



**DRIFTWOOD BAY RRS
ALASKA**

**ADMINISTRATIVE RECORD
COVER SHEET**

AR File Number 05

File: 5 1
S.H. 17A-14-1
05



UNITED STATES AIR FORCE
611TH AIR SUPPORT GROUP
611TH CIVIL ENGINEER SQUADRON
ELMENDORF AFB, ALASKA

FINAL
PRELIMINARY ASSESSMENT/SITE INSPECTION
RADIO RELAY STATION
DRIFTWOOD BAY
UNALASKA ISLAND, ALASKA

FILE COPY

JANUARY 1996

**FINAL
PRELIMINARY ASSESSMENT/SITE INSPECTION
RADIO RELAY STATION
DRIFTWOOD BAY
UNALASKA ISLAND, ALASKA**

Prepared for

United States Air Force
611th Civil Engineer Squadron
21885 Second Street
Elmendorf AFB
Anchorage, Alaska 99506-4420

January 1996

Prepared by

EMCON Alaska, Inc
4701 Business Park Boulevard, Suite 36
Anchorage, Alaska 99503-7166

Project 55210-019 000 Task 8

CONTENTS

TABLES AND FIGURES	iii
ACRONYMS	iv
SUMMARY	vi
1 INTRODUCTION	1
1 1 Objectives	1
1 2 Site Location and Background	1
1 3 Previous Investigations	2
1 4 Environmental Setting	5
2 PROJECT ACTIVITIES	7
2 1 Site Inspection Objectives	7
2 2 Field Activities	7
2 3 Laboratory Analyses	10
2 4 Regulatory Framework	10
3 FINDINGS	12
3 1 IRP Site OT01 Former Composite Building Area	13
3 2 AOC01 Composite Building Landfill	18
3 3 AOC02 Septic Tank and Leach Field	19
3 4 AOC03 Composite Building POL Outfall	19
3 5 AOC04 Former Water Supply Pumphouse	25
3 6 AOC05 Former Lighting Vault	25
3 7 AOC06 Drum Storage Area	28
3 8 AOC07 Airstrip MOGAS Tank	34
3 9 AOC08 Old Disposal Area	37
3 10 AOC09 POL Tank Area	40
3 11 AOC10 Fuel Pipeline	46
3 12 AOC11 Former USTs	47
REFERENCES	
LIMITATIONS	

TABLES AND FIGURES

Tables

1	Sample Locations, Analyses, and Inspection Areas	8
2	Former Composite Building Area and White Alice Arrays	15
3	Former Composite Building	17
4	Former Composite Building Landfill	20
5	AOC03 - Composite Building POL Outfall	21
6	AOC03 - Composite Building POL Outfall	23
7	AOC03 - Former Lighting Vault	24
8	AOC05 - Former Drum Storage Area	27
9	AOC06 - Former Drum Storage Area	29
10	AOC06 - Former Drum Storage Area	33
11	AOC07 - Former Drum Storage Area	35
12	AOC07 - Former Airstrip MOGAS Tank	36
13	AOC08 - Old Disposal Site	39
14	AOC09 - POL Tank Area	42
15	AOC09 - POL Tank Area	44
16	AOC09 - POL Tank Area	45
17	AOC10 - Fuel Pipeline	48
18	1991 Analytical Results	50

Figures

1	Site Location Map	3
2	Vicinity Map	4
3	Former Composite Building Area & POL Outfall (OT01, AOC03)	14
4	Former Lighting Vault, Drum Storage Area & Airstrip MOGAS Tank	26
5	Old Disposal Area (AOC08)	38
6	POL Tank Area (AOC09) Sample Locations & Detail Map	41
7	Fuel Pipeline Area (AOC10)	49

NPDL	North Pacific Division Laboratory
PA	preliminary assessment
PA/SI	preliminary assessment/site inspection
PCBs	polychlorinated biphenyls
Pest	organochlorine pesticides
PID	photoionization detector
POL	petroleum, oil, and lubricant
ppb	parts per billion
ppm	parts per million
QAPP	Quality Assurance Program Plan
QAR	Quality Assurance Report
RRS	Radio Relay Station
SAP	sampling analysis plan
SI	site inspection
TPH	total petroleum hydrocarbons
TSCA	Toxic Substances Control Act, as amended
USACE	U S Army Corps of Engineers
USAF	U S Air Force
USEPA	U S Environmental Protection Agency
UST	underground storage tank
VOAs	volatile organic aromatics
VOCs	volatile organic compounds
WACS	White Alice Communications System

SUMMARY

The United States Army Corps of Engineers (USACE) retained EMCON Alaska, Inc (EMCON) to conduct a Preliminary Assessment/Site Inspection (PA/SI) for the U S Air Force (USAF) at the former Radio Relay Station (RRS), Driftwood Bay, Alaska. The former RRS was located on the northeast side of Unalaska Island in the Aleutian Islands chain and was deactivated in 1977. All structures were demolished or removed in 1991. The RRS was formerly known as a WACS (White Alice Communication System). Interviews, file reviews, aerial photograph reviews, and a site inspection were conducted to determine the potential environmental liabilities at the site. The site inspection included both field screening with a photoionization detector (PID) and soil sampling for polychlorinated biphenyls (PCBs), pesticides, diesel-range organics (DRO), gasoline-range organics (GRO), total petroleum hydrocarbons (TPH), metals, and volatile organic compounds (VOCs).

The USAF has designated one Installation Restoration Program (IRP) site and eleven areas of concern (AOCs) at the Driftwood Bay RRS. A summary of the findings and recommendations for each site are described below.

IRP site OT01 (Former Composite Building Area and Associated White Alice Arrays)
Three soil samples were collected for PCB analysis from the vicinity of the two former feedhorn locations. PCB concentrations were not detected in these samples. Two soil samples were collected from the vicinity of the former composite building and one soil sample was collected from the gravel road east of the former building for PCB analysis. Concentrations of PCBs were not detected. One soil sample was collected for GRO, DRO, and benzene, toluene, ethylbenzene, and xylenes (BTEX) analyses in the approximate location of a former 110-gallon fuel tank. DRO was detected at 1,300 parts per million (ppm), but the chromatogram for this sample was noted by the analytical laboratory as not resembling diesel. Further investigation at the former 110-gallon tank location is recommended.

AOC01 (Composite Building Landfill) Subsidence holes have appeared at the former water cistern located at this area. An asbestos cell located in this area also appears to be subsiding. The asbestos warning sign is no longer in place vertically. Soil sample analytical results for one soil sample collected from the northeast side of the landfill were non-detect (ND) for GRO, 550 ppm for DRO, and 16,000 ppm for TPH. Arsenic was detected at 8 ppm, barium at 86 ppm, chromium at 7 ppm, and lead at 9 ppm in this

(ADEC) Level A cleanup levels are assumed for this area. No further action is recommended for this AOC.

AOC06 (Drum Storage Area) The drum storage area is located west of the airstrip and includes the former drum storage area proper, the former wooden storage building, and a trench parallel to the access road. In the former drum storage area proper, PID field screening was conducted on surface soils. The readings observed ranged from 0.8 ppm to 3.5 ppm. A laboratory confirmation sample was collected from surface soils in this area. TPH was reported at 1,330 ppm, GRO was reported at 24 ppm, and DRO was detected at 1,210 ppm in this sample. Twenty-one VOCs were detected above MDLs but below MRLs. A PID survey was conducted in the trench area soils yielding results from 1.2 to 3.3 ppm. A laboratory confirmation sample was collected from the area which exhibited 3.3 ppm. Analytical results indicated a TPH concentration of 30 ppm and DRO of 32 ppm. Six VOCs were detected above the MDL, but below the MRL. A PID survey was conducted in soils at the former wooden storage building area. The screening results yielded readings ranging from 3.2 ppm to 143 ppm. A laboratory confirmation sample was collected from surface soils. GRO was detected at 78 ppm and DRO was detected at 1,640 ppm. Fifteen VOCs were detected above the MDL, but below the MRL. A visual search and metal detector survey were conducted in an attempt to locate a reported 500-gallon emergency MOGAS tank. No evidence of the tank or its possible location was observed. Additional soil sample collection at the former drum storage area and sediment sample collection is recommended to determine if downgradient sediments in Snoffy Creek have been impacted. No further action is recommended in the trench area. Further site characterization is recommended in the area of the former wooden storage building.

AOC07 (Airstrip MOGAS Tank) A PID survey was conducted in the approximate location of the former 2,500-gallon capacity tank. PID readings ranged from 1.1 ppm to 2.1 ppm. A soil sample was collected from the location with a PID reading of 2.1 ppm. GRO and BTEX were not detected. Total metals analysis yielded a lead concentration of 3 ppm. No further action is recommended for this AOC.

AOC08 (Old Disposal Area) The extent of the old disposal area and wastes disposed is unknown. Debris and a few 55-gallon drums were visible along the roadside during the 1995 site visit. A surface soil and surface water sample were collected on the east side of the disposal area where the road intersects with Humpy Creek. The soil sample analytical results indicated concentrations of TPH at 37 ppm and DRO at 30 ppm. GRO was not detected. Concentrations of arsenic, barium, chromium, lead, and selenium were detected above the MRLs. Thirteen VOCs were detected at concentrations above the MDL, but below the MRL. The surface water sample did not contain detectable concentrations of TPH, GRO, DRO, metals, pesticides, or PCBs. Two VOCs were detected above the MDL, but were also detected in the method blank. A geophysical survey is recommended to determine the horizontal and vertical extent of the disposal area. The collection of sediment samples in Humpy Creek and additional soil and water samples may also be

In general, it is recommended that any further demolition activities, remedial actions, and additional site characterization be conducted as part of one work order. Risk-based cleanup levels should be determined and/or negotiated in coordination with ADEC.

1 INTRODUCTION

The USACE retained EMCON under Delivery Order No 0019, Contract Number DACA85-93-D-0013, Indefinite Delivery Architect-Engineer Contract for Hazardous, Toxic, and Radiological Waste Program, Various Locations, Alaska. Delivery Order No 0019 authorized EMCON to conduct initial site inspection (SI) and site assessment activities in the vicinity of former and existing facilities related to the former USAF RRS at Driftwood Bay, Alaska

1.1 Objectives

The objectives of the SI were to identify the areas of contamination, classify potential hazards found in the area, and develop a Management Action Plan (MAP) for the site

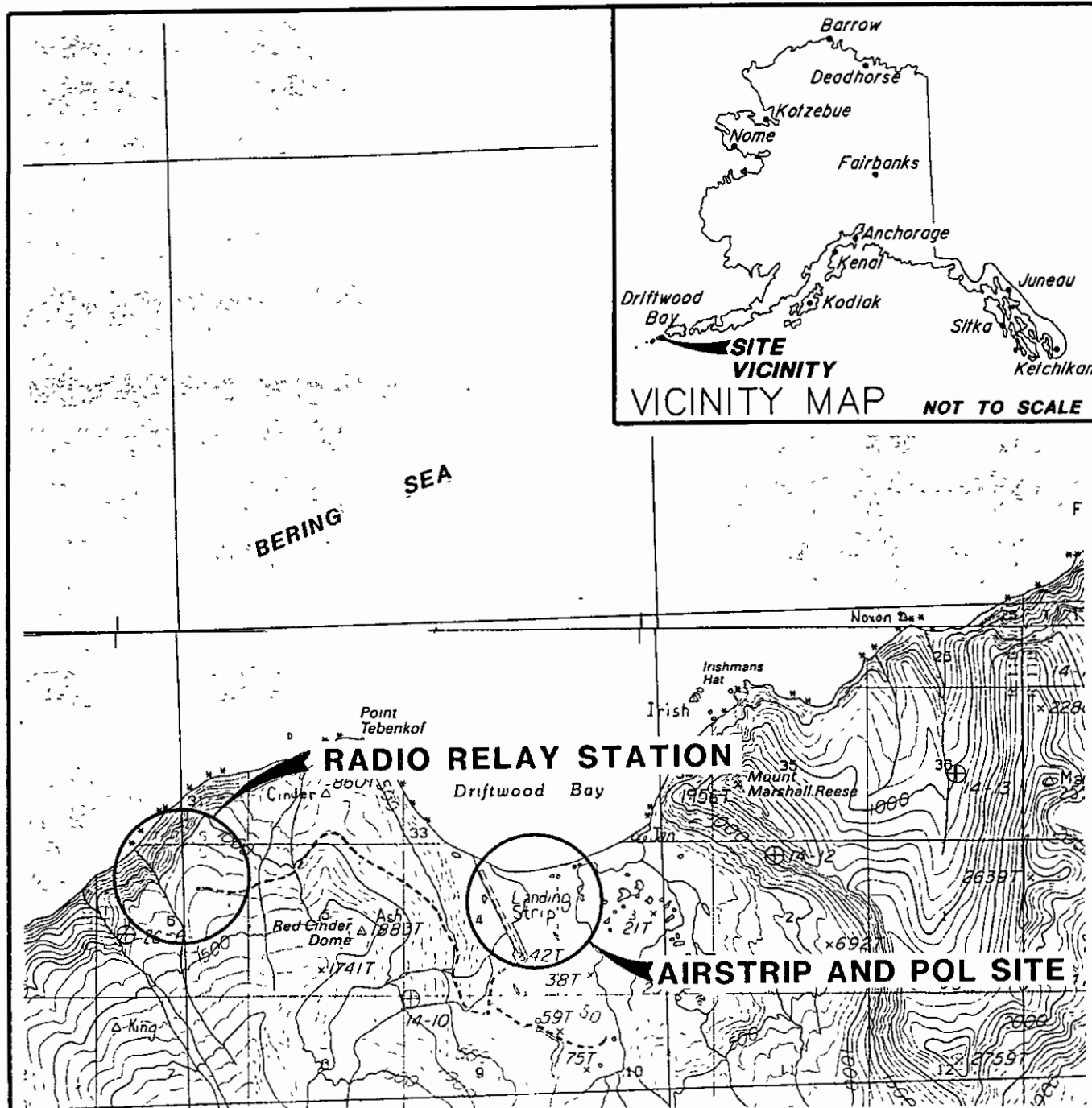
This SI report presents a summary of the field effort, the analytical results and summaries of previous investigations, and recommends future actions regarding the Driftwood Bay RRS. The MAP for the site will be submitted under separate cover

Based on the findings presented in this report and the MAP, the Driftwood Bay RRS will be considered for inclusion into the USAF Installation Restoration Program (IRP). The IRP is a Department of Defense (DOD) program for identifying, assessing, and remediating environmental impacts at military installations. The program is the DOD's response to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which requires all federal agencies to comply with its procedural and substantive requirements.

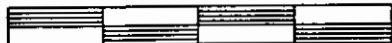
The objectives of the IRP are to identify and assess past hazardous waste disposal and spill sites on USAF property and installations, and to develop remedial actions consistent with the National Contingency Plan (NCP) (40 CFR Part 300) for sites determined to pose a threat to human health and welfare or the environment

1.2 Site Location and Background

The Driftwood Bay RRS is located at Driftwood Bay on the northeast side of Unalaska Island in the Aleutian Islands chain. The site is approximately 13.5 miles northwest of the



0 0.5 1 1.5 2



SCALE IN MILES

SOURCE: U.S.G.S. QUAD MAPS UNALASKA
(C-3) AND (D-3), ALASKA 1989.



611TH AIR SUPPORT GROUP
611TH CIVIL ENGINEER SQUADRON
ELMENDORF AFB, ALASKA

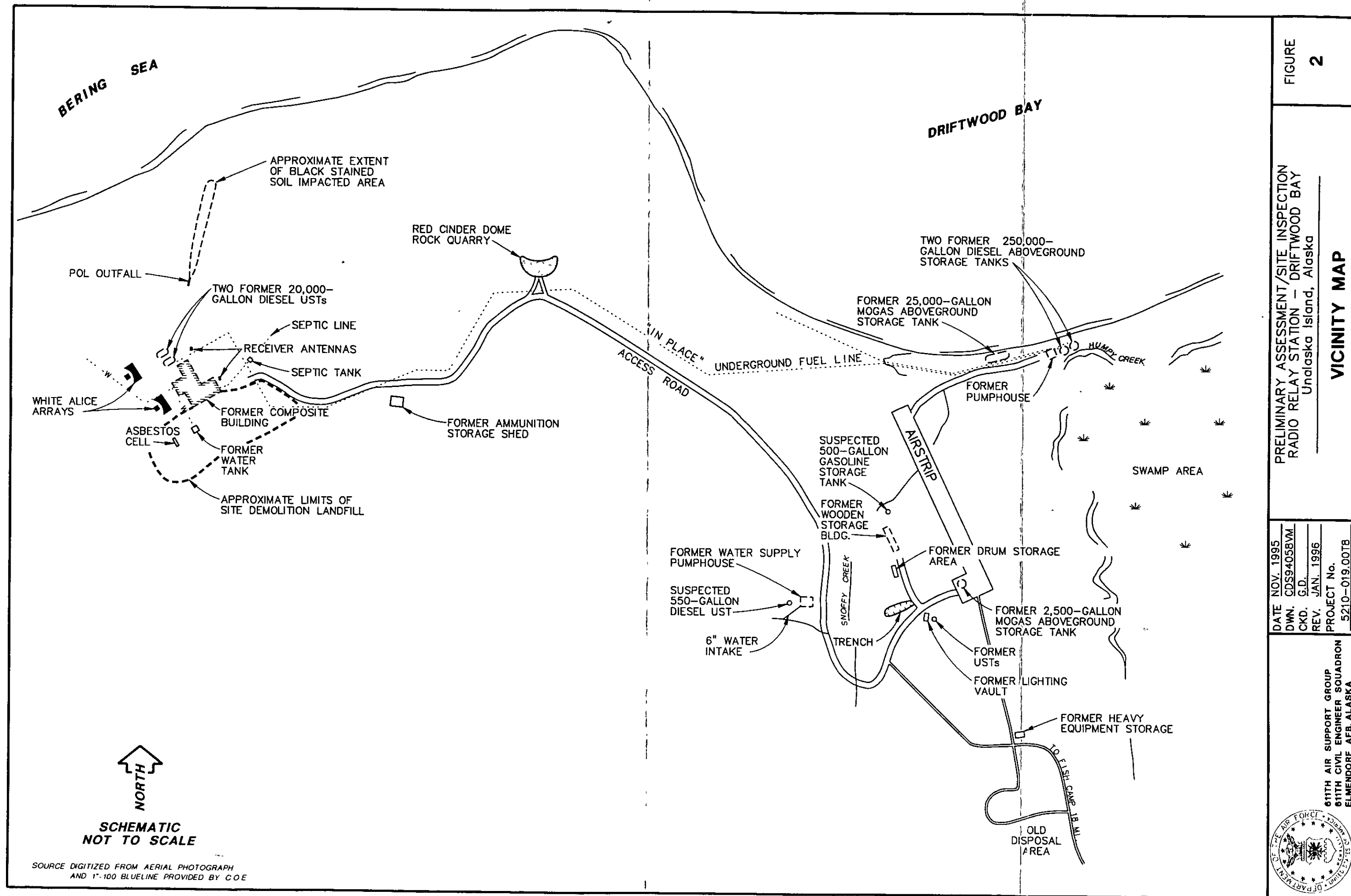
DATE JAN. 1996
DWN. CDS95062SVM
CKD. G.D.
REV. _____
PROJECT No.
5210-019.00T8

PRELIMINARY ASSESSMENT/SITE INSPECTION
RADIO RELAY STATION - DRIFTWOOD BAY
Unalaska Island, Alaska

SITE LOCATION MAP

FIGURE

1



by USEPA Method 1020, and asbestos. Volatile priority pollutant analysis was also conducted using USEPA Method 8240.

A Quality Assurance Report (QAR) summary for the samples analyzed in 1988 was conducted by USACE North Pacific Division Laboratory (NPDL). BTEX was detected in the eight samples submitted for analysis. Six of these samples contained BTEX concentrations up to 168 parts per billion (ppb) and two samples contained BTEX concentrations up to 86,000 ppm. Lead was found in all samples submitted for metals analysis. Chlorinated pesticides, PCBs, or asbestos were not detected in these samples. No information was provided in the NPDL laboratory report to allow correlation of analytical results with particular tanks or drums. EMCON contacted Ocean Technology but was not able to obtain documents associated with these analytical results.

