DRAFT

Report for Soil and Groundwater Sampling
19th Avenue & C Street Pipeline Release
Anchorage, Alaska
ADEC RECKEY NO. 1989210101901, CS92.28

HARTCROWSER
Delivering smarter solutions

Prepared for
Signature Flight Support

December 28, 2000
A-8653

TOC samples SB3-S1, SB3-S2, SB4-S1 has DRO in GW

Water sample observations [illegible] SB5?

Report does not address location of the source + cause of this release as per letter Dated 9-6-00

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REPORT FOR SOIL AND GROUNDWATER SAMPLING
19th AVENUE & C STREET PIPELINE RELEASE
ANCHORAGE, ALASKA
ADEC RECKEY NO. 1988210135601, CS92.22

INTRODUCTION

This report presents the results of Hart Crowser's assessment of soil and groundwater contamination at the 19th Avenue and C Street pipeline release site in Anchorage, Alaska (Figure 1). The work was performed in accordance with our Alaska Department of Environmental Conservation (ADEC) approved work plan for the site. The release is not related to an underground storage tank (UST), however, the sampling procedures and laboratory, analytical methods were performed in general accordance with Alaska UST regulations as provided in Title 18 of the Alaska Administrative Code, Chapter 78 (18 AAC 78) Underground Storage Tanks Procedures Manual (December 1, 1999). The work performed here was performed to provide a "snapshot" of current soil and groundwater conditions at the site for comparison to ADEC cleanup regulations under 18 AAC 75.

Site History

A release of Jet-A fuel occurred at this location on December 20, 1988 (Hart Crowser, 1990). At that time approximately 130 cubic yards of contaminated soil was excavated. A subsequent investigation in 1989 indicated that the initial removal action had removed most soil contamination on the south side of Chester Creek but determined that floating product was present on groundwater (Figure 2). A product recovery program took place at the site for several years, initially using two and then one recovery well.

WORK PERFORMED

Prior to mobilization to the field, locations of buried utilities were coordinated and all applicable signage plans and right-of-way permits were acquired.

The recovery wells were opened and the depths to water were measured (measurable floating product was not observed).

Five borings were then drilled at the locations shown on Figure 2. Soil borings were advanced by drill rig as follows:

- SB-1 was placed on the north side of Chester Creek to assess the conditions in that area;
- SB-2 and SB-4 were placed next to the north and south recovery wells, respectively, to assess "worst case" conditions;
- SB-3 was located downgradient from the recovery wells to gather information on the downslope extent of contaminants; and
- SB-5 was placed upgradient of the south recovery well to assess conditions in that area.

Soil samples were collected from 2.5 to 4.5 feet below ground surface (bgs) and at 4.5 to 6.5 feet bgs using split-spoon sampling techniques (Appendix A – Field Procedures). All soil samples were field screened and then submitted to CT&E Environmental Services, Inc. (CT&E), for analysis of benzene, toluene, ethylbenzene, xylenes (BTEX), gasoline-range organics (GRO), and diesel-range organics (DRO).

Upon completion of each hollow-stem auger soil boring, a temporary monitoring well casing was placed in the borehole so that a water sample could be collected. Groundwater samples were submitted for BTEX, GRO, and DRO analyses. The piping was then removed and the boring backfilled with drill cuttings.

In order to calculate Alternative Cleanup Levels (ACLs) using ADEC Method 3, three samples were collected from soils that did not appear contaminated for analysis of total organic carbon (TOC). Samples 19-SB3-S1, 10-SB3-S2, and 19-SB4-S1 were submitted for TOC analysis. Soil was also collected for analysis of DRO to verify that it did not contain significant levels of petroleum hydrocarbons that could bias TOC concentrations.

Groundwater samples were collected from each of the two recovery wells and submitted for analysis of BTEX, GRO, DRO, and polynuclear aromatic hydrocarbons (PAH). The wells were sampled without purging.

Soil and groundwater were analyzed using the methods listed below.

Soil

- BTEX – EPA Method 8021B
- GRO – Alaska Method AK101
- DRO – Alaska Method AK102
- DRO A/A – Alaska Method AK102AA
- TOC – Method CTE SOP (soil combustion with IR detector)

Water

- BTEX – EPA Method 8021B
- GRO – Alaska Method AK101
- DRO – Alaska Method AK102
- PAH – EPA Method 8310

RESULTS

Soil and Groundwater Observations

Soils at the site generally consist of loose, gray, gravelly sands. Specific soil types are presented in soil boring logs included in Appendix A (Figures A2 through A4).

Groundwater in the borings was encountered between 4.1 and 8.3 feet bgs. In the south recovery well, the depth to water was measured at 6.46 feet. No odor was detected, but a slight sheen was observed on the water. Conditions were similar in the north recovery well with the depth to water measured at 6.45 feet.

Analytical Results

Soil

Petroleum Hydrocarbons

DRO above the ADEC cleanup level of 250 mg/kg (18 AAC 75.341, Table B1 and B2, Under 40-inch Zone, Migration to groundwater criteria) was detected in only one sample, SB-2, S-2 (378 mg/kg). The boring was located adjacent to the north recovery well. No other BTEX, GRO, or DRO concentrations were above ADEC cleanup levels.

TOC

Soil profile?

TOC was detected in the three samples submitted to the laboratory for analysis. TOC concentrations were 0.77 percent (SB-4, S-1), 2.01 percent (SB-3, S-1) and 0..20 percent (SB-3, S-2) with an average TOC concentration of 1.0 percent. Sample SB-4, S-1 contained a DRO concentration of only 14 mg/kg, and no DRO was detected in either sample SB-3, S-1 or sample SB-3, S-2.

Laboratory reports for all soil analyses performed by CT&E are provided in Appendix B.

Groundwater

Results of groundwater sampling are summarized in Table 2. In the sample collected from the south recovery well (19-RWS-WS-2), contained a DRO concentration of 25 mg/L, which is above the ADEC cleanup level of 1.5 mg/L (18 AAC 75.345, Table C). BTEX, GRO, and PAH concentrations were below ADEC cleanup concentrations. No exceedences of cleanup levels for BTEX, GRO, DRO, or PAH were observed in the sample collected from the north recovery well (19-RWN-WS-1).

Groundwater impacts were observed in some of the samples collected from the temporary borings. Observed concentrations, especially for DRO, were unusually high. This is likely due to the sampling method which produced a high proportion of soil particles in the samples collected.

Very high DRO due to silt

Laboratory reports for groundwater analyses performed by CT&E are provided in Appendix B.

ALTERNATIVE CLEANUP LEVEL CALCULATION

ADEC Method 3 calculations for soil cleanup level (SCL) for migration to groundwater (Equation 11: Organic Contaminants – Soil-Water Partitioning Equation for Migration to Groundwater; ADEC, 1998) were performed using the average measured TOC (or foc) concentration to calculate ACLs for DRO in soil. As a conservative measure, the calculation for DRO was performed using DRO-aromatic chemical specific parameters. Calculations are presented in Table 3.

The calculated for SCL for DRO is 1,000 mg/kg.

CONCLUSIONS

Soil

Soil impacts appear to be generally limited. Except for the concentration of 378 mg/kg DRO detected next to the north recovery well, all concentrations of BTEX, GRO, and DRO were below ADEC cleanup levels. The 378 mg/kg DRO concentration is below the calculated ADEC Method 3 cleanup levels. Further soil remediation should not be required.

Groundwater

Results from the south recovery well suggest that groundwater in this area may be impacted by DRO. No concentrations above ADEC cleanup levels (18 AAC 75.345, Table C) were detected in the north recovery well.

The results of groundwater samples from the temporary wells also suggest potential impacts downgradient of the recovery wells. However, as discussed above, the observed concentrations (especially DRO) maybe higher than actual concentrations due to the high percentage of suspended soil particles in the water samples.

RECOMMENDATIONS

The following recommendations are provided:

- Two monitoring wells should be installed in the spring of 2001 just downgradient of the recovery wells and sampled for BTEX, GRO, and DRO to provide more accurate groundwater quality information.
- Existing wells (including the recovery well) should be surveyed to establish local groundwater flow characteristics.

LIMITATIONS

The work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature of the work completed in the same or similar localities at the time the work was performed. It is intended for the exclusive use of Signature Flight Support for specific application to the project site. This report is not meant to represent a legal opinion, and no other warranty, express or implied, is made.

Any questions regarding the field work or report, the presentation of the information, or the interpretation of the data are welcome and can be addressed to Nino Muniz at 276-7475.

Prepared by:

HART CROWSER, INC.

HERMINIO R. MUNIZ
Associate Hydrogeologist

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REFERENCES

ADEC, 1998. *Guidance on Cleanup Standards Equations and Input Parameters.* September 16, 1998.

ADEC, 2000a. *18 AAC 75, Oil and Other Hazardous Substances Pollution Control.* Amended through August 27, 2000.

ADEC, 2000b. *Guidance for Cleanup of Petroleum Contaminated Sites.* September 2000.

Hart Crowser, 1989. *Butler Aviation P.O.L. Pipeline Site Assessment, 19th Avenue and "C" Street, 16th Avenue and "C" Street, Anchorage, Alaska.* October 1998

Table 1 - Soil Analytical Results
19th Avenue and C Street Pipeline Release
Anchorage, Alaska

MDL unknown.

Boring	Sample Number	Depth (Feet bgs)	Alaska Method AK 101 GRO (mg/kg)	EPA Method 8021B Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-Benzene (mg/kg)	Total Xylenes (mg/kg)	Alaska Method AK 102 DRO (mg/kg)	Method CTE-SOP TOC (mg/kg)
SB-1	S-1	2.5 - 4.5	2.2 U	0.011 U	0.045 U	0.045 U	0.089 U	21	N/A
	S-2	4.5 - 6.5	1.6 U	0.008 U	0.324 U	0.324 U	0.648 U	17	N/A
SB-2	S-1	2.5 - 4.5	3.0 U	0.015 U	0.060 U	0.060 U	0.121 U	34	N/A
	S-2	4.5 - 6.5	26	0.013 U	0.054 U	0.084	0.324	**378**	N/A
SB-3	S-1	2.5 - 4.5	4.0 U	0.020 U	0.080 U	0.080 U	0.159 U	11 U	20110
	S-2	4.5 - 6.5	2.1 U	0.011 U	0.042 U	0.042 U	0.084 U	11 U	1,998
Duplicate	S-3	4.5 - 6.5	2.3 U	0.011 U	0.045 U	0.045 U	0.090 U	11 U	N/A
SB-4	S-1	2.5 - 4.5	1.9 U	0.010 U	0.038 U	0.038 U	0.077 U	14	7,669
	S-2	4.5 - 6.5	11	0.012 U	0.478 U	0.048 U	0.11	80	N/A
Duplicate	S-3	4.5 - 6.5	2.1 U	0.011 U	0.042 U	0.042 U	0.084 U	N/A	
SB-5	S-1	2.5 - 4.5	3.9 U	0.0196 U	0.079 U	0.079 U	0.157 U	16	N/A
	S-2	4.5 - 6.5	2.7 U	0.0135 U	0.054 U	0.054 U	0.108 U	12	N/A
Trip Blank			2.5 U	0.013 U	0.051 U	0.051 U	0.101 U	N/A	N/A
ADEC Cleanup Level {1}			***300*** —	***0.02*** —	***5.4*** —	***5.5*** —	***78***	***250***	—

2016 300 ✓ 0.022 ✓ 6.7 ✓ 0.13 1.5 ✓ 250 ✓

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19thlabres.xls:soil

Notes:
{1} 18 AAC 75.341, Table B1 and B2, Under 40-inch Zone, Migration to Groundwater. Bolded results in excess of cleanup level.
bgs - Below Ground Surface
DRO - Diesel-Range Organics
GRO - Gasoline Range Organics
mg/kg - Milligrams per Kilogram
N/A - Not Analyzed
ppmV - Parts per Million, Volumetric
PID - Photoionization detector
TOC - Total Organic Carbon
U - Below detection limit at concentration listed.

Table 2 - Groundwater Analytical Results
19th Avenue and C Street Pipeline Release
Anchorage, Alaska

Sample Number	Alaska Method AK 101 GRO (mg/L)	EPA Method 8021B				Alaska Method AK 102 DRO (mg/L)	EPA Method 8270C-SIMS {2} PAH	
		Benzene (mg/L)	Toluene (mg/L)	Ethyl-Benzene (mg/L)	Total Xylenes (mg/L)		Fluorene (mg/L)	Naphthalene (mg/L)
19-RWN-WS-1	0.11	0.0005 U	0.002 U	0.002 U	0.004	1.0	0.0007	0.0005
19-RWS-WS-1	0.42	0.0005 U	0.002 U	0.002 U	0.003	**25.5**	0.0003	0.0002
19-SB1-WS-1	0.1 U	0.0005 U	0.002 U	0.002 U	0.004 U	**9.4**	N/A	N/A
19-SB2-WS-1	**3.5**	0.0005 U	0.002 U	0.010	0.026	**275**	N/A	N/A
19-SB3-WS-1	0.1 U	0.0005 U	0.002 U	0.002 U	0.004 U	**5.1**	N/A	N/A
19-SB4-WS-1	**3**	0.0010 U	0.004 U	0.005	0.025	**327**	N/A	N/A
19-SB5-WS-1	**1.8**	0.0010 U	0.004 U	0.004 U	0.014	**2,130**	N/A	N/A
Trip Blank	2.6 U	0.0005 U	0.0020 U	0.002 U	0.004 U	N/A	N/A	N/A
ADEC Cleanup Level {1}	***1.3***	***0.005***	***1***	***0.7***	***10***	***1.5***	***1.46***	***1.46***
	C 2016	0.0046	1.1	0.015	0.190	1.5	0.270	0.0017

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19thlabre.xls:g-water

Notes:
{1} 18 AAC 75.345, Table C. Bolded results in excess of cleanup level.
{2} All other analytes elow detection limit
DRO - Diesel-Range Organics
GRO - Gasoline Range Organics
mg/L - Milligrams per Liter
N/A - Not Analyzed
PAH - Polynuclear Aromatic Hydrocarbons
U - Below detection limit at concentration listed.

Site Vicinity Map
19th Avenue and C Street Pipeline Release Site
Anchorage, Alaska

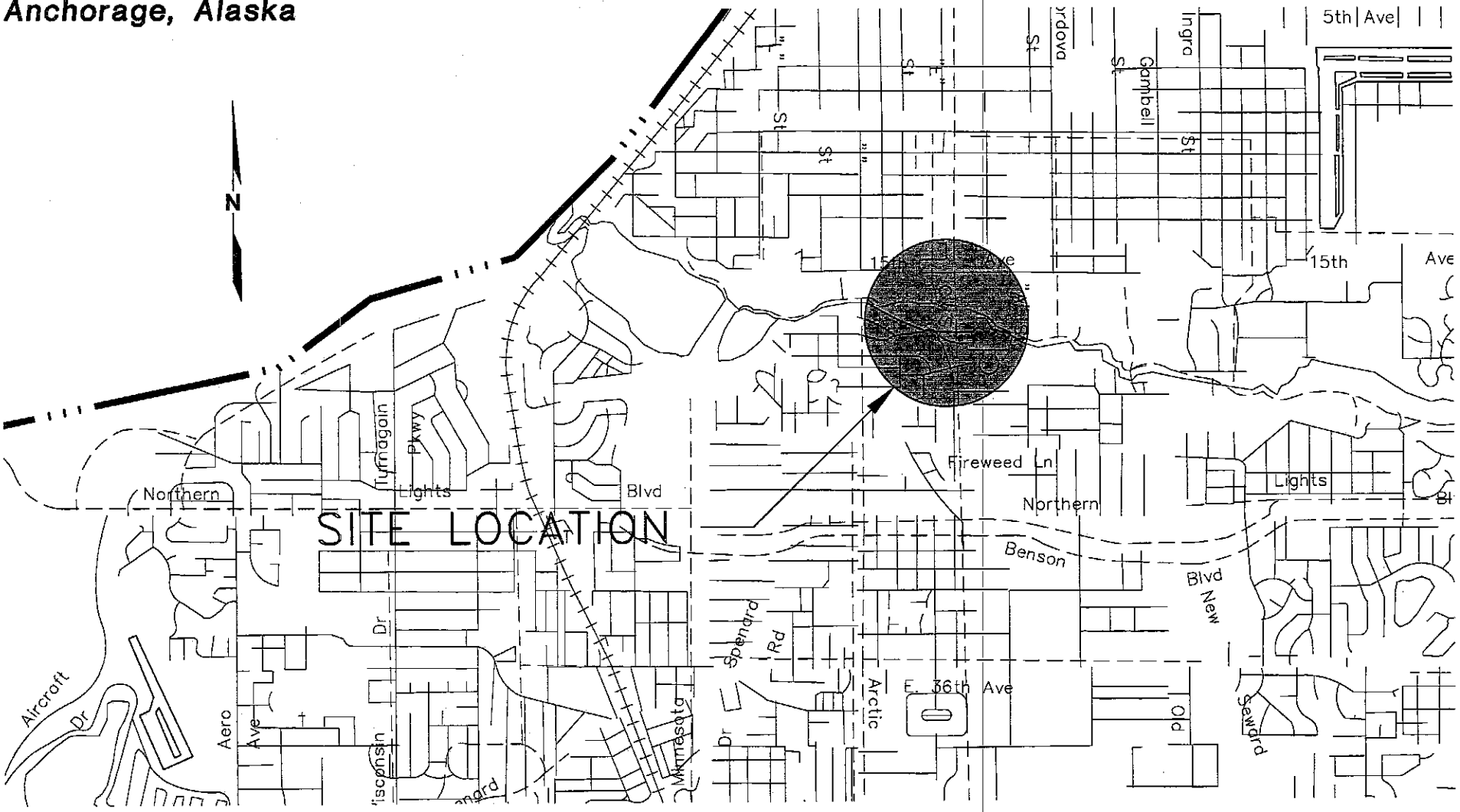

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Figure 1

DEG 1=1
9528

Boring Locations

19th Avenue and C Street Pipeline Release Site
Anchorage, Alaska

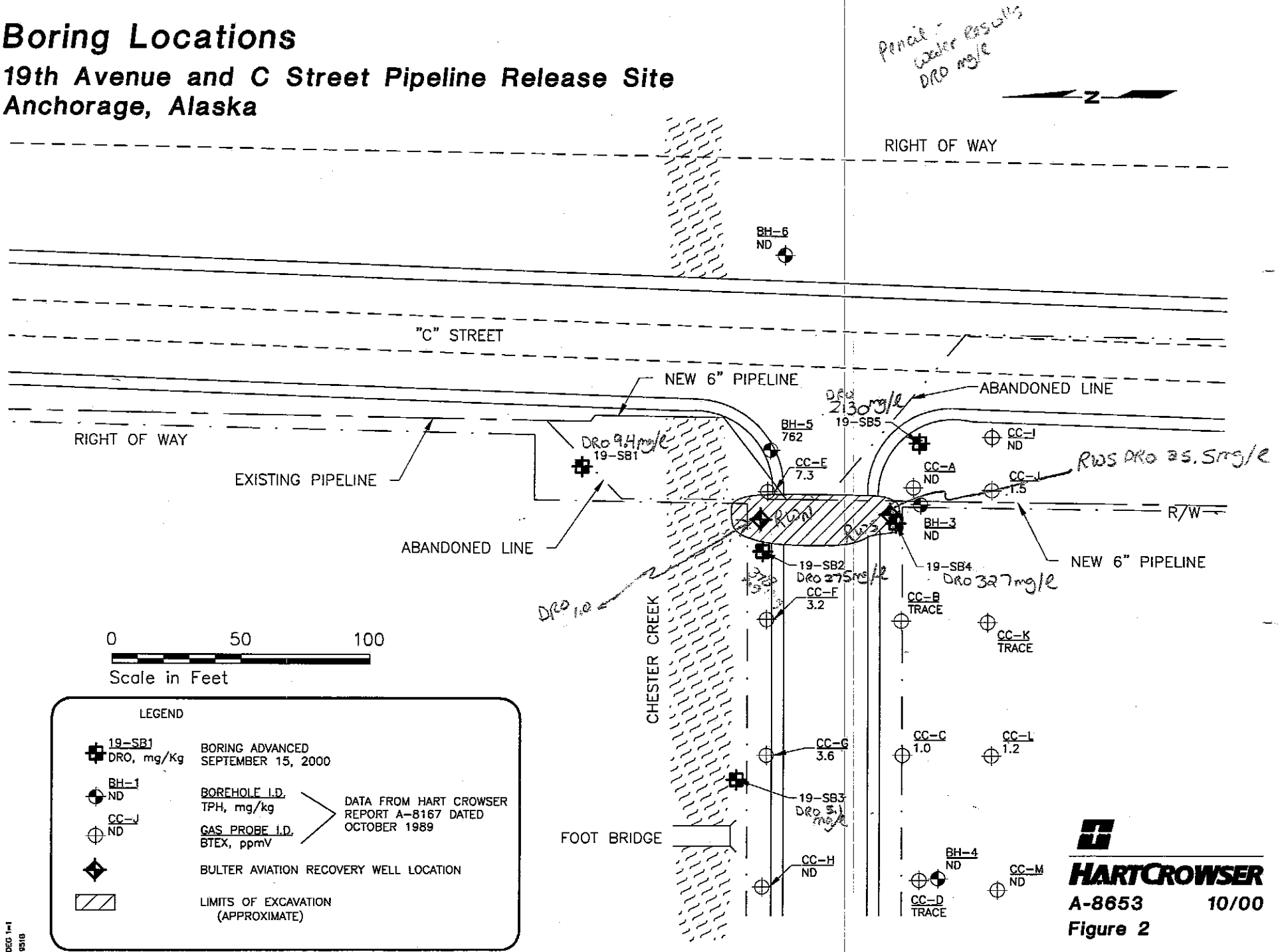

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Figure 2

APPENDIX A
FIELD PROCEDURES

This appendix documents the methods used by Hart Crowser to conduct the field investigation. Field procedures used to install monitoring wells, collect soil samples, develop monitoring wells, collect surface water and groundwater samples, and measure water quality parameters are described. The discussion is organized under the following headings:

- Soil Sampling;
- Temporary Monitoring Well Construction;
- Groundwater Sampling; and
- Decontamination Methods.

Soil Sampling

This section describes how soil borings were advanced and soil samples were collected using hollow-stem auger drilling equipment. Methods used for collecting analytical samples are presented along with general procedures for subsurface explorations.

Five soil borings were drilled using hollow-stem auger methods to depth of 10 feet below ground surface (bgs). Sampling stopped when the soil became saturated. The boreholes were completed as temporary monitoring wells.

Hollow-Stem Auger Sampling Methods.

Soil samples were collected for analytical laboratory analysis using hollow-stem auger soil boring techniques. A 3.375-inch inside-diameter (i.d.) hollow-stem auger was used to drill into the soils. Samples were collected at 2.5 feet and 4.5 feet bgs employing a 2.5-inch i.d. split-spoon sampler. Blow counts were used to assess the relative density or consistency of the earth materials. Soil samples recovered from the split-spoon sampler were field classified; and placed in sample containers for laboratory analysis.

All soils were visually classified in general accordance with American Society of Testing and Materials (ASTM) Method D 2488 (Figure A-1). A log of the soils encountered, pertinent observations regarding drilling conditions, and the presence/absence of hydrocarbon staining or odor were recorded on boring logs (Figures A2 through A4).

Soil descriptions included moisture, color, major and minor constituents, and the presence of non-soil debris.

Collection of Soil Samples for Chemical Analysis

Samples submitted for chemical laboratory analyses were collected by first opening and removing any disturbed soils in the upper portion of the split-spoon. This was immediately followed by collection of soils for benzene, toluene, ethylbenzene, and xylenes (BTEX) analysis.

Samples representative of the whole split-spoon were collected with minimum disturbance to the soil, using a disposable sampling scoop. Efforts were made to remove large rocks and care was used to exclude soils that were in contact with the sampler wall. After collection of samples for BTEX and gasoline-range organics (GRO), soil was collected for analysis of diesel-range organics (DRO). Samples were collected into factory-cleaned sample jars with tightly sealed Teflon-lined lids.

Sample jars were tightly packed with soil to minimize the loss of volatile compounds to the jar headspace. Immediately after collection, samples were placed in coolers containing either ice or an ice-substitute to maintain a holding temperature of 4°C (+/-2°C). They were then delivered to CT&E Environmental Services, Inc. (CT&E), under chain-of-custody procedures.

Temporary Monitoring Well Construction

Installation of temporary 2-inch-diameter monitoring wells immediately followed completion of drilling. In all wells, a 5-foot length of 0.020-inch slot well screen was placed at the bottom of the borehole. The screened sections were connected to the surface by a riser of flush-threaded Schedule 40, PVC pipe.

After collection of groundwater samples, the piping was removed and the hole filed with drill cuttings.

Groundwater Sampling

Groundwater samples were collected from the temporary monitoring wells and the recovery well at the site. Samples were collected using disposable, single-use Teflon bailers. Wells were not purged prior to sampling. Sample containers for volatile constituents were filled first, followed by samples for less-volatile parameters. Immediately after collection the samples were placed into a cooler containing either ice or an ice-substitute to maintain a holding temperature of

4°C (+/-2°C). They were then delivered to CT&E under chain-of-custody procedures.

Decontamination Methods

This section describes the decontamination procedures used for sampling and drilling equipment.

Soil Sampling Equipment

Sampling equipment (including the split-spoon samplers) were decontaminated both before and between each sample collection event. Disposable gloves were worn and changed between sample locations.

Sampling equipment were decontaminated according to the following procedures:

- Equipment was scrubbed thoroughly with phosphate-free detergent (Alconox) and potable water using a brush to remove any particulate matter or surface film;
- Equipment was double rinsed with clear potable water; and
- Equipment was single-rinsed with clean distilled water.

Drilling Equipment

The drill rig, drill rods, and augers were thoroughly cleaned at a decontamination unit supplied by the drilling contractor. The equipment was steam cleaned with a pressure wash steam cleaner when mobilized to the site. Sufficient auger was cleaned at the end of each day to allow for completion of all drilling the following day.

All drilling was conducted in an environmentally conscious manner. No petroleum-based hydrocarbon lubricants or grease were used on drilling tools or downhole equipment.

Drill rig and auxiliary equipment were checked by the Hart Crowser field representative for leakage of fuels, lubricants, or hydraulic oil, both prior to and periodically during operations. Drill rig fueling and maintenance was conducted in an area removed from soil and groundwater sampling locations.

Water Sampling Equipment

Disposable Teflon bailers were used between each new sample point for groundwater water. Disposable gloves were worn and changed between sample locations. Between sampling attempts, gloves, nylon rope, used for lowering the bailers, and bailers were disposed of as solid waste.

Key to Explo ation Logs and W Construction

Sample Descriptions

Classificaton of soils in this report is based on visual field and laboratory observations which include density/consistency, moisture conditions, grain size, and plasticity estimates and should not be construed to imply field nor laboratory testing unless presented herein. Visual-manual classification methods of ASTM D 2488 were used as an identification guide.
Soil descriptions are interpretative and actual changes may be gradual.
Water and product level observations are for the date indicated and may vary with time.
(ATD - At time of drilling)

Density/Consistency

Soil density/consistancy in borings is related primarily to the Standard Penetration Resistance. Soil density/consistancy in test pits is estimated based on visual observation and is presented parenthetically on the test pit logs.

SAND or GRAVEL Density:	Standard Penetration Resistance (N) in Blows/Foot
Very loose	0 - 4
Loose	4 - 10
Medium dense	10 - 30
Dense	30 - 50
Very dense	>50

SILT or CLAY Consistancy:	Standard Penetration Resistance (N) in Blows/Foot	Approximate Shear Strength in TSF
Very soft	0 - 2	<0.125
Soft	2 - 4	0.125 - 0.25
Medium stiff	4 - 8	0.25 - 0.5
Stiff	8 - 15	0.5 - 1.0
Very stiff	15 - 30	1.0 - 2.0
Hard	>30	>2.0

Moisture

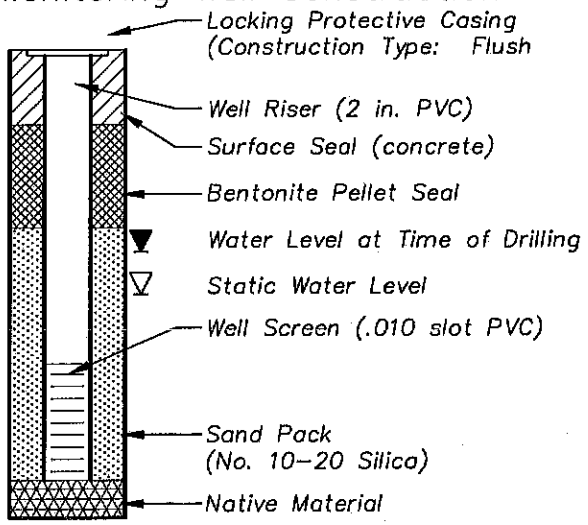
Dry	Little perceptable moisture
Damp	Some perceptable moisture, probably below optimum
Moist	Probably near optimum moisture content
Wet	Much perceptable moisture, probably above optimum

Minor Constituents

	Estimated Percentage
Not identified in description	0 - 5
Slightly (clayey, silty, etc.)	5 - 12
Clayey, silty, sandy, gravelly	12 - 30
Very (clayey, silty, etc.)	30 - 50

Legends

Monitoring Well Construction



Sampling Test Symbols

BORING SAMPLES		BORING SAMPLES		Test Pit Samples	
⊠	Split Spoon	‖	Core Run	⊠	Grab (jar)
⊠	Shelby Tube	*	No sample Recovery	⊠	Bag
▥	Cuttings	P	Tube pushed, Not driven	⊠	Shelby Tube

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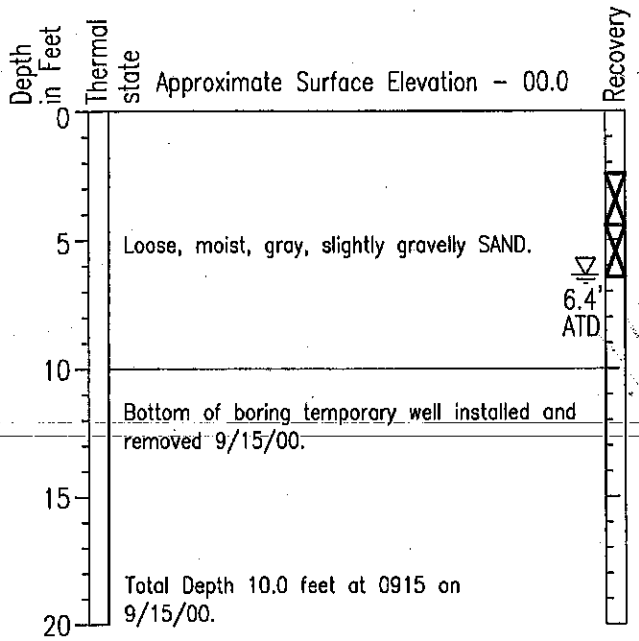
FIGURE A1

DEG 1=1
960B

Boring Log 19-SB1

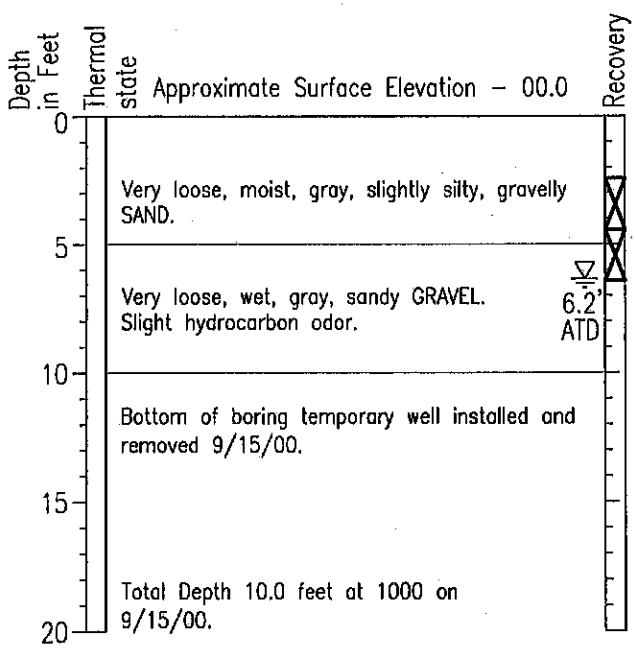


Sample	Benzene (mg/kg)	GRO (mg/kg)	DRO (mg/kg)
S1	U	U	21
S2	U	U	17

< MTCA

9.4 MG/L DRO

Boring Log 19-SB2



Sample	Benzene (mg/kg)	GRO (mg/kg)	DRO (mg/kg)
S1	U	U	34
S2	U	26	378

275 MG/L DRO
35 MG/L GRO

1. Soil descriptions are interpretative and actual changes may be gradual.
2. Water level is for date indicated and may vary with time of year. (ATD–At Time of Drilling).
3. Refer to Figure A1 for key to exploration logs.
4. U – Below detection limit.

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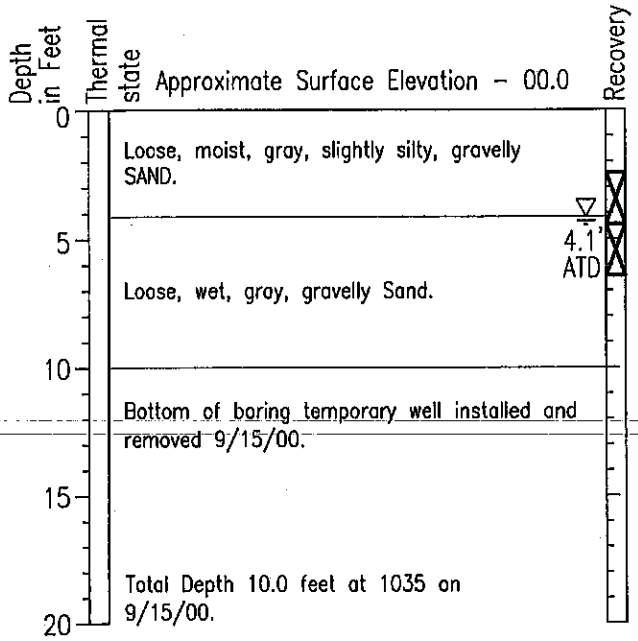
FIGURE A2

DEG 1=1
9808

Boring Log 19-SB3

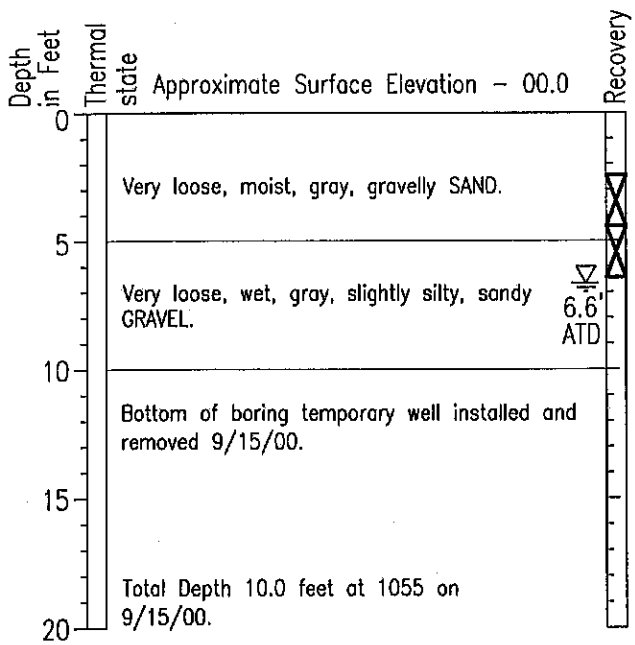


Sample	Benzene (mg/kg)	GRO (mg/kg)	DRO (mg/kg)
S1	U	U	U
S2	U	U	U

2MTBW

5.1 MG/L DRO

Boring Log 19-SB4



Sample	Benzene (mg/kg)	GRO (mg/kg)	DRO (mg/kg)
S1	U	U	14
S2	U	11	80

327 MG/L DRO
3 MG/L GRO

1. Soil descriptions are interpretative and actual changes may be gradual.
2. Water level is for date indicated and may vary with time of year. (ATD–At Time of Drilling).
3. Refer to Figure A1 for key to exploration logs.
4. U – Below detection limit.

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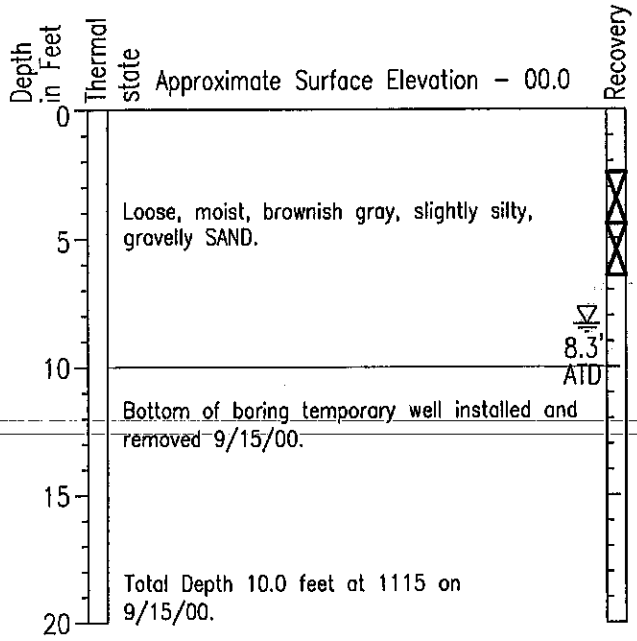
FIGURE A3

DEG 1-1
9608

Boring Log 19-SB5



Sample	Benzene (mg/kg)	GRO (mg/kg)	DRO (mg/kg)
S1	U	U	16
S2	U	U	12

2,136 mg/L DRO

1. Soil descriptions are interpretative and actual changes may be gradual.
2. Water level is for date indicated and may vary with time of year. (ATD–At Time of Drilling).
3. Refer to Figure A1 for key to exploration logs.
4. U – Below detection limit.

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FIGURE A4

DEG 1=1
960B

APPENDIX B
LABORATORY ANALYSIS REPORT
CT&E ENVIRONMENTAL, INC

CT&E Environmental Services Inc.
Laboratory Division

Laboratory Analysis Report

200 W. Potter Drive
Anchorage, AK 99518-1605
Tel: (907) 562-2343
Fax: (907) 561-5301
Web: http://www.cteesi.com

Nino Muniz
Hart Crowser
2550 Denali St. Suite 705
Anchorage, AK 995032737

Work Order:	1005582
	19th Cst Assessment Job 8653
Client:	Signature Flight Support
Report Date:	October 10, 2000

Enclosed are the analytical results associated with the above workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintaned by CT&E. A copy of our Quality Control Manual that outlines this program is available at your request.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth in our Quality Assurance Program Plan.

If you have any questions regarding this report or if we can be of any other assistance, please call your CT&E Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

U	Indicates the analyte was analyzed for but not detected.
J	Indicates an estimated value that falls below PQL, but is greater than the MDL.
B	Indicates the analyte is found in the blank associated with the sample.
*	The analyte has exceeded allowable limits.
GT	Greater Than
D	Secondary Dilution
LT	Less Than
!	Surrogate out of range

CT&E Environmental Services Inc.

CT&E Ref.#	1005582001	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 9:00
Client Sample ID	19-SB1-S1	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	Stephen C. Ede
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO/RRO - Unknown hydrocarbon with several peaks.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	95.2		%	SM20 2540G			09/17/00	JCO
Volatile Fuels Department								
Gasoline Range Organics	2.23 U	2.23	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.0112 U	0.0112	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0447 U	0.0447	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0447 U	0.0447	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0447 U	0.0447	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0447 U	0.0447	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	89		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	78.5		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	21.3	10.3	mg/Kg	AK102 DRO		09/18/00	09/24/00	MCM
Surrogates								
5a Androstane <surr>	114		%	AK102 DRO	50-150	09/18/00	09/24/00	MCM

CT&E Environment[illegible]ervices Inc.

CT&E Ref.#	1005582002	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 9:10
Client Sample ID	19-SB1-S2	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO/RRO - Unknown hydrocarbon with several peaks.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	92.6		%	SM20 2540G			09/17/00	JCO
Volatile Fuels Department								
Gasoline Range Organics	1.62 U	1.62	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.00810 U	0.00810	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0324 U	0.0324	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0324 U	0.0324	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0324 U	0.0324	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0324 U	0.0324	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	87.9		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	79.8		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	16.7	11.9	mg/Kg	AK102 DRO		09/18/00	09/24/00	MCM
Surrogates								
5a Androstane <surr>	109		%	AK102 DRO	50-150	09/18/00	09/24/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582003	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 9:45
Client Sample ID	19-SB2-S2	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO/RRO - Unknown hydrocarbon with several peaks.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	92.1		%	SM20 2540G			09/17/00	JCO
Volatile Fuels Department								
Gasoline Range Organics	3.02 U	3.02	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.0151 U	0.0151	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0603 U	0.0603	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0603 U	0.0603	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0603 U	0.0603	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0603 U	0.0603	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	87.3		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	73.8		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	33.6	11.2	mg/Kg	AK102 DRO		09/18/00	09/24/00	MCM
Surrogates								
5a Androstane <surr>	128		%	AK102 DRO	50-150	09/18/00	09/24/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582004	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 9:55
Client Sample ID	19-SB2-S2	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

GRO/BTEX - Surrogate recovery is biased high due to matrix interference. Results not affected.
DRO/RRO - Pattern consistent with weathered middle distillate.

Parameter	Results		PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids									
Total Solids	86.4			%	SM20 2540G			09/17/00	JCO
Volatile Fuels Department									
Gasoline Range Organics	26.3		2.67	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.0134 U		0.0134	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0535 U		0.0535	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0836		0.0535	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.220		0.0535	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.104		0.0535	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates									
1,4-Difluorobenzene <Surr>	88			%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	274	!		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department									
Diesel Range Organics	378		11.8	mg/Kg	AK102 DRO		09/18/00	09/24/00	MCM
Surrogates									
5a Androstane <surr>	102			%	AK102 DRO	50-150	09/18/00	09/24/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582005	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 10:20
Client Sample ID	19-SB3-S1	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Reilly

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	92.2		%	SM20 2540G			09/17/00	JCO
Waters Department								
Total Organic Carbon	20110	3620	mg/Kg	TOC CTE SOP		10/04/00	10/04/00	SCL
Volatile Fuels Department								
Gasoline Range Organics	3.98 U	3.98	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.0199 U	0.0199	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0795 U	0.0795	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0795 U	0.0795	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0795 U	0.0795	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0795 U	0.0795	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	86.6		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	86.5		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	11.0 U	11.0	mg/Kg	AK102 DRO		09/18/00	09/24/00	MCM
Surrogates								
5a Androstane <surr>	122		%	AK102 DRO	50-150	09/18/00	09/24/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582006	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 10:30
Client Sample ID	19-SB3-S2	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	87.5		%	SM20 2540G			09/17/00	JCO
Waters Department								
Total Organic Carbon	1998	840	mg/Kg	TOC CTE SOP		10/04/00	10/04/00	SCL
Volatile Fuels Department								
Gasoline Range Organics	2.09 U	2.09	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.0105 U	0.0105	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0419 U	0.0419	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0419 U	0.0419	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0419 U	0.0419	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0419 U	0.0419	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	87.6		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	67.1		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	10.7 U	10.7	mg/Kg	AK102 DRO		09/18/00	09/24/00	MCM
Surrogates								
5a Androstane <surr>	90		%	AK102 DRO	50-150	09/18/00	09/24/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582007	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 10:35
Client Sample ID	19-SB3-S3	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	Stephen C. Ede
Ordered By		**Released By**	Michael Riley

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	89.5		%	SM20 2540G			09/17/00	JCO
Volatile Fuels Department								
Gasoline Range Organics	2.25 U	2.25	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.0112 U	0.0112	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0449 U	0.0449	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0449 U	0.0449	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0449 U	0.0449	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0449 U	0.0449	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	87		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	76		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	10.7 U	10.7	mg/Kg	AK102 DRO		09/18/00	09/24/00	MCM
Surrogates								
5a Androstane <surr>	140		%	AK102 DRO	50-150	09/18/00	09/24/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582008	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 10:45
Client Sample ID	19-SB4-S1	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	95.3		%	SM20 2540G			09/17/00	JCO
Waters Department								
Total Organic Carbon	7669	1180	mg/Kg	TOC CTE SOP		10/04/00	10/04/00	SCL
Volatile Fuels Department								
Gasoline Range Organics	1.92 U	1.92	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.00959 U	0.00959	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0384 U	0.0384	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0384 U	0.0384	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0384 U	0.0384	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0384 U	0.0384	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	88.8		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	72.1		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	14.2	10.4	mg/Kg	AK102 DRO		09/18/00	09/23/00	ELB
Surrogates								
5a Androstane <surr>	120		%	AK102 DRO	50-150	09/18/00	09/23/00	ELB

CT&E Environmental Services Inc.

CT&E Ref.#	1005582009	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 10:50
Client Sample ID	19-SB4-S2	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO - Pattern consistent with weathered middle distillate.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	89.6		%	SM20 2540G			09/17/00	JCO
Volatile Fuels Department								
Gasoline Range Organics	10.9	2.39	mg/Kg	AK101/8021B		09/15/00	09/26/00	MAH
Benzene	0.0119 U	0.0119	mg/Kg	AK101/8021B		09/15/00	09/26/00	MAH
Toluene	0.0478 U	0.0478	mg/Kg	AK101/8021B		09/15/00	09/26/00	MAH
Ethylbenzene	0.0478 U	0.0478	mg/Kg	AK101/8021B		09/15/00	09/26/00	MAH
P & M -Xylene	0.0609	0.0478	mg/Kg	AK101/8021B		09/15/00	09/26/00	MAH
o-Xylene	0.0488	0.0478	mg/Kg	AK101/8021B		09/15/00	09/26/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	86.6		%	AK101/8021B	60-120	09/15/00	09/26/00	MAH
4-Bromofluorobenzene <Surr>	146		%	AK101/8021B	50-150	09/15/00	09/26/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	80.3	11.5	mg/Kg	AK102 DRO		09/18/00	09/23/00	MCM
Surrogates								
5a Androstane <surr>	91.2		%	AK102 DRO	50-150	09/18/00	09/23/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582010	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 10:47
Client Sample ID	19-SB4-S3	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	92.4		%	SM20 2540G				KWM
Volatile Fuels Department								
Gasoline Range Organics	2.11 U	2.11	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.0105 U	0.0105	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0422 U	0.0422	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0422 U	0.0422	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0422 U	0.0422	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0422 U	0.0422	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	88.2		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	65		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH

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CT&E Environme Services Inc.

CT&E Ref.#	1005582011	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 11:05
Client Sample ID	19-SB5-S1	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO - Unknown hydrocarbon with several peaks.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	93.6		%	SM20 2540G			09/17/00	JCO
Volatile Fuels Department								
Gasoline Range Organics	3.93 U	3.93	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.0196 U	0.0196	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0785 U	0.0785	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0785 U	0.0785	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0785 U	0.0785	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0785 U	0.0785	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	88.7		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	77.6		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	15.6	9.67	mg/Kg	AK102 DRO		09/18/00	09/23/00	MCM
Surrogates								
5a Androstane <surr>	144		%	AK102 DRO	50-150	09/18/00	09/23/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582012	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 11:10
Client Sample ID	19-SB5-S2	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO - Unknown hydrocarbon with several peaks.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	91.7		%	SM20 2540G			09/17/00	JCO
Volatile Fuels Department								
Gasoline Range Organics	2.70 U	2.70	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Benzene	0.0135 U	0.0135	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Toluene	0.0540 U	0.0540	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Ethylbenzene	0.0540 U	0.0540	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
P & M -Xylene	0.0540 U	0.0540	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
o-Xylene	0.0540 U	0.0540	mg/Kg	AK101/8021B		09/15/00	09/23/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	88.7		%	AK101/8021B	60-120	09/15/00	09/23/00	MAH
4-Bromofluorobenzene <Surr>	75.9		%	AK101/8021B	50-150	09/15/00	09/23/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	12.4	10.0	mg/Kg	AK102 DRO		09/18/00	09/23/00	MCM
Surrogates								
5a Androstane <surr>	103		%	AK102 DRO	50-150	09/18/00	09/23/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582014	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 10:00
Client Sample ID	19-SB2-WS1	**Received Date/Time**	09/15/2000 14:20
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	Stephen C. Ede
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO - Pattern consistent with weathered middle distillate.
GRO/BTEX - Surrogate recovery is biased high due to matrix interference. Results not affected.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Fuels Department								
Gasoline Range Organics	3.46	0.0900	mg/L	AK101/8021B		09/24/00	09/29/00	MAH
Benzene	0.000500 U	0.000500	mg/L	AK101/8021B		09/24/00	09/29/00	MAH
Ethylbenzene	0.00962	0.00200	mg/L	AK101/8021B		09/24/00	09/29/00	MAH
P & M -Xylene	0.0152	0.00200	mg/L	AK101/8021B		09/24/00	09/29/00	MAH
o-Xylene	0.0105	0.00200	mg/L	AK101/8021B		09/24/00	09/29/00	MAH
Toluene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/29/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	85.4		%	AK101/8021B	60-120	09/24/00	09/29/00	MAH
4-Bromofluorobenzene <Surr>	448 !		%	AK101/8021B	50-150	09/24/00	09/29/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	275	3.30	mg/L	AK102 DRO		09/20/00	09/28/00	MCM
Surrogates								
5a Androstane <surr>	123		%	AK102 DRO	50-150	09/20/00	09/28/00	MCM

F-7B1

CT&E Environmental Services Inc.

CT&E Ref.#	1005582015	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 10:40
Client Sample ID	19-SB3-WS1	**Received Date/Time**	09/15/2000 14:20
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	Stephen C. Ede
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO - Unknown hydrocarbon with several peaks.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Fuels Department								
Gasoline Range Organics	0.0900 U	0.0900	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Benzene	0.000500 U	0.000500	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Ethylbenzene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
P & M -Xylene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
o-Xylene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Toluene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	90.1		%	AK101/8021B	60-120	09/24/00	09/24/00	MAH
4-Bromofluorobenzene <Surr>	79.1		%	AK101/8021B	50-150	09/24/00	09/24/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	5.10	3.26	mg/L	AK102 DRO		09/20/00	09/28/00	MCM
Surrogates								
5a Androstane <surr>	100		%	AK102 DRO	50-150	09/20/00	09/28/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582016	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 10:55
Client Sample ID	19-SB4-WS1	**Received Date/Time**	09/15/2000 14:20
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Reilly

Sample Remarks:

GRO/BTEX - Surrogate recovery is biased high due to matrix interference. Results not affected.
DRO - Pattern consistent with weathered middle distillate.

Parameter	Results		PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Fuels Department									
Gasoline Range Organics	2.99		0.180	mg/L	AK101/8021B		09/24/00	09/28/00	MAH
Benzene	0.00100 U		0.00100	mg/L	AK101/8021B		09/24/00	09/28/00	MAH
Ethylbenzene	0.00521		0.00400	mg/L	AK101/8021B		09/24/00	09/28/00	MAH
P & M -Xylene	0.0127		0.00400	mg/L	AK101/8021B		09/24/00	09/28/00	MAH
o-Xylene	0.0126		0.00400	mg/L	AK101/8021B		09/24/00	09/28/00	MAH
Toluene	0.00400 U		0.00400	mg/L	AK101/8021B		09/24/00	09/28/00	MAH
Surrogates									
1,4-Difluorobenzene <Surr>	86.8			%	AK101/8021B	60-120	09/24/00	09/28/00	MAH
4-Bromofluorobenzene <Surr>	997	!		%	AK101/8021B	50-150	09/24/00	09/28/00	MAH
Semivolatile Organic Fuels Department									
Diesel Range Organics	327		3.30	mg/L	AK102 DRO		09/20/00	09/28/00	MCM
Surrogates									
5a Androstane <surr>	120			%	AK102 DRO	50-150	09/20/00	09/28/00	MCM

CT&E Environme Services Inc.

CT&E Ref.#	1005582017	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 11:20
Client Sample ID	19-SB5-WS1	**Received Date/Time**	09/15/2000 14:20
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO - Pattern consistent with weathered middle distillate.
DRO - Surrogate does not meet QC goals due to matrix interference. Results are not affected.
GRO/BTEX - Surrogate recovery is biased high due to matrix interference. Results not affected.

Parameter	Results		PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Fuels Department									
Gasoline Range Organics	1.77		0.180	mg/L	AK101/8021B		09/24/00	09/25/00	MAH
Benzene	0.00100 U		0.00100	mg/L	AK101/8021B		09/24/00	09/25/00	MAH
Ethylbenzene	0.00400 U		0.00400	mg/L	AK101/8021B		09/24/00	09/25/00	MAH
P & M -Xylene	0.00934		0.00400	mg/L	AK101/8021B		09/24/00	09/25/00	MAH
o-Xylene	0.00452		0.00400	mg/L	AK101/8021B		09/24/00	09/25/00	MAH
Toluene	0.00400 U		0.00400	mg/L	AK101/8021B		09/24/00	09/25/00	MAH
Surrogates									
1,4-Difluorobenzene <Surr>	94			%	AK101/8021B	60-120	09/24/00	09/25/00	MAH
4-Bromofluorobenzene <Surr>	154	!		%	AK101/8021B	50-150	09/24/00	09/25/00	MAH
Semivolatile Organic Fuels Department									
Diesel Range Organics	2130		36.6	mg/L	AK102 DRO		09/20/00	09/29/00	MCM
Surrogates									
5a Androstane <surr>	151	!		%	AK102 DRO	50-150	09/20/00	09/29/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582018	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 11:50
Client Sample ID	19-RWN-WS1	**Received Date/Time**	09/15/2000 14:20
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

DRO - Pattern consistent with weathered middle distillate.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Fuels Department								
Gasoline Range Organics	0.106	0.0900	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Benzene	0.000500 U	0.000500	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Ethylbenzene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
P & M -Xylene	0.00221	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
o-Xylene	0.00206	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Toluene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	90.4		%	AK101/8021B	60-120	09/24/00	09/24/00	MAH
4-Bromofluorobenzene <Surr>	100		%	AK101/8021B	50-150	09/24/00	09/24/00	MAH
Semivolatile Organic Fuels Department								
Diesel Range Organics	0.977	0.333	mg/L	AK102 DRO		09/20/00	09/28/00	MCM
Surrogates								
5a Androstane <surr>	56.5		%	AK102 DRO	50-150	09/20/00	09/28/00	MCM
Semivolatile Organic GC/MS								
Acenaphthylene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Acenaphthene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Fluorene	0.715	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Phenanthrene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Anthracene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Fluoranthene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Pyrene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Benzo(a)Anthracene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Chrysene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Benzo[b]Fluoranthene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Benzo[k]fluoranthene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582018	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 11:50
Client Sample ID	19-RWN-WS1	**Received Date/Time**	09/15/2000 14:20
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
Ordered By			

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Semivolatile Organic GC/MS								
Benzo[a]pyrene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Indeno[1,2,3-c,d] pyrene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Dibenzo[a,h]anthracene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Benzo[g,h,i]perylene	0.0526 U	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Naphthalene	0.538	0.0526	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Surrogates								
Naphthalene-d8 <surr/IS>	45.3		%	PAH SIM	14-125	09/20/00	09/24/00	KWM
Acenaphthene-d10 <surr/IS>	47.9		%	PAH SIM	23-125	09/20/00	09/24/00	KWM
Chrysene-d12 <surr/IS>	73.7		%	PAH SIM	43-125	09/20/00	09/24/00	KWM

CT&E Environme Services Inc.

CT&E Ref.#	1005582019	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 11:55
Client Sample ID	19-RWS-WS1	**Received Date/Time**	09/15/2000 14:20
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

GRO/BTEX - Surrogate recovery is biased high due to matrix interference. Results not affected.
DRO - Pattern consistent with weathered middle distillate.

Parameter	Results		PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Fuels Department									
Gasoline Range Organics	0.419		0.0900	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Benzene	0.000500 U		0.000500	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Ethylbenzene	0.00200 U		0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
P & M -Xylene	0.00293		0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
o-Xylene	0.00200 U		0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Toluene	0.00200 U		0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Surrogates									
1,4-Difluorobenzene <Surr>	91.8			%	AK101/8021B	60-120	09/24/00	09/24/00	MAH
4-Bromofluorobenzene <Surr>	229	!		%	AK101/8021B	50-150	09/24/00	09/24/00	MAH
Semivolatile Organic Fuels Department									
Diesel Range Organics	25.5		0.652	mg/L	AK102 DRO		09/20/00	09/29/00	MCM
Surrogates									
5a Androstane <surr>	50.9			%	AK102 DRO	50-150	09/20/00	09/29/00	MCM
Semivolatile Organic GC/MS									
Acenaphthylene	0.0500 U		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Acenaphthene	0.0500 U		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Fluorene	0.335		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Phenanthrene	0.0500 U		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Anthracene	0.0500 U		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Fluoranthene	0.0500 U		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Pyrene	0.0500 U		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Benzo(a)Anthracene	0.0500 U		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Chrysene	0.0500 U		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Benzo[b]Fluoranthene	0.0500 U		0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM

CT&E Environmental Services Inc.

CT&E Ref.#	1005582019	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 11:55
Client Sample ID	19-RWS-WS1	**Received Date/Time**	09/15/2000 14:20
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
Ordered By			

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Semivolatile Organic GC/MS								
Benzo[k]fluoranthene	0.0500 U	0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Benzo[a]pyrene	0.0500 U	0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Indeno[1,2,3-c,d] pyrene	0.0500 U	0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Dibenzo[a,h]anthracene	0.0500 U	0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Benzo[g,h,i]perylene	0.0500 U	0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Naphthalene	0.220	0.0500	ug/L	PAH SIM		09/20/00	09/24/00	KWM
Surrogates								
Naphthalene-d8 <surr/IS>	44.2		%	PAH SIM	14-125	09/20/00	09/24/00	KWM
Acenaphthene-d10 <surr/IS>	60.5		%	PAH SIM	23-125	09/20/00	09/24/00	KWM
Chrysene-d12 <surr/IS>	76.5		%	PAH SIM	43-125	09/20/00	09/24/00	KWM

CT&E Environme Services Inc.

CT&E Ref.#	1005582020	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 0:00
Client Sample ID	Trip Blank-Soil	**Received Date/Time**	09/15/2000 14:20
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	Michael Riley

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	100		%	SM20 2540G			09/17/00	JCO
Volatile Fuels Department								
Gasoline Range Organics	2.52 U	2.52	mg/Kg	AK101/8021B		09/15/00	09/24/00	MAH
Benzene	0.0126 U	0.0126	mg/Kg	AK101/8021B		09/15/00	09/24/00	MAH
Toluene	0.0505 U	0.0505	mg/Kg	AK101/8021B		09/15/00	09/24/00	MAH
Ethylbenzene	0.0505 U	0.0505	mg/Kg	AK101/8021B		09/15/00	09/24/00	MAH
P & M -Xylene	0.0505 U	0.0505	mg/Kg	AK101/8021B		09/15/00	09/24/00	MAH
o-Xylene	0.0505 U	0.0505	mg/Kg	AK101/8021B		09/15/00	09/24/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	89.4		%	AK101/8021B	60-120	09/15/00	09/24/00	MAH
4-Bromofluorobenzene <Surr>	90.4		%	AK101/8021B	50-150	09/15/00	09/24/00	MAH

CT&E Environmental Services Inc.

CT&E Ref.#	1005582021	**Client PO#**	
Client Name	Signature Flight Support	**Printed Date/Time**	10/10/2000 11:38
Project Name/#	19th Cst Assessment Job 8653	**Collected Date/Time**	09/15/2000 0:00
Client Sample ID	Trip Blank-Water	**Received Date/Time**	09/15/2000 14:20
Matrix	Water (Surface, Eff., Ground)	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	

Sample Remarks:

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Volatile Fuels Department								
Gasoline Range Organics	0.0900 U	0.0900	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Benzene	0.000500 U	0.000500	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Ethylbenzene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
P & M -Xylene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
o-Xylene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Toluene	0.00200 U	0.00200	mg/L	AK101/8021B		09/24/00	09/24/00	MAH
Surrogates								
1,4-Difluorobenzene <Surr>	91.3		%	AK101/8021B	60-120	09/24/00	09/24/00	MAH
4-Bromofluorobenzene <Surr>	77.6		%	AK101/8021B	50-150	09/24/00	09/24/00	MAH

1005582

Sample Custody Record

Samples Shipped to: _____

HARTCROWSER

; Inc.
: 705
2737
Phone: 907-276-7475 FAX: 907-276-2104

JOB NUMBER 8653 LAB NUMBER _____

PROJECT NAME 19th - C st assessment

HART CROWSER CONTACT Rick Giroard

SAMPLED BY: BT / RG

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	REQUESTED ANALYSES: DRO (AK 102)	GRO/BTEX (AK 101)	TOC	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
1	19-SB1-S1		9/15/00	900	Soil	X	X			
2	19-SB1-S2			910		X	X			
3	19-SB2-S1			945		X	X	[redacted] NO		
4	19-SB2-S2			955		X	X			
5	19-SB3-S1			1020		X	X	X		
6	19-SB3-S2			1030		X	X	X		
7	19-SB3-S3			1035		X	X			
8	19-SB4-S1			1045		X	X	X		
9	19-SB4-S2			1050		X	X			
10	19-SB4-S3			1047			X			GET MOISTULE FROM 19-SB4-S1
11	19-SB5-S1			1105		X	X			
12	19-SB5-S2			1110		X	+			

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE: Brandie Theisen	9/15/00	SIGNATURE: [redacted]	
PRINT NAME: Brandie Theisen	TIME	PRINT NAME	TIME
COMPