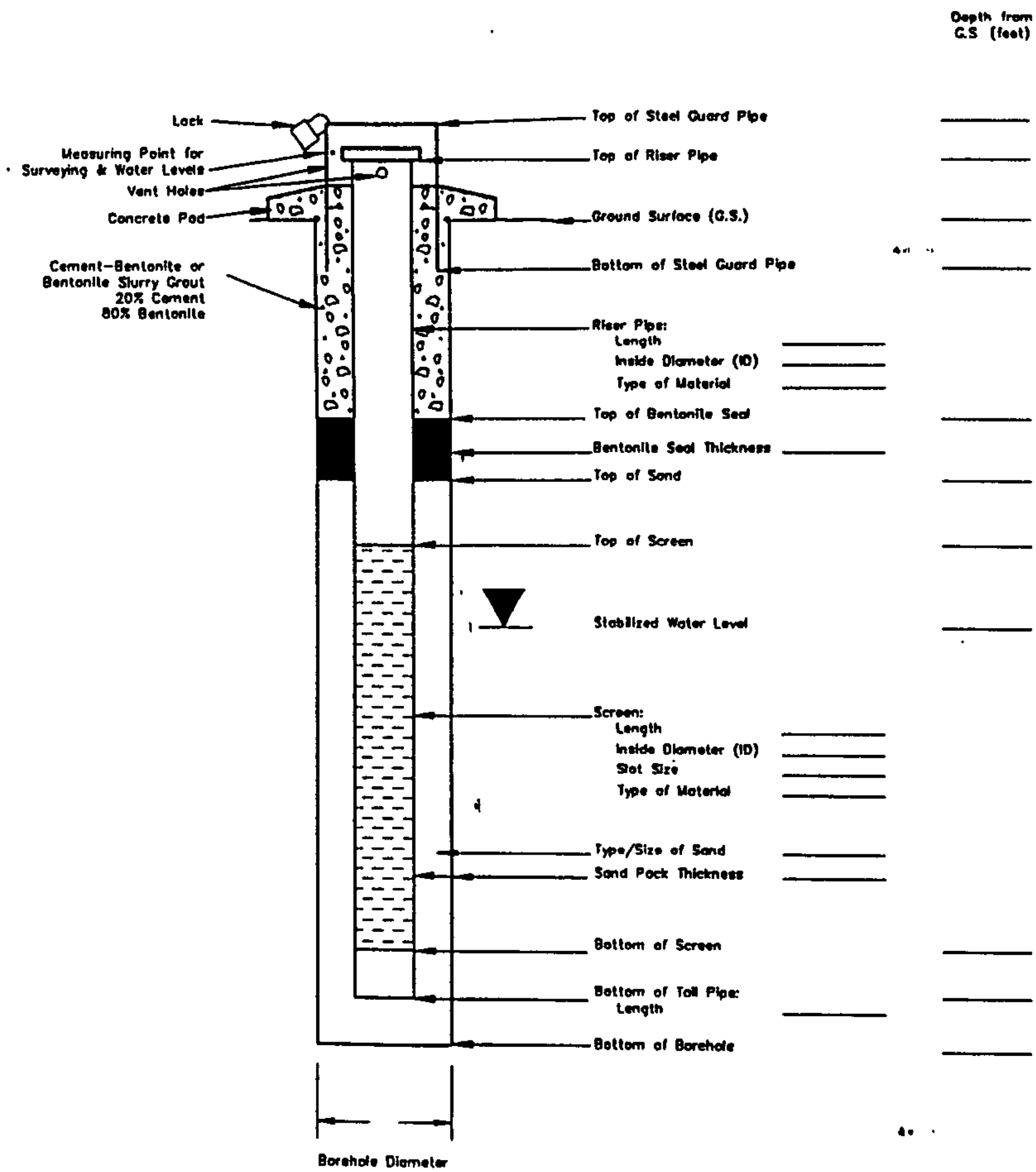
CAPE ROMANZOF LRRS

WELLS A,B AND WATER WELL NO.1
LOG CORRELATION

S. SIRTAJuddin AHMED	Nov 1994	Figure -44



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CAPE ROMANZOF LRRS
SCHEMATIC DIAGRAM
MONITORING WELLS WW-1 THROUGH WW-6

S SIRTAJuddin AHMED	Nov 1994	Figure 45

TABLES

Table 1
CAPE ROMANZOF LRRS
CONCLUSIONS CONCERNING SITES EVALUATED

SITE	OPERATING PERIOD	SITE DESCRIPTION	HARM SCORE	MAIN FACTORS IMPACTING TOTAL HARM SCORE			SUFFICIENT POTENTIAL TO CREATE ENVIRONMENTAL CONTAMINATION	FOLLOW ON ACTION WARRANTED
				RECEPTORS	WASTE CHARACTERISTICS	PATHWAY		
Waste Accumulation Area #3 (SS08)	1950s-1982	Spills and leaks from wastes and unused products stored in drums, ground spill incidents ranging from 1,000 to 14,000 gallons from storage tanks and POL piping. Two MOGAS tanks were also abandoned at this site due to leakage	74	76	90	56	Yes	Yes
Spill/Leak #4 (SS10)	1970s	Diesel fuel loss of approximately 500 gallons, reported to the contaminating adjacent well	70	57	54	100	Yes	Yes
Waste Accumulation Area #1 and Spill/Leak #1 and #2 (SS07)	1950s-Present	Current POL and other shop storage area with numerous leaks/spills evident. Also, diesel tank spillage and 470 gallon diesel fuel loss due to fuel bladder rupture.	68	76	72	56	Yes	Yes
Road Oiling (OT05)	1950s-1970s	Waste oils and other shop wastes (ethylene glycol, hydraulic fluid, etc) applied to roadways for dust control and disposal	63	79	54	56	Yes	Yes
Landfill #3 (LF04)	1970s-Present	Disposal of refuse and shop wastes by shallow (6 ft) area fill method	62	76	54	56	Yes	Yes
Waste Accumulation Area #2 (SS01)	1982-Present	Spills and leaks of stored wastes (oils, thinners) and unused products	62	76	54	56	Yes	Yes
Dump Area (DP11)	1950s-1970s	Uncontrolled dumping of refuse, drums, and waste shop materials at east slope of Upper Camp Partial cleanup effort in 1984	60	66	54	61	Yes	Yes
Landfill #2 (LF03)	1970s	Landfill used for disposal of shop wastes along with refuse by shallow area fill method, burning may have occurred	57	62	54	56	Yes	Yes
Landfill #1 (LF02)	1950s-1970s	Landfill used for refuse and shop wastes at backside of mountain ridge Snow precluded visual observation during site visit	56	68	36	63	Yes	Yes
Spill/Leak #3 (ST09)	1950s-Present	Spills/Leaks associated with POL fill stand at beach	55	55	54	56	Yes	Yes
White Alice (OT06)	1958-1979	Suspected spills, leaks, and disposal of oil containing PCBs onto ground	50	62	40	48	Yes	Yes

40 109

Table 2
CAPE ROMANZOF LRRS
SITE CODE DESCRIPTION

Site Code	Description
SS08	Waste Accumulation 3 and Spill Location 6-9
LF12	Landfill (Disposal Pit)
SS13	Seep Area and Spill Location 5 (Large Fuel Spill)
SS10	Weather Station Well 3, Spill Site 4
SS07	Waste Accumulation 1 and Spill Location 1 + 2 (Former Shop Area)
OT05	Road Oiling Sites
LF04	Landfill 3 (Active)
SS01	Waste Accumulation Area 2 (AF TPM reported Cleaned, regraded, and filled)
DP11	Dump Areas (No Contamination was located)
LF03	Landfill 2
LF02	Landfill 1
ST09	Spill Site 3 (POL Truck Fill Stand)
OT06	White Alice Sites (Demolished, Burned, Asbestos Landfill Placarded, no visible signs of contamination)
SS14	Drum Storage Area
SS15	Leaking USTs South of SS07

Table 3
CAPE ROMANZOF LRRS
SUMMARY OF SITE FEATURES

SITE	LOCATION	SITE HISTORY	SETTING	COMMENTS
SS08	Waste Accumulation Area 3 East of Composite Facility	Stores drummed products and liquid waste	Fill Material	Flat Area
LF12	Disposal Pit South of Fueling Station	Disposal pit for former buildings	Fill Material	Flat Area
SS13	Large Fuel Spill Southwest of Fueling station and road	14,000-gallons diesel fuel spill, Abandoned Wells A and B, 300 feet from Well 1	Tundra	Relatively flat area, with locally steep gradients in tundra
SS10	Well-3 Weather Station Area	Well 3 (found) non-potable water use Well 2 (not found)		
SS07	Former Shop Area South end of demolished Lower Camp	Former waste accumulation area at former shop area	Fill Material	Flat Area
OT05	Road Oiling Installation Road System	Applied industrial waste oil to roads between 1953 to 1978	Gravel road and adjacent tundra	Area is on and adjacent to installation roads
LF04	Active Landfill Current landfill behind Industrial Dome	Receives refuse from installation activities	Fill Material/Landfill Debris	Flat Area, drains to stream
LF03	Landfill Former landfill 1/2 mile west of Composite Facility	Received refuse from installation activities in the 1970s	Fill Material/Landfill Debris	Area drains directly to Fowler Creek, 4 MWs installed
ST09	Former Truck Fill Stand above beach	Small POL spills occurred during tank filling and transfers	Fill, Disturbed Native Soil	Area drains to Fowler Creek
SS14	Former Drum Storage Area	Staging area for drummed waste	Fill, Disturbed Native Soil	Flat Area, drains to beaver ponds
SS15	South of SS07	Current drinking water course, installed 1957 to 145 feet	Tundra	

Table 4
CAPE ROMANZOF LRRS
LIST OF CONTAMINATED SITES

SITE	SETTING	REMEDIAL RECOMMENDED IRP EFFORT OF TPH CONTAMINATED SOILS	CATEGORY	VALUE OF CONTAMINATED SOIL (Cu Yd)
SS08 Waste Accumulation Area 3	FILL	Excavation of TPH contaminated soils with landfarming	3	380
LF12 Disposal Pit	Fill	No further action	1	
SS13 Large Fuel Spill	NS/GW	Further observation, sampling, and evaluation	2	9,800
SS10 Well 3 near Weather Station	GW	No further action; abandon well	1	
SS07 Waste Accumulation Area 1	Fill	Excavation of TPH contaminated soils with landfarming	3	2,100
0T05 Road Oiling	NS	No further action		
LF04 Active Landfill	NS	Active landfill, category not assigned		
LF03 Landfill No 2	Fill/SW/GW	Closure by capping, hydraulic controls, and effluent treatment	3	11,530*
09 rmer Truck Fill tand	Fill	Excavation of TPH-contaminated soil with landfarming	3	20
SS14 Former Drum Storage Area	NS/SW	Excavation of TPH-contaminated soil with landfarming	3	1,910
SS15	Leaking USTs	Excavation with landfarming	3	

* = Estimated volume of landfilled material, consisting of soil and miscellaneous debris

Categories are
- 1 No further IRP action
- 2 Further IRP investigations required
- 3 FS completed and remedial alternative selected

Setting Codes are.
- NS Native Soil
- SW Surface Water
- GW Groundwater
- FS Feasibility Study

Table 5
CAPE ROMANZOF LRRS
FINAL LIST OF CONTAMINATED SITES RECOMMENDED FOR FUTURE IRP EFFORT

SITE	SETTING	RECOMMENDED REMEDIAL IRP EFFORT	CATEGORY	VALUE OF CONTAMINATED SOIL (Cu Yd)
SS08 Waste Accumulation Area 3	Fill	Excavation of TPH-Contaminated Soil with landfarming	3	380
SS13 Large Fuel Spill	NS/GW	Further observation, sampling, and evaluation	2	9,800
SS07 Waste Accumulation Area 1	Fill	Excavation of TPH-Contaminated Soil with landfarming	3	2,100
LF04 Active Landfill No 3	NS	Active Landfill, category not assigned		
LF03 Landfill No 2	Fill/SW/GW	Closure by capping, hydraulic controls, and effluent treatment	3	11,530*
ST09 Former Truck Fill Stand	Fill	Excavation of TPH-Contaminated Soil with landfarming	3	20
SS14 Former Drum Storage Area	NS/SW	Excavation of TPH-Contaminated Soil with landfarming	3	1,910
SS15 Leaking USTs	Leaking USTs	Evaluation with landfarming	3	

* = Estimated volume of landfilled material, consisting of soil and miscellaneous debris

Categories are

1	No further IRP action
2	Further IRP investigations required
3	Feasibility Study completed and remedial alternative selected

Setting Codes are:

NS	Native Soil
SW	Surface Water
GW	Groundwater
FS	Feasibility Study

Table 6
CAPE ROMANZOF LRRS
ANALYTICAL METHODS AND NUMBER OF ANALYSES AT EACH CONTAMINATED SITE

LAB ANALYSES EPA METHODS	STOCKPILE (SS-13)	WASTE ACCUMULATION AREA No. 3 (SS08)	DRUM STORAGE AREA (SS14)	POL FILLSTAND (ST-09)
8240 (Volatile Organics)			13	
8270 (Semi-Volatile Organics)			13	
8015 (GRO)	17	51	69	
8100 M (DRO)	17	51	69	
8020 (BTEX)	17	51	69	
7000 (Metals)	17	9	13	
8010		9	13	
8080		9	13	
PID	88	223	192	45
DEXSIL (PCB)		26	8	8

Table 7
CAPE ROMANZOF LRRS
TOTAL PID/PCB READINGS AND LAB SAMPLES

SITE	TRUCK LOADS	PID	PCB	LAB SAMPLE
DRUM STORAGE (SS14)	144	167	8	64
FILL STAND (ST09)		45	8	
WASTE ACCUMULATION (SS08)	76	223	26	51
STOCKPILE (Near SS15)	75	88		17
TOTAL	295	529	42	132

PID = Photoionization Detector
PCB = DEXSIL 2000 Chloride Analyzer

Table 8
CAPE ROMANZOF LRRS
TOTAL PROJECT EXCAVATION SUMMARY SHEET
1994 WORK PROGRAM

SITE	SURFACE AREA	NO. OF TRUCK LOADS	SAMPLES				
			SURFACE SAMPLE NOS.	EXCAVATION SAMPLE NOS.	CONFIRMATION SAMPLE NOS.	RECONFIRMATION SAMPLE NOS.	TOTAL
Stockpile (Near SS15)	+600 yds	75		17 401-417			17
Waste Accumulation (SS08)	6,500 ft^2 722 yds	76	9 201-209	11 210-220	21 221-241	10 242-251	51
Drum Storage Area A / B	24,570 ft^2 2,730 yds	144 Not	7 007-013 Excavated	23 014-036	41 037-067	3 068-070	64
POL Fill Stand (ST09)	8,600 ft^2 955 yds	**					
Landfill (LF03)	43,800 ft^2 4,866 yd^2	240 104	TOP	Pitrun Sand	12 inches 6 inches		
			GEOTILE				
			HYPALON				
		125 250	BOTTOM	Sand Pitrun	6 inches 12 inches		
CELL #1		144					
CELL #2							
CELL #3		151					

* = Not excavated, far beyond 1994 work plan
** = Established PCB grid, not excavated, far beyond 1994 work plan

BACKFILL QUANTITIES	
SITE	NO. OF TRUCK RUNS
STOCKPILE (Near SS15)	70
WASTE ACCUMULATION AREA NO 3 (SS08)	75
DRUM STORAGE (SS14)	140

Note 1 truck load equals 8 yds approximately

Table 9
CAPE ROMANZOF LRRS
TOTAL PROJECT (ESTIMATED VERSUS ACTUAL) CONTAMINATED SOILS

SITE	ESTIMATED AREA OF CONTAMINATION (SQUARE FEET)	ESTIMATE OF SOIL CONTAMINATION (CUBIC YARDS)	ACTUAL EXCAVATED CUBIC YARDS
LF03 Landfill No 2	49,900	11,530	
SS08 Waste Accumulation Area No 3	3,375	380	722
SS14 Drum Storage Area	10,300	1,910	2,730
ST09 POL Fillstand	170	20	955

Table 10
CAPE ROMANZOF LRRS STOCKPILE NEAR SS15 SITE
SUMMARY OF PID AND LAB ANALYSIS RESULTS

FIELD SAMPLE NUMBER	PID (ppm)	LABORATORY			
		SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
1	429	401	13,300	2,320	53.56
2	435				
3	443				
4	237	402	12,800	3,270	107.1
5	411				
6	424				
7	286				
8	455	403	4,420	1,530	37.38
9	421				
10	358				
11	345				
12	278	404	2,900	1,550	37.26
13	285				
4	350				
15	365				
16	381	405	8,350	2,890	128 54
17	358				
18	375				
19	351				
20	370	406	10,806	2,900	280 3
21	422				
22	374				
23	423				
24	334	407	9,460	2,580	168 90
25	237				
26	343				
27	354				
28	468	408	11,800	3,330	204 92
29	382				
30	422				
31	439				
32	382	409	12,300	2,970	95.62

PID = Photoionization Detector
Sample I D = Sample Identification Number
DRO = Diesel Range Organic (EPA Method 8100M)
GRO = Gasoline Range Organic (EPA Method 8015M)
BTEX = Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

TABLE 10 (Cont)
CAPE ROMANZOF LRRS STOCKPILE NEAR SS15 SITE
SUMMARY OF PID AND LAB ANALYSIS RESULTS

FIELD SAMPLE NUMBER	PID (ppm)	LABORATORY			
		SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
33	417				
34	96				
35	314				
36	386	410	10,100	2,690	120 64
37	327				
38	457				
39	401				
40	405	411	18,800	3,410	79.99
41	136				
42	205				
43	159				
44	273	412	16,400	3,830	95.62
45	320				
46	303				
47	100				
48	88	413	4,910	1,700	38 51
49	94				
50	10				
51	107				
52	332	414	1,020	2,420	99.27
53	364				
54	348				
55	238				
56	36				
57	138				
58	57	415	561	14.9	0 311
59	77				
60	134				
61	220				
62	10				
63	3				
64	3	416	228	4 04	0.38

PID = Photoionization Detector
Sample I D. = Sample Identification Number
DRO = Diesel Range Organic (EPA Method 8100M)
GRO = Gasoline Range Organic (EPA Method 8015M)
BTEX = Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

Table 10 (Cont)
CAPE ROMANZOF LRRS STOCKPILE NEAR SS15 SITE
SUMMARY OF PID AND LAB ANALYSIS RESULTS

FIELD SAMPLE NUMBER	PID (ppm)	SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
65	54				
66	145				
67	20				
68	2				
69	26				
70	21	417	346	15.4	0 36

PID = Photoionization Detector
Sample I.D. = Sample Identification Number
DRO = Diesel Range Organic (EPA Method 8100M)
GRO = Gasoline Range Organic (EPA Method 8015M)
BTEX = Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

Table 11
CAPE ROMANZOF LRRS STOCKPILE NEAR SS15 SITE
EXCAVATION SUMMARY

DESCRIPTION	TRUCK LOADS	NUMBER OF READINGS		NUMBER OF SAMPLES	LABORATORY SAMPLES	
		PID	PCB		NUMBERS	DATES
Surface Excavation	1-26 27-64 65-70	26 38 6		7 9 1	401-407 408-416 417	08-01-94 08-02-94 08-03-94
Excavation Below Pile	71-75	5				08-03-94
Pit		13				
Backfill With Pitrun	70					
TOTALS	75	88		17		

NOTE 1 truck load equals 8 yds approximately
PCB = PCB as Chloride using a Dexsil 2000 Chloride Analyzer

Table 12
CAPE ROMANZOF LRRS, STOCKPILE NEAR SS15 SITE
MATRIX SCORE SHEET

1. Depth to Subsurface Water		
<5 feet	(10)	
5-15 feet	(8)	
15-25 feet	(6)	
25-50 feet	(4)	
>50 feet	(1)	1
2. Mean Annual Precipitation		
>40 inches	(10)	
25-40 inches	(5)	5
15-25 inches	(3)	
<15 inches	(1)	
3. Soil Type (Unified Soil Classification)		
Clean, coarse-grained soils	(10)	
Coarse-grained soils with fines	(8)	8
Fine-grained soils (low oc)	(3)	
Fine-grained soils (high oc)	(1)	
4. Potential Receptors		
Public Well within 1,000 feet, or Private Well(s) within 500 feet	(15)	15
Municipal/private well within 1/2 mile	(12)	
Municipal/private well within 1 mile	(8)	
No known well within 1/2 mile	(6)	
No known well within 1 mile	(4)	
Non-potable groundwater	(1)	
5. Volume of Contaminated Soil		
>500 cubic yards	(10)	10
100-500 cubic yards	(8)	
25-100 cubic yards	(5)	
>De Minimis - 25 cubic yards	(2)	
De Minimis	(0)	

TOTAL 39

Matrix Score 30		Cleanup Level in mg/kg			
		Diesel	Gasoline/Unknown		
		diesel range petroleum hydrocarbons	gasoline range petroleum hydrocarbons	Benzene	BTEX
Level A	>40	100	50	0 1	10
Level B	**27-40**	**200**	**100**	**0.5**	**15**
Level C	21-26	1,000	500	0 5	50
Level D	<20	2,000	1,000	0 5	100

Table 13A
CAPE ROMANZOF LRRS WASTE ACCUMULATION AREA NO. 3 (SS08)
SUMMARY OF PID AND LAB ANALYSIS
PRE-EXCAVATION

FIELD SAMPLE NUMBER	FIELD		LABORATORY			
	PID (ppm)	PCB (as Chloride ppm)	SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
52A	0					
52B	3					
72A	0					
72B	2					
72C	0	1.7				
42A	13	2.3				
42B	6					
34	0					
26A	0					
26B	0					
14A	0					
14B	0					
2A	0					
2B	0					
8A	0					
8B	0	2 5				
36A	3					
36B	6	3 3				
22A	0					
22B	0					
40A	7	2 2				
40B	0					
68A	0	2 5				
68B	1					
50A	0					
50B	0					
70A	0					
70B	0					
42C	22					
46A	82	2 1				

PID = PHOTOIONIZATION DETECTOR
PCB = DEXSIL 2000 CHLORIDE ANALYZER

SAMPLE I D = 94004948XXX

O = DIESEL RANGE ORGANICS (EPA METHOD 8100M)

GRO = GASOLINE RANGE ORGANICS (EPA METHOD 8015M)
BTEX = TOTAL BENZENE, TOLUENE, ETHYLBENZENE ,XYLENE (EPA METHOD 8020)
201/209 = DUPLICATE SAMPLES

Table 13A (Cont)
CAPE ROMANZOF LRRS WASTE ACCUMULATION AREA NO. 3 (SS08)
SUMMARY OF PID AND LAB ANALYSIS
PRE-EXCAVATION

FIELD SAMPLE NUMBER	FIELD		LABORATORY			
	PID (ppm)	PCB (as Chloride ppm)	SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
46B	4					
65A	0	1.8				
65B	2					
48A	3	3.0				
48B	0					
44A	120	2.3				
44B	5					
101A	0					
101B	1					
63A	1					
63B	0					
18A	0	2.2				
18B	0					
10A	0					
10B	0					
30A	0	2 7				
30B	0					
56A	96	2.6	201/209	61 6/18,400	U/841	U/3 81
56B	314	3 8				
66A	0	2.8				
66B	0					
58A	2	2.7				
58B	1					
56C	5					
67A	0	3.0	202	56 1	U	U
67B	0					
57A	27	2.0	203	2,880	42.5	0.08
57B	10					

PID = PHOTOIONIZATION DETECTOR
PCB = DEXSIL 2000 CHLORIDE ANALYZER

SAMPLE I D = 94004948XXX

DRO = DIESEL RANGE ORGANICS (EPA METHOD 8100M)

GRO = GASOLINE RANGE ORGANICS (EPA METHOD 8015M)
BTEX = TOTAL BENZENE, TOLUENE, ETHYLBENZENE ,XYLENE (EPA METHOD 8020)
201/209 = DUPLICATE SAMPLES

Table 13A (Cont)
CAPE ROMANZOF LRRS WASTE ACCUMULATION AREA NO. 3 (SS08)
SUMMARY OF PID AND LAB ANALYSIS
PRE-EXCAVATION

FIELD SAMPLE NUMBER	FIELD		LABORATORY			
	PID (ppm)	PCB (as Chloride ppm)	SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
47A	2	2.5	204	268	U	U
47B	2					
46A	0		205			
46B	-					
46C	1					
45A	0	2.6	206	147	1 52	U
45B	140	2.4				
55A	113	2.9	207	1,420	252	1 64
55B	93					
54A	4	2.5	208	1,600	U	U
54B	8					
33A	0					
33B	0					
51A	90					
51B	5					
43A	5					
43B	97					
41A	0					
41B	1					
42C	9					
52C	0					
43C	60					
102A	4					
102B	60					
102C	0					
52C	0					
37A	2					
37B	0					

PID = PHOTOIONIZATION DETECTOR
PCB = DEXSIL 2000 CHLORIDE ANALYZER
SAMPLE I D = 94004948XXX
DRO = DIESEL RANGE ORGANICS (EPA METHOD 8100M)
GRO = GASOLINE RANGE ORGANICS (EPA METHOD 8015M)
BTEX = TOTAL BENZENE, TOLUENE, ETHYLBENZENE ,XYLENE (EPA METHOD 8020)
201/209 = DUPLICATE SAMPLES

Table 13A (Cont)
CAPE ROMANZOF LRRS WASTE ACCUMULATION AREA NO 3 (SS08)
SUMMARY OF PID AND LAB ANALYSIS
PRE-EXCAVATION

	FIELD		LABORATORY			
FIELD SAMPLE NUMBER	PID (ppm)	PCB (as Chloride ppm)	SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
64A	1					
64B	110					
38A	73					
38B	32					
39A	87					
39B	270					

PID = PHOTOIONIZATION DETECTOR
PCB = DEXSIL 2000 CHLORIDE ANALYZER

SAMPLE I D = 94004948XXX

DRO = DIESEL RANGE ORGANICS (EPA METHOD 8100M)

GRO = GASOLINE RANGE ORGANICS (EPA METHOD 8015M)
BTEX = TOTAL BENZENE, TOLUENE, ETHYLBENZENE ,XYLENE (EPA METHOD 8020)
201/209 = DUPLICATE SAMPLES

Table 13B
CAPE ROMANZOF LRRS WASTE ACCUMULATION AREA NO. 3 (SS08)
SUMMARY OF PID AND LAB ANALYSIS
EXCAVATION

TRUCK LOAD NUMBER	LOCATION	FIELD	LABORATORY			
		PID (ppm)	SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
1	41-50	-				
2	41-50	5				
3	41-50	0				
4	41-50	4				
5	42-43	67				
6	42-43	61	210	186	8.12	U
7	42-43	37				
8	42-43	37				
9	42-43	38				
10	43-102	10				
11	102	26				
12	102	28	211	202	8 14	U
13	42-43	87				
14	42	37				
15	42-43	8				
16	42-43	1	212	20.2	U	U
17	35-44	5				
18	35-44	1				
19	35-44	1				
20	35-44	1				
21 H	44	2				
22 J	55-64	84	213	1,570	178	1.74
23 H	54-55	0				
24	54-55	4				
25	55	58				
26 H	55-65	10				
27 J	55-65	50				
28 H	45-55	120	214	255	12.9	0.262
29 J	56	52				
30 H	56	25				

PID = PHOTOIONIZATION DETECTOR
PCB = DEXSIL 2000 CHLORIDE ANALYZER

SAMPLE I D = 94004948XXX

GRO = GASOLINE RANGE ORGANICS (EPA METHOD 8015M)
BTEX = TOTAL BENZENE, TOLUENE, ETHYLBENZENE, XYLENE (EPA METHOD 8020)
DRO = DIESEL RANGE ORGANICS (EPA METHOD 8100M)

Table 13B (Cont)
CAPE ROMANZOF LRRS WASTE ACCUMULATION AREA NO. 3 (SS08)
SUMMARY OF PID AND LAB ANALYSIS
EXCAVATION

TRUCK LOAD NUMBER	LOCATION	FIELD	LABORATORY			
		PID (ppm)	SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
31 J	37-46	9				
32 H	38	10				
33 J	56	101				
34 H	56	12	215	913	84.3	0.704
35 J	55	212				
36 H	55-56	29				
37 J	46-38	1				
38 H	57	0				
39 J	47-56	1				
40 H	56-57	20	216	1,350	2 94	U
41 J	47-57	1				
42 H	47	0				
43 J	47-48	12				
44 H	37-46	4				
45	29-38	13				
46	30-39	4	217/218	24.6/127	0 40/1 64	U/U
47	39	7				
48	37-31	140				
49	30-31	5				
50	30-31	7				
51	31	20				
52	31	48	219	571	17.9	0.152
53	31	13				
54	31	0				
55	55-56	100				
56	55-56	53				
57	55-56	30				
58	55-56	52	220	4,830	350	4.90
59	55	19				
60	56	18				

PID = PHOTOIONIZATION DETECTOR
PCB = DEXSIL 2000 CHLORIDE ANALYZER

SAMPLE I.D = 94004948XXX

GRO = GASOLINE RANGE ORGANICS (EPA METHOD 8015M)
BTEX = TOTAL BENZENE, TOLUENE, ETHYLBENZENE, XYLENE (EPA METHOD 8020)

DRO = DIESEL RANGE ORGANICS (EPA METHOD 8100M)

Table 13B (Cont)
CAPE ROMANZOF LRRS WASTE ACCUMULATION AREA NO. 3 (SS08)
SUMMARY OF PID AND LAB ANALYSIS
EXCAVATION

TRUCK LOAD NUMBER	LOCATION	FIELD	LABORATORY			
		PID (ppm)	SAMPLE I.D. NUMBER	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
61	56-57	170				
62	57	10				
63	55-56	38				
64	55-56	35				
65	57	2				
66	39	70				
67	39	6				
68	39-47	4				
69	31	23				
70	31	6				
71	56-57	1				
72	56-57	2				
73	56	1	250	4.77		
74	56-57	1				
75	56-57	1				
76	56	1	251	U		

PID = PHOTOIONIZATION DETECTOR
PCB = DEXSIL 2000 CHLORIDE ANALYZER

SAMPLE I.D = 94004948XXX

GRO = GASOLINE RANGE ORGANICS (EPA METHOD 8015M)
BTEX = TOTAL BENZENE, TOLUENE, ETHYLBENZENE, XYLENE (EPA METHOD 8020)
DRO = DIESEL RANGE ORGANICS (EPA METHOD 8100M)

Table 13C
CAPE ROMANZOF LRRS WASTE ACCUMULATION AREA NO. 3 (SS08)
SUMMARY OF PID AND LAB ANALYSIS
CONFIRMATION SAMPLES

SAMPLE I.D.	LOCATION	PID (ppm)	LABORATORY DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)	REMARKS
221	102	0	U	U	U	
222	42	0	4.29	U	U	
223	32	0	34.7	U	0.175	
224	40	0	446	9.56	0.25	See Sample I.D. 248 (Reconfirmation)
225	48	0	66.3	U	U	
226	57	1	29 5	U	U	
227	67	0	12.0	U	U	
228	65	0	133	U	U	See Sample I D. 242 (Reconfirmation)
229	65	0	80.6	U	U	Duplicate of 228
230	64	0	26.9	1.69	U	
231	63	0	25.8	U	U	
232	53	0	169	3.51	U	See Sample I.D. 243 (Reconfirmation)
233	44	0	10 3	U	U	
234	36	1	911	20.4	0.224	See Sample I.D. 245 (Reconfirmation)

SAMPLE I D = 94004948XXX
DRO = DIESEL RANGE ORGANICS (EPA METHOD 8100M)
BTEX = TOTAL BENZENE, TOLUENE, ETHYLBENZENE, XYLENE (EPA METHOD 8020)
PID = PHOTOIONIZATION DETECTOR
GRO = GASOLINE RANGE ORGANICS (EPA METHOD 81015M)
U = RESULT BELOW DETECTION LIMIT

Table 13C (Cont)
CAPE ROMANZOF LRRS WASTE ACCUMULATION AREA NO. 3 (SS08)
SUMMARY OF PID AND LAB ANALYSIS
CONFIRMATION SAMPLES

SAMPLE I.D.	LOCATION	PID (ppm)	LABORATORY			REMARKS
			DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)	
235	37	0	11.8	U	U	
236	30	0	536	1.89	U	
237	25	0	93.7	U	U	
238	31	8	28 0	8.22	0.07	
239	56	11	278	10.4	U	See Sample I.D. 249 (Reconfirmation)
240	45	3	603	87 3	0.773	See Sample I.D. 244 (Reconfirmation
241	45	3	84.0	13 1	0.306	Duplicate of 240
242	65	0	39	2.3	0.06	
243	53	0	U	2.3	0.15	
244	45	0	U	2.8	0.21	
245	36	0	25	2.1	0.165	
246	30	2	150	2.5	0 12	
247	25	37	108	12	0.11	
248	40	0	73	1.6	U	
249	56	12	1,600	53	U	
250	56	2	4.77	-	-	
251	56	1	U	-	-	

SAMPLE I D = 94004948XXX
DRO = DIESEL RANGE ORGANICS (EPA METHOD 8100M)
BTEX = TOTAL BENZENE, TOLUENE, ETHYLBENZENE, XYLENE (EPA METHOD 8020)
PID = PHOTOIONIZATION DETECTOR
GRO = GASOLINE RANGE ORGANICS (EPA METHOD 81015M)
U = RESULT BELOW DETECTION LIMIT

Table 14
CAPE ROMANZOF LRRS WASTE ACCUMULATION NO 3 (SS08)
EXCAVATION SUMMARY

DESCRIPTION	TRUCK LOADS	NUMBER OF READINGS		NUMBER OF SAMPLES	LABORATORY SAMPLES	
		PID	PCB		NUMBERS	DATES
		23	5			07-29-94
		31	11			07-30-94
Pre-Surface		39				08-04-94
Surface		16	10	9	201-209	08-01-94
	1-16	25		3	210-212	08-04-94
	17-22	6		1	213	08-08-94
	23-59	37		7	214-220	08-09-94
Excavation	60-70	11				
Confirm		21		21	221-241	08-10-94
Reconfirm		8		8	242-249	08-21-94
Re-	71-73	3		1	250	08-24-94
Excavation	74-76	3		1	251	08-25-94
TOTALS	76	223	26	51	201-251	

NOTE: 1 truck load equals 8 yds approximately
PCB = PCB as Chloride using Dexsil 2000 Chloride Analyzer
Received laboratory clearance on 09-01-94
Filled excavated area on 09-03-94

Table 15
CAPE ROMANZOFF LRRS, WASTE ACCUMULATION AREA 3 (SS08)
MATRIX SCORE SHEET

1. Depth to Subsurface Water		
<5 feet	(10)	
5-15 feet	(8)	
15-25 feet	(6)	
25-50 feet	(4)	
>50 feet	(1)	1
2. Mean Annual Precipitation		
>40 inches	(10)	
25-40 inches	(5)	5
15-25 inches	(3)	
<15 inches	(1)	
3. Soil Type (Unified Soil Classification)		
Clean, coarse-grained soils	(10)	
Coarse-grained soils with fines	(8)	8
Fine-grained soils (low oc)	(3)	
Fine-grained soils (high oc)	(1)	
4. Potential Receptors		
Public Well within 1,000 feet, or Private Well(s) within 500 feet	(15)	
Municipal/private well within 1/2 mile	(12)	12
Municipal/private well within 1 mile	(8)	
No known well within 1/2 mile	(6)	
No known well within 1 mile	(4)	
Non-potable groundwater	(1)	
5. Volume of Contaminated Soil		
>500 cubic yards	(10)	10
100-500 cubic yards	(8)	
25-100 cubic yards	(5)	
>De Minimis - 25 cubic yards	(2)	
De Minimis	(0)	

TOTAL: 36

Matrix Score 36		Cleanup Level in mg/kg			
		Diesel	Gasoline/Unknown		
		diesel range petroleum hydrocarbons	gasoline range petroleum hydrocarbons	Benzene	BTEX
Level A	>40	100	50	0.1	10
Level B	**27-40**	**200**	**100**	**0.5**	**15**
Level C	21-26	1,000	500	0 5	50
Level D	<20	2,000	1,000	0.5	100

Table 16A
CAPE ROMANZOFF LRRS, DRUM STORAGE AREA (SS14)
SUMMARY OF FIELD PID, PCB, AND LABORATORY ANALYSIS
PRE-EXCAVATION

Field Sample No. and Location	FIELD		LABORATORY			
	PID (ppm)	PCB As Chloride (ppm)	Sample I.D.	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
1/11	251	-	-	-	-	-
2/12	55	-	-	-	-	-
3/13	3	-	-	-	-	-
4/14	17	2.2	-	-	-	-
5/18	6	2.5	-	-	-	-
6/19	7	3.2	-	-	-	-
7/11	251	-	007	28,800	79.7	U
8/12	55	-	008	42,000	4.6	U
9/13	3	-	009	26 4	U	U
10/13	3	-	010	9.48	U	U
11/14	17	-	011	67,200	4.29	U
12/18	6	-	012	11,600	11.8	U
13/19	7	-	013	38 1	U	U

PID = Photoionization Detector
PCB = Dexsil 2000 Chloride Analyzer
Sample I D = 94004948*XXX*
U = Results below detection limits

DRO = Diesel Range Organics (EPA Method 8100M)
GRO = Gasoline Range Organics (EPA Method 8015M)
BTEX = Total Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

Table 16B
CAPE ROMANZOF LRRS, DRUM STORAGE AREA (SS14)
SUMMARY OF FIELD PID AND LABORATORY ANALYSIS
EXCAVATION

Truck Load #	Location	PID (ppm)	Sample I.D.	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
1	7	3				
2	7	4				
3	9	61				
4	9	3				
5	21,10,15	15				
6		10	014	35,800	1 4	U
7		81				
8		4				
9		13				
10		10				
11		22				
12		93	015	4,910	12.1	U
13	10,11	69				
14	10,11	79				
15	11	192				
16	11	105				
17	20	210				
18	19,20	273	016	3,560	186	0 498
19	19,20	306				
20	11	169				
21	11	165				
22	11,19	133				
23	18,19	83				
24	12	17	017	18,100	27.5	0.08
25	12	51				
26	18,19	22				
27	12,13	68				
28	18	78				
29	12,13	32				
30	18,19	12	018	28,200	4 9	.047
31	18	27				
32	12	61				
33	12,19	41				
34	18	44				
35	12,18	69				
36	18	75	019	29,200	26.3	0.411
37	12,13	135				
38	18	46				

Truck Load = approx. 8 cu yd
PID = Photoionization Detector
Sample I D = 94004948*XXX*
U = Results below detection limits

030/031 = Duplicate sample numbers
DRO = Diesel Range Organics (EPA Method 8100M)
GRO = Gasoline Range Organics (EPA Method 8015M)
BTEX = Total Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

Table 16B (Cont)
CAPE ROMANZOF LRRS, DRUM STORAGE AREA (SS14)
SUMMARY OF FIELD PID AND LABORATORY ANALYSIS
EXCAVATION

Truck Load #	Location	PID (ppm)	Sample I.D.	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
39	18	7				
40	12	71				
41	18	25				
42	18	19	020/021	17,300/ 11,800	10.9/8.51	0.185/0 169
43	17,18	9				
44	13,18	57				
45	12,13	470				
46	12,13	22				
47	17	5				
48	13	1	022	130	0626	U
49	13,17	11				
50	17	27				
51	17	35				
52	13	0				
53	13	0				
54	13	0	023	22 7	U	U
55	6,10	114				
56	5,11	254				
57	5	185				
58	5	264				
59	5	300				
60	5	227	024	12,300	34 3	0.309
61	5	187				
62	5	78				
63	5	35				
64	5	179				
65	5	103				
66	5	65				
67	5	104	025	27,900	160	0.796
68	5	97				
69	5	45				
70	5	44				
71	5	45				
72	5	51	026	15,600	103	0 514
73	5	28				
74	5	26				
75	5	105				
76	3	1				

Truck Load = approx 8 cu. yd.
PID = Photoionization Detector
Sample I.D = 94004948*XXX*
U = Results below detection limits

030/031 = Duplicate sample numbers
DRO = Diesel Range Organics (EPA Method 8100M)
GRO = Gasoline Range Organics (EPA Method 8015M)
BTEX = Total Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

Table 16B (Cont)
CAPE ROMANZOF LRRS, DRUM STORAGE AREA (SS14)
SUMMARY OF FIELD PID AND LABORATORY ANALYSIS
EXCAVATION

Truck Load #	Location	PID (ppm)	Sample I.D.	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
77	3	55				
78	3	30	027	7,350	34 0	0.328
79	2,3	40				
80	2	0				
81	2	4				
82	2	1				
83	2	0				
84	2	5	028	1,130	0 781	U
85	2	2				
86	1,2	17				
87	1	35				
88	1,14	0				
89	1,14	24				
90	14	9	029	11,400	2.84	U
91	14,15	6				
92	14,16	29				
93	16	66				
94	16	69				
95	16	4				
96	21	2	030/031	313/935	U/U	U/U
97	10	34				
98	20,21	21				
99	10	160				
100	10	160				
101	19	60				
102	19	115				
103	19	130				
104	19	41	032	84.0	13.1	0.306
105	16,19	95				
106	16,19	49				
107	19	18				
108	11,19	56	033	3,960	27 0	0 302
109	19	90				
110	19	104				
111	19	20				
112	16,18	205				
113	16,18	8				
114	16,18	4	034	U	U	U

Truck Load = approx 8 cu yd.
PID = Photoionization Detector
Sample I D = 94004948*XXX*
U = Results below detection limits

030/031 = Duplicate sample numbers
DRO = Diesel Range Organics (EPA Method 8100M)
GRO = Gasoline Range Organics (EPA Method 8015M)
BTEX = Total Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

Table 16B (Cont)
CAPE ROMANZOF LRRS, DRUM STORAGE AREA (SS14)
SUMMARY OF FIELD PID AND LABORATORY ANALYSIS
EXCAVATION

Truck Load #	Location	PID (ppm)	Sample I.D.	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)
115	4,11,12	11				
116	3,12,13	1				
117	12	12				
118	12	92				
119	11,19,20	154				
120	12	40	035	6,860	14 7	0.25
121	11,19,20	307				
122	11,20	40				
123	5	102				
124	11	70				
125	5	22				
126	4,11	10	036	3,520	45 7	0.879
127	11	149				
128	11	52				

Truck Load = approx. 8 cu yd
PID = Photoionization Detector
Sample I.D = 94004948*XXX*
U = Results below detection limits

030/031 = Duplicate sample numbers
DRO = Diesel Range Organics (EPA Method 8100M)
GRO = Gasoline Range Organics (EPA Method 8015M)
BTEX = Total Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

Table 16C
DRUM STORAGE AREA (SS14)
SUMMARY OF FIELD PID AND LABORATORY ANALYSIS
CONFIRMATION

Sample I.D.	Location	PID (ppm)	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)	Remarks
037	22	0	71.5	U	U	
038	8a	0	514	U	U	
039	7	0	8.39	U	U	
040	9	0	2,240	31.7	0.134	
041	21	0	155	0.771	U	
042	6	0	34.5	U	U	
043	9a	0	392	0.4	U	
044	10	0	55	5.81	U	
045/046	20	0	240/403	2.52/0.827	U/U	Duplicates
047	5	12	90.2	2 08	U	
048	10a	6	5.59	U	U	
049	11	21	709	12.8	0.037	
050	4	65	58.3	4.64	U	
051	19	43	840	21 2	0.110	
052	12	62	5,550	46.3	0 572	
053	18	5	9.74	U	U	

Sample I D = 94004948*XXX*
PID = Photoionization Detector
GRO = Gasoline Range Organics (EPA Method 8015M)
U = Results below detection limits
030/031 = Duplicate sample numbers
DRO = Diesel Range Organics (EPA Method 8100M)
BTEX = Total Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

Table 16C (Cont)
DRUM STORAGE AREA (SS14)
SUMMARY OF FIELD PID AND LABORATORY ANALYSIS CONFIRMATION

Sample I.D.	Location	PID (ppm)	DRO (mg/Kg)	GRO (mg/Kg)	BTEX (mg/Kg)	Remarks
054	3	2	4 82	U	U	
055/056	12a	2	U/215	U/1.45	U/U	Duplicates
057	13	0	27	0.649	U	
058	17	0	13 2	U	U	
059	2	0	36 4	U	U	
060	13a	0	13 3	U	U	
061	14	1	18	U	U	
062/063	1	1	21 3/17	U/U	U/U	Duplicates
064	14a	0	20.6	U	U	
065	16	0	40 4	U	U	
066	15	0	73 3	U	U	
067	11a		0 365	U	U	Water Sample
068	20	-	12 4	U	U	Reconfirmation See SPL I.D. 045
069	12	-	7 16	0 651	U	Reconfirmation See SPL I.D 052
070	21	-	7.16	0.651	U	Reconfirmation See SPL I.D. 041

Sample I D = 94004948*XXX*
PID = Photoionization Detector
GRO = Gasoline Range Organics (EPA Method 8015M)
U = Results below detection limits

030/031 = Duplicate sample numbers
DRO = Diesel Range Organics (EPA Method 8100M)
BTEX = Total Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)

Table 17
CAPE ROMANZOF LRRS
DRUM STORAGE AREA (SS14) EXCAVATION SUMMARY

DESCRIPTION	TRUCK LOADS	NUMBER OF READINGS		NUMBER OF SAMPLES	LABORATORY SAMPLES	
		PID	PCB		NUMBERS	DATES
Surface		6	4	6		
		6	4	7	*007-013	07-18-94
Excavation	1-12	12		2	014-015	07-18-94
	13-37	25		4	016-019	07-19-94
	38-82	45		8	020-027	07-20-94
	83-94	24		2	028-029	07-21-94
	94-106			3	030-032	07-21-94
	Boulders and Coarse Sand					
	107-121	15		3	033-035	07-22-94
	122-128	7		1	036	07-23-94
Confirmation	129-131	27		30	037-066	07-26-94
		Water Samples		1	-067	07-26-94
Reconfirmation	131-144	5				08-05-94
		20				08-06-94
				3	068-070	08-10-94
TOTALS	144	192	8	70	007-070	
Backfilled Pit						09-02-94
						09-03-94

NOTE. = 1 truck load equals 8 yds approximately
* = Prefix 94004948XXX

Table 18
CAPE ROMANZOF LRRS, DRUM STORAGE (SS14)
MATRIX SCORE SHEET

1. Depth to Subsurface Water		
<5 feet	(10)	8
5-15 feet	(8)	
15-25 feet	(6)	
25-50 feet	(4)	
>50 feet	(1)	
2. Mean Annual Precipitation		
>40 inches	(10)	
25-40 inches	(5)	5
15-25 inches	(3)	
<15 inches	(1)	
3. Soil Type (Unified Soil Classification)		
Clean, coarse-grained soils	(10)	
Coarse-grained soils with fines	(8)	8
Fine-grained soils (low oc)	(3)	
Fine-grained soils (high oc)	(1)	
4. Potential Receptors		
Public Well within 1,000 feet, or Private Well(s) within 500 feet	(15)	
Municipal/private well within 1/2 mile	(12)	
Municipal/private well within 1 mile	(8)	
No known well within 1/2 mile	(6)	
No known well within 1 mile	(4)	4
Non-potable groundwater	(1)	
5 Volume of Contaminated Soil		
>500 cubic yards	(10)	10
100-500 cubic yards	(8)	
25-100 cubic yards	(5)	
>De Minimis - 25 cubic yards	(2)	
De Minimis	(0)	

TOTAL: 35

Matrix Score 35		Cleanup Level in mg/kg			
		Diesel	Gasoline/Unknown		
		diesel range petroleum hydrocarbons	gasoline range petroleum hydrocarbons	Benzene	BTEX
Level A	>40	100	50	0 1	10
Level B	**27-40**	**200**	**100**	**0.5**	**15**
Level C	21-26	1,000	500	0.5	50
Level D	<20	2,000	1,000	0 5	100

Table 19
CAPE ROMANZOF POL FILL STAND (ST-09)
PID/PCB READINGS
PRE-EXCAVATION

SAMPLE I.D.	PID (ppm)	PCB as Chloride (ppm)
1A	349	
1B	440	2.2
2A	158	
2B	339	
2C	337	
3A	320	
3B	317	
4A	425	1.4
4B	412	
5A	16	
5B	106	
6A	270	
6B	226	
7A	248	
7B	310	2.6
8A	0	
8B	0	
9A	0	
9B	0	
10A	0	
10B	0	
11A	138	
12	4	2.3
13A	79	
13B	267	
14A	1	
14B	4	
15A	100	
15B	180	
16A	328	
16B	220	

PID = Photoionization Detector
PCB = PCB as Chloride using DEXSIL 2000 Chloride Analyzer

Table 19 (Cont)
CAPE ROMANZOF POL FILL STAND (ST-09)
PID/PCB READINGS
PRE-EXCAVATION

SAMPLE I.D.	PID (ppm)	PCB as Chloride (ppm)
17A	32	
17B	57	
18A	36	
18B	22	
19A	4	
19B	4	
20A	463	3.0
20B	145	
21A	341	
21B	371	2.3
22A	234	
22B	315	
23A	20	2.0
23B	43	2.4

PID = Photoionization Detector
PCB = PCB as Chloride using DEXSIL 2000 Chloride Analyzer

Table 20
CAPE ROMANZOF LRRS POL FILL STAND (ST-09)
PRE-EXCAVATION SUMMARY

DESCRIPTION	TRUCK LOADS	NUMBER OF READINGS		NUMBER OF SAMPLES	LABORATORY SAMPLES	
		PID	PCB		NUMBERS	DATES
Pre-Excavation		45	8			07-23-94

NOTE = 1 truck load equals 8 yds approximately

No Excavations were carried Several Random Samples were taken at several locations at 18- and 36 inch depths to identify and establish the boundaries of contamination. After establishing the boundaries, grids were made

Table 21
CAPE ROMANZOF LRRS POL FILL STAND (ST-09)
MATRIX SCORE SHEET

1. Depth to Subsurface Water		
<5 feet	(10)	
5-15 feet	(8)	8
15-25 feet	(6)	
25-50 feet	(4)	
>50 feet	(1)	
2. Mean Annual Precipitation		
>40 inches	(10)	
25-40 inches	(5)	5
15-25 inches	(3)	
<15 inches	(1)	
3. Soil Type (Unified Soil Classification)		
Clean, coarse-grained soils	(10)	
Coarse-grained soils with fines	(8)	8
Fine-grained soils (low oc)	(3)	
Fine-grained soils (high oc)	(1)	
4. Potential Receptors		
Public Well within 1,000 feet, or Private Well(s) within 500 feet	(15)	
Municipal/private well within 1/2 mile	(12)	
Municipal/private well within 1 mile	(8)	
No known well within 1/2 mile	(6)	
No known well within 1 mile	(4)	4
Non-potable groundwater	(1)	
5. Volume of Contaminated Soil		
>500 cubic yards	(10)	10
100-500 cubic yards	(8)	
25-100 cubic yards	(5)	
>De Minimis - 25 cubic yards	(2)	
De Minimis	(0)	

TOTAL 35

Matrix Score		Cleanup Level in mg/kg			
		Diesel	Gasoline/Unknown		
35		diesel range petroleum hydrocarbons	gasoline range petroleum hydrocarbons	Benzene	BTEX
Level A	>40	100	50	0 1	10
Level B	**27-40**	**200**	**100**	**0.5**	**15**
Level C	21-26	1,000	500	0.5	50
Level D	<20	2,000	1,000	0.5	100

Table 22
CAPE ROMANZOF LRRS
BOTTOM LINER (HYPALON) FOR CONTAMINATED CELL

Hypalon based 045 inch geocomposite membrane consisting of a chlorosulfonated polyethylene (CSPE or equivalent polymer) geomembrane and an eight ounce per yard nonwoven needle punched polyester geotextile thermally laminated to both sides of the inner membrane. Material will consist of 25 foot widths and customer specified lengths The edge of each roll shall have at least a six inch minimum exposed membrane for joining adjacent rolls. The CSPE resin shall be manufactured by I.E. Dupont or equal. The manufacturer shall certify that all factory seams are of sufficient strength that the parent material will break before seam separation occurs This material shall be packed in such a manner to protect the product during shipping and on-site-storage and will be marked on the exterior indicating direction of unwind (Material specifications listed with ASTM test methods) (Thickness, mils 140 as per ASTM D-1777) (Tensile strength, 350 pounds as per ASTM D-1682) (Tear resistance, 90 pounds as per ASTM D-4533) Puncture resistance 220 pounds as per ASTM D-4833) (Dimensional Stability Maximum percent change 3.5 as per ASTM D-1204) (Mullins Burst pounds-per-square-inch (PSI) 500 as per ASTM D-3786) (Low temperature brittleness one eighth inch mandrel, four hour, Pass minus 40 degrees Fahrenheit as per ASTM D-2136) (Transmissivity Gal/Min/Ft width X 10-3 12 as per ASTM D-4716)

Table 23
CAPE ROMANZOF LRRS
TOP LINER (POLYPROPYLENE) FOR CONTAINMENT CELLS AND LANDFILL-2 (LF03)

PROPERTY	TEST METHOD	VALUE
Thickness, nominal		45
Thickness, minimum	ASTM D 751	41
Breaking strength Minimum (lb.)	ASTM D 751 Method A	250
Low Temperature Flexibility (Fahrenheit)	ASTM D 2136, 1/8 mandrel 4 hours pass	-40
Puncture Resistance (lb.)	FTMS 101C, Method 2031	210
Tear Strength, minimum (lb.)	ASTM D 751, Method B Tongue Tear	55
Dimensional Stability percent change, maximum	ASTM D 1204 180^0 F/1 hour	1.0
Resistance to soil burial (max percent change from original values) a 40-mil unreinforced sheet 1. Breaking Strength 2. Elongation at Break 3. Modulus at 100% elongation b Scrim fabric breaking strength	ASTM D 3083	 5 15 15 15
Hydrostatic Resistance minimum (lb.)	ASTM D 751 Method A, Procedure 1	250
Ply adhesion, minimum (lb /in.)	ASTM D 413	30
Water Absorption (weight change)	ASTM D 471, 70^0 F	Less 1 %
UV Resistance	ASTM G26 Xenon Arc Method 63^0 C	Pass 3000 hr.
Stress Cracking Resistance (min. hours with no failure)	ASTM D 1693	Pass 3000 hr

SEAM PROPERTIES	TEST METHOD	VALUE
Bonded Seam Strength (lb./width)	ASTM D 751, as modified in Appendix A, NSF 54	200
Peel Adhesion, minimum (lb /inch)	ASTM D 413	30

Table 24
CAPE ROMANZOF LRRS LANDFILL-2 (LF03), MONITORING WELLS, MW-1 THROUGH MW-4
SUMMARY OF CONSTRUCTION DETAILS

Well Number	Diameter (in)	Date Installed	Borehole Diameter (in)	Drilling Method	Total Borehole Depth (ft.)	Casing Depth (ft)	Screened Interval (ft)		Filter Pack Interval (ft)		Seal Interval (ft)		Elevation (ft)	
							Depth	Length	Depth	Length	Depth	Length	Casing Notch	Ground
MW-1	4	7/29/89	10	HSA*	19.5	19 3	8 8 - 18 8	10 0	6 0 - 19.3	13.3	3 0 - 6 0	3 0	122 82	121.5
MW-2	4	7/30/89	10	HSA	12 3	12 3	4 5-12 1	7.6	3 5-12 3	8.8	1 5-3.5	2 0	104 71	102 7
MW-3	4	7/31/89	10	HSA	14 4	14 4	5 4-14 2	8 8	3.4-14 4	11 0	1 4-3.4	2 0	76 11	73 6
MW-4	4	7/31/89	10	HSA	10.0	10 0	4 0-10 0	5.8	3.0-10 0	7 0	1.0-3 0	2 0	100 0**	97.5

* = HSA = Hollow Stem Auger
** = Arbitrary benchmark elevation

Casing Material = PVC
Screen Slot Size = 0 020 inch
Filter Pack Material = #8-14 Sand
Seal Material = Bentonite Chips
Backfill Material = Cement Grout

40 149

Table 25
CAPE ROMANZOF LRRS LANDFILL-2 (LF03), MONITORING WELLS MW-1 THROUGH MW-4, GROUNDWATER ANALYSIS AND WATER LEVEL MEASUREMENTS

Well I.D.	Date	Time	Total Volume Withdrawn (Cumulative)		pH	Specific Conductance (µmhos/cm)	Temperature (°C)	Comments
			Gallons	Bore Volumes				
MW-1	13-08-89	1000						
		1020	7.0	0.90	6.80	49	4.9	Turbid, no odor
	14-08-89	0935	12.0	1.50	7.30	95	4.9	Turbid, no odor
			17.0	2.10	7.40	72	5.0	Turbid, no odor
			18.5	2.30	7.60	72	5.5	Slightly turbid, very slow recharge
	28-09-89	1510	5.0	0.64	6.70	59	5.0	Slightly turbid, no odor
		1525	8.0	1.03	6.90	52	5.9	Slightly turbid, no odor
		1640	11.0	1.42	6.70	42	5.0	Clear, no odor
		2030	14.5	1.87				
	29-09-89	0930	22.0	2.83	6.80	47	4.5	Slightly turbid, no odor
			25.0	3.22	7.10	50	4.5	Slightly turbid, no odor
MW-2	13-08-89	0945	0.0	0.00				
			13.0	2.90	7.10	16	4.0	Turbid, no odor
			15.5	3.40	7.10	20	3.0	Turbid, no odor
		1200	18.0	3.90	6.50	20	2.5	Turbid, no odor
MW-3	13-08-89	1045	0.0	0.00				
			5.0	1.10	6.48	157	4.0	Turbid, no odor
		2100	10.5	2.30	6.93	155	4.9	Slightly turbid, no odor
	14-08-89	0940	13.5	2.97	6.58	155	4.0	Slightly turbid, no odor
			16.5	3.64	6.73	165	4.5	Slightly turbid
	28-08-89	1515	5.0	1.09	7.21	175	4.8	Rusty brown, slight odor
		1550	9.0	1.96	6.80	178	5.0	Slightly turbid
		1610	13.0	2.83	6.80	162	4.9	Slightly turbid
		1620	17.0	3.7	7.00	175	4.8	Slightly turbid
MW-4	13-08-89	1045	0.0	0.00				
			5.0	1.50	6.70	90	3.0	Turbid, septic odor
		2100	10.0	3.00	7.00	90	3.1	Brown turbid, septic odor
	14-08-89	0900	10.0	3.00	6.76	90	3.2	Clear, septic odor
			12.5	3.76	6.76	97	3.3	Slightly turbid, septic odor
	28-08-89	1537	5.0	1.09	6.84	54	4.5	Murky black, septic odor
		·1555	8.0	1.74	7015	59	5.0	Murky black, septic odor
		1615	12.0	2.61	7.14	59	5.0	Less murky, septic odor
	29-08-89	0920	15.0	3.26	6.49	72	5.5	Murky gray
MW-1	08-08-90	1850	3	0.97	6.72		2.7	Lt-brown, slightly turbid, ice
	09-08-90	0935	6	1.94	6.58		3.3	Lt-brown, turbid
		0940	7.5	2.42	6.80		3.9	Lt-brown, bailed dry
		1630	9.5	3.06	6.53		3.9	Lt-brown, slightly turbid
MW-2	08-08-90	1910	3	3	6.83		2.9	Lt-brown, fairly turbid, no odor
MW-4	08-08-90	1830	3	1.88	6.85		2.5	Brown, very turbid, septic odor
		1845	5	3.13	7.34		2.6	Brown, very turbid, septic odor
	09-08-90	0920	9.5	5.94	6.59		6.5	Brown, slightly turbid, no odor

Table [illegible]A
CAPE ROMANZOF LRRS LANDFILL-2 (LF03)
MONITORING WELLS MW-1 THROUGH MW-4
DEVELOPMENT DATA

Well ID and Total Depth (ft)	Date	Time	Water Level (ft)	Total Volume Withdrawn: Cumulative Gallons	Total Volume Withdrawn: Cumulative Bore Volumes	pH	Specific Conductance (pmhos/cm)	Temperature	Comments
MW-1 21 55	07-08-89	1250	10 02	6.0	0 8	*	120	5.2	Pumped well dry
		1400	17 25			--	--	--	Well has not recharged yet
	08-08-89	1615	9.89	12 0	1.6	6.82	145	5.0	Pumped well dry
	09-08-89	1040	9 79	17 5	2 3	6 69	148	3 1	Pumped well dry
		1915	11 13	22.5	3 0	7 07	125	5.5	Pumped well dry
MW-2 15 76	07-08-89	1337	9 70	9 0	2 3	6 26	52	4 8	Pumped well dry
	08-08-89	1640	9 61	19 0	4 8	6.54	30	6 0	Pumped well dry
	09-08-89	1010	9 54	24 0	6 1	6 70	30	3 5	Pumped well dry
		1935	8 62	31.5	8 0	6 73	25	4 9	Pumped well dry
MW-3 18 06	07-08-89	1905	11 15	5 0	1.1	6 68	140	4 0	Pumped well dry
	08-08-89	1515	11 67	10 0	2.2	6 85	145	3 0	Pumped well dry
	09-08-89	1120	11 19	14 0	3 1	7 01	153	2 7	Pumped well dry
		1605	11 19	18 0	4 0	7.24	160	5 1	Pumped well dry, clear
MW-4 13 44	07-08-89	1945	8 20	4 5	1 3	6 59	100	4 2	Pumped well dry
	08-08-89	1450	8 36	12 5	3 7	7 73	100	4.2	Pumped well dry, good recharge
		1545		17 5	5.1	--	--	--	Pumped well dry, septic odor
	09-08-89	1140	8 45	22 5	6 6	6 96	85	3 8	Pumped well dry
		1625	8 69	27 5	8 1	7 20	82	5 0	Pumped well dry, slightly turbid

* = Weather was cold, pH meter malfunctioned
-- = Parameter not collected

Table 26B
CAPE ROMANZOF LRRS LANDFILL-2 (LF03)
MONITORING WELLS MW-1 THROUGH MW-4
WATER LEVEL DATA IN MONITORING WELLS

Well I.D.	Date	Time	Water Level (ft from top of casing)
MW-1	14-08-89	1340	9.05
MW-2	13-08-89	1200	9.12
MW-3	13-08-89	1045	11.17
MW-4	13-08-89	1045	8 33
MW-1	28-09-89	1510	8.77
MW-2	28-09-89	1300	8.64
MW-3	28-09-89	1515	10.92
MW-4	28-09-89	1537	6 53
MW-1	08-08-90	1700	15 8
MW-2	08-08-90	1700	13.25
MW-4	08-08-90	1635	9.95

Table 27
CAPE ROMANZOF LRRS
TOP LINER (HYPALON) FOR LANDFILL-2 (LF03)

Hypalon based .045 inch geocomposite membrane consisting of a chlorosulfonated polyethylene (CSPE or equivalent polymer) geomembrane reinforced with scrim (10x10 Denier Polyester) and an eight ounce per yard nonwoven needle punched polyester geotextile thermally laminated to both sides of the inner membrane. Material will consist of 25 foot widths and customer specified lengths. The edge of each roll shall have at least a six inch minimum exposed membrane for joining adjacent rolls. The CSPE resin shall be manufactured by I.E Dupont or equal. The manufacturer shall certify that all factory seams are of sufficient strength that the parent material will break before seam separation occurs. This material shall be packed in such a manner to protect the product during shipping and on-site- storage and will be marked on the exterior indicating direction of unwind Material specifications listed with ASTM test methods·

- 45 gauge, 1 reinforcing ply, 41 mils minimum thickness overall with 11 mils minimum over the scrim (per ASTM D 751).
- 250 lbs breaking strength (per ASTM D 731)
- 90 lbs initial tear strength and 35 lbs tear strength after aging (per ASTM D 751)
- Minimum of -40 degree Fahrenheit low temperature flexibility (per ASTM D 2136)
- Dimensional stability (% change) shall be 2 percent (per ASTM D 1204)
- Volatile less (%) shall be .5 percent (per ASTM D 1203)
- Minimum of 250 PSI Hydrostatic resistance (per ASTM D 751)
- 8 to 10 psi ply adhesion (per ASTM D 413)
- Bonded seam strength must be such that the parent membrane fails before seam separation occurs

Table 28
CAPE ROMANZOF LRRS LANDFILL-2 (LF03)
GEOTEXTILE COVER

Fabric Properties	Test Method	Minimum Average Roll Values
Grab Tensile Strength (lbs)	ASTM D 4637	165
Grab Elongation (%)	ASTM D 4632	50
Trapezoid Tear (lbs)	ASTM D 4533	65
Mullen Burst (psi)	ASTM D 3786	310
Puncture (lbs)	ASTM D 4833	90
Permittivity	ASTM D 4491	1 5
Permeability (cm/sec)	ASTM D 4491	25
AOS (US Sieve Size)	ASTM D 4751	80
Thickness (mils)	ASTM D 4751	75
UV Resistance (% strength Retained after 150 hrs)	ASTM D 4355	70
Asphalt Retention (gal/SY)		0 25
Water Flow Rate (gal/min/SF)	ASTM D 4401	100
Weight (oz/SY)	ASTM D 3776	6 20

Table 29
CAPE ROMANZOF LRRS LANDFILL-2 (LF03)
LANDFILL VEGETATION - SEED SPECIFICATION

PINNACLE PERENNIAL RYE GRASS (12371) CERTIFIED SEED NO. 932359024	
Net Wt	50 lbs/bag
98.40%	Pure Seed
01-02%	Other Crop Seed
00 57%	Inert Matter
00.01%	Weed Seed
Lot:	L132-3-72
Germination	90%
Origin	Oregon
CMS	480
Test Date	May 94
Supplier:	Central Garden and Pet Supply Algona, Washington 98001

Table 30
CAPE ROMANZOF LRRS
CLIMATOLOGICAL DATA

	Temperature (^{0}F)					Precipitation (in)				Snowfall (in)			Surface Winds (mph)	
	Mean													
	Daily		Monthly	Extreme		Monthly				Monthly				
Month	Max	Min		Max	Min	Mean	Max	Min	Max 24 Hrs	Mean	Max	Max 24 Hrs	Pvlg Drctn	Speed
Jan	19	9	14	49	-23	1 3	4.2	0	1.0	10	34	7	NNE	15
Feb	14	4	9	48	-26	1.1	4 3	0	1.2	8	32	13	NNE	16
Mar	19	8	14	46	-26	1.3	6 8	0	1 2	11	69	11	NNE	14
Apr	26	16	21	46	-12	1.0	3.4	.1	.9	8	26	7	NNE	13
May	40	31	36	71	3	1.4	3 1	.0	9	4	19	8	NNE	10
Jun	47	38	43	72	25	2.6	6.0	.1	1.9	1	4	2	S	9
Jul	53	45	49	78	31	2 9	6.5	.3	2.0	0	0	0	S	8
Aug	53	46	50	78	33	5.0	8.8	1.2	2 8	0	3	2	S	8
Sep	47	40	44	63	23	4 6	8.9	1.3	1.7	1	6	3	NNE	11
Oct	34	28	31	60	4	2.4	6 1	.8	1 4	10	40	19	NNE	12
Nov	26	18	22	45	-7	1.6	5 5	0	2.0	11	23	9	NNE	15
Dec	17	8	13	48	-23	1 6	4.2	0	1 3	14	47	7	NNE	16
ANN	33	24	29	78	-26	26.8	8.9	.0	2.8	78	69	19	NNE	12
EYR	22	22	22	22	22	24	24	24	24	247	24	24	?????	9

Period of Record 1953 - 1981
Source. 11th Weather Squadron, Elmendorf AFB, AK

Weather station at the runway (Elevation 400 foot Approximately)
Lower Camp Elevation 1,500 foot Approximately Upper Camp elevation 2,300 foot Approximately
At the camp sites temperatures are lower, precipitation/snowfall/wind reading are sometimes higher than shown above

Table 31A

CAPE ROMANZOF LRRS LOWER CAMP AREA (WATER WELLS 1, 2, A, AND B) GROUNDWATER ANALYSIS AND WATER LEVEL MEASUREMENTS

			Total Volume Withdrawn (Cumulative)					
Well ID	Date	Time	Gallons	Bore Volumes	pH	Specific Conductance (umhos/cm)	Temperature	Comments
Well No 1	11-08-89	0935	-	--	8 24	20	3.9	Pumped at approximately 60 gpm for 8 minutes, clear
Well A	12-08-89	1845	0 0	0 00	--	--	--	Well purging was continuous
		1853	90 0	.00	8 30	21	2 5	Slightly turbid, no odor
			130 0	1 45	7 50	27	2 5	Brown, thick, and high sediment
			180 0	2 00	7 50	27	2 5	Brown, thick, and high sediment
			230 0	2.55	7.10	27	1 8	Brown, thick, and high sediment
			280 0	3.10	*	22	1.8	Brown, thick, and high sediment
			310 0	3 40	*	22		Brown, thick, and high sediment
Well B	12-08-89	1130	0 0	0.00	--	--	--	Slightly turbid, fuel odor
		1135	70 0	2 30	6 10	50	5.8	Fairly clear, fuel odor
		1138	150 0	5 00	6 10	60	4 5	Fairly clear, fuel odor
		1148	180 0	6.00	6 00	60	4 3	Fairly clear, fuel odor
		1152	210 0	7 00	6 00	60	4.2	Fairly clear, fuel odor
Well No 1	09-08-90	1410	360	1.93	7 61	--	1 8	Clear with bubbles
		1413	450	2 41	7.05	--	2 0	Clear with bubbles
		1419	540	2 89	7 5	--	2 6	Clear with bubbles
		1423	650	3 48	7 39	--	2 0	Clear with bubbles
Well A	09-08-90	1320	50	0 61	7 43	--	3.2	Color of chocolate milk, lots of sediment
		1328	100	1 23	7.56	--	2 3	Color of chocolate milk, lots of sediment, no odor
		1333	140	1 73	7 41	--	3 2	Color of chocolate milk, less of sediment
		1338	175	2 16	7 35	--	2 9	Color of chocolate milk, less of sediment
		1343	210	2 59	7 32	--	3 2	Color of chocolate milk, less of sediment
Well B	09-08-90	1520	10	0 60	5 61	--	2 6	Yellow, slightly turbid
		1523	20	1 19	5 62	--	2 9	Yellow, slightly turbid
		1525	30	1 79	5 71	--	2 9	Yellow, slightly turbid
		1528	40	2 38	5 73	--	3 0	Fairly clear, yellowish
		1530	50	2 98	7.72	--	2 7	Fairly clear, yellowish
Well No 3	08-08-90	1955	10	043	6 24	--	3 1	Slightly turbid and rusty, no odor
		1959	35	1 52	6 19	--	3 4	Fairly clear, no odor
		2002	50	2 17	6 21	--	3 5	Clear, no odor
		2005	80	3048	6 11	--	3 5	Clear, no odor
		2010	90	3 91	6 14	--	3 1	Clear, no odor
		2013	100	4 35	6 17	--	3 4	Clear, no odor

Note Well MW-3 at ROM-8 was found damaged in 1990 and could not be sampled.
* = Weather was cold, pH meter malfunctioned
-- = Parameter not collected

40 157

Table 31B
CAPE ROMANZOF LRRS
WATER LEVEL MEASUREMENTS

Well I.D.	Date	Time	Water Level (ft from top of casing)
	unknown	unknown	29.00*
Well No 1	08-08-90	1320	25.5
Well A	12-08-89	1205	23.58
	09-08-90	1045	22.3
Well B	10-08-89	1620	14.71
	12-08-89	1945	14 50
	09-08-90	1055	21
Well No 3**	08-08-90	1900	64.5

* = Measured from ground surface
** = TOC for Well No 3 is 4 5 feet below ground surface

Table 32
CAPE ROMANZOF LRRS LOWER CAMP AREA (WATER WELL NO 2)
PUMPING TEST DATA AND WATER ANALYSIS

Date	Time	Gal per Min Pumped	Depth in Feet to Water Level	Remarks
Nov 62	1530	0	82.0	Static water level - started pumping at 14.5 gpm, discharge water turbid
	1545	14.5	83 5	Pumping rate reduced somewhat
	1600	7	85.0	Discharge water clearing to some extent
	1630	9	88.0	
	1700	5	87.0	
	1800	7	88.6	
	1900	4.5	88.0	
	2000	4.5	88.0	Discharge water clear.
	2100	4.5	88 0	
	2200	4.5	88.0	
	2300	6	88 0	
			90.5	Pumping rate increased shortly before taking measurements - discharge water became slightly turbid.
Nov 62	001	6	90.8	Discharge water clear. Collected water sample for chemical analysis
	0100	6	90.9	
	0130	12	92.5	Pumping rate increased shortly before taking measurements - discharge water become slightly turbid
	0200	12	93.5	Water level drawn down to pump intake level, pump sucking air. Stopped pumping
	0210	0	90.2	
	0230	0	88.7	
	0830	0	86.1	
	1100	0	86.1	Static water level - resumed pumping
	1130	5	88.0	
	1200	5	88.8	
	1300	5	89 2	
	1400	5	89.7	
	1500	5	90 0	
	1600	4 5	90.0	
	1730	5	90.3	
	1830	5	90 4	
	1900	4.5	90.3	
	2000	4	90.3	
	2100	4	90.3	
	2200	4	90.3	Stopped pumping
	2210	0	90.3	Resumed pumping at 5 gpm rate
	2225	5	90.3	Pumping rate reduced to 2 gpm rate
	2300	2	89.7	Pumping rate increased to approximately 5 gpm rate

Table 32 (Cont)
CAPE ROMANZOF LRRS LOWER CAMP AREA (WATER WELL NO. 2)
PUMPING TEST DATA AND WATER ANALYSIS

Date	Time	Gal per Min Pumped	Depth in Feet to Water Level	Remarks
Nov 62	0001	4.5	90.5	
	0100	4.5	90.5	
	0200	4.5	90 5	
	0300	4	90 4	
	0400	4	90.4	
	0500	4	90 4	
	0600	4	90.3	
	0700	4	90.3	
	0830	4	90.3	
	0900	4	90.3	
	1000	4	90.3	
	1100	2	89.9	
	1200	3	90.0	
	1300	3	90.1	
	1400	3	90.1	pump stopped momentarily - water level rose to 89.7 ft depth
	1500	3	90.0	
	1530	3	90.0	Stopped pumping - pump test complete
Nov 62	0800	0	86.1	Static water level.

TEST RESULTS

pH	5.8
Conductivity (79^0)	28 mmhos
Total Solids	26 ppm
Calcium, as Ca	2 ppm
Magnesium, as Mg	2 ppm
Sodium & Potassium, as Na	5 ppm
Total Iron, as Fe	Trace ppm
Organic Iron, as Fe	Trace ppm
Manganese, as Mn	0 ppm
Silica, as $Si0_2$	Trace ppm
Sulfate, as $S0_4$	--- ppm
Chloride, as Cl	8 ppm
Nitrate, as $N0_3$	-- ppm
Alkalinity, Methyl Orange, as $CaC0_3$	7.8 ppm
Alkalinity, Phenolphthalein, as $CaC0_3$	0 ppm
Total hardness, as $CaC0_3$	12 ppm
Carbonate hardness, as $CaC0_3$	7.8 ppm
Non-Carbonate hardness, as $CaC0_3$	4 2 ppm
Free Carbon Dioxide, as $C0_2$	-- ppm
Free Oxygen, as 0_2	-- ppm

Table 33
CAPE ROMANZOF LRRS LOWER CAMP AREA (MONITORING WELLS WW-1 THROUGH WW-6)
WELL CONSTRUCTION SUMMARY

Well	Date Completed	Boring Depth (ft)	Well Depth (ft)	Screen Interval (ft)	Filter Interval (ft)	Seal Interval (ft)	Grout Interval (ft)	Casing Stickup (ft)	Measuring Point Elevation (ft)	Groundwater Depth (ft)	Elevation (ft)
WW-1	7/10/93	64	64	49-64	47-64	44-47	0-44	1 5	1,511.68	50.18	1,461.50
WW-2	7/13/93	65	63	48-63	46-63	44-46	0-44	1.5	1,511.87	50.72	1,461.15
WW-3	7/14/93	75	75	60-75	58-75	56-58	0-56	2.7	1,526.20	62.91	1,463.29
WW-4	7/16/93	61	61	46-61	44-61	42-44	0-42	1.0	1,507 86	46.60	1,461.26
WW-5	7/17/93	54	47	32-47	29-47	26-29	0-26	2 0	1,498.26	37.52	1,460.74
WW-6	7/17/93	45	35	20-35	18-45	16-18	0-16	3.0	1,486.56	24.24	1,462.32

Table 34
CAPE ROMANZOF
DATA QUALITY OBJECTIVES OR CRITERIA

ANALYTE	MATRIX	MAXIMUM HOLDING TIMES	EPA ANALYTICAL METHOD	CLEANUP CRITERIA (mg/Kg)	MAXIMUM LOD (mg/Kg)	MINIMUM COMPLETENESS	MAXIMUM RPD	ACCURACY (SR%)
DRO	S	**14 Days To Extract** **40 Days to Analysis**	3540 8100M	200	≤ 40	85%	40%	50-140%
GRO	S	**Extract ASAP** **14 Days to Analysis**	3540 8015m	100	≤ 20	85%	40%	50-140%
BTEX	S	**Extract ASAP** **14 Days to Analysis**	5030 8020	15 (0 5 BZ)	≤ 3 ≤ (0.1 BZ)	85%	40%	60-130%
METALS	S	**6 Months**	7000			85%	40%	75-125%

DRO = Diesel Range Organics (EPA Method 8100M
GRO = Gasoline Range Organics (EPA Method 8015M)
BTEX = Total Benzene, Toluene, Ethylbenzene, Xylene (EPA Method 8020)
LOD= Limit of Detection LOD must be < 20% at criteria value, Ref Guidance for Data Usability in Risk Assessment (Part A), EPA 9285 7-09 A (April 1992)
SR= Surrogate Recovery
RPD= Relative Percent Difference
BZ= Benzene

Table 35
CAPE ROMANZOF
FIELD DUPLICATE SAMPLE RESULTS

LN	ANALYTE	ID#1	ID#2	MX	LAB	D1	D2	RPD	NOTES/COMMENTS
1	DRO	20	21	S	C	17,300.00	11,800.00	38%	
2		30	31	S	C	313.00	935.00	$\boxed{100\%}$	
3		201	209	S	C	62.00	18,400.00	$\boxed{199\%}$	
4		217	218	S	C	25.00	127.00	134%	
5	GRO	20	21	S	C	11.00	8.50	26%	
6		30	31	S	C	U	U	#VALUE!	look at U values
7		201	209	S	C	U	841.00	$\boxed{\text{\#VALUE!}}$	
8		217	218	S	C	0.40	1.60	120%	
9	BTEX	20	21	S	C	0.18	0.17	6%	
10		30	31	S	C	U	U	#VALUE!	
11		201	209	S	C	U	3.80	#VALUE!	
12		217	218	S	C	U	U	#VALUE!	
13	METALS (no data)								
COUNT = 12	CONCLUDE 3 of 12 RPD values exceed the DQO of 40% and were above required cleanup levels								

Notes: MX designates the sample matrix as soil (S) or water (W)
LAB symbols are A (Analytical Technologies, Inc) and C (Commercial Testing & Engineering Co)
D1 and D2 designate first and second duplicate values obtained (reported as mg/Kg)
RPD is the calculated relative percent difference IAW the project QAPP
RL is Regulatory Level (i.e., Cleanup Criteria)
U is "Undetected)
$\boxed{}$ Boxed values exceed the data quality objective of 40% RPD and exceed RL

APPENDIX A

LABORATORY ANALYSIS

C-049 40 165

Commercial Testing & Engineering Co.

Environmental Laboratory Services

E 1908

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3660-1
Client Sample ID	94004948 007
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80576		
Ordered By	CARL HORNIG	Printed Date	07/22/94	@ 16:41	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/18/94	@	hrs.
Project#	94004/ROM(SS-14)	Received Date	07/20/94	@ 09:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B049. 26400 MG/KG OF EPH PATTERN NOT CONSISTENT WITH MIDDLE DSTILLATE FUEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	64.4		%	SM17 2540G			07/20/94	CAV
Hydrocarbons EPH	28800	D	mg/Kg	3510/3550/8100M		07/20/94	07/21/94	DRS
Hydrocarbons VPH	79.7		mg/Kg	EPA 5030/8015M		07/20/94	07/20/94	SPM
:Organics				EPA 8240				
methane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
methane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Vinyl Chloride	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroethane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Methylene Chloride	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Disulfide	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1-Dichloroethene	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1-Dichloroethane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
12-Dichloroethene(total	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroform	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.2-Dichloroethane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
2-Butanone	0.400	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1.1-Trichloroethane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Tetrachloride	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromodichloromethane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.2-Dichloropropane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
cis-1.3-Dichloropropene	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Trichloroethene	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Dibromochloromethane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1.2-Trichloroethane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Benzene	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
trans-1.3-Dichloroprope	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromoform	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
4-Methyl-2-Pentanone	0.400	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Tetrachloroethene	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1122-Tetrachloroethane	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
T ne	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
enzene	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
nzene	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Xylene (total)	0.040	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Semivolatile Organics				EPA 8270				

Commercial Testing & Engineering Co.

Environmental Laboratory Services

[redacted]E 1908

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94 3660-1
Client Sample ID 94004948 007
Matrix SOIL

Phenol	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethyl)ether	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chlorophenol	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,3-Dichlorobenzene	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,4-Dichlorobenzene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzyl Alcohol	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2-Dichlorobenzene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylphenol	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroisopropyl)e	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Methylphenol	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitroso-di-n-Propylam	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachloroethane	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Nitrobenzene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Isophorone	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitrophenol	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dimethylphenol	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzoic Acid	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethoxy)Meth	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dichlorophenol	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2,4-Trichlorobenzene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]halene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]roaniline	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]hlorobutadiene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]loro-3-Methylphenol	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylnaphthalene	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorocyclopentadie	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,6-Trichlorophenol	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,5-Trichlorophenol	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chloronaphthalene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitroaniline	25.9	U'	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dimethylphthalate	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthylene	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,6-Dinitrotoluene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3-Nitroaniline	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrophenol	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitrophenol	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenzofuran	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrotoluene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Diethylphthalate	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chlorophenyl-Phenylet	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluorene	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitroaniline	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4,6-Dinitro-2-Methylphe	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitrosodiphenylamine	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Bromophenyl-Phenyleth	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorobenzene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Pentachlorophenol	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]nthrene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]cene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]tylphthalate	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluoranthene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Pyrene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Butylbenzylphthalate	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3660-1
Client Sample ID 94004948 007
Matrix SOIL

3,3-Dichlorobenzidine	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Anthracene	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Chrysene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Ethylhexyl)Phthal	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Octylphthalate	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(b)Fluoranthene	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(k)Fluoranthene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Pyrene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Indeno(1,2,3-cd)Pyrene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenz(a,h)Anthracene	25 9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(g,h,i)Perylene	25.9	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
PCBs in Soil	0 100	U	mg/Kg	EPA 8080	07/20/94	07/21/94	DSM
------Aroclor	---						
Sample Preparation	---			EPA 3050 Digest			
Chromium	17	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Lead	23	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Cadmium	7 7	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Arsenic	2.4		mg/Kg	EPA 7060 GF	07/20/94	07/22/94	KGF

See Special Instructions Above
See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3660-2
Client Sample ID 94004948 008
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80576		
Ordered By	CARL HORNIG	Printed Date	07/22/94	@ 16:41	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/18/94	@	hrs.
Project#	94004/ROM(SS-14)	Received Date	07/20/94	@ 09:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B049 38500 MG/KG OF EPH PATTERN NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	89 0		%	SM17 2540G			07/20/94	CAV
Hydrocarbons EPH	42000	D	mg/Kg	3510/3550/8100M		07/20/94	07/21/94	DRS
Hydrocarbons VPH	4 60		mg/Kg	EPA 5030/8015M		07/20/94	07/20/94	SPM
Volatile Organics				EPA 8240				
romethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
iomethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
yl Chloride	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
loroethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Methylene Chloride	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Disulfide	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1-Dichloroethene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1-Dichloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
12-Dichloroethene(total	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroform	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,2-Dichloroethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
2-Butanone	0 250	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1,1-Trichloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Tetrachloride	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromodichloromethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,2-Dichloropropane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
cis-1,3-Dichloropropene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Trichloroethene	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Dibromochloromethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1,2-Trichloroethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Benzene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
trans-1,3-Dichloroprope	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromoform	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
4-Methyl-2-Pentanone	0 250	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Tetrachloroethene	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1122-Tetrachloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Toluene	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chlorobenzene	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
lbenzene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
ne	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
e (total)	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Semivolatile Organics				EPA 8270				

Commercial Testing & Engineering Co.
Environmental Laboratory Services
SINCE 1908

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CT&E Ref.# 94.3660-2
Client Sample ID 94004948 008
Matrix SOIL

Phenol	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethyl)ether	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chlorophenol	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,3-Dichlorobenzene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,4-Dichlorobenzene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzyl Alcohol	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2-Dichlorobenzene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylphenol	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroisopropyl)e	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Methylphenol	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitroso-di-n-Propylam	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachloroethane	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Nitrobenzene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Isophorone	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitrophenol	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dimethylphenol	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzoic Acid	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethoxy)Meth	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dichlorophenol	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2,4-Trichlorobenzene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Naphthalene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
-hloroaniline	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
.achlorobutadiene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Chloro-3-Methylphenol	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Methylnaphthalene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorocyclopentadie	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,6-Trichlorophenol	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,5-Trichlorophenol	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chloronaphthalene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitroaniline	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dimethylphthalate	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthylene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,6-Dinitrotoluene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3-Nitroaniline	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrophenol	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitrophenol	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenzofuran	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrotoluene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Diethylphthalate	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chlorophenyl-Phenylet	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluorene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitroaniline	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4,6-Dinitro-2-Methylphe	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitrosodiphenylamine	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Bromophenyl-Phenyleth	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorobenzene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Pentachlorophenol	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Phenanthrene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
nthracene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Butylphthalate	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
ranthene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
ene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Butylbenzylphthalate	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH

Commercial Testing & Engineering Co.
Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3660-2
Client Sample ID 94004948 008
Matrix SOIL

3,3-Dichlorobenzidine	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Anthracene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Chrysene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Ethylhexyl)Phthal	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Octylphthalate	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(b)Fluoranthene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(k)Fluoranthene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Pyrene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Indeno(1,2,3-cd)Pyrene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenz(a,h)Anthracene	28.8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(g,h,i)Perylene	28 8	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
PCBs in Soil	0 200	U	mg/Kg	EPA 8080	07/20/94	07/21/94	JBH
------Aroclor	---						
Sample Preparation	---			EPA 3050 Digest			
Chromium	18	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Lead	43	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Cadmium	5.6	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Arsenic	3.0		mg/Kg	EPA 7060 GF	07/20/94	07/22/94	KGF

See Special Instructions Above
See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

5633 B Street, Anchorage, AK 99518-1600 — Tel (907) 562-2343 Fax (907) 561-5301

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3660-3
Client Sample ID	94004948 009
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80576		
Ordered By	CARL HORNIG	Printed Date	07/25/94	@ 13.15	hrs
Project Name	CAPE ROMANZOF	Collected Date	07/18/94	@	hrs
Project#	94004/ROM(SS-14)	Received Date	07/20/94	@ 09.00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY· AHMED/DICK KOTSCH. CALL #B049. FINAL RESULT FOR EPH. EPH PATTERN NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL
B - THIS FLAG IS USED WHEN THE ANALYTE IS FOUND IN THE ASSOCIATED BLANK AS WELL AS IN THE SAMPLE

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	72.6		%	SM17 2540G			07/20/94	CAV
Hydrocarbons EPH	26 4		mg/Kg	3510/3550/8100M		07/22/94	07/23/94	DRS
[illegible]arbons VPH	0.600	U	mg/Kg	EPA 5030/8015M		07/20/94	07/20/94	SPM
[illegible]e Organics				EPA 8240				
[illegible]romethane	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromomethane	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Vinyl Chloride	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroethane	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Methylene Chloride	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Disulfide	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1-Dichloroethene	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1-Dichloroethane	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
12-Dichloroethene(total	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroform	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.2-Dichloroethane	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
2-Butanone	0.300	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1.1-Trichloroethane	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Tetrachloride	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromodichloromethane	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.2-Dichloropropane	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
cis-1.3-Dichloropropene	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Trichloroethene	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Dibromochloromethane	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1.2-Trichloroethane	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Benzene	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
trans-1.3-Dichloroprope	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromoform	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
4-Methyl-2-Pentanone	0 300	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Tetrachloroethene	0 030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[illegible]etrachloroethane	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[illegible]	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[illegible]enzene	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Ethylbenzene	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Styrene	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Xylene (total)	0.030	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3660-3
Client Sample ID 94004948 009
Matrix SOIL

Semivolatile Organics				EPA 8270			
Phenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethyl)ether	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chlorophenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,3-Dichlorobenzene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,4-Dichlorobenzene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzyl Alcohol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2-Dichlorobenzene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylphenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroisopropyl)e	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Methylphenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitroso-di-n-Propylam	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachloroethane	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Nitrobenzene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Isophorone	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitrophenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dimethylphenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzoic Acid	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethoxy)Meth	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
chlorophenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Trichlorobenzene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
halene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
hloroaniline	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorobutadiene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chloro-3-Methylphenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylnaphthalene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorocyclopentadie	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,6-Trichlorophenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,5-Trichlorophenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chloronaphthalene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitroaniline	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dimethylphthalate	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthylene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,6-Dinitrotoluene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3-Nitroaniline	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrophenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitrophenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenzofuran	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrotoluene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Diethylphthalate	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chlorophenyl-Phenylet	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluorene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitroaniline	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4,6-Dinitro-2-Methylphe	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitrosodiphenylamine	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Bromophenyl-Phenyleth	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
hlorobenzene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
hlorophenol	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
threne	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Anthracene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Butylphthalate	1.84	B	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluoranthene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH

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Commercial Testing & Engineering Co.
Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref # 94.3660-3
Client Sample ID 94004948 009
Matrix SOIL

Pyrene	0 459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Butylbenzylphthalate	0 459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3.3-Dichlorobenzidine	0 459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Anthracene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Chrysene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Ethylhexyl)Phthal	0 459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Octylphthalate	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(b)Fluoranthene	0 459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(k)Fluoranthene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Pyrene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Indeno(1.2.3-cd)Pyrene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenz(a.h)Anthracene	0.459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(g.h.i)Perylene	0 459	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
PCBs in Soil	0 030	U	mg/Kg	EPA 8080	07/20/94	07/21/94	DSM
------Aroclor	---						
Sample Preparation	---			EPA 3050 Digest			
Chromium	8 5	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Lead	14	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Cadmium	6.9	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
/	2.0		mg/Kg	EPA 7060 GF	07/20/94	07/22/94	KGF

See Special Instructions Above
ee Sample Remarks Above
U = Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3660-4
Client Sample ID 94004948 010
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80576		
Ordered By	CARL HORNIG	Printed Date	07/22/94	@ 16:42	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/18/94	@	hrs.
Project#	94004/ROM(SS-14)	Received Date	07/20/94	@ 09·00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B049. EPH PATTERN NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL. B - THIS FLAG IS USED WHEN THE ANALYTE IS FOUND IN THE ASSOCIATED BLANK AS WELL AS IN THE SAMPLE. J - INDICATES AN ANALYTE DETECTED BELOW THE CALIBRATION RANGE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	58 3		%	SM17 2540G			07/20/94	CAV
Hydrocarbons EPH	9.48	J	mg/Kg	3510/3550/8100M		07/20/94	07/21/94	DRS
ıcarbons VPH	1 00	U	mg/Kg	EPA 5030/8015M		07/20/94	07/20/94	SPM
[redacted]le Organics				EPA 8240				
[redacted]romethane	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromomethane	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Vinyl Chloride	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroethane	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Methylene Chloride	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Disulfide	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1-Dichloroethene	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1-Dichloroethane	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
12-Dichloroethene(total	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroform	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.2-Dichloroethane	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
2-Butanone	0.500	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1.1-Trichloroethane	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Tetrachloride	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromodichloromethane	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.2-Dichloropropane	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
cis-1.3-Dichloropropene	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Trichloroethene	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Dibromochloromethane	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1.2-Trichloroethane	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Benzene	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
trans-1.3-Dichloroprope	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromoform	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
4-Methyl-2-Pentanone	0.500	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
T achloroethene	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Tetrachloroethane	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted]e	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted]benzene	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Ethylbenzene	0.050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Styrene	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Xylene (total)	0 050	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3660-4
Client Sample ID 94004948 010
Matrix SOIL

Semivolatile Organics				EPA 8270			
Phenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethyl)ether	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chlorophenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,3-Dichlorobenzene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,4-Dichlorobenzene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzyl Alcohol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2-Dichlorobenzene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylphenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroisopropyl)e	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Methylphenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitroso-di-n-Propylam	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachloroethane	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Nitrobenzene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Isophorone	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitrophenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dimethylphenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzoic Acid	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethoxy)Meth	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
ichlorophenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Trichlorobenzene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
thalene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
loroaniline	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorobutadiene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chloro-3-Methylphenol	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylnaphthalene	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorocyclopentadie	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2.4.6-Trichlorophenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2.4.5-Trichlorophenol	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chloronaphthalene	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitroaniline	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dimethylphthalate	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthylene	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2.6-Dinitrotoluene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3-Nitroaniline	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2.4-Dinitrophenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitrophenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenzofuran	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2.4-Dinitrotoluene	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Diethylphthalate	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chlorophenyl-Phenylet	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluorene	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitroaniline	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4.6-Dinitro-2-Methylphe	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitrosodiphenylamine	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Bromophenyl-Phenyleth	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
hlorobenzene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
chlorophenol	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
nthrene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Anthracene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Butylphthalate	3 96	B	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluoranthene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3660-4
Client Sample ID 94004948 010
Matrix SOIL

Pyrene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Butylbenzylphthalate	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3.3-Dichlorobenzidine	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Anthracene	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Chrysene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Ethylhexyl)Phthal	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Octylphthalate	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(b)Fluoranthene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(k)Fluoranthene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Pyrene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Indeno(1,2,3-cd)Pyrene	0 571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenz(a.h)Anthracene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(g,h,i)Perylene	0.571	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
PCBs in Soil	0 030	U	mg/Kg	EPA 8080	07/20/94	07/21/94	DSM
------Aroclor	---						
Sample Preparation	---			EPA 3050 Digest			
Chromium	28	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Lead	17	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Cadmium	8.3	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Arsenic	3.3		mg/Kg	EPA 7060 GF	07/20/94	07/22/94	KGF

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

SINCE 1908

LABORATORY ANALYSIS REPORT

[redacted]Ref.#	94.3660-5
[redacted]t Sample ID	94004948011
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80576		
Ordered By	CARL HORNIG	Printed Date	07/22/94	@ 16:42	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/18/94	@	hrs
Project#	94004/ROM(SS-14)	Received Date	07/20 94	@ 09:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B049 63500 MG/KG OF EPH PATTERN NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	75 5		%	SM17 2540G			07/20/94	CAV
Hydrocarbons EPH	67200	D	mg/Kg	3510/3550/8100M		07/20/94	07/21/94	DRS
Hydrocarbons VPH	4 29		mg/Kg	EPA 5030/8015M		07/20/94	07/20/94	SPM
Volatile Organics				EPA 8240				
romethane	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
methane	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
hloride	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted]ethane	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted]lene Chloride	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Disulfide	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1-Dichloroethene	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1-Dichloroethane	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
12-Dichloroethene(total	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroform	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,2-Dichloroethane	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
2-Butanone	0 350	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1,1-Trichloroethane	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Tetrachloride	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromodichloromethane	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,2-Dichloropropane	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
cis-1,3-Dichloropropene	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Trichloroethene	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Dibromochloromethane	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1,2-Trichloroethane	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Benzene	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
trans-1,3-Dichloroprope	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromoform	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
4-Methyl-2-Pentanone	0 350	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Tetrachloroethene	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1122-Tetrachloroethane	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Toluene	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chlorobenzene	0 035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Ethylbenzene	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
e	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted](total)	0.035	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted]latile Organics				EPA 8270				

Commercial Testing & Engineering Co.

Environmental Laboratory Services

SINCE 1908

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3660-5
Client Sample ID 94004948011
Matrix SOIL

Phenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethyl)ether	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chlorophenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,3-Dichlorobenzene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,4-Dichlorobenzene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzyl Alcohol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2-Dichlorobenzene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylphenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroisopropyl)e	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Methylphenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitroso-di-n-Propylam	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachloroethane	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Nitrobenzene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Isophorone	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitrophenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dimethylphenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzoic Acid	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethoxy)Meth	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dichlorophenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2,4-Trichlorobenzene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Naphthalene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
hloroaniline	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
achlorobutadiene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
hloro-3-Methylphenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Methylnaphthalene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorocyclopentadie	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,6-Trichlorophenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,5-Trichlorophenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chloronaphthalene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitroaniline	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dimethylphthalate	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthylene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,6-Dinitrotoluene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3-Nitroaniline	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrophenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitrophenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenzofuran	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrotoluene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Diethylphthalate	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chlorophenyl-Phenylet	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluorene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitroaniline	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4,6-Dinitro-2-Methylphe	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitrosodiphenylamine	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Bromophenyl-Phenyleth	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorobenzene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Pentachlorophenol	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Phenanthrene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
hracene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Butylphthalate	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
anthene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
rene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Butylbenzylphthalate	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH

Commercial Testing & Engineering Co.
Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

[redacted]E Ref.# 94.3660-5
Client Sample ID 94004948011
Matrix SOIL

3.3-Dichlorobenzidine	45 4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Anthracene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Chrysene	45 4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Ethylhexyl)Phthal	45 4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Octylphthalate	45 4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(b)Fluoranthene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(k)Fluoranthene	45 4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Pyrene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Indeno(1,2,3-cd)Pyrene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenz(a,h)Anthracene	45.4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(g,h,i)Perylene	45 4	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
PCBs in Soil	0.200	U	mg/Kg	EPA 8080	07/20/94	07/21/94	DSM
------Aroclor	---						
Sample Preparation	---			EPA 3050 Digest			
Chromium	28	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Lead	54	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Cadmium	6.3	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Arsenic	5.7		mg/Kg	EPA 7060 GF	07/20/94	07/22/94	KGF

See Special Instructions Above
[redacted]ee Sample Remarks Above
[redacted]ndetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

5633 B Street, Anchorage, AK 99518-1600 — Tel (907) 562-2343 Fax: (907) 561-5301

Commercial Testing & Engineering Co.

Environmental Laboratory Services

40 180

LABORATORY ANALYSIS REPORT

E Ref.#	94 3660-6
Client Sample ID	94004948 012
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80576		
Ordered By	CARL HORNIG	Printed Date	07/22/94	@ 16.43	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/18/94	@	hrs.
Project#	94004/ROM(SS-14)	Received Date	07/20/94	@ 09·00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY· AHMED/DICKKOTSCH. CALL# B049. 9560 MG/KG OF EPH PATTERN NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL. B - THIS FLAG IS USED WHEN THE ANALYTE IS FOUND IN THE ASSOCIATED BLANK AS WELL AS IN THE SAMPLE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	87 7		%	SM17 2540G			07/20/94	CAV
Hydrocarbons EPH	11600	D	mg/Kg	3510/3550/8100M		07/20/94	07/21/94	DRS
Hydrocarbons VPH	11.8		mg/Kg	EPA 5030/8015M		07/20/94	07/20/94	SPM
ile Organics				EPA 8240				
romethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
momethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Vinyl Chloride	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Methylene Chloride	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Disulfide	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1-Dichloroethene	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1-Dichloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
12-Dichloroethene(total	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroform	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,2-Dichloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
2-Butanone	0.250	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1,1-Trichloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Tetrachloride	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromodichloromethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,2-Dichloropropane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
cis-1,3-Dichloropropene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Trichloroethene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Dibromochloromethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1,1,2-Trichloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Benzene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
trans-1,3-Dichloroprope	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromoform	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
4-Methyl-2-Pentanone	0.250	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Tetrachloroethene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1122-Tetrachloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
ne	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
obenzene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
enzene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Styrene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Xylene (total)	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS

Commercial Testing & Engineering Co.
Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

[redacted]&E Ref.# 94 3660-6
Client-Sample ID 94004948 012
Matrix SOIL

Semivolatile Organics				EPA 8270			
Phenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethyl)ether	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chlorophenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,3-Dichlorobenzene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,4-Dichlorobenzene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzyl Alcohol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2-Dichlorobenzene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylphenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroisopropyl)e	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Methylphenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitroso-di-n-Propylam	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachloroethane	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Nitrobenzene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Isophorone	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitrophenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dimethylphenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzoic Acid	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethoxy)Meth	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dichlorophenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Trichlorobenzene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]halene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]oroaniline	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]achlorobutadiene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chloro-3-Methylphenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylnaphthalene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorocyclopentadie	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,6-Trichlorophenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,5-Trichlorophenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chloronaphthalene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitroaniline	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dimethylphthalate	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthylene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,6-Dinitrotoluene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3-Nitroaniline	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrophenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitrophenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenzofuran	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrotoluene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Diethylphthalate	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chlorophenyl-Phenylet	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluorene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitroaniline	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4,6-Dinitro-2-Methylphe	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitrosodiphenylamine	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Bromophenyl-Phenyleth	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
chlorobenzene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
chlorophenol	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]nthrene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[redacted]cene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Butylphthalate	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluoranthene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH

Commercial Testing & Engin ering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

&E Ref.#	94.3660-6
Client Sample ID	94004948012
Matrix	SOIL

Pyrene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Butylbenzylphthalate	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3.3-Dichlorobenzidine	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Anthracene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Chrysene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Ethylhexyl)Phthal	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Octylphthalate	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(b)Fluoranthene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(k)Fluoranthene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Pyrene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Indeno(1,2,3-cd)Pyrene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenz(a,h)Anthracene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(g,h,i)Perylene	11.3	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
PCBs in Soil	0.080	U	mg/Kg	EPA 8080	07/20/94	07/21/94	DSM
------Aroclor	---						
Sample Preparation	---			EPA 3050 Digest			
Chromium	21	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Lead	11	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Cadmium	5.5	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Arsenic	3 8		mg/Kg	EPA 7060 GF	07/20/94	07/22/94	KGF

See Special Instructions Above
See Sample Remarks Above
Undetected. Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

[redacted]&E Ref.#	94.3660-7
Client Sample ID	94004948 013
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80576		
Ordered By	CARL HORNIG	Printed Date	07/22/94	@ 16:43	hrs
Project Name	CAPE ROMANZOF	Collected Date	07/18/94	@	hrs
Project#	94004/ROM(SS-14)	Received Date	07/20/94	@ 09:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICKKOTSCH CALL# B049. 32.7 MG/KG OF EPH PATTERN NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL. B - THIS FLAG IS USED WHEN THE ANALYTE IS FOUND IN THE ASSOCIATED BLANK AS WELL AS IN THE SAMPLE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	91 7		%	SM17 2540G			07/20/94	CAV
Hydrocarbons EPH	38.1		mg/Kg	3510/3550/8100M		07/20/94	07/21/94	DRS
Hydrocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015M		07/20/94	07/20/94	SPM
[redacted]le Organics				EPA 8240				
[redacted]methane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted]omethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Vinyl Chloride	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Methylene Chloride	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Disulfide	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1-Dichloroethene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1-Dichloroethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
12-Dichloroethene(total	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Chloroform	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.2-Dichloroethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
2-Butanone	0.250	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1.1-Trichloroethane	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Carbon Tetrachloride	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromodichloromethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.2-Dichloropropane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
cis-1.3-Dichloropropene	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Trichloroethene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Dibromochloromethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1.1.2-Trichloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Benzene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
trans-1,3-Dichloroprope	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Bromoform	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
4-Methyl-2-Pentanone	0.250	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Tetrachloroethene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
1122-Tetrachloroethane	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted]e	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted]enzene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
[redacted]nzene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Styrene	0.025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS
Xylene (total)	0 025	U	mg/Kg	EPA 8240		07/20/94	07/20/94	BLS

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LABORATORY ANALYSIS REPORT

Ref.# 94 3660-7
Client Sample ID 94004948013
Matrix SOIL

Semivolatile Organics				EPA 8270			
Phenol	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethyl)ether	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chlorophenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,3-Dichlorobenzene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,4-Dichlorobenzene	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzyl Alcohol	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
1,2-Dichlorobenzene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylphenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroisopropyl)e	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Methylphenol	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitroso-di-n-Propylam	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachloroethane	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Nitrobenzene	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Isophorone	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitrophenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dimethylphenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzoic Acid	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Chloroethoxy)Meth	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dichlorophenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[illegible]richlorobenzene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[illegible]lene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[illegible]oaniline	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[illegible]lorobutadiene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chloro-3-Methylphenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Methylnaphthalene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorocyclopentadie	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,6-Trichlorophenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4,5-Trichlorophenol	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Chloronaphthalene	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2-Nitroaniline	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dimethylphthalate	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthylene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,6-Dinitrotoluene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3-Nitroaniline	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Acenaphthene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrophenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitrophenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenzofuran	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
2,4-Dinitrotoluene	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Diethylphthalate	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Chlorophenyl-Phenylet	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluorene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Nitroaniline	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4,6-Dinitro-2-Methylphe	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
n-Nitrosodiphenylamine	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
4-Bromophenyl-Phenyleth	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Hexachlorobenzene	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
P[illegible]chlorophenol	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[illegible]rene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[illegible]ene	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
[illegible]ylphthalate	1 01	B	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Fluoranthene	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH

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LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3660-7
Client Sample ID 94004948013
Matrix SOIL

Pyrene	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Butylbenzylphthalate	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
3,3-Dichlorobenzidine	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Anthracene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Chrysene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
bis(2-Ethylhexyl)Phthal	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
di-n-Octylphthalate	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(b)Fluoranthene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(k)Fluoranthene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(a)Pyrene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Indeno(1,2,3-cd)Pyrene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Dibenz(a,h)Anthracene	0 353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
Benzo(g,h,i)Perylene	0.353	U	mg/Kg	EPA 8270	07/20/94	07/21/94	JBH
PCBs in Soil	0.020	U	mg/Kg	EPA 8080	07/20/94	07/21/94	DSM
------Aroclor	---						
Sample Preparation	---			EPA 3050 Digest			
Chromium	17	D	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Lead	11	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Cadmium	5 5	U	mg/Kg	EPA 6010 ICP	07/20/94	07/21/94	EMW
Arsenic	2.1		mg/Kg	EPA 7060 GF	07/20/94	07/22/94	KGF

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

[redacted]T&E Ref.#	94.3660-8
Client Sample ID	94004948 014
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80576		
Ordered By	CARL HORNIG	Printed Date	07/22/94	@ 16:44	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/18/94	@ 14:30	hrs.
Project#	94004/ROM(SS-14)	Received Date	07/20/94	@ 09:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICKKOTSCH. CALL# B049. 34000 MG/KG OF EPH PATTERN NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	77.1		%	SM17 2540G			07/20/94	CAV
Hydrocarbons EPH	35800	D	mg/Kg	3510/3550/8100M		07/20/94	07/21/94	DRS
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	1.40		mg/Kg	EPA 5030/8015m		07/20/94	07/20/94	SPM
[redacted]ie	0 030	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM
[redacted]ne	0 030	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM
[redacted]lbenzene	0.030	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM
o-Xylene	0.030	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM

See Special Instructions Above
[redacted]ee Sample Remarks Above
[redacted]ndetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.
Environmental Laboratory Services
[redacted]CE 1908

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3660-9
Client Sample ID	94004948 015
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80576		
Ordered By	CARL HORNIG	Printed Date	07/22/94	@ 16:44	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/18/94	@ 16:30	hrs.
Project#	94004/ROM(SS-14)	Received Date	07/20/94	@ 09:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B049. 3900 MG/KG OF EPH PATTERN NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	92.2		%	SM17 2540G			07/20/94	CAV
Hydrocarbons EPH	4910	D	mg/Kg	3510/3550/8100M		07/20/94	07/21/94	DRS
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	12.1		mg/Kg	EPA 5030/8015m		07/20/94	07/20/94	SPM
[redacted]ne	0.020	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM
[redacted]e	0.020	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/20/94	07/20/94	SPM

[redacted] See Special Instructions Above
[redacted]ee Sample Remarks Above
[redacted]Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3706-1
Client Sample ID	94004948016
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:05	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/19/94	@ 10:46	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B-050. 870 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	92 9		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	3560	D	mg/Kg	3510/3550/8100M		07/25/94	07/27/94	WAA
VPH & BTEX				EPA 8015M/8020				
...rocarbons VPH	186	D	mg/Kg	EPA 5030/8015m		07/25/94	07/25/94	SPM
...ene	0.020	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
...ene	0 024		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Ethylbenzene	0 020	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0 235		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0.239		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3706-2
Client Sample ID	94004948017
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:05	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/19/94	@ 13:15	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks. SAMPLE COLLECTED BY: AHMED/DICKKOTSCH CALL# B-050. 15700 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	94.1		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	18100	D	mg/Kg	3510/3550/8100M		07/25/94	07/27/94	WAA
VPH & BTEX				EPA 8015M/8020				
[illegible]drocarbons VPH	27.5		mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM
[illegible]ene	0.020	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
[illegible]ne	0.023		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0.060		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

[illegible] See Special Instructions Above
[illegible] See Sample Remarks Above
[illegible] = Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.
Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3706-3
Client Sample ID	94004948 018
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:05	hrs
Project Name	CAPE ROMANZOF	Collected Date	07/19/94	@ 14:19	hrs
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10.00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B-050. 25600 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	90 4		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	28200	D	mg/Kg	3510/3550/8100M		07/25/94	07/27/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	4 29		mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM
[redacted]ne	0 025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
[redacted]e	0 025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
[redacted]lbenzene	0 025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0 047		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

See Special Instructions Above
[redacted]ee Sample Remarks Above
[redacted]ndetected. Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.
Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3706-4
Client Sample ID	94004948 019
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:06	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/19/94	@ 16:20	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By.

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B-050. 20100 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	88.5		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	29200	D	mg/Kg	3510/3550/8100M		07/25/94	07/27/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	26.3		mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM
...ene	0.025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
...ene	0.025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Ethylbenzene	0.082		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0.329		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94 3706-5
Client Sample ID	94004948 020
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:46	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/20/94	@ 08:50	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs.
PWSID	UA	Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICKKOTSCH. CALL# B-050 14900 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	80.8		%	SM17 2540G	-		07/25/94	TM
Hydrocarbons EPH	17300	D	mg/Kg	3510/3550/8100M		07/25/94	07/28/94	WAA
VPH & BTEX				EPA 8015M/8020				
[illegible]rocarbons VPH	10 9		mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM

[illegible]ene	0 030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
[illegible]uene	0 030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Ethylbenzene	0 030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0 030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0 185		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

See Special Instructions Above
See Sample Remarks Above
U = Undetected. Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

[redacted]T&E Ref.# 94.3706-6
Client Sample ID 94004948 021
Matrix SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654
Ordered By	CARL HORNIG	Printed Date	08/10/94 @ 15:06 hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/20/94 @ 08:50 hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94 @ 10:00 hrs.
PWSID	UA		
		Technical Director	STEPHEN C. EDE

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B-050 10400 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	80.2		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	11800	D	mg/Kg	3510/3550/8100M		07/25/94	07/28/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	8.51		mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM
[redacted]te	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
[redacted]e	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
[redacted]benzene	0 030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0.169		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

See Special Instructions Above
[redacted]e Sample Remarks Above
[redacted]detected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3706-7
Client Sample ID	94004948 022
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:06	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/20/94	@ 10.25	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH. CALL# B-050. 96.1 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. EPH PATTERN INDICATES POSSIBLE BIOGENIC MATRIX INTERFERENCE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	78 3		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	130		mg/Kg	3510/3550/8100M		07/25/94	08/06/94	WAA
& BTEX				EPA 8015M/8020				
carbons VPH	0.626		mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM
ene	0 030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Toluene	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Ethylbenzene	0 030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected. Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref #	94 3706-8
Client Sample ID	94004948 023
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:06	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/20/94	@ 13.00	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY. AHMED/DICKKOTSCH CALL# B-050 17.0 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE EPH PATTERN INDICATES POSSIBLE BIOGENIC MATRIX INTERFERENCE

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	81 0		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	22.7		mg/Kg	3510/3550/8100M		07/25/94	08/07/94	WAA
& BTEX				EPA 8015M/8020				
carbons VPH	0 500	U	mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM
ene	0.025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Toluene	0 025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Ethylbenzene	0 025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0 025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected. Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3706-9
Client Sample ID	94004948 024
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:06	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/20/94	@	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICKKOTSCH. CALL# B-050. 12300 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	92.3		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	12300	D	mg/Kg	3510/3550/8100M		07/25/94	07/28/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	34.3		mg/Kg	EPA 5030/8015m		07/25/94	07/27/94	SPM
[redacted]e	0.020	U	mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
[redacted]e	0.020	U	mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
[redacted]benzene	0.020	U	mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
p&m Xylene	0.044		mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
o-Xylene	0.265		mg/Kg	EPA 8020		07/25/94	07/27/94	SPM

[redacted] See Special Instructions Above
[redacted]ee Sample Remarks Above
[redacted]ndetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref #	94.3706-10
Client Sample ID	94004948025
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:46	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/20/94	@ 14:19	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10 00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY· AHMED/DICK KOTSCH. CALL# B-050. 20400 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	92.1		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	27900	D	mg/Kg	3510/3550/8100M		07/25/94	07/28/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	160	D	mg/Kg	EPA 5030/8015m		07/25/94	07/27/94	SPM
---zene	0 020	U	mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
---lene	0.022		mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
Ethylbenzene	0 368	D	mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
o-Xylene	0.406		mg/Kg	EPA 8020		07/25/94	07/27/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

[redacted]el.#	94.3706-11
[redacted] Sample ID	94004948 026
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:06	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/20/94	@ 14:50	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH CALL# B-050. 12500 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	97 3		%	SM17 2540G			07/25/94	TM
Hydrocarbons EPH	15600	D	mg/Kg	3510/3550/8100M		07/25/94	07/28/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	103		mg/Kg	EPA 5030/8015m		07/25/94	07/27/94	SPM

B	0.020	U	mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
T	0.021		mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
E[redacted]zene	0.077		mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
p[redacted]ylene	0.020	U	mg/Kg	EPA 8020		07/25/94	07/27/94	SPM
o-Xylene	0.416		mg/Kg	EPA 8020		07/25/94	07/27/94	SPM

See Special Instructions Above
See Sample Remarks Above
[redacted]ndetected, Reported value is the practical quantification limit
[redacted]condary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3706-12
Client Sample ID	94004948027
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15.06	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/20/94	@ 15:53	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH CALL# B-050. 5460 MG/KG OF OTP SURROGATE IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	88.8		%	SM17 2540G			07/25/94	CAV
Hydrocarbons EPH	7350	D	mg/Kg	3510/3550/8100M		07/25/94	07/28/94	WAA
VPH & BTEX				EPA 8015M/8020				
[illegible]ocarbons VPH	34.0		mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM
[illegible]ene	0 025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
[illegible]uene	0.025	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Ethylbenzene	0.163		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0.055		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0 110		mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

[illegible] See Special Instructions Above
[illegible] See Sample Remarks Above
[illegible] = Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

[redacted]

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LABORATORY ANALYSIS REPORT

CT&E Ref #	94.3706-13
Client Sample ID	94004948028
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:06	hrs.
Project Name	CAPE ROMANZOF	Collected Date	07/21/94	@ 08:00	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICKKOTSCH CALL# B-050 981 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	75.5		%	SM17 2540G			07/25/94	CAV
Hydrocarbons EPH	1130	D	mg/Kg	3510/3550/8100M		07/25/94	08/07/94	WAA
VPH & BTEX				EPA 8015M/8020				
I' carbons VPH	0.781		mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM
[redacted]ne	0.035	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
[redacted]ne	0.035	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Ethylbenzene	0.035	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0.035	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0.035	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

[redacted] See Special Instructions Above
[redacted]ee Sample Remarks Above
[redacted] Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3706-14
Client Sample ID	94004948029
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80654		
Ordered By	CARL HORNIG	Printed Date	08/10/94	@ 15:06	hrs
Project Name	CAPE ROMANZOF	Collected Date	07/21/94	@ 09:00	hrs.
Project#	94004/ROM-12(SS-14)	Received Date	07/22/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By

Sample Remarks: SAMPLE COLLECTED BY: AHMED/DICK KOTSCH CALL# B-050. 10000 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	78.5		%	SM17 2540G			07/25/94	CAV
Hydrocarbons EPH	11400	D	mg/Kg	3510/3550/8100M		07/25/94	07/28/94	WAA
VPH & BTEX				EPA 8015M/8020				
carbons VPH	2.84		mg/Kg	EPA 5030/8015m		07/25/94	07/26/94	SPM
ne	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
ne	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
Ethylbenzene	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
p&m Xylene	0 030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM
o-Xylene	0.030	U	mg/Kg	EPA 8020		07/25/94	07/26/94	SPM

See Special Instructions Above
See Sample Remarks Above
U = Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3810-1
Client Sample ID	94004948030
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80899		
Ordered By	CARL HORNIG	Printed Date	08/11/94	@ 16 15	hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14)	Collected Date	07/21/94	@ 10:40	hrs
Project#	94004	Received Date	07/27/94	@ 16:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-051. 264 MG/KG OF EPH PATTERN IS A HEAVIER HYDROCARBON THAN OTP SURROGATE SAMPLE WAS RE-EXTRACTED DUE TO LOW SURROGATE RECOVERY.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	61.2		%	SM17 2540G			07/28/94	CAV
Hydrocarbons EPH	313		mg/Kg	3510/3550/8100M		08/09/94	08/10/94	WAA
[illegible] & BTEX				EPA 8015M/8020				
[illegible]carbons VPH	0.900	U	mg/Kg	EPA 5030/8015m		07/28/94	07/28/94	SPM
[illegible]ene	0.045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
Toluene	0.045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
Ethylbenzene	0.045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
p&m Xylene	0.045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
o-Xylene	0 045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3810-2
Client Sample ID	94004948031
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80899		
Ordered By	CARL HORNIG	Printed Date	08/11/94	@ 16:15	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14)	Collected Date	07/21/94	@ 10:45	hrs.
Project#	94004	Received Date	07/27/94	@ 16:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-051. 812 MG/KG OF EPH PATTERN IS A HEAVIER HYDROCARBON THAN OTP SURROGATE. SAMPLE WAS RE-EXTRACTED DUE TO LOW SURROGATE RECOVERY.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	57.5		%	SM17 2540G			07/28/94	CAV
Hydrocarbons EPH	935		mg/Kg	3510/3550/8100M		08/09/94	08/10/94	WAA
PH & BTEX				EPA 8015M/8020				
ocarbons VPH	0.900	U	mg/Kg	EPA 5030/8015m		07/28/94	07/28/94	SPM
nzene	0.045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
Toluene	0.045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
Ethylbenzene	0.045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
p&m Xylene	0.045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
o-Xylene	0.045	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3810-3
Client Sample ID	94004948032
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80899		
Ordered By	CARL HORNIG	Printed Date	08/11/94	@16:15	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14)	Collected Date	07/21/94	@15:15	hrs.
Project#	94004	Received Date	07/27/94	@16:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL #B-051. 1990 MG/KG OF EPH PATTERN IS A HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	95.9		%	SM172540G			07/28/94	SPM
Hydrocarbons EPH	2220	D	mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	2 32		mg/Kg	EPA 5030/8015m		07/28/94	07/29/94	SPM
Benzene	0.020	U	mg/Kg	EPA 8020		07/28/94	07/29/94	SPM
Toluene	0.020	U	mg/Kg	EPA 8020		07/28/94	07/29/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		07/28/94	07/29/94	SPM
p&m Xylene	0.027		mg/Kg	EPA 8020		07/28/94	07/29/94	SPM
o-Xylene	0.043		mg/Kg	EPA 8020		07/28/94	07/29/94	SPM

See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3810-4
Client Sample ID	94004948033
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80899		
Ordered By	CARL HORNIG	Printed Date	08/11/94	@ 16:15	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14)	Collected Date	07/22/94	@ 19:06	hrs
Project#	94004	Received Date	07/27/94	@ 16:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY AHMED CALL #B-051. 2810 MG/KG OF EPH PATTERN IS A HEAVIER HYDROCARBON THAN OTP SURROGATE

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	97 8		%	SM17 2540G			07/28/94	CAV
Hydrocarbons EPH	3960	D	mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	27 0		mg/Kg	EPA 5030/8015m		07/28/94	07/29/94	SPM
izene	0 020	U	mg/Kg	EPA 8020		07/28/94	07/29/94	SPM
luene	0 020	U	mg/Kg	EPA 8020		07/28/94	07/29/94	SPM
lbenzene	0 140		mg/Kg	EPA 8020		07/28/94	07/29/94	SPM
m Xylene	0.125		mg/Kg	EPA 8020		07/28/94	07/29/94	SPM
o-Xylene	0 037		mg/Kg	EPA 8020		07/28/94	07/29/94	SPM

See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3810-5
Client Sample ID	94004948034
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80899		
Ordered By	CARL HORNIG	Printed Date	08/11/94	@ 16:15	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14)	Collected Date	07/22/94	@ 10:05	hrs.
Project#	94004	Received Date	07/27/94	@ 16:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY. AHMED. CALL #B-051.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	95.2		%	SM17 2540G			07/28/94	CAV
Hydrocarbons EPH	4.00	U	mg/Kg	3510/3550/8100M	-	07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		07/28/94	07/28/94	SPM
zene	0.020	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
iene	0 020	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
lbenzene	0 020	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
m Xylene	0.020	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

T&E Ref.#	94.3810-6
Client Sample ID	94004948035
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80899		
Ordered By	CARL HORNIG	Printed Date	08/11/94	@ 16:15	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14)	Collected Date	07/22/94	@ 15:45	hrs.
Project#	94004	Received Date	07/27/94	@ 16:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-051. 4900 MG/KG OF EPH PATTERN IS A HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	88 4		%	SM17 2540G			07/28/94	CAV
Hydrocarbons EPH	6860	D	mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	14.7		mg/Kg	EPA 5030/8015m		07/28/94	07/28/94	SPM
...ene	0.020	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
...ene	0.020	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
...ylbenzene	0.104		mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
...m Xylene	0 099		mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
o-Xylene	0 0473		mg/Kg	EPA 8020		07/28/94	07/28/94	SPM

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]&E Ref.#	94.3810-7
Client Sample ID	94004948036
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	80899		
Ordered By	CARL HORNIG	Printed Date	08/11/94	@16 15	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14)	Collected Date	07/23/94	@09:50	hrs.
Project#	94004	Received Date	07/27/94	@16 00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY. AHMED. CALL #B-051. 2210 MG/KG OF EPH PATTERN IS A HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	85.4		%	SM17 2540G			07/28/94	CAV
Hydrocarbons EPH	3520	D	mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	45.7		mg/Kg	EPA 5030/8015m		07/28/94	07/28/94	SPM
ene	0.025	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
[redacted]ene	0.025	U	mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
[redacted]lbenzene	0 321		mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
p&m Xylene	0.440		mg/Kg	EPA 8020		07/28/94	07/28/94	SPM
o-Xylene	0.118		mg/Kg	EPA 8020		07/28/94	07/28/94	SPM

[redacted] See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

T&E Ref.#	94.3820-1
Client Sample ID	94004948037
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:11	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 14:40	hrs
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY AHMED. CALL #B-052. 13 9 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	87 6		%	SM17 2540G	-		07/29/94	CAV
Hydrocarbons EPH	71 5		mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0 500	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
ene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
ene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
ylbenzene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref.#	94.3820-2
Client Sample ID	94004948038
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:11	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 14:45	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs
PWSID	UA				

Technical Director STEPHEN C EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 445 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	89 5		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	514		mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted]ie	0 025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]e	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]ylbenzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

See Special Instructions Above
[redacted]e Sample Remarks Above
[redacted]detected. Reported value is the practical quantification limit.
[redacted]condary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94 3820-3
Client Sample ID	94004948039
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:11	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 14.50	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 8.12 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	92.3		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	8.39		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
'I & BTEX				EPA 8015M/8020				
rocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
zene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

See Special Instructions Above
See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.
Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3820-4
Client Sample ID	94004948040
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11.11	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 14 56	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C EDE

Released By Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL #B-052. 1960 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	96 6		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	2240		mg/Kg	3510/3550/8100M		07/29/94	07/30/94	WAA
& BTEX				EPA 8015M/8020				
carbons VPH	31 7		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
zene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0 032		mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.092		mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

See Special Instructions Above
ee Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3820-5
Client Sample ID	94004948041
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 15:04	hrs.
Project#	94004	Received Date	07/28/94	@ 12 15	hrs
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 132 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	80.5		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	155		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
[illegible] & BTEX				EPA 8015M/8020				
[illegible]arbons VPH	0.771		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[illegible]ne	0 030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0 030	U	mg/Kg	EPA 8020		07/[illegible]94	07/29/94	SPM
Ethylbenzene	0.030	U	mg/Kg	EPA 8020		07/[illegible]94	07/29/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0 030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

[illegible] See Special Instructions Above	UA = Unavailable
[illegible]e Sample Remarks Above	NA = Not Analyzed
U = Undetected, Reported value is the practical quantification limit.	LT = Less Than
D = Secondary dilution.	GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]&E Ref.#	94.3820-6
Client Sample ID	94004948042
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 15.15	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director: STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL #B-052. 29 5 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	81.1		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	34.5		mg/Kg	3510/3550/8100M		07/29/94	07/30/94	WAA
VPH & BTEX				EPA 8015M/8020				
carbons VPH	0.600	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted]e	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]ene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0 030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0 030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

See Special Instructions Above
[redacted]e Sample Remarks Above
[redacted]ndetected. Reported value is the practical quantification limit
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref #	94.3820-7
Client Sample ID	94004948043
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 15:24	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By. Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 32.1 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	95.2		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	392		mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
I' arbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted]e	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]e	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

See Special Instructions Above
[redacted]e Sample Remarks Above
[redacted]detected. Reported value is the practical quantification limit
D = [redacted]econdary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref.#	94.3820-8
Client Sample ID	94004948044
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 15:39	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By. Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 29 7 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	80 7		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	55 0		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
VPH & BTEX				EPA 8015M/8020				
[illegible]ocarbons VPH	5 81		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted]ne	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]ne	0 030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0 030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0 030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0 030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

See Special Instructions Above
[redacted]ee Sample Remarks Above
[redacted]ndetected, Reported value is the practical quantification limit.
[redacted]econdary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3820-9
Client Sample ID	94004948045
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 15:50	hrs
Project#	94004	Received Date	07/28/94	@ 12:15	hrs
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 193 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	85.3		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	240		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
TPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	2.52		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
Benzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref #	94.3820-10
Client Sample ID	94004948046
Matrix	SOIL

Client Name	US AIR FORCE/CEOR
Ordered By	DANNY COLLINS
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR
Project#	94004
PWSID	UA

RUSH Order	80898		
Printed Date	08/03/94	@ 11:12	hrs.
Collected Date	07/26/94	@ 16:10	hrs.
Received Date	07/28/94	@ 12:15	hrs.

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY AHMED. CALL #B-052. 356 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	84.7		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	403		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
PH & BTEX				EPA 8015M/8020				
drocarbons VPH	0.827		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
nzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
** See Sample Remarks Above
U = Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref.#	94 3820-11
[redacted]ent Sample ID	94004948047
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 16.19	hrs
Project#	94004	Received Date	07/28/94	@ 12·15	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: *Stephen C. Ede*

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL #B-052. 76.4 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	96.1		%	SM172540G			07/29/94	CAV
Hydrocarbons EPH	90.2		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	2 08		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted]ne	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]ne	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]benzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
See Sample Remarks Above
[redacted]ndetected. Reported value is the practical quantification limit.
[redacted]econdary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]&E Ref.#	94.3820-12
Client Sample ID	94004948048
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 16:25	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY· AHMED. CALL #B-052. 4 83 MG/KG OF EPH PATTERN IS NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	95.5		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	5.59		mg/Kg	3510/3550/8100M		07/29/94	08/02/94	WAA
VPH & BTEX				EPA 8015M/8020				
carbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted]ne	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]ene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

See Special Instructions Above
[redacted]ee Sample Remarks Above
[redacted]ndetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref.#	94.3820-13
Client Sample ID	94004948049
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 16.35	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL #B-052 513 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	93 0		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	709	D	mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
H· ·arbons VPH	12.8		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted]e	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]e	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.037		mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

˜ee Special Instructions Above
[redacted] Sample Remarks Above
[redacted]etected. Reported value is the practical quantification limit.
D [redacted]condary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

T&E Ref.#	94.3820-14
Client Sample ID	94004948050
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 16:39	hrs
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL #B-052 27 4 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	85.1		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	58.3		mg/Kg	3510/3550/8100M		07/29/94	07/30/94	WAA
VPH & BTEX				EPA 8015M/8020				
rocarbons VPH	4 64		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
.ene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
oluene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]&E Ref #	94.3820-15
Client Sample ID	94004948051
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 16:43	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANCIS

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	93.2		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	840	D	mg/Kg	3510/3550/8100M		07/29/94	08/02/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	21.2		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted]	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]enzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.026		mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.084		mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

[redacted]ee Special Instructions Above
[redacted] Sample Remarks Above
[redacted]detected. Reported value is the practical quantification limit
D [redacted]econdary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3820-16
Client Sample ID	94004948052
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898	
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12 hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 16:50 hrs.
Project#	94004	Received Date	07/28/94	@ 12:15 hrs.
PWSID	UA			
		Technical Director	STEPHEN C. EDE	

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY AHMED CALL #B-052 3650 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	89.5		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	5550	D	mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	46 3		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
Benzene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.328		mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.130		mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0 114		mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
* See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94 3820-17
Client Sample ID	94004948053
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:12	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17:05	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		
		Released By:			

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 6.95 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	95 6		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	9 74		mg/Kg	3510/3550/8100M		07/29/94	07/30/94	WAA
VPH & BTEX				EPA 8015M/8020				
drocarbons VPH	0 400	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
zene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
See Sample Remarks Above
U = Undetected. Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3820-18
Client Sample ID	94004948054
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11·12	hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17:15	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 4.14 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	93.7		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	4.82		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
ᵀPH & BTEX				EPA 8015M/8020				
drocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
.zene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
' See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref.#	94.3820-19
Client Sample ID	94004948055
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:13	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17:24	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: *Stephen C. Ede*

Sample Remarks SAMPLE COLLECTED BY: AHMED. CALL #B-052.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	95 7		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	4.00	U	mg/Kg	3510/3550/8100M		07/29/94	07/30/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
ene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
ne	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
benzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Xylene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

See Special Instructions Above
See Sample Remarks Above
[redacted]= Undetected. Reported value is the practical quantification limit.
[redacted]= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref.#	94.3820-20
[redacted]ent Sample ID	94004948056
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:13	hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17:30	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks. SAMPLE COLLECTED BY: AHMED. CALL #B-052. 176 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	94.6		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	215		mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	1 45		mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted]ne	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]ne	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
[redacted]lbenzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
See Sample Remarks Above
[redacted] Undetected. Reported value is the practical quantification limit
[redacted] Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref.#	94.3820-21
[redacted]nt Sample ID	94004948057
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:13	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17:39	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 21.6 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	93.8		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	27.0		mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.649		mg/Kg	EPA 5030/8015m		07/29/94	07/30/94	SPM
ene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]ene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]lbenzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM

* See Special Instructions Above
See Sample Remarks Above
[redacted] = Undetected, Reported value is the practical quantification limit.
[redacted] Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted] Ref.#	94.3820-22
[redacted]ent Sample ID	94004948058
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:13	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17:44	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL #B-052. 11.5 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	94.1		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	13.2		mg/Kg	3510/3550/8100M	-	07/29/94	08/01/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		07/29/94	07/30/94	SPM
[redacted]ne	0 020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]ne	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]ylbenzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM

* See Special Instructions Above	UA = Unavailable
See Sample Remarks Above	NA = Not Analyzed
[redacted] = Undetected. Reported value is the practical quantification limit.	LT = Less Than
[redacted] = Secondary dilution	GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted] Ref.# 94.3820-23
[redacted]nt Sample ID 94004948059
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:13	hrs
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17:39	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks SAMPLE COLLECTED BY: AHMED CALL #B-052. 33.2 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	85.4		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	36.4		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015m		07/29/94	07/30/94	SPM
[redacted]ne	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]ne	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]lbenzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM

* See Special Instructions Above
See Sample Remarks Above
Undetected. Reported value is the practical quantification limit
Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref.#	94.3820-24
[redacted]lient Sample ID	94004948060
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11.13	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17:44	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks. SAMPLE COLLECTED BY: AHMED. CALL #B-052. 12.5 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	96 5		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	13.3		mg/Kg	3510/3550/8100M		07/29/94	07/30/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		07/29/94	07/30/94	SPM
[redacted] ene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]uene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]thylbenzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
p&m Xylene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM

* See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted] Ref #	94 3820-25
[redacted]nt Sample ID	94004948061
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:13	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17 48	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL #B-052. 13.8 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	90.5		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	18.0		mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
[redacted].e	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]ne	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
[redacted]lbenzene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
p&m Xylene	0 020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM

* See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94 3820-26
Client Sample ID	94004948062
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:13	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 17:53	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 18.2 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	86.8		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	21 3		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
Benzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

T&E Ref.#	94.3820-27				
Client Sample ID	94004948063				
Matrix	SOIL				
Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:13	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 18:00	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Steph C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 14 8 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	89.2		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	17.0		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
zene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
uene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3820-28
Client Sample ID	94004948064
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:13	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 18:08	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		
		Released By:	Stephen C. Ede		

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 115.3 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS. MATRIX INTERFERENCE SUSPECTED.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	83.2		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	20.6		mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.600	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
Benzene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Toluene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
Ethylbenzene	0 030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above	UA = Unavailable
See Sample Remarks Above	NA = Not Analyzed
Undetected. Reported value is the practical quantification limit.	LT = Less Than
Secondary dilution.	GT = Greater Than

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LABORATORY ANALYSIS REPORT

T&E Ref.# 94.3820-29
Client Sample ID 94004948065
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@ 11:57	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@ 18:10	hrs.
Project#	94004	Received Date	07/28/94	@ 12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Steph C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 28.3 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS. MATRIX INTERFERENCE SUSPECTED.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	78.3		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	40.4		mg/Kg	3510/3550/8100M		07/29/94	07/31/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.600	U	mg/Kg	EPA 5030/8015m		07/29/94	07/29/94	SPM
zene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
luene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
hylbenzene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM
o-Xylene	0.030	U	mg/Kg	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

F-712

Commercial Testing & Engineering Co.
Environmental Laboratory Services

SINCE 1908

LABORATORY ANALYSIS REPORT

&E Ref.# 94.3820-30
Client Sample ID 94004948066
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80898		
Ordered By	DANNY COLLINS	Printed Date	08/03/94	@11:13	hrs.
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR	Collected Date	07/26/94	@18:16	hrs.
Project#	94004	Received Date	07/28/94	@12:15	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. 73.3 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS. MATRIX INTERFERENCE SUSPECTED.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	80.1		%	SM17 2540G			07/29/94	CAV
Hydrocarbons EPH	73.3		mg/Kg	3510/3550/8100M		07/29/94	08/01/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015m		07/29/94	07/30/94	SPM
zene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
uene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
Ethylbenzene	0 025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		07/29/94	07/30/94	SPM

* See Special Instructions Above
See Sample Remarks Above
: Undetected, Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

I&E Ref.#	94.3820-31
Client Sample ID	94004948067
Matrix	WATER

Client Name	US AIR FORCE/CEOR
Ordered By	DANNY COLLINS
Project Name	CAPE ROMANZOF ROM-12 (SS-14) CONFIR
Project#	94004
PWSID	UA

RUSH Order	80898		
Printed Date	08/03/94	@ 11:13	hrs.
Collected Date	07/26/94	@ 18:19	hrs.
Received Date	07/28/94	@ 12:15	hrs.

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL #B-052. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE ORGANICS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Hydrocarbons EPH	0.365		mg/L	3510/3550/8100M		07/29/94	07/30/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.020	U	mg/L	EPA 5030/8015m		07/29/94	07/29/94	SPM
Benzene	0.0010	U	mg/L	EPA 8020		07/29/94	07/29/94	SPM
ıene	0.0010	U	mg/L	EPA 8020		07/29/94	07/29/94	SPM
ylbenzene	0.0010	U	mg/L	EPA 8020		07/29/94	07/29/94	SPM
m Xylene	0.0010	U	mg/L	EPA 8020		07/29/94	07/29/94	SPM
-Xylene	0.0010	U	mg/L	EPA 8020		07/29/94	07/29/94	SPM

* See Special Instructions Above
' See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.# 94 3926-1
Client Sample ID 94004948 201
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14.42	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 07:00	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: [signature]

Sample Remarks SAMPLE COLLECTED BY UA CALL# B-0538-1-94 EPH PATTERN NOT CONSISTENT WITH UNWEATHERED MIDDLE DISTILLATE FUEL

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	81 8		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	61 6		mg/Kg	3510/3550/8100M		08/04/94	08/05/94	DRS
PH & BTEX				EPA 8015M/8020				
rocarbons VPH	0.600	U	mg/Kg	EPA 5030/8015m		08/04/94	08/04/94	SPM
	---							
nzene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
Toluene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
Ethylbenzene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
p&m Xylene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
o-Xylene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
TCLP Extraction	---			SW 846 1311		08/03/94		DEV
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/04/94	08/08/94	KGF
Barium	0.53	D	mg/L	EPA 7080/6010	100 0	08/04/94	08/05/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/04/94	08/05/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/04/94	08/05/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5 0	08/04/94	08/05/94	EMW
Mercury	0 0004	U	mg/L	EPA 7470/7471	0 2	08/08/94	08/08/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1 0	08/04/94	08/08/94	KGF
Silver	0 10	U	mg/L	EPA 7760/6010	5.0	08/04/94	08/05/94	BJS
Halogenated Volatile Or				EPA 8010				
Methylene Chloride	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1 Dichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1 Dichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Chloroform	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Carbontetrachloride	0.030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,2 Dichloropropane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1,2 Trichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
omochloromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
achloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Chlorobenzene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trichlorofluoromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trans12Dichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,2 Dichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref # 94.3926-1
Client Sample ID 94004948 201
Matrix SOIL

1,1,1 Trichloroethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromodichloromethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Trans1,3Dichloropropene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
cis-1,3-Dichloropropene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromoform	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1122-Tetrachloroethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloromethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromomethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Vinyl Chloride	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloroethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,4 Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
2-Chloroethylvinylether	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,3-Dichlorobenzene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,2-Dichlorobenzene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Delta-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
C[illegible]ma-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]rdane	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]'-DDD	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]4'-DDE	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
4,4'-DDT	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Dieldrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan I	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

* See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref #	94.3926-2
Client Sample ID	94004948 202
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:42	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 07:13	hrs
Project#	94004	Received Date	08/03/94	@ 11:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY. UA. CALL# B-053 8-1-94 53 1 MG/KG OF EPH PATTERN IS HEAVIER HYDROCARBON THAN OTP SURROGATE. EPH PATTERN NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	81 5		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	56 1		mg/Kg	3510/3550/8100M		08/04/94	08/05/94	DRS
& BTEX				EPA 8015M/8020				
ocarbons VPH	0.600	U	mg/Kg	EPA 5030/8015m		08/04/94	08/04/94	SPM
	---							
enzene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
Toluene	0.030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
Ethylbenzene	0.030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
p&m Xylene	0.030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
o-Xylene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
TCLP Extraction	---			SW 846 1311		08/03/94		DEV
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5 0	08/04/94	08/08/94	KGF
Barium	0.50	U	mg/L	EPA 7080/6010	100.0	08/04/94	08/05/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/04/94	08/05/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/04/94	08/05/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5.0	08/04/94	08/05/94	EMW
Mercury	0 0004	U	mg/L	EPA 7470/7471	0.2	08/08/94	08/08/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1 0	08/04/94	08/08/94	KGF
Silver	0 10	U	mg/L	EPA 7760/6010	5 0	08/04/94	08/05/94	BJS
Halogenated Volatile Or				EPA 8010				
Methylene Chloride	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1 Dichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1 Dichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Chloroform	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Carbontetrachloride	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,2 Dichloropropane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
omochloromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
rachloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
lorobenzene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
richlorofluoromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trans12Dichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB

Commercial Testing & Engineering Co.
Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref # 94.3926-2
Client Sample ID 94004948 202
Matrix SOIL

1,2 Dichloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,1,1 Trichloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromodichloromethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Trans1,3Dichloropropene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
cis-1,3-Dichloropropene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromoform	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1122-Tetrachloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloromethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromomethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Vinyl Chloride	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,4 Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
2-Chloroethylvinylether	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,3-Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,2-Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
D[illegible]a-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]ma-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]lordane	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]4'-DDD	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
4,4'-DDE	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
4,4'-DDT	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Dieldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan I	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

See Special Instructions Above
* See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

SINCE 1908

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94 3926-3
Client Sample ID 94004948 203
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982
Ordered By	CARL HORNIG	Printed Date	08/18/94 @ 14:43 hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94 @ 07:18 hrs.
Project#	94004	Received Date	08/03/94 @ 11:00 hrs.
PWSID	UA		
		Technical Director	STEPHEN C. EDE

Released By: Shawn Preston

Sample Remarks: SAMPLE COLLECTED BY: UA CALL# B-0538-1-94 FPH PATTERN NOT CONSISTENT WITH UNWEATHERED MIDDLE DISTILLATE FUEL

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	77.5		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	2880	D	mg/Kg	3510/3550/8100M		08/04/94	08/05/94	DRS
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	42 5		mg/Kg	EPA 5030/8015m		08/04/94	08/04/94	SPM

Benzene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
Toluene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
Ethylbenzene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
p&m Xylene	0 082		mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
o-Xylene	0 030	U	mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
TCLP Extraction	---			SW 846 1311		08/03/94		DEV
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/04/94	08/08/94	KGF
Barium	0 50	U	mg/L	EPA 7080/6010	100 0	08/04/94	08/05/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/04/94	08/05/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/04/94	08/05/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5 0	08/04/94	08/05/94	EMW
Mercury	0 0004	U	mg/L	EPA 7470/7471	0 2	08/08/94	08/08/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1 0	08/04/94	08/08/94	KGF
Silver	0 10	U	mg/L	EPA 7760/6010	5.0	08/04/94	08/05/94	BJS
Halogenated Volatile Or				EPA 8010				
Methylene Chloride	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1,1 Dichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1,1 Dichloroethane	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
Chloroform	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
Carbontetrachloride	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1, 2 Dichloropropane	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
Trichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1,1,2 Trichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
...omochloromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
...achloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
...orobenzene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
...chlorofluoromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
Trans12Dichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1,2 Dichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB

Commercial Testing & Engineering Co.
Environmental Laboratory Services
SINCE 1908

LABORATORY ANALYSIS REPORT

CT&E Ref #	94.3926-3
Client Sample ID	94004948 203
Matrix	SOIL

1,1,1 Trichloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Bromodichloromethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Trans1,3Dichloropropene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
cis-1,3-Dichloropropene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Bromoform	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1122-Tetrachloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Chloromethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Bromomethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Vinyl Chloride	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Chloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1,4 Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
2-Chloroethylvinylether	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1,3-Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1,2-Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Delta-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]ma-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]rdane	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]4'-DDD	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[illegible]4'-DDE	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
4,4'-DDT	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Dieldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan I	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

* See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

T&E Ref.#	94.3926-4
Client Sample ID	94004948 204
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:43	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 08.18	hrs
Project#	94004	Received Date	08/03/94	@ 11:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY UA. CALL# B-0538-1-94 THE EPH PATTERN IS NOT CONSISTENT WITH UNWEATHERED MIDDLE DISTILLATE FUEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	66 1		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	268		mg/Kg	3510/3550/8100M		08/04/94	08/06/94	DRS
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0 800	U	mg/Kg	EPA 5030/8015m		08/04/94	08/04/94	SPM
	---							
nzene	0.040	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
oluene	0.040	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
hylbenzene	0 040	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
p&m Xylene	0 040	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
o-Xylene	0 040	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
TCLP Extraction	---			SW846 1311		08/03/94		DEV
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5.0	08/04/94	08/08/94	KGF
Barium	0 50	U	mg/L	EPA 7080/6010	100 0	08/04/94	08/05/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/04/94	08/05/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5 0	08/04/94	08/05/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/04/94	08/05/94	EMW
Mercury	0 004	U	mg/L	EPA 7470/7471	0.2	08/08/94	08/08/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/04/94	08/08/94	KGF
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/04/94	08/05/94	BJS
Halogenated Volatile Or				EPA 8010				
Methylene Chloride	0.040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1.1 Dichloroethylene	0 040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1.1 Dichloroethane	0.040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Chloroform	0 040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Carbontetrachloride	0.040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1. 2 Dichloropropane	0 040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trichloroethylene	0.040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1.1.2 Trichloroethane	0.040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
omochloromethane	0 040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
achloroethylene	0 040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
lorobenzene	0 040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
chlorofluoromethane	0 040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
ans12Dichloroethylene	0.040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1.2 Dichloroethane	0.040	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB

Commercial Testing & Engine ring Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

[redacted] Ref.# 94.3926-4
[redacted]nt Sample ID 94004948 204
Matrix SOIL

1.1.1 Trichloroethane	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromodichloromethane	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Trans1.3Dichloropropene	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
cis-1.3-Dichloropropene	0.040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromoform	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1122-Tetrachloroethane	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloromethane	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromomethane	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Vinyl Chloride	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloroethane	0.040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.4 Dichlorobenzene	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
2-Chloroethylvinylether	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.3-Dichlorobenzene	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.2-Dichlorobenzene	0 040	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Delta-BHC	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
‹ nma-BHC	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
ordane	0 03	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DD	0.003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DE	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[redacted]DT	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
[redacted]rin	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan I	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0 003	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0 03	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0 03	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0 03	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0 03	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0.03	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0 03	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0.03	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0 03	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

See Special Instructions Above
See Sample Remarks Above
[redacted]Undetected, Reported value is the practical quantification limit.
[redacted]econdary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref #	94 3926-5
Client Sample ID	94004948 205
Matrix	SOIL

Client Name	US AIR FORCE/CFOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14·43	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@08 25	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: UA CALL# B-0538-1-94. 283 MG/KG OF EPH PATTERN IS NOT CONSISTENT WITH MIDDLE DISTILLATE FUEL

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	86 1		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	356		mg/Kg	3510/3550/8100M		08/04/94	08/06/94	DRS
VPH & BTEX				EPA 8015M/8020				
ʃ' 'rocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015m		08/04/94	08/05/94	SPM

ızene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
uene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
ylbenzene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
p&m Xylene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
o-Xylene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
TCLP Extraction	---			SW 846 1311		08/03/94		DEV
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5 0	08/04/94	08/08/94	KGF
Barium	0 53	D	mg/L	EPA 7080/6010	100.0	08/04/94	08/05/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1 0	08/04/94	08/05/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/04/94	08/05/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5.0	08/04/94	08/05/94	EMW
Mercury	0 0004	U	mg/L	EPA 7470/7471	0.2	08/08/94	08/08/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1 0	08/04/94	08/08/94	KGF
Silver	0 10	U	mg/L	EPA 7760/6010	5 0	08/04/94	08/05/94	BJS
Halogenated Volatile Or				EPA 8010				
Methylene Chloride	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1 Dichloroethylene	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1 Dichloroethane	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Chloroform	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Carbontetrachloride	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1, 2 Dichloropropane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trichloroethylene	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1,2 Trichloroethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
' omochloromethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
ıchloroethylene	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
orobenzene	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
hlorofluoromethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
ns12Dichloroethylene	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,2 Dichloroethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

&E Ref.# 94.3926-5
Client Sample ID 94004948 205
Matrix SOIL

1.1.1 Trichloroethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromodichloromethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Trans1.3Dichloropropene	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
cis-1.3-Dichloropropene	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromoform	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1122-Tetrachloroethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloromethane	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromomethane	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Vinyl Chloride	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloroethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.4 Dichlorobenzene	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
2-Chloroethylvinylether	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.3-Dichlorobenzene	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.2-Dichlorobenzene	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Delta-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
C nma-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
rdane	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDD	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDE	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDT	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Dieldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan I	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0 020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0.020	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

See Special Instructions Above
* See Sample Remarks Above
= Undetected. Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

&E Ref #	94.3926-6
Client Sample ID	94004948 206
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:43	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 08:30	hrs
Project#	94004	Received Date	08/03/94	@ 11:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY UA CALL# B-0538-1-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	88.6		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	147		mg/Kg	3510/3550/8100M		08/04/94	08/06/94	DRS
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	1.52		mg/Kg	EPA 5030/8015m		08/04/94	08/04/94	SPM
	---							
zene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
ene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
lbenzene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
n Xylene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
o-Xylene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
TCLP Extraction	---			SW 846 1311		08/03/94		DEV
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5 0	08/04/94	08/08/94	KGF
Barium	0.50	U	mg/L	EPA 7080/6010	100 0	08/04/94	08/05/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1 0	08/04/94	08/05/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/04/94	08/05/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5 0	08/04/94	08/05/94	EMW
Mercury	0 0004	U	mg/L	EPA 7470/7471	0.2	08/08/94	08/08/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1.0	08/04/94	08/08/94	KGF
Silver	0.10	U	mg/L	EPA 7760/6010	5 0	08/04/94	08/05/94	BJS
Halogenated Volatile Or				EPA 8010				
Methylene Chloride	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1.1 Dichloroethylene	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1.1 Dichloroethane	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Chloroform	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Carbontetrachloride	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1, 2 Dichloropropane	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trichloroethylene	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1.1.2 Trichloroethane	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Dibromochloromethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
T ichloroethylene	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
robenzene	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
lorofluoromethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
s12Dichloroethylene	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Dichloroethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1,1 Trichloroethane	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB

Commercial Testing & Engineering Co.
Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

T&E Ref.# 94.3926-6
Client Sample ID 94004948 206
Matrix SOIL

Bromodichloromethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Trans1.3Dichloropropene	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
cis-1.3-Dichloropropene	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromoform	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1122-Tetrachloroethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloromethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromomethane	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Vinyl Chloride	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloroethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.4 Dichlorobenzene	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
2-Chloroethylvinylether	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.3-Dichlorobenzene	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.2-Dichlorobenzene	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Delta-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Gamma-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Chlordane	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDD	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDE	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDT	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Dieldrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan I	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0.004	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

SINCE 1908

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

&E Ref.#	94 3926-7
lient Sample ID	94004948 207
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:44	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 08.40	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: UA CALL# B-053 8-1-94

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	79 3		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	1420	D	mg/Kg	3510/3550/8100M		08/04/94	08/05/94	DRS
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	252	D	mg/Kg	EPA 5030/8015m		08/04/94	08/04/94	SPM
	---							
zene	0.030	U	mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
ne	0 050		mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
oenzene	0 611		mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
Xylene	0.500		mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
ylene	0 481		mg/Kg	EPA 8020		08/04/94	08/05/94	MLB
TCLP Extraction	---			SW 846 1311		08/03/94		DEV
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/04/94	08/08/94	KGF
Barium	0 50	U	mg/L	EPA 7080/6010	100.0	08/04/94	08/05/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/04/94	08/05/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5 0	08/04/94	08/05/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5 0	08/04/94	08/05/94	EMW
Mercury	0.0004	U	mg/L	EPA 7470/7471	0.2	08/08/94	08/08/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1.0	08/04/94	08/08/94	KGF
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/04/94	08/05/94	BJS
Halogenated Volatile Or				EPA 8010				
Methylene Chloride	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1,1 Dichloroethylene	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1,1 Dichloroethane	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
Chloroform	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
Carbontetrachloride	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1, 2 Dichloropropane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
Trichloroethylene	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1,1,2 Trichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
Dibromochloromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
achloroethylene	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
obenzene	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
rofluoromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
2Dichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
hloroethane	0.030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB
1,1,1 Trichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/05/94	MLB

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

&E Ref.# 94.3926-7
Client Sample ID 94004948 207
Matrix SOIL

Bromodichloromethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Trans1,3Dichloropropene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
cis-1.3-Dichloropropene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Bromoform	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1122-Tetrachloroethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Chloromethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Bromomethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Vinyl Chloride	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Chloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1.4 Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
2-Chloroethylvinylether	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1.3-Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1.2-Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Delta-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Gamma-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
C' 'ordane	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDD	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
"-DDE	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
'-DDT	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
ldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
ndosulfan I	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0 002	U'	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

See Special Instructions Above
** See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

&E Ref.#	94.3926-7
Client Sample ID	94004948 207
Matrix	SOIL

Bromodichloromethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Trans1,3Dichloropropene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
cis-1.3-Dichloropropene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Bromoform	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1122-Tetrachloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Chloromethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Bromomethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Vinyl Chloride	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Chloroethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1.4 Dichlorobenzene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
2-Chloroethylvinylether	0 030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1.3-Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
1.2-Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/05/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Delta-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Gamma-BHC	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
C' 'ordane	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDD	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
-DDE	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
'-DDT	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
ldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan I	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0 002	U'	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

See Special Instructions Above
** See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3926-8
Client Sample ID	94004948 208
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:44	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 08:45	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY UA. CALL# B-0538-1-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	87.7		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	1600	D	mg/Kg	3510/3550/8100M		08/04/94	08/05/94	DRS
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0 500	U	mg/Kg	EPA 5030/8015m		08/04/94	08/04/94	SPM
	---							
zene	0.025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
uene	0.025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
ylbenzene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
&m Xylene	0.025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
o-Xylene	0 025	U	mg/Kg	EPA 8020		08/04/94	08/04/94	MLB
TCLP Extraction	---			SW 846 1311		08/03/94		DEV
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5 0	08/04/94	08/08/94	KGF
Barium	0.50	U	mg/L	EPA 7080/6010	100.0	08/04/94	08/05/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/04/94	08/05/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/04/94	08/05/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5 0	08/04/94	08/05/94	EMW
Mercury	0 0004	U	mg/L	EPA 7470/7471	0.2	08/08/94	08/08/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1.0	08/04/94	08/08/94	KGF
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/04/94	08/05/94	BJS
Halogenated Volatile Or				EPA 8010				
Methylene Chloride	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1 Dichloroethylene	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1 Dichloroethane	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Chloroform	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Carbontetrachloride	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,2 Dichloropropane	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trichloroethylene	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1,2 Trichloroethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Dibromochloromethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
T achloroethylene	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
robenzene	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
hlorofluoromethane	0 025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
ns12Dichloroethylene	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,2 Dichloroethane	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1,1 Trichloroethane	0.025	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB

Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3926-8
Client Sample ID 94004948 208
Matrix SOIL

Bromodichloromethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Trans1,3Dichloropropene	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
cis-1,3-Dichloropropene	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromoform	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1122-Tetrachloroethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloromethane	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromomethane	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Vinyl Chloride	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloroethane	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,4 Dichlorobenzene	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
2-Chloroethylvinylether	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,3-Dichlorobenzene	0.025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,2-Dichlorobenzene	0 025	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Delta-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Gamma-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Chlordane	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDD	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
-DDE	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
-DDT	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Dieldrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan I	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0.002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

See Special Instructions Above
See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.3926-9
Client Sample ID 94004948 209
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:44	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 08 55	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY UA. CALL# B-0538-1-94

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	81 0		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	18400	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	DRS
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	841	D	mg/Kg	EPA 5030/8015m		08/04/94	08/05/94	SPM
zene	0.140	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
luene	0 140	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
thylbenzene	1.70		mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
p&m Xylene	0 404		mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
o-Xylene	1.71		mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
TCLP Extraction	---			SW 846 1311		08/03/94		DEV
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5 0	08/04/94	08/05/94	KGF
Barium	0.50	U	mg/L	EPA 7080/6010	100.0	08/04/94	08/05/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/04/94	08/05/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5 0	08/04/94	08/05/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/04/94	08/05/94	EMW
Mercury	0 0004	U	mg/L	EPA 7470/7471	0.2	08/08/94	08/08/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/04/94	08/08/94	KGF
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/04/94	08/05/94	BJS
Halogenated Volatile Or				EPA 8010				
Methylene Chloride	0.030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1.1 Dichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1 Dichloroethane	0.030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Chloroform	0.030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Carbontetrachloride	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1, 2 Dichloropropane	0.030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Trichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1.1.2 Trichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
Dibromochloromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
T achloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
robenzene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
chlorofluoromethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
rans12Dichloroethylene	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,2 Dichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB
1,1.1 Trichloroethane	0 030	U	mg/Kg	EPA 8010		08/04/94	08/04/94	MLB

Commercial Testing & Engineering Co.

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LABORATORY ANALYSIS REPORT

CT&E Ref.# 94 3926-9
Client Sample ID 94004948 209
Matrix SOIL

Bromodichloromethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Trans1,3Dichloropropene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
cis-1,3-Dichloropropene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromoform	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1122-Tetrachloroethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloromethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Bromomethane	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Vinyl Chloride	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Chloroethane	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1,4 Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
2-Chloroethylvinylether	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.3-Dichlorobenzene	0.030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
1.2-Dichlorobenzene	0 030	U	mg/Kg	EPA 8010	08/04/94	08/04/94	MLB
Organochlorine Pest&PCB				EPA 8080			
Aldrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Alpha-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Beta-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Delta-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Gamma-BHC	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Chlordane	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
DDD	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
'-DDE	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
'-DDT	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Dieldrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan I	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan II	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endosulfan Sulfate	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Endrin Aldehyde	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Heptachlor Epoxide	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Methoxychlor	0 002	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
Toxaphene	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1016	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1221	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1232	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1242	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1248	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1254	0 02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG
PCB-1260	0.02	U	mg/Kg	EPA 8080	08/04/94	08/06/94	ECG

See Special Instructions Above
* See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref #	94 3926-10
Client Sample ID	94004948 401
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:45	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 13:15	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-0538-1-94. EPH: TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	79 3		%	SM17 2540G	-	08/04/94	08/04/94	CAV
Hydrocarbons EPH	13300	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	2320	D	mg/Kg	EPA 5030/8015m		08/04/94	08/05/94	SPM

Benzene	0.275	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
Toluene	0.275	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
Ethylbenzene	18 1	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
p&m Xylene	9 56	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
o-Xylene	25.9	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0 78	D	mg/L	EPA 7080/6010	100.0	08/09/94	08/16/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/09/94	08/16/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5 0	08/09/94	08/16/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0.0004	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/09/94	08/11/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3926-11
Client Sample ID	94004948 402
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:45	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: UA CALL# B-0538-1-94. EPH: TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	81.2		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	12800	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
'rocarbons VPH	3270	D	mg/Kg	EPA 5030/8015m		08/04/94	08/05/94	SPM

Benzene	0 290	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
Toluene	0 290	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
Ethylbenzene	27 9	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
p&m Xylene	19 3	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
o-Xylene	59 9	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0.85	D	mg/L	EPA 7080/6010	100.0	08/09/94	08/16/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/09/94	08/16/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/09/94	08/16/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0 002	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/09/94	08/11/94	CLC
Silver	0 10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref #	94 3926-12
Client Sample ID	94004948 403
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14 45	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 14.01	hrs
Project#	94004	Received Date	08/03/94	@ 11·00	hrs
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY· UA CALL# B-053 8-1-94. EPH TYPICAL PATTERN FOR DIESEL

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	82.5		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	4420	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	1530	D	mg/Kg	EPA 5030/8015m		08/04/94	08/05/94	SPM

Benzene	2.60	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
Toluene	2.60	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
Ethylbenzene	10 4	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
p&m Xylene	6 28	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
o-Xylene	20.7	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0061		mg/L	EPA 7060/7061	5 0	08/09/94	08/11/94	DMJ
Barium	1.3	D	mg/L	EPA 7080/6010	100.0	08/09/94	08/16/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/09/94	08/16/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0	08/09/94	08/16/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5 0	08/09/94	08/16/94	EMW
Mercury	0 0004	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1.0	08/09/94	08/11/94	CLC
Silver	0 10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

[illegible]T&E Ref.#	94 3926-13
Client Sample ID	94004948 404
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14 45	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 15:32	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY UA. CALL# B-0538-1-94 EPH TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	81.6		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	2900	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
H[illegible]rocarbons VPH	1550	D	mg/Kg	EPA 5030/8015m		08/04/94	08/05/94	SJP

[illegible]e	2 60	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
[illegible]ne	2 60	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
[illegible]lbenzene	8 40	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
p&m Xylene	6 56	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
o-Xylene	22 3	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0 60	D	mg/L	EPA 7080/6010	100 0	08/09/94	08/16/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1 0	08/09/94	08/16/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5 0	08/09/94	08/16/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0.002	U	mg/L	EPA 7470/7471	0 2	08/11/94	08/11/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1 0	08/09/94	08/11/94	CLC
Silver	0 10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
[illegible]ee Sample Remarks Above
[illegible]ndetected. Reported value is the practical quantification limit
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3926-14
Client Sample ID	94004948 405
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14 45	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 15:57	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY. UA. CALL# B-0538-1-94. EPH: TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	79 7		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	8350	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	2890	D	mg/Kg	EPA 5030/8015m		08/04/94	08/05/94	SPM

[illegible]ne	2.75	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
[illegible]ne	2.75	U	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
Ethylbenzene	9.94	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
p&m Xylene	45 0	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
o-Xylene	73 6	D	mg/Kg	EPA 8020		08/04/94	08/05/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0.50	U	mg/L	EPA 7080/6010	100 0	08/09/94	08/16/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/09/94	08/16/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5 0	08/09/94	08/16/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0 002	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/09/94	08/11/94	CLC
Silver	0.1	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
[illegible]e Sample Remarks Above
[illegible]ndetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref #	94 3926-15
Client Sample ID	94004948 406
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:45	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 16 18	hrs
Project#	94004	Received Date	08/03/94	@ 11:00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By

Sample Remarks. SAMPLE COLLECTED BY· UA. CALL# B-053 8-1-94 EPH. TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	83.1		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	10806	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
[illegible]carbons VPH	2900	D	mg/Kg	EPA 5030/8015m		08/04/94	08/08/94	SPM

[illegible]ne	0.255	U	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
[illegible]ne	13.3	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
Ethylbenzene	16 7	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
p&m Xylene	59 5	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
o-Xylene	71 1	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5 0	08/09/94	08/11/94	CLC
Barium	0.59	D	mg/L	EPA 7080/6010	100.0	08/09/94	08/16/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/09/94	08/16/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5 0	08/09/94	08/16/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0 0004	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1 0	08/09/94	08/11/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5 0	08/09/94	08/10/94	DEV

See Special Instructions Above
[illegible]ee Sample Remarks Above
[illegible]= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.
Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3926-16
Client Sample ID	94004948 407
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14.45	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/01/94	@ 16 41	hrs.
Project#	94004	Received Date	08/03/94	@ 11·00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY. UA. CALL# B-0538-1-94. EPH· TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	84 5		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	9460	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
[illegible]carbons VPH	2580	D	mg/Kg	EPA 5030/8015m		08/04/94	08/08/94	SPM

[illegible]ne	2.40	U	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
[illegible]ne	14 0	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
Ethylbenzene	16.8	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
p&m Xylene	76.2	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
o-Xylene	61.9	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0.56	D	mg/L	EPA 7080/6010	100.0	08/09/94	08/16/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/09/94	08/16/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/09/94	08/16/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0.0004	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1 0	08/09/94	08/11/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

E Ref.#	94.3926-17
Client Sample ID	4004948 408
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14.45	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/02/94	@ 06:31	hrs.
Project#	94004	Received Date	08/03/94	@ 11 00	hrs
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By:

Sample Remarks. SAMPLE COLLECTED BY· UA CALL# B-053 8-2-94. EPH· TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	87 3		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	11800	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	3330	D	mg/Kg	EPA 5030/8015m		08/04/94	08/08/94	SPM
	---							
ie	2.52	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
ne	24 8	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
benzene	36 6	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
p&m Xylene	66 0	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
o-Xylene	75 0	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0057		mg/L	EPA 7060/7061	5 0	08/09/94	08/11/94	CLC
Barium	0 54	D	mg/L	EPA 7080/6010	100 0	08/09/94	08/16/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1 0	08/09/94	08/16/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5 0	08/09/94	08/16/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0.002	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1 0	08/09/94	08/11/94	CLC
Silver	0 10	U	mg/L	EPA 7760/6010	5 0	08/09/94	08/10/94	DEV

See Special Instructions Above
See Sample Remarks Above
Undetected. Reported value is the practical quantification limit
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3926-18
Client Sample ID	94004948409
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:45	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/02/94	@ 07:13	hrs
Project#	94004	Received Date	08/03/94	@ 11 00	hrs
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By

Sample Remarks: SAMPLE COLLECTED BY: UA CALL# B-0538-2-94. EPH: TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	85 2		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	12300	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	2970	D	mg/Kg	EPA 5030/8015m		08/04/94	08/11/94	SPM

[illegible]e	0 265	U	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
[illegible]ne	0 634	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
Ethylbenzene	18.6	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
p&m Xylene	4 35	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
o-Xylene	30.7	D	mg/Kg	EPA 8020		08/04/94	08/08/94	SPM
TCLP Extraction	---			SW846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0 67	D	mg/L	EPA 7080/6010	100.0	08/09/94	08/16/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1 0	08/09/94	08/16/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/09/94	08/16/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0 002	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1.0	08/09/94	08/11/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

[illegible]E Ref #	94.3926-19
Client Sample ID	94004948 410
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:46	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/02/94	@ 08:28	hrs.
Project#	94004	Received Date	08/03/94	@ 11:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY UA CALL# B-053 8-2-94 EPH TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	86.1		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	10100	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
[illegible]drocarbons VPH	2690	D	mg/Kg	EPA 5030/8015m		08/04/94	08/11/94	SPM
[illegible]ne	0.255	U	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
[illegible]ene	3.04	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
[illegible]lbenzene	22 0	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
p&m Xylene	29.7	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
o-Xylene	65 9	D	mg/Kg	EPA 8020		08/04/94	08/11/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0.54	D	mg/L	EPA 7080/6010	100 0	08/09/94	08/16/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1.0	08/09/94	08/16/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0	08/09/94	08/16/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0 002	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/09/94	08/11/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
See Sample Remarks Above
= Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3926-20
Client Sample ID	94004948411
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14:46	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/02/94	@ 08:47	hrs.
Project#	94004	Received Date	08/03/94	@ 11.00	hrs
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-0538-2-94. EPH TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	88.2		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	18800	D	mg/Kg	3510/3550/8100M		08/11/94	08/12/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	3410	D	mg/Kg	EPA 5030/8015m		08/04/94	08/11/94	SPM

...ene	0.240	U	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
...ene	0.689	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
Ethylbenzene	31.1	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
p&m Xylene	10.6	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
o-Xylene	37.6	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0.54	D	mg/L	EPA 7080/6010	100.0	08/09/94	08/16/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/09/94	08/16/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0	08/09/94	08/16/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0.002	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/09/94	08/11/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94 3926-21
Client Sample ID	94004948412
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982		
Ordered By	CARL HORNIG	Printed Date	08/18/94	@ 14·46	hrs
Project Name	CAPE ROMANZOF WASTE ACCUM AREA	Collected Date	08/02/94	@ 09 39	hrs.
Project#	94004	Received Date	08/03/94	@ 11·00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By

Sample Remarks: SAMPLE COLLECTED BY· UA CALL# B-0538-2-94 EPH TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	87 9		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	16400	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
H[illegible]drocarbons VPH	3830	D	mg/Kg	EPA 5030/8015m		08/04/94	08/11/94	SPM

[illegible]ne	0 230	U	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
[illegible]ene	0 717	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
[illegible]lbenzene	20 9	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
p&m Xylene	16 4	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
o-Xylene	57 6	D	mg/Kg	EPA 8020		08/04/94	08/11/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0 54	D	mg/L	EPA 7080/6010	100.0	08/09/94	08/16/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1 0	08/09/94	08/16/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5 0	08/09/94	08/16/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5 0	08/09/94	08/16/94	EMW
Mercury	0 002	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/09/94	08/11/94	CLC
Silver	0 10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
* See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]&E Ref.# 94 3926-22
Client Sample ID 94004948413
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	80982
Ordered By	CARL HORNIG	Printed Date	08/18/94 @ 14:46 hrs.
Project Name	CAPE ROMANZOF-WASTE ACCUM AREA	Collected Date	08/02/94 @ 10:06 hrs.
Project#	94004	Received Date	08/03/94 @ 11:00 hrs.
PWSID	UA		
		Technical Director	STEPHEN C. EDE

Released By:

Sample Remarks: SAMPLE COLLECTED BY UA. CALL# B-053 8-2-94. EPH. TYPICAL PATTERN FOR DIESEL.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	83.4		%	SM17 2540G		08/04/94	08/04/94	CAV
Hydrocarbons EPH	4910	D	mg/Kg	3510/3550/8100M		08/04/94	08/06/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	1700	D	mg/Kg	EPA 5030/8015m		08/04/94	08/09/94	SPM

[redacted]ne	2.70	U	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
[redacted]ene	2.70	U	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
[redacted]lbenzene	9.98	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
p&m Xylene	6.23	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
o-Xylene	22.3	D	mg/Kg	EPA 8020		08/04/94	08/09/94	SPM
TCLP Extraction	---			SW 846 1311		08/04/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5.0	08/09/94	08/11/94	CLC
Barium	0.54	D	mg/L	EPA 7080/6010	100.0	08/09/94	08/16/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/09/94	08/16/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0	08/09/94	08/16/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/09/94	08/16/94	EMW
Mercury	0.0004	U	mg/L	EPA 7470/7471	0.2	08/11/94	08/11/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/09/94	08/11/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/09/94	08/10/94	DEV

See Special Instructions Above
See Sample Remarks Above
[redacted]= Undetected, Reported value is the practical quantification limit
[redacted]= Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[illegible]&E Ref.#	94.3948-1
Client Sample ID	94004948414
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	81036		
Ordered By	CARL HORNIG	Printed Date	08/24/94	@ 12:43	hrs.
Project Name	CAPE ROMANZOF/STOCKPILE	Collected Date	08/02/94	@ 11:06	hrs.
Project#		Received Date	08/04/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL# B-054 8-2-94

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	86.4		%	SM17 2540G			08/05/94	CAV
Hydrocarbons EPH	1020	D	mg/Kg	EPA 8100M		08/07/94	08/08/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	2420	D	mg/Kg	EPA 5030/8015m		08/05/94	08/13/94	SPM

[illegible]ne	0.230	U	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
[illegible]e	1.62	D	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
[illegible]benzene	8.15	D	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
[illegible] Xylene	51.7	D	mg/Kg	EPA 8020		08/05/94	08/13/94	SPM
o-Xylene	37.8	D	mg/Kg	EPA 8020		08/05/94	08/13/94	SPM
TCLP Extraction	---			SW 846 1311		08/15/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5.0	08/16/94	08/17/94	CLC
Barium	0.50	U	mg/L	EPA 7080/6010	100.0	08/16/94	08/17/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/16/94	08/17/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0	08/16/94	08/17/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/16/94	08/17/94	EMW
Mercury	0.002	U	mg/L	EPA 7470/7471	0.2	08/18/94	08/18/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/16/94	08/18/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/16/94	08/17/94	BJS

See Special Instructions Above
See Sample Remarks Above
[illegible]Undetected, Reported value is the practical quantification limit
[illegible]Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

C[redacted]ef.#	94.3948-2
Client Sample ID	94004948415
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	81036		
Ordered By	CARL HORNIG	Printed Date	08/24/94	@ 12:43	hrs.
Project Name	CAPE ROMANZOF/STOCKPILE	Collected Date	08/02/94	@ 14:47	hrs
Project#		Received Date	08/04/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED. CALL# B-0548-2-94. EPH. HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	80.6		%	SM17 2540G			08/05/94	CAV
Hydrocarbons EPH	561	D	mg/Kg	EPA 8100M		08/07/94	08/08/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	14.9		mg/Kg	EPA 5030/8015m		08/05/94	08/12/94	SPM

B[redacted]	0.030	U	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
[redacted]	0.030	U	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
[redacted]nzene	0.060		mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
p&m Xylene	0.161		mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
o-Xylene	0 090		mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
TCLP Extraction	---			SW846 1311		08/15/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5.0	08/16/94	08/17/94	CLC
Barium	0 50	U	mg/L	EPA 7080/6010	100.0	08/16/94	08/17/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/16/94	08/17/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0	08/16/94	08/17/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/16/94	08/17/94	EMW
Mercury	0.002	U	mg/L	EPA 7470/7471	0.2	08/18/94	08/18/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/16/94	08/18/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/16/94	08/17/94	BJS

See Special Instructions Above
[redacted]e Sample Remarks Above
[redacted]ndetected, Reported value is the practical quantification limit.
D [redacted]econdary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]E Ref.#	94.3948-3
Client Sample ID	94004948 416
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	81036		
Ordered By	CARL HORNIG	Printed Date	08/24/94	@ 12:43	hrs.
Project Name	CAPE ROMANZOF/STOCKPILE	Collected Date	08/02/94	@ 16:35	hrs.
Project#		Received Date	08/04/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C EDE		

Released By

Sample Remarks: SAMPLE COLLECTED BY. AHMED CALL# B-0548-2-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	82 6		%	SM17 2540G			08/05/94	CAV
Hydrocarbons EPH	228	D	mg/Kg	EPA 8100M		08/07/94	08/08/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	4 04		mg/Kg	EPA 5030/8015m		08/05/94	08/12/94	SPM

[redacted]	0.025	U	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
[redacted]e	0.025	U	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
[redacted]enzene	0 025	U	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
p&m Xylene	'0 038		mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
o-Xylene	0 025	U	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
TCLP Extraction	---			SW 846 1311		08/15/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0 0050	U	mg/L	EPA 7060/7061	5.0	08/16/94	08/17/94	CLC
Barium	0 50	U	mg/L	EPA 7080/6010	100.0	08/16/94	08/17/94	EMW
Cadmium	0 50	U	mg/L	EPA 7131/6010	1 0	08/16/94	08/17/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5 0	08/16/94	08/17/94	EMW
Lead	1 0	U	mg/L	EPA 7421/6010	5.0	08/16/94	08/17/94	EMW
Mercury	0.002	U	mg/L	EPA 7470/7471	0.2	08/18/94	08/18/94	AFK
Selenium	0 0050	U	mg/L	EPA 7740/7741	1.0	08/16/94	08/18/94	CLC
Silver	0 10	U	mg/L	EPA 7760/6010	5 0	08/16/94	08/17/94	BJS

See Special Instructions Above
[redacted]ee Sample Remarks Above
[redacted]ndetected, Reported value is the practical quantification limit
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.3948-4
Client Sample ID	94004948417
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	WORK Order	81036		
Ordered By	CARL HORNIG	Printed Date	08/24/94	@ 12:43	hrs.
Project Name	CAPE ROMANZOF/STOCKPILE	Collected Date	08/03/94	@ 08:41	hrs.
Project#		Received Date	08/04/94	@ 10:00	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: AHMED CALL# B-054 8-3-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	82.4		%	SM17 2540G			08/05/94	CAV
Hydrocarbons EPH	346	D	mg/Kg	EPA 8100M		08/07/94	08/08/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	15.4		mg/Kg	EPA 5030/8015m		08/05/94	08/12/94	SPM
Benzene	0.030	U	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
Toluene	0.030	U	mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
Ethylbenzene	0.067		mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
p&m Xylene	0.178		mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
o-Xylene	0.110		mg/Kg	EPA 8020		08/05/94	08/12/94	SPM
TCLP Extraction	---			SW 846 1311		08/15/94		BJS
TCLP Metals				EPA 1311				
Arsenic	0.0050	U	mg/L	EPA 7060/7061	5.0	08/16/94	08/17/94	CLC
Barium	0.50	U	mg/L	EPA 7080/6010	100.0	08/16/94	08/17/94	EMW
Cadmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/16/94	08/17/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0	08/16/94	08/17/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/16/94	08/17/94	EMW
Mercury	0.002	U	mg/L	EPA 7470/7471	0.2	08/18/94	08/18/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/16/94	08/18/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/16/94	08/17/94	BJS

See Special Instructions Above
See Sample Remarks Above
Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-1
Client Sample ID	94004948 210 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:05	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/04/94	@ 13:03	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-4-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	83 6		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	186		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	8.12		mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
nzene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
oluene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
lbenzene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0 030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
* See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-2
Client Sample ID	94004948 211 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:22	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/04/94	@ 13:49	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-4-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	86.6		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	202		mg/Kg	3510/3550/8100M		08/13/94	08/13/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	8.14		mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	SPM
nzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
luene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
lbenzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

* See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

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NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

[redacted]&E Ref.#	94.4136-3
Client Sample ID	94004948 212 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:22	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/04/94	@ 14:47	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-4-94

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	87.0		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	20.2		mg/Kg	3510/3550/8100M		08/13/94	08/13/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0 500	U	mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	SPM
[redacted]zene	0 025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
[redacted]ene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
[redacted]lbenzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
[redacted]n Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

* See Special Instructions Above	UA = Unavailable
[redacted] See Sample Remarks Above	NA = Not Analyzed
[redacted] = Undetected, Reported value is the practical quantification limit.	LT = Less Than
[redacted] = Secondary dilution.	GT = Greater Than

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LABORATORY ANALYSIS REPORT

C1&E Ref.#	94.4136-4
Client Sample ID	94004948 213 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:23	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/09/94	@ 15:57	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY. UA. CALL# B-0568-9-94

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	77 3		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	1570	D	mg/Kg	3510/3550/8100M		08/13/94	08/16/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	178	D	mg/Kg	EPA 5030/8015m		08/13/94	08/15/94	SPM
nzene	0.035	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
uene	0.035	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
lbenzene	1 35		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
m Xylene	0 119		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.267		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

* See Special Instructions Above
** See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94 4136-5
Client Sample ID	94004948 214 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:27	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/09/94	@ 09 13	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY· UA. CALL# B-056 8-9-94. EPH PATTERN HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	79 1		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	255		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
'rocarbons VPH	12.9		mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	WAA
zene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
ene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
Euiylbenzene	0.086		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0.176		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0 030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
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GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-6
Client Sample ID	94004948 215 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:30	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/09/94	@ 10:30	hrs
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-9-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	80 5		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	913		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	84 3	D	mg/Kg	EPA 5030/8015m		08/13/94	08/19/94	SPM
zene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
uene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
lbenzene	0.273		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0 297		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.134		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C T&E Ref.# 94.4136-7
Client Sample ID 94004948 216 DURING EXCAVATION
Matrix SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13.32	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/09/94	@ 11:09	hrs
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY· UA. CALL# B-056 8-9-94. EPH PATTERN HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	74 6		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	1350	D	mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
lrocarbons VPH	2.94		mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	SPM
nzene	0 025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
ene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
Ethylbenzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0 025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-8
Client Sample ID	94004948 217 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:32	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/09/94	@ 13:00	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By:

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-9-94. EPH COMMENT HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	93.3		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	24 6		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
·· drocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	SPM
zene	0 020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
ene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C I & E Ref.#	94.4136-9
Client Sample ID	94004948 218 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:32	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/09/94	@ 13:10	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-0568-9-94. EPH COMMENT HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	81.5		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	127		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	1.64		mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	SPM
enzene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
ene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
Ethylbenzene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-10
Client Sample ID	94004948 219 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:54	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/09/94	@ 14:01	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY· UA CALL# B-056 8-9-94

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	67 3		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	571		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	17 9		mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	SPM
ne	0 040	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
ene	0 040	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
lbenzene	0 084		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0 040	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.068		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-11
Client Sample ID	94004948 220 DURING EXCAVATION
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 13:34	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/09/94	@ 11:25	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY. UA. CALL# B-056 8-9-94

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	88.6		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	4830	D	mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	350	D	mg/Kg	EPA 5030/8015m		08/13/94	08/15/94	SPM
zene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/15/94	SPM
uene	0.115		mg/Kg	EPA 8020		08/13/94	08/15/94	SPM
lbenzene	1 62		mg/Kg	EPA 8020		08/13/94	08/15/94	SPM
p&m Xylene	2.05		mg/Kg	EPA 8020		08/13/94	08/15/94	SPM
o-Xylene	1 11		mg/Kg	EPA 8020		08/13/94	08/15/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C..&E Ref.#	94.4136-12
Client Sample ID	94004948 221 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:58	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 10:20	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY. UA. CALL# B-056 8-10-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	86.0		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	4.00	U	mg/Kg	3510/3550/8100M		08/13/94	08/13/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
'ene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
uene	0 020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
lbenzene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p-..n Xylene	0 020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C..&E Ref #	94.4136-13
Client Sample ID	94004948 222 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 10:25	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		
		Released By:	Stephen C. Ede		

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-0568-10-94 EPH: UNKNOWN HYDROCARBON WITH SEVERAL PEAKS HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	80.2		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	4.29		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
..drocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
..ene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
..ene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
Ethylbenzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above	UA = Unavailable
See Sample Remarks Above	NA = Not Analyzed
= Undetected, Reported value is the practical quantification limit.	LT = Less Than
D = Secondary dilution.	GT = Greater Than

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LABORATORY ANALYSIS REPORT

C[illegible]E Ref.#	94.4136-14
Client Sample ID	94004948 223 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 10:30	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY. UA. CALL# B-056 8-10-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	77.0		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	34 7		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.700	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
[illegible]zene	0.035		mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
[illegible]ene	0 035		mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
[illegible]lbenzene	0 035		mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0 035		mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.035		mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

[illegible] See Special Instructions Above
[illegible] See Sample Remarks Above
[illegible] = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref #	94.4136-15
Client Sample ID	94004948 224 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 10:35	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	89.4		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	446		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	9.56		mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
zene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
uene	0 020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
lbenzene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p ..i Xylene	0.025		mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected. Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C.. E Ref.#	94 4136-16
Client Sample ID	94004948 225 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 10:39	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-0568-10-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	89.9		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	66.3		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
ızene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
ene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
,lbenzene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C . &E Ref.#	94 4136-17
Client Sample ID	94004948 226 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:05	hrs
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY. UA. CALL# B-056 8-10-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTIATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	81.1		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	29.5		mg/Kg	3510/3550/8100M		08/13/94	08/13/94	WAA
VPH & BTEX				EPA 8015M/8020				
'rocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
zene	0 025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
ene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
L .lbenzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0 025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above	UA = Unavailable
See Sample Remarks Above	NA = Not Analyzed
= Undetected, Reported value is the practical quantification limit.	LT = Less Than
D = Secondary dilution.	GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-18
Client Sample ID	94004948 227 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:10	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94 EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	82.2		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	12.0		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
ocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
zene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
ene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0 020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-19
Client Sample ID	94004948 228 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/23/94	@ 16:31	hrs
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11·14	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By:

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-0568-10-94. CORRECTED EPH RESULT.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext Date	Anal Date	Init
Percent Solids	87.8		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	133		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
ᵁvdrocarbons VPH	0 400	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
ızene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
uene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
.lbenzene	0 020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
* See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref #	94.4136-20
Client Sample ID	94004948 229 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:16	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	87.8		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	80.6		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.500		mg/Kg	EPA 5030/8015m		08/13/94	08/17/94	SPM
zene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/17/94	SPM
uene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/17/94	SPM
lbenzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/17/94	SPM
p...n Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/17/94	SPM
o-Xylene	0 025	U	mg/Kg	EPA 8020		08/13/94	08/17/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-21
Client Sample ID	94004948 230 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:19	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	92.1		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	26.9		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	1.69		mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
azene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
ene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
Ethylbenzene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-22
Client Sample ID	94004948 231 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:21	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-0568-10-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	86.5		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	25 8		mg/Kg	3510/3550/8100M		08/13/94	08/17/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
zene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
ene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
E..ylbenzene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-23
Client Sample ID	94004948 232 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:23	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	85.1		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	169		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	3.51		mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
nzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
uene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
lbenzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
Xylene	0 025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

* See Special Instructions Above

* See Sample Remarks Above

= Undetected, Reported value is the practical quantification limit.

D = Secondary dilution.

UA = Unavailable

NA = Not Analyzed

LT = Less Than

GT = Greater Than

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LABORATORY ANALYSIS REPORT

C1&E Ref.#	94.4136-24
Client Sample ID	94004948 233 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:25	hrs
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	82.3		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	10.3		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
drocarbons VPH	0.500	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
nzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
ene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
Ethylbenzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C ...E Ref.#	94.4136-25
Client Sample ID	94004948 234 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 17:59	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:30	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	87 8		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	911	D	mg/Kg	3510/3550/8100M		08/13/94	08/15/94	WAA
VPH & BTEX				EPA 8015M/8020				
...ydrocarbons VPH	20.4		mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
...nzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
...iene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
...lbenzene	0.091		mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.133		mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C[illegible]E Ref.#	94.4136-26
Client Sample ID	94004948 235 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:00	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:32	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH: HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	74.1		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	11.8		mg/Kg	3510/3550/8100M		08/13/94	08/14/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	0.600	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
[illegible]zene	0 030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
[illegible]ene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
[illegible]lbenzene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above	UA = Unavailable
See Sample Remarks Above	NA = Not Analyzed
[illegible] = Undetected, Reported value is the practical quantification limit.	LT = Less Than
D = Secondary dilution.	GT = Greater Than

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LABORATORY ANALYSIS REPORT

C__E Ref.#	94.4136-27
Client Sample ID	94004948 236 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:00	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 11:35	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	77.3		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	536		mg/Kg	3510/3550/8100M		08/13/94	08/15/94	WAA
VPH & BTEX				EPA 8015M/8020				
~~ydrocarbons VPH	1.89		mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
zene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
ene	0 030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
lbenzene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM
o-Xylene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/13/94	SPM

See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C...E Ref.#	94.4136-28
Client Sample ID	94004948 237 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:00	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	70 0		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	93.7		mg/Kg	3510/3550/8100M		08/13/94	08/15/94	WAA
VPH & BTEX				EPA 8015M/8020				
'drocarbons VPH	0 700	U	mg/Kg	EPA 5030/8015m		08/13/94	08/13/94	SPM
enzene	0.035	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
'ene	0 035	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
lbenzene	0.035	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0.035	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.035	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
** See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

C+&E Ref.#	94.4136-29
Client Sample ID	94004948 238 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:00	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	86.9		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	28.0		mg/Kg	3510/3550/8100M		08/13/94	08/15/94	WAA
VPH & BTEX				EPA 8015M/8020				
ydrocarbons VPH	8.22		mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	SPM
enzene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
ene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
Ethylbenzene	0.044		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0.025	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.026		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
** See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

Ct&E Ref.#	94.4136-30
Client Sample ID	94004948 239 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:00	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 13:35	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	94.0		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	278		mg/Kg	3510/3550/8100M		08/13/94	08/15/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	10 4		mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	SPM
[illegible]zene	0 030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
[illegible]ene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
Ethylbenzene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.030	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94 4136-31
Client Sample ID	94004948 240 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:00	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date		@	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY· UA. CALL# B-056 8-10-94 EPH HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	87.2		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	603		mg/Kg	3510/3550/8100M		08/13/94	08/15/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	87.3	D	mg/Kg	EPA 5030/8015m		08/13/94	08/15/94	SPM
Benzene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
Toluene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
Ethylbenzene	0.244		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p&m Xylene	0.094		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0.435		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

* See Special Instructions Above	UA = Unavailable
** See Sample Remarks Above	NA = Not Analyzed
U = Undetected, Reported value is the practical quantification limit.	LT = Less Than
D = Secondary dilution.	GT = Greater Than

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LABORATORY ANALYSIS REPORT

C+&E Ref.#	94.4136-32
Client Sample ID	94004948 241 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:00	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 13:41	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY UA. CALL# B-056 8-10-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	88.1		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	84.0		mg/Kg	3510/3550/8100M		08/13/94	08/15/94	WAA
VPH & BTEX				EPA 8015M/8020				
Hydrocarbons VPH	13 1		mg/Kg	EPA 5030/8015m		08/13/94	08/14/94	SPM
zene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
iuene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
lbenzene	0.046		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
p..n Xylene	0.020	U	mg/Kg	EPA 8020		08/13/94	08/14/94	SPM
o-Xylene	0 260		mg/Kg	EPA 8020		08/13/94	08/14/94	SPM

See Special Instructions Above
* See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
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GT = Greater Than

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-33
Client Sample ID	9400494868 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:00	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				

Technical Director STEPHEN C. EDE

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION. B - THIS FLAG IS USED WHEN THE ANALYTE IS FOUND IN THE ASSOCIATED BLANK AS WELL AS IN THE SAMPLE.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	94.8		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	12.4		mg/Kg	3510/3550/8100M		08/13/94	08/15/94	WAA
Hydrocarbons VPH	0.400	U	mg/Kg	EPA 5030/8015M		08/13/94	08/14/94	SPM
LP Extraction	---			SW 846 1311		08/15/94		BJS
LP Metals				EPA 1311				
senic	0.005	U	mg/L	EPA 7060/7061	5.0	08/16/94	08/17/94	CLC
Barium	0.50	U	mg/L	EPA 7080/6010	100.0	08/16/94	08/17/94	EMW
Cadmium	0.50		mg/L	EPA 7131/6010	1.0	08/16/94	08/17/94	EMW
Chromium	0.50		mg/L	EPA 7191/6010	5 0	08/16/94	08/17/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/16/94	08/17/94	EMW
Mercury	0.002	U	mg/L	EPA 7470/7471	0.2	08/17/94	08/17/94	AFK
Selenium	0.0050	U	mg/L	EPA 7740/7741	1.0	08/16/94	08/17/94	CLC
Silver	0 10	U	mg/L	EPA 7760/6010	5.0	08/16/94	08/17/94	BJS
Volatile Organics				EPA 8240				
Chloromethane	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Bromomethane	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Vinyl Chloride	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Chloroethane	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Methylene Chloride	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Carbon Disulfide	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1-Dichloroethene	0 045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1-Dichloroethane	0 045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
12-Dichloroethene(total	0 045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Chloroform	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,2-Dichloroethane	0 045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
2-Butanone	0.450	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1,1-Trichloroethane	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Carbon Tetrachloride	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Bromodichloromethane	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
2-Dichloropropane	0 045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
,3-Dichloropropene	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
loroethene	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
romochloromethane	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1,2-Trichloroethane	0.045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Benzene	0 045	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS

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Commercial Testing & Engine ring Co.

Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4136-33
Client Sample ID 940049468 CONFIRMATION SAMPLE
Matrix SOIL

trans-1,3-Dichloroprope	0.045	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Bromoform	0 045	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
4-Methyl-2-Pentanone	0.450	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Tetrachloroethene	0.045	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
1122-Tetrachloroethane	0.045	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Toluene	0.045	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Chlorobenzene	0 045	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Ethylbenzene	0 045	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Styrene	0.045	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Xylene (total)	0.045	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Semivolatile Organics				EPA 8270			
Phenol	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Chloroethyl)ether	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Chlorophenol	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,3-Dichlorobenzene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,4-Dichlorobenzene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzyl Alcohol	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,2-Dichlorobenzene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Methylphenol	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Chloroisopropyl)e	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
lethylphenol	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
itroso-di-n-Propylam	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
xachloroethane	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Nitrobenzene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Isophorone	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Nitrophenol	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dimethylphenol	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzoic Acid	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Chloroethoxy)Meth	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dichlorophenol	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,2,4-Trichlorobenzene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Naphthalene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Chloroaniline	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Hexachlorobutadiene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Chloro-3-Methylphenol	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Methylnaphthalene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Hexachlorocyclopentadie	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4,6-Trichlorophenol	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4,5-Trichlorophenol	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Chloronaphthalene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Nitroaniline	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Dimethylphthalate	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Acenaphthylene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,6-Dinitrotoluene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
3-Nitroaniline	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Acenaphthene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dinitrophenol	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Nitrophenol	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
nzofuran	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
initrotoluene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
ylphthalate	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Chlorophenyl-Phenylet	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Fluorene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH

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Commercial Testing & Engineering Co.

Environmental Laboratory Services

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CT&E Ref.# 94.4136-33
Client Sample ID 9400494868 CONFIRMATION SAMPLE
Matrix SOIL

4-Nitroaniline	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4,6-Dinitro-2-Methylphe	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
n-Nitrosodiphenylamine	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Bromophenyl-Phenyleth	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Hexachlorobenzene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Pentachlorophenol	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Phenanthrene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Anthracene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
di-n-Butylphthalate	0.629	B	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Fluoranthene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Pyrene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Butylbenzylphthalate	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
3,3-Dichlorobenzidine	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(a)Anthracene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Chrysene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Ethylhexyl)Phthal	0.479		mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
di-n-Octylphthalate	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(b)Fluoranthene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(k)Fluoranthene	0 264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(a)Pyrene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Indeno(1,2,3-cd)Pyrene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Dibenz(a,h)Anthracene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
enzo(g,h,i)Perylene	0.264	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
rganochlorine Pest&PCB				EPA 8080			
Aldrin	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Alpha-BHC	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Beta-BHC	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Delta-BHC	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Gamma-BHC	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Chlordane	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
4,4'-DDD	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
4,4'-DDE	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
4,4'-DDT	0 004	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Dieldrin	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endosulfan I	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endosulfan II	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endosulfan Sulfate	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endrin	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endrin Aldehyde	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Heptachlor	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Heptachlor Epoxide	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Methoxychlor	0.004	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Toxaphene	0 020	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1016	0.020	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1221	0.020	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1232	0.020	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1242	0.020	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1248	0.020	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1254	0 020	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
3-1260	0.020	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG

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Commercial Testing & Engineering Co.
Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4136-33
Client Sample ID	9400494868 CONFIRMATION SAMPLE
Matrix	SOIL

* See Special Instructions Above
See Sample Remarks Above
= Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

SINCE 1908

LABORATORY ANALYSIS REPORT

CT&E Ref #	94 4136-34
Client Sample ID	94004948 69 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:01	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 08:30	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	96 4		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	2060	D	mg/Kg	3510/3550/8100M		08/13/94	08/16/94	WAA
Hydrocarbons VPH	142	D	mg/Kg	EPA 5030/8015M		08/13/94	08/15/94	SPM
TCLP Extraction	---			SW 846 1311		08/15/94		BJS
TCLP Metals				EPA 1311				
senic	0.0050	U	mg/L	EPA 7060/7061	5 0	08/16/94	08/17/94	CLC
ium	0 55	D	mg/L	EPA 7080/6010	100.0	08/16/94	08/17/94	EMW
dmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/16/94	08/17/94	EMW
Chromium	0.50	U	mg/L	EPA 7191/6010	5.0	08/16/94	08/17/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/16/94	08/17/94	EMW
Mercury	0.0004	U	mg/L	EPA 7470/7471	0.2	08/17/94	08/17/94	AFK
Selenium	0.005	U	mg/L	EPA 7740/7741	1.0	08/16/94	08/17/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/16/94	08/17/94	BJS
Volatile Organics				EPA 8240				
Chloromethane	0 035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Bromomethane	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Vinyl Chloride	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Chloroethane	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Methylene Chloride	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Carbon Disulfide	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1-Dichloroethene	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1-Dichloroethane	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
12-Dichloroethene(total	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Chloroform	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,2-Dichloroethane	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
2-Butanone	0.350	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1,1-Trichloroethane	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Carbon Tetrachloride	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Bromodichloromethane	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,2-Dichloropropane	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
cis-1,3-Dichloropropene	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Trichloroethene	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
romochloromethane	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
-Trichloroethane	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
zene	0 035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
trans-1,3-Dichloroprope	0.035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Bromoform	0 035	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS

Commercial Testing & Engineering Co.

Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

&E Ref.# 94 4136-34
Client Sample ID 9400494869 CONFIRMATION SAMPLE
Matrix SOIL

4-Methyl-2-Pentanone	0.350	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Tetrachloroethene	0.035	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
1122-Tetrachloroethane	0.035	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Toluene	0.035	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Chlorobenzene	0.035	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Ethylbenzene	0.035	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Styrene	0.035	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Xylene (total)	0 035	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Semivolatile Organics				EPA 8270			
Phenol	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Chloroethyl)ether	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Chlorophenol	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,3-Dichlorobenzene	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,4-Dichlorobenzene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzyl Alcohol	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,2-Dichlorobenzene	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Methylphenol	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Chloroisopropyl)e	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Methylphenol	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
n-Nitroso-di-n-Propylam	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
xachloroethane	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
obenzene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
horone	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
itrophenol	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dimethylphenol	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzoic Acid	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Chloroethoxy)Meth	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dichlorophenol	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,2,4-Trichlorobenzene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Naphthalene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Chloroaniline	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Hexachlorobutadiene	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Chloro-3-Methylphenol	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Methylnaphthalene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Hexachlorocyclopentadie	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4,6-Trichlorophenol	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4,5-Trichlorophenol	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Chloronaphthalene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Nitroaniline	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Dimethylphthalate	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Acenaphthylene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,6-Dinitrotoluene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
3-Nitroaniline	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Acenaphthene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dinitrophenol	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Nitrophenol	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Dibenzofuran	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dinitrotoluene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
thylphthalate	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
orophenyl-Phenylet	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
ene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
roaniline	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4,6-Dinitro-2-Methylphe	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH

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Commercial Testing & Engineering Co.

Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4136-34
Client Sample ID 9400494869 CONFIRMATION SAMPLE
Matrix SOIL

n-Nitrosodiphenylamine	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Bromophenyl-Phenyleth	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Hexachlorobenzene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Pentachlorophenol	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Phenanthrene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Anthracene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
di-n-Butylphthalate	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Fluoranthene	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Pyrene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Butylbenzylphthalate	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
3,3-Dichlorobenzidine	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(a)Anthracene	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Chrysene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Ethylhexyl)Phthal	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
di-n-Octylphthalate	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(b)Fluoranthene	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(k)Fluoranthene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(a)Pyrene	0 259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Indeno(1,2,3-cd)Pyrene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Dibenz(a,h)Anthracene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(g,h,i)Perylene	0.259	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
nochlorine Pest&PCB				EPA 8080			
in	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
ıa-BHC	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Beta-BHC	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Delta-BHC	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Gamma-BHC	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Chlordane	0 02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
4,4'-DDD	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
4,4'-DDE	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
4,4'-DDT	0 003	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Dieldrin	0.003	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endosulfan I	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endosulfan II	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endosulfan Sulfate	0.003	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endrin	0.003	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endrin Aldehyde	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Heptachlor	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Heptachlor Epoxide	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Methoxychlor	0.004	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Toxaphene	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1016	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1221	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1232	0 02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1242	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1248	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1254	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1260	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG

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Commercial Testing & Engineering Co.

Environmental Laboratory Services

SINCE 1908

LABORATORY ANALYSIS REPORT

CT&E Ref # 94.4136-34
Client Sample ID 9400494869 CONFIRMATION SAMPLE
Matrix SOIL

* See Special Instructions Above
** See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

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Commercial Testing & Engineering Co.

Environmental Laboratory Services

LABORATORY ANALYSIS REPORT

T&E Ref.#	94.4136-35
Client Sample ID	9400494870 CONFIRMATION SAMPLE
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81331		
Ordered By	CARL HORNIG	Printed Date	08/17/94	@ 18:01	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/10/94	@ 08:30	hrs.
Project#	94004	Received Date	08/12/94	@ 12:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: Stephen C. Ede

Sample Remarks: SAMPLE COLLECTED BY: UA. CALL# B-056 8-10-94. EPH HEAVIER HYDROCARBONS CONTRIBUTING TO DIESEL RANGE QUANTITATION

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	93.4		%	SM17 2540G			08/13/94	CAV
Hydrocarbons EPH	7.16		mg/Kg	3510/3550/8100M		08/13/94	08/15/94	WAA
Hydrocarbons VPH	0 651		mg/Kg	EPA 5030/8015M		08/13/94	08/14/94	SPM
TCLP Extraction	---			SW 846 1311		08/15/94		BJS
P Metals				EPA 1311				
nic	0.0050		mg/L	EPA 7060/7061	5.0	08/16/94	08/17/94	CLC
um	0.50	U	mg/L	EPA 7080/6010	100.0	08/16/94	08/17/94	EMW
dmium	0.50	U	mg/L	EPA 7131/6010	1.0	08/16/94	08/17/94	EMW
Chromium	0 50	U	mg/L	EPA 7191/6010	5.0	08/16/94	08/17/94	EMW
Lead	1.0	U	mg/L	EPA 7421/6010	5.0	08/16/94	08/17/94	EMW
Mercury	0.0004	U	mg/L	EPA 7470/7471	0.2	08/17/94	08/17/94	AFK
Selenium	0.005	U	mg/L	EPA 7740/7741	1.0	08/16/94	08/17/94	CLC
Silver	0.10	U	mg/L	EPA 7760/6010	5.0	08/16/94	08/17/94	BJS
Volatile Organics				EPA 8240				
Chloromethane	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Bromomethane	0 060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Vinyl Chloride	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Chloroethane	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Methylene Chloride	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Carbon Disulfide	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1-Dichloroethene	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1-Dichloroethane	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
12-Dichloroethene(total	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Chloroform	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,2-Dichloroethane	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
2-Butanone	0.600	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,1,1-Trichloroethane	0 060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Carbon Tetrachloride	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Bromodichloromethane	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
1,2-Dichloropropane	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
cis-1,3-Dichloropropene	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
hloroethene	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
mochloromethane	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
Trichloroethane	0 060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
ene	0.060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS
trans-1,3-Dichloroprope	0 060	U	mg/Kg	EPA 8240		08/13/94	08/16/94	BLS

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Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4136-35
Client Sample ID 94004948 70 CONFIRMATION SAMPLE
Matrix SOIL

Bromoform	0 060	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
4-Methyl-2-Pentanone	0.600	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Tetrachloroethene	0.060	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
1122-Tetrachloroethane	0.060	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Toluene	0.060	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Chlorobenzene	0 060	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Ethylbenzene	0 060	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Styrene	0 060	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Xylene (total)	0.060	U	mg/Kg	EPA 8240	08/13/94	08/16/94	BLS
Semivolatile Organics				EPA 8270			
Phenol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Chloroethyl)ether	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Chlorophenol	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,3-Dichlorobenzene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,4-Dichlorobenzene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzyl Alcohol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,2-Dichlorobenzene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Methylphenol	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Chloroisopropyl)e	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Methylphenol	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Nitroso-di-n-Propylam	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
achloroethane	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
robenzene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
phorone	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Nitrophenol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dimethylphenol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzoic Acid	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Chloroethoxy)Meth	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dichlorophenol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
1,2,4-Trichlorobenzene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Naphthalene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Chloroaniline	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Hexachlorobutadiene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Chloro-3-Methylphenol	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Methylnaphthalene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Hexachlorocyclopentadie	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4,6-Trichlorophenol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4,5-Trichlorophenol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Chloronaphthalene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2-Nitroaniline	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Dimethylphthalate	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Acenaphthylene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,6-Dinitrotoluene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
3-Nitroaniline	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Acenaphthene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
2,4-Dinitrophenol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Nitrophenol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Dibenzofuran	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
-Dinitrotoluene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
ylphthalate	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
lorophenyl-Phenylet	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
rene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Nitroaniline	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH

F-712/010/

Commercial Testing & Engineering Co.

Environmental Laboratory Services

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LABORATORY ANALYSIS REPORT

CT&E Ref.# 94.4136-35
Client Sample ID 94004948 70 CONFIRMATION SAMPLE
Matrix SOIL

4,6-Dinitro-2-Methylphe	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
n-Nitrosodiphenylamine	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
4-Bromophenyl-Phenyleth	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Hexachlorobenzene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Pentachlorophenol	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Phenanthrene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Anthracene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
di-n-Butylphthalate	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Fluoranthene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Pyrene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Butylbenzylphthalate	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
3,3-Dichlorobenzidine	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(a)Anthracene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Chrysene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
bis(2-Ethylhexyl)Phthal	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
di-n-Octylphthalate	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(b)Fluoranthene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(k)Fluoranthene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Benzo(a)Pyrene	0 268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Indeno(1,2,3-cd)Pyrene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
Dibenz(a,h)Anthracene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
ızo(g,h,i)Perylene	0.268	U	mg/Kg	EPA 8270	08/15/94	08/16/94	JBH
ganochlorine Pest&PCB				EPA 8080			
Aldrin	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Alpha-BHC	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Beta-BHC	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Delta-BHC	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Gamma-BHC	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Chlordane	0 02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
4,4'-DDD	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
4,4'-DDE	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
4,4'-DDT	0.001	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Dieldrin	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endosulfan I	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endosulfan II	0 002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endosulfan Sulfate	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endrin	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Endrin Aldehyde	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Heptachlor	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Heptachlor Epoxide	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Methoxychlor	0.002	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
Toxaphene	0 02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1016	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1221	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1232	0 02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1242	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1248	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
PCB-1254	0 02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG
3-1260	0.02	U	mg/Kg	EPA 8080	08/15/94	08/15/94	ECG

Commercial Testing & Engineering Co.
Environmental Laboratory Services

SINCE 1908

LABORATORY ANALYSIS REPORT

CT&E Ref # 94.4136-35
Client Sample ID 94004948 70 CONFIRMATION SAMPLE
Matrix SOIL

See Special Instructions Above
See Sample Remarks Above
Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

F-712/04/6/94

Analytical **Technologies,** Alaska

2000 W. International Airport Rd. Ste. C6
Anchorage, Ak 99502

SUMMARY REPORT of ANALYSIS

Report Date: 8/24/94

Client: 611 CEOS/CEOR
Address: 21885 2nd Street
Elmendorf Air Force Base, AK 99506-4420
Project ID: Cape Romanzof / #B-029
Lab Accession: 408026
Date Received: 8/22/94
Matrix: Soil

Contact: Carl A. Hornig
Phone: 907/ 552-1617
Fax: 907/ 552-4601

Reviewed By: 8KG

		Method: EPA-		8020 mod				8015mod	8100mod		418.1
Client Sample	Lab Accession #	Date Collected	% Solid	Conc. Benzene (ug/Kg)	Conc. Toluene (ug/Kg)	Conc. Ethyl-Benzene (ug/Kg)	Conc. Total Xylene (ug/Kg)	Conc. GRO as Gasoline (mg/Kg)	Conc DRO as Diesel (mg/Kg)	Conc RRO as 10w40 oil (mg/Kg)	Conc. TPH(418.1) (mg/Kg)
94004948242	408026 1	8/19/94	79	<25	<25	<25	60	2.3	39		
94004948243	408026 2	8/21/94	77	<26	73	<26	80	2.3	<13		
94004948244	408026 3	8/21/94	87	<23	38	<23	171	2.8	<11		
94004948245	408026 4	8/21/94	72	<28	68	<28	97	2.1	25		
94004948246	408026 5	8/21/94	80	<25	46	<25	71	2.5	150		
94004948247	408026 6	8/21/94	74	<27	<27	<27	80	12	108		
94004948248	408026 7	8/21/94	85	<24	<24	<24	<24	1.6	73		
94004948249	408026 8	8/21/94	81	<25	<25	<25	<25	53	1600		

Commercial Testing & Engineering Co.

Environmental Laboratory Services

SINCE 1908

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4428-1
Client Sample ID	94004948 250
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81786		
Ordered By	CARL HORNIG	Printed Date	09/01/94	@ 16:18	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/24/94	@ 18:26	hrs.
Project#	94004	Received Date	08/30/94	@ 15:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By.

Sample Remarks: SAMPLE COLLECTED BY. SIRTAJ AHMED. EPH: UNKNOWN HYDROCARBON WITH SEVERAL PEAKS.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	84.0		%	SM17 2540G			08/31/94	CAV
Hydrocarbons EPH	4.77		mg/Kg	EPA 8100M		08/31/94	09/01/94	WAA

See Special Instructions Above
See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

Commercial Testing & Engineering Co.

Environmental Laboratory Services

SINCE 1908

LABORATORY ANALYSIS REPORT

CT&E Ref.#	94.4428-2
Client Sample ID	94004948251
Matrix	SOIL

Client Name	US AIR FORCE/CEOR	RUSH Order	81786		
Ordered By	CARL HORNIG	Printed Date	09/01/94	@ 16:18	hrs.
Project Name	CAPE ROMANZOF WASTE ACCUMULATION AR	Collected Date	08/25/94	@ 14:44	hrs.
Project#	94004	Received Date	08/30/94	@ 15:30	hrs.
PWSID	UA				
		Technical Director	STEPHEN C. EDE		

Released By: [signature]

Sample Remarks: SAMPLE COLLECTED BY: SIRTAJ AHMED.

Parameter	Results	QC Qual	Units	Method	Allowable Limits	Ext. Date	Anal Date	Init
Percent Solids	87.6		%	SM17 2540G			08/31/94	CAV
Hydrocarbons EPH	4.00	U	mg/Kg	EPA 8100M		08/31/94	09/01/94	WAA

See Special Instructions Above
See Sample Remarks Above
U = Undetected, Reported value is the practical quantification limit.
D = Secondary dilution.

UA = Unavailable
NA = Not Analyzed
LT = Less Than
GT = Greater Than

5633 B Street, Anchorage, AK 99518-1600 — Tel· (907) 562-2343 Fax: (907) 561-5301

APPENDIX B

CHAIN-OF-CUSTODY RECORDS

CHAIN OF CUSTODY

Customer Name: 11 CEOS/CEOR

Call Number:

BPA# : F65501-94

Page 1 of 2

Reports and Invoice to:

Mr Carl A Hornig 11CEOS/CEOR 21885 2nd St Elmendorf AFB AK 99506-4420 Phone (907)552-1617 Fax 552-4601

Special Instructions: RUSH

Laboratory:

94.3860

PH: Fax:

POC:

Sample Prefix	Project Name/Number/Location	CAFE ROMANZOF / 94004 / ROM-12 (SS-14)
94004948	Sampled By: AHMED / DICK KOTSCH	Phone: 552-2372 Fax: 552-2372X226

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	~~TCLP~~ 8100	TCLP 8015	8240 ~~8020~~	8270 8080	TTL GALS: QTY CONT: CONT TYPE: CONT SIZE ~~Base~~ CONTAINER CONDITION
007		7-18-94	Top Soil						8100	8015	8240	8270	
		Hrs	Middle								7000	8080	Cont Cond:
			Bottom										Notes
008		7-18-94	Top Soil						8100	8015	8240	8270	
		Hrs	Middle								7000	8080	Cont Cond:
			Bottom										Notes
009		7-18-94	Top Soil						8100	8015	8240	8270	
		Hrs	Middle								7000	8080	Cont Cond:
			Bottom										Notes
010		7-18-94	Top Soil						8100	8015	8240	8270	
		Hrs	Middle								7000	8080	Cont Cond
			Bottom										Notes
011		7-18-94	Top Soil						8100	8015	8240	8270	
		Hrs	Middle								7000	8080	Cont Cond:
			Bottom										Notes
012		7-18-94	Top Soil						8100	8015	8240	8270	
		Hrs	Middle								7000	8080	Cont Cond:
			Bottom										Notes
013		7-18-94	Top Soil						8100	8015	8240	8270	
		Hrs	Middle								7000	8080	Cont Cond:
			Bottom										Notes
014		7-18-94	Top Soil						8100	8015	8020		
		~~09~~30 Hrs	Middle										Cont Cond:
			Bottom										Notes

Relinquished By	Relinquished By	Relinquished By
Signature: [signature] Time:	Signature: [signature] Time: 0740	Signature: [signature] Time: 0845
Printed Name: S. S. AHMED Date: 7/19/94	Printed Name: M. HOSTETTER Date: 20 July 94	Printed Name: Pamela J. Osburn Date: 20 Jul 94
Received By	**Received By**	**Received at Laboratory By**
Signature: [signature] Time: 06:45	Signature: [signature] Time: 0740	Signature: [signature] Time: 0900
Printed Name: M. J HOSTETTER Date: 7/19/94	Printed Name: Pamela J. Osburn Date: 20 Jul 94	Printed Name: Joey L. Maus Date: 7/-/94

SAMPLE PREFIX - 94004948 "MANZOF/94004/ROM-12 (SS-14)

SAMPLED BY: AHMED/DICK KOTSCH DATE: 7-18-94

Page 2 of

CHAIN OF CUSTODY

94.3660

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OUS	~~TCLP~~ 8160	TCLP			TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
015		7-18 94	Top						8100	8015	8020		
94004948		16:30 Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes.
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond.
			Bottom										Notes

9

7/20/94 0900

CHAIN OF CUSTODY

Customer Name: 11 CEOS/CEOR
Call Number:

BPA# : F65501-94
Page 1 of 2

Reports and Invoice to:

Laboratory:

Mr Carl A Hornig, 11CEOS/CEOR, 21885 2nd St Elmendorf AFB AK 99506-4420 Phone (907)552-1617 Fax 552-4601

94.3706

Special Instructions: RUSH TO LAB

PH:
FAX:
POC:

Sample Prefix: 94004948 | Project Name/Number/Location: CAPE ROMANZOF/94004/ROM-12 (SS-14)

Sampled By: AHMED / DICK KOTSCH | Phone: 552-2372 | Fax: 552-2372

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	ODS	8100	8015	8020		TTL GALS: QTY CONT: CONT TYPE: CONT SIZE, CONTAINER CONDITION	Sample Amount Liters
016	1	7-19-94 Hrs 10:46	Top / Middle / Bottom — Soil						8100	8015	8020		Cont Cond: Notes:	3X8
017	2	7-19-94 Hrs 13:15	Top / Middle / Bottom						8100	8015	8020		Cont Cond: Notes:	
018	3	7-19-94 Hrs 14:19	Top / Middle / Bottom						8100	8015	8020		Cont Cond: Notes:	
019	4	7-19-94 Hrs 16:20	Top / Middle / Bottom						8100	8015	8020		Cont Cond: Notes:	
020	5	7-20-94 Hrs 8:50	Top / Middle / Bottom						8100	8015	8020		Cont Cond: Notes:	
021	6	7-20-94 Hrs 8:50	Top / Middle / Bottom						8100	8015	8020		Cont Cond: Notes:	
022	7	7-20-94 Hrs 10:25	Top / Middle / Bottom						8100	8015	8020		Cont Cond: Notes:	
023	8	7-20-94 Hrs 13:00	Top / Middle / Bottom						8100	8015	8020		Cont Cond: Notes:	

Relinquished By	Relinquished By	Relinquished By
Signature: S. Ahmed Time:	Signature: R. Kotsch Time: 7/22/94	Signature: Carl A Hornig Time:
Printed Name: S-S. AHMED Date: 7/21/94	Printed Name: R. Kotsch Date: 0730	Printed Name: CARL A HORNIG Date: 22 Jul 9[illegible]
Received By	**Received By**	**Received at Laboratory By**
Signature: Kotsch Time: 7/21/94	Signature: Carl A Hornig Time: 0730 22 Jul	Signature: Beeky Crawford Time: 9:35
Printed Name: Date:	Printed Name: CARL A HORNIG Date:	Printed Name: Becky Crawford Date: 7/ /94

[redacted] : CARL HORNG

FROM = AHMED

CAPE[redacted] r 'TZOF / 94004 / ROM-12 ([redacted] -1)
7-20-94

CHAIN OF CUSTODY

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	TCLP	TCLP			TTL GALS: QTY CONT; CONT TYPE, CONT SIZE CONTAINER CONDITION
024 94004	(9) 948	7-20 94 Hrs	Top Middle Bottom						8100	8015	8020		Cont Cond: Notes
025	(10)	7-20 94 14:14 Hrs	Top Middle Bottom										Cont Cond: Notes
026	(11)	7-20 94 14:50 Hrs	Top Middle Bottom										Cont Cond: Notes
027	(12)	7-20 94 15:53 Hrs	Top Middle Bottom										Cont Cond: Notes
028	(13)	7/21 94 0800 Hrs	Top Middle Bottom										Cont Cond: Notes
029	(14)	7/21 94 0900 Hrs	Top Middle Bottom										Cont Cond: Notes
		94 Hrs	Top Middle Bottom										Cont Cond: Notes
		94 Hrs	Top Middle Bottom										Cont Cond: Notes
		94 Hrs	Top Middle Bottom										Cont Cond: Notes
		94 Hrs	Top Middle Bottom										Cont Cond: Notes
		94 Hrs	Top Middle Bottom										Cont Cond: Notes
		94 Hrs	Top Middle Bottom										Cont Cond: Notes
		94 Hrs	Top Middle Bottom										Cont Cond: Notes

94.3706

40 327

CHAIN OF CUSTODY

Customer Name: 11 CEOS/CEOR | BPA# : F65501-94

Call Number: | Page 1 of 1

Reports and Invoice to: | *Laboratory:*

Mr Carl A Hornig 11CEOS/CEOR 21885 2nd St Elmendorf AFB AK 99506-4420 Phone (907)552-1617 Fax 552-4601

Special Instructions: RUSH TO LAB | 94.3810

PH:

POC:

Sample Prefix: 94004948 | Project Name/Number/Location: CAPE ROMANZOFF/94004/ROM-12 (SS-14)

Sampled By: AHMED | Phone: 552-2372 | Fax: 552-2372

	Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	TCLP 8100	TCLP 8015	8020		TTL GALS: QTY CONT: CONT TYPE: CONT SIZE / CONTAINER CONDITION
1	030		7-22 94	Top						8100	8015	8020		
			10:40 Hrs	Middle										Cont Cond:
				Bottom										Notes:
2	031		7-22 94	Top						AS	ABOVE			
			10:45 Hrs	Middle										Cont Cond:
				Bottom										Notes:
3	032		7-22 94	Top										
			15:15 Hrs	Middle										Cont Cond:
				Bottom										Notes:
4	033		94	Top						AS	ABOVE			
			1906 Hrs	Middle										Cont Cond:
			7-22-94	Bottom										Notes:
5	034		7-22 94	Top										
			Hrs	Middle										Cont Cond:
			10:20	Bottom										Notes:
6	035		7-22 94	Top						AS	ABOVE			
			Hrs	Middle										Cont Cond:
			15:45	Bottom										Notes:
7	036		7-23 94	Top										
			9:00 Hrs	Middle										Cont Cond:
				Bottom										Notes:
			94	Top						AS	ABOVE			
			Hrs	Middle										Cont Cond:
				Bottom										Notes:

Relinquished By:		Relinquished By:		Relinquished By:	
Signature [signature]	Time:	Signature	Time:	Signature	Time:
Printed Name S.S. AHMED	Date: 7-22-94	Printed Name	Date:	Printed Name	Date:
Received By:		**Received By:**		**Received at Laboratory By:**	
Signature	Time:	Signature	Time:	Signature [signature]	Time: 1600
Printed Name	Date:	Printed Name	Date:	Printed Name L. MAUS	Date: 7/27/94

ustomer Name: 11 CEOS/CEOR

CHAIN OF CUSTODY

94.3820

BPA# : F65501-94

Call Number:

3 COOLERS

Page 1 of 3

eports and Invoice to:

Laboratory:

r Carl A Hornig 11CEOS/CEOR 21885 2nd St Elmendorf AFB AK 99506-4420 Phone (907)552-1617 Fax 552-4601

ecial Instructions: RUSH TO LAB, CONFIRMATION SAMPLES

PH: *Fax:*

POC:

imple Prefix	Project Name/Number/Location	CAPE ROMANZOF / 94004 / ROM-12 (SS-14)		
004948	Sampled By: AHMED	Phone: 552-2372	Fax: 552-2372	

imple mber	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	TCLP	TCLP			TTL GALS: QTY CONT· CONT TYPE: CONT SIZE CONTAINER CONDITION	Sample Amount Liters
37		7-26 94	Top						8100	8015	8020			3x8 oz
		14:40 Hrs	Middle										Cont Cond:	1x40L
			Bottom										Notes	
38		7-26 94	Top											
		14:45 Hrs	Middle										Cont Cond	
			Bottom										Notes	
39		7-26 94	Top											
		14:50 Hrs	Middle										Cont Cond:	
			Bottom										Notes	
40		7-26 94	Top											
		14:56 Hrs	Middle										Cont Cond:	
			Bottom Soil										Notes	
41		7-26 94	Top											
		15:04 Hrs	Middle										Cont Cond:	
			Bottom										Notes	
42		7-26 94	Top											
		15:15 Hrs	Middle										Cont Cond:	
			Bottom										Notes	
43		7-26 94	Top											
		15:24 Hrs	Middle										Cont Cond:	
			Bottom										Notes	
44		7-26 94	Top											
		15:39 Hrs	Middle										Cont Cond:	
			Bottom										Notes	

Relinquished By:		Relinquished By:		Relinquished By:	
Signature: S. Ahmed	Time: 6:30 AM	Signature: [illegible]	Time: 17:20	Signature	Time
Printed Name: SAM AHMED	Date: 7-27-94	Printed Name: LARRY K KILLEBREW	Date: 27 JUL 94	Printed Name	Date
Received By:		**Received By:**		**Received at Laboratory By:**	
Signature: [illegible]	Time: 15:20	Signature: ERA	Time: 25	Signature: Laura Hopkins	Time: 7-28-94
Thomas A. Spurgeon	Date: 7-27-94	Printed Name: Joyce Dutler	Date: 1725-7-27-94	Printed Name: Laura HOPKINS	Date: 12:20

40 329

TO LAB / CAPE ROMANZOF / [redacted] -(SS-14)

94.3820

CONFIRMATION SAMPLES

940049448

CHAIN OF COUSTODY

3 COOLERS

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	TCLP	TCLP			TTL GALS QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION	Amount Liters
045		7-26 94	Top						8100	8015	8020			
(9)		Hrs	Middle										Cont Cond:	
		15:50	Bottom										Notes	
046		7-26 94	Top											
(10)		Hrs	Middle										Cont Cond:	
		16:10	Bottom										Notes	
047		7-26 94	Top											
(11)		Hrs	Middle										Cont Cond:	
		16:19	Bottom										Notes	
048		7-26 94	Top											
(12)		Hrs	Middle										Cont Cond:	
		16:25	Bottom										Notes	
049		7-26 94	Top											
(13)		Hrs	Middle										Cont Cond:	
		16:35	Bottom										Notes	
050		7-26 94	Top											
(14)		Hrs	Middle										Cont Cond:	
		16:35	Bottom										Notes	
051		7-26 94	Top											
(15)		Hrs	Middle										Cont Cond:	
		16:43	Bottom										Notes	
052		7-26 94	Top											
(16)		Hrs	Middle										Cont Cond:	
		16:50	Bottom										Notes	
053		7-26 94	Top											
(17)		Hrs	Middle										Cont Cond:	
		17:05	Bottom										Notes	
054		7-26 94	Top											
(18)		Hrs	Middle										Cont Cond:	
		17:15	Bottom										Notes	
055		7-26 94	Top											
(19)		Hrs	Middle										Cont Cond:	
		17:24	Bottom										Notes	
056		7-26 94	Top											
(20)		Hrs	Middle										Cont Cond:	
		17:30	Bottom										Notes	
057		7-26 94	Top											
(21)		Hrs	Middle										Cont Cond:	
		17:39	Bottom										Notes	

?USH - CONFIRMATION ● PLES
APE ROMANZOF / ROM-12 (S 4)
94004948

94.3820 ●

Page __ of __

CHAIN OF CUSTODY (3 COOLERS)

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OUS	TCLP	TCLP			TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
058		7-26 94	Top						8100	8015	8020		
(22)		Hrs	Middle										Cont Cond:
		17-44	Bottom										Notes
059		7-26 94	Top										
(23)		17-39 Hrs	Middle										Cont Cond:
			Bottom										Notes
060		7-26 94	Top										
(24)		Hrs	Middle										Cont Cond:
		17:48	Bottom										Notes
061		7-26 94	Top										
(25)		Hrs	Middle										Cont Cond:
		17:48	Bottom										Notes
062		7-26 94	Top										
(26)		Hrs	Middle										Cont Cond.
		18:58	Bottom										Notes
063		7-26 94	Top										
(27)		Hrs	Middle										Cont Cond:
		18-08	Bottom										Notes
064		7-26 94	Top										
(28)		Hrs	Middle										Cont Cond.
		18:08	Bottom										Notes
065		7-26 94	Top										
(29)		Hrs	Middle										Cont Cond:
		18-18	Bottom										Notes
066		7-26 94	Top										
(30)		Hrs	Middle										Cont Cond:
		18-16	Bottom										Notes
067		7-26 94	Top WATER										
(31)		18:19 Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes

CAPE ROMANZOF – R[illegible] I–

CONFIRMATION SAMPLES

RUS

94.4136

CHAIN OF CUSTODY

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	TCLP 8240	TCLP 8270	8080 7000	8100 8015	TTL ORG. QTY CONT. CONT TYPE. CONT SIZE CONTAINER CONDITION	M L
004948 68		8-10 94	Top											
33		Hrs	Middle										Cont Cond:	
			Bottom										Notes	
69		8-10 94	Top											
34		Hrs	Middle										Cont Cond:	
		8:30	Bottom										Notes	
70		8-10 94	Top											
35		Hrs	Middle										Cont Cond:	
		8:30	Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond:	
			Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond:	
			Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond:	
			Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond:	
			Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond:	
			Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond:	
			Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond:	
			Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond.	
			Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond:	
			Bottom										Notes	
		94	Top											
		Hrs	Middle										Cont Cond.	
			Bottom										Notes	

CHAIN OF CUSTODY

Customer Name: 11 CEOS/CEOR

Call Number:

BPA# : F65501-94

Reports and Invoice to:

Laboratory:

Mr Carl A Hernig 11CEOS/CEOR 21585 2nd St Elmendorf AFB AK 99506-4420 Phone (907)552-1617 Fax 552-4601

94.392

Special Instructions: RUSH TO LAB

PH:

Fax:

POC:

Sample Prefix: 94004948

Project Name/Number/Location: CAPE ROMANZOF/94004/WASTE ACCUM AREA & [illegible]

Sampled By:

Phone: 552-2372

Fax: 552-2372

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	TCLP 8100	TCLP 8015	8020 7000	8080 8010	TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
201		8/1 94 Hrs 7:00	Top / Middle / Bottom										Cont Cond: Notes
202		8/1 94 Hrs 7:13	Top / Middle / Bottom										Cont Cond: Notes
203		8/1 94 Hrs 7:18	Top / Middle / Bottom										Cont Cond: Notes
204		8/1 94 Hrs 8:18	Top / Middle / Bottom										Cont Cond: Notes
205		8/1 94 Hrs 8:25	Top / Middle / Bottom										Cont Cond: Notes
206		8/1 94 Hrs 8:30	Top / Middle / Bottom										Cont Cond: Notes
207		8/1 94 Hrs 8:40	Top / Middle / Bottom										Cont Cond: Notes
208		8/1 94 Hrs 8:45	Top / Middle / Bottom										Cont Cond: Notes

Relinquished By:	Relinquished By:	Relinquished By:
Signature: [signature] Time:	Signature: REFUSED TO SIGN Time:	Signature: Carl A Hornig Time: 083
Printed Name: S. S. AHMED Date: 8/2/94	Printed Name: Date:	Printed Name: CARL A HORNIG Date: 3 Aug
Received By:	**Received By:**	**Received at Laboratory By:**
Signature: REFUSED TO SIGN Time:	Signature: Carl A Hornig Time: 0835	Signature: Becky Crawford 8:4
Printed Name: Time:	Printed Name: CARL A HORNIG Time: 3 Aug 94	Printed Name: Becky Crawford

[signature] 8/1/94

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333

WASTE ACCUM AREA

CHAIN OF CUSTODY

	Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAI CHAR	FULL CHAR	OUS	TCLP 8100	TCLP 8015	8020 7000	8080 8010	TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
4004948 (9)	209		8/1 94 Hrs 8:55	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes

40 334

[signature] 8/3

1

(DURING EXCAVATION)

Customer Name 11 CEOS/CEOR

CHAIN OF CUSTODY

94.4136

BPA# : F65501-94

Call Number:

Page 1 of 5

Reports and Invoice to:

Laboratory:

Mr Carl A Hornig 11CEOS/CEOR 21885 2nd St Elmendorf AFB AK 99506-4420 Phone (907)552-1617 Fax 552-4601

Special Instructions:

PH: Fax:

POC:

Sample Prefix: 94004948

Project Name/Number/Location: CAPE ROMANZOF / 94004 / WASTE ACCUMULATION AREA

Sampled By:

Phone:

Fax:

	Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	TCLP	TCLP			TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
1	210		8-4-94 Hrs 13:23	Top / Middle / Bottom										Cont Cond: / Notes
2	211		8-–94 Hrs 13:49	Top / Middle / Bottom										Cont Cond: / Notes
3	212		8-8-94 Hrs 14:47	Top / Middle / Bottom										Cont Cond: / Notes
4	213		8-9-94 Hrs 15:57	Top / Middle / Bottom										Cont Cond: / Notes
5	214		8/9/94 Hrs 9:13	Top / Middle / Bottom										Cont Cond: / Notes
6	215		8/9/94 Hrs 10:30	Top / Middle / Bottom										Cont Cond: / Notes
7	216		8/9 94 Hrs 11:49	Top / Middle / Bottom										Cont Cond: / Notes
8	217		8/9 94 Hrs 13:00	Top / Middle / Bottom										Cont Cond: / Notes

Relinquished By:	Relinquished By:	Relinquished By:
Signature: [signature] Time: 14:00	Signature: Mike Sullivan Time: 11:22	Signature: David R. Panth Time: 8-12-94
Printed Name: S.S AHMED Date: 8-10-94	Printed Name: Mike Sullivan Date: 8-12-94	Printed Name: David R. Panth Date: 11:49
Received By:	**Received By:**	**Received at Laboratory By:**
Signature: Northern Air Cargo Time: 16:45	Signature: David R. Panth Time: 11:25	Signature: Laura L Hopkins Time: 12:3[illegible]
Printed Name: 4720 4916 Date: 8/11/94	Printed Name: David R. Panth Date: 8-12-94	Printed Name: Laura L Hopkins Date: 8-12-[illegible]

40 335

CAPE KOMANZOFF
(WASTE ACCUMULATION ... A.)

DURING EXCAVATION

94.4136

CHAIN OF CUSTODY

	Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OUS	TCLP 8100	TCLP 8015	8020		TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
94004948 9	218		8/9 94 Hrs 13:00	Top Middle Bottom										Cont Cond: Notes
10	219		8/9 94 Hrs 14:01	Top Middle Bottom										Cont Cond: Notes
11	220		8/9 94 Hrs 14:25	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond: Notes:
			94 Hrs	Top Middle Bottom										Cont Cond: Notes
			94 Hrs	Top Middle Bottom										Cont Cond Notes:
			94 Hrs	Top Middle Bottom										Cont Cond Notes
			94 Hrs	Top Middle Bottom										Cont Cond. Notes

APE ROMANZOF - WASTE IMULATION AREA ('S
CONF .MATION SAMPLE

94.4136

94004948

CHAIN OF CUSTODY

	Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OUS	TCLP 8100	TCLP 8015	8020		TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
12	221		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			10:20	Bottom										Notes
13	222		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			10:25	Bottom										Notes
14	223		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			10:30	Bottom										Notes
15	224		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			10:35	Bottom										Notes
16	225		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			10:39	Bottom										Notes
17	226		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:05	Bottom										Notes
18	227		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:10	Bottom										Notes
19	228		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:14	Bottom										Notes
20	229		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:16	Bottom										Notes
21	230		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:19	Bottom										Notes
22	231		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:21	Bottom										Notes
23	232		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:23	Bottom										Notes
24	233		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:25	Bottom										Notes

7PE ROMANZOF - WAST[illegible] ACCUMULATION [illegible]
CON[illegible]RMATION SAMPLES

94.4136

CHAIN OF CUSTODY

	Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OUS	TCLP 8100	TCLP 8015	8020		TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
25	234		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:30	Bottom										Notes
26	235		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:32	Bottom										Notes
27	236		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			11:35	Bottom										Notes
			8-10 94	Top										
			Hrs	Middle										Cont Cond:
			13:00	Bottom										Notes
28	237		8-10 94	Top										
			Hrs	Middle										Cont Cond:
				Bottom										Notes
29	238		8-10 94	Top										
			Hrs	Middle										Cont Cond:
				Bottom										Notes
30	239		8-10 94	Top										
			Hrs	Middle										Cont Cond:
			13:35	Bottom										Notes
31	240		94	Top										
			Hrs	Middle										Cont Cond:
				Bottom										Notes
32	241		8-10 94	Top								--	--	
			Hrs	Middle										Cont Cond:
			13:41	Bottom										Notes
			94	Top										
			Hrs	Middle										Cont Cond:
				Bottom										Notes
			94	Top										
			Hrs	Middle										Cont Cond:
				Bottom										Notes
			94	Top										
			Hrs	Middle										Cont Cond:
				Bottom										Notes
			94	Top										
			Hrs	Middle										Cont Cond:
				Bottom										Notes

1 COOLER RE CONFIRMATION

CHAIN OF CUSTODY

Customer Name: 11 CEOS/CEOR BPA# : F65501-9

Call Number: Page 1 of 1

Reports and Invoice to: ***Laboratory:***

Mr Carl A Hornig 11CEOS/CEOR 21885 2nd St Elmendorf AFB AK 99506-4420 Phone (907)552-1617 Fax 552-4601

Special Instructions:

PI: *Fax*

POC:

Sample Prefix: 94004948 | Project Name/Number/Location: CAPE ROMANZOF/94004/WASTE ACCUMLATION AREA

Sampled By: | Phone: | Fax:

	Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	~~TCLP~~ 5100	~~TCH~~ 8015	8020		TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
01	242		8-21 94 Hrs 11:20	Top / Middle / Bottom										Cont Cond: / Notes
02	243		8-21 94 Hrs 11:29	Top / Middle / Bottom										Cont Cond / Notes
03	244		8-21 94 Hrs 11:36	Top / Middle / Bottom										Cont Cond: / Notes
04	245		8-21 94 Hrs 11:40	Top / Middle / Bottom										Cont Cond: / Notes
05	246		8-21 94 Hrs 11:49	Top / Middle / Bottom										Cont Cond: / Notes
06	247		8-21 94 Hrs 11:50	Top / Middle / Bottom										Cont Cond: / Notes
07	248	11:57	8-21 94 Hrs ~~12:00~~	Top / Middle / Bottom										Cont Cond: / Notes
08	249		8-21-94 Hrs 12:00	Top / Middle / Bottom										Cont Cond. / Notes

Relinquished By:	Relinquished By:	Relinquished By:
Signature: [signature] Time: 12:15 PM	Signature: [signature] Time: 0955	Signature: [signature] Time: 110
Printed Name: S.S. AHMED Date: 8-21-94	Printed Name: MJ HOSTETLER Date: 22 AUG 94	Printed Name: Pamela J. Osburn Date: 22 A
Received By:	**Received By:**	**~~Received at Laboratory~~ By:**
Signature: [signature] Time: 0940	Signature: [signature] Time: 0955	Signature: [signature] Time:
Printed Name: MJ HOSTETLER Date: 22 AUG 94	Printed Name: Pamela J. Osburn Date: 22 Aug 94	Printed Name: Richard W. Kotsch Date:

1 C[illegible]LER - RE-CONFIRMA[illegible]N R

CHAIN OF COUSTODY

Customer Name: 11 CEOS/CEOR

BPA# : F65501-94

Call Number:

Page

Reports and Invoice to:

Laborat

94.4428

Mr Carl A Hornig 11CEOS/CEOR 21885 2nd St Elmendorf AFB AK 99506-4420 Phone (907)552-1617 Fax 552-4601

Special Instructions:

PH: Fax

POC

Sample Prefix	Project Name/Number/Location	CAPE ROMANZOF / 94004 / WASTE ACCUMULATION AREA			
94004948	Sampled By	SIRTAJ AHMED	Phone: 552-2372	Fax:	552-2372

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OBS	TCLP 8100	TCLP 8015	8020		TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
① 250		8-24 94	Top										
		Hrs	Middle										Cont Cond:
		18:26	Bottom										Notes
② 251		8-25 94	Top SOIL										
		Hrs	Middle										Cont Cond:
		14:44	Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes
		94	Top										
		Hrs	Middle										Cont Cond:
			Bottom										Notes

Relinquished By:	Relinquished By:	Relinquished By:
Signature: S. Ahmed Time:	Signature: Duane Norbeck Time: 300	Signature: Joe Otto Time: 3:25
Printed Name: S. S. AHMED Date: 8-25-94	Printed Name: Duane Norbeck Date: 8-30-94	Printed Name: JOE OTTO Date: 8-30
Received By:	**Received By:**	**Received at Laboratory By:**
Signature: Time:	Signature: Joe Otto Time: 3:00	Signature: Laura Hopkins Time: 1:30
Printed Name: Date:	Printed Name: JOE [illegible] Date: 8-30-94	Printed Name: Laura L. Hopkins Date: 8-30

CAPE ROMANZOF
STOCKPILE AREA

CHAIN OF CUSTODY

94.3926

	Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	OUS	TCLP 8100	TCLP 8015	8020	7000	TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
4004948 (10)	401		8-1-94	Top										
			13:15 Hrs	Middle										Cont Cond:
				Bottom										Notes
(11)	402		8-1-94	Top										
			Hrs	Middle										Cont Cond:
				Bottom										Notes
(12)	403		8/1 94	Top										
			14:01 Hrs	Middle										Cont Cond:
				Bottom										Notes
(13)	404		8/1 94	Top										
			15:32 Hrs	Middle										Cont Cond:
				Bottom										Notes
(14)	405		8/1 94	Top										
			15:57 Hrs	Middle										Cont Cond:
				Bottom										Notes
(15)	406		8/1 94	Top										
			Hrs	Middle										Cont Cond:
			16:18	Bottom										Notes
(16)	407		8/1 94	Top										
			Hrs	Middle										Cont Cond:
			16:47	Bottom										Notes
(17)	408		8/2 94	Top										
			Hrs	Middle										Cont Cond:
			6:31	Bottom										Notes
(18)	409		8/2 94	Top										
			7:13 Hrs	Middle										Cont Cond:
				Bottom										Notes
(19)	410		8/2 94	Top										
			Hrs	Middle										Cont Cond:
			8:28	Bottom										Notes
(20)	411		8/2 94	Top										
			Hrs	Middle										Cont Cond:
			8:42	Bottom										Notes
(21)	412		8/2/94	Top										
			Hrs	Middle										Cont Cond:
			9:39	Bottom										Notes
(22)	413		8/2/94	Top										
			Hrs	Middle										Cont Cond:
			10:06	Bottom										Notes

8/3/94

STOCKPILE

Customer Name: 11 CEOS/CEOF

'HAI . OF CUSTODY

B F65591-94

Call Number: 94.3948

Page 1 of 1

Reports and Invoice to:

Mr Carl A Horrig 11CEOS/CEOR 21885 2nd St Elmendorf AFB AK 99506-4420 Phone (907)552-1617 Fax 552-4601

Laboratory:

Special Instructions:

PH: Fax:

POC:

Sample Prefix: 94004948

Project Name/Number/Location: CAPE ROMANZOF / STOCKPILE

Sampled By: AHMED

Phone: 552-2372 Fax: 552-2372

Sample Number	Lab Ref Number	Date/Time Sampled	Matrix	Color	%	USAF CHAR	FULL CHAR	ORS	TCLP 8100	TCLP 8015	8020	7000	TTL GALS: QTY CONT: CONT TYPE: CONT SIZE CONTAINER CONDITION
414		8/2 94 Hrs 11:06	Top / Middle / Bottom										Cont Cond: Notes:
415		8/2 94 Hrs 14:47	Top / Middle / Bottom										Cont Cond: Notes:
416		8/2 94 Hrs 16:35	Top / Middle / Bottom										Cont Cond: Notes:
417		8/3 94 Hrs 8:41	Top / Middle / Bottom										Cont Cond: Notes:
		94 Hrs	Top / Middle / Bottom										Cont Cond: Notes:
		94 Hrs	Top / Middle / Bottom										Cont Cond: Notes:
		94 Hrs	Top / Middle / Bottom										Cont Cond: Notes:
		94 Hrs	Top / Middle / Bottom										Cont Cond: Notes:

Relinquished By:	Relinquished By:	Relinquished By:
Signature: [signature] Time:	Signature: [signature] Time: 7:45 AM	Signature: Time:
Printed Name: S. S. AHMED Date: 8/3/94	Printed Name: G. S. BEALS Date: 8-4-94	Printed Name: Date:
Received By:	**Received By:**	**Received at Laboratory By:**
Signature: [signature] Time: 12:33 PM	Signature: Carl A Horrig Time: 0745	Signature: [signature] Time:
Printed Name: G. S. BEALS Date: 8-3-94	Printed Name: CARL A HORNIG Date: 4 Aug 94	Printed Name: JOEL L. MAUS 8

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APPENDIX C

TEST PIT DESCRIPTION

r AC&W housing area, it is apparent that no permanently frozen ground exists
the area. Due to snow cover, seasonal frost penetration is not excessive
rying from 4 ft in depth at the housing area, to 6 ft on the White Alice site.

TER SUPPLY: The AC&W Station is supplied from a 6" diameter well drilled in 57. Total potential production is not known, but at the time of construction the well it was test pumped at 60 gpm with an 18 to 24 inch drawdown. No tential water sources are available at the White Alice site other than snow lt.

RROW MATERIAL: A very limited amount of sand and gravel borrow is available om a small beach at the foot of the airstrip, and from other adjacent small aches. All are relatively inaccessible, and entail a haul of more than two les. Talus material can be crushed adjacent to the site (s) to produce crete aggregate and classified fill. There follows a detailed discussion the soils encountered in the test pits.

AILED LOG - Operations Building Test Pit - 0.1 to 1.5' (average, varies from 1.0 to 2.5') FILL - Solidly packed boulders up to 3.0' in the longest dimension, interstices packed with sand, coarse sand, and minor amounts of fine gravel, (all of which seems to be derived from decomposing diorite, or granodiorite) and reddish brown to brown silt, probably of the same origin. There is some included trash, (lumps of tar, nails, etc.). All of the boulders encountered are of diorite, or granodiorite. There are lenses of ice up to 0.02' thick near the surface of this fill material.

1.5 to 5.8 (see above, contact is highly variable) SANDY SILT - (composition identical to above) this contact is very indistinct. It can only be determined by the presence of boulders and trash in the above. There are no boulders between the contact above, and 4.0 feet. The frost line varies from 2.3 to 2.8'. Below the frost line, an indistinct stratification that may be varying can be distinguished. At about 4.0' boulders begin to appear, and by 5.0' these again become dominant. At about 3.8 a slight increase in the amount of sand becomes apparent, and appears to gradually and slowly increase with depth. The surface seems to have been stripped of the old plant cover, and waste material (random fill) from nearby dumped onto the stripped surface. Roots are present at least as deep as 5.0'.

Test Pit - Romanzof White Alice - 13 March 1958

AILED LOG - 0.0 to 4.0' (surface configuration somewhat irregular) FILL - consisting of solidly packed granodiorite boulders, up to 5.0' in the longest dimension. The boulders are angular and show evidence of being freshly broken. This fill is from the site of the nearby dormitory building. The interstices are loosely packed with a reddish brown sandy silt derived from the weathering of the granodiorite country rock. Void spaces occur below 3.5'.

4.0 to 5.8 BOULDERS - with silt, sand and gravel filled interstices. This material was frozen in place, at least to a depth of 5.5'. From 5.5' to 5.8' there are alternate patches of thawed and frozen material. There is a 0.1' thick carpet of tundra flora at 4.0. The original ground was probably dotted with numerous small boulders. The carpet of vegetation appears to grow only between these boulders, that protrude partially from the original surface. The point of the pneumatic breaker could not be driven below 6.0'. The boulders at 4.5' were uncovered partially down the sides, but could not be removed or broken with the equipment at hand.

APPENDIX D

MONITORING WELL LOGS

BOREHOLE LOG (SOIL)

INSTALLATION ID CAPRM
LOCATION ID ROM - 8 - MW1
LOCATION TYPE BH
LOCATION PROXIMITY I
COORDINATES (FT): NORTH NA
EAST NA
SURFACE ELEVATION (FTMSL)
DRILLER CODE Discovery Drilling-Kyle Brown
CONSTRUCTION METHOD B
DATE STARTED 7/29/89
DATE COMPLETED 7/29/89
BOREHOLE DEPTH (FT.) 19.5
BOREHOLE DIAM. (IN.) 10

GROUNDWATER LEVELS		
DATE.	TIME	DEPTH (FT)
7/29/89	1305	10.0
7/29/89	1412	10.0
7/30/89	0827	8.3

LOCATION DESCRIPTION
On north side of access road, upgradient of ROM8 Landfill

MAP REFERENCE ID
LOCATION CROSS REFERENCE

LITHOLOGIC LOG

LOGGER CODE T.R.

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	SAMPLE METHOD	SAMPLE ID	BLOW COUNT (PER 6")	N VALUE	CLASS/ CODE USC	VISUAL DESCRIPTION
0 - 11	—	—	—	—	—	—	N/A	OTHR	Road embankment material and granitic sediments
11 - 12.5	1.5'	0.8'	—	U	N/A	6/6/6	N/A	OTHR	Mixture of coarse grained biotite-rich granitic rock fragments, and angular fine to coarse grained granitic sand, some silt, little clay, wet
									Large granitic blocks encountered at 8.5' - 10.5' and 14' - 15.5' (drilled through blocks with air percussion rotary drill string inside hollow stem auger)

LOCATION PROXIMITY (LPRCODE)
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

CLASS/CODE - SEE SRTCODE LIST, THEN APPROPRIATE CODE LIST

CONSTRUCTION METHODS (CMCCODE)
AR - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
HS - HOLLOW STEM AUGER
J - JETTED
P - AIR-PERCUSSION
RM - REVERSE ROTARY, MUD
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH

SAMPLE METHODS (SSMCODE)
A - AUGER CUTTINGS
S - 2" O.D. 1.38" I.D. DRIVE SAMPLE
U - 3" O.D. 2.42" I.D. TUBE SAMPLE
T - 3" O.D. THIN-WALLED SHELBY TUBE
O - OTHER, GRAB SAMPLE

BOREHOLE LOG (SOIL)

INSTALLATION ID CAPRM
LOCATION ID ROM - 8 - MW2
LOCATION TYPE BH
LOCATION PROXIMITY I
COORDINATES (FT): NORTH NA
EAST NA
SURFACE ELEVATION (FTMSL)
DRILLER CODE Discovery Drilling-Kyle Brown
CONSTRUCTION METHOD B
DATE STARTED 7/30/89
DATE COMPLETED 7/30/89
BOREHOLE DEPTH (FT.) 12.3
BOREHOLE DIAM. (IN.) 10

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)
7/30/89	0915	10.0 (in auger)
7/30/89	1135	10.0 (in auger)
7/30/89	1245	7.3 (in well)

LOCATION DESCRIPTION
On north side of access road, upgradient of and immediately across from ROM8 Landfill

MAP REFERENCE ID
LOCATION CROSS REFERENCE

LITHOLOGIC LOG

LOGGER CODE T.R.

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	SAMPLE METHOD	SAMPLE ID	BLOW COUNT (PER 6")	N VALUE	CLASS/ CODE USC	VISUAL DESCRIPTION
0 - 10	—	—	—	—	—	—	N/A	OTHR	Road embankment material and granitic sediments
10 - 11.5	1.5'	0.8'	—	U	N/A	8/8/3	N/A	OTHR	Mixture of coarse grained granitic rock fragments (coarse grained biotite-rich granitic rock) and fine to coarse grained granitic sand, angular fragments, some silt and clay
									Large granitic blocks at 5' - 7', and at 12.8' (T.D.) deepest penetration (drilled through blocks with air percussion rotary drill string inside hollow stem auger)

LOCATION PROXIMITY (LPRCODE)
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

CLASS/CODE - SEE SRTCODE LIST, THEN APPROPRIATE CODE LIST

CONSTRUCTION METHODS (CMCCODE)
AR - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
HS - HOLLOW STEM AUGER
J - JETTED
P - AIR-PERCUSSION
RM - REVERSE ROTARY, MUD
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH

SAMPLE METHODS (SSMCODE)
A - AUGER CUTTINGS
S - 2" O.D. 1.38" I.D. DRIVE SAMPLE
U - 3" O.D. 2.42" I.D. TUBE SAMPLE
T - 3" O.D. THIN-WALLED SHELBY TUBE
O - OTHER, GRAB SAMPLE

BOREHOLE LOG (SOIL)

STALLATION ID: CAPRM — LOCATION ID: ROM - 8 - MW3

CATION TYPE: BH — LOCATION PROXIMITY: I

ORDINATES (FT): NORTH - NA - — EAST: NA

SURFACE ELEVATION (FTMSL):

DRILLER CODE: Discovery Drilling-Kyle Brown — CONSTRUCTION METHOD: B

DATE STARTED: 7/30/89 — DATE COMPLETED: 7/31/89

BOREHOLE DEPTH (FT.): 14.4 — BOREHOLE DIAM. (IN.): 10

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)
7/30/89	1758	8.5
7/31/89	0900	8.25

LOCATION DESCRIPTION

On south end of lower lift of ROM8 Landfill.
Downgradient of Landfill

MAP REFERENCE ID: — LOCATION CROSS REFERENCE:

LITHOLOGIC LOG

LOGGER CODE: T.R.

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	SAMPLE METHOD	SAMPLE ID	BLOW COUNT (PER 6")	N VALUE	CLASS/ CODE USC	VISUAL DESCRIPTION
6.3	—	—	—	A	N/A	—	N/A	FILL	Landfill material - misc wood and
									plastic mixed with granitic sand
6.3 - 14.4	—	—	—	A	N/A	—	N/A	OTHR	Mixed granitic sand/silt/clay and
									large 1.0' - 2.0' (vertical dimension)
									granitic blocks
									Blocks from 6.3' - 7.4' and
									7.5' to 8.5' (soft)

LOCATION PROXIMITY (LPRCODE)
I - WITHIN INSTALLATION

CLASS/CODE - SEE SRTCODE LIST, THEN APPROPRIATE CODE LIST
O - OUTSIDE INSTALLATION

ONSTRUCTION METHODS (CMCCODE)
- AIR ROTARY
BORED OR AUGERED
CABLE-TOOL
DUG
HS - HOLLOW STEM AUGER
J - JETTED
P - AIR-PERCUSSION
RM - REVERSE ROTARY, MUD
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH

SAMPLE METHODS (SSMCODE)
A - AUGER CUTTINGS
S - 2" O.D. 1.38" I.D. DRIVE SAMPLE
U - 3" O.D. 2.42" I.D. TUBE SAMPLE
T - 3" O.D. THIN-WALLED SHELBY TUBE
O - OTHER, GRAB SAMPLE

BOREHOLE LOG (SOIL)

PAGE 1 OF 1

INSTALLATION ID CAPRM
LOCATION ID ROM - 8 - MW4
LOCATION TYPE BH
LOCATION PROXIMITY I
COORDINATES (FT): NORTH NA
EAST NA
SURFACE ELEVATION (FTMSL)
DRILLER CODE Discovery Drilling-Kyle Brown
CONSTRUCTION METHOD B
DATE STARTED 7/31/89
DATE COMPLETED 7/31/89
BOREHOLE DEPTH (FT.) 10.0
BOREHOLE DIAM. (IN.) 10

GROUNDWATER LEVELS		
DATE	TIME	DEPTH (FT)
7/31/89	1405	8.3 (in auger)
7/31/89	1520	5.5 (in well casing)

LOCATION DESCRIPTION
On south east side of lower lift of ROM8 Landfill. Downgradient of Landfill

MAP REFERENCE ID
LOCATION CROSS REFERENCE

LITHOLOGIC LOG
LOGGER CODE T.R.

DEPTH (FT)	SAMPLE INTERVAL	SAMPLE RECOVERY	SAMPLE RETAINED	SAMPLE METHOD	SAMPLE ID	BLOW COUNT (PER 6")	N VALUE	CLASS/ CODE USC	VISUAL DESCRIPTION
0 - 5.0	—	—	—	A	N/A	—	N/A	FILL	Landfill material - wood, metal cans, metal pipe, rubber tires, granitic rock fragments and sand
5 - 10.0	0.2'	0.2'	—	U	N/A	25 for 0.2'	N/A	OTHR	Granitic colluvium - mixed rock fragments and sand/silt/clay

LOCATION PROXIMITY (LPRCODE)
I - WITHIN INSTALLATION
O - OUTSIDE INSTALLATION

CLASS/CODE - SEE SRTCODE LIST, THEN APPROPRIATE CODE LIST

CONSTRUCTION METHODS (CMCCODE)
AR - AIR ROTARY
B - BORED OR AUGERED
C - CABLE-TOOL
D - DUG
HS - HOLLOW STEM AUGER
J - JETTED
P - AIR-PERCUSSION
RM - REVERSE ROTARY, MUD
T - TRENCHING
V - DRIVEN
W - DRIVE AND WASH

SAMPLE METHODS (SSMCODE)
A - AUGER CUTTINGS
S - 2" O.D. 1.38" I.D. DRIVE SAMPLE
U - 3" O.D. 2.42" I.D. TUBE SAMPLE
T - 3" O.D. THIN-WALLED SHELBY TUBE
O - OTHER, GRAB SAMPLE

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ENSR CONSULTING AND ENGINEERING — BORING NUMBER: MW-5

CLIENT: TVA/[illegible] CEOS
NAME: [illegible]
LOCATION: [illegible]
[illegible]: 6883-[illegible]
BY: [illegible] APPROVED BY: J. [illegible]
DRILLED BY: Discovery Drilling
METHOD: ODEX Direct Air Rotary

BORING DEPTH (ft): 54
BORING DIAMETER (in): 8
WELL DEPTH (ft): 47
WELL DIAMETER (in): 4
REFERENCE ELEVATION (ft): [illegible]
CASING STICKUP (ft): 2.0
FIELD PARTY: E. [illegible]

SCREEN LENGTH (ft): 10
SCREEN TYPE: Slotted PVC
SLOT SIZE (in): 0.020
FILTER PACK: [illegible]
DATE STARTED: 7/[illegible]/93
DATE COMPLETED: 7/[illegible]/93

DESCRIPTION AND REMARKS
Upper surface is hummocky, uneven or irregular slope, sparse thin active grassy vegetation in tussocks, boulders and cobbles in well-graded silty clayey sand matrix, trace metal, wood fragments (demolition debris). Local fills and dumping.
Dark brown variable silty to clayey medium sand (SM/SC) with some fine and coarse sand, and minor clayey. Damp to moist possible faint decayed hydrocarbon or soil organic odor, no staining, large clast to matrix ratio 1:1
Same as above, but little or no clay in matrix, slightly dryer (dry to damp).
Medium brown-gray poorly graded medium SAND (SP) at 7.5 to 8.5 feet. Damp, possible faint petroleum odor. Note this material may be sewer trench backfill. Well boring is sited exactly over the projected sewer line alignment. This sand corresponds to depth of sewer line in TP-4 and TP-5.
Dense bouldery zone with cobbles and interstitial medium to coarse silty sand (SM). Dry to damp. Possible faint decayed hydrocarbon or petroleum odor. No staining. Large clast to matrix ratio = 8:1 to 10:1
Sparse cobble zone with possible random boulders in dark brown medium silty-clayey sand (SM/SC) matrix. Damp. Possible decayed hydrocarbon odor
Driller reports possible fuel odor at 18-20 feet.
Same as above.
Loose boulder-cobble zone with interstitial dark brown fine to medium silty sand (SM) with trace clay. Damp to moist or wet in local thin water-bearing zones above 30 feet and below static water level (approximately 30 feet). Possible faint decayed hydrocarbon odor.
Thin moist zones around 30-37 feet.
Sporadic poorly-graded medium SAND (SP) at 40 to 50 feet interval. Damp. Possible decayed hydrocarbon odor
Transition to sparse cobble zone in dark brown fine to coarse SILTY SAND.
Total depth = 54 feet. Free groundwater first encountered at 30-37 feet. Static water level 30.0 feet in boring.

WELL DIAGRAM: 4" SCH. 40 PVC; BENT GROUT; BENT SEAL; 4" PVC Screen; SAND PACK

ENSR CONSULTING AND ENGINEERING — BORING NUMBER: MW-6

CLIENT: TVA/[illegible] CEOS
PROJECT NAME: [illegible]
PROJECT LOCATION: Cane [illegible] LRRS
JOB NUMBER: 6883-[illegible]
LOGGED BY: [illegible] APPROVED BY: J. [illegible]
DRILLED BY: Discovery Drilling
METHOD: ODEX Direct Air Rotary

BORING DEPTH (ft): 45
BORING DIAMETER (in): 8
WELL DEPTH (ft): 35
WELL DIAMETER (in): 4
REFERENCE ELEVATION (ft): [illegible]
CASING STICKUP (ft): 3.0
FIELD PARTY: E. [illegible]

SCREEN LENGTH (ft): [illegible]
SCREEN TYPE: Slotted PVC
SLOT SIZE (in): 0.020
FILTER PACK: [illegible]
DATE STARTED: 7/[illegible]/93
DATE COMPLETED: 7/[illegible]/93

DESCRIPTION AND REMARKS
Ground surface is wet to saturated tundra with grassy tussocks, moss and lichens on bouldery-sandy substrate, minor rills and ponding, no hydrocarbon or petroleum sheen.
Dark brown CLAYEY SAND (SC), fine to medium, with gravel and trace cobbles. Wet to saturated, slightly plastic and cohesive. No stain or odor
Same as above, but more silt and gravel, and diminishing moisture to moist to wet. Sporadically saturated. Possible faint hydrocarbon or organic odor. No stain or sheen.
Dense boulder zone with approximately 50% interstitial medium to coarse SILTY SAND (SM), with gravel. Damp to moist, possible faint hydrocarbon or decayed petroleum odor, no discernible sheen. Slight increase in clay content and diminishing odor with depth.
Dark brown SILTY CLAYEY SAND (SM/SC), fine to medium, with cobbles and gravel. Damp. Possible decayed petroleum or hydrocarbon odor. No stain.
Same as above.
Same as above, but diminishing clay and silt content with depth. Moderate decayed possible hydrocarbon odor, no stain.
Static water level at 23 feet in boring after drilling to total depth (possible confined aquifer).
Transition to diminishing fines and more uniform sands, increasing moisture with depth.
Dark gray medium to coarse SAND (SW) with gravel and some cobbles and small boulders. Decreasing fines and increasing moisture with depth. No discernible odors this interval.
First consistent saturated or water-bearing zone at 33-35 feet.
Dense, resistant boulder zone, with interstitial dark brown to gray well graded medium to coarse sand (SW) with silt and trace clay. Variably moist to saturated. No stain or odor.
Dark gray medium to coarse well graded SAND (SW) with minor gravel and trace silt and clay. Saturated, no stain, odor, or sheen.
Total depth = 45 feet. First free groundwater encountered at 33-35 feet. Static water level at 23 feet in boring after drilling to total depth.

WELL DIAGRAM: 4" SCH. 40 PVC; BENT GROUT; 4" PVC Screen; SAND PACK

8

40 353

ENSR CONSULTING AND ENGINEERING BORING NUMBER:WM-3

CLIENT: TVA/[illegible]

PROJECT: [illegible]

BORING DEPTH (ft): 74.5

WELL DEPTH (ft): 74.5

WELL DIAMETER (in): 4

SCREEN TYPE: Slotted PVC

FILTER PACK: [illegible]

DRILLED BY: [illegible] Drilling

METHOD: ODEX [illegible] Air Rotary

DEPTH	LENGTH	RECOVERY	SAMP. NO.	SAMP. TYP.	BLOWS/FT.	PID	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS	WELL DIAGRAM
									[illegible]	

ENSR CONSULTING AND ENGINEERING BORING NUMBER:WM-4

CLIENT: TVA/[illegible]

PROJECT NAME: [illegible]

PROJECT LOCATION: [illegible]

JOB NUMBER: [illegible]

LOGGED BY: [illegible] APPROVED BY: [illegible]

DRILLED BY: [illegible] Drilling

METHOD: ODEX [illegible] Air Rotary

BORING DEPTH (ft): [illegible]

WELL DEPTH (ft): [illegible]

WELL DIAMETER (in): 4

REFERENCE ELEVATION (ft): [illegible]

CASING STICKUP (ft): [illegible]

FIELD PARTY: [illegible]

SCREEN TYPE: Slotted PVC

SLOT SIZE (in): [illegible]

FILTER PACK: [illegible]

DATE STARTED: [illegible]

DATE COMPLETED: [illegible]

DEPTH	LENGTH	RECOVERY	SAMP. NO.	SAMP. TYP.	BLOWS/FT.	PID	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS	WELL DIAGRAM
									Dark brown SILTY CLAYEY SAND, [illegible] boulders and large cobbles. [illegible]	
									[illegible]	

ENSR CONSULTING AND ENGINEERING BORING NUMBER WM-1

CLIENT: [illegible] CEUS
PROJECT NAME: [illegible]
PROJECT LOCATION: Cape Romanzof LRRS
JOB NUMBER: [illegible]-000
LOGGED BY: [illegible] APPROVED BY: [illegible]
DRILLED BY: [illegible] Drilling
METHOD: [illegible] Direct Air Rotary

BORING DEPTH (ft): 64
BORING DIAMETER (in): 8
WELL DEPTH (ft): 64
WELL DIAMETER (in): 4
REFERENCE ELEVATION (ft): [illegible]
CASING STICKUP (ft): 1.5
FIELD PARTY: [illegible]

SCREEN LENGTH (ft): [illegible]
SCREEN TYPE: Slotted PVC
SLOT SIZE (in): 0.020
FILTER PACK: [illegible] silica
DATE STARTED: 7/[illegible]/93
DATE COMPLETED: 7/[illegible]/93

DEPTH (feet)	LENGTH	RECOVERY	SAMP. NO.	SAMP. TYP.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS	WELL DIAGRAM
								SM/SC	Dark brown silty-clayey SAND, medium to coarse, with gravel, moist to wet, moderate hydrocarbon odor; no soil staining, but light hydrocarbon sheen on shallow perched water at ground surface [illegible] roadway location, trace root matter, occasional cobbles.	
			WM-1 -2.5	SS						
5			WM-1 -5	SS					Same as above, but increasing moisture to wet or saturated, and increase in gravel up to 2-3" diameter, diminishing hydrocarbon odor to faint.	
			WM-1 -7.5	SS					Very coarse gravel to cobbles or boulders below 7 feet. [illegible]	
10									Very dense cobble/boulder zone [illegible]	
			WM-1 -18	CS				SW	Dark brown to gray fine to coarse SAND with trace silt, damp, moderate hydrocarbon odor, no stain, sample collected from air discharge cyclone, [illegible]	
20			WM-1 -20	CS				SW	[illegible]	
			WM-1 -22	CS					Same as above.	
			WM-1 -25						Rest hole approximately 1 hour to observe static water level, no free groundwater [illegible]	
									Same as above.	
30										4" SCH 40 PVC
40								SW		BENT GROUT
			WM-1 -44	CS					Same as above	BENT SEAL
			WM-1 -48	CS					Same as above	
50										
			WM-1 -54	CS					Same as above	4" PVC Screen / SAND PACK
60									Beginning of boulder zone	
									Large cobble or boulder at [illegible] feet, water in fracture or interstitial space [illegible]	
									Water bearing zone.	
									Total depth = 64 feet. [illegible]	
70										

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ENSR CONSULTING AND ENGINEERING BORING NUMBER WM 2

CLIENT: [illegible] CEUS
PROJECT NAME: [illegible]
PROJECT LOCATION: Cape Romanzof LRRS
JOB NUMBER: [illegible]-000
LOGGED BY: [illegible] APPROVED BY: [illegible]
DRILLED BY: [illegible] Drilling
METHOD: [illegible] Direct Air Rotary

BORING DEPTH (ft): [illegible]
BORING DIAMETER (in): 8
WELL DEPTH (ft): [illegible]
WELL DIAMETER (in): 4
REFERENCE ELEVATION (ft): [illegible]
CASING STICKUP (ft): 1.5
FIELD PARTY: [illegible]

SCREEN LENGTH (ft): [illegible]
SCREEN TYPE: Slotted PVC
SLOT SIZE (in): [illegible]
FILTER PACK: [illegible] silica
DATE STARTED: 7/[illegible]/93
DATE COMPLETED: 7/[illegible]/93

DEPTH (feet)	LENGTH	RECOVERY	SAMP. NO.	SAMP. TYP.	BLOWS/FT.	PID (ppm)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION AND REMARKS	WELL DIAGRAM
								SM	Dark brown SILTY SAND with gravel and some cobbles [illegible]. Damp. No stain or odor.	
			WM-2 -2.5	SS						
5			WM-2 -5	SS						
									Boulder zone, [illegible] with silty [illegible] to coarse sand with trace clay. Damp. No stain or odor.	
			WM-2 -7.5	CS					Same as above.	
10			WM-2 -10	CS					Same as above.	
								SM	Dark brown SILTY SAND, fine to coarse with trace to minor clay and some cobbles. Damp to moist. No stain or odor.	
			WM-2 -15	SS					Same as above.	
20			WM-2 -20	CS					Large boulders or dense boulder zone, trace to some silty coarse sand or gravel. No stain or odor.	
30			WM-2 -29	CS					Weathered [illegible] boulder zone with clayey gravel or trace clay in silty gravel in interstitial spaces between boulders. [illegible]	3/4" OF SCH 40 / BENT GROUT
			WM-2 -35	SS					Same as above, but increasing proportion of cobbles and boulders and less interstitial material, [illegible]	
40									[illegible]	
			WM-2 -44	CS					Same as above.	BENT SEAL
50									First encounter with free groundwater at [illegible] feet, saturated [illegible] silty sand. Increasing water production with depth.	4" PVC Screen / SAND PACK
									Increasing water production with depth.	
60									Same as above.	
									Total depth = [illegible] feet. Static water level in boring at [illegible] feet. Estimated production during drilling = 3-4 gpm.	
70										

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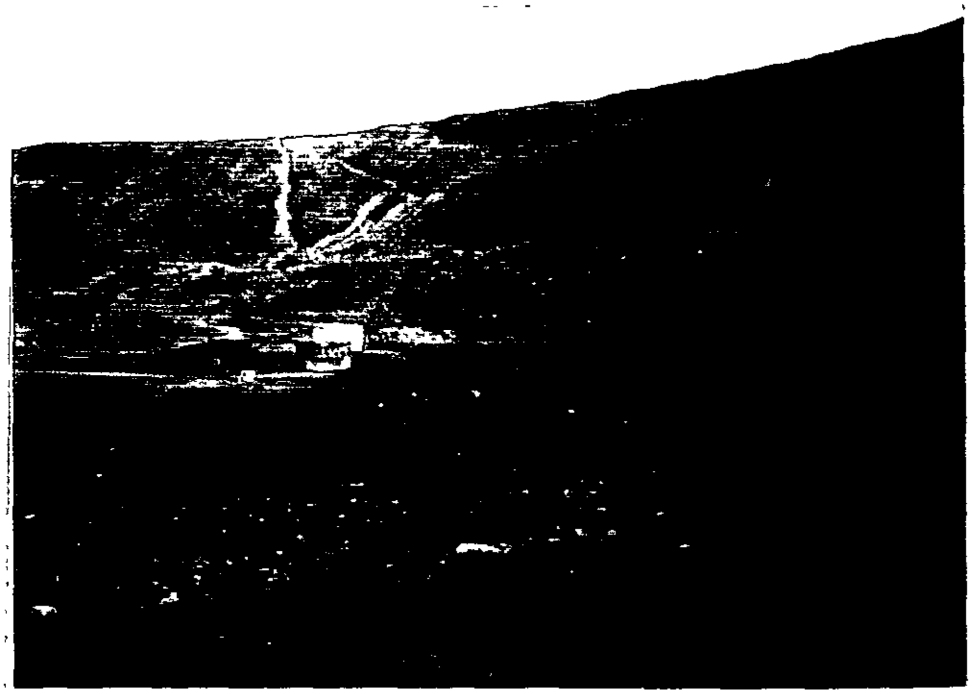
APPENDIX E

PHOTOGRAPHS

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Soil Containment Cell #3 (Lower Camp)



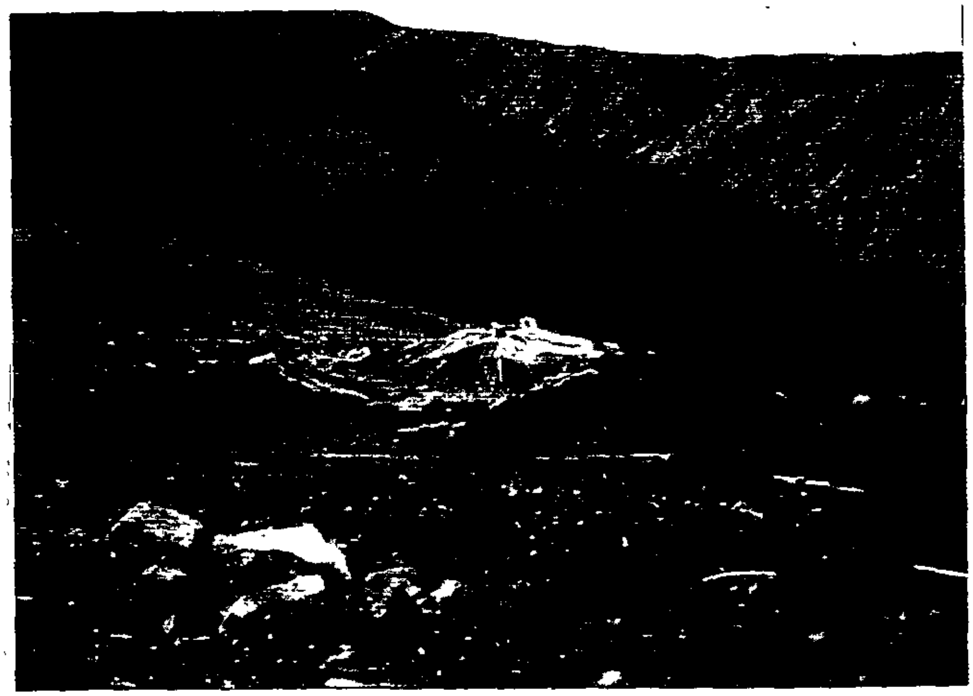
INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Drum Storage Area

40 356

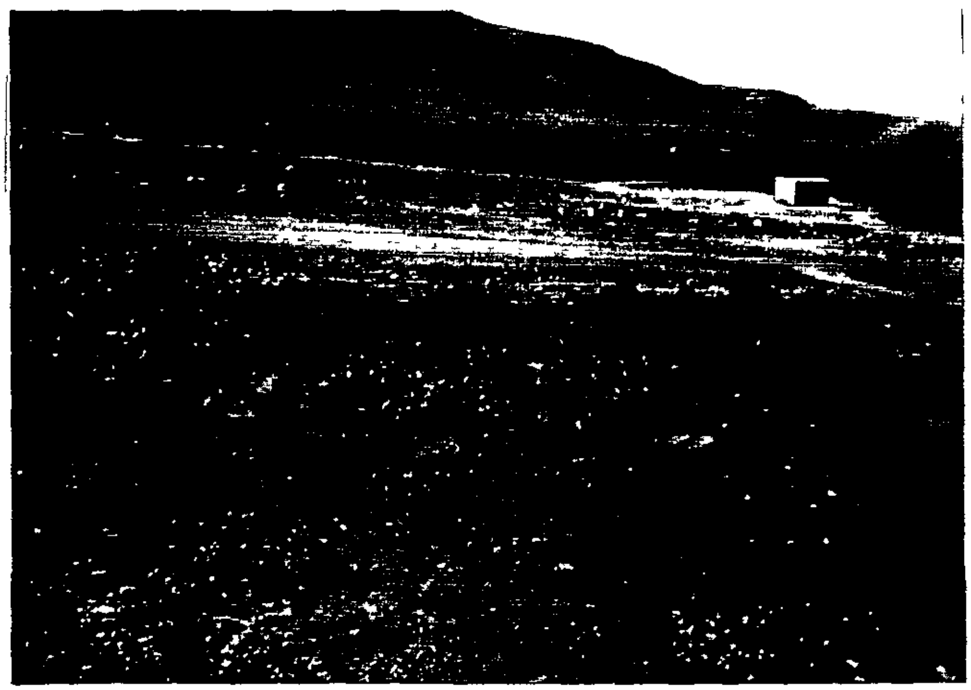
INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Soil Containment Cell #3 (Lower Camp)



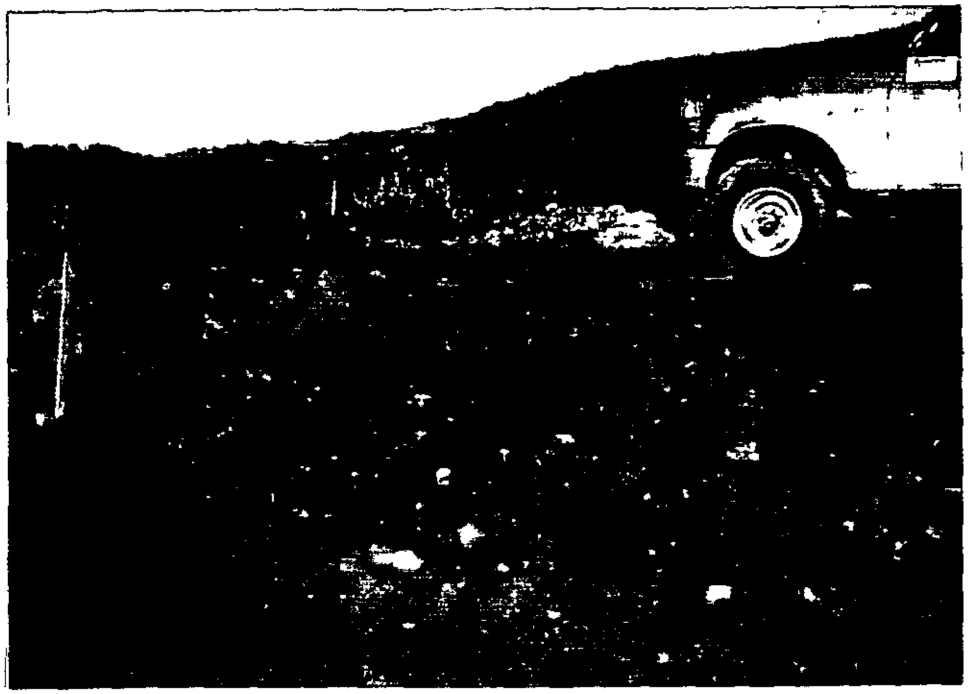
INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Waste Accumulation Area #3 Soil Excavation



INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Drum Storage Area Showing Pit Wall (Note Contamination Layers)



INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Drum Storage Area

40 359

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Summer Fuel Barge

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

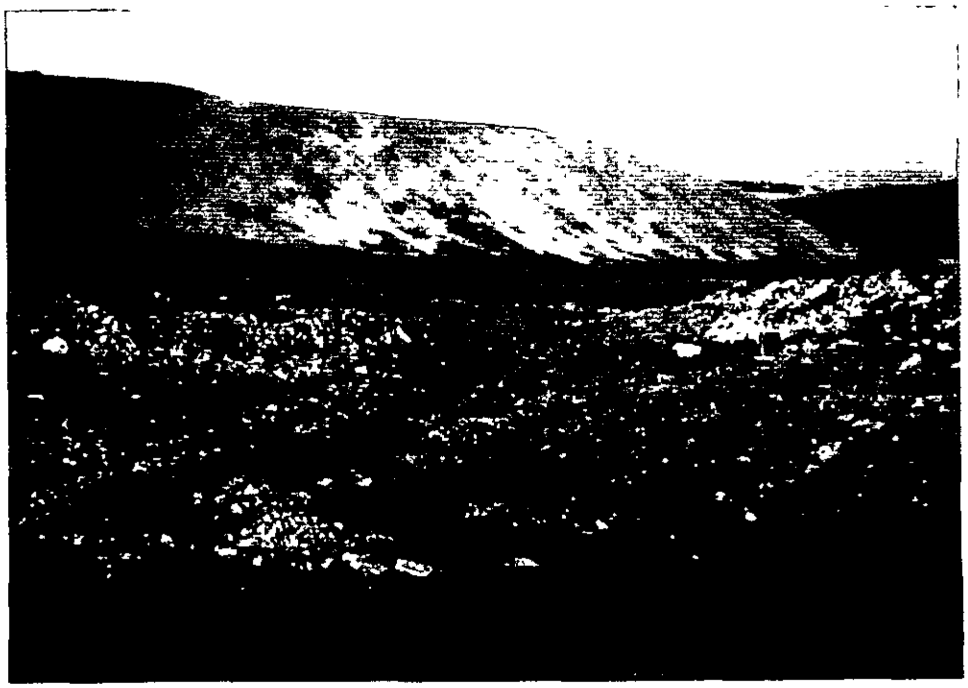
Soil Containment Area #1 (Beach Site)

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Landfill #2 After Capping

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

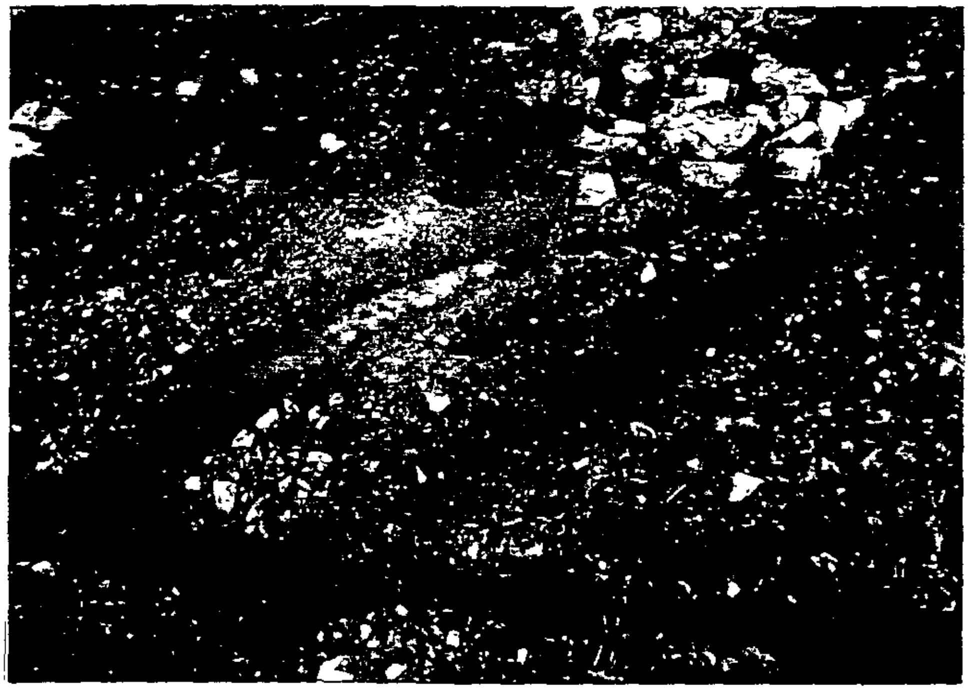
Northeast Portion of Landfill #2 Showing Seeps & MW-4



INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

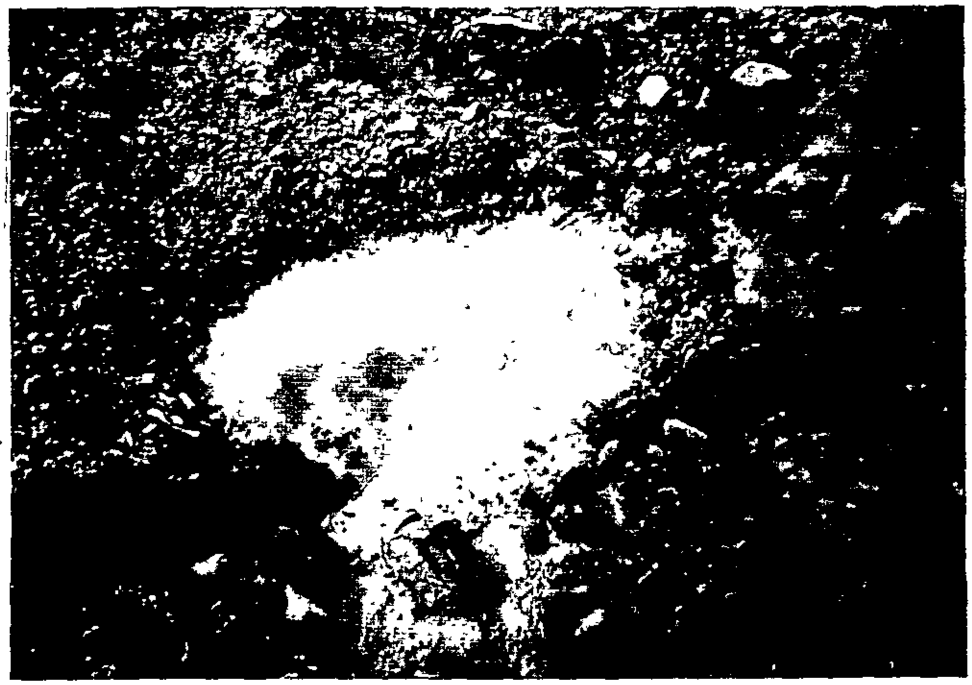
40 361

Toe of Landfill #2 Before Capping (Note Seeps)



INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

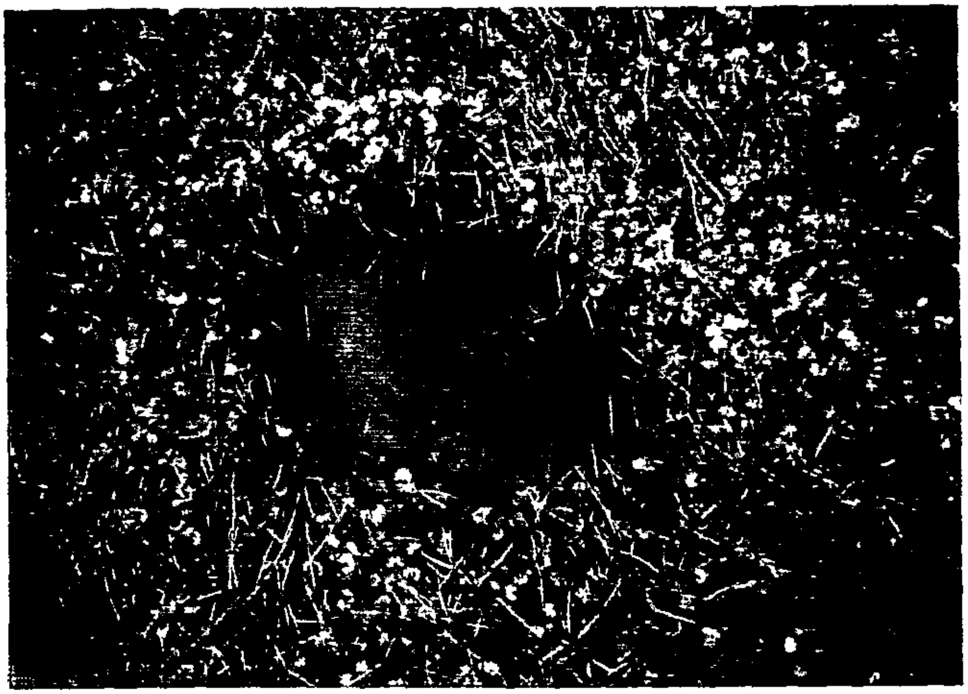
Toe of Landfill #2 Before Capping



40 362

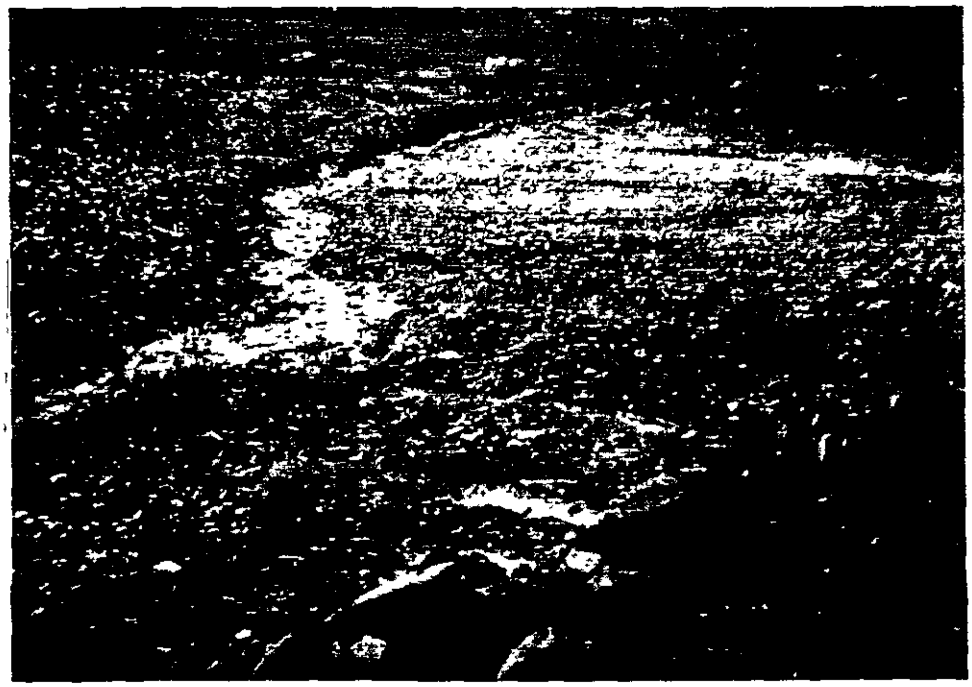
INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Landfill #2 (Spring Bubbling Water)



INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Landfill #2 After Capping



INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

40 363

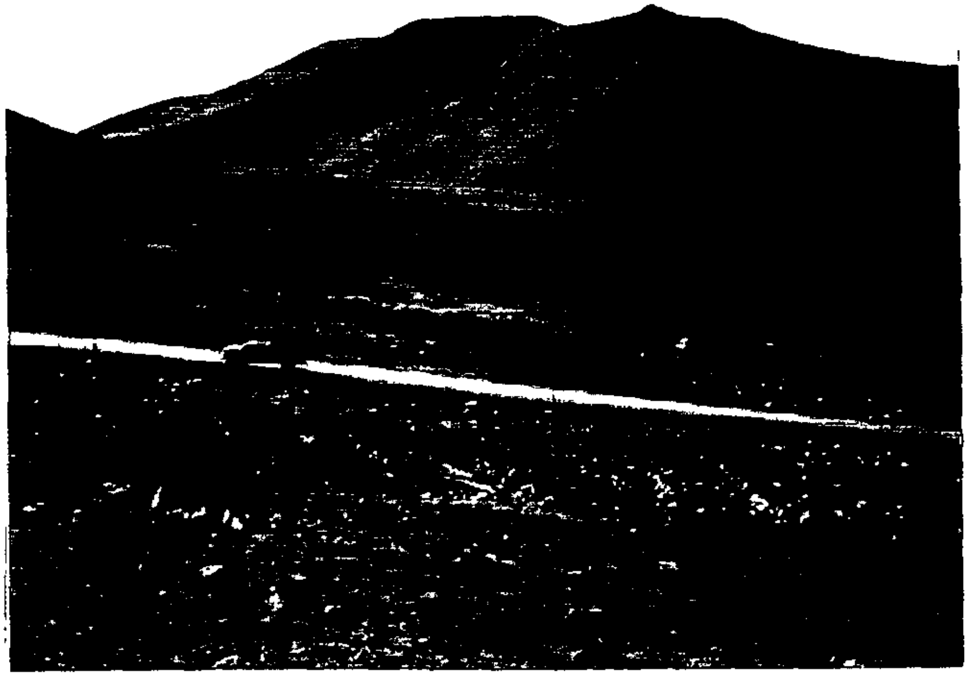
Southern Slope of Landfill #2

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Landfill #2 Covered With Hypalon Membrane

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Landfill #2 (Membrane Covered With Sand & Pit Run Material



INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Radar Site at Upper Camp/ Residential Dome at Lower Camp

40 364

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

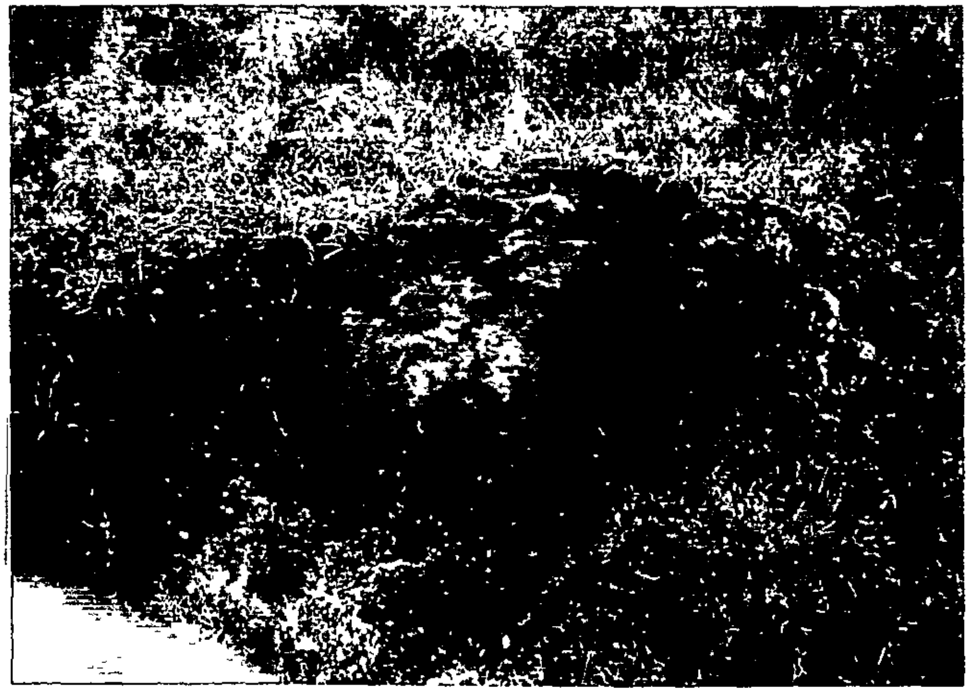
Granitoid Bedrock Along Road West Of Landfill (For Location See Fig. 8)

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Morainal Ridge (For Location See Fig. 8)

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Hummock Mounds With Burrows



INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Weathered Granitoid

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INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Solifluction Lobes North Of Runway

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Abandoned Vehicles Near Upper Camp

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Tent Platforms & Abandoned Drums on "Flat Top" Hill (See Encl. 1)

INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

DOD Benchmark on top of "Flat Top" Hill

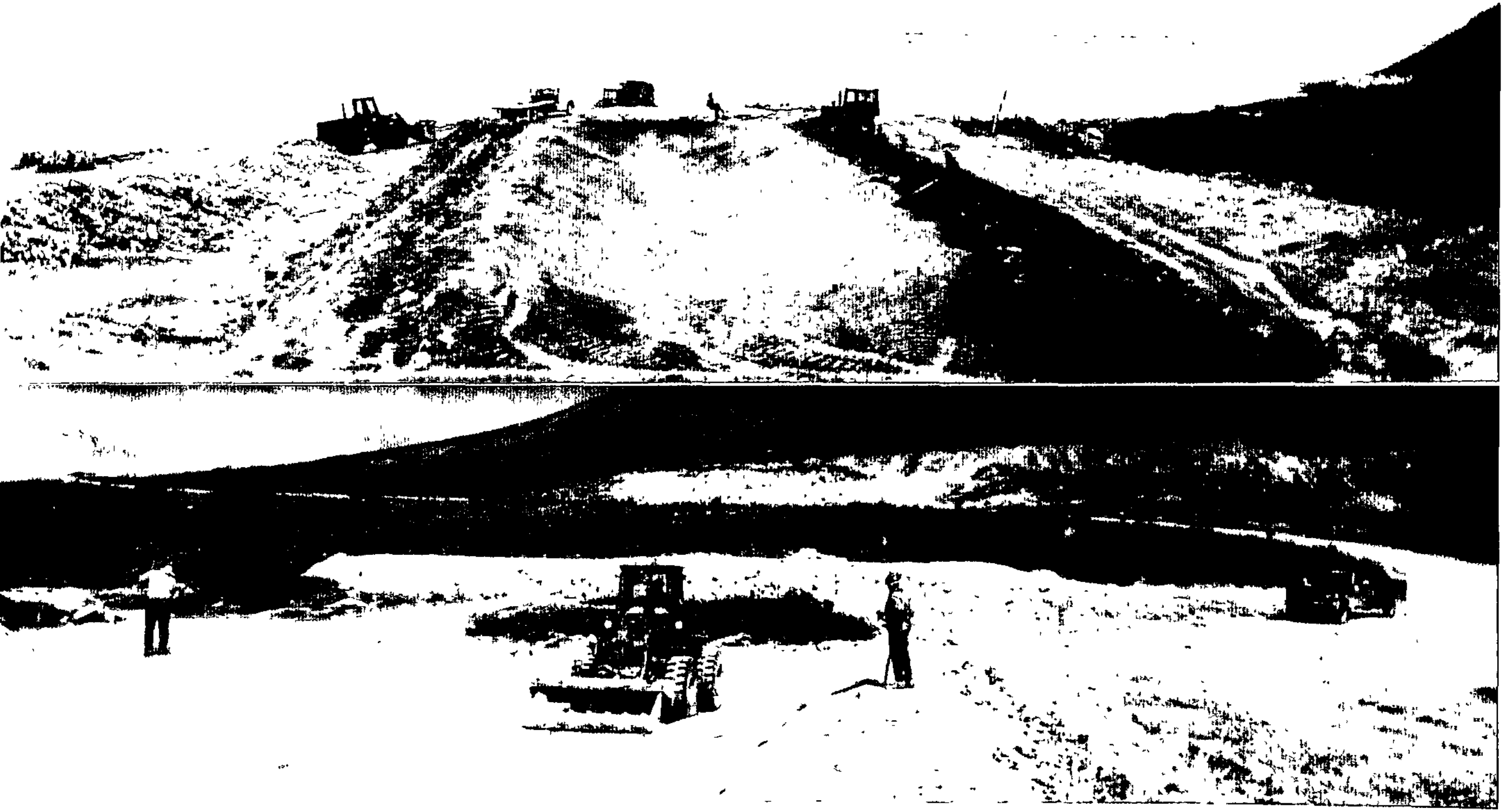
INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

40 359

Granitoid Bedrock On Top Of "Flat Top" Hill North Of Runway

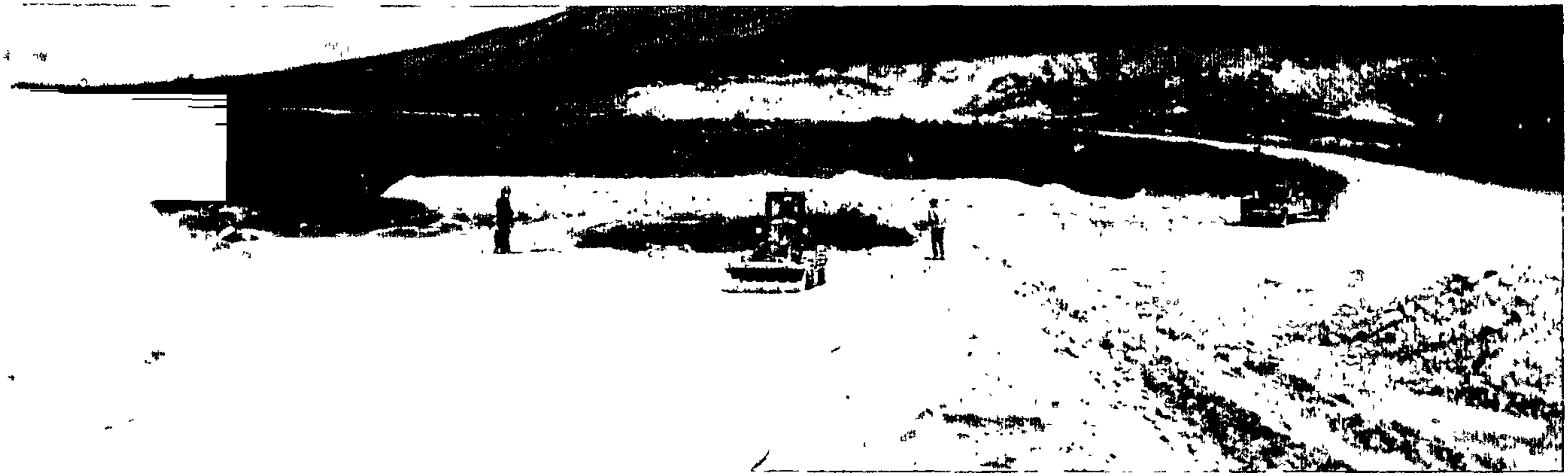
INSTALLATION RESTORATION PROJECT	CAPE ROMANZOF LRRS CONTAMINATED SOIL REMOVAL AND LANDFILL CAPPING PROJECT

Quaternary Volcano Between Cape Romanzof LRRS and Bethel AK



CAPE ROMANZOF LRRS Beach Soil Containment Cell Construction

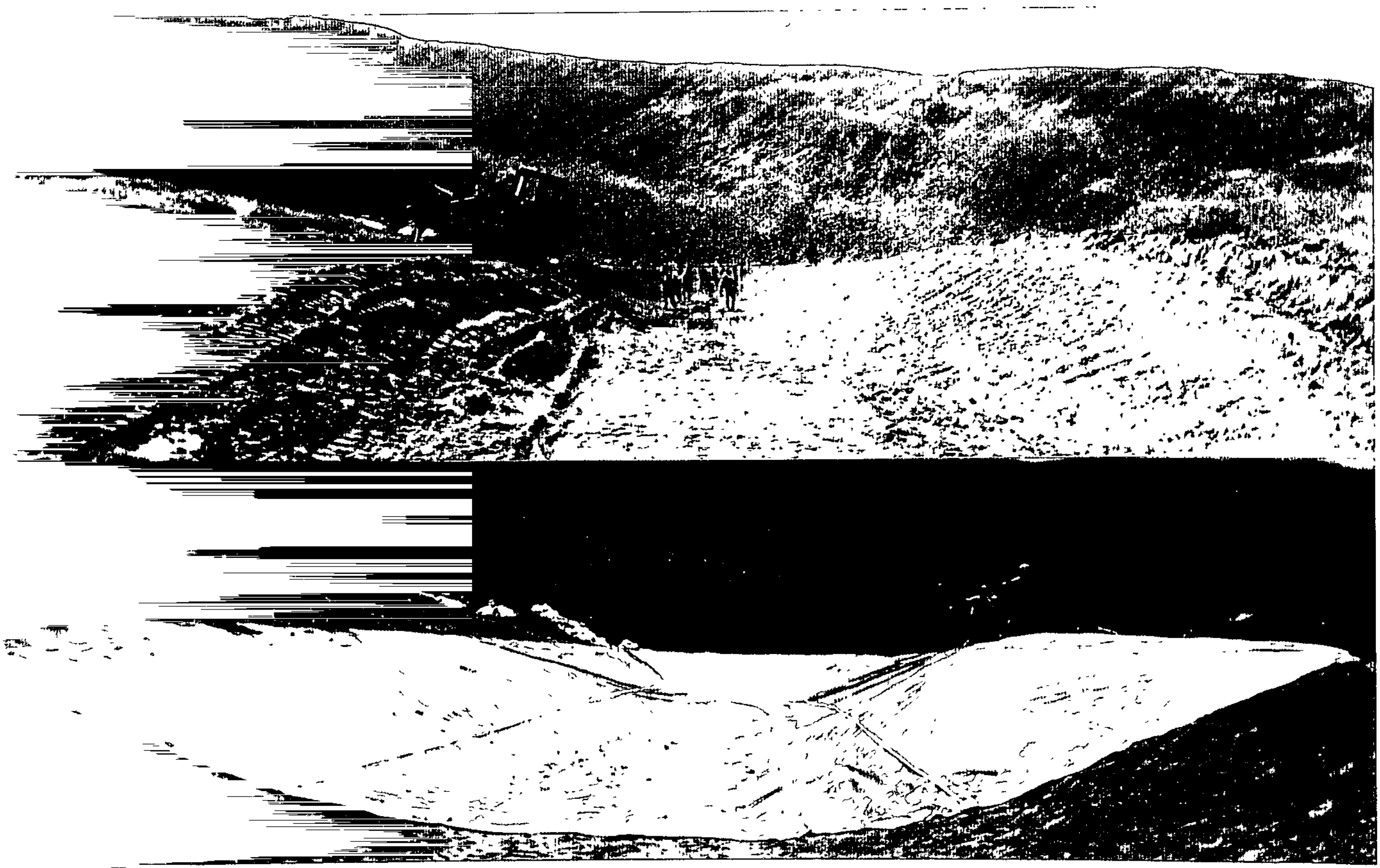
40 370



CAPE ROMANZOF LRRS Beach Area Soil Containment Cell Construction

CAPE ROMANZOF LRRS Drum Storage Area Contaminated Soil Removal

40 371



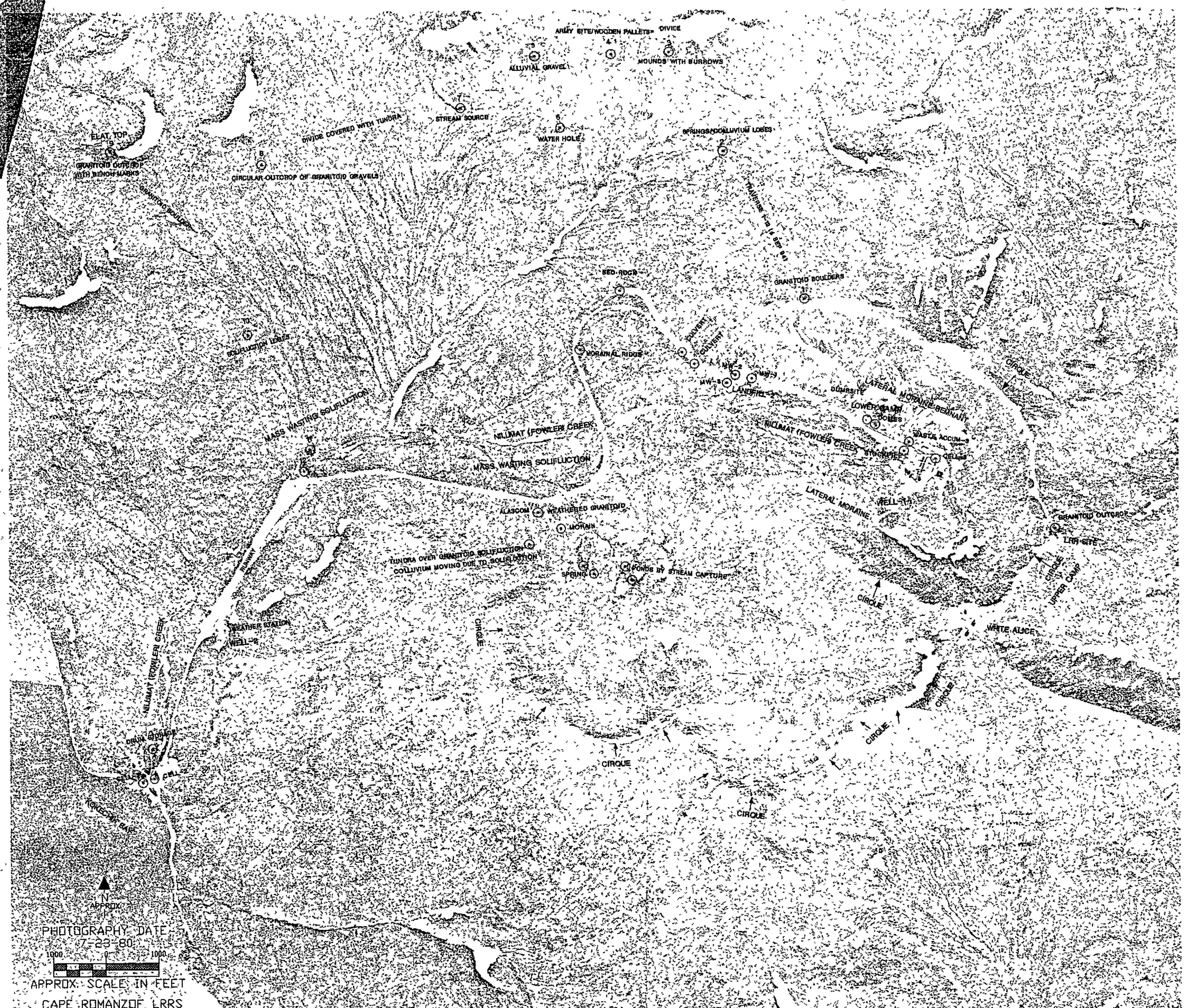
CAPE ROMANZOF LRRS Lower Camp Soil Containment Cell #3 Construction

40 372

CAPE ROMANZOF LRRS Landfill - 2 Capping

40 373

ENCLOSURE



DEPARTMENT of the AIR FORCE

CAPE ROMANZOF LRRS

AERIAL PHOTOGRAPH

OPERATING ENGINEERS	1.0. 1994	ENCLOSURE

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ADMINISTRATIVE RECORD

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