In 1991, Anderson Excavating, under contract to the COE, performed demolition and site restoration activities. Technical specifications for demolition were proposed by Arctic Slope Consulting Group in 1989. All structures were demolished or removed except for cement foundations. Non-hazardous materials including building remnants, aboveground and underground fuel storage tanks, and crushed drums were buried in a site demolition landfill located south of the former composite building. Asbestos-containing materials were placed into a cement vault approximately 10 feet wide by 10 feet long by 35 feet deep. The fuel present in the tanks was used by Anderson Excavating. Details of the 1991 demolition are discussed in Section 3.

UST site investigations were also conducted by Gordon Randall of Environmental Management, Inc., in conjunction with the 1991 demolition activities. Information related to these SIs are summarized in Section 3.12.

1.4 Environmental Setting

1.4.1 Geology and Hydrology

Unalaska Island is predominantly composed of volcanic rocks associated with the Makushin volcano. Intrusive and extrusive rocks of Tertiary age, composed of altered andesite, make up the oldest rocks on Unalaska Island. Batholiths of granodiorite also outcrop on the island.

In the vicinity of the airstrip, rocks consist of Makushin volcanic rock and Eider Point basalt of Tertiary and Quaternary age, respectively. The materials in the vicinity of the composite building area are composed predominantly of Makushin volcanic rocks of basalt and andesitic lava overlain by till from volcanic rocks including ash layers and lapilli. The till is estimated to be at least 20 feet in depth in the vicinity of the RRS, based on road cut outcrops. The site areas are free of permafrost.

Surface drainage at the RRS consists of intermittent streams. Humpy Creek runs along the east side of the Driftwood Bay valley and discharges to the bay approximately 100 feet east of the former POL storage tank site along the beach. Wetlands are located on the east side of Humpy Creek. Snoffy Creek runs southwest to northeast across the site in the vicinity of the former water pumphouse and the former wooden storage shed. Snoffy Creek apparently flows under the airstrip and the fuel pipeline, emptying into Driftwood Bay approximately 2,500 feet west of the POL tanks.

Depth to groundwater and groundwater characteristics are unknown at the site.

1.4.2 Biology

The aquatic and terrestrial environments at Driftwood Bay were described in a report entitled *Preliminary Assessment* (CH2M HILL, 1994). The following information was obtained from this report.

The aquatic environment in the Driftwood Bay area includes coastal water on the Bering Sea and freshwater drainages including Snoffy and Humpy creeks. The coastal areas provide habitat for numerous salmon populations, Pacific herring, sea lions, sea otters, geese, ducks, and other sea bird populations. Pink salmon are known to spawn in Humpy Creek.

The Driftwood Bay area has three habitat types, alpine, moist, and wet tundra. Vegetation at the former composite building area has been characterized as alpine tundra. The areas south and west of the airstrip have been classified as moist tundra habitat and the beach area was characterized as wet tundra.

Terrestrial animals indigenous to Unalaska Island include the tundra vole, shrew, collared lemming, and the red fox. Introduced species include the arctic ground squirrel, blue-phased arctic fox, and the Norwegian rat.

During the 1995 SI, field personnel observed a fish (species unknown) in a small pond and a bald eagle in the vicinity of the airstrip. No other wildlife was observed during field activities.

2 PROJECT ACTIVITIES

2.1 Site Inspection Objectives

The objectives of this SI are to identify areas requiring further investigation, remediation, or other environmental actions such as risk assessment. Field activities were conducted in accordance with procedures established in the May 1995 *Draft Workplan White Alice Communications System, Driftwood Bay, Alaska, Contract No. DACA85-93-D-0013* (EMCON, 1995) and EMCON's *Quality Assurance Program Plan (QAPP)* (EMCON). Specific objectives for each area of concern were summarized in Table 1 of the sampling analysis plan (SAP) and are presented again for reference in this SI report.

2.2 Field Activities

EMCON visited the site May 30, 1995 through June 2, 1995. Field personnel screened soil for VOCs, collected soil and water samples for laboratory analyses, and observed site conditions to meet the SI objectives.

2.2.1 Weather Conditions

Weather conditions during the SI included rain and snow flurries (at the former composite building location). Temperatures varied from approximately 32 degrees F to 60 degrees F.

2.2.2 Photoionization Detector Screening

Soil was field screened for VOCs using a Thermo-environmental PID model 580B. The PID was calibrated using 100 ppm isobutylene and ambient air (as zero). Screening of soil was accomplished in ambient conditions and/or by the headspace method. For the headspace method, soil was placed into a quart-size Ziploc® baggie. After approximately 15 minutes, the PID probe was inserted into the baggie and the highest reading was recorded.

TABLE 1
SAMPLE LOCATIONS, ANALYSES, AND INSPECTION AREAS
DRIFTWOOD BAY RRS

Location	Number of Samples	Analyses	Comments
Composite building (OT01)	3 soil	PCBs	
Feedhorns at White Alice arrays (OT01)	2 soil	PCBs	
Landfill (AOC01)	1 soil, 1 seep	DRO, GRO, PCBs & pesticides, metals, VOCs, TPH	Collected along northern edge of the landfill
Culvert outfall (AOC03)	1 soil	DRO, GRO, PCBs & pesticides, metals, VOCs, TPH	Collected at the initial exit point from the pipe
Former water pumphouse (AOC04)	1 soil	GRO, DRO, VOCs	If tank can be located with a metal detector
Runway Lighting Vault (AOC05)	1 soil	PCBs	Collected near former doorway
Wooden storage building (AOC06)	1 soil	TPH, GRO, DRO, VOCs	
Emergency 500-gal MOGAS tank (AOC06)	1 soil	GRO, VOCs, lead	Conduct metal detector survey in an attempt to locate the tank
Former drum storage area (AOC06)	1 soil	TPH, GRO, DRO, VOC's	
2,500-gallon AST (AOC07)	1 soil	GRO, VOCs, lead	South end of airstrip
Disposal area south of airstrip (AOC08)	1 soil, 1 surface water	DRO, GRO, PCBs & pesticides, metals, VOCs, TPH	Soil samples collected downgradient, water sample collected in adjacent area from Humpy Creek, or a seep
Former POL tanks (AOC09)	2 soil, 1 surface water	DRO, VOCs	Soil samples collected from each former tank vicinity, adjacent water sample from Humpy
Former pumphouse (AOC09)	1 soil	DRO, VOCs	
25,000-gallon AST (AOC09)	1 soil	GRO, VOCs, lead	Formerly on beach
Pipeline (AOC10)	3 soil	DRO	Three samples collected at former gate valves or opportunistic samples

DRO - Diesel-range organics
 GRO - Gasoline-range organics
 PCBs - Polychlorinated biphenyls
 VOCs - Volatile organic compounds
 TPH - Total petroleum hydrocarbons
 POL - Petroleum, oil, and lubricants
 AST - Aboveground storage tank

2.2.3 Soil Sampling Methodology

Soil samples were collected on May 31 and June 1, 1995. Samples were collected by digging with a shovel approximately 6 inches to 1 foot below ground surface (bgs). A disposable sample scoop was used to collect and place the soil into a labeled, laboratory-prepared sample jar. Immediately upon collection, the sample was placed into a chilled cooler. Sample handling and chain-of-custody procedures were followed as stated in the May 1995 workplan (EMCON, 1995).

2.2.4 Sample Labeling

Each sample label was completed in the field before the sample was collected and placed on the container. Sample labels included the following information:

- Project code or number
- Sampling date and time
- Sample number/place of collection
- Name of person collecting the sample
- Laboratory analyses to be performed

A 10-character sample identification system was used (e.g., 95DWD001S0). An example of the sample identification system is provided below along with keys which explain letter designations:

YEAR	95
JOB OR SITE	DWD
SAMPLE NUMBER	001
MATRIX DESCRIPTION	SO

DWD represents the Driftwood Bay RRS site

MATRIX TYPE	DESIGNATION
-------------	-------------

Soil	SO
Water	WS

All samples were numbered using this system, therefore the laboratories were unable to determine which samples were duplicates, trip blanks, etc. Sample numbers, locations, and time of sampling were recorded in the field logbook. Samples were submitted under

chain-of-custody procedures to Columbia Analytical Services, Inc., (CAS) and the USACE NPDL for analysis

2.3 Laboratory Analyses

Project and duplicate samples were analyzed by CAS of Anchorage, Alaska and CAS of Kelso, Washington. Quality assurance (QA) or split samples were sent to NPDL in Troutdale, Oregon on a 10 percent frequency basis. NPDL's QAR for the samples analyzed in 1995 is included in Appendix A. EMCON's summary of the QAR is presented in Appendix B.

Analytical methods for the soil samples included the following

- DRO by USEPA Method 8100, ADEC Modified
- GRO by USEPA Method 8015, ADEC Modified
- VOCs by USEPA Method 8260
- PCBs and pesticides by USEPA Method 8080
- TPH by USEPA Method 418.1
- Total metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by USEPA Methods 6000/7000 series

2.4 Regulatory Framework

Preliminary cleanup levels are proposed as a basis for making site recommendations. The final cleanup levels have not been negotiated for the Driftwood Bay RRS to date. Recommendations for preliminary cleanup levels for soil have been based on the following

- USEPA Region 3 Risk-Based Concentration Table for VOCs, total metals, and pesticides
- ADEC Interim Guidance for Non-UST Contaminated Soil Cleanup Levels
- Toxic Substances Control Act (TSCA) for PCBs
- Insufficient information is available to obtain cleanup levels for soil by completing the ADEC matrix score sheet. As a conservative approach, Level A cleanup

levels were used as preliminary goals. For PCBs, the cleanup standard of 10 ppm for contaminated soil in non-restricted access areas was used, as provided in 40 CFR 761.125.

Recommendations for preliminary cleanup levels of water have been based on the following:

- ADEC Drinking Water Regulations (18 AAC 80) for VOCs
- Alaska Water Quality Standards (18 AAC 70) for TPH

3 FINDINGS

This section includes analytical results and findings related to past investigations which were documented in the May 1995 workplan for Driftwood Bay, as well as analytical results and observations from the 1995 site visit. Data included in tables are reported equal to or greater than the MDL. Data included on site figures are reported equal to or above the MRL.

The USAF designated one IRP site and eleven AOCs at Driftwood Bay

Driftwood Bay RRS

IRP	OT01	Former Composite Building Area
AOCs	AOC01	Former Composite Building Landfill
	AOC02	Septic Tank and Leach Field
	AOC03	Composite Building POL Outfall
	AOC04	Former Water Supply Pumphouse
	AOC05	Former Lighting Vault
	AOC06	Former Drum Storage Area
	AOC07	Former Airstrip MOGAS Tank
	AOC08	Old Disposal Area
	AOC09	POL Tank Area
	AOC10	Fuel Pipeline Area
	AOC11	Former USTs

Each IRP and AOC area is presented in sections which include a description of the site, previous investigation results, findings and analytical results from 1995, and conclusions and recommendations.

3.1 IRP Site OT01: Former Composite Building Area

The former composite building area is located approximately four miles west of Driftwood Bay at an approximate elevation of 1,275 feet above msl. Foundations of the composite building and the White Alice arrays are in place (Photograph 1, Appendix C)

3.1.1 1985 Activities

In 1985, the USACE collected seven composite soil samples (SM-1 through SM-5, SM-7, and SM-8), and two POL samples (FT-1 and FT-2) for analysis from the composite building site (Figure 3). Data from the analyses conducted in 1985 and recommendations are included in Table 2.

POL as fuel or oil was apparently detected in all of the soil samples, but the only sample quantified for POL was SM-3. Sample SM-3 was analyzed by ASTM Method D3328. Total hydrocarbons in weight percent were detected at 0.11 percent or approximately 1,100 ppm. The hydrocarbon distribution was C9 to C23 and was identified as "possibly diesel fuel."

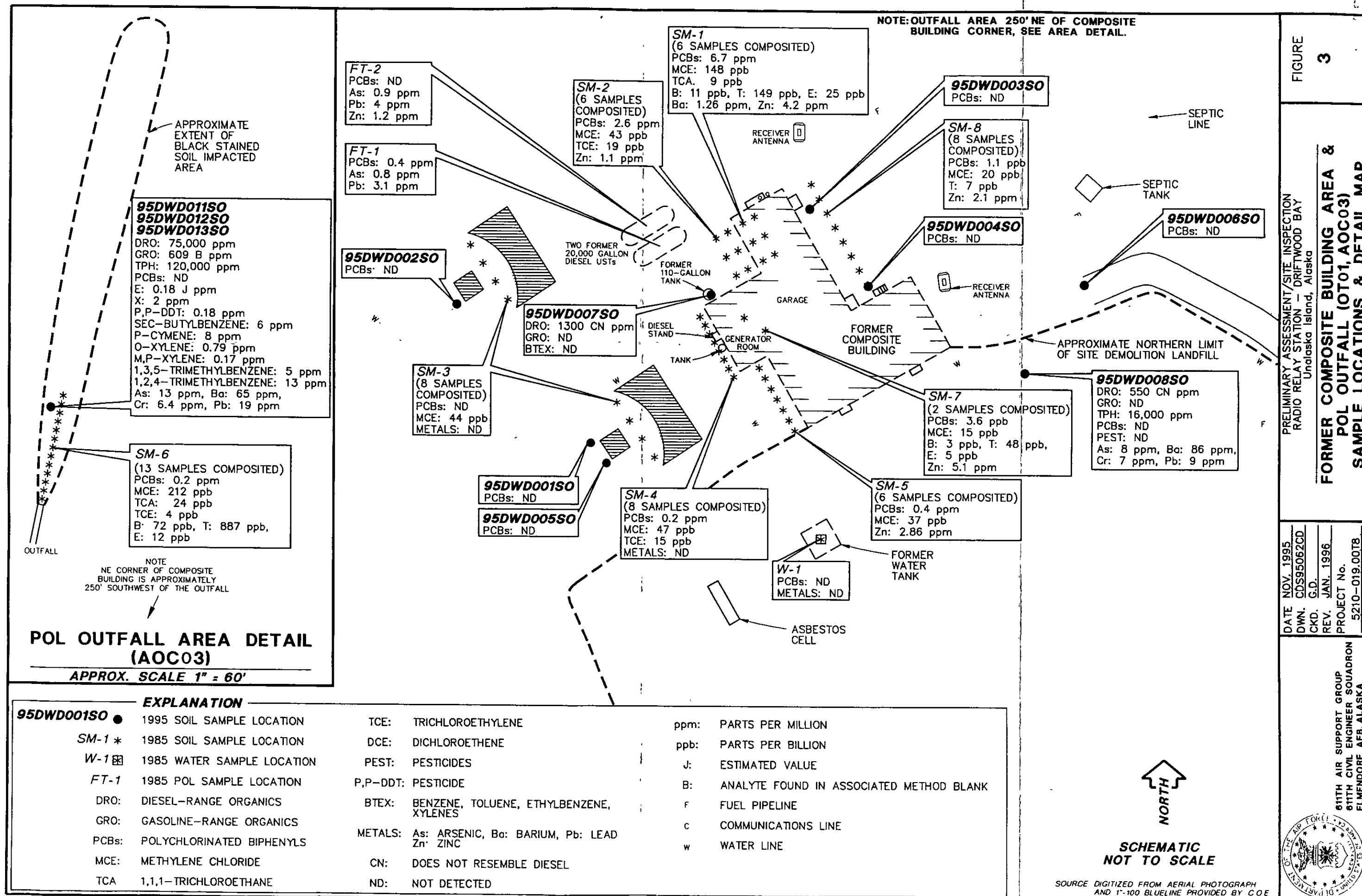
PCBs were detected in samples SM-1, SM-2, SM-4, SM-5, SM-7, and SM-8 at concentrations of 6.7 ppm, 2.6 ppm, 0.2 ppm, 0.4 ppm, 3.6 ppm, and 1.1 ppm, respectively.

The samples were analyzed for arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, and zinc. Barium was detected in SM-1 at 1.26 ppm. Lead was detected in the two POL samples (FT-1 and FT-2) at 4 ppm and 3.1 ppm, respectively. Zinc was detected in several samples at concentrations less than 6 ppm.

VOCs were analyzed by USEPA Method 624. Two samples had detected concentrations of benzene, ethylbenzene, and toluene. SM-1 had a detected benzene concentration of 11 ppb, ethylbenzene at 25 ppb and toluene at 149 ppb. SM-7 had detected concentrations of 3 ppb benzene, 5 ppb ethylbenzene, and 48 ppb toluene. VOC analytical results measured 9 ppb of 1,1,1-trichloroethane in sample SM-1, and trichloroethylene in SM-2 at a concentration of 19 ppb and 15 ppb in sample SM-4. All samples had detected concentrations of methylene chloride, with concentrations ranging from 15 ppb to 148 ppb.

3.1.2 1991 Activities

The ground surface around the composite building was apparently altered during demolition activities in 1991. Approximately 1 foot of soil has been removed from the east side of the composite building, based on the observed weathered surface of the



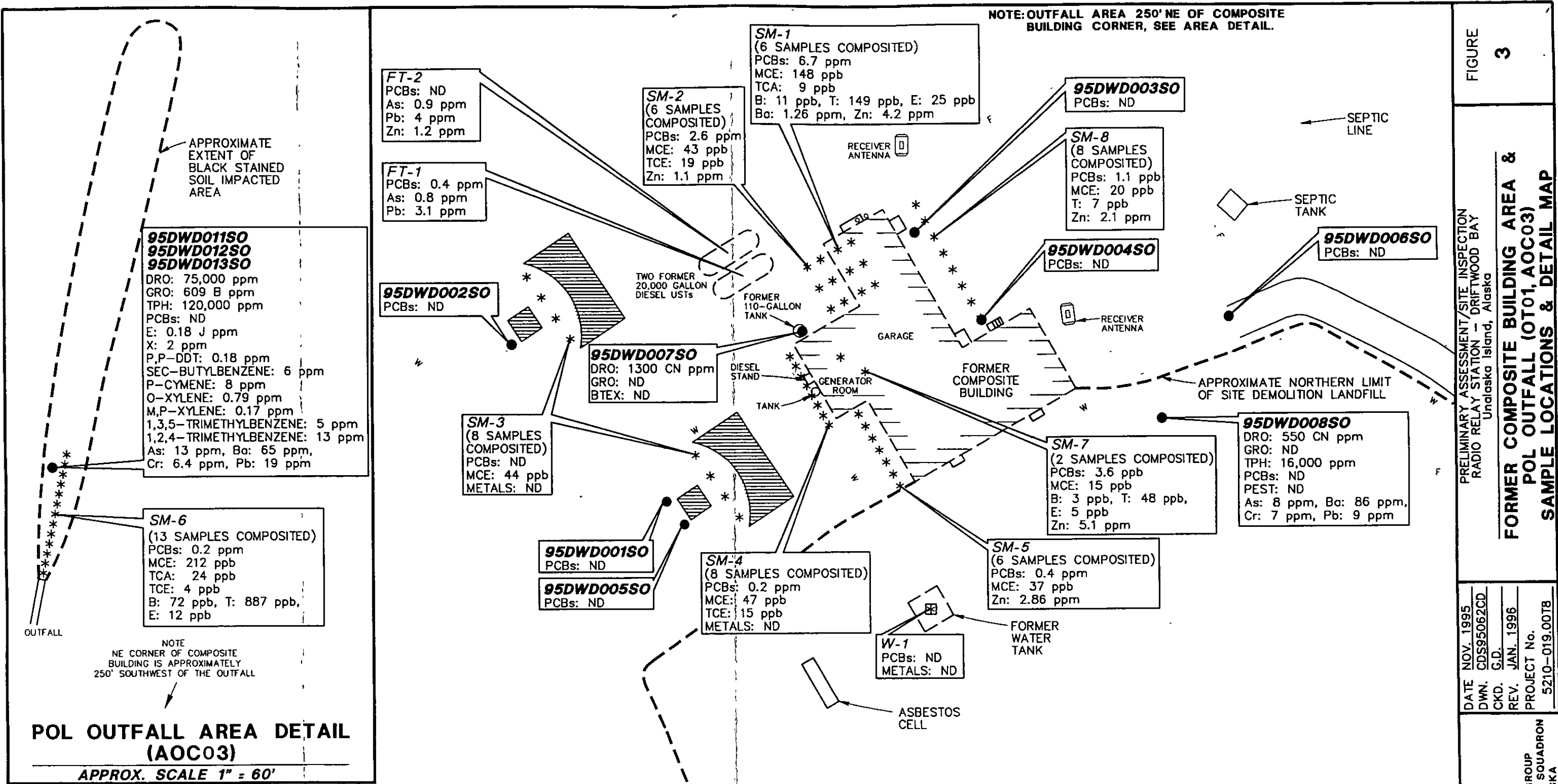


FIGURE 3

PRELIMINARY ASSESSMENT/SITE INSPECTION
RADIO RELAY STATION - DRIFTWOOD BAY
Unalaska Island, Alaska

FORMER COMPOSITE BUILDING AREA & POL OUTFALL (OT01, AOC03)

SAMPLE LOCATIONS & DETAIL MAP

DATE NOV. 1995
DWN. CDS95062CD
CKD. G.D.
REV. JAN. 1996
PROJECT No.
5210-019.00TB

811TH AIR SUPPORT GROUP
611TH CIVIL ENGINEER SQUADRON
ELMENDORF AFB, ALASKA



POL OUTFALL AREA DETAIL (AOC03)

APPROX. SCALE 1" = 60'

EXPLANATION

95DWD001SO ●	1995 SOIL SAMPLE LOCATION	TCE:	TRICHLOROETHYLENE	ppm:	PARTS PER MILLION
SM-1 *	1985 SOIL SAMPLE LOCATION	DCE:	DICHLOROETHENE	ppb:	PARTS PER BILLION
W-1 ☐	1985 WATER SAMPLE LOCATION	PEST:	PESTICIDES	J:	ESTIMATED VALUE
FT-1	1985 POL SAMPLE LOCATION	P,P-DDT:	PESTICIDE	B:	ANALYTE FOUND IN ASSOCIATED METHOD BLANK
DRO:	DIESEL-RANGE ORGANICS	BTEX:	BENZENE, TOLUENE, ETHYLBENZENE, XYLENES	F	FUEL PIPELINE
GRO:	GASOLINE-RANGE ORGANICS	METALS:	As ARSENIC, Ba: BARIUM, Pb: LEAD Zn: ZINC	C	COMMUNICATIONS LINE
PCBs:	POLYCHLORINATED BIPHENYLS	CN:	DOES NOT RESEMBLE DIESEL	w	WATER LINE
MCE:	METHYLENE CHLORIDE	ND:	NOT DETECTED		
TCA:	1,1,1-TRICHLOROETHANE				

NORTH

SCHEMATIC NOT TO SCALE

SOURCE: DIGITIZED FROM AERIAL PHOTOGRAPH AND 1"-100' BLUELINE PROVIDED BY C.O.E.

Table 2
IRP Site OT01
1985 Analytical Results and Recommendations
Former Composite Building Area and White Alice Arrays

Sample ID	Matrix	PCBs (ppm)	Metals (ppm)	VOCs (ppb)	Remarks	Recommendations
SM-1	Soil	6.7	Barium - 1.26 Zinc - 4.2	Benzene - 11 Ethylbenzene - 25 Methylene Chloride - 148 Toluene - 149 1,1,1-Trichloroethane - 9	6 samples composited, collected inside NW garage	No historical recommendation available
SM-2	Soil	2.6	Zinc - 1.1	Methylene Chloride - 43 1,1,2-Trichloroethylene - 19	6 samples composited, collected outside NW garage	No historical recommendation available
SM-3	Soil	ND	ND	Methylene Chloride - 44	8 samples composited, collected at base of west face of radar antenna, quantified as possibly diesel fuel	No historical recommendation available
SM-4	Soil	0.2	ND	Methylene Chloride - 47 1,1,2-Trichloroethylene - 15	8 samples composited, collected from gravel pad outside powerhouse room	No historical recommendation available
SM-5	Soil	0.4	Zinc - 2.86	Methylene Chloride - 37	6 samples composited, collected outside SW garage	No historical recommendation available
SM-7	Soil	ND	Zinc - 5.1	Benzene - 3 Ethylbenzene - 5 Methylene Chloride - 15 Toluene - 48	2 samples composited, collected inside generator room	No historical recommendation available
SM-8	Soil	ND	Zinc - 2.1	Methylene Chloride - 20 Toluene - 7	8 samples composited, collected from east side of composite building	No historical recommendation available
SM-9	Soil	ND	ND	Methylene Chloride - 16 Toluene - 7	Collected at rock quarry east of former composite building	No historical recommendation available
FT-1	POL	0.4	Arsenic 0.8 Lead - 4	--	Underground fuel tank NW of former composite building	No historical recommendation available
FT-2	POL	--	Arsenic 0.9 Lead 3.1 Zinc 1.2	--	Underground fuel tank NW of former composite building	No historical recommendation available

ND = not detected
 -- = not analyzed
 ppb = parts per billion
 ppm = parts per million

foundation point. On the west side of the composite building, soil has covered the foundations of the White Alice antennas, but part of the feedhorn foundations were visible. The northern extent of the landfill was brought up against and level with the south side of the composite building foundation (Photograph 2, Appendix C). A culvert outfall is located approximately 250 feet northeast of the former composite building foundation. Two 20,000-gallon diesel USTs had been listed for removal during 1991 excavation activities but the contractor only found and removed one 20,000-gallon diesel UST.

3.1.3 1995 Composite Building Feedhorn Sampling and Analytical Results

Data for analyses conducted in 1995 and recommendations are included in Table 3. Soil samples 95DWD001SO and 95DWD005SO were collected near the foundation of the former south feedhorn location (Photograph 3, Appendix C). Sample 95DWD002SO was collected near the location of the former north feedhorn location (Photograph 4 in Appendix C). Figure 3 shows the locations of each sample.

Sample 95DWD001SO was collected approximately 1 foot, 3 inches bgs (close to grade during active site operations). Approximately 1 foot of fill was evident in the vicinity of sample 95DWD005SO. The fill was removed with a shovel and the sample was collected approximately 3 inches below the former ground surface.

Sample 95DWD002SO was collected approximately 3 inches bgs near the former north feedhorn location. PCB concentrations were not detected in the three samples. No apparent impact to soil was observed in the feedhorn areas.

3.1.4 1995 Composite Building Soil Samples and Analytical Results

Soil samples 95DWD003SO and 95DWD004SO were collected along the east side of the former composite building near former doorways. Five attempts to collect soil samples along the southern edge of the composite building were unsuccessful due to buried debris within the landfill. Sample 95DWD006SO was collected in the road approximately 100 feet east of the composite building. Sample 95DWD007SO was collected in the approximate location of a former 110-gallon fuel tank on the west side of the foundation (Figure 3). No impact was apparent in the sample locations around the former composite building foundation.

Sample 95DWD003SO was collected approximately 3 feet east of a porch on the northeast part of the foundation at an approximate depth of 1 foot bgs. The current soil surface in this area appears to be approximately 1 foot below the original ground surface during site operations. Sample 95DWD004SO was collected approximately 2 inches

Table 3

IRP Site OT01
1995 Analytical Results and Recommendations
Former Composite Building

Sample ID	Matrix	DRO (ppm) M8100	PCBs (ppm) SW8080	GRO (ppm) M8015	BTEX (ppm) SW8020	Remarks	Recommendations
95DWD001SO	Soil	--	ND	--	--	Collected near foundation of former south feedhorn location	No further action related to this sample location
95DWD002SO	Soil	--	ND	--	--	Collected near former north feedhorn location	No further action related to this sample location
95DWD003SO	Soil	--	ND	--	--	Collected 3' east of porch on northeast edge of foundation	No further action related to this sample location
95DWD004SO	Soil	--	ND	--	--	Collected near steps at southeast edge of foundation	No further action related to this sample location.
95DWD005SO	Soil	--	ND	--	--	Collected near foundation of former south feedhorn location	No further action related to this sample location
95DWD006SO	Soil	--	ND	--	--	Collected in the road east of former composite building	No further action related to this sample location
95DWD007SO	Soil	1,300 (10) CN	--	ND	ND	Collected near former 110-gallon fuel tank at west edge of foundation	Additional investigation to determine horizontal and vertical extent of impacted soil is recommended

ND = not detected
 -- = not analyzed
 CN = does not resemble diesel
 ppm = parts per million
 () = method reporting limit

below the current ground surface (approximately one foot below the former ground surface), near steps at the southeast part of the foundation. Soil on the eastern side of the building foundation is a brown silty sand with cobbles up to 3 inches in diameter. Sample 95DWD006SO was collected approximately 4 inches bgs in red "soil" consisting of pumice and volcanic rock road fill. Analytical results for samples 95DWD003SO, 95DWD004SO, and 95DWD006SO were ND for PCBs.

Soil near sample 95DWD007SO (collected in the approximate vicinity of a former 110-gallon fuel tank) had a PID headspace reading of 1.4 ppm. Sample 95DWD007SO was analyzed for DRO, GRO, and BTEX. DRO was detected at 1,300 ppm but the chromatogram pattern was noted by the analytical laboratory as not resembling diesel. No GRO or BTEX were detected in the soil samples collected.

3.1.5 Conclusions and Recommendations

Based on PCB sampling conducted by in 1985 and 1995, no further investigation for PCBs is recommended for the former composite building area. The composite samples collected and analyzed by the COE in 1985 contained PCB levels below 10 ppm and samples collected in 1995 showed no detectable PCB contamination.

Further investigation at the former 110-gallon tank location at the west side of the composite building is recommended. The horizontal and vertical extent of impacted soil should be determined. Based on those findings and the designated cleanup level, a removal or remedial action determination can be made.

3.2 AOC01: Composite Building Landfill

The composite building landfill is approximately 70,000 square feet. Depth of the top soil cover is unknown, but areas adjacent to the composite building foundation have a soil cover of approximately 3 inches. Subsidence holes have appeared at the former water cistern, which was filled in during the 1991 demolition activities. These holes are potentially dangerous to pedestrians or ATV operators. The asbestos cell area appears to be subsiding as well, but no holes have developed. The asbestos sign has fallen over onto its side (Photograph 5, Appendix C). The asbestos was reportedly placed into a concrete vault similar to the water cistern with approximate dimensions of 10 feet by 10 feet by 35 feet in depth. The original purpose of the vault is unknown.

3.2.1 Landfill Sampling and Analytical Results

In 1985, a water sample was collected from the water cistern northeast of the asbestos cell for total metals and PCB analyses. No metals or PCBs were detected in the sample. Data

for laboratory analyses of samples collected from AOC01 and recommendations are included in Table 4. One soil/sediment sample (95DWD008SO) was collected in 1995 from the northeast part of the landfill (Photographs 6 and 7, Appendix C). This surface soil sample was collected from an area where seepage was noted. One to three inches of soil covered cement in the area (assumed to be a wall from the demolished cement buildings). No impact to the soil was observed.

Sample 95DWD008SO contained TPH at a concentration of 16,000 ppm. GRO was not detected. DRO was detected at a concentration of 550 ppm but the chromatogram was qualified by the analytical laboratory as not resembling diesel. Analysis for metals detected arsenic at 8 ppm, barium at 86 ppm, chromium at 7 ppm, and lead at 9 ppm. VOC analysis detected six analytes in the soil sample as concentrations below the MRL. Four of the six analytes are considered laboratory contaminants as they were also detected in the method blank. The other two detected analytes, acetone and methylene chloride, were not detected in the method blank, but are also common laboratory contaminants. 1995 analytical results and recommendations are summarized in Table 5.

3.2.2 Conclusions and Recommendations

The sample collected from the landfill seep had a detected TPH concentration of 16,000 ppm. Depending on the negotiated cleanup level, additional sampling may be warranted.

Additional soil should be placed into the water cistern and over the asbestos cell and compacted to fill in holes and subsiding surface soil. A more permanent asbestos warning sign should be placed at the asbestos cell.

3.3 AOC02: Septic Tank and Leach Field

A septic tank and leach field is located approximately 130 feet east of the composite building foundation. The area was not evaluated during 1995 field activities. Removal of the septic tank and piping would eliminate potential subsidence dangers to pedestrians and ATVs and allow evaluation of possible improper waste disposal practices. The area should be inspected and soil sample(s) collected if warranted.

3.4 AOC03: Composite Building POL Outfall

The POL outfall-impacted zone is approximately 338 feet in length with an average width of 25 feet. The visible depth of impact is approximately 1.5 feet with approximately 469 cy of impacted soil. The discharge point is a 6-inch culvert located approximately 250 feet northeast of the composite building foundation.

Table 4

AOC01
1985 Analytical Results and Recommendations
Former Composite Building Landfill

Sample ID	Matrix	Total Metals (ppm)	PCB's (ppm)	Remarks	Recommendations
W - 1	Water	ND	ND	Collected from cistern southwest of composite building	No historical recommendation available

B = analyte found in associated method blank
 CN = does not resemble diesel
 J = estimated value
 ND = not detected
 ppm = parts per million
 () = method reporting limit

Table 5

AOC01
1995 Analytical Results and Recommendations
Former Composite Building Landfill

Sample ID	Matrix	TPH (ppm) USEPA 418.1	DRO (ppm) M8100	GRO (ppm) M8015	Total Metals (ppm) USEPA 6010/7060	Pesticides (ppm) USEPA 8080	VOCs (ppm) SW8260	Remarks	Recommendations
95DWD008SO	Soil	16,000 (25)	550 (10) CN	ND	Arsenic - 8 (1) Barium - 86 (1) Chromium - 7 (2) Lead - 9 (1)	ND	1,2,3-Trichlorobenzene - 0.00054 (0.02) J,B 1,2,4-Trichlorobenzene - 0.00036 (0.02) J,B Acetone - 0.0065 (0.05) J Hexachlorobutadiene - 0.00045 (0.02) J,B Methylene chloride - 0.00621 (0.01) J Naphthalene - 0.00072 (0.02) J,B	Collected from area where seepage beneath the landfill cap accumulated	Additional surface and subsurface sampling depending on cleanup level

3.4.1 1985 Activities

In 1985, the USACE collected soil from 13 locations along the outfall and composited them into one sample (SM-6) for laboratory analysis. The results from this analysis and recommendations are included in Table 6. PCBs were detected at a concentration of 0.2 ppm. Metals analysis detected less than 1 ppm of arsenic, mercury, and selenium, and 1.1 ppm zinc. Detected VOCs included benzene at 72 ppb, toluene at 887 ppb, ethylbenzene at 12 ppb, methylene chloride at 212 ppb, 1,1,1 trichloroethane at 24 ppb, and trichloroethylene at 4 ppb.

3.4.2 1995 Activities

Data for soil samples analyzed in 1995 are included in Table 7. Soil sample 95DWD011SO, split sample 95DWD012SO, and duplicate sample 95DWD013SO were collected from the impacted zone approximately 67 feet downslope of the discharge point (Figure 3). Samples were submitted for analysis of VOCs, PCBs, TPH, GRO, DRO, and metals. Samples for VOC analyses were collected first, and then the soil was homogenized prior to placing it into the sample jars for the other analyses.

Detected TPH concentrations ranged from 67,000 ppm to 120,000 ppm, GRO concentrations from 210 ppm to 609 ppm, and DRO concentrations from 61,000 ppm to 72,000 ppm. The pesticide p,p'-DDT was detected in the split sample, 95DWD012SO at 0.18 ppm.

Metals detected include arsenic, barium, chromium, lead, and mercury. Arsenic was detected at concentrations ranging from 9.2 ppm to 13 ppm, barium from 56 ppm to 65 ppm, chromium from 5 ppm to 6.4 ppm, lead from 15 ppm to 19 ppm. Mercury was detected in the split sample only at 0.071 ppm.

Seventeen VOC analytes were detected (Table 7). The highest detected concentration was 3.37 ppm of P-cymene. The QA laboratory VOC data and the project laboratory VOC data were not consistent.

3.4.3 Conclusions and Recommendations

POL-impacted soil was observed during 1995 field activities and confirmed by analytical results. The area of impact is approximately 338 feet long and 25 feet wide, with an estimated volume of approximately 469 cy.

Additional investigation is recommended at the POL outfall area to confirm the volume of impacted soil. The horizontal and vertical extent of contamination should be determined through additional sampling. The impacted soil should be removed.

Table 6

AOC03
1985 Analytical Results and Recommendations
Composite Building POL Outfall

Sample ID	Matrix	PCBs (ppm)	Metals (ppm)	VOCs (ppb)	Remarks	Recommendations
SM-6	Soil	0.2	Arsenic - 0.0009 Zinc - 1.1 Mercury - 0.001 Selenium - 0.002	Benzene - 72 Ethylbenzene - 12 Methylene Chloride - 212 Toluene - 887 1,1,1-Trichloroethane - 24 Trichloroethylene - 4	13 Samples composited	No historical recommendation available

ppb = parts per billion
 ppm = parts per million

Table 7
Area of Concern 03
1995 Analytical Results and Recommendations
Composite Building POL Outfall

Sample ID	Matrix	TPH (ppm) USEPA 418.1	DRO (ppm) M8100	GRO (ppm) M8015	Total Metals (ppm) USEPA 6010/7060	Pesticides (ppm) USEPA 8080	VOCs (ppm) USEPA 8260	Remarks	Recommendations
95DWD011SO	Soil	110,000 (25)	72,000 (10)	609 (5) B	Arsenic - 12 (1) Barium - 65 (1) Chromium - 6 (2) Lead - 19 (1)	ND	1,2,4-Trimethylbenzene - 0.8 (4) J 1,3,5-Trimethylbenzene - 0.45 (4) J Acetone - 0.91 (10) J,B Isopropylbenzene - 0.13 (4) J P-cymene - 3.37 (4) J Sec-butylbenzene - 0.57 (4) J Tetrachloroethylene - 0.18 (1) J Toluene - 0.05 (1) J,B Xylenes - 0.21 (1) J n-Propylbenzene - 0.12 (4) J,B t-Butylbenzene - 0.46 (4) J,B	Project sample collected 67 feet downslope of suspected discharge point	Additional investigation and removal action is recommended
95DWD012SO	Soil	67 (3.6)	61,000 (820)	210 (7.2)	Arsenic - 9.2 (2.3) Barium - 59 (0.72) Chromium - 6.4 (0.72) Lead - 15 (2.2) Mercury - 0.071 (0.029)	p,p'-DDT - 0.18 (0.12)	Ethylbenzene - 0.15 (0.019) Isopropylbenzene - 0.72 (0.02) P-cymene - 1.3 (0.024) Tetrachloroethylene - 0.083 (0.021) Xylenes - 0.96 (0.017) Toluene - 0.016 (0.012) n-Butylbenzene - 0.71 (0.021) n-Propylbenzene - 0.89 (0.019) t-Butylbenzene - 0.27 (0.016)	split sample	Additional investigation and removal action is recommended
95DWD013SO	Soil	120,000 (25)	75,000 (10)	392 (5.5)	Arsenic - 13 (1) Barium - 56 (1) Chromium - 5 (2) Lead - 17 (1)	ND	1,2,4-Trimethylbenzene - 13 (2) 1,3,5-Trimethylbenzene - 5 (2) Acetone - 0.85 (5) J,B Ethylbenzene - 0.18 (0.5) J Hexachlorobutadiene - 0.05 (2) J,B Isopropylbenzene - 1.49 (2) J Methylene Chloride - 0.2 (1) J,B P-cymene - 8 (2) Sec-butylbenzene - 6 (2) Tetrachloroethylene - 0.22 (0.5) J Toluene - 0.05 (0.5) J,B Xylenes - 2 (0.5) n-Propylbenzene - 1.72 (2) J t-Butylbenzene - 0.98 (2)	duplicate sample	Additional investigation and removal action is recommended

B = analyte found in associated blank
J = estimated value
ND = not detected
ppm = parts per million
() = method reporting limit

3.5 AOC04: Former Water Supply Pumphouse

A concrete water pumphouse had been located along the access road leading to the composite building (Figure 4). A 6-inch water intake pipe transported water from Snoffy Creek to the pumphouse, which was then pumped to a water cistern approximately 100 feet south of the composite building.

A 550-gallon diesel UST was reported to be on the west side of the pumphouse according to USAF site background information (USAF, 1963). However, this tank was not found during the 1985 USACE site visit or during the 1991 demolition. During the 1995 site inspection, the pumphouse area was completely covered by boulders and some concrete and scrap metal were observed.

3.5.1 Conclusions and Recommendations

The presence of a 550-gallon diesel tank has not been confirmed during site visits in 1985, 1991, and 1995. Due to site conditions in 1995, no search for the former fuel tank was attempted and a soil sample was not collected. No further investigation is recommended at the site.

3.6 AOC05: Former Lighting Vault

The foundation of the former lighting vault remains in place and is approximately 10 feet by 15 feet. Two rectangular areas within the foundation are visible where the former generators were located (Photograph 8, Appendix C). The former floor of the vault appeared to be clean and unstained. Disturbed soil is visible on the east-northeast side of the foundation where the former fuel tanks were removed in 1991. Although two 6,000-gallon diesel USTs were listed for removal, the contractor found and removed one 1,000-gallon diesel UST, 750-gallon and 250-gallon MOGAS USTs in 1991. It is assumed SIs were done at the time of the excavation but this information has not been verified.

3.6.1 Soil Sampling and Analytical Results

Soil sample 95DWD015SO was collected approximately 4 feet from the center of the lighting vault on the north side of the foundation (Figure 4). The sample was analyzed for PCBs and pesticides, but none were detected (Table 8).

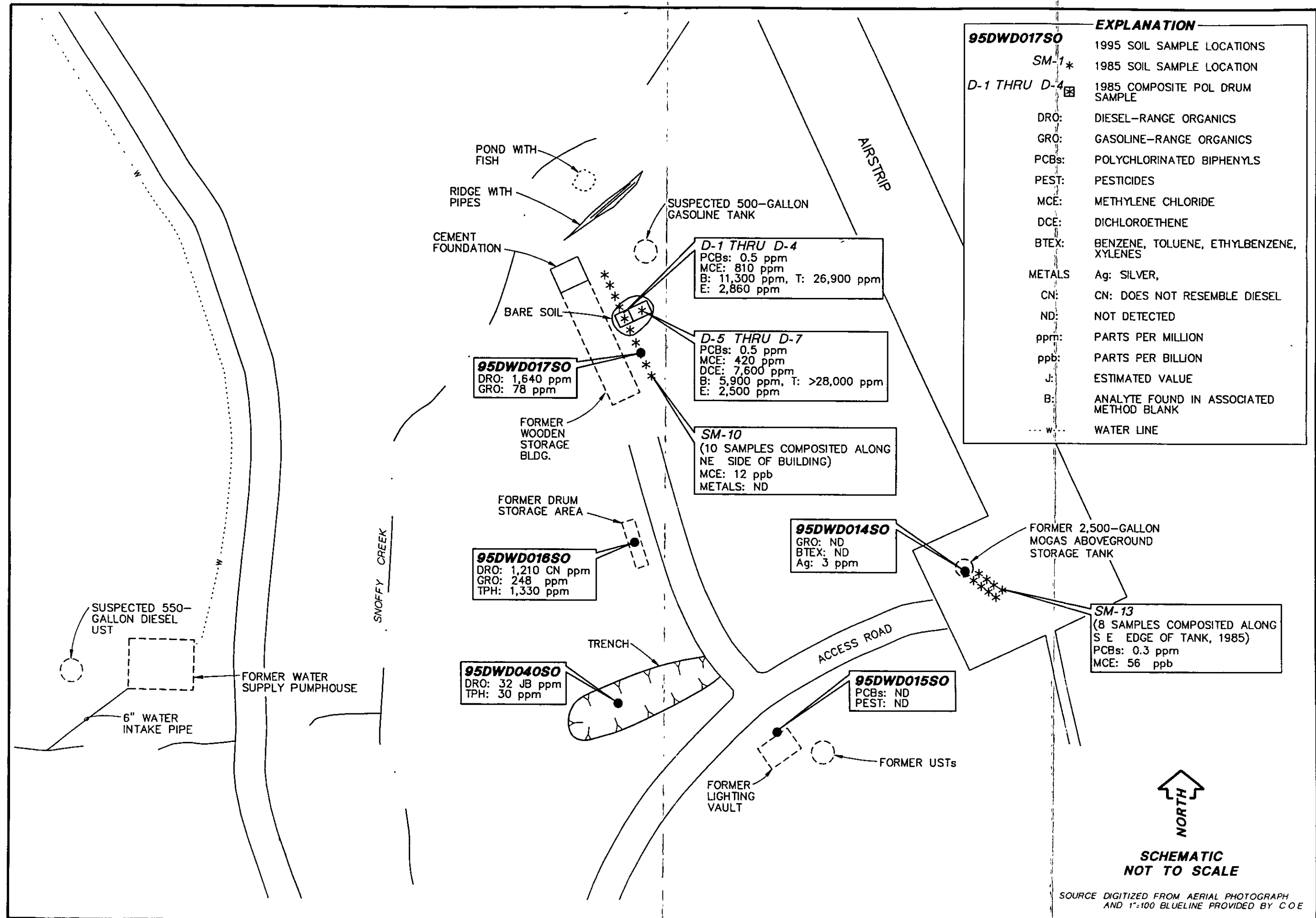


Table 8

AOC05
1995 Analytical Results and Recommendations
Former Lighting Vault

Sample ID	Matrix	PCBs (ppm) USEPA 8080	Pesticides (ppm) USEPA 8080	Remarks	Recommendations
95DWD015SO	Soil	ND	ND	PCB and pesticide concentrations were not detected. Impacted soil was remediated during UST removal.	Since site assessments were conducted during UST removal activities in 1991, no further action is recommended.

ND = not detected
ppm = parts per million

3.6.2 Conclusions and Recommendations

During the 1995 SI, no impact to the soil was observed and the soil sample analyzed for pesticides or PCBs showed no evidence of contamination. Since site investigations are assumed to have been conducted during 1991 UST removals, no further investigation is recommended at this site.

3.7 AOC06: Drum Storage Area

The drum storage area is located west of the airstrip. The area includes the former drum storage proper, former wooden storage building, and a trench parallel to the access road. In 1991, drums were reportedly found around the wood building as well as in a designated drum storage area shown on as-builts (Figure 4).

3.7.1 Drum Storage Area Proper

The former drum storage area proper contained remnants of pallets (Photograph 9, Appendix C). Soil consisted of a saturated organic/tundra layer with cobbles up to 3 inches in diameter. The water table was encountered approximately 3 inches bgs. EMCON conducted a PID field screening survey of the area (approximately 35 feet by 8 feet) and readings ranged from 0.8 ppm to 3.5 ppm (Field notes, Appendix D). No visible impact to the soil was noted.

Sample 95DWD016SO contained concentrations of TPH at 1,330 ppm, GRO at 24 ppm, and DRO at 1,210 ppm. Twenty-one VOC analytes were detected above MDLs but below MRLs. Fourteen of the detected analytes were also detected in the method blank and are considered laboratory contaminants (Table 9). Of the remaining seven analytes, the highest detected concentration was total xylenes at 0.00362 ppm.

3.7.2 Trench Area

A trench, approximately 30 feet by 150 feet, was observed parallel to the composite building access road (Photograph 10, Appendix C). An unknown odor was detected from soil within the trench and a PID survey was conducted. PID readings varied from 1.2 ppm to 3.3 ppm. Soil sample 95DWD040SO was collected from an area with a 3.3 ppm PID reading (Figure 4).

Analytical results for sample 95DWD040SO indicated a TPH concentration of 30 ppm and a DRO concentration of 32 ppm (Table 9). Six VOC analytes were detected above MDLs but below MRLs. Two analytes were also found in the method blank and are

Table 9

AOC06
1995 Analytical Results and Recommendations
Former Drum Storage Area

page 1 of 3

Sample ID	Matrix	TPH (ppm) USEPA 418.1	DRO (ppm) M8100	GRO (ppm) M8015	VOCs (ppm) USEPA 8260	Remarks	Recommendations
95DWD016SO	Soil	1,330 (25)	1,210 (10) CN	24 (5) B	1,2,3-Trichlorobenzene - 0 00303 (0 02) J,B 1,2,4-Trichlorobenzene - 0 0019 (0 02) J,B 1,2-Dibromo-3-Chloropropane - 0 00236 (0 02) J,B 1,2-Dibromoethane - 0 00016 (0 02) J 1,2-Dichlorobenzene - 0 00098 (0 005) J,B 1,3,5-Trimethylbenzene - 0 00065 (0 02) J,B 1,3-Dichlorobenzene - 0 00098 (0 005) J,B 1,4-Dichlorobenzene - 0 00084 (0 005) J,B Acetone - 0 00766 (0 05) J,B Bromoform - 0 00033 (0 005) J Ethylbenzene - 0 00028 (0 005) J Hexachlorobutadiene - 0 00195 (0 02) J,B Isopropylbenzene - 0 00043 (0 02) J Methylene Chloride - 0 00176 (0 01) J Naphthalene - 0 00373 (0 02) J,B P-cymene - 0 00386 (0 02) J,B Styrene - 0 00033 (0 005) J Toluene - 0 0003 (0 005) J,B Xylenes - 0 00362 (0 005) J n-Butylbenzene - 0 00069 (0 02) J,B t-Butylbenzene - 0 00039 (0 02) J,B	Collected at former drum storage area proper	Additional investigation and removal action is recommended

Table 9 (Continued)

AOC06
1995 Analytical Results and Recommendations
Former Drum Storage Area

page 3 of 3

Sample ID	Matrix	TPH (ppm) USEPA 418.1	DRO (ppm) M8100	GRO (ppm) M8015	VOCs (ppm) USEPA 8260	Remarks	Recommendations
95DWD040SO	Soil	30 (25)	32 (10) JB	--	Acetone - 0.0292 (0.1) J,B Chloroform - 0.00177 (0.01) J Ethylbenzene - 0.00039 (0.01) J Methylene Chloride - 0.00481 (0.02) J Toluene - 0.00102 (0.01) J,B Xylenes - 0.00405 (0.01) J	Collected from trench area south of former drum storage proper	No further action is recommended

-- = not analyzed
 B = analyte found in associated blank
 CN = does not resemble diesel
 J = estimated value
 ppm = parts per million
 () = method reporting limit

considered laboratory contaminants. Methylene chloride had the highest detected concentration at 0.00481 ppm.

3.7.3 Former Wooden Storage Building

The USACE sampled seven drums containing POL on the east side of the wooden building in 1985. A composite of all seven drum samples contained 0.5 ppm PCBs. Two composite samples D-1 through D-4 and D-5 through D-7, were analyzed from the drums for POL constituents (Table 10). Analytical results were: benzene at 11,300 and 5,900 ppm, ethylbenzene at 2,860 and 2,500 ppm, methylene chloride at 810 and 420 ppm, toluene at 26,900 and greater than 78,000 ppm, and 1,2-dichloroethene at 7,600 ppm. All seven drum samples were tested individually for flashpoint and were "ignitable" except for sample D-3. A soil sample, SM-10, was also collected from the east side of the building. Metals were not detected and methylene chloride was detected at 12 ppb.

In 1991, the wooden building was burned to the ground and fuel and drums were disposed of by Anderson Excavating. In 1995, field personnel noted that a cement foundation from the former north end of the building remains in place. An area of stressed vegetation (or lack of vegetation) is present in the approximate area where the POL drums were located. A headspace PID survey was conducted in a 20 feet by 15 feet area. PID readings varied from 3.2 ppm to 143 ppm. Soil sample 95DWD017SO was collected from the location of the highest PID reading (Figure 4). A petroleum-like odor was present in this area.

Sample 95DWD017SO contained GRO at a concentration of 78 ppm, and DRO at a concentration of 1,640 ppm. Fifteen VOC analytes were detected above MDLs but below MRLs (Table 10). Eight analytes were also detected in the method blank and are considered laboratory contaminants. Of the analytes not detected in the method blank, chloroform had the highest concentration, 0.14 ppm. Chloroform is also a common laboratory contaminant.

3.7.4 Former Emergency MOGAS Tank

A 1964 map of the airstrip indicated a 500-gallon gasoline tank located northeast of the wooden storage building. The USACE attempted to locate the tank during 1985 field activities but were not successful.

In 1995, a visual search and a metal detector survey was conducted in an attempt to locate the tank. Field personnel investigated a 6-foot high ridge, north of the cement wooden storage building foundation that contained piping and other debris. No indications that a tank had been at this location were found. Since no evidence of the tank or its possible locations was observed, samples were not collected in the area.

Table 10

AOC06
1985 Analytical Results and Recommendations
Former Drum Storage Area

Sample ID	Matrix	PCBs (ppm)	Metals (ppm)	VOCs (ppm)	Remarks
SM-10	Soil	--	ND	Methylene Chloride - 12	10 samples composited, sampled from NE side of building
D-1 thru D-4	POL	0.5	--	Benzene - 11,300 Ethylbenzene - 2,860 Methylene Chloride - 810 Toluene - 26,900	Composited, sampled from drums on east side of wood storage building
D-5 thru D-7	POL	0.5	--	Benzene - 5,900 Ethyl Benzene - 2,500 Methylene Chloride - 420 Toluene - >78,000 1,2-Dichloroethene - 7,600	Composited, sampled from drums on east side of wood storage building

ND = not detected
 ppm = parts per million
 -- = not analyzed

3.7.5 Conclusions and Recommendations

The sample at the former drum storage area contained TPH and DRO concentrations above 1,000 ppm. Collection of one or more surface soil samples in the area and sediment samples in Snoffy Creek below the drum storage areas is recommended. Cleanup requirements should be based on the negotiated cleanup concentrations.

The trench area soil sample result for DRO was below ADEC Level A cleanup guidelines. No further investigation is recommended for this area.

Further sampling and assessment work is recommended for the former wooden storage building area to determine the vertical extent of impact. Samples should be analyzed for DRO, GRO, and BTEX. The surface soil extent of impact appears to be approximately 20 feet by 15 feet. Soil remediation will depend upon negotiated cleanup levels.

The 500-gallon emergency MOGAS tank indicated on the site as-built was not located in 1985, 1991, or 1995. Since no evidence of its location was detected, no further investigation is recommended.

3.8 AOC07: Airstrip MOGAS Tank

A 2,500-gallon steel-welded, MOGAS tank was located at the airstrip turnaround on the south end of the airstrip during the years of operation. In 1985, the USACE composited eight soil samples along the southeast side of the tank into one sample (SM-13) for analysis. Data from the 1985 analyses and recommendations are included in Table 11.

Hydrocarbons were detected at 0.65 weight percent or approximately 6,500 ppm. The hydrocarbon distribution was C12 to C30+ and was identified as oil. No PCBs or pesticides were detected in the sample. Metals analysis indicated a zinc concentration of 0.3 ppm. VOC analysis detected one analyte, methylene chloride, which may have been a laboratory contaminant.

The 1995 field team conducted a PID survey in the approximate location of the former tank (Photograph 11, Appendix C). The survey area was approximately 54 feet by 18 feet and PID readings varied from 1.1 ppm to 2.1 ppm (field notes available in Appendix D). The soil was a saturated sandy gravel with organic material and some tundra vegetation at the surface.

Soil sample 95DWD014SO was collected from a PID reading location of 2.1 ppm (Figure 4). A sheen was observed on the surface water but no odor was detected. Analytical results of the soil sample did not detect the presence of GRO and BTEX above MDLs. Metals analyses indicated a lead concentration of 3 ppm. Data from the 1995 analyses and recommendations are included in Table 12.

Table 11

AOC07
1985 Analytical Results and Recommendations
Former Airstrip MOGAS Tank

Sample ID	Matrix	PCBs (ppm)	Metals (ppm)	VOCs (ppb)	Hydrocarbon Distribution	Remarks	Recommendations
SM-13	Soil	0.3	Zinc 0.3	Methylene Chloride - 56	C9 to C23 - 0.11 w/w	8 samples composited, collected from SE edge of tank.	No historical recommendation available

3.8.1 Conclusions and Recommendations

Analytical results from 1985 and 1995 indicate that the soil at the former airport MOGAS tank location is not impacted by petroleum hydrocarbons or VOCs. Although PCBs were detected at 0.3 ppm in the 1985 soil sample, this concentration is significantly less than the guidance of 10 ppm under TSCA. Based on the analytical results and 1995 field screening, no further investigation is recommended at this site.

3.9 AOC08: Old Disposal Area

An old disposal area is located approximately 1 mile south of the airstrip. The extent of the disposal area and wastes disposed of at the site are unknown. Verbal communication from Jeff Currier, manager for AK Commercial Company, indicated that some heavy equipment, drained of all fluids, was buried in this area during the 1991 demolition. Some debris was visible during the 1995 field visit, including a few 55-gallon drums along the roadside. During the 1995 SI, field personnel collected a soil and water sample on the east side of the disposal area where the road intersects with Humpy Creek (Figure 5).

3.9.1 Sampling and Analytical Results

The soil sample 95DWD023SO, was collected from the creek bank near the surface water interface (see field notes, Appendix D). Two drums and a soil stockpile were noted on the west side of the bank. No visible debris or signs of impact were evident within the stockpiled soil. Data from the 1995 analyses and recommendations are included in Table 13. Approximate sample locations are shown on Figure 5.

Sample 95DWD023SO contained a detected concentration of TPH at 37 ppm and a DRO concentration of 30 ppm. However, the DRO result is an estimated value and was also detected in the method blank. GRO was not detected in the sample. Metals analysis detected concentrations of arsenic, barium, chromium, lead, and selenium.

Thirteen VOCs were detected at concentrations above the MDL; of which ten were also detected in the method blank and are considered laboratory contaminants. All detected analytes were below the MRLs and all concentrations were estimated.

Surface water samples 95DWD019WS (project sample), 95DWD020WS (QA/split sample), and 95DWD021WS (duplicate sample) were collected approximately 60 feet downstream of sample 95DWD023SO (Photograph 12, Appendix C). No impact was observed in the surface water.

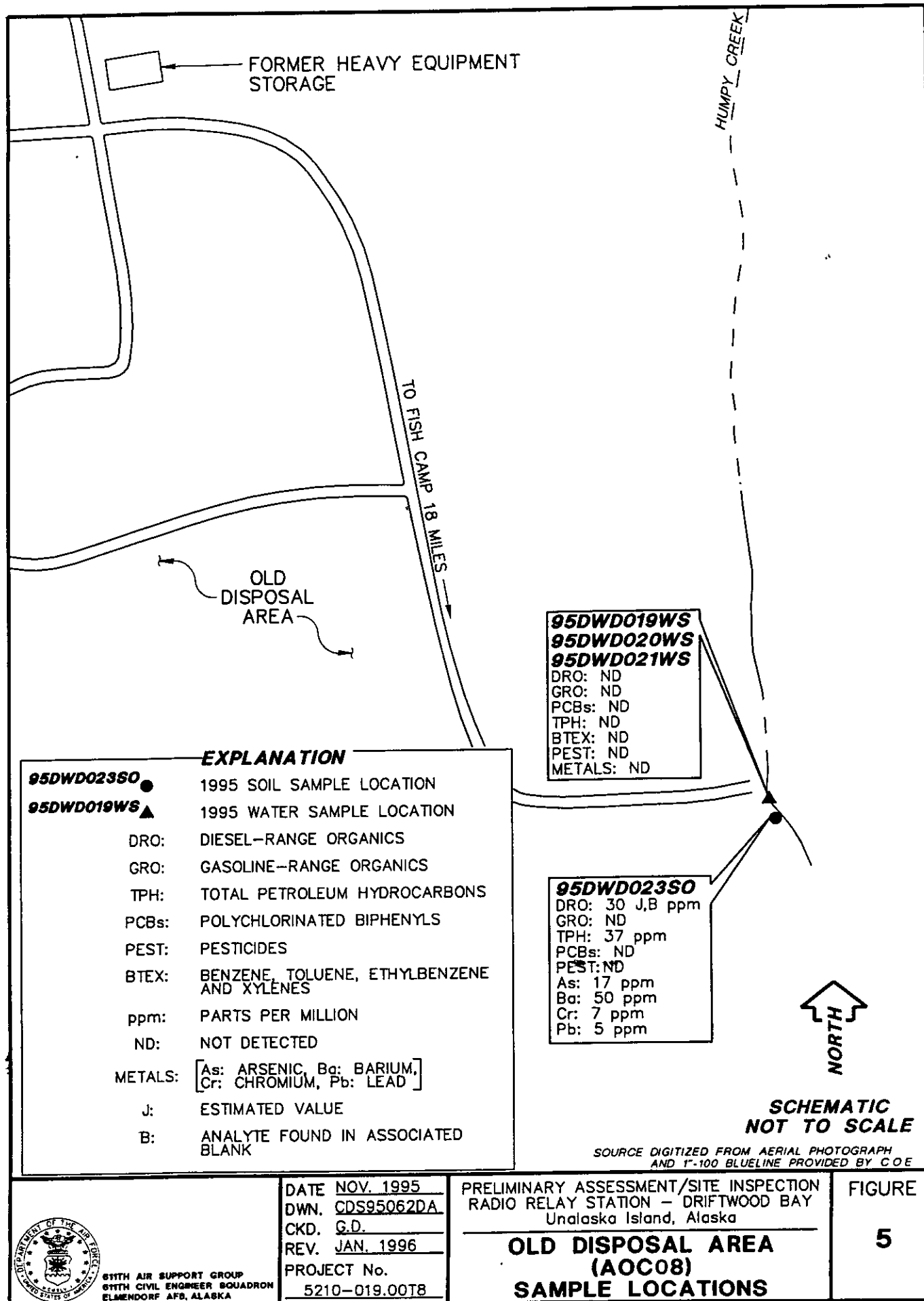


Table 13

AOC08
1995 Analytical Results and Recommendations
Old Disposal Area

Sample ID	Matrix	TPH (ppm) USEPA 418.1	DRO (ppm) M8100	GRO (ppm) M8015	Total Metals (ppm) USEPA 6010/7060	Pesticides (ppm) SW8080	VOCs (ppm) USEPA 8260	BTEX (ppm) USEPA 8020	Remarks	Recommendations
95DWD023SO	Soil	37 (25)	30 (10) JB	ND B	Arsenic - 17 (1) Barium - 50 (1) Chromium - 7 (2) Lead - 5 (1)	ND	1,2,3-Trichlorobenzene - 0 00213 (0 04) J,B 1,2,4-Trichlorobenzene - 0 00145 (0 04) J,B 1,2-Dichlorobenzene - 0 00074 (0 01) J,B 1,3-Dichlorobenzene - 0 00072 (0 01) J,B 1,4-Dichlorobenzene - 0 00074 (0 01) J,B Ethylbenzene - 0 0007 (0 01) J Hexachlorobutadiene - 0 00165 (0 04) J,B Methylene Chloride - 0 00368 (0 02) J Naphthalene - 0 00249 (0 04) J,B P-cymene - 0 00076 (0 04) J,B Toluene - 0 0007 (0 01) Xylenes - 0 0067 (0 01) J n-Butylbenzene - 0 00056 (0 04) J,B	--	Collected from bank of surface water interface	A geophysical study is recommended to determine horizontal and vertical extent of disposal area, sediment samples, and additional soil and water to determine potential impact
95DWD019WS	Water	ND	ND	ND	ND	ND	Acetone - 0 00794 (0 02) J,B Methylene Chloride - 0 00051 (0 001) J,B	ND	Project sample	Additional water sampling may be warranted
95DWD020WS	Water	ND	ND	ND	ND	ND	ND	--	QA split sample	Additional water sampling may be warranted
95DWD021WS	Water	ND	ND	ND	ND	ND	Acetone - 0 00316 (0 02) J,B Methylene Chloride - 0 00066 (0 001) J,B	--	Duplicate sample	Additional water sampling may be warranted

ND = not detected
 -- = not analyzed
 J = estimated value
 B = analyte found in associated blank
 ppm = parts per million
 () = method reporting limit

The three samples did not have detected concentrations of TPH, GRO, DRO, metals, pesticides, or PCBs. Two VOC analytes were detected above the MDL and below the MRL. Due to the presence of the same analytes in the method blank, laboratory contamination is likely.

3.9.2 Conclusions and Recommendations

The extent of the disposal area is currently unknown. A geophysical study may be useful to determine the horizontal and vertical extent of the disposal area. This information would probably be necessary if the land is transferred to private ownership in the future. The collection of sediment samples from Humpy Creek below the location of sample 95DWD032SO and additional soil and water samples may also be warranted to determine potential impact at the site. The drums should be removed and the contents (if any) should be sampled for analysis and containerized.

3.10 AOC09: POL Tank Area

The POL Tank Area includes the two former POL storage tanks, the fuel pumphouse and a former 25,000-gallon MOGAS tank. Figure 6 presents the approximate sample collection locations and analytical results for the site.

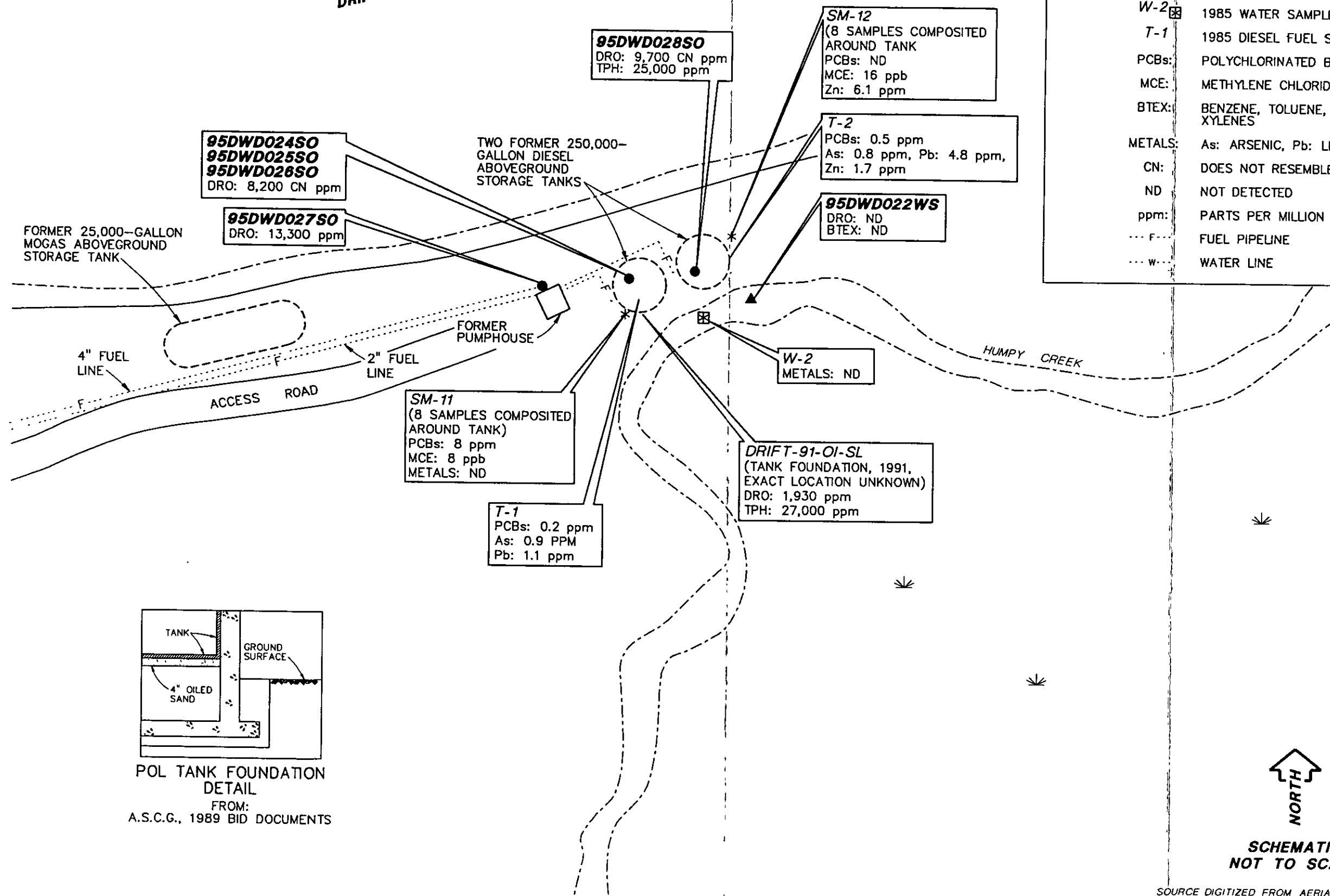
3.10.1 POL Storage Tanks

Two cylindrical 250,000-gallon POL aboveground tanks were located approximately 3,000 feet east of the north end of the airstrip, near the beach. The tanks were constructed of welded steel and measured approximately 45 feet in diameter by 18 feet in height. The area was excavated and a pad of backfill along with cement ringwalls was constructed at each tank location. The top layer of backfill consisted of a 4-inch oiled sand layer upon which the tanks were placed and the cement ringwall provided structural support around the perimeter of the tanks.

During the 1985 field visit, two soil samples, a water sample and diesel samples from the vicinity of both tanks were collected. Data for the 1985 analyses and recommendations are included in Table 14. The composite soil samples SM-11 and SM-12 were collected from eight locations around the west and east POL tanks, respectively. The water sample, W-2, was collected from Humpy Creek, south of the POL tanks. The diesel sample, T-1, was collected from fuel in the west tank and sample T-2 was collected from the east tank.

The soil samples contained no detected concentrations of PCBs or pesticides. One VOC was detected, methylene chloride, which is a common laboratory contaminant. Metals

DRIFTWOOD BAY



POL TANK FOUNDATION
DETAIL
FROM:
A.S.C.G., 1989 BID DOCUMENTS

EXPLANATION	
DRIFT-91-OI-SL	1991 SOIL SAMPLE LOCATION
95DWD017SO	1995 SOIL SAMPLE LOCATION
95DWD022WS	1995 WATER SAMPLE LOCATION
SM-1	1985 SOIL SAMPLE LOCATION
W-2	1985 WATER SAMPLE LOCATION
T-1	1985 DIESEL FUEL SAMPLE
PCBs:	POLYCHLORINATED BIPHENYLS
MCE:	METHYLENE CHLORIDE
BTEX:	BENZENE, TOLUENE, ETHYLBENZENE, XYLENES
METALS:	As: ARSENIC, Pb: LEAD, Zn: ZINC
CN:	DOES NOT RESEMBLE DIESEL
ND	NOT DETECTED
ppm:	PARTS PER MILLION
--- F ---	FUEL PIPELINE
--- W ---	WATER LINE

PRELIMINARY ASSESSMENT/SITE INSPECTION
RADIO RELAY STATION - DRIFTWOOD BAY
Unalaska Island, Alaska

POL TANK AREA (AOC09)
SAMPLE LOCATIONS & DETAIL MAP

DATE NOV. 1995	PROJECT No. 5210-019.0018
DWN. CDS95062PD	
CKD. G.D.	
REV. JAN. 1996	

611TH AIR SUPPORT GROUP
611TH CIVIL ENGINEER SQUADRON
ELMENDORF AFB, ALASKA

Table 14

AOC09
1985 Analytical Results and Recommendations
POL Tank Area

Sample ID	Matrix	PCBs	Metals	VOCs	Remarks	Recommendations
SM-11	Soil	--	ND	Methylene Chloride - 8	8 samples composited, collected from west tank	No historical recommendation available
SM-12	Soil	--	Zinc - 6 1	Methylene Chloride - 16	8 samples composited, collected from east tank	No historical recommendation available
T-1	POL	0 2	Arsenic - 0 9 Lead - 1 1	--	Collected from west tank.	No historical recommendation available
T-2	POL	0 5	Arsenic - 0 8 Lead - 4 8 Zinc - 1 7	--	Collected from east tank	No historical recommendation available
W-2	Water	--	ND	--	Collected from Humpy Creek south of tank area	No historical recommendation available

not detected, except zinc, detected at a concentration of 6.1 ppm around the east tank. The water sample was analyzed solely for metals, none were detected. The diesel samples both had detected concentrations of PCBs and some metals. T-1 had a PCB result of 0.2 ppm and a detected lead concentration of 1.1 ppm. T-2 had 0.5 ppm PCBs detected and less than 5 ppm of arsenic, lead, and zinc.

During 1991 demolition activities, the oiled sand was reportedly removed and placed into the composite building landfill. One sample was collected from the oiled sand beneath one of the tanks. The sample, DRIFT-91-01-SL, was analyzed to determine the asphalt content. Analysis indicated a DRO concentration of 1,930 ppm and a TPH concentration of 27,000 ppm (Table 15).

During the 1995 field visit, the cement tank rings were observed in place (Photograph 13, Appendix C). Soil within the tank rings contained an upper layer of approximately 3 inches of sandy volcanic soil with pumice cobbles and a lower layer of black-stained "oiled sand." A PID survey (headspace method) was conducted at four locations within each tank ring. A soil sample of black-stained soil was collected from each tank area, at the location with the highest PID results.

Within the west tank ring, the highest PID headspace reading was 7.5 ppm. Three samples were collected and analyzed for DRO at this location: 95DWD024SO (project sample), 95DWD025SO (split sample), and 95DWD026SO (duplicate sample). Results indicated DRO concentrations from 7,000 ppm to 8,200 ppm. Sample 95DWD028SO was collected within the east tank ring, at a location with a PID headspace reading of 6.8 ppm. The sample was analyzed for TPH and DRO. TPH was detected at a concentration of 25,000 ppm and DRO was detected at a concentration of 9,700 ppm.

A surface water sample, 95DWD022WS, was collected from Humpy Creek on the south side of the southeast corner of the POL tank berm (Figure 6). The sample was analyzed for DRO and BTEX, all results were ND. Data from the 1995 analyses and recommendations are included in Table 16.

3.10.2 Fuel Pumphouse

Six-inch fuel lines ran from the tanks to a pumphouse west of the two tanks. The pumphouse was constructed of concrete and had an incoming 4-inch fuel pipe used for resupplying the POL tanks from off-loading barges and an outgoing fuel line that ran up to the composite building to fill two 20,000-gallon underground tanks. The foundation of the former pumphouse is in place and a rectangular area indicates where the generator was previously located.

Table 15

AOC09
1991 Analytical Results and Recommendations
POL Tank Area

Sample ID	Matrix	TPH (ppm) USEPA 418.1	DRO (ppm) M8100	Remarks	Recommendations
Drift-91-01-SL	Soil	27,100	1930	Collected from tank foundation.	No historical recommendation available

ND not detected
- = not analyzed
ppm = parts per million

Table 16

AOC09
1995 Analytical Results and Recommendations
POL Tank Area

Sample ID	Matrix	TPH (ppm) USEPA 418.1	DRO (ppm) M8100	Remarks	Recommendations
95DWD028SO	Soil	25,000 (25)	9,700 (10) CN	Collected from black stained soil in east tank ring	Additional assessment and removal action is recommended
95DWD024SO	Soil	--	7,100 (10) CN	Project sample, collected from black stained soil in west tank ring	Additional assessment and removal action is recommended
95DWD025SO	Soil	--	7,00 (62)	QA split sample	Additional assessment and removal action is recommended
95DWD026SO	Soil	--	8,200 (10) CN	Duplicate sample	Additional assessment and removal action is recommended
95DWD027SO	Soil	--	13,300 (10)	Collected at north edge of fuel pumphouse	Additional investigation to evaluate horizontal and vertical extent of impact is recommended
95DWD022WS	Water	--	ND	Surface water sample collected from Humpy Creek	No further action is recommended

CN = does not resemble diesel
 ND = not detected
 ppm = parts per million
 -- = not analyzed
 () = method reporting limit

PID field screening was conducted on the east and north sides of the foundation (Photograph 14, Appendix C). The surface soil from the east side of the pumphouse exhibited PID reading of 2 ppm and the north side had a reading of 94 ppm. Along the north side of the pumphouse, a petroleum-like odor was detected and stained soil was observed approximately 4 inches bgs. At 6 inches bgs, the impact appeared to be greater. Soil sample 95DWD027SO was collected from this location approximately six inches bgs (Figure 6). The sample was submitted for DRO analysis and had a detected concentration of 13,300 ppm. Data from the 1995 analyses and recommendations are included in Table 16.

3.10.3 25,000-Gallon MOGAS Tank

During the 1985 site visit, an empty 25,000-gallon MOGAS tank had been located along the beach on its side, approximately 250 feet west of the fuel pumphouse. During 1991, the tank was filled with copper and other scrap metal for recycling and towed off the beach.

The beach area was inspected by field personnel during the 1995 SI. Cobbles and boulders covered the entire beach surface and no evidence of the former MOGAS tank location was evident (Photograph 15, Appendix C). No soil or surface water samples were collected at the site.

3.10.4 Conclusions and Recommendations

Field observations and analytical results for the POL tank ring areas indicate petroleum contamination of soil. Additional assessment such as evaluation of the leaching potential of these "oil-stained" soils and/or soil removal may be warranted. Further assessment of the vertical extent of impacted soil under the tanks is recommended.

Field screening and analytical results indicate the presence of impacted soil on the north side of the former pumphouse. Additional soil sampling is recommended to determine the horizontal and vertical extent of impacted soil.

Site conditions at the former location of the 25,000-gallon MOGAS tank along the beach prohibits a complete assessment of the area. No further investigation is recommended at this location.

