

000002

**FINAL FIELD REPORT
UNDERGROUND STORAGE TANK
REMOVAL
CHULITNA FACILITY**

**FINAL FIELD REPORT
UNDERGROUND STORAGE TANK REMOVAL
CHULITNA FACILITY
ALASKA DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
CENTRAL REGION**

Prepared for:

Alaska Department of Transportation and Public Facilities
P.O. Box 196900
Anchorage, Alaska 99519-6900

Prepared by:

DOWL Engineers
4040 B Street
Anchorage, Alaska 99503
(907) 562-2000

February 1998

W.O. D55836

TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1
1.1 Purpose/Scope.....	1
1.2 Program Organization.....	1
2.0 BACKGROUND INFORMATION	2
2.1 Site Location	2
2.2 Alaska Department of Environmental Conservation Forms.....	2
3.0 UNDERGROUND STORAGE TANK CLOSURE SITE ASSESSMENT-FIELD PROGRAM.....	2
3.1 Site Activities.....	3
3.2 Tank Inspection.....	5
3.3 Underground Storage Tank Excavation Measurement	5
3.4 Underground Storage Tank Excavation Sampling.....	6
3.5 Soil Stockpile.....	7
3.6 Soil Stockpile Sampling.....	7
3.7 Backfilling.....	8
3.8 Tank Disposal	8
4.0 ANALYTICAL PROGRAM.....	8
4.1 Sample Analysis.....	8
4.2 Analytical Results	9
4.3 Quality Assurance/Quality Control (QA/QC)	10
5.0 ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION CLEANUP LEVELS	10
6.0 CONCLUSIONS AND RECOMMENDATION	11
7.0 BIBLIOGRAPHY	13

LIST OF TABLES

Excavation Sample Locations.....	Table 1
Stockpile Sample Locations.....	Table 2
Excavation and Stockpile Sample Results.....	Table 3
Preliminary Matrix Score Sheet.....	Table 4

LIST OF FIGURES

Vicinity Map.....	Figure 1
UST Location Map	Figure 2
Sample Location Map.....	Figure 3

APPENDICES

Alaska Department of Environmental Conservation Forms Appendix A
Analytical Reports Appendix B
Chain of Custody Record..... Appendix C
Field Book Notes Appendix D
Photographs..... Appendix E

1.0 INTRODUCTION

1.1 Purpose/Scope

This Field Report is prepared for the Alaska Department of Transportation and Public Facilities (ADOT&PF) by DOWL Engineers (DOWL) for the closure and site assessment program conducted at the Chulitna ADOT&PF Facility. See Figure 1, Vicinity Map, for the location of the project site. DOWL has been retained by ADOT&PF to provide environmental consulting services pertaining to the assessment of the UST closure.

The purpose of the closure program was to remove a 3,000-gallon gasoline underground storage tank (UST), a 3,000 gallon diesel UST, and a 2,000-gallon diesel UST at the ADOT&PF Chulitna Facility and conduct a site assessment in accordance with the *Work Plan, Underground Fuel Storage Tanks, Alaska Department of Transportation and Public Facilities, Central Region*, (Work Plan), DOWL Engineers (1997), 18 AAC 78, and the State of Alaska Department of Environmental Conservation (ADEC) Underground Storage Tanks Procedure Manual, dated September 22, 1995 (Procedures Manual).

1.2 Program Organization

This site assessment program was conducted in accordance with ADEC Procedures Manual and 18 AAC 78. The Mr. Corey Loyd was DOWL's Project Manager for the UST site assessment and the Central Region Underground Fuel Storage Tank project. Mr. Kurt J. Kinnevan was DOWL's Principal Investigator for the Chulitna UST site assessment.

The UST closure activities were conducted by Mr. Jeff Hart of B.C. Excavating (BC) of Anchorage, Alaska. MultiChem Analytical Services (MAS), an ADEC-approved laboratory, conducted the analytical testing for the UST site assessment program and was responsible for data reduction, ensuring calibration of analytical instruments, validation, reporting procedures used, quality control checks, calculation of data quality indicators, laboratory

preventive maintenance, corrective action and performing laboratory system audits, as outlined in the Work Plan (DOWL, 1997).

2.0 BACKGROUND INFORMATION

2.1 Site Location

The site is located at Mile 127 of the Parks Highway in Chulitna, Alaska, See Figure 1, Vicinity Map, at the end of this report for the location of the project. Three USTs located south of the ADOT&PF shop building were removed. One UST was reported to be used to store gasoline fuel and two USTs were reported to be used to store diesel. The Facility identification number is 144 and the tanks are identified as tank 1 (gasoline), tank 2 (3,000-gallon diesel tank) and tank 3 (2,000-gallon diesel tank). See Figure 2, UST Location Map, at the end of this report for the location of the UST closure project.

The owner of the tanks is documented as ADOT&PF, 5848 East Tudor Road, Anchorage, Alaska, 99507.

2.2 Alaska Department of Environmental Conservation Forms

DOWL submitted the UST Closure Notice and Post Closure Notices to ADEC. Copies of the Closure and Post Closure Notices submitted to ADEC are included in Appendix A, ADEC Forms.

3.0 UNDERGROUND STORAGE TANK CLOSURE SITE ASSESSMENT-FIELD PROGRAM

The three USTs, one 3,000-gallon gasoline, one 3,000 gallon diesel, and one 2,000-gallon diesel tank, were closed by Mr. Jeff Hart of BC on August 14, 1997. Site assessment activities were conducted by DOWL on August 13-14, 1997. DOWL submitted the ADEC Notification of Post-Closure form and the Closure Checklist to ADEC. Copies of the forms are included in Appendix A.

Equipment used for removal of the tanks and soils included a Hitachi EX100 extend hoe and an end dump truck. The back hoe was used for excavating soils and removing the tanks and the dump truck was used for transporting excavated soils to the stockpile area and transporting the concrete debris from the fill island to the landfill.

The tank closure and site assessment activities were handled in accordance with 18 AAC 78 and the ADEC Procedures Manual.

3.1 Site Activities

Field screening of excavated soils was conducted in accordance with the SAP. A Photovac photoionization detector (PID) Model 2020 with a 10.6 eV lamp was on-site during the sampling program. The PID was calibrated in the morning using isobutylene gas to read directly in parts per million (ppm) of benzene. This was accomplished using isobutylene calibration gas and a 0.5 (Model 2020) response factor during the calibration procedures, as specified in the instrument manual. The response factor is based upon a ratio of the response of the PID to benzene and the response of the PID to isobutylene. Calibration was checked at the middle and end of the field day to ensure that proper calibration of the instrument was kept.

DOWL arrived on site at 1400 the afternoon August 13, 1997. The ADOT&PF worker assigned to the Chulitna facility was on site. BC had available at the project site a Hitachi EX100 back hoe and a dump truck for excavating and moving soils. Weather conditions on August 13, 1997 were overcast with occasional rain with the temperature ranging between 40 and 50 degrees Fahrenheit.

BC was dismantling the three dispensers. The concrete island was removed by 1515. The concrete island was approximately 36 inches thick and measures 27 feet by three feet.

The initial PID readings below the concrete island were 49.7 ppm benzene equivalent of volatile organics in air. Screening of the soil above the gasoline tank resulted in PID readings of 15.0 to 523 ppm benzene equivalent of volatile organics in air. All initial

excavated soils were above the screening criteria (10 ppm benzene equivalent of volatile organics in air) to be considered contaminated. These soils were placed in a temporary stockpile near the excavation.

At 1950 DOWL and BC ceased operations for the day.

DOWL arrived on site at 0800 the morning of August 14, 1997. The ADOT&PF worker assigned to the Chulitna facility was on site. BC began excavating the center tank (tank 1: gasoline) while DOWL calibrated the PID. Weather conditions on August 14, 1997 were raining with the temperature ranging between 40 and 50 degrees Fahrenheit.

Gas tank

The gasoline tank was pulled at 0910. The tank appeared to be in fair condition. There were no noticeable holes, but there was some rust and pitting at various locations along the tank length. Screening of the soil below the gasoline tank resulted in PID readings of 22.8 to 161 ppm benzene equivalent of volatile organics in air. A strong petroleum odor was evident. The soils along the side and bottom of the gasoline tank had a distinctive blue-gray color.

At 915 soil sample CHU-01-EX was taken from the bottom of the excavation from under where the east end of the gasoline tank had been. CHU-02-EX was taken from the excavation below where the west end of the gasoline tank had been at 0930.

Diesel Tank

At 0947 BC began excavating the small diesel tank (tank 3). At 1230 BC pulled the small diesel tank. Since the two tanks lay end to end, only one sample from the east end of the excavation where the small diesel tank had been was taken. Sample CHU-03-EX was collected at 1245. The PID of this sample location was 0.0 ppm benzene equivalent of volatile organics in air.

doesn't correlate w. fig 3

All soil moved to extract the second tank was relocated within the existing excavation.

At 1340 BC started excavation of the other diesel tank (tank 2). The last tank was pulled at 1630. There were no noticeable holes, but there was some rust and pitting at various locations along the tank length. Screening of the soil below the diesel tank resulted in PID readings of 45.2 to 247 ppm benzene equivalent of volatile organics in air. A strong

petroleum odor was evident. The soils along the side and bottom of the large diesel tank had a distinctive blue-gray color.

Like the smaller diesel tank, this diesel tank also lay end to end with the gasoline tank. A soil excavation sample was only taken from the area that had been beneath the west end of the larger diesel tank. CHU-04-EX was taken at 1640, it had an initial PID reading of 247 ppm benzene equivalent of volatile organics in air.

BC began filling the excavation at 1700.

ADOT&PF personnel on site had requested that the contaminated soil stock pile be moved across the Parks Highway to a storage area the ADOT&PF maintained. At 1900 BC began transferring the stock pile to the new location.

The stockpile was estimated to be approximately 50 cubic yards. Stockpile soil samples for screening purposes were collected starting at 1915. Five samples were gathered. The samples had PID readings of between 45.9 to 1210 ppm benzene equivalent of volatile organics in air. Samples CHU-01-SP and CHU-02-SP (and a duplicate) were taken at 1940 and 1945, respectively.

BC ceased operations at the site at 2035.

3.2 Tank Inspection

The exteriors of the three USTs were inspected as they were pulled from the excavation. The tanks were found to be in fair to good condition with some rusting and pitting. Piping, including fill and vent pipes and piping from the tanks to the dispensers, were found to be in fair to good condition. No holes were observed in the tanks or the piping.

3.3 Underground Storage Tank Excavation Measurement

All soil moved to extract the second and third tanks was relocated within the existing excavation.

The excavation was measured on August 14, 1997 prior to filling. It was found to be 45 feet by 12 feet and approximately four and one-half feet in depth.

A determination of the amount of petroleum contaminated soil remaining in place at the site was not conducted as part of the site assessment activities.

3.4 Underground Storage Tank Excavation Sampling

Soil sampling was conducted in accordance with ADEC UST regulations and the ADEC Procedures Manual. Excavation sampling was performed on August 14, 1997. The weather was rainy with temperatures around 50 degrees Fahrenheit.

Soil sampling was accomplished using the back hoe bucket to obtain soil from the sample location of the excavation. The soil was transferred to new sample jars using new, pre-cleaned stainless steel sampling spoons. The sample jars were immediately sealed with Teflon-lined lids. New nitrile gloves were worn by the sampler for the collection of each sample. The gloves were disposed of properly following the collection of each sample. Identification labels were attached to each sample jar prior to placing the jars into a cooler and chilling to near four degrees Celsius until delivery to the laboratory.

A chain-of-custody record accompanied the soil samples submitted to the analytical laboratory. A copy of the DOWL Chain-of-Custody record is included in Appendices C. Site information and observations were recorded in a bound field book. Information included soil types encountered, PID readings, location and time each sample was collected, and other information pertinent to the sampling program and site activities. A copy of the field notes is provided in Appendix D.

Four samples were collected from the UST excavation at the Chulitna Facility. Figure 3, Sample Location Map, identifies the soil sample locations. A summary of the excavation samples collected, the location of the sample and the PID screening reading at the location is provided below in Table 1.

Table 1: Excavation Sample Locations

Sample Number	Location	Photoionization Detector (PID) Reading
CHU-01-EX	beneath east end of gasoline tank	22.8
CHU-02-EX	beneath west end of gasoline tank	161
CHU-03-EX	beneath east end of small diesel tank	0.0
CHU-04-EX	beneath west end of large diesel tank	247

PID readings are reported in ppm benzene equivalent of volatile organic vapors in air.

3.5 Soil Stockpile

Soils removed from the UST excavations for the first tank were segregated based on field screening and placed atop a plastic liner on site if screening indicated the soils were contaminated. If field screening did not indicate the soils were contaminated the soils were placed adjacent to the excavation and used later as backfill material. After screening and sampling the contaminated soils removed from the excavations, the soils remained stockpiled on site.

One contaminated stockpile was formed during the tank removal activities at the Chulitna Facility.

The stockpile consisted of one pile of soil which measured approximately five and one-half yards by seven yards by one and one-third yards high for a total of approximately 50 cubic yards.

3.6 Soil Stockpile Sampling

Soils removed from the excavation showing field screening evidence of contamination were sampled to determine levels of contamination. Sampling was conducted in accordance with the approved the ADEC Procedures Manual. The stockpiles were sampled after the UST's was removed and site assessment activities were conducted. Analytical results of stockpiled soils were obtained and reviewed to determine possible disposal options for the soil.

A summary of the stockpile samples collected, the location of the sample and the PID screen reading at the location is provided below in Table 2.

Table 2: Stockpile Sample Locations

Sample Number	Location	Photoionization Detector (PID) Reading
CHU-01-SP	Screened location 4	497
CHU-02-SP	Screened location 5	1210
CHU-02-SP-Dup	Screened location 5	1210

PID readings are reported in ppm benzene equivalent of volatile organic vapors in air.

3.7 Backfilling

The excavation was backfilled with clean import material on August 14, 1997.

3.8 Tank Disposal

The three USTs were cut into manageable pieces and disposed of as scrape metal by BC on August 14, 1997.

4.0 ANALYTICAL PROGRAM

4.1 Sample Analysis

Soil samples collected from the UST excavations and associated stockpiled material were analyzed for Diesel Range Petroleum Hydrocarbons (DRPH) by Alaska Method AK102, Gasoline Range Petroleum Hydrocarbons (GRPH) by Alaska Method AK101 and benzene, toluene, ethylbenzene, and toluene (BTEX) by EPA Method 8020 using methanol preservation, and lead by EPA Method 7421.

The samples collected during the UST site assessment were hand delivered by the principal investigator to MAS in Anchorage, Alaska for analytical analysis. During the time between collection and shipping, the samples were in the possession of the DOWL principal investigator. DOWL Chain-of-Custody forms for this project are located in Appendix C.

Samples were identified with a unique number using the three letter prefix CHU for the location of the site (Chulitna) followed by a sample identification number assigned in the order of sample collection and a suffix to indicate whether the sample was from the excavation (EX) or the stockpile (SP), i.e. CHU-01-EX.

4.2 Analytical Results

The analytical results for the soil samples collected during this UST site assessment program are presented in Table 3 - Excavation and Stockpile Sample Results below. Figure 3, Sample Location Map, identify the location of each sample collected. Appendix B, Analytical Reports, contains the analytical reports produced by the contractor's laboratory, MAS. All sample results were reported by the laboratory in mg/Kg, which equates to parts per million (ppm).

Table 3
Excavation and Stockpile Sample Results

Sample No.	Location in Excavation	PID Microtip HL-2000 reading	AK102 (DRPH)	AK101 (GRPH)	8020 (BTEX)					Total Lead
					Benzene	Toluene	Ethyl-benzene	Total Xylenes	Total BTEX	
CHU-01-EX	between tank 1 and tank 3	22.8	550	43	ND	0.26	ND	2.8	3.06	6.4
CHU-02-EX	between tank 1 and tank 2	161	10,000	520	ND	1.1	3.4	8.7	13.2	18
CHU-03-EX	east end of tank 3	0.0	ND	0.62	ND	0.037	ND	0.021	0.058	
CHU-04-EX	west end of tank 2	247	4700	260	ND	ND	ND	4.1	4.1	
CHU-01-SP	stockpile	497	2200	460	ND	4.1	3.5	59	66.6	5.8
CHU-02-SP	stockpile	1210	2700	770	ND	9.9	6.3	90	106.2	8.4
CHU-02-SP-Dup	stockpile	1210	2900	700	ND	5.3	3.9	59	68.2	8.3

PID readings are reported in ppm of benzene equivalent of volatile organics in air.

All analytical concentrations are reported in mg/Kg.

ND means the analyte was non-detectable.

Blanks indicates analysis was not performed.

tank 1 = gasoline tank, tank2 = large diesel tank, tank 3 = small diesel tank

4.3 Quality Assurance/Quality Control (QA/QC)

To ensure that information obtained from the screening and sampling activities is an accurate and defensible representation of the site conditions, DOWL's principal investigator followed the operational guidelines outlined in the ADEC UST Procedures Manual.

A quality assurance/quality control (QA/QC) review of the analytical results for the samples collected during the site assessment activities was conducted to verify the validity and usefulness of the data. One duplicate sample was collected during the field program. Sample CHU-02-SP-Dup was a duplicate sample of CHU-02-SP.

All laboratory analyses were conducted by MAS following standard laboratory QA/QC procedures. MAS is an approved analytical laboratory in accordance with 18 AAC 78. The analytical results were found to be acceptable for comparison with regulatory cleanup levels.

5.0 ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION CLEANUP LEVELS

ADEC regulation provide cleanup standards for petroleum contaminated soils. The determination of the ADEC cleanup level is based on a matrix scoring of the site following the ADEC Matrix Score Sheet found in ADEC regulations 18 AAC 78.315, Table D. A preliminary matrix scoring was conducted by DOWL for this site. The preliminary matrix score sheet is provided at the end of this report in Table 4: Preliminary Matrix Score Sheet.

Based on the preliminary matrix scoring, the site has a preliminary score of 40, which equates to a Level B score. Level B cleanup levels are as follows:

1. Diesel range petroleum hydrocarbons (DRPH) - 200 ppm;
2. Gasoline-range petroleum hydrocarbons (GRPH) - 100 ppm;
3. Benzene - 0.5 ppm;
4. Total BTEX - 15 ppm.

6.0 CONCLUSIONS AND RECOMMENDATION

Site Assessment activities were conducted following guidelines outlined in the ADEC Underground Storage Tank regulation, 18 AAC 78.

After the removal of the three tanks, four samples were collected from soils beneath the tanks. Since the tanks were laid end to end, one sample was taken from beneath each end of middle tank where it abutted the ends of the outer tanks. Two samples were taken, one each, from beneath the ends of the outer tanks furthest away from the middle tank.

The excavation samples were analyzed for GRPH and BTEX, DRPH, and Lead. GRPH levels ranged from non-detects to a high of 520 mg/Kg in the sample between the gasoline tank and the larger diesel tank (CHU-02-EX). Benzene was not detected in any of the samples. Toluene was found in all the excavation samples except the one taken from beneath the west end of the larger diesel tank (CHU-04-EX). Toluene ranged from 0.037 to 4.1 mg/Kg. Ethylbenzene was detected in CHU-02-EX at 3.4 mg/Kg. Total xylenes were found in all the excavation samples. Total xylenes ranged from 0.021 to 8.7 mg/Kg.

The total BTEX levels for the excavation samples ranged from 0.058 to around 13.2 mg/Kg. Total lead was detected in the samples from below the gasoline tank. Total lead values ranged from 6.4 to 18 mg/Kg.

DRPH levels were found in three of the four excavation samples (CHU-01-XE, CHU-02-EX, and CHU-04-EX). The values for these three locations ranged from 550 to 10,000 mg/Kg. The highest value was from CHU-02-EX, the sample taken from between the gasoline and large diesel tanks.

The detected hydrocarbon compounds were above preliminary Level B cleanup levels for GRPH (100 mg/Kg) and DRPH (200 mg/Kg) based on the Matrix Score Sheet from 18 AAC 78.315.

The total lead detection of 18 seen in one of the samples is not sufficient to warrant additional investigation for lead.

Two soil samples were collected from the soil stockpiled on site as contaminated soil. DRPH was detected in both samples at concentrations of 2200 mg/Kg (CHU-01-SP) and 2700 mg/Kg (CHU-02-SP, 2900 mg/Kg in the duplicate). GRPH was detected in both samples at concentrations of 460 mg/Kg (CHU-01-SP) and 770 mg/Kg (CHU-02-SP, 700 mg/Kg in the duplicate). BTEX compounds were detected in both stockpile samples at the following concentrations, non detects for benzene; 4.1 mg/Kg to 9.9 mg/Kg for toluene, 3.5 mg/Kg to 6.3 mg/Kg for ethylbenzene; and 59 mg/Kg to 90 mg/Kg for total xylenes, respectively for CHU-01-SP and CHU-02-SP (and duplicate).

DRPH , GRPH, and total BTEX in the two stockpile samples are all above the preliminary Level B cleanup levels.

Field screening and visual observation during the UST removal activities for the fuel tanks at the Chulitna Facility, indicated evidence of contamination around and beneath the gasoline and larger diesel tank. These soils exhibited a strong petroleum odor and a noticeable gray-blue coloration.

No water was visible in the excavation either due to run-off or seeping from the bottom or sides of the excavation.

These analytical results and on site observations lead to the conclusion that the soils that were left in place, are more than likely contaminated at levels greater than ADEC Level B cleanup criteria. The quantity of contaminated soil remaining in place is unknown.

Additionally, the approximately 50 cubic yards of soils stockpiled on site has concentrations of DRPH, GRPH and total BTEX above the ADEC Level B cleanup levels.

DOWL recommends that further investigation be conducted at the Chulitna Facility. The horizontal and vertical extent of contamination in the soils needs to be established, as well as the associated contaminant levels, at the Chulitna Facility.

It should be noted that the Chulitna Facility's water source well is within 100 feet of the contaminated soil associated with the former USTs. A water sample from this well should be

analyzed for GRPH, DRPH, BTEX, and semi-volatiles (specifically the polynuclear aromatic hydrocarbons-PAHs).

Information gathered during future investigation should meet the objective of determining the appropriate methods for cleaning up the area.

Soils presently stockpiled at the Chulitna Facility contain levels above the ADEC Level B cleanup standards, therefore DOWL recommends that the soils be disposed of or remediated using an ADEC approved method.

7.0 BIBLIOGRAPHY

ADEC (November 3, 1995) Underground Storage Tanks, 18 AAC 78.

ADEC (September 22, 1995) Underground Storage Tanks Procedure Manual, Guidance for Remediation of Petroleum-Contaminated Soil and Water and Standard Sampling Procedures.

DOWL Engineer (1997), Work Plan, Underground Storage Tanks, Alaska Department of Transportation and Public Facilities, Central Region.

Table 4
TABLE E - MATRIX SCORE SHEET
18 AAC 78.315

Project: ADOT&PF Chulitna Facility

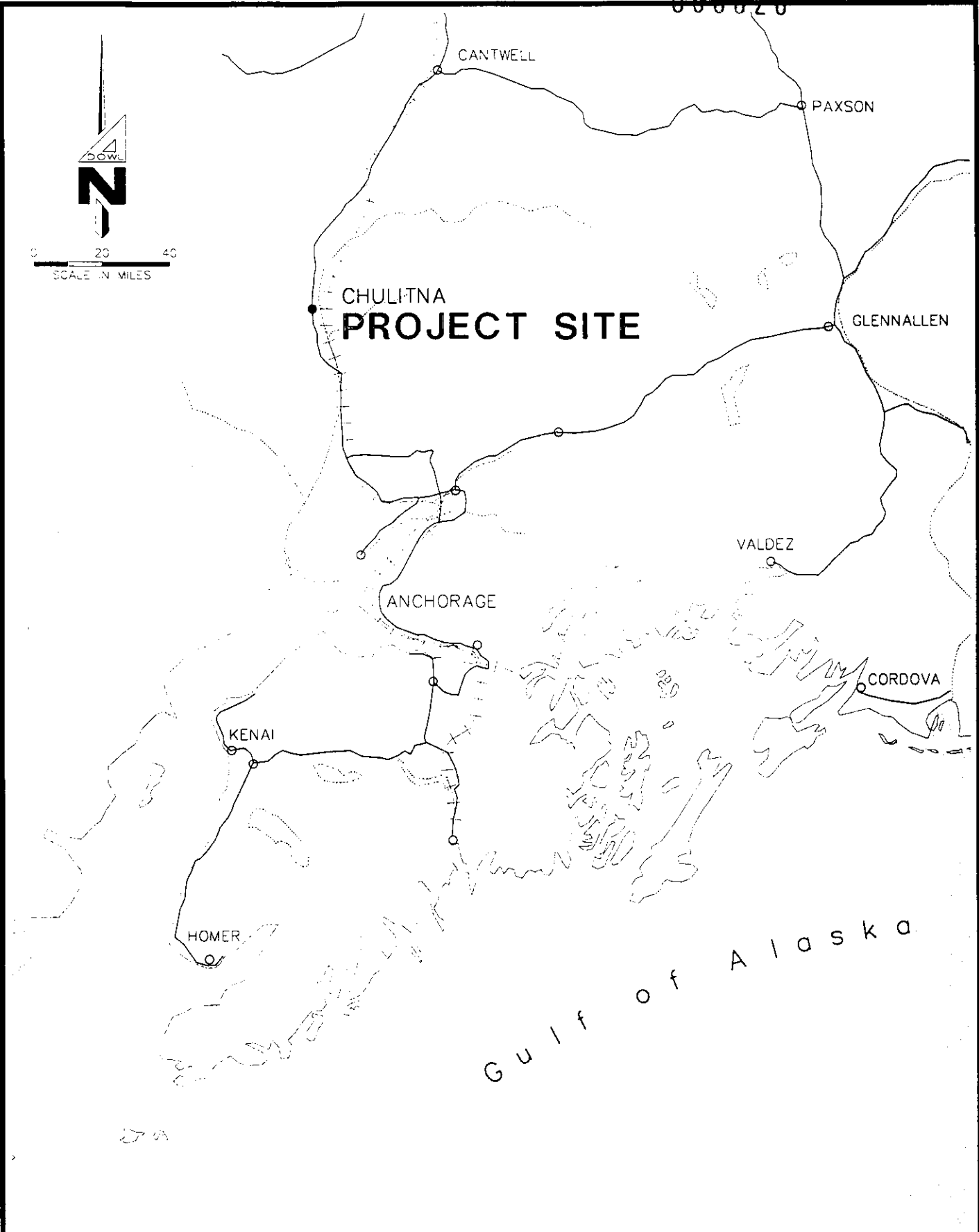
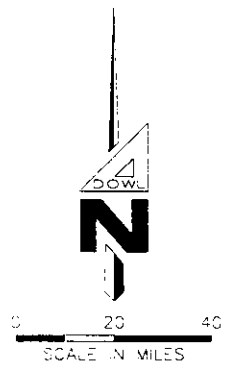
1. Depth to Groundwater		
Less than 5 feet	(10)	4
5 - 15 feet	(8)	
16 - 25 feet	(6)	
26 - 50 feet	(4)	
More than 50 feet	(1)	
2. Mean Annual Precipitation		
More than 40 inches	(10)	5
25 - 40 inches	(5)	
16 - 25 inches	(3)	
Less than 15 inches	(1)	
3. Soil Type (Unified Soil Classification)		
Clean, coarse-grained soils	(10)	8
Coarse-grained soils with fines	(8)	
Fine-grained soils (low organic carbon)	(3)	
Fine-grained soils (high organic carbon)	(1)	
4. Potential Receptors (Select most applicable category)		
a. Public water system within 1000 feet, or private water system within 500 feet	(15)	15
b. Public/private water system within 1/2 mile	(12)	
c. Public/private water system within one mile	(8)	
d. No known water system within 1 mile	(4)	
e. Non-potable ground water	(1)	
5. Volume of Contaminated Soil		
More than 500 cubic yards	(10)	8
101 - 500 cubic yards	(8)	
26 - 100 cubic yards	(5)	
10 - 25 cubic yards	(2)	
Less than 10 cubic yards	(0)	

Total: 40

Matrix Score for Each Category	Cleanup Level in mg/Kg				
	Gasoline Range Organics	Diesel Range Organics	Residual Range Organics	Benzene	BTEX
Category A: More than 40	50	100	2000	0.1	10
Category B: 27 - 40	100	200	2000	0.5	15
Category C: 21 - 26	500	1000	2000	0.5	50
Category D: Less than 20	1000	2000	2000	0.5	100

BTEX means benzene, toluene, ethylbenzene, and xylenes.

000020



W.O. D55836

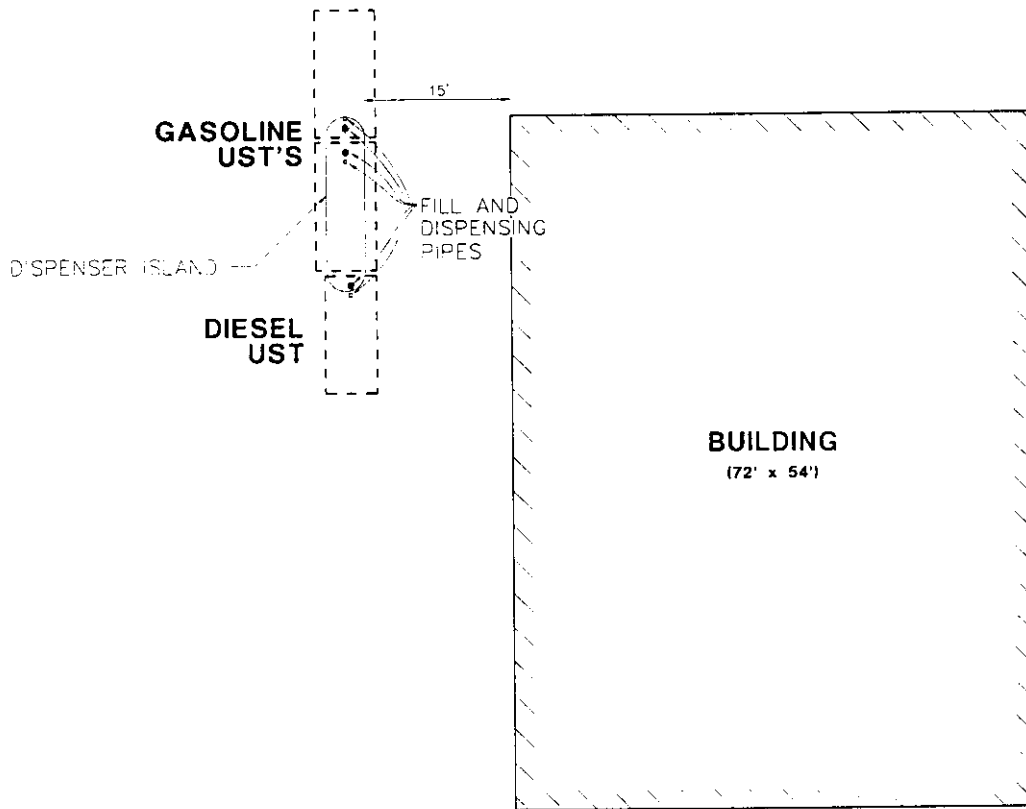
Scale: 1"=40 Miles



Chulitna Facility Vicinity Map
 ADOT UST Removal and Tank Replacement

Figure 1

000021



⊙ FACILITY WATER WELL

P A R K S H I G H W A Y (m i l e 1 2 7)

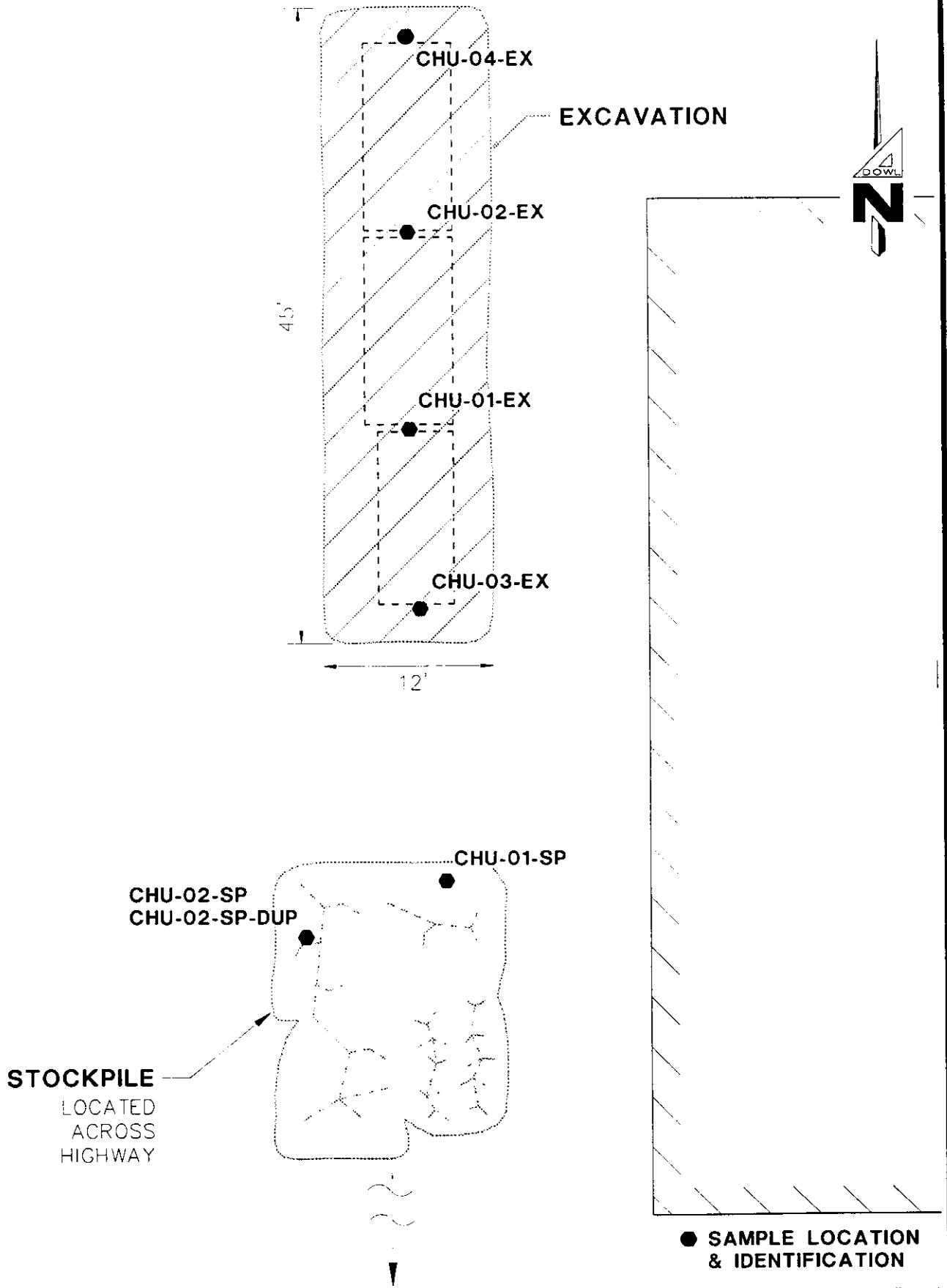
W.O. D55836

Scale: 1"=20'



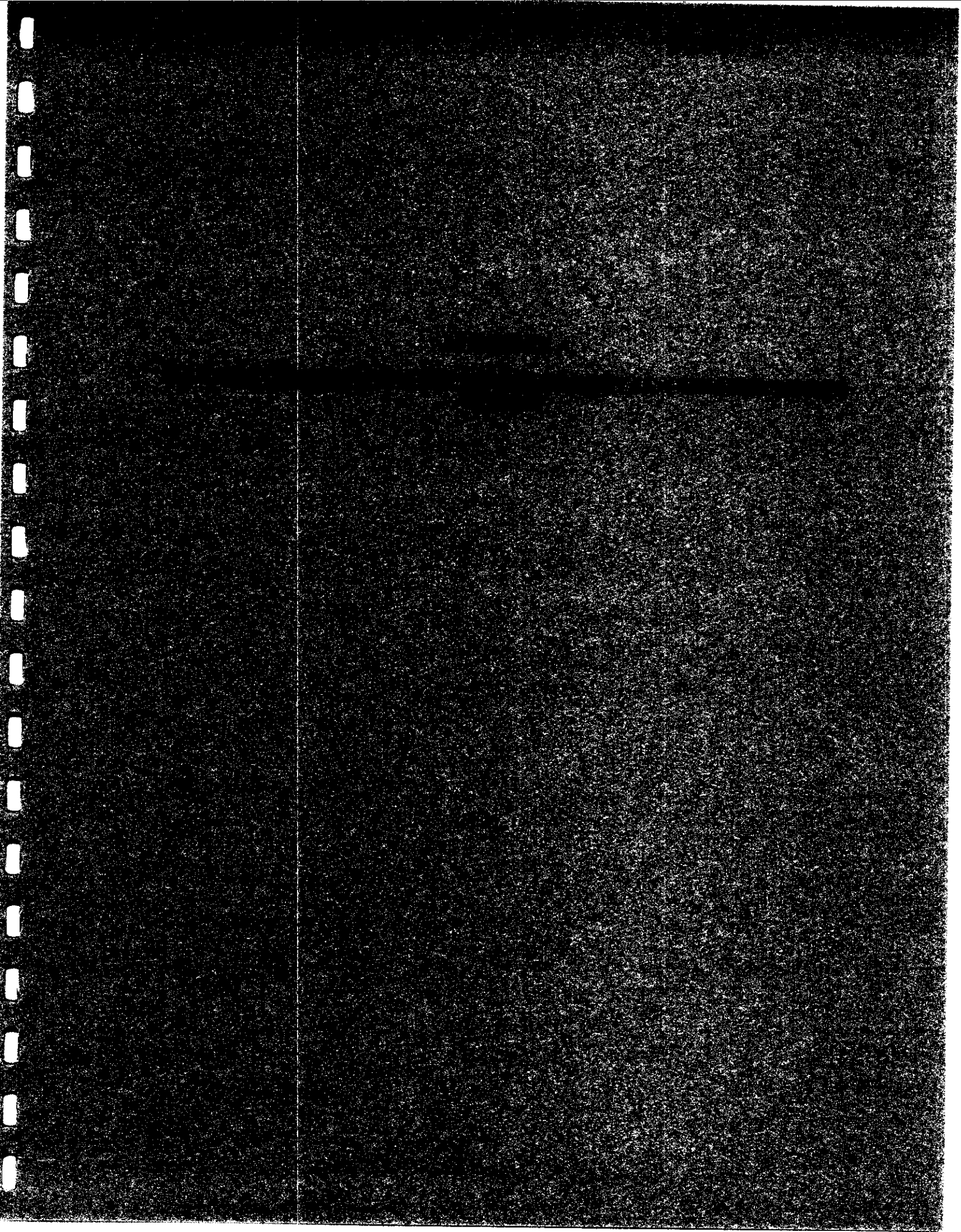
UST Location Map - Chulitna Facility
ADOT UST Removal and Tank Replacement

Figure 2



D.O. 055836

Scale: 1"=10'





ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION



NOTIFICATION OF CLOSURE UNDERGROUND STORAGE TANKS

Notice of Closure is required for any tank and/or piping removed, closed in-ground, or changed in service. See 18 AAC 78.085 (a). "Change in service" means to change the use of a UST from containing a regulated substance to a non-regulated substance (such as heating oil).

Facility - Location (Do not use P.O. Box) Tank Owner
Name ADOT - Equipment Name DOT&PF
Address Chulitna Station, Mile 127 Parks Hwy. Address 5848 East Tudor Road
City Trapper Creek City Anchorage
State/Zip Alaska 99683 State/Zip Alaska 99507
Phone/Fax 733-2246 / 733-1017 Phone/Fax
Facility ID Number: 144
Scheduled Date for Closure: August 11, 1997

This form MUST be completed and sent to ADEC at the address listed below at least 15 and no more than 60 days prior to closure. Alaska Statute 46.03.375 requires those who supervise an UST closure be certified by the State of Alaska for Decommissioning. A UST with a confirmed release must be permanently removed from the ground. In-place closure or change in service is not allowed. A Site Assessment or Release Investigation in accordance with 18 AAC 78.090 must be performed at time of closure by an impartial third party using "Qualified" persons under a Standard Sampling Procedures Manual (SSPM).

Person to Perform Closure B.C. Excavating (Robert Haines) UST Worker License # AA030U
Person and Company to Perform Site Assessment or Release Investigation: Heather Murray DOWL Engineers
Is the Person "Qualified" and on file with ADEC? Yes
Method of Closure: Removal XX (If so, See Discussion on Reverse Side)
In-ground (If so, what is new fuel usage?)
Change in Service
Is there a leak/spill at this site? No (if so, please notify the closest ADEC office)
Have you contacted the local fire department of your intent to close the tank(s)? Yes
Where are the tank, piping, equipment, and sludge to be disposed? To be determined

Closure for (please check): [X] Tanks and Piping [] Tanks only [] Piping only
Table with 5 columns: Tank Number, Tank Age, Tank Size, Last Product Stored, Date Last Used. Rows for Tank 1 (gasoline, unknown) and Tank 2 (diesel, currently in use).

Closure Notice Submitted By: [] Owner [] Operator [X] Other consultant
G. Sorey Loyd Director, Environmental Services, DOWL Engineers
(Please print name) (Title)
George Loyd June 11, 1997
(Signature) (Date)

Return Completed Form to: ADEC, Storage Tank Program
555 Cordova Street
Anchorage, AK 99501
FAX # (907) 269-7507

Factors to consider when determining whether to conduct an in-ground closure:

1. **Does the owner intend to transfer the property?** If so, the new owner or the lending institution may require the tank be removed from the ground.
2. **Does the fire department, state fire Marshall or municipal code allow in-ground closures for your area?** Owners of tanks should check with fire officials and municipal authorities to determine whether in-ground UST closures are permissible and provide ADEC with proper documentation.
3. **Is the tank under a building or wall?** If so, the owner may want to perform an in-ground closure. However, if there is contamination, the owner will either have to remove the tank, or convince the department's project manager that the release has been sufficiently assessed and the contamination remediated (if necessary). This may mean that the soil boring will have to be done after emptying the tank but before filling it with an inert substance. (This is a precaution in the event that contamination is discovered because it is easier and less costly to remove the tank before filling it with an inert substance.) The owner may have to do additional soil borings if contamination is suspected or confirmed and convince the department's project manager to allow an in-ground closure rather than removal as required under 18 AAC 78.085.
4. **Did the tank leak or were there any spills?** Some factors to consider when examining the history of a UST and the possibility of contamination-
 1. age of the tank;
 2. size, construction and its location;
 3. past tank tightness testing and release detection results;
 4. the layout of the dispensers;
 5. repair history.

If the tank did leak, UST regulations (18 AAC 78.085) clearly state that an UST with a release must be removed from the ground.
5. **Did a site assessment show contamination?** Although regulations do not require it, it is recommended that the site assessment be performed prior to in-ground closure activities rather than after the tank has been permanently closed. If the site assessment shows contamination, then an in-ground closure is **not** a viable option for the UST.

A Closure Notice must be completed and sent at least 15 days but no more than 60 days prior to closure to:

ADEC, Storage Tank Program
 555 Cordova Street
 Anchorage, Alaska 99501
 FAX # (907) 269-7507

QUESTIONS? CALL TOLL-FREE 1-800-478-4974



NOTIFICATION OF POST-CLOSURE UNDERGROUND STORAGE TANKS

Post-Closure information is required 30 days after UST closure or change in service. See 18 AAC 78.085 (f).
The Owner/Operator or his/her representative must fill out and sign Page 1.
The Certified worker who performed or supervised the closure must fill out and sign Page 2.

Facility - Location (Do not use P.O. Box.)		Tank Owner
Name <u>ADOT & PF - Equipment</u>		Name <u>ADOT & PF</u>
Address <u>Chulitna Station, Mile 127 Parks Hwy</u>		Address <u>5848 East Tudor Road</u>
City <u>Trapper Creek</u>		City <u>Anchorage</u>
State/Zip <u>Alaska 99683</u>		City/State <u>Alaska 99507</u>
Phone/Fax <u>907-733-2246/907-733-1017</u>		Phone/Fax _____
Facility ID # <u>144</u>		

TANKS REMOVED OR CLOSED IN-GROUND				
Tank#	Tank Size	Removed or Closed In-ground	Last Product Stored	Contamination Found?
1	3000	removed	gasoline	yes
2	3000	removed	diesel	yes
3	2000	removed	diesel	yes

CLOSURE:

Performed By: (Person) Jeff Hart (Company) BC Excavating (UST License #) 484

Date Completed: 8/7/97

PERSON WHO PERFORMED/SUPERVISED CLOSURE MUST FILL OUT BACK PAGE.

SITE ASSESSMENT/RELEASE INVESTIGATION:

Performed by:
(Person) Kurt J. Kinnevan (Company) DOWL Engineers

SITE ASSESSMENT REPORT MUST BE SUBMITTED TO LOCAL ADEC OFFICE WITH 60 DAYS AFTER CLOSURE. RELEASE INVESTIGATION REPORT MUST BE SUBMITTED TO ADEC WITHIN 45 DAYS AFTER CLOSURE.

Was the closed tank replaced by a new UST? Yes _____ No X
If yes, please submit a new Registration form containing information on the new tanks.

Submitted by: Owner Operator Other Consultant

George C. Loyd Director of Environmental Services
(Please Print Name) (Title)

[Signature] August 19, 1997
(Signature) (Date)

Return Completed Form to: ADEC, Storage Tank Program
555 Cordova Street
Anchorage, AK 99501
FAX # (907) 269-7507

CLOSURE CHECKLIST

Certified persons who perform or supervise UST closure must complete and sign this checklist.
(18 AAC.78.455 (a)(8))

Tank Removal


- Notified ADEC Office 15 - 60 days prior to beginning permanent closure.
- Notified applicable local government and fire department.
- Emptied and clean tank by removing liquids and accumulated sludges.*
- Purged or inert the tank of flammable vapors.*
- Removed piping and plug or cap all accessible holes except vent line.*
- ** Removed and dispose of tank(s) properly.*
- Submitted Post Closure Notice to ADEC within 30 days after completion of Closure.

In-ground Closure/Change in Service

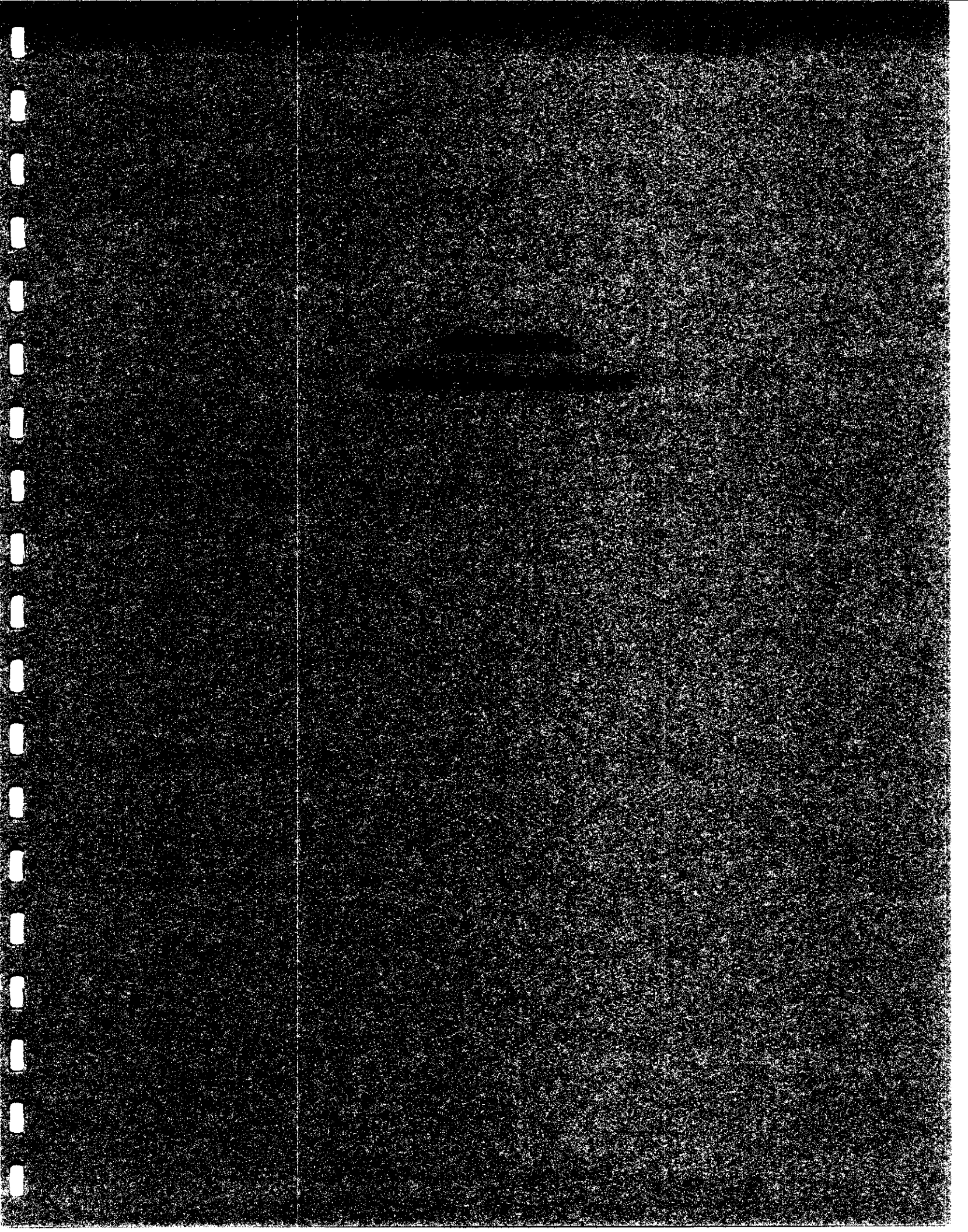
- Notified ADEC Office 15 - 60 days prior to beginning permanent closure.
- Notified applicable local government and fire department.
- Emptied and clean tank by removing liquids and accumulated sludges.*
- Removed piping and plug or cap all accessible holes except for vent line.*
- Purged the tank of flammable vapors.*
- Filled the tank as full as possible with sand or other inert material.*
- Removed and cap the vent line.*
- Submitted Post Closure Notice to ADEC within 30 days after completion of Closure.

** Tanks remain in possession of owner
* Must be performed or supervised by a person certified in UST Decommissioning in Alaska.

Person who performed or supervised UST work:

Jeff Hart	Heavy Equipment Operator	484
(Please Print Name)	(Title)	(UST Worker License #)
	August 19, 1997	
(Signature)	(Date)	

All releases/contamination should be reported to a DEC District Office within 24 hours. For further information refer to the Alaska Underground Storage Tank Regulations (18 AAC 78) or contact the Department of Environmental Conservation at 1-800-478-4974.





000029

MultiChem
ANALYTICAL SERVICES

October 6, 1997

MAS I.D. # 821099

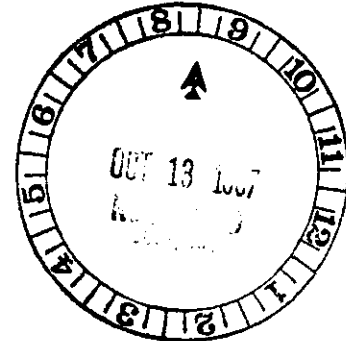
DOWL Engineers
4040 B Street
Anchorage, AK 99503

Attn: Kurt Kinnevan

Project Name: ADOT & PF UST Removal Chulitna

Project Number: D55836

Dear Mr. Kinnevan:



On August 19, 1997 MultiChem Analytical Services, LLC of Alaska received 7 samples for analysis in conjunction with the above listed project. The requested analyses were performed using EPA or equivalent methods. The reports of analyses are enclosed. Below is an outline of the laboratories that participated in this project.

MAS-AK Analyses Performed: GRO/BTEX (AK101/8020), DRO (AK102)

MAS-WA Analyses Performed: Total Pb (7421)

Please do not hesitate to contact us at (907) 248-8273, if you have any questions or comments.

Sincerely,
MultiChem Analytical Services, LLCKimberli S. Busse
Project Manager

000030

MultiChem
ANALYTICAL SERVICES

Sample ID. Cross Reference Sheet

Client: Dowl Engineers
Project Number: D55836
Project Name: ADOT & PF UST-Chulitna

MAS I.D.: 821099

MAS ID #	Client Description
821099 1	CHU-01-EX
821099 2	CHU-02-EX
821099 3	CHU-03-EX
821099 4	CHU-04-EX
821099 5	CHU-01-SP
821099 6	CHU-02-SP
821099 7	CHU-02-SP-DUP

MAS STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

000031

8-1-97



4040 B STREET ANCHORAGE ALASKA 99503-5999
 PH: (907) 582-2000 FAX: (907) 583-3953

CHAIN OF CUSTODY SAMPLE RECEIPT FORM

Proj. No.		Project Name				No. Of Containers	Analyses Requested										Remarks	
D55836		ADOT PF LIST Removal Chulitna					/ / / / / / / / / / / / / / / /											
Samplers (Signature)							AK101	AK102	AK103	AK104	AK105	AK106	AK107	AK108	AK109	AK110		
Sample No.	Date	Time	Comp.	Grab	Station Location													
Chu-01-EX	8/14/97	915		X		3	X	X	X								max max = SOIL	
Chu-02-EX		930				3	X	X	X									
Chu-03-EX		1245				2	X	X										
Chu-04-EX		1640				2	X	X										
Chu-01-SP		1940				3	X	X	X									
Chu-02-SP		1945				3	X	X	X									
Chu-02-SP-Dry		1945				3	X	X	X									
Relinquished by: (Signature)		Date/Time		Received by: (Signature)			Date/Time		Relinquished by: (Signature)		Date/Time		Received by: (Signature)					
[Signature]		8/19/97 1316		Anna Brannon			8/19/97 1316											
Relinquished by: (Signature)		Date/Time		Received for Laboratory by: (Signature)			Date/Time		Remarks:									

8/19/97 1316

SAMPLE LOG-IN CHECKLIST

ACCESSION #: 821099 SUBCONTRACT WORK? YES / NO
 CLIENT NAME: Dowl TO LAB (circle): MAS-R OTHER: _____
 LOGGED-IN BY (print): D Poulton (sign): D Poulton
 Date received: _____ Client's Cooler # (if any): _____
 Is the project for: ACOE? YES / NO NAVY? YES / NO

1.	Did cooler arrive with shipping document?	<input checked="" type="radio"/> (Hand delivery) N/A	YES	NO
2.	Are Custody seals present on cooler? YES / <input checked="" type="radio"/> NO	How many? _____ Where? _____		
	Seal date: _____ Seal name: _____ Intact? _____	N/A	YES	<input checked="" type="radio"/> NO
3.	Are Custody seals present on sample containers?		YES	<input checked="" type="radio"/> NO
	If "YES", intact? _____	N/A	YES	<input checked="" type="radio"/> NO
4.	Is the Chain of Custody (C-O-C) sealed in plastic bag? YES / <input checked="" type="radio"/> NO	Taped to cooler lid?	YES	<input checked="" type="radio"/> NO
5.	Is the C-O-C complete? * Relinquished by client: YES / NO	Analyses marked off: _____	YES	NO
	* C-O-C or other representative documents, letters, and/or shipping memos.	Signed/received by lab: _____	<input checked="" type="radio"/> YES	NO
6.	Is the C-O-C in agreement with samples received?			
	Sample ID's: YES / <input checked="" type="radio"/> NO	Matrix: <u>soil</u>	YES	NO
	Date sampled: YES / <input checked="" type="radio"/> NO	# Containers: <u>19</u>	YES	NO
7.	Has the main logbook been filled out properly?		<input checked="" type="radio"/> YES	NO
8.	If samples are RUSH has notice been given?	<input checked="" type="radio"/> N/A	YES	NO
9.	Is proper preservation indicated on label(s)?	<input checked="" type="radio"/> N/A	YES	NO
10.	Did pH check verify preservative indicated?	(Volatiles) <input checked="" type="radio"/> N/A	YES	NO
11.	Is there sufficient sample volume for analyses?		<input checked="" type="radio"/> YES	NO
12.	Are samples in proper containers? (see reference chart)		<input checked="" type="radio"/> YES	NO
13.	Are all samples within holding times for requested analysis?		<input checked="" type="radio"/> YES	NO
14.	Are all sample containers intact? (i.e. not broken, leaking...)		<input checked="" type="radio"/> YES	NO
15.	Are samples individually bagged?		<input checked="" type="radio"/> YES	NO
16.	Are all volatile samples headspace-free (< pea-size for waters)?	<input checked="" type="radio"/> N/A	<input checked="" type="radio"/> YES	NO
17.	Shipping container (circle one):	<input checked="" type="radio"/> Cooler / Box / Other:		
18.	Type of packing material used (circle one):	<input checked="" type="radio"/> Bubble Wrap / Styrofoam Peanuts / Vermiculite / None		
19.	Refrigerant (circle one):	<input checked="" type="radio"/> Gel Ice / Loose Ice / Other: _____ / None		
20.	Was refrigerant frozen upon receipt?		YES	NO
21.	Cooler temperature(s):	#1: <u>2.8</u> °C #2: _____ °C		

Sample tagging check for QC:

Sample ID's issued in order of appearance on C-O-C: YES / NO
 Tags placed in appropriate areas of sample containers: YES / NO

Initials of reviewer: AB

Describe any "NO" items from checklist above:

sample #2 CHU-02-EX
times different No times or Date on AB101/Box
samples

Was client contacted: YES / NO / N/A Date: _____ Name of person contacted: _____

Describe client instructions or actions taken:

MultiChem Analytical Services, Alaska.

Program Plan, 18AAC78 Underground Storage Tanks, as amended
through Nov. 3, 1995.

Data Reviewed by: Christine Maciwicki Approved by: Kim S. Bural

000036

MultiChem
ANALYTICAL SERVICES

SUMMARY REPORT of ANALYSIS

Client: Dowl Engineers

Lab Accession: 821099

Date Received: 8/19/97

Matrix: SOIL

Units: mg/Kg

Project Name: ADOT & PF UST-Chulitna

Project Number: D55836

Project Manager: Kurt Kinnevan

Reviewed By: Kim Bunde

Client Sample	Lab Accession #	Date Collected	% Moisture	Conc. Benzene	Conc. Toluene	Conc. Ethyl-Benzene	Conc. Total Xylene	Conc. GRO as Gasoline	Conc. DRO as Diesel	Conc. RRO as 10w40 oil
CHU-01-EX	821099 -1	8/14/97	11	<0.086	0.26	<0.086	2.8	43	550	
CHU-02-EX	821099 -2	8/14/97	10	<0.57	1.1	3.4	8.7	520	10000	
CHU-03-EX	821099 -3	8/14/97	4.6	<0.012	0.037	<0.012	0.021	0.62	<10	
CHU-04-EX	821099 -4	8/14/97	10	<0.28	<0.28	<0.28	4.1	260	4700	
CHU-01-SP	821099 -5	8/14/97	8.3	<0.29	4.1	3.5	59	460	2200	
CHU-02-SP	821099 -6	8/14/97	9.0	<0.50	9.9	6.3	90	770	2700	
CHU-02-SP-DUP	821099 -7	8/14/97	9.5	<0.66	5.3	3.9	59	700	2900	

Methods:

B.T.E.X. = 8020

GRO = AK 101

DRO = AK 102

RRO = AK 103

000037

MAS I.D. # 821099

BETX - GASOLINE RANGE ORGANICS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: N/A
PROJECT #	: D55836	DATE RECEIVED	: N/A
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/25/97
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 08/26/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 101 GRO/8020 (BETX)	DILUTION FACTOR	: 1
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: .0

COMPOUNDS

RESULTS

BENZENE	<0.025
ETHYLBENZENE	<0.025
TOLUENE	<0.025
TOTAL XYLENES	<0.025
FUEL HYDROCARBONS	<1.0
HYDROCARBON RANGE	C6 - C10
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

A, A, A-TRIFLUOROTOLUENE	91	54-137
BROMOFLUOROBENZENE	93	52-148
1-CHLOROOCCTANE	98	60-120

Analyst CM Date 9-16-97
 Reviewer BFO Date 9-29-97

000038

MAS I.D. # 821099-1

BETX - GASOLINE RANGE ORGANICS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/14/97
CLIENT I.D.	: CHU-01-EX	DATE ANALYZED	: 08/28/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 101 GRO/8020(BETX)	DILUTION FACTOR	: 10
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 11.0

COMPOUNDS	RESULTS
BENZENE	<0.086
ETHYLBENZENE	<0.086
TOLUENE	0.26
TOTAL XYLENES	2.8
FUEL HYDROCARBONS	43
HYDROCARBON RANGE	C6 - C10
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
A,A,A-TRIFLUOROTOLUENE	I	54-137
BROMOFLUOROBENZENE	128	52-148
1-CHLOROOCCTANE	110	60-120

I = Surrogate out of limits due to sample dilution.

Analyst CM Date 9-16-97 Page 1
 Reviewer ES Date 9-29-97

Sample File : 97D06157.D

000039

MAS I.D. # 821099-2

BETX - GASOLINE RANGE ORGANICS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/14/97
CLIENT I.D.	: CHU-02-EX	DATE ANALYZED	: 08/28/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 101 GRO/8020(BETX)	DILUTION FACTOR	: 50
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 10.0

-----	-----
COMPOUNDS	RESULTS
-----	-----

BENZENE	<0.57
ETHYLBENZENE	3.4
TOLUENE	1.1
TOTAL XYLENES	8.7
FUEL HYDROCARBONS	520
HYDROCARBON RANGE	C6 - C10
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

A,A,A-TRIFLUOROTOLUENE	113	54-137
BROMOFLUOROBENZENE	I	52-148
1-CHLOROCTANE	111	60-120

I = Surrogate out of limits due to sample dilution.

Analyst CM Date 9-16-97
 Reviewer [Signature] Date 9-29-97

000040

MAS I.D. # 821099-3

BETX - GASOLINE RANGE ORGANICS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/14/97
CLIENT I.D.	: CHU-03-EX	DATE ANALYZED	: 08/28/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 101 GRO/8020(BETX)	DILUTION FACTOR	: 1
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 4.6

COMPOUNDS	RESULTS
BENZENE	<0.012
ETHYLBENZENE	<0.012
TOLUENE	0.037
TOTAL XYLENES	0.021
FUEL HYDROCARBONS	0.62
HYDROCARBON RANGE	C6 - C10
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
A,A,A-TRIFLUOROTOLUENE	89	54-137
BROMOFLUOROBENZENE	92	52-148
1-CHLOROOCANE	104	60-120

Analyst CM Date 9-16-97
 Reviewer RAB Date 9-29-97

000041

MAS I.D. # 821099-4

BETX - GASOLINE RANGE ORGANICS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/14/97
CLIENT I.D.	: CHU-04-EX	DATE ANALYZED	: 08/28/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 101 GRO/8020(BETX)	DILUTION FACTOR	: 25
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 10.0

COMPOUNDS	RESULTS
BENZENE	<0.28
ETHYLBENZENE	<0.28
TOLUENE	<0.28
TOTAL XYLENES	4.1
FUEL HYDROCARBONS	260
HYDROCARBON RANGE	C6 - C10
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
A,A,A-TRIFLUOROTOLUENE	100	54-137
BROMOFLUOROBENZENE	I	52-148
1-CHLOROOCCTANE	112	60-120

I = Surrogate out of limits due to sample dilution.

Analyst CM Date 9-16-97
 Reviewer [Signature] Date 9-29-97

000042

MAS I.D. # 821099-5

BETX - GASOLINE RANGE ORGANICS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/14/97
CLIENT I.D.	: CHU-01-SP	DATE ANALYZED	: 08/28/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 101 GRO/8020 (BETX)	DILUTION FACTOR	: 25
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 8.3

-----	-----
COMPOUNDS	RESULTS
-----	-----

BENZENE	<0.29
ETHYLBENZENE	3.5
TOLUENE	4.1
TOTAL XYLENES	59
FUEL HYDROCARBONS	460
HYDROCARBON RANGE	C6 - C10
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY		LIMITS
----------------------------	--	--------

A, A, A-TRIFLUOROTOLUENE	I	54-137
BROMOFLUOROBENZENE	I	52-148
1-CHLOROOCANE	99	60-120

I = Surrogate out of limits due to sample dilution.

Analyst CM Date 9-16-97
 Reviewer 888 Date 9-29-97

000043

MAS I.D. # 821099-6

BETX - GASOLINE RANGE ORGANICS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/14/97
CLIENT I.D.	: CHU-02-SP	DATE ANALYZED	: 08/28/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 101 GRO/8020 (BETX)	DILUTION FACTOR	: 50
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 9.0

-----	-----
COMPOUNDS	RESULTS
-----	-----

BENZENE	<0.50
ETHYLBENZENE	6.3
TOLUENE	9.9
TOTAL XYLENES	90
 FUEL HYDROCARBONS	 770
HYDROCARBON RANGE	C6 - C10
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

A,A,A-TRIFLUOROTOLUENE	I	54-137
BROMOFLUOROBENZENE	I	52-148
1-CHLOROOCCTANE	98	60-120

I = Surrogate out of limits due to sample dilution.

Analyst CM Date 9.16.97
 Reviewer BB Date 9.29.97

000044

MAS I.D. # 821099-7

BETX - GASOLINE RANGE ORGANICS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/14/97
CLIENT I.D.	: CHU-02-SP-DUP	DATE ANALYZED	: 08/28/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 101 GRO/8020(BETX)	DILUTION FACTOR	: 50
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 9.5

COMPOUNDS

RESULTS

BENZENE	<0.66
ETHYLBENZENE	3.9
TOLUENE	5.3
TOTAL XYLENES	59
FUEL HYDROCARBONS	700
HYDROCARBON RANGE	C6 - C10
HYDROCARBON QUANTITATION USING	GASOLINE

SURROGATE PERCENT RECOVERY

LIMITS

A,A,A-TRIFLUOROTOLUENE	I	54-137
BROMOFLUOROBENZENE	I	52-148
1-CHLOROOCANE	108	60-120

I = Surrogate out of limits due to sample dilution.

Analyst CM Date 9-16-97 Page 1
 Reviewer ESB Date 9-29-97

Sample File : 97D06151.D

000045

MultiChem
 ANALYTICAL SERVICES

MAS I.D. # 821099

 BETX - GASOLINE RANGE ORGANICS
 QUALITY CONTROL DATA

 CLIENT : DOWL ENGINEERS
 PROJECT # : D55836
 PROJECT NAME : ADOT & PF UST-CHULITNA
 SAMPLE MATRIX : SOIL
 EPA METHOD : AK 101 GRO/8020 (BETX)

 SAMPLE I.D. # : BLANK
 DATE EXTRACTED : 08/25/97
 DATE ANALYZED : 08/26/97
 UNITS : mg/Kg

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE	<0.0250	0.261	0.231	89	0.252	97	9
ETHYLBENZENE	<0.0250	0.356	0.357	100	0.355	100	1
TOLUENE	<0.0250	1.59	1.45	91	1.49	94	3
TOTAL XYLENES	<0.0250	1.87	1.87	100	1.86	99	1
GASOLINE	<1.00	22.0	17.5	80	18.3	83	4

CONTROL LIMITS	% REC.	RPD
BENZENE	85 - 122	20
ETHYLBENZENE	85 - 118	20
TOLUENE	87 - 119	20
TOTAL XYLENES	85 - 123	20
GASOLINE	78 - 108	20

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
A, A, A-TRIFLUOROTOLUENE	105	101	54 - 137
BROMOFLUOROBENZENE	100	98	52 - 148
1-CHLOROOCCTANE	99	94	60 - 120

 Analyst CM Date 9-16-97 Page 1
 Reviewer BB Date 9-29-97

 Sample File : 97D06056
 MS File : 97D06057
 MSD File : 97D06058

000046

MAS I.D. # 821099

FUEL HYDROCARBONS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: N/A
PROJECT #	: D55836	DATE RECEIVED	: N/A
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/28/97
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 08/28/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 102	DILUTION FACTOR	: 1
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: .0

COMPOUNDS

RESULTS

FUEL HYDROCARBONS	<10
HYDROCARBON RANGE	C10 - C25
HYDROCARBON QUANTITATION USING	DIESEL

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL	90	60-120
-------------	----	--------

Analyst *[Signature]* Date 9/25/97
 Reviewer *[Signature]* Date 9/30/97

000047

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 821099-1

FUEL HYDROCARBONS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/28/97
CLIENT I.D.	: CHU-01-EX	DATE ANALYZED	: 08/29/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 102	DILUTION FACTOR	: 1
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 11.0

COMPOUNDS

RESULTS

FUEL HYDROCARBONS	550
HYDROCARBON RANGE	C10 - C25
HYDROCARBON QUANTITATION USING	DIESEL

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL	86	60-120
-------------	----	--------

Analyst dc Date 9/25/97
 Reviewer BB Date 9/30/97

000048

MAS I.D. # 821099-2

FUEL HYDROCARBONS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/28/97
CLIENT I.D.	: CHU-02-EX	DATE ANALYZED	: 09/24/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 102	DILUTION FACTOR	: 10
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 10.0

COMPOUNDS

RESULTS

FUEL HYDROCARBONS	10000
HYDROCARBON RANGE	C10 - C25
HYDROCARBON QUANTITATION USING	DIESEL

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL	111	60-120
-------------	-----	--------

Analyst A
Reviewer BSB

Date 9/25/97
Date 9-30-97

000049

MAS I.D. # 821099-3

FUEL HYDROCARBONS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/28/97
CLIENT I.D.	: CHU-03-EX	DATE ANALYZED	: 08/29/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 102	DILUTION FACTOR	: 1
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 4.6

COMPOUNDS

RESULTS

FUEL HYDROCARBONS	<10
HYDROCARBON RANGE	C10 - C25
HYDROCARBON QUANTITATION USING	DIESEL

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL	99	60-120
-------------	----	--------

Analyst AE Date 9/25/97
 Reviewer BB Date 9/30/97

000050

MAS I.D. # 821099-4

FUEL HYDROCARBONS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/28/97
CLIENT I.D.	: CHU-04-EX	DATE ANALYZED	: 09/24/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 102	DILUTION FACTOR	: 5
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 10.0

COMPOUNDS

RESULTS

FUEL HYDROCARBONS	4700
HYDROCARBON RANGE	C10 - C25
HYDROCARBON QUANTITATION USING	DIESEL

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL	92	60-120
-------------	----	--------

Analyst A Date 9/25/97
 Reviewer BPB Date 9/30/97

000051

MAS I.D. # 821099-5

FUEL HYDROCARBONS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/28/97
CLIENT I.D.	: CHU-01-SP	DATE ANALYZED	: 09/24/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 102	DILUTION FACTOR	: 2
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 8.3

COMPOUNDS

RESULTS

FUEL HYDROCARBONS	2200
HYDROCARBON RANGE	C10 - C25
HYDROCARBON QUANTITATION USING	DIESEL

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL	92	60-120
-------------	----	--------

Analyst JK

Date 9/25/97

Reviewer ESD

Date 9/30/97

000052

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 821099-6

FUEL HYDROCARBONS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/28/97
CLIENT I.D.	: CHU-02-SP	DATE ANALYZED	: 09/24/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 102	DILUTION FACTOR	: 4
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 9.0

COMPOUNDS

RESULTS

FUEL HYDROCARBONS	2700
HYDROCARBON RANGE	C10 - C25
HYDROCARBON QUANTITATION USING	DIESEL

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL	94	60-120
-------------	----	--------

Analyst A Date 9/25/97
 Reviewer [Signature] Date 9/30/97

000053

MAS I.D. # 821099-7

FUEL HYDROCARBONS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	DATE SAMPLED	: 08/14/97
PROJECT #	: D55836	DATE RECEIVED	: 08/19/97
PROJECT NAME	: ADOT & PF UST-CHULITNA	DATE EXTRACTED	: 08/28/97
CLIENT I.D.	: CHU-02-SP-DUP	DATE ANALYZED	: 09/24/97
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
METHOD	: AK 102	DILUTION FACTOR	: 4
RESULTS ARE CORRECTED FOR MOISTURE CONTENT		%MOISTURE	: 9.5

COMPOUNDS

RESULTS

FUEL HYDROCARBONS	2900
HYDROCARBON RANGE	C10 - C25
HYDROCARBON QUANTITATION USING	DIESEL

SURROGATE PERCENT RECOVERY

LIMITS

O-TERPHENYL	96	60-120
-------------	----	--------

Analyst A
Reviewer RTB

Date 9/25/97
Date 9-30-97

000054

MAS I.D. # 821099

MultiChem
ANALYTICAL SERVICES

FUEL HYDROCARBONS
QUALITY CONTROL DATA

CLIENT : DOWL ENGINEERS
PROJECT # : D55836
PROJECT NAME : ADOT & PF UST-CHULITNA
SAMPLE MATRIX : SOIL
METHOD : AK 102

SAMPLE I.D. # : BLANK
DATE EXTRACTED : 08/28/97
DATE ANALYZED : 08/28/97
UNITS : mg/Kg

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
DIESEL	<10.0	100	103	103	106	106	3
CONTROL LIMITS				% REC.			RPD
DIESEL				85 - 120			20
SURROGATE RECOVERIES		SPIKE		DUP. SPIKE	LIMITS		
O-TERPHENYL		109		111		60 - 120	

Analyst AK
Reviewer KSP

Date 9/25/97
Date 9/25/97

Page 1

Sample File : 97B04500
MS File : 97B04501
MSD File : 97B04502

000055

MAS I.D. # 821099

MultiChem
ANALYTICAL SERVICES

FUEL HYDROCARBONS
QUALITY CONTROL DATA

CLIENT : DOWL ENGINEERS
PROJECT # : D55836
PROJECT NAME : ADOT & PF UST-CHULITNA
SAMPLE MATRIX : SOIL
METHOD : AK 102

SAMPLE I.D. # : 821099-3
DATE EXTRACTED : 08/28/97
DATE ANALYZED : 08/29/97
UNITS : mg/Kg

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
DIESEL	<10.5	105	116	110	109	104	6
CONTROL LIMITS				% REC.			RPD
DIESEL				72 - 131			20
SURROGATE RECOVERIES		SPIKE		DUP. SPIKE		LIMITS	
O-TERPHENYL		102		98		60 - 120	

Analyst *AE*
Reviewer *BB*

Date 9/25/97
Date 9/30/97



000056

MultiChem
ANALYTICAL SERVICES

MAS I.D. # 821099
UST - 026

October 3, 1997

Dowl Engineers
4040 B Street
Anchorage AK 99503-5990

Attention : Heather Murray

Project Number : D55836

Project Name : ADOT & PF UST Removal Chulitna

Dear Ms. Murray:

On August 20, 1997, MultiChem Analytical Services received five samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Sincerely,

Elaine M. Walker
Project Manager

EMW/hal/trm

Enclosure

000057

MAS I.D. # 821099

MultiChem
ANALYTICAL SERVICES

SAMPLE CROSS REFERENCE SHEET

CLIENT : DOWL ENGINEERS
PROJECT # : D55836
PROJECT NAME : ADOT & PF UST REMOVAL CHULITNA

MAS #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
821099-1	CHU-01-EX	08/14/97	SOIL
821099-2	CHU-02-EX	08/14/97	SOIL
821099-5	CHU-01-SP	08/14/97	SOIL
821099-6	CHU-02-SP	08/14/97	SOIL
821099-7	CHU-02-SP-DUP	08/14/97	SOIL

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	5

MAS STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

MAS I.D. # 821099

000058

MultiChem
ANALYTICAL SERVICES

ANALYTICAL SCHEDULE

CLIENT : DOWL ENGINEERS
PROJECT # : D55836
PROJECT NAME : ADOT & PF UST REMOVAL CHULITNA

ANALYSIS	TECHNIQUE	REFERENCE	LAB
LEAD	AA/GF	EPA 7421	R
MOISTURE	GRAVIMETRIC	CLP SOW ILM04.0	R
MOISTURE	GRAVIMETRIC	CLP SOW ILM03.0	ANC

R = MAS - Renton
ANC = MAS - Anchorage
SUB = Subcontract

CASE NARRATIVE

CLIENT : DOWL ENGINEERS
PROJECT # : D55836
PROJECT NAME : ADOT & PF UST REMOVAL CHULITNA

CASE NARRATIVE: METALS ANALYSIS

The following anomalies were associated with the preparation and/or analysis of the samples in this accession:

The blank spike (BS) recovery of lead for samples 821099-1 (CHU-01-EX), 821099-2 (CHU-02-EX), 821099-5 (CHU-01-SP) and 821099-7 (CHU-02-SP-DUP) was outside the established control limits of 86-119%. The concentration of lead in the associated preparation blank was above the method detection limit (MDL) but below the reporting limit of 0.15 mg/Kg. When the background concentration of the lead in the blank was subtracted from the lead concentration of the BS, the lead BS recovery was within the established control limits. The lead concentrations of the samples were all ten times greater than the background lead concentration. Therefore, the lead results were processed "as is" and no further corrective action was performed.

The matrix spike (MS) percent recovery of lead in the associated quality control (QC) for samples 821099-1 (CHU-01-EX), 821099-2 (CHU-02-EX), 821099-5 (CHU-01-SP) and 821099-7 (CHU-02-SP-DUP) was within the established control limits of 53-151%. The lead content in the QC sample was greater than four (4) times the amount of spike added. The total lead MS recovery was flagged with a "G".

Lead was detected at 0.23 mg/Kg for the digestion blank associated with sample 821099-6 (CHU-02-SP). The total lead content of the sample was greater than ten (10) times the lead contamination in the digestion blank. Therefore, no further corrective action was performed.

The BS recovery of lead for sample 821099-6 (CHU-02-SP) was outside the established control limits of 86-119%. This anomaly was due to the previously mentioned lead contamination of the blank. Therefore, the BS recovery was flagged with an "H" and no further corrective action was performed.

All other associated quality assurance/quality control (QA/QC) parameters were within established MultiChem control limits.

000060

MAS I.D. # 821099

MultiChem
ANALYTICAL SERVICES

METALS ANALYSIS
DATA SUMMARY

CLIENT	: DOWL ENGINEERS	ELEMENT	: LEAD
PROJECT #	: D55836	MATRIX	: SOIL
PROJECT NAME	: ADOT & PF UST REMOVAL CHULITNA	UNITS	: mg/Kg

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

MAS ID#	CLIENT ID#	DATE PREPARED	DATE ANALYZED	RESULT	DIL	BATCH
821099-1	CHU-01-EX	08/25/97	09/05/97	6.4	10	RS7399F
821099-2	CHU-02-EX	08/25/97	09/05/97	18	20	RS7399F
821099-5	CHU-01-SP	08/25/97	09/05/97	5.8	5.0	RS7399F
821099-6	CHU-02-SP	08/26/97	09/23/97	8.4	10	RS7403F
821099-7	CHU-02-SP-DUP	08/25/97	09/05/97	8.3	1.0	RS7399F
BLANK	-	08/25/97	09/05/97	<0.15	1.0	RS7399F
BLANK	-	08/26/97	09/23/97	0.23	1.0	RS7403F

000061

MAS I.D. # 821099

MultiChem
ANALYTICAL SERVICESMETALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : DOWL ENGINEERS UNITS : mg/Kg
 PROJECT # : D55836
 PROJECT NAME : ADOT & PF UST REMOVAL CHULITNA

ELEMENT	MAS I.D.	SAMPLE RESULT	DUP RESULT	SPIKED RPD RESULT	SPIKE ADDED	% REC	BATCH NUMBER
LEAD	BLANK	<0.150	N/A	N/A 1.53	1.25	122H	RS7399F
LEAD	BLANK	0.230	N/A	N/A 1.29	1.25	85H	RS7403F
LEAD	708051-6	168	183	9 205	33.1	112G	RS7399F
LEAD	821089-1	14.5	13.3	9 18.3	5.54	69	RS7403F

H = Out of limits.

G = Out of limits due to high levels of target analytes in sample.

CONTROL LIMITS

ELEMENT	BLANK SPIKE %RECOVERY	BLANK SPIKE RPD	MATRIX SPIKE %RECOVERY	MATRIX SPIKE RPD	MATRIX DUPLICATE RPD
LEAD	86-119	N/A	53-151	N/A	35

000062

MAS I.D. # 821099

MultiChem
ANALYTICAL SERVICES

GENERAL CHEMISTRY ANALYSIS

CLIENT : DOWL ENGINEERS MATRIX : SOIL
PROJECT # : D55836
PROJECT NAME : ADOT & PF UST REMOVAL CHULITNA

PARAMETER DATE ANALYZED

MOISTURE 08/25/97
(SAMPLES -1, -2, -5, -7)

MOISTURE 08/28/97
(SAMPLE -6) *

* = Analyzed at MultiChem, Anchorage, AK.

000063

MAS I.D. # 821099

MultiChem
ANALYTICAL SERVICES

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : DOWL ENGINEERS MATRIX : SOIL
PROJECT # : D55836
PROJECT NAME : ADOT & PF UST REMOVAL CHULITNA UNITS : %

MAS I.D. #	CLIENT I.D.	MOISTURE
821099-1	CHU-01-EX	8.4
821099-2	CHU-02-EX	9.7
821099-5	CHU-01-SP	7.8
821099-6	CHU-02-SP	9.0*
821099-7	CHU-02-SP-DUP	9.6

* = Analyzed at MultiChem, Anchorage, AK.

000064

MAS I.D. # 821099

MultiChem
ANALYTICAL SERVICESGENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : DOWL ENGINEERS MATRIX : SOIL
 PROJECT # : D55836
 PROJECT NAME : ADOT & PF UST REMOVAL CHULITNA UNITS : %

PARAMETER	MAS I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	708046-2*	5.7	5.9	3	N/A	N/A	N/A
MOISTURE	821099-1	8.4	8.0	5	N/A	N/A	N/A

* = Analyzed at MultiChem, Anchorage, AK.

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{|(\text{Sample Result} - \text{Duplicate Result})|}{\text{Average Result}} \times 100$$



4040 B STREET ANCHORAGE ALASKA 99503-5999
 PH: (907) 582-2000 FAX: (907) 583-3953

Dr. Benton 000065# 8/20/99

CHAIN OF CUSTODY SAMPLE RECEIPT FORM

Proj. No.		Project Name				No. Of Containers	Analyses Requested										Remarks											
055836		ADOT PF UST Removal Chulitna																										
Samplers (Signature)																												
<i>[Signature]</i>																												
Sample No.	Date	Time	Comp.	Grab	Station Location																							
1	8/14/97	915		X										3	X	X	X											
2		930												3	X	X	X											
3		1245												2	X	X												
4		1640												2	X	X												
5		1940												3	X	X	X											
6		1945												3	X	X	X											
7		1945												3	X	X	X											
Relinquished by: (Signature)			Date/Time		Received by: (Signature)			Date/Time		Relinquished by: (Signature)			Date/Time		Received by: (Signature)													
<i>[Signature]</i>			8/14/97 1316		<i>Anna Brainerd</i>			8/19/97 1316		<i>[Signature]</i>																		
Relinquished by: (Signature)			Date/Time		Received for Laboratory by: (Signature)			Date/Time		Remarks:																		
<i>Anna Brainerd</i>			8/19/97 1000		<i>Patrick Halloran</i>			8/20/97 10:30																				

Cooler Temp = 7.8°C
 cooler temp = 3.3°C
SW 8/20/99

000066

NON-CONFORMANCES:
Y/N
(if Y see other side)

MultiChem Analytical Services

SAMPLE LOG-IN CHECKLIST

DATE: 8.20.97
TIME: 1140
INITIALS: SKH

ACCESSION NO. 821099
CLIENT: DOWL Env.
PROJECT: Chelton AOC & PF UST Removal/3

Shipping:

Type:
 Cooler
 Box
 Other

COC Seals:
 Ship. Cont.
 On Bottles
 None

Intact?
 Y N
 Y N

Packing Material:
 Styrofoam
 Bubble Bags
 Foam Vial Packs
 Other

Refrigerant:
 Gel Ice Pack
 Loose Ice
 Other
 None

Frozen?
 Y N
 Y N
 Y N

Received Via:
 Hand Delivery
 Federal Express
 Airborne
 Other: _____
 Courier
 UPS
 Taxi
 Goldstreak

Sample Information:

Samp. #	Bottle #
<u>5</u>	<u>5</u>

Type
 Soil
 Water
 Product
 Other

0 headspace Y N N
0 headspace Y N N
Preserved? Y N
Trip blanks? Y N

Condition of Samples:

Containers:
Intact? (Bottle/Lid) Y N
Correct Type? Y N

CA # _____
Waters Preserved? (if needed)

ID's _____ Match C.O.C. Y N N

Temperature: <u>3.3</u> C	CA NO. _____
(See corrective action on reverse side for explanation if temperature is outside of the MAS recommended range.)	
<input type="checkbox"/> LAB USE ONLY	<input type="checkbox"/> NO NOTICE
<input type="checkbox"/> COC/TAT DOES NOT MATCH NOTICE	<input type="checkbox"/> SENDOUTS NEEDED BY
<input type="checkbox"/> NEED TEST(S) VERIFIED BY CLIENT	
COMMENTS: _____	

APPENDIX
BOWL CHART OF CUSTODY

000068

41 8-10-19



4040 B STREET ANCHORAGE ALASKA 99503-5999
 PH: (907) 562-2000 FAX: (907) 563-3953

CHAIN OF CUSTODY SAMPLE RECEIPT FORM

Proj. No.		Project Name				No. Of Containers	Analyses Requested										Remarks				
D55836		ADOT PF LIST Removal Chulitna					/ / / / / / / / / / / / / / / /														
Samplers (Signature)							AK101/BIOE AK102 L-101														
Sample No.	Date	Time	Comp.	Grab	Station Location																
Chu-01-EX	8/14/97	915		X		3	X	X	X												Matrix = Soil
Chu-02-EX		930				3	X	X	X												
Chu-03-EX		1245				2	X	X													
Chu-04-EX		1640				2	X	X													
Chu-01-SP		1940				3	X	X	X												
Chu-02-SP		1945				3	X	X	X												
Chu-02-SP-Dry		1945				3	X	X	X												
Relinquished by: (Signature)		Date/Time		Received by: (Signature)		Date/Time		Received by: (Signature)		Date/Time		Received by: (Signature)									
[Signature]		8/19/97 1316		Anna Brauer		8/19/97 1316		[Signature]													
Relinquished by: (Signature)		Date/Time		Received for Laboratory by: (Signature)		Date/Time		Remarks:													

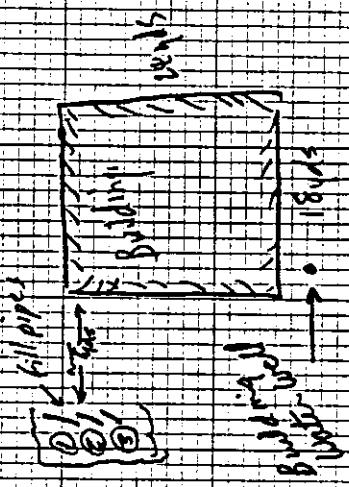
8/19/97

000059

**APPENDIX
FIELD BOOK NOTES**

7000710


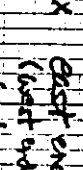
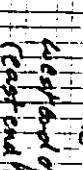
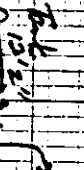
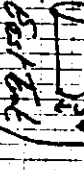

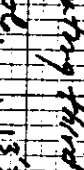
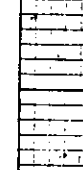

Arrived @ 14:00. Be on site. Remixed one concrete island to find a second below the first. Be still 'latching' concrete.
 Three US7's instead of 2. Two diesel and one gasoline



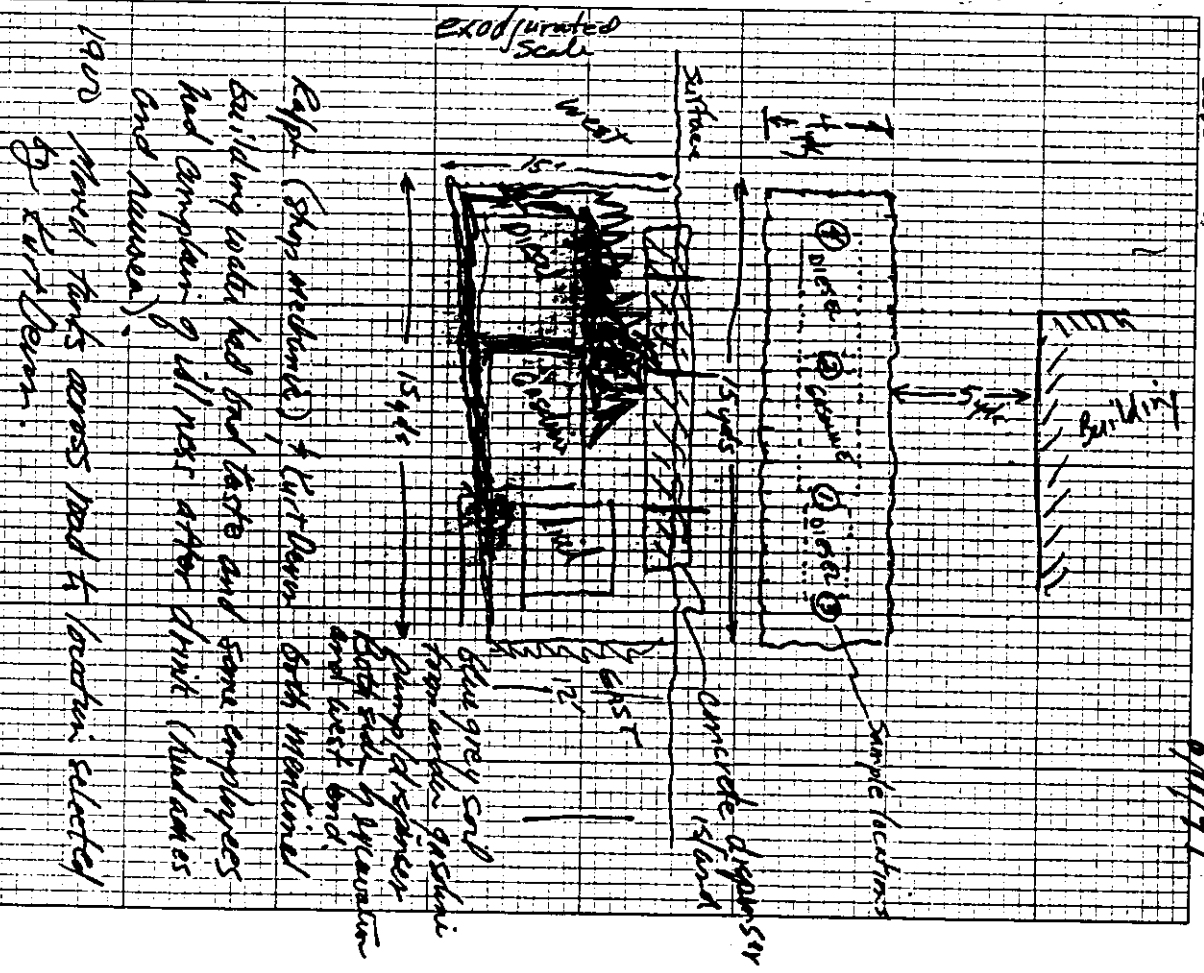
Calculated Microtip Log of 99.58 ppm 150wt%ene
 P10 read 49.7 ppm.

Time	Location	Depth	Pd	Comment
1516	①	1-2'	15.2	Strong aluminum odor, grey soil
1555	Island over tanks removed			
1558	②	3'	257.1	Background within 10' of hole 91.2
1600	③	4-5'	327.2	Background within 10' of hole 91.2
1610	④	5'	502.0	Delayed 193.1
1630	Continued excavation to remove tank			
1720	⑤	5'	271.1	
1810	⑥	9'	529.7	
1825	⑦	9'	293.4	
1850	⑧	11'	374.0	
1925	⑨	11'	402.3	
1935	Clears area for receipt			

8/1/97 Cascade

- 8:01 Arrive site Examining ~50°F
- 8:15 Take "broke" piece 150 and BC began venting (gas line tank)
- 8:34 Talk to Greg; Plan is to seal one of tanks to lead person, Greg will get up BC's form and the other two tanks will be pulled, cleaned, cut, and left in site.
- 9:10 Pulled example tank (5'3" in height some)  15'3" in height some
- 9:15 Sampled CHU-01-EX East end of gas tank (west end of dead tank)  15'3" in height some
- 9:30 Sampled CHU-02-EX West end of gas tank (east end of dead tank)  15'3" in height some
- 9:47 Start excavating East Dipped tank  15'3" in height some
- 10:30 Pulled east dead tank  15'3" in height some
- 10:45 Sampled east end of East tank  15'3" in height some
- 11:00 CHU-03-EX, PID 00  15'3" in height some
- 12:50 Light for tunnel w/ Dan Breider  15'3" in height some
- 13:40 Back at site BC excavating third tank  15'3" in height some
- 15:10 began working tented hole.  15'3" in height some
- 16:30 Pulled last (third) tank  15'3" in height some
- 16:40 Sampled west end of excavation CHU-04-EX PID 217
- 17:00 began filling excavations

Cascade



8/1/97

8/19/97 Circude

Stackpile

~~Enclosure~~ ~~Stack~~ ~~Area~~

Dimensions



Side ~ 8 ft high 13 yds
 5.5 x 7 x 13 = 50 yds

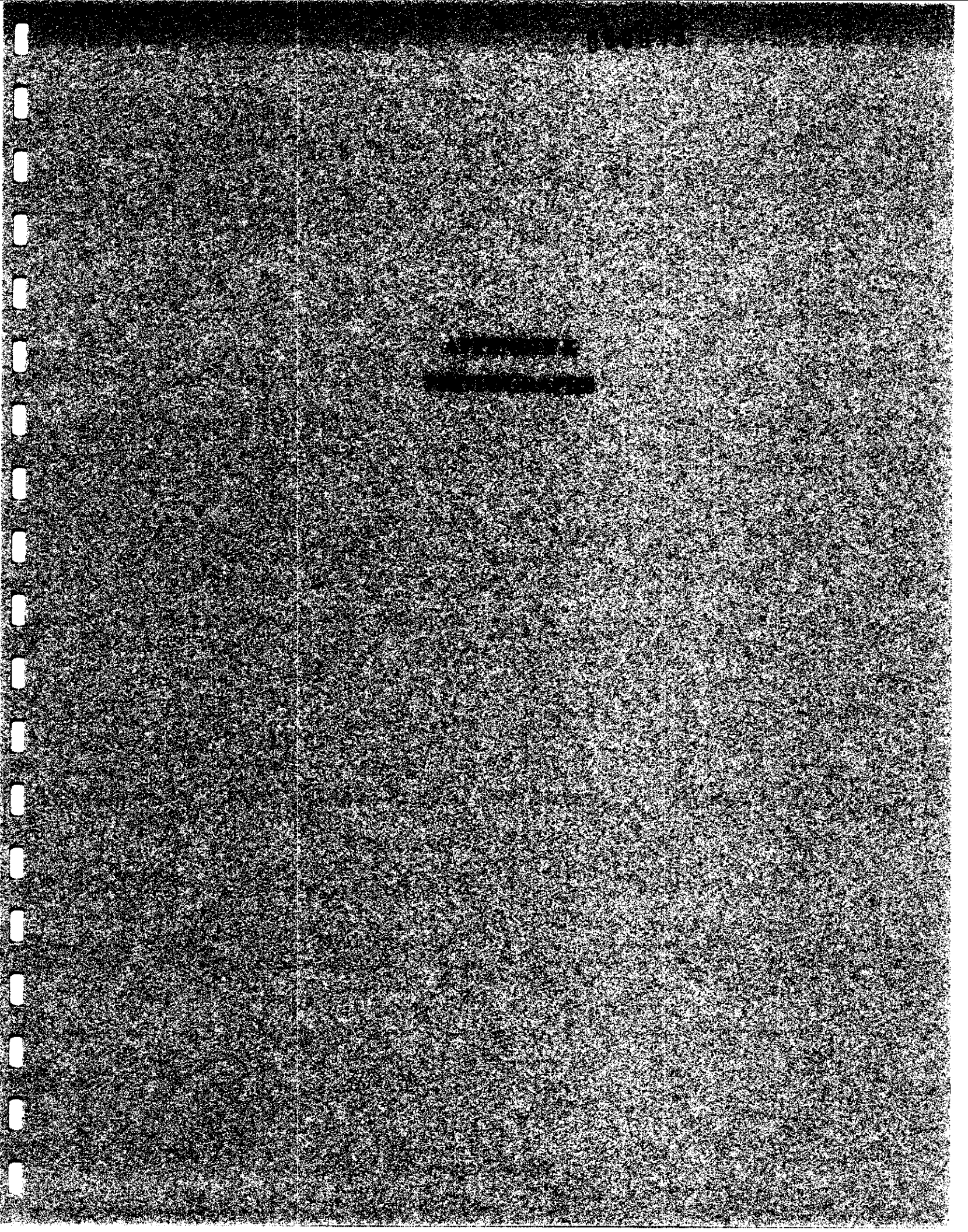
0000072

Scum	Time	PID	Methyane	
			Time	Height
1	1915	58.2	1928	185
2	1917	27.2	1929	45.9
3	1920	19.8	1930	71.3
4	1922	30.5	1930	49.7
5	1925	7.55	1931	12.10

CHU-01-SP
 CHU-02-SP
 CHU-02-SP OR

1996 Collect Samples CHU-01-SP
 1995 Collect Samples CHU-02-SP
 CHU-02-SP (day)

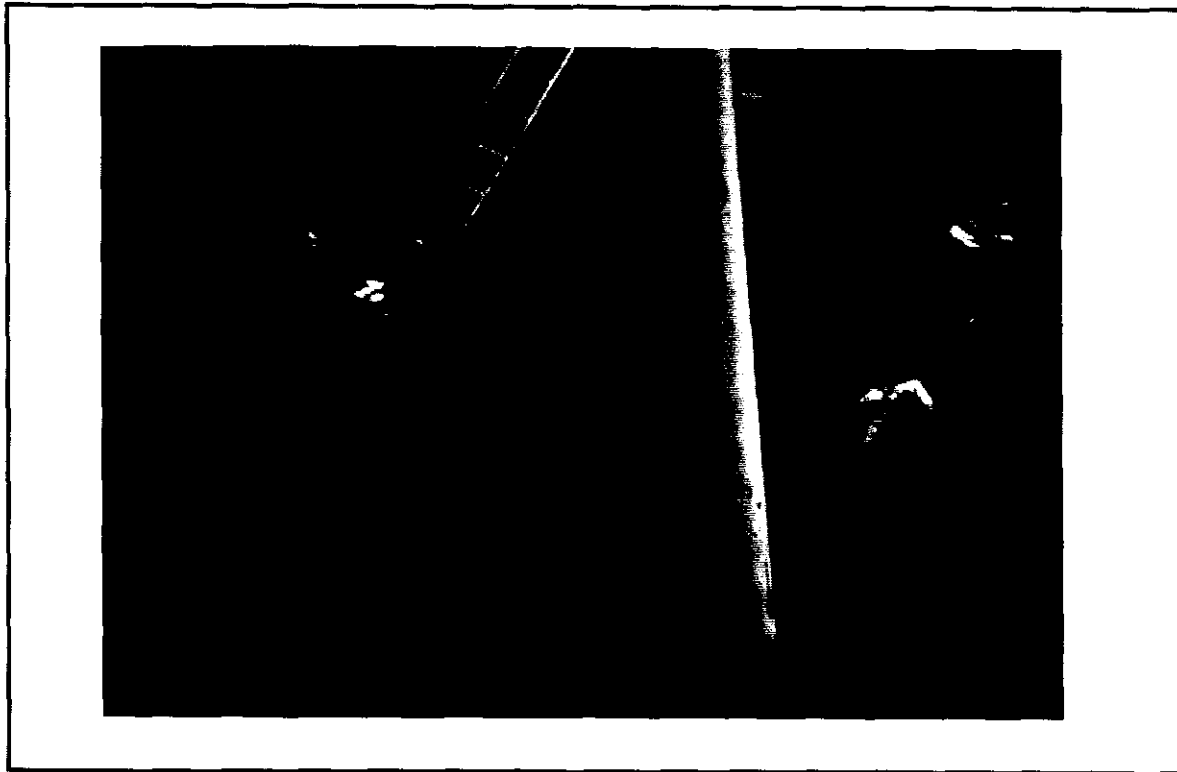
2005 Completed



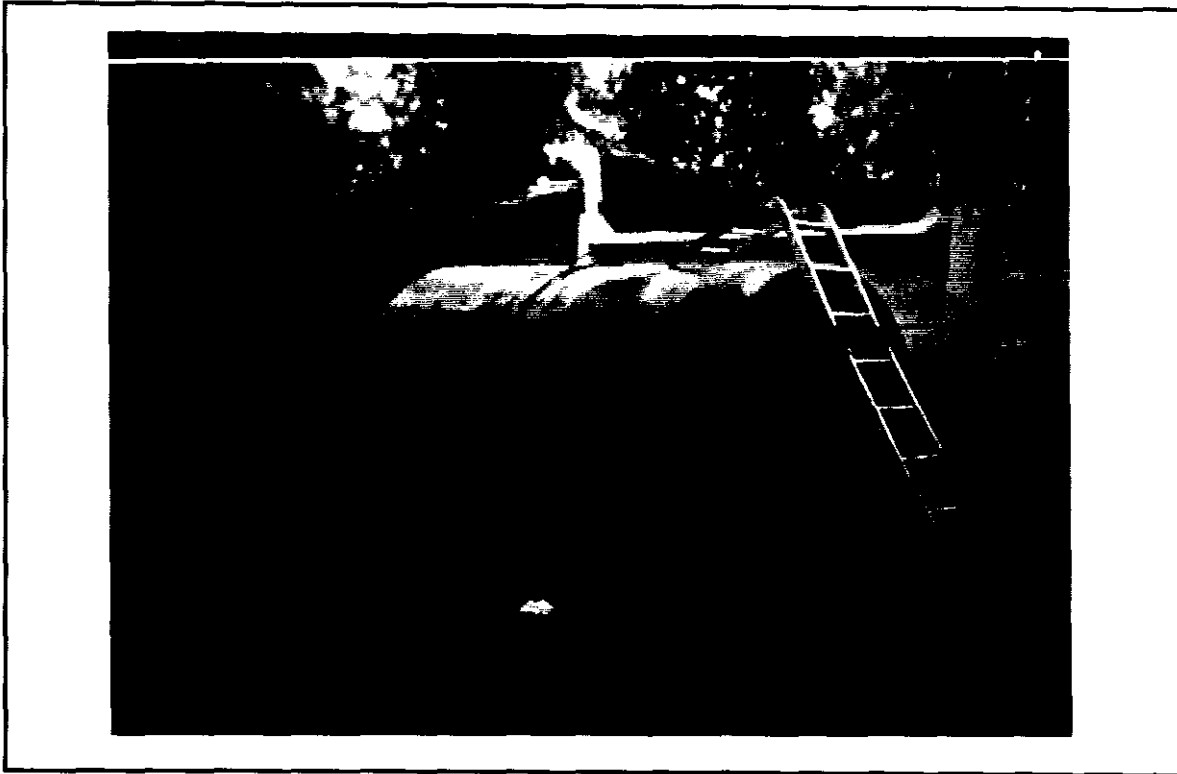
1. Demolition of concrete island over USTs.



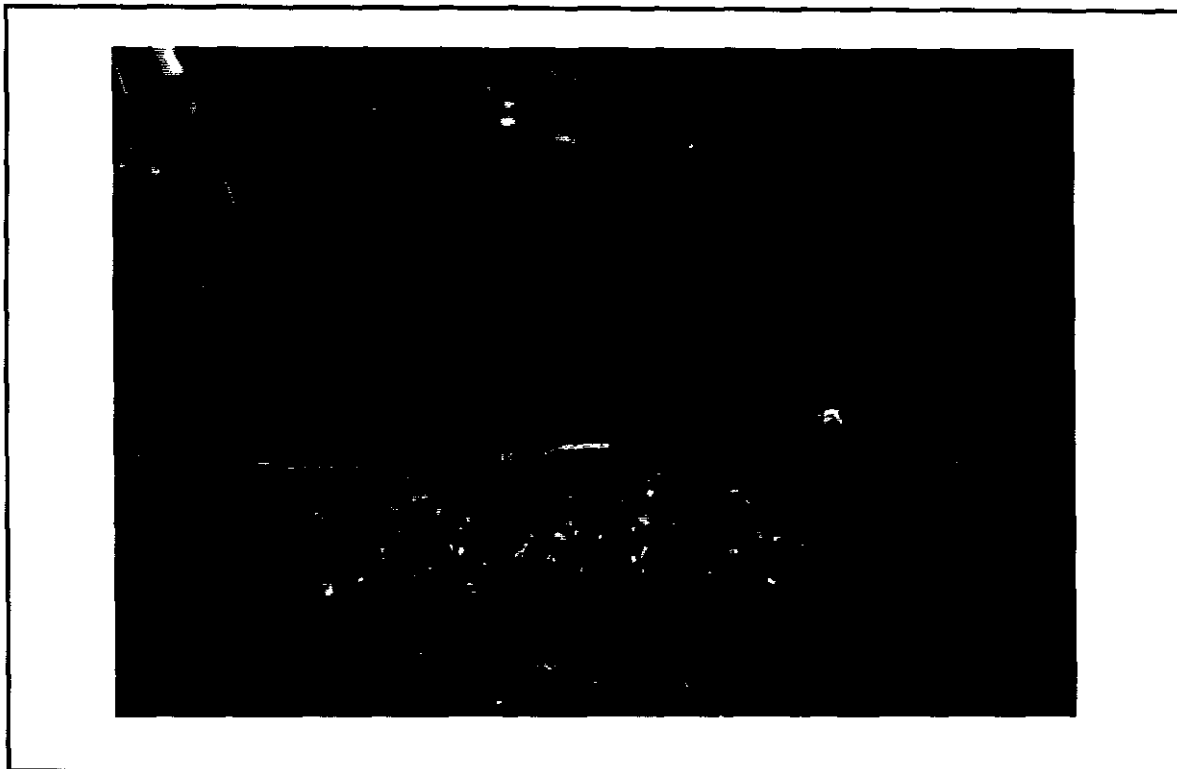
2. Excavation of gasoline UST.



3. Gasoline tank after it was pulled.



4. Excavation for removal of large diesel UST. Contaminated soil was found along both side walls of the gasoline and diesel tanks.

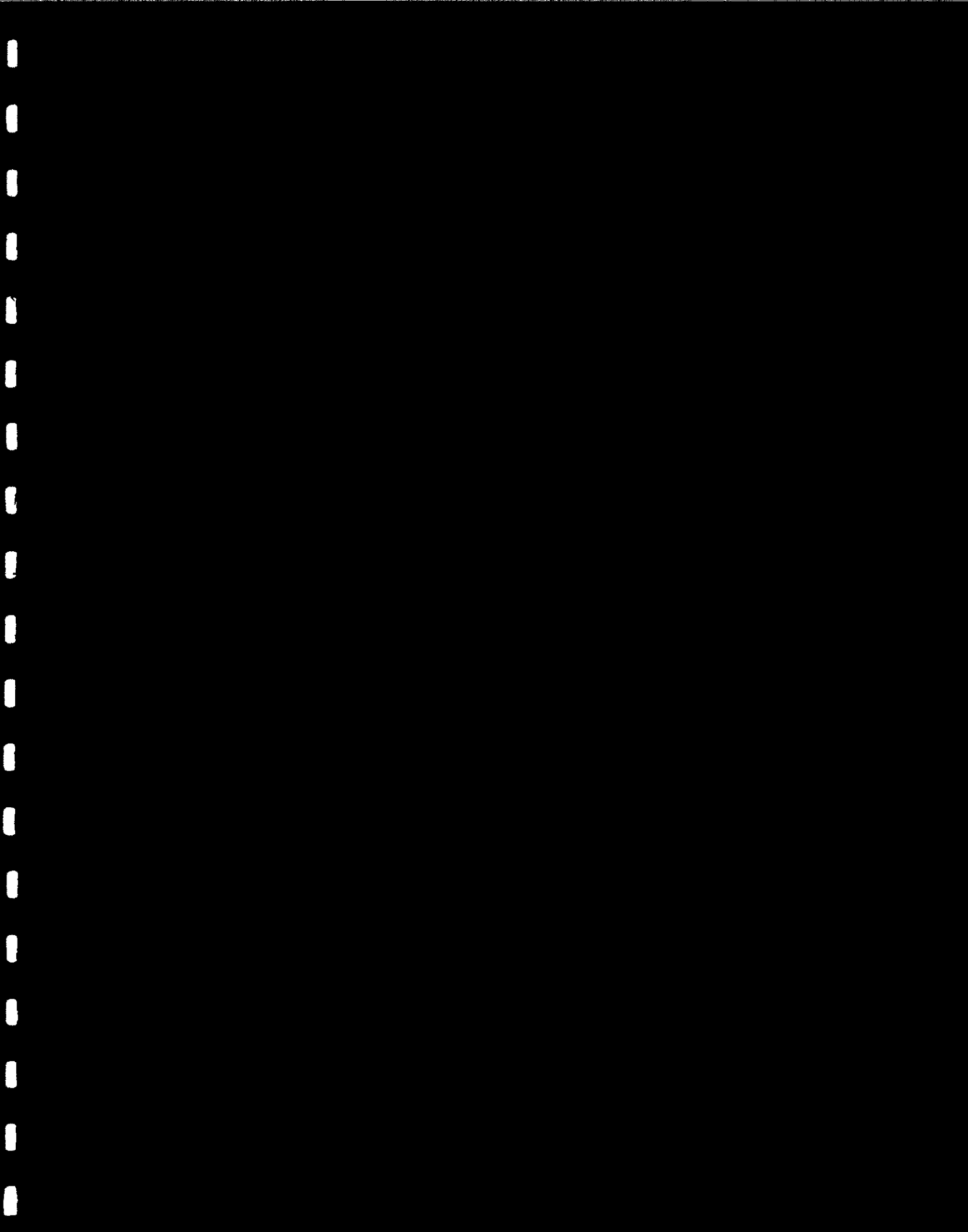


5. Excavation after removal of large diesel UST. Contaminated soil was found at end of the large diesel tank



6. Contaminated soil was found beneath the gasoline and large diesel tanks.





STATE OF ALA

DEPT. OF ENVIRONMENTAL CONSERVATION

SPILL PREVENTION AND RESPONSE DIVISION
STORAGE TANK PROGRAM
555 CORDOVA STREET
ANCHORAGE, Ak. 99501

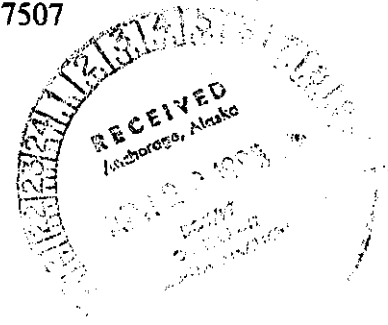
TO: Dan Breeden 4-2 3 000078
FROM: Chris Birch
Subject: Chulitna UST Removal and Closure Report
By copy of this letter to Corey Loyd at DOWL [REDACTED]

Do we need to advise DEC that you are the agency contact for these UST's? Thanks, Chris
cc: Corey Loyd/DOWL, Ben Thomas/DEC, Colin Bayse/DEC

Phone (907) 269-3060

Fax (907) 269-7507

April 21, 1998



Mr. Chris Birch, P.E.
Department of Transportation and Public Facilities
Contracts and Professional Services
P.O. Box 196900
Anchorage, Alaska 99519-6900

Re: Chulitna Maintenance Facility, Alaska DOT/PF, Mile 127, Parks Highway, Chulitna, Alaska; UST Closure Report; Facility ID # 144, File # L65.21; Reckey # 97210022507

Dear Mr. Birch:

I have reviewed the February, 1998 Closure Report, pertaining to the DOT/PF Chulitna Maintenance facility, which our office received on March 9, 1998. Three USTs were removed at this facility; one 3,000 gallon gasoline tank, one 3,000 gallon diesel tank, and one 2,000 gallon diesel tank. Contamination was found around and beneath the tanks and while some contaminated soils were removed and stockpiled on site, contaminated soil remains in place. Your consultant, DOWL Engineers, has appropriately recommended a further (re)case investigation to determine the horizontal and vertical extent of the contamination, as well as its concentration levels. During my review of the report, I found several issues that will need your attention and/or that of your consultant. The issues which will need to be addressed are as follows:

This report was not signed or provided with a transmittal letter with the responsible staff person or principal of DOWL Engineering, as is necessary. Please resubmit the report with the necessary signature, or have DOWL provide a transmittal letter for the report. I was also unable to find a completed "Site Assessment and Release Investigation Summary Form", in the report that you submitted. This should be part of the report, located in your Appendix A.

The North arrow doesn't correspond to sampling locations listed on Table 3, making the text/map correlation confusing. (Which one is correct?) Please address this.

I am concerned about the possibility of this contaminated site being close to potable groundwater supplies, or discharging to surface water systems. The facility is close to nearby waterways, such as the Chulitna River or other smaller waterways. The maps on Figures #1 through #3 do not

000079

Mr. Chris Birch

-2-

April 21, 1998

show enough detail regarding local water bodies, waterways, drainage directions, property boundaries, and other details listed on Schedule B of the ADEC Summary Form, Item #13. Please include more detail on your Site Maps.

The matrix score sheet lists the groundwater depth at the site as being from 26 to 50 feet in depth. How was this figure obtained? Would you please submit some supporting documentation for this conclusion, such as depth to water in the on-site water supply well, or other evidence?

Table #3- If an analysis was not performed, an entry of "NA" (not analyzed) confirms that it was not an omission. Please address this.

If you have any questions about these comments, please give me a call.

Sincerely,



Colin J. Bayse
Environmental Engineering Associate

CC: Mr. Corey Loyd, DOWL

DEPT. OF ENVIRONMENTAL CONSERVATION
SPILL PREVENTION AND RESPONSE
STORAGE TANK PROGRAM
555 CORDOVA STREET
ANCHORAGE, AK 99501

TELEPHONE: (907) 269-7504
FAX: (907) 269-7507

June 24, 1998

Jim Romersberger
DOT/PF Maintenance & Operations
2301 Peger Road
Fairbanks, AK 99709-5263

Re: Waiver of the 15-day notification period for closure of one UST located at the Department of Transportation "Chulitna" facility, MP 121 Parks Highway; Facility ID # 0-003221, tank # 001.

Dear Mr. Romersberger:

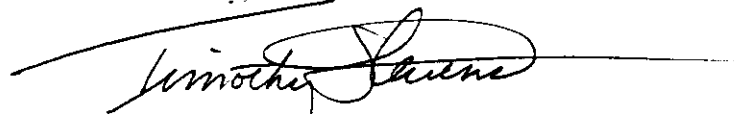
The Department of Environmental Conservation (ADEC) has received a request for waiver of the 15-day notification period for closure of one underground storage tank (UST) located at the facility and location listed above. Kalu Kalu of Emcon Alaska submitted the waiver request on June 18, 1998.

ADEC grants the waiver authorizing the UST closure to begin on June 29, 1998, as requested. Please contact Colin Basye at (907) 269-3060, if the closure activities are rescheduled, to report a change in the certified worker or qualified person, and to obtain ADEC approval to move petroleum contaminated soils off-site. Closure activities must be supervised by a person certified under, 18 AAC 78.400 - 78.495. A site assessment of the UST excavation must be conducted in accordance with 18 AAC 78.090 and the UST Procedures Manual dated September 22, 1995. Please submit the site assessment report to Paul Pinard, 555 Cordova Street, Anchorage, Alaska 99501.

Upon removal, the tank and associated piping must be emptied, cleaned, removed and disposed, as specified in 18 AAC 78.085. In accordance with 18 AAC 78.085 (i), please submit the post-closure notice to David Allen at ADEC/STP, 555 Cordova Street, Anchorage, Alaska 99501, within 30 days of completing closure activities. Any release reporting and corrective action must be done in accordance with 18 AAC 78.220 - 18 AAC 78.280.

Please contact me at (907) 269-7538 if you have any questions.

Sincerely,



Timothy Stevens
Environmental Specialist

TSS/dch: H:\home\ustfap\stevens\0003221.wai

cc: Paul Pinard, ADEC, Anchorage
Colin Basye, ADEC, Anchorage
Kalu Kalu, Emcon Alaska, Fairbanks

Alaska Department of Environmental Conservation

UST Financial Assistance Program

Preliminary Risk Evaluation Form

Purpose of this form

This form is used only for sites seeking financial assistance for *Underground Storage Tanks (UST)* that are regulated by AS 46.03.450 (12). The form is based on the "Alaska Hazard Ranking Model" which the Department uses to prioritize it's investigation and cleanup efforts. It is used to collect preliminary information on the relative risk a contaminated site may pose to human health and the environment.

Explanation of how sites are scored

The box below explains how a site will be scored after the Department receives this form. Note that although the form contains values for "unknown" elements, a minimum combination of the following data elements are needed for adequately distinguishing between sites: toxicity, quantity, air exposure, ground water exposure, and surface water exposure. Also note that scores cannot be calculated in the following instances:

1. If too many data elements are unknown; or,
2. If both the toxicity and the quantity data elements are unknown; or,
3. If all exposure elements are unknown.

Scoring procedure for risk evaluation form

The Preliminary Risk Evaluation Form contains 13 different questions (Note: question #6 has two parts). Each question deals with a particular "data element" (shown below) that is considered in scoring the site. The alternatives to each question are assigned a value and then these values are entered into the formulas below to calculate the final score.

<u>Question #</u>	<u>Data Element</u>
1.	1 Release Information
2.	3 Toxicity
3.	1 Quantity
4.	1 Site Access
5.	1 Air Exposure
6a.	3 Population Density (within one mile)
6b.	1 Population Proximity (500 feet)
7.	8 Ground Water Usage
8.	4 Ground Water Exposure
9.	5 Surface Water Use
10.	4 Surface Water Exposure
11.	2 Surface Water Environment
12.	0 Environmental/Recreational Area
13.	0 Observed Environmental Impact

Scoring

Ranking Score = Substance Factor x (Human Target + Environmental Target)
(Numbers in parentheses refer to the 13 "data elements" identified above.)

Substance Factor = (#1) x (#2) x (#3) = 3

Human Target = (#4 + Air Target Population + Adj. Ground water Use + Adj. Surface Water Use)

Air Target Population = (#5) x (#6a) x (#6b) = .3

Adj. Ground Water Use = (#7) x (#8) x (#6a) = .96

Adj. Surface Water Use = (#9) x (#10) x (#6a) = .6

Environmental Target = (#11) + (#12) = 2

or, if (#11) + (#12) = 0, use value in (#13) = 0

Score = 14.58

Return completed form to : ADEC Underground Storage Tank Financial Assistance Program
3601 "C" Street, Suite 398, Anchorage AK 99503
Phone 273-4342 FAX 563-6032

UST Financial Assistance Program Preliminary Risk Evaluation Form

Please type, or print in ink, all the requested information on this page.

General Information

Date: 9/17/98

Name of Site: - DOT PF Chulitua

Facility ID Number: 0144

Tax ID Number: _____

*Score
142*

Applicant:

Name: _____

Address: _____

Phone: _____

Facility:

Name: _____

Address: _____

Phone: _____

Owner of Tank (If not same as applicant):

Name: _____

Address: _____

Phone: _____

Owner of Land (If not same as applicant):

Name: _____

Address: _____

Phone: _____

For State Use Only	
RECKEY #	<u>972100 22507</u>

Preparer:

Name: _____

Title: _____

Firm: _____

Phone: _____

Signatures:

Preparer _____

Owner _____

Please provide any additional information that may assist in processing the Preliminary Risk Evaluation Form (i.e. directions to the site if it does not have a physical address, uncertainties over how to answer particular questions, etc.). Please use additional pages, if necessary.

UST Financial Assistance Program

Preliminary Risk Evaluation Form

(Values for scoring are in parentheses following each option)

On pages 3-8, please fill in the letter of the correct choice in the box preceding each question.

For State
Use Only

1.

 1

1. Has a release at the site been documented?

This element differentiates between confirmed and unconfirmed releases. Note: If a release is unconfirmed or unreported the overall "Ranking Score" will be zero and the site will not be considered eligible for assistance.

- a. A spill has been confirmed and reported. (1)
- b. A spill is unconfirmed or unreported. (0)

2.

 3

2. What type of product was released or detected?

The toxicity data element is assigned a value based on the class of substances present. Do not attempt to guess whether the contaminant which has actually been released is gasoline or diesel based on benzene or xylene concentrations in soil or water. If unknown substances are present at the site assign the letter "b". If more than one substance is present, use the one that will score the highest substance factor. Substances other than petroleum will not be scored.

In a situation where multiple tanks containing diesel and gasoline are present, use the following methods to choose an answer for "type of product": 1) if your answer is based on integrity testing with multiple failed tanks, choose the substance which will receive the highest score (i.e. gasoline has a value of 3, which is higher than diesel, with a value of 2); 2) if your answer is based on soil/water samples, and lab testing (or spill history) has not identified whether the contaminant is gasoline or diesel, choose "unknown" or "b"; 3) if both gasoline and diesel have been identified, then choose "a".

- a. Gasoline, aviation gas, naphtha. (3)
- b. Unknown substances. (2.1)
- c. Diesel fuel, jet fuels, (JP-4, JP-5), kerosene. (2)
- d. Used oils, heavy fuel oils (No. 6, etc.). (1)

3.

 /

3. What quantity of product was released?

It is acknowledged that this number will often not be precisely known. If not known, the quantity of hazardous substances at the site should be estimated. It is important to assign quantity based on the source of contamination (i.e., the spilled volume or the amount of contaminated soil), not the extent of the plume of contaminated ground water resulting from the site.

Underground Tanks

If the tank(s) have failed an integrity test and no other information on presence or absence or quantity of a release is available, assign the letter "c".

If the site is a leaking underground tank(s) where quantity spilled is not known but soil borings are available, determine the area of contamination based on the area encompassed by borings encountering contamination.

For State
Use Only**Contaminated Soil**

Use cubic yards for contaminated soil remaining in the ground (when this amount of detail is known) and for storage piles. Otherwise, calculate area in square feet as described above for "underground tanks". In general, unless a report has already calculated a total yardage of waste remaining in the ground, make an estimate based on the surface area.

Unknown Quantity

If the quantity spilled or disposed at the site is not known, estimate the areal extent of surface contamination based on, soil data, or visual evidence of surface contamination. If the value for waste quantity cannot be determined from available information or estimated by any of these methods item "c" should be selected.

- a. < 500 spilled gallon, < 100 cubic yards, < 100 ft². (1)
- b. 500 - 9,999 spilled gallons, 100 - 499 cubic yards, 100 - 9,999 ft². (2)
- c. Unknown quantity. (2.1)
- d. 10,000 - 39,999 spilled gallons, 500 - 1,999 cubic yards, 10,000 - 43,559 ft². (3)
- e. \geq 40,000 spilled gallons, \geq 2,000 cubic yards, \geq 1 acre (43,560 ft²). (4)

Note: < means "less than" (i.e. 1 < 10, or "one is less than ten").
 > means "greater than" (i.e. 10 > 1, or "10 is greater than one").
 \geq means "greater than or equal to" (i.e. 11 \geq 10, or "11 is greater than or equal to 10").

4.

 1

4.

How controlled is access to this site?

Direct contact exposures are considered a potential pathway where wastes or releases of substances are present at the surface and some possibility of access to the materials exists. Where wastes are underground give "d" as an answer. If a site has both a subsurface problem and a surface contamination problem (e.g. tank overfills), then the presence of surface contamination justifies an answer different than "d".

Contact with contaminated ground water or surface water (which are the effect, not the source of contamination) is not the basis for answering this question. With respect to complete control of access, a site with wastes present at the surface should be "d" only if the fence is continuously locked and no one works or is present inside the fence (other than cleanup workers).

- a. A school is present within 500 feet, site access is partially controlled or uncontrolled, and wastes are present at the surface. (3)
- b. Access to the site is uncontrolled and wastes are present at the surface. (2)
- c. Access to the site is partially controlled, or surrounding features restrict site access, or contaminated soil is stockpiled (presumed covered) on site. (1)
- d. Waste is not present at the surface or access to the site is completely controlled. (0)

For State
Use Only

5.

1

5.

Have contaminants been released to the atmosphere?

This data element considers the potential for populations to be exposed via air release of hazardous substances. It includes the potential for both volatile and particulate (i.e., dust) releases. Unless the site presents a clear human health concern, "a" should not be selected. Generally assign "c" for substances which are entirely underground, and for air emissions from approved air strippers or vapor control systems. Currently, open tank removal excavations receive a "b" or "c" depending on whether the release is documented. Presence of soil gases, as detected by a soil gas survey, does not qualify a site for anything higher than "c". If it is unknown whether wastes are present at the ground surface to potentially result in air releases, assign the letter "c".

- a. A documented release of particulate or gases from the site has been confirmed. (1)
- b. A release may have occurred at the site based on existing physical evidence, including uncovered stockpiles of excavated soils. (.2)
- c. No significant air releases have been identified at the site and waste management practices indicate no substantial possibility. (.1)

6a.

3

6a.

What is the predominant population density within 1 mile radius?

The answer to this question should be based on the predominant land use classification inside a one mile radius of the facility that reflects the population density of nearby areas that may be affected by the site.

- a. Urban use with population > 35,000. (10)
- b. Suburban use, or cities with population between 2,000-35,000, or industrial/commercial areas. (8)
- c. Villages (< 2,000 people), or low density housing (one unit per acre), or low density commercial use, or few permanent residents, but intensive seasonal use. (5)
- d. Rural use, with some occupied buildings. No villages or associated commercial/industrial areas within 1 mile. (3)
- e. Isolated areas with no population present. (0)

Note: < means "less than" (i.e. 1 < 10, or "one is less than ten").
> means "greater than" (i.e. 10 > 1, or "10 is greater than one").
>/= means "greater than or equal to" (i.e. 11 >/= 10, or "11 is greater than or equal to 10").

6b.

1

6b.

Are there persons at risk in close proximity to the site (within 500 feet)?

(Also count workers at site, residents of military barracks or lodges, and students at a school.)

Identify the answer which most accurately depicts the types of dwellings or occupied buildings which are in close proximity to the site, reflecting potential human receptors that may be more susceptible to exposure from air releases from the site.

- a. Occupied buildings or dwellings present within 500 feet of site. (1)
- b. No occupied buildings within 500 feet. (0.5)

For State
Use Only

7.

.8 7.

What is the ground water usage within 1 mile?

To answer this question you must have knowledge of the predominant water usage in the local area. Well log reviews of house-to-house well searches are not expected or anticipated at this level ranking.

- a. Within a 1 mile radius, a majority of the population is served by municipal wells or other public water supply wells serving > 25 individuals. (1)
- b. Within a 1 mile radius, a majority of the population is served primarily by private wells. (.8)
- c. A majority of the population is served by drinking water supplies that are > 1 mile from the site, or there are no known wells within one mile, but the possibility of use of ground water as a source of drinking water exists. (.4)
- d. Ground water is not available for drinking water or is not used. (.1)

Note: < means "less than" (i.e. 1 < 10, or "one is less than ten").
 > means "greater than" (i.e. 10 > 1, or "10 is greater than one").
 >/= means "greater than or equal to" (i.e. 11 >/= 10, or "11 is greater than or equal to 10").

8.

.4 8.

Has there been any documentation of ground water contamination?

This question refers to the documented contamination of drinking water sources due to releases from the site. If there is documented floating product or soil contamination at the ground water table, contamination is presumed to exist, choose "c". Other than this exception, do not assign a value other than "c", "unknown", for contamination assumed to exist, and not documented. If a water supply well is contaminated and is currently not in use, make your determination based on the fact that the water supply is available for use.

- a. Documented contamination of a drinking water supply at the tap exceeds the MCL. (4)
- b. Documented contamination of a drinking water supply at the tap does not exceed the MCL. (2)
- c. Ground water contamination has been detected but actual contamination at the tap has not been documented. (1)
- d. Ground water contamination is unknown, either at the tap or at the ground water source. (.4)
- e. Ground water is documented to be free of contamination, or waste and site characteristics indicate a low potential for contamination. (0)

9.

.5 9.

What is the primary use of surface water within 1 mile?

Determine the current and potential use of surface water as a source of drinking water within one mile of the site. If the surface water body is a flowing stream, consider only intakes/users downstream of the site.

- a. Surface water is used as a drinking water source supplied by intakes within 1 mile of site. (Assign this value if surface drinking water supplies within one mile of the site have been abandoned due to site contamination.) (1)
- b. Use of surface water as a source of drinking water, from intakes within 1 mile, is unknown, but likely. (.5)
- c. Use of surface water as a source of drinking water is unknown but is unlikely, or there is no use of surface water as a drinking water source within a 1 mile radius. (.2)

For State
Use Only

10.

4

10.

Has surface water been contaminated by a release from the site?

This item is based on the documented or potential contamination of drinking water sources due to releases from the site. If surface water is not a drinking water source or a proposed drinking water source, choose "e" (So, if your response to question #9 was "c", your response to question #10 should be "e".) Leaking underground storage tank problems will generally have a surface water exposure index value of zero (item "e"), unless there is a documented migration route to surface water from the underground soils surrounding the tank. Assign sites with covered stockpiles of excavated contaminated soils an "e" for surface water exposure. If the surface water is a flowing stream, only consider contamination downstream of the site.

- a. Documented contamination of surface drinking water supply at the tap exceeds the MCL due to releases of hazardous material from the site. (4)
- b. Documented contamination of surface drinking water supply at the tap does not exceed the MCL. (2)
- c. Surface water contamination has been detected at a drinking water source, but actual contamination of drinking water supply at the tap has not been documented. (1)
- d. Surface water contamination is unknown. (.4)
- e. Surface water is not used as a source of drinking water, or surface water is documented to be free of contamination, or site and waste characteristics indicate a low potential for contamination of surface water. (0)

11.

2

11.

What type of surface water environment exists within 1/4 mile of the site?

Fresh and marine water environments and wetlands have been selected as a category for environmental targets because they provide important habitats for fish and shellfish spawning and rearing, bird migration, nesting and feeding areas, marine mammal habitat, important habitats for other aquatic wildlife, and they support the base for many food chains. Wetlands are defined by inundated or saturated soil conditions that are the result of periodic or permanent inundation by ground water or surface water, or by a prevalence of vegetation adapted to those soil conditions.

Use a USGS topographic map to determine the presence of surface water environments; wet tundra should be considered a wetland.

- a. Fresh or marine water or wetlands are present within 1/4 mile, and evidence of death or stress to fish or wildlife exists, which is strongly suspected as a result of the presence of hazardous substances. (5)
- b. Fresh or marine waters or wetlands are present within 1/4 mile, and evidence of death or stress to plants exists, which is strongly suspected as a result of the presence of hazardous substances. (3)
- c. Fresh or marine waters or wetlands area are present within 1/4 mile, but there is no evidence of death or stress to fish, wildlife, or plants. (2)
- d. No fresh or marine waters or wetlands are present within 1/4 mile. (0)

For State
Use Only

12.

12.

Is the site in an environmental/recreation area?

Environmental/Recreation areas include named State game reserves, refugees and sanctuaries; State parks and campgrounds; municipal parks and park reserves; National parks, preserves, wilderness areas, monuments, recreation areas and refugees; National Historic sites; and National Forests. This does not include simply any area used for recreation, such as a fishing stream (which receives a value under the previous data element, Surface Water Environments). The presence of environmental areas that are or may be affected by the contaminated site is used to determine the answer to this question.

- a. The site is in an environmental/recreation area and evidence exists of death or stress to fish or wildlife, which is strongly suspected as a result of the presence of hazardous substances. (5)
- b. The site is in an environmental/recreation area and evidence exists of death or stress to plants, which is strongly suspected as a result of the presence of hazardous substances. (3)
- c. The site is in an environmental/recreation area and there is no evidence of death or stress to fish, wildlife, or plants. (2)
- d. The site is not in an environmental /recreation area. (0)

If your answer to both questions 11 and 12 was "d", and there are documented impacts to the environment which are not within 1/4 mile of surface waters or located within 1/4 mile of an environmental or recreation area, then proceed to question number 13.

13.

13.

What are the observed environmental impacts to surface waters not within 1/4 mile, or not within environmental/recreational areas?

- a. There is evidence of death or stress to fish or wildlife, which is strongly suspected as a result of the presence of hazardous substances. (5)
- b. There is evidence of death or stress to plant life, which is strongly suspected as a result of the presence of hazardous substances. (3)
- c. There is no evidence of death or stress to wildlife or plant life. (0)

For State Use Only

Scores Prepared By: CBDate: 9/17/98

L65-21
0089

Alaska Department of Environmental Conservation

Underground Storage Tank Program

Preliminary Risk Evaluation Form

Purpose of this form

This form is used only for sites with Underground Storage Tanks that are regulated by AS 46.03.450 (12). The form is based on the "Alaska Hazard Ranking Model" which the Department uses to prioritize it's investigation and cleanup efforts. It is used to collect preliminary information on the relative risk a contaminated site may pose to human health and the environment.

Explanation of how sites are scored

The box below explains how a site will be scored after the Department receives this form. Note that although the form contains values for "unknown" elements, a minimum combination of the following data elements are needed for adequately distinguishing between sites: toxicity, quantity, air exposure, ground water exposure, and surface water exposure. Also note that scores cannot be calculated in the following instances:

1. If too many data elements are unknown; or,
2. If both the toxicity and the quantity data elements are unknown; or,
3. If all exposure elements are unknown.

Scoring procedure for risk evaluation form

The Preliminary Risk Evaluation Form contains 14 different questions. Each question deals with a particular "data element" (shown below) that is considered in scoring the site. The alternatives to each question are assigned a value and then these values are entered into the formulas below to calculate the final score.

Question #	Data Element
1.	Toxicity
2.	Quantity
3.	Release Information
4.	Site Access
5.	Air Exposure
6a.	Population Density (within one mile)
6b.	Population Proximity (500 feet)
7.	Ground Water Usage
8.	Ground Water Exposure
9.	Surface Water Use
10.	Surface Water Exposure
11.	Surface Water Environment
12.	Environmental/Recreational Area
13.	Observed Environmental Impact
14.	Multiple Sources or Contaminants

Ranking Score = Substance Factor x (Human Target + Environmental Target)

Substance Factor = (#1) x (#2) x (#3)

Human Target = (# 4 + Air Target Population + Adj. Ground water Use + Adj. Surface Water Use)
 Air Target Population = (#5) x (# 6a) x #(6b)
 Adj. Ground Water Use = (#7) x (#8) x (#6a)
 Adj. Surface Water Use = (#9) x (#10) x (#6a)

Environmental Target = (#11) + (#12)
 or, if (#11) + (#12) = 0, use value in (#13)

If there are **multiple contaminants** (answer is "yes" to #14), multiply Ranking Score by 1.2.

(Numbers in parentheses refer to the 14 "data elements" identified above.)

Return completed form to : ADEC Underground Storage Tank Financial Assistance Program
 555 Cordova Street, Anchorage, AK 99501
 Phone (907) 269-7504 FAX (907) 269-7507

ADEC Underground Storage Tank Program

Preliminary Risk Evaluation Form

000090

Please type, or print in ink, all the requested information on this page.

L65-21

General Information

Name of Site: ADOTPF - Chulitona Maintenance
Facility ID Number: 144
Tax ID Number: 1772

Applicant:

Name: _____
Address: _____
Phone: _____

Facility:

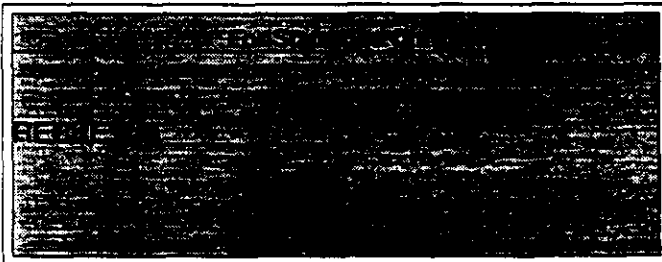
Name: _____
Address: Mill 127 Parked Highway
Chulitona, Ak
Phone: _____

Owner of Tank (If not same as applicant):

Name: _____
Address: _____
Phone: _____

Owner of Land (If not same as applicant):

Name: _____
Address: _____
Phone: _____



Preparer:

Name: _____
Title: _____
Firm: _____
Phone: _____

Please provide any additional information that may assist in processing the Preliminary Risk Evaluation Form (i.e. directions to the site if it does not have a physical address, uncertainties over how to answer particular questions, etc.). Please use additional pages, if necessary.

ADEC Underground Storage Tank Program

Preliminary Risk Evaluation Form

(Values for scoring are in parentheses following each option)

On pages 3-6, please fill in the letter of the correct choice in the box preceding each question.

For State Use Only
1
2
3
4

b

1. What type of product was released or detected?

If more than one substance is present, use the one that will score the highest substance factor

- a. Chlorinated solvents, other halogenated hydrocarbons, synthetic chlorinated organic pesticides. (4)
- b. Metals, gasoline, aviation gas, naphtha, non-chlorinated pesticides. (3)
- c. Unknown substances. (2.1)
- d. Diesel fuel, jet fuels, (JP-4, JP-5), kerosene, non-chlorinated phenols, non-chlorinated solvents, crude oil. (2)
- e. Waste lubricating oils, heavy fuel oils (No. 6, etc.), inorganic acids/bases, tar. (1)

b

2. What quantity of product was released?

- a. < 10 drums or 549 drum or tank gallons, < 500 spilled gallon, < 100 cubic yards or tons, < 100 ft². (1)
- b. 10 - 99 drums or 550 - 5,499 drum or tank gallons, 500 - 9,999 spilled gallons, 100 - 499 cubic yards or tons, 100 - 9,999 ft². (2)
- c. Unknown quantity. (2.1)
- d. 100 - 999 drums or 5,500 - 54,999 drum or tank gallons, 10,000 - 39,999 spilled gallons, 500 - 1,999 cubic yards or tons, 10,000 - 43,559 ft². (3)
- e. ≥ 1,000 drums or ≥ 50,000 drum or tank gallons, ≥ 40,000 spilled gallons, ≥ 2,000 cubic yards or tons, ≥ 1 acre (43,560 ft²). (4)

Note: < means "less than" (i.e. 1 < 10, or one is less than ten)
 > means "greater than" (i.e. 10 > 1, or 10 is greater than one)
 ≥ means "greater than or equal to" (i.e. 11 ≥ 10, or 11 is greater than or equal to 10)

a

3. Has a release at the site been documented?

- a. Documented releases indicate contamination due to disposal practices or failure of containment at the site, regardless of quantity. (1)
- b. Containment management practices exist which may pose a significant threat, but there is no documentation of a release. (.5)
- c. An unknown potential for site release exists, or, off-site contamination is not clearly linked to the site. (.2)
- d. There is a documented absence of a release at the site. (.1)

c

4. How controlled is access to this site?

- a. A school is present within 500 feet, and, site access is partially controlled or uncontrolled, and, wastes are present at the surface. (3)
- b. Access to the site is uncontrolled, and, wastes are present at the surface. (2)
- c. Access to the site is partially controlled, or, surrounding features restrict site access, or, contaminated soil is stockpiled (presumed covered) on site. (1)
- d. There is an underground tank, or, waste is not present at the surface, or, access to the site is completely controlled. (0)

c

5. **Have contaminants been released to the atmosphere?**

- a. A documented release of particulate or gases from the site has been confirmed. (1)
- b. A release may have occurred at the site based on existing physical evidence, including uncovered stockpiles of excavated soils. (.2)
- c. No significant air releases have been identified at the site and waste management practices indicate no substantial possibility. (.1)

d

6a. **What is the predominant population density within 1 mile radius?**

- a. Urban residential use (in or adjacent to population > 35,000, single family lots < 1/4 acre). (10)
- b. Suburban residential areas (lots 1/4 - 1 acre), or, cities with population between 2,000-35,000, or, industrial/commercial areas. (8)
- c. Villages (< 2,000 people), or, low density housing (one unit per acre), or, low density commercial use, or, few permanent residents, but intensive seasonal use. (5)
- d. Rural use, with some occupied buildings. No villages or associated commercial/industrial areas within 1 mile. (3)
- e. Isolated areas with no population present. (0)

b

6b. **What is the predominant population in proximity to the site (within 500 feet)?**
(Also count workers at site, residents of military barracks or lodges, and students at a school.)

- a. Occupied buildings or dwellings present within 500 feet of site. (1)
- b. No occupied buildings within 500 feet. (0.5)

b

7. **What is the ground water usage within 1 mile?**

- a. Within a 1 mile radius, a majority of the population is served by municipal wells or other public water supply wells serving > 25 individuals. (1)
- b. Within a 1 mile radius, a majority of the population is served primarily by community or private wells. (.8)
- c. A majority of the population is served by drinking water supplies originating greater than a mile from the site, but other public water supply wells serving more than 25 individuals are located within one mile of the site. (.6)
- d. A majority of the population is served by drinking water supplies that are > 1 mile from the site, or, there are no known wells within one mile, but the possibility of use of ground water as a source of drinking water exists. (.4)
- e. Ground water is not available for drinking water or is not used. (.1)

d

8. **Has there been any documentation of ground water contamination?**

- a. Documented contamination of a drinking water supply at the tap exceeds the MCL. (4)
- b. Documented contamination of a drinking water supply at the tap, does not exceed the MCL. (2)
- c. Ground water contamination has been detected but actual contamination at the tap has not been documented. (1)
- d. Ground water contamination is unknown, either at the tap or at the ground water source. (.4)
- e. Ground water is documented to be free of contamination, or, waste and site characteristics indicate a low potential for contamination. (0)

c

9.

What is the primary use of surface water within 1 mile?

- a. Surface water is used as a drinking water source supplied by intakes within 1 mile of site. Assign this value if surface drinking water supplies within one mile of the site have been abandoned due to site contamination. (1)
- b. Use of surface water as a source of drinking water, from intakes within 1 mile, is unknown, but likely. (.5)
- c. Use of surface water as a source of drinking water is unknown but is unlikely, or, there is no use of surface water as a drinking water source within a 1 mile radius. (.2)

e

10.

Has surface water been contaminated by a release from the site?

- a. Documented contamination of surface drinking water supply at the tap, exceeds the MCL due to releases of hazardous material from the site. (4)
- b. Documented contamination of surface drinking water supply at the tap does not exceed the MCL. (2)
- c. Surface water contamination has been detected at a drinking water source, but actual contamination of drinking water supply at the tap has not been documented. (1)
- d. Surface water contamination is unknown. (.4)
- e. Surface water is not used as a source of drinking water, or, surface water is documented to be free of contamination, or, site and waste characteristics indicate a low potential for contamination of surface water. (0)

c

11.

What type of surface water environment exists within 1/4 mile of the site?

- a. Fresh or marine water or wetlands are present within 1/4 mile, and evidence of death or stress to fish or wildlife exists, which is strongly suspected as a result of the presence of hazardous substances. (5)
- b. Fresh or marine waters or wetlands are present within 1/4 mile, and evidence of death or stress to plants exists, which is strongly suspected as a result of the presence of hazardous substances. (3)
- c. Fresh or marine waters or wetlands area are present within 1/4 mile, but there is no evidence of death or stress to fish, wildlife or plants. (2)
- d. No fresh or marine waters or wetlands are present within 1/4 mile. (0)

d

12.

Is the site in an environmental/recreation area?

- a. The site is in an environmental/recreation area and evidence exists of death or stress to fish or wildlife, which is strongly suspected as a result of the presence of hazardous substances. (5)
- b. The site is in an environmental/recreation area and evidence exists of death or stress to plants, which is strongly suspected as a result of the presence of hazardous substances. (3)
- c. The site is in an environmental/recreation area and there is no evidence of death or stress to fish, wildlife, or plants. (2)
- d. The site is not in an environmental/recreation area. (0)

If your answer to both questions 11 and 12 was "d", and, there are documented impacts to the environment which are not within 1/4 mile of surface waters or located within 1/4 mile of an environmental or recreation area, then proceed to questions number 13. Otherwise, skip 13, and proceed to question 14.

hb0000u

c

13. What are the observed environmental impacts to surface waters not within 1/4 mile, or which are not within environmental/recreational areas?

- a. There is evidence of death or stress to fish or wildlife, which is strongly suspected as a result of the presence of hazardous substances. (5)
- b. There is evidence of death or stress to plant life, which is strongly suspected as a result of the presence of hazardous substances. (3)
- c. There is no evidence of death or stress to wildlife or plant life. (0)

no

14. Are there multiple sources of contamination present at the site? Yes or No
(A yes answer will result in the final score being multiplied by 1.2, otherwise there will be no adjustment to the final score.)