3.11 AOC10: Fuel Pipeline

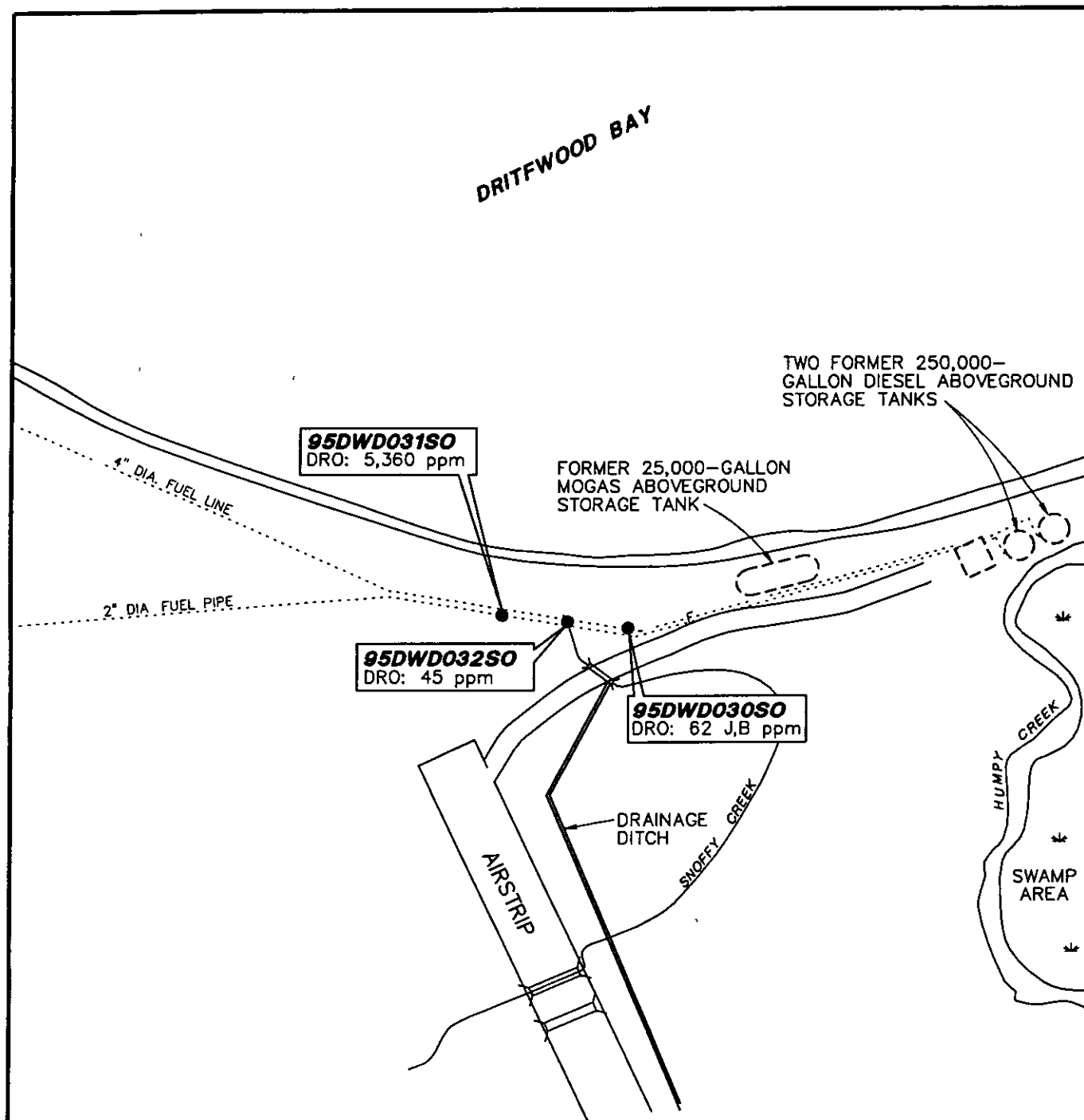
Two pipelines extended from the fuel pumphouse. A 4-inch line was used to transport fuel from barges to the POL tanks and a 2-inch line transported fuel from the tanks to the

Table 17

AOC10
1995 Analytical Results and Recommendations
Fuel Pipeline

Sample ID	Matrix	DRO (ppm) 8100	Remarks	Recommendations
95DWD030SO	Soil	62 (10) J,B	Collected from area where 2" and 4" pipe are located	Additional sampling should be done along pipeline corridor
95DWD031SO	Soil	5,360 (10)	Collected along 2" pipe corridor west of Snoffy Creek	Additional sampling should be done along pipeline corridor.
95DWD032SO	Soil	45 (10) J,B	Collected from sediment of Snoffy Creek at crossing of 2" pipeline	Additional sampling should be done along pipeline corridor

B = analyte found in associated blank
J = estimated value
ppm = parts per million
() = method reporting limits

**EXPLANATION**

95DWD031SO ●	1995 SOIL SAMPLE LOCATION
DRO:	DIESEL-RANGE ORGANICS
ppm:	PARTS PER MILLION
J:	ESTIMATED VALUE
B:	ANALYTE FOUND IN ASSOCIATED METHOD BLANK



**SCHEMATIC
NOT TO SCALE**

SOURCE DIGITIZED FROM AERIAL PHOTOGRAPH
AND 1"-100' BLUELINE PROVIDED BY C.O.E



611TH AIR SUPPORT GROUP
611TH CIVIL ENGINEER SQUADRON
ELMENDORF AFB, ALASKA

DATE NOV. 1995
DWN. CDS95062DD
CKD. G.D.
REV. JAN. 1996
PROJECT No.
5210-019.00T8

PRELIMINARY ASSESSMENT/SITE INSPECTION
RADIO RELAY STATION - DRIFTWOOD BAY
Unalaska Island, Alaska

**FUEL PIPELINE AREA
(AOC11) SAMPLE LOCATIONS
AND DETAIL MAP**

FIGURE

7

Table 18
1991 Analytical Results
UST Site Assessments

page 1 of 2

Date	Sample ID	Sample location	Matrix	TPH USEPA 418.1 ppm dry wgt	Benzene USEPA 8020 ppm	Toluene USEPA 8020 ppm	Ethylbenzene USEPA 8020 ppm	Chlorobenzene USEPA 8020 ppm
6/1/91	20M-01	Between tanks	Soil	165	--	--	--	ppm
6/1/91	20M-02	Center between tanks	Soil	145	--	--	--	--
6/1/91	20M-03	Dirty soil pile	Soil	8400	--	--	--	--
6/2/91	20M-04	East end of tanks	Soil	66.1	--	--	--	--
6/2/91	20M-05	West end of tanks	Soil	32.4	--	--	--	--
6/2/91	20M-06	Clean pile	Soil	33.2	--	--	--	--
6/16/91	SS-195-CMP-20M-07	(Retest 20M-01) Between tanks	Soil	11.2	--	--	--	--
6/16/91	SS-195-CMP-20M-08	(Retest 20M-02) Center between tanks	Soil	ND	--	--	--	--
7/22/91	SS-GAS-722	Bottom of hole (2) Tanks N	Soil	--	ND	ND	ND	--
7/22/91	SS-G-722-2	Bottom of hole (2) Tanks N	Soil	383	--	--	--	ND
7/22/91	SS-G-722-3	Bottom of hole (2) G Tanks	Soil	--	ND	ND	ND	--
7/22/91	SS-G-722-4	Bottom of hole (2) G Tanks	Soil	16.4	--	--	--	ND
7/22/91	SS-1000K-722-5	Bottom of hole at 1000K Tank N	Soil	--	ND	ND	ND	--
7/22/91	SS-1000K-722-6	Bottom of hole at 1000K Tank N	Soil	26.3	--	--	--	ND
7/22/91	SS-1000K-722-7	Bottom of hole at 1000K Tank center	Soil	--	ND	ND	ND	--
7/22/91	SS-1000K-722-8	Bottom of hole at 1000K Tank center	Soil	12.7	--	--	--	ND
7/22/91	SS-1000K-722-9	Clean pile soil - composite sample	Soil	29.2	--	--	--	--
7/22/91	SS-CLN-722-10	Clean soil pile - North	Soil	--	0.033	ND	ND	--
7/22/91	SS-CLN-722-11	Clean soil pile - South	Soil	--	ND	ND	ND	ND
7/22/91	SS-CONTAM-722-12	Contaminated soil pile - composite	Soil	3500	--	--	--	ND
7/22/91	SS-CONTAM-722-13	Contaminated soil pile	Soil	--	ND	0.100	0.427	--
10/11/91	Retest at Gas Tank	1 foot below tank	Soil	360	--	--	--	ND
10/11/91	Final test - Incinerated Soil	Underground gas tanks Arpt Bld	Soil	253	--	--	--	--

as field notes or a report was not available to allow correlation of the results to specific USTs or sample locations

TPH analytical results for samples collected from excavation areas ranged from 11.2 ppm to 383 ppm. Volatile organic aromatics (VOAs) were not detected in any excavation soil samples. One sample from the "clean soil pipe - North," SS-CLN-722-12, contained a benzene concentration of 0.033 ppm.

Approximately 30 cy of excavated soil associated with UST removals at the former lighting vault were treated by an on-site thermal remediation unit. Available information indicates the soil was processed several times. Initial TPH concentrations were 8,400 ppm (Sample 20M-3) from the "dirty soil pile" on June 1, 1991. On July 22, 1991, the TPH result of composite sample SS-CONTAM-722-12 from the contaminated soil pile was 3,500 ppm. Another sample from the contaminated soil pile, sample SS-CONTAM-722-13 (analyzed July 22, 1991), had VOA analytical results of 0.1 ppm, 0.427 ppm, 0.687, and 0.883 ppm, of toluene, ethylbenzene, P,M-xylene, and O-xylene, respectively. A final sample collected from the treated soil on October 10, 1991, had a TPH concentration of 253 ppm.

3.12.1 Conclusions and Recommendations

Although soil sample locations from the former USTs SI were unavailable, the analytical results indicate that any impacted soil remaining at these locations were below the most stringent ADEC cleanup concentrations (Level A). Based on these results, no further investigation is recommended for the former UST locations.

REFERENCES

1. Ackerlund, Walt and Kelly House. 1985 *Site Investigation Field Notes*. Driftwood Bay, Alaska.
2. Bernhart, Robert. Letter dated December 31, 1987 to Henry Friedman of ADEC.
3. Cloe, J.H., and M.F. Monaghan. 1984. "Top Cover For America." The Air Force in Alaska: 1920-1983.
4. Currier, Jeff. 1994. Verbal communication. Hardware manager for Alaska Commercial Company.
5. *Debris Disposal and Site Restoration, Defense Environmental Restoration Program*. 1989. Driftwood Bay/Unalaska Island, Alaska. Prepared by Arctic Slope Consulting Group. Technical Specifications, 12 sheets.
6. *Draft Workplan, White Alice Communications System, Driftwood Bay, Alaska*. May 1995. Prepared for the U.S. Army Engineer District by EMCON, Anchorage, Alaska.
7. *Environmental Assessment, Department of Defense, Defense Environmental Restoration Account* December 1985 Prepared for U.S. Army Engineer District, Alaska by Ocean Technology, Anchorage, Alaska.
10. *Environmental Assessment, Department of Defense Environmental Restoration Account*. 1986. Prepared for U.S. Army Engineer District, Alaska by Ocean Technology, Anchorage, Alaska.
11. Gregory, Jr., Wilbur T., Colonel. Undated. I.D. No. ER-86-06. *Public Notice of "Finding of No Significant Impact."*
12. Hostetter, Mike. 1994. Verbal communication. U.S. Air Force 611th Civil Engineer Squadron.
13. Memorandum for CENPA-CO-RR, 1991. *Asphalt Content of Tank Foundations, Driftwood Bay, Alaska*. Contract No. DACA85-90-C-0030.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

APPENDIX A
NPDL 1995 QUALITY ASSURANCE REPORT



DEPARTMENT OF THE ARMY
NORTH PACIFIC DIVISION LABORATORY
CORPS OF ENGINEERS
1491 N W GRAHAM AVENUE
TROUTDALE, OREGON 97060-9503

EMCON Alaska, Inc.

AUG 16 1995

August 15, 1995

Karen Saathoff
EMCON Alaska, Inc.
201 East, 56th Avenue, Suite 300
Anchorage, Alaska 99518-1241

Dear Mrs. Saathoff:

Enclosed, completing all analyses requested to date, are reports of analytical data for the Driftwood Bay White Alice Communications Site Station project sampled by EMCON Alaska, Inc., Anchorage, Alaska on May 31 and June 1, 1995. Reference original report numbers K9503474 and A950252 from Columbia Analytical Services, Inc. Included are the original Chemical Quality Assurance Report, original report numbers 95-CS-1063 from PACE Inc., with fax addenda, original report H-95-0104 from CENPD-ET-EN-L, fax addenda to CAS reports, and the original sample cooler receipt forms.

Evaluation of the Project Laboratory's (CAS) Data:

a: Trip Blank and Method Blank Results: The trip blank data is presented in Table I. The presence of toluene, 2-butanone, chloroform, benzene and total xylenes in the primary trip blank indicates contaminated trip blank water, since none of the associated samples contained these contaminants. The presence of acetone and methylene chloride are attributed to laboratory contamination based on the associated method blank results. All laboratory method blanks were free of targeted analytes with the following exceptions. 1.43 ppb and 0.12 ppb of acetone and methylene chloride respectively were detected in the water volatile organic compounds (VOC) method blank of CAS report K9503474. The presence of acetone and methylene chloride in the water samples should be considered due to laboratory contamination. Up to eighteen, eleven, nineteen, and nineteen of sixty-three targeted analytes were detected at estimated concentrations in the VOC soil method blanks MB1, MB2, MB3, and MB4, respectively. All samples with similar analyte detections within ten times the method blank concentration are considered laboratory contamination. The laboratory did not provide analytical batch information in their original report. The information has been requested and will be forwarded when received. 24 ppm of diesel range organics (DRO) was detected in the DRO soil method blank of CAS report A9500252. The DRO concentrations in the soil samples were greater than ten times the method blank contamination and are not considered adversely affected. All holding times and detection limits met method requirements with the following exceptions. Several VOC and gasoline range organics (GRO) soil sample reporting limits were elevated by a factor of two due to the low percent solid

method criteria, the VOC data of sample -012SO are estimates. The TRPH MS/MSD recoveries of soil sample -012SO in PACE report 95-CS-1063 were outside ADEC QC limits but are not considered significant since the sample concentration was greater than four times the spike amount. The MS/MSD recoveries for arsenic, lead and selenium were outside EPA QC limits in soil sample -012SO in PACE report 95-CS-1063 but are not be considered significant since the sample concentration was greater than four times the spike amount. The TRPH MS and MSD recoveries were not calculated due to a sample concentration that was greater than four times the spike amount. The COC record and SCR forms met EPA and/or USACE ER1110-1-263 requirements with the following exceptions. Three of three 8260 vials for samples -034WS and -020WS were sealed in one bag. These samples may have been compromised prior to analysis.

Comparison of Project and QA Laboratories' Data: The project and QA data comparisons are presented in Tables II through IV. All data agree with each other and are comparable with the following exceptions. The VOC primary blind duplicate data, presented in Table III-1, does not agree with the primary sample or QA sample data. The data discrepancy is attributed to non-identical sequential samples submitted as replicates.

This completes all work requested for this project.

If you have any questions or comments concerning the Chemical Quality Assurance Report, please contact Dr. Ajmal M. Ilias at (503) 669-0246.

Sincerely,

Enclosures

For Ajmal M. Ilias
Timothy J. Seeman, Director
North Pacific Division Laboratory

CENPD-ET-EN-L (95-0280)

COMPARISON OF PRIMARY BLIND DUPLICATE AND QA RESULTS

Table II

Project: Driftwood Bay White Alice Communications Site Matrix: Water Prefix: 95FDWD-
 Primary Laboratory: CAS, Inc. QA Laboratory: CENPD-ET-EN-L

1. Method: Volatile Organic Compounds (EPA 5030/8260) Units: ug/L (ppb)

Analytes Detected	Primary Lab		Detection Limits	QA Lab	Detection Limits
	019WS	021WS		020WS	
Acetone	7.94 JB	3.16 JB	20	ND	0.50
Methylene Chloride	0.51 JB	0.66 JB	1	ND	3.1

B = Found in method blank

J = Estimated concentration

ND = Not detected

SUMMARY: The primary blind duplicate and QA data agree with each other for all targeted analytes and are comparable with the exception of estimated concentrations of acetone and methylene chloride. Estimated concentrations of acetone and methylene chloride in the primary samples are due to laboratory contamination based on the associated method blank contamination.

2. Method: Organochlorine Pesticides and PCBs (EPA 3510/8080) Units: ug/L (ppb)

Analytes Detected	Primary Lab		Detection Limits	QA Lab	Detection Limits
	019WS	021WS		020WS	
	ND	ND	0.04-1	ND	0.024-5.3

SUMMARY: The primary blind duplicate and QA data agree in the absence of targeted analytes and are comparable.

CENPD-ET-EN-L (95-0280)

Table II cont.

6. Method: Total Metals (EPA 6010.7000 Series) Units: ug/L (ppb)

Analytes Detected	Primary Lab		Detection Limits	QA Lab 021WS	Detection Limits
	019WS	020WS			
Arsenic	ND	ND	5	ND	4.0
Barium	ND	ND	5	ND	5.0
Cadmium	ND	ND	5	ND	5.0
Chromium	ND	ND	10	ND	5.0
Lead	ND	ND	2	ND	3.0
Mercury	ND	ND	0.5	ND	0.20
Selenium	ND	ND	5	ND	4.0
Silver	ND	ND	5	ND	5.0

SUMMARY: The primary blind duplicate and QA data agree in the absence of targeted metals and are comparable.

CENPD-ET-EN-L (95-0280)
Table III cont.

2. Method Organochlorine Pesticide and PCBs (EPA 3540/8080) Units: mg/Kg (ppm)

Analytes Detected	Primary Lab		Detection Limits	QA Lab 012SO	Detection Limits
	011SO	013SO			
4,4'DDT	ND	ND	0.1-4	0.18	0.0012

SUMMARY: The primary blind duplicate and QA data agree within a factor of five with each other or their detection limits and are comparable.

3. Method: Gasoline Range Organics (ADEC 8015) Units: mg/Kg (ppm)
QA Laboratory: PACE, Inc.

Analytes Detected	Primary Lab		Detection Limits	QA Lab 012SO	Detection Limits
	011SO	013SO			
GRO	609	392	5	210	7.2
Percent Solids	64.1	68.1		69.1	

SUMMARY: The primary blind duplicate and QA data agree within a factor of two with each other and are comparable.

4. Method: Diesel Range Organics (ADEC 8100 Mod.) Units: mg/Kg (ppm)
QA Laboratory: CENPD-ET-EN-L

Analytes Detected	Primary Lab		Detection Limits	QA Lab 012SO	Detection Limits
	011SO	013SO			
DRO	72,000	75,000	10	61,000	820
Percent Solids	66.9	67.0		66.6	

SUMMARY: The primary blind duplicate and QA data agree within a factor of two.

CENPD-ET-EN-L (95-0280)

COMPARISON OF PRIMARY BLIND DUPLICATE AND QA RESULTS

Table IV

Project: Driftwood Bay WA Communications Site Matrix: Soil Prefix: 95FDWD-
Primary Laboratory: CAS, Inc. QA Laboratory: CENPD-ET-EN-L

Method: Diesel Range Organics (ADEC 8100 Mod.) Units: ug/Kg (ppb)

Analytes Detected	Primary Lab		Detection Limits	QA Lab	Detection Limits
	024SO	026SO		025SO	
DRO	7100	8200	10	7000	3.2
Percent Solids	88.6	89.6		88.7	

SUMMARY: The primary blind duplicate and QA data agree within a factor of two with each other and are comparable.

Cooler 2 of 2

HTRW COOLER RECEIPT FORM

Project: Driftwood Bay White Alice Alaska W.O.# 9S-280Cooler received on 6/7/95 and opened on 6/7/95 by Caroline M. Stein

(signature)

1. Was cooler scanned for presence of radioactivity, and noted if found? YES ☒ NO
2. Were custody seals on outside of cooler and intact? ☒ YES NO
- a. If YES, how many and where: (2) (1) right front (1) left rear
- b. Were signature and date correct? ☒ YES NO
3. Were custody papers taped to the lid inside the cooler? ☒ YES NO
4. Were custody papers properly filled out (ink, signed, dated, etc.)? ☒ YES NO
5. Did you sign custody papers in the appropriate place? ☒ YES NO
6. Did you attach shipper's packing slip to this form? YES ☒ NO (1)
7. What kind of packing material was used? vermiculite
8. Temperature of cooler 4.0°C

Approved by [Signature]Date 6/7/95

9. Were all bottles sealed in separate plastic bags? ☒ YES NO
10. Did all bottles arrive in good condition (unbroken)? ☒ YES NO
11. Were all bottle labels complete (ID. No., dated, Anal. method, etc.) ☒ YES NO
12. Did all bottle labels agree with custody papers? ☒ YES NO
13. Were correct bottles used for the tests indicated? ☒ YES NO
14. If present, were VOA vials/containers checked for absence of air bubbles/
head space and noted if found? ☒ YES NO
15. Was sufficient volume of sample sent in each bottle? ☒ YES NO
16. Were correct preservatives used? ☒ YES NO

Approved by: [Signature]Date 6/7/95

If not approved:

a. Name of person contacted _____ Date _____

b. Corrective action taken; if necessary: _____

Additional Comments: (1) Shipper's packing slip (see attached) is on cooler 1 of 2
cooler receipt form. (2) Inside of cooler 2 of 2, there
was Sample # 9SDWD01250 (8260, M8100DRO, M8015 6RO, 418.1-TRPH,
RCAA Metals (6000-7000), and 8080) and Sample # 9SDWD02550
(M8100 PRO).

U.S. Army COE

Contract DACW57-94-D-0013
Control Sheet No: 95-CS-1063
Work Order No: 95-0208
SDG: 16400

5 67

Lab Name: PACE, INCORPORATED

Inorganic Analysis Data

Pace ID 100164003 %SOLIDS 69.1
Client ID 95DWD012SO
Collected 05/31/95
Received 06/08/95 Soil

Analyte	Result	UNITS	PQL	Dilution	Date	Time	Prep	Method
BARIUM	59	MG/KG	0.72	1	06/19/95	18:49	06/19/95	SW6010
CADMIUM	< 0.72	MG/KG	0.72	1	06/19/95	18:49	06/19/95	SW6010
CHROMIUM	6.4	MG/KG	0.72	1	06/29/95	12:24	06/19/95	SW6010
SILVER	< 0.72	MG/KG	0.72	1	06/19/95	18:49	06/19/95	SW6010
ARSENIC	9.2	MG/KG	2.3	4	06/19/95	22:48	06/15/95	SW7060
LEAD	15	MG/KG	2.2	5	06/19/95	20:34	06/15/95	SW7421
SELENIUM	< 0.58	MG/KG	0.58	1	06/20/95	21:54	06/15/95	SW7740
TOC								
TPH	67000	MG/KG	3600	50	06/22/95	8:04	06/21/95	E418.1
MERCURY	0.071	MG/KG	0.029	1	06/20/95	8:37	06/19/95	SW7471

900003

Lab Name: PACE, INCORPORATED

5 68

Inorganic Analysis Spike Results

Pace ID 100164003

%Solid - 69.1

Client ID 95DWD012SQ

Analyte	Units	Result	MS	%REC	MSD	%REC	MSTV	Control limit	%RPD
BARIUM	MG/KG	59.411	193.020	92.3%	194.337	93.2%	144.7	75-125%	1.0%
CADMIUM	MG/KG	< 0.724	141.583	97.8%	145.589	100.6%	144.7	75-125%	2.8%
CHROMIUM	MG/KG	6.368	145.152	95.9%	145.876	96.4%	144.7	75-125%	0.5%
SILVER	MG/KG	< 0.724	131.152	90.6%	124.941	86.3%	144.7	75-125%	4.9%
ARSENIC	MG/KG	9.687	10.421	50.7% #	10.453	52.9% #	1.4	85-115%	4.2%
LEAD	MG/KG	19.169	21.922	190.2% #	20.391	84.4% #	1.4	85-115%	77.1% #
SELENIUM	MG/KG	< 0.579	1.150	31.8%	1.149	31.8%	3.6	85-115%	0.1% N
TPH	MG/KG	67100.941	76151.148	399.0% #	66943.176	0.0% #	2268.1	75-125%	#
MERCURY	MG/KG	0.071	0.731	91.2%	0.744	93.0%	0.7	75-125%	2.0%

* Spike recovery is outside control limits.

* MS/MSD RPD is outside control limits.

* Sample concentration exceeds spike level by a factor of four or more

1100011

5 69



FAX TRANSMITTAL

TO

Ruth Abney

FROM

Elizabeth

Message: Driftwood Bay Com. Site 95-028
8260 Run Logs

Number of Pages 7 (including cover sheet)

IMPORTANT NOTE:

The documents accompanying this transmission may contain information which is legally privileged and/or confidential. The information is intended only for the use of the individual or entity named above. If you are not the intended recipient, or the person responsible for delivering it to the intended recipient, you are hereby notified that any disclosure, copying, distribution, or use of any of the information contained in this transmission is strictly PROHIBITED. If you have received this transmission in error, please immediately notify us by telephone and mail the original transmission to us. Thank you for your cooperation and assistance.

COLUMBIA ANALYTICAL SERVICES, INC.

1317 South 13th Avenue - P.O. Box 479

Kelso, WA 98626

(206) 577-7222

(206) 636-1068 - FAX

TE: 6/13/95 (1st window)

GCMS 5970 VOA-1

TUNE FILE: 3FB.U

ERATOR Ci

Reviewed DW 6/20/95

NEW TUNE? NO

6/13/95

41x10⁻⁵ TORR 100 °C

S STD# 6 VOA-25-F

2-CVE X 6VOA-30-4
CCV STD# DUM 580 4VOA-S2-B
Ketones ① 6VOA-30-B
524.2 mix 3000S
MS/LCS STD# 6VOA-29-F

UN #	SAMPLE NAME	DATA FILE	METHOD	PH	R	COMMENTS
1	06125FB1 SU 1X13FB	0613F001	BFB8240			pass w 9 (6VOA-16-A)
2	061256V1-SUPP 8260	2	IV82605			OK 8260 will confirm
3	06135B1 SUS blank	3				IR std carry-over
4	06135B1 method blank	4				MDL ✓ TIC ✓
5	K9503402-013 QSRRTSL1080SB	5		CO2 to over		✓ TIC ✓
6	K9503402-014 QSRRTSL1081SB	6				Bad purge lid not on tight
7	K9503402-015 QSRRTSL1082SB	7				MDL ✓ TIC ✓
8	K9503517-002 Q5FGW002SL	8				MDL ✓ TIC ✓
9	K9503517-004 Q5FGW004SL	9				MDL ✓ TIC ✓
10	K9503517-005 Q5FGW005SL	10				MDL ✓ TIC ✓
11	K9503517-008 Q5FGW008SL	11				MDL ✓ TIC ✓
12	K9503517-010 Q5FGW010SL	12				MDL ✓ TIC ✓
13	K9503517-012 Q5FGW012SL	13				MDL ✓ TIC ✓
14	K9503517-014 Q5FGW014SL	14				MDL ✓ TIC ✓
15	K9503474-010 Q5DWD008SO	15				MDL ✓ TIC ✓
16	K9503474-008 Q5DWD008SO	16				100 µg/ml's MDL ✓ TIC ✓ extended run 5min
17	0613LCS Lab control sample	17				NR 1st SS * ↓
18	K9503402-008ms QSRRTSL1075B	18				NR 1st SS * ↓ 6/13/95 extended run 5min
19	06135B2 SUS blank	19				1st SS * ↓ extended run 10min
20						
21						
22						
23						
24						
25						

RE: 06/14/95

 VOA DAILY ANALYSIS LOG
CCMS 5970 VOA-1

 5 71
TUNE FILE: 5FB.U

OPERATOR CO

6/24/95

NEW TUNE? NO

 4.2×10^{-5} TORR 100 °C

S STD# 4 VOA 25 -F

 6 VOA-30-A 2-CVE
CCV STD# 4 VOA-52-B Dura 580
6 VOA-30-B Ketones
524.2 mix 3 gases
MS/LCS STD# 6 VOA-29-F

UN #	SAMPLE NAME	DATA FILE	METHOD	PH	IR	COMMENTS
1	0614SB1 SUS Blank	0614F001	1/182605			hydrocarbon carry-over
2	0614SB2 SUS Blank	2	↓			hydrocarbon carry-over
3	0614CFB1 Fung AFB	3	8FB8240			pass a) (6 VOA-16-A) 12:31 pm
4	0614CCD1 SUPP 821.0	4	1/182605			OK 8260 will confirm hfs for 1,1-DCA 3-trans-1,7-TX
5	0614SB3 SUS Blank	5				NR std carry-over.
6	0614SB4 SUS Blank	6				MDL ✓ TIC ✓
7	K9503517-021 QSF6W020SL	7				MDL ✓ TIC ✓
8	K9503517-024 QSF6W023SL	8				MDL ✓ TIC ✓
9	K9503517-027 QSF6W025SL	9				MDL ✓ TIC ✓
10	K9503517-031 QSF6W023SL	10				MDL ✓ TIC ✓
11	K9503517-033 QSF6W033SL	11				MDL ✓ TIC ✓
12	K9503517-035 QSF6W035SL	12				MDL ✓ TIC ✓
13	K9503517-040 QSF6W042SL	13				MDL ✓ TIC ✓
14	K9503517-041 QSF6W043SL	14				MDL ✓ TIC ✓
15	K9503517-045 QSF6W047SL	15				MDL ✓ TIC ✓
16	K9503402-026 R QSRRTSL10425B	16				Acetone only report acetone cont of carry-over
17	K9503402-004 QSDW004050	17				MDL ✓ TIC ✓
18	K9503402-026 R QSRRTSL10425B	18				1 gr. for acetone report acetone only
19	0614LCS Lab Control Sample	19		CO2 to oven		
20	K9503517-035MS QSF6W035SL	20				NR Benzene ↓
21	K9503517-035MS QSF6W035SL	21				
22	0614SB4 SUS Blank	22				
23	K9503402-001 QSDW001750	23				100 ml / 5ml's MDL ✓ TIC ✓
24	0614SB5 SUS Blank	24				
25	0614SB6 SUS Blank	25				

 0614SB7 SUS
Blank
E1011

 26
27 8FB8240

 Analysis Lot
VOA9500515

E: 6/12/95 (page 2 of 2) GCMS 5972 VOA-5

5

72 TUNE FILE: BTD.4PRATOR EWNEW TUNE? NO 7.8×10^{-5} TORR 100 °CSTD# 6Y0A-10-ECCV STD# 6Y0A-26-AMS/LCS STD# 6Y0A-26-A

N #	SAMPLE NAME	DATA FILE	METHOD	PH	COMMENTS
1	K9503501-002	0612F026	8260W		✓ trip blanks (OK to be outside window) 6
2	K9503508-003	027			✓ 7
3	K9503465-002	028			✓ 8
4	K9503442-003	029			✓ 9
5	End Run	030	BFB		10
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

6/12/95

APPENDIX B
SUMMARY OF NPDL 1995 QUALITY ASSURANCE REPORT

Summary of Chemical Data Quality Assurance Report

A QA review of laboratory analytical data produced during the Driftwood Bay project was performed by NPDL. NPDL provided QAR comparing two project laboratory analytical reports submitted by CAS, Anchorage and two QA laboratory analytical reports submitted by NPDL and PACE Environmental Laboratories, Inc., Minneapolis, Minnesota (Appendix A). CAS, Anchorage subcontracted the analysis of volatiles by USEPA Method 8260 to CAS, Kelso. The QAR includes evaluation of the project and QA laboratory data including sample preservation, chain-of-custody records, analytical holding times, detection limits, laboratory method blanks, trip blanks, project blind duplicates, laboratory control/laboratory control duplicates (LC/LCD), matrix spikes/matrix spike duplicates (MS/MSD), and surrogate recoveries where applicable.

The project and QA data were in agreement and acceptable except for VOC analyses. It was concluded by NPDL that sequential samples were probably not identical. The discrepancies may be due to sample heterogeneity. All analyses were performed as requested. Holding times and detection limits were met for all analyses. Detection limits for organochlorine pesticides (Pest/PCB) analyses for samples 95DWD011SO and 95DWD013SO were elevated due to sample dilution. Low levels of Pest/PCB analytes may not have been detected in these samples.

Laboratory method blank analyses were conducted at the required frequency for the analytical methods. Low levels of VOC analytes were found in the method blanks. The following samples had results that are less than ten times the amount found in the associated method blank: 95DWD008SO, 95DWD011SO, 95DWD013SO, 95DWD016SO, 95DWD017SO, 95DWD023SO, 95DWD040SO, 95DWD019WS, 95DWD021WS, and 95DWD033WS. Various VOC results for these samples were assigned (B) qualifiers. The DRO method blank associated with the soil samples in CAS report A9500252 was contaminated. The DRO results for the following samples were assigned (B) qualifiers due to laboratory contamination: 95DWD023SO, 95DWD030SO, 95DWD032SO, and 95DWD040SO. No analytes were detected in the remaining method blanks at reportable concentrations.

Trip blanks were collected for BTEX analyses. The contaminants found in the project trip blank and the QA trip blank were not found in the associated samples. Therefore, the presence of these analytes indicates contaminated trip blank water was used when preparing these samples.

Field blind duplicate results were compared for all analyses. The field blind duplicate results agree except for the VOC results for samples 95DWD011SO and 95DWD013SO. NPDL concluded that sequential samples were probably not identical, based on the acceptable internal quality control (QC) and the number of data disagreements.

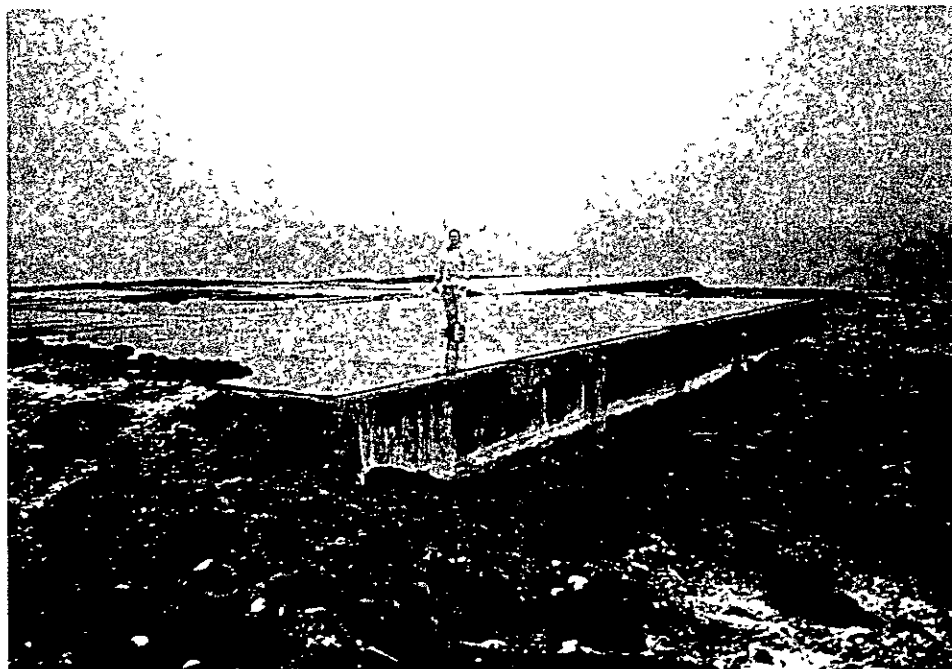
Laboratory control/laboratory control duplicate (LC/LCD) samples, and matrix spike/matrix spike duplicate (MS/MSD) sample recoveries and relative percent differences (RPDs) were within USEPA, ADEC, or laboratory established QC limits with the following exceptions. The MS/MSD RPD for the water BTEX samples was above USEPA QC limits. The water BTEX results were considered estimates based on matrix interference. The MSD recovery of barium was below QC limits and the MS/MSD recoveries of lead were above USEPA QC limits in water batch sample A9500259-2. The matrix effects on the total metals analyses could not be determined because the MS/MSD was run on a sample from a different project. Therefore, the water matrix data for metal analyses were considered estimates.

Summary forms for surrogate recoveries were evaluated for compliance with method QC criteria. Percent recoveries for all surrogate compounds were within QC criteria with the following exceptions. The Pest/PCB surrogate recoveries were below USEPA QC limits for sample 95DWD004SO. Low levels of Pest/PCB analytes may not have been detected in this sample. The surrogate for the Pest/PCB analysis of sample 95DWD012SO was diluted out. The Pest/PCB detected result of this sample was assigned an estimated (J) qualifier due to the high level of matrix interference. The DRO results for the following samples were assigned an estimated (J) qualifier due to low surrogate recoveries: 95DWD024SO, 95DWD026SO, and 95DWD028SO. The VOC results for sample 95DWD012SO were assigned estimated (J) qualifiers because one of three surrogate recoveries was not calculated due to hydrocarbon coalition.

The analytical data were judged to be acceptable for the intended use in site characterization. The analyses met the data quality objectives and method QC criteria with the exceptions previously noted in this summary.

APPENDIX C
PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG



Photograph #1
East side of the former composite building foundation



Photograph #2
The northern extent of the landfill ends at the south side of the composite building

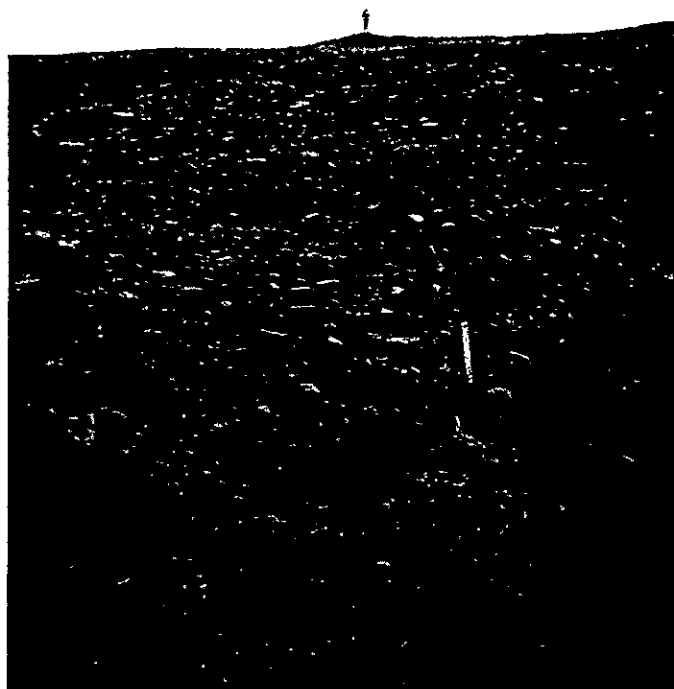
PHOTOGRAPHIC LOG (Continued)



Photograph #3

Sample location of 95DWD001SO at the left stake Sample location of 95DWD005SO at the right stake The ATV in the background is at the foundation of the former composite building

PHOTOGRAPHIC LOG (Continued)



Photograph #4

Location of sample 95DWD002SO at the former north feedhorn foundation Gretchen in background is at the former composite building foundation

PHOTOGRAPHIC LOG (Continued)



Photograph #5

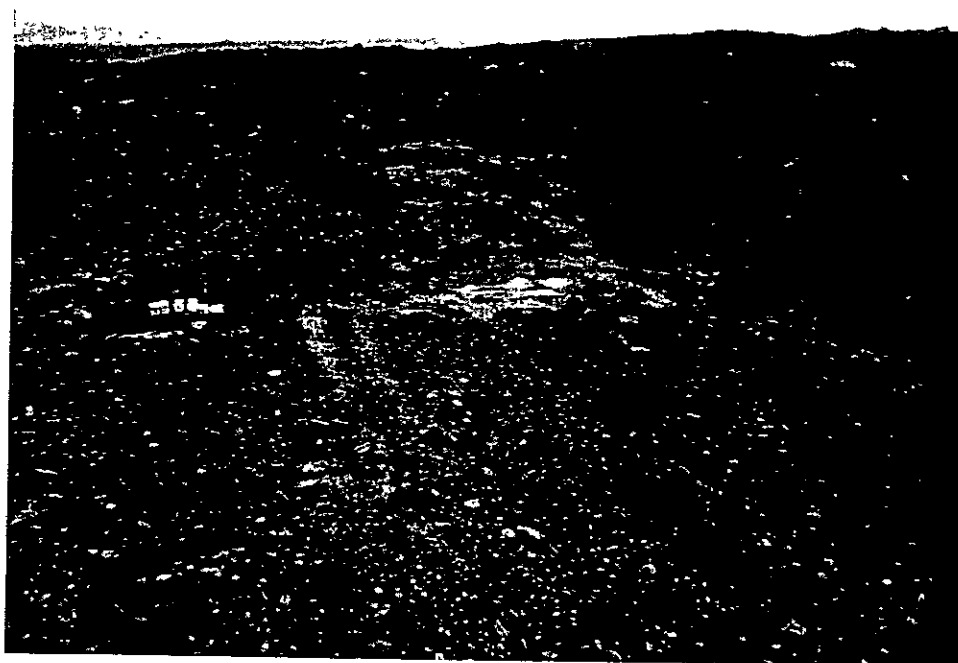
The asbestos cell area is subsiding. The asbestos warning sign has fallen over



Photograph #6

Sample location of 95DWD008SO near the southeast corner of the former composite building foundation

PHOTOGRAPHIC LOG (Continued)



Photograph #7
Location of sample 95DWD008SO.

PHOTOGRAPHIC LOG (Continued)



Photograph #8

The foundation of the former lighting vault. The wooden stake marks the location of sample 95DWD015SO. The rectangular holes in the foundation appear where the former cement generator stands were located. The area on the left of the foundation is the former USTs location.

PHOTOGRAPHIC LOG (Continued)



Photograph #9
Former drum storage area in the foreground

PHOTOGRAPHIC LOG (Continued)



Photograph #10
Trench area near the drum storage area.

PHOTOGRAPHIC LOG (Continued)



Photograph #11
PID survey area in the airstrip turnaround

PHOTOGRAPHIC LOG (Continued)



Photograph #12

Locations of sample 95DWD023SO (background) and water sample 95DWD019WS, 95DWD020WS, and 95DWD021WS

PHOTOGRAPHIC LOG (Continued)



Photograph #13
Former POL tank ring

PHOTOGRAPHIC LOG (Continued)



Photograph #14

Location of sample 95DWD027SO on the north side of the POL pumphouse.

PHOTOGRAPHIC LOG (Continued)



Photograph #15
Approximate former location of the 25,000-gallon MOGAS tank

APPENDIX D
FIELD LOGBOOKS

"Rite in the Rain"® 

ALL-WEATHER

LEVEL

Notebook No. 311

Driftwood Bay
5/31/95
6 Shufelt

5/31

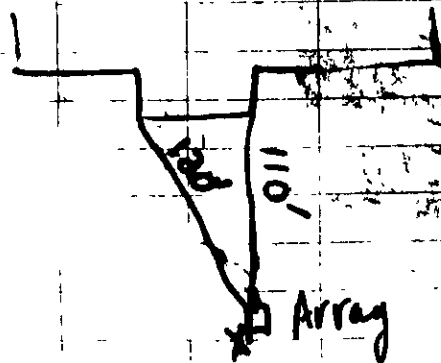
Sam met Greg O. Go to
~~Old Driftwood Bay~~ Eagle (Carris)
 prep for Driftwood Bay

9:20 plane warming
 up.

09:35 land at Driftwood
 Bay

11:20 at Composite Building.
 been clearing the
 road up here.

12:00 Locating South
 WACS array.



find array foundation
 sample 1.3" from
 surface.
 see organic layer
 at ≈ 1 from
 surface

Take sample 1.5
 from ≈ 1
 foundation
 array foundation

95 DWP 00150 12:00
 CB001
 PCB Sample

Dark Reddish Brown
 Sand with silt

12:20 locate North
 WACS array

13:20 Sampling off
steps

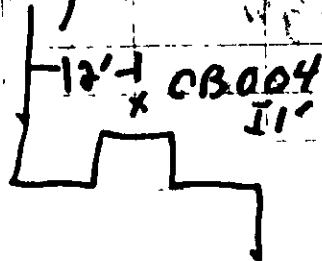
95 DWD00450
CB004

12' from building
3' from steps

After digging out step
bottom, ~~we are~~ ~~ours~~
already ~~ours~~

ground surface is
1' below old
ground surface
brown silty sand
cobble to 3"

Collect sample 1-2"
below ground surface



13:40 Looking for asbestos
area of landfill

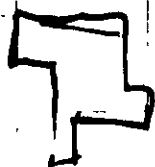
Asbestos sign has
blown or eroded away

South of Camp. Building
area of erosion
sinking / leaning to
asbestos or cement
vault. 130' from
Camp. Building

Sign - 180' South of
Building &
40-50' West
Vault

care in
x. x sign

Whole Bank
is soft &
eroding



15:30
Collecting Sample on
road.

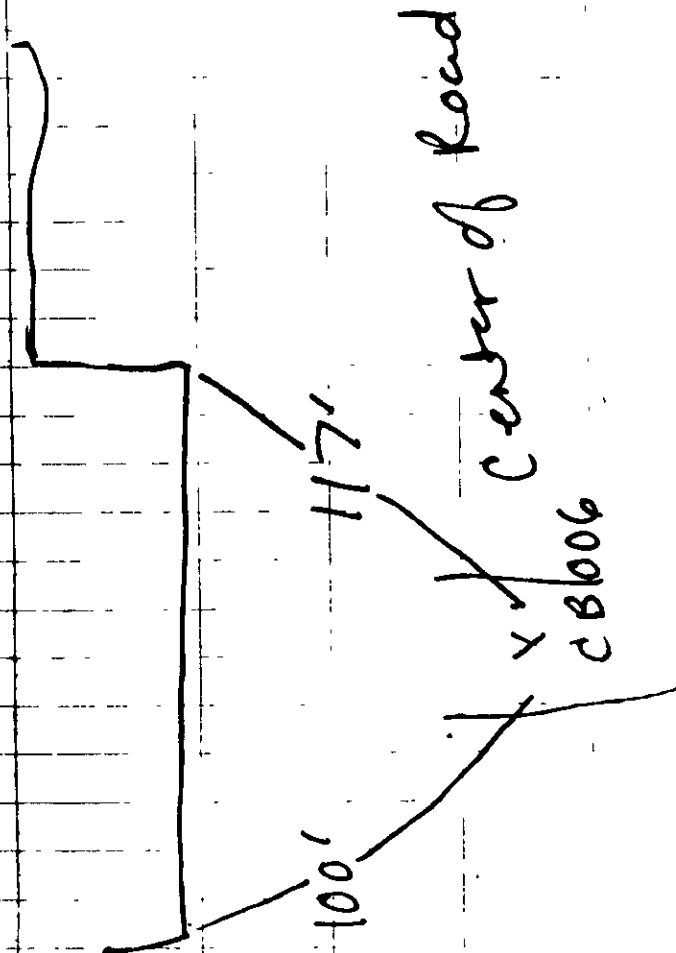
1st hole, dig 4"
hit red rock

2nd hole - 6" still
brown

Collected first hole
4" 8' found
red soil 11"

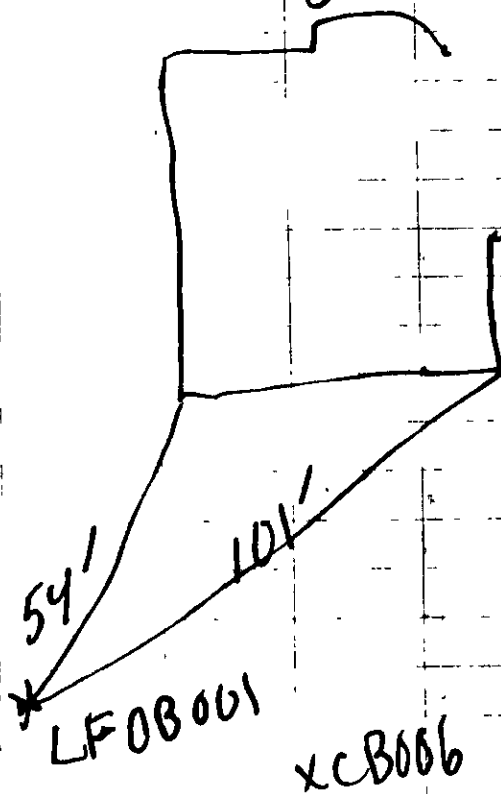
Brownish Red
Pumice / Volcanic
Potential
Road Hill

95 0WN 006 SO
CB006



LFCB001 16:20
950WP 00850

PCBs, metals, TRPH,
VOC, GRO, DRO
8 jars.



17:15 found black
stained area.

View area of stain
look for spring
beneath stain
not found

Gretchen collects
the triplicate
samples while
Greg D. documents
stain

19:05 get to plane
leave D. Wood
Bay

20:30 to hotel + unloaded
gear

22:30 - 01:30 Pack Sampling
gear + Label jars.

@

Greg collecting sample

95DWD01451

AS001

11:00

GROBETX; Leas

slightly present
 - not hydrocarbon
 rainbow color
 not enough to
 determine if
 it separates
 like organic
 or spreads like
 petroleum
 probably organic

Saturated Soil

Surface cobble

Subsoil Sand with silt +
 cobble/gravel

11:30 at same location

Vault

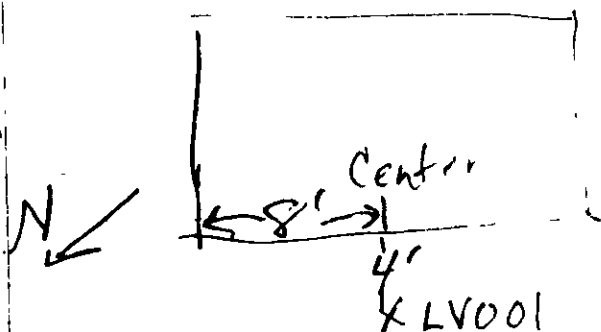
Collect PCB

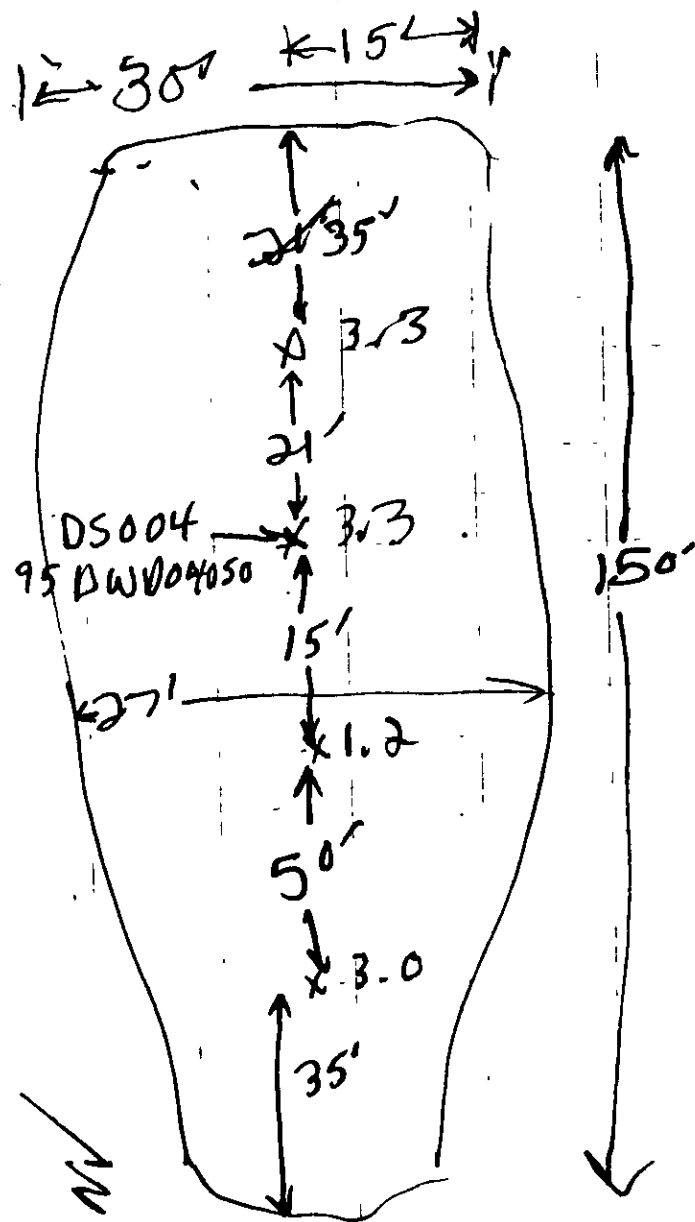
95DWD01550

LV001

Brown sandy soil
 gravelly sand
 1/2" cobble to 6"

Collect sample 6" from
 Surface





12:50

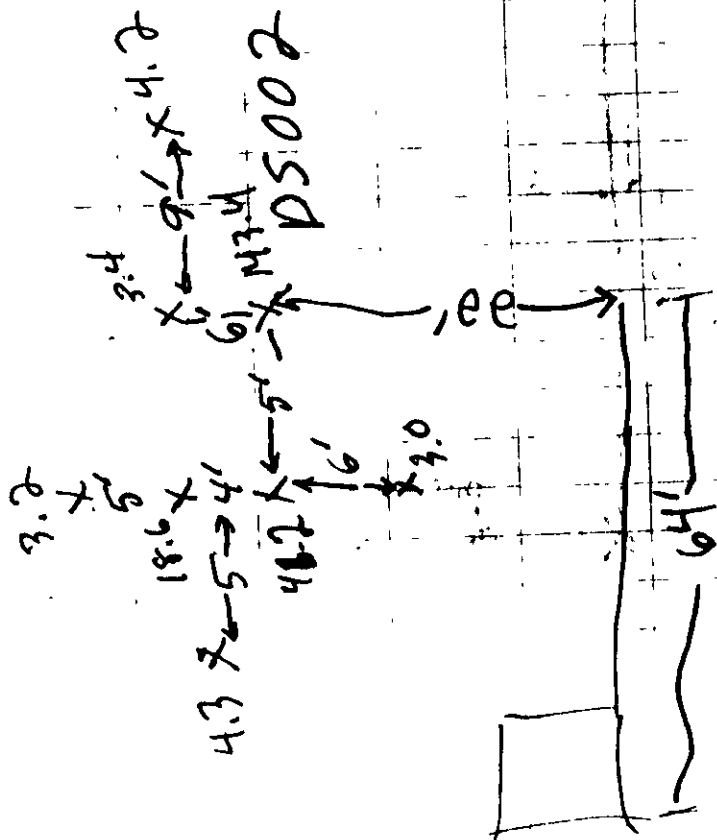
TRPH, PRO, VOC 10"
below surface

95DW00101650 12:40
DS001 TRPH, VOC, GRO, PRO
Collect 1" to 3"
Saturated soil
plywood buried
near sample location

tundra/organic at
surface to 3"
unable to dig
further - water

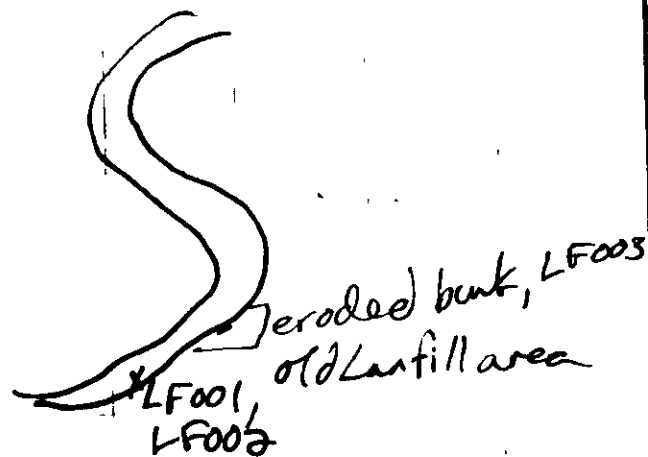
brown soil - organic
soil → tundra layer,
w/ cobble to 3"
+ then water
little soil for
good sample

Area 1 - Visibly Impacted
Soil as dig.
6" -



Collect 14:30 D5002
95 DWD 01750

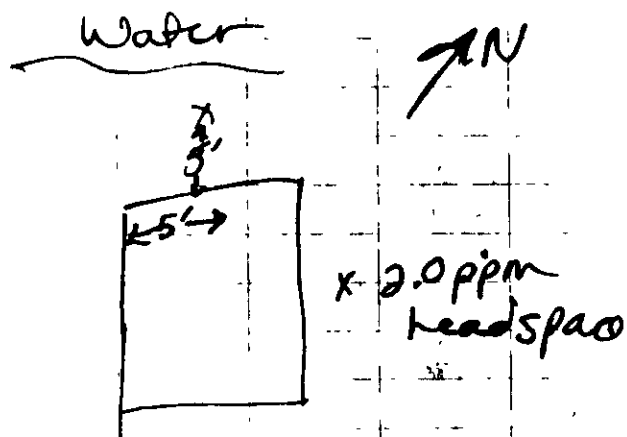
16:30 + 16:40 Collect
Split, Dupe, w/MS+MSD
water samples
near old landfill



Collect waters - 60' downstream
of LF003
Swift moving, near shore
1-4" below surface.
Silt/sediment bottom

19:45 at pump house -
side to shore

17 ppm - ambient PIP
reading - in hole



46 ppm - ambi

94 ppm - headspace
worse deeper

Visible stain begin at
3" soil -
brown sandy gravel at 5 1/2"
below 4" black
sandy gravel

at 6" soil looks nearly
saturated.

petroleum-like odor.

20:30

95DW003050

FL001

Pipeline Sample
approx 10' 15' from
road

organic mat + soil
6" below surface
gravel + organic mat

95DW0033WS 20:20
LF010

034WS 20:20
LF010

Trip Blanks - butcher

Does
FL001 near creek crossing road
approx. 35' to creek

"Rite in the Rain"® 

ALL-WEATHER

LEVEL

Notebook No. 311

Driftwood Bay WACS

5/30/95

~1200 Leave for ~~Driftwood~~ ^{Arctic Harbor}
on Tom Madson's ~~also~~
airplane → charter flight.

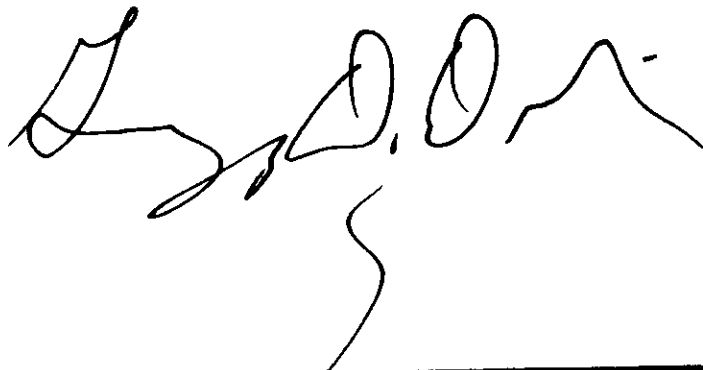
Arrive @ ~1:30 + check
in to Grand Alaskan
Hotel.

2:30 Unpacking. Preparing for
the field.

1800 Eat dinner

2000 Prepare sample bottles for
tomorrow.

0030 Done for the day.



5/31/95

0900 Arrive @ lounge + take
flight to Driftwood
Bay. Tom Madson → Alaskan
Air.

0930 Arrive @ Driftwood
Slight rain. Overcast
~38-40°F.

0945 Begin going up to composite
bldg.
A lot of rock debris
when former water
supply pump house
had been located.
We move a lot of
rocks, to clear the
road.

1120 Arrive @ composite building
there was just enough
space on the road to
get past snow patches.
Greg takes photos, Gretchen

5/31/95

67' below culvert. Soil was black stained. Water was seeping out just below this point ~10', then disappeared again.

1830 Pack-up & head back to airstrip.

1930 Leave Driftwood Bay.

1945 In Dutch Harbor

2015 Return to Grand Attention

2020 Shower & then dinner

2230 Bottle prep

0130 stopped for the night

[Signature]
D. Quinn

6/1/95

0730 Continue bottle prep.

0920 at airport

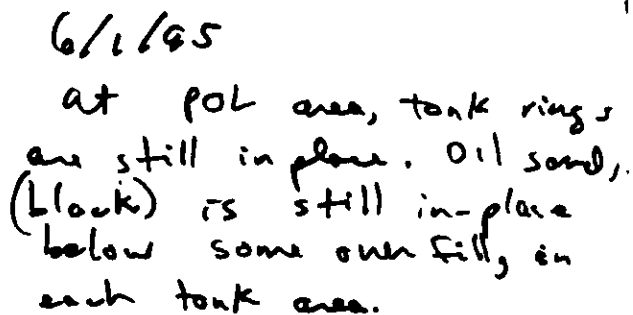
0945 Take off for Driftwood Bay.

1000 Arrive @ D. Bay.

Soil @ airstrip is saturated. Do hands, pore samples when Mogan AST ~~for~~ was. See Gretchen's field notes for sample details.

~~At~~ At former runway lighting vault, collect PCO sample. Disturbed area where tanks were removed on east side.

On to drum storage area near the former wooden storage building.



Collected samples from stained soil to document the levels.

Obvious use on the beach in this area. This is probably where one Dutch Harbor residents indicated they have parties.

Along north side of PDL pump house is an imported area where valves were located. Could potentially be from generators as well.

Could not sample in approximate
location of brand MOBAS
Tank. All cobbles & boulders

14

6/2/95

6/2/95

0800

Prepare cooler/samples for shipment.

1230

Begin taking cooler to airport. Mike Swearingin is using his rental vehicle to take them to the airport

1335

Mike drops us off & goes to rental company.

1350

attempt to hold the flight but they will not wait any longer.

Mike misses the flight.

1600

Arrive in Anchorage. Demob.

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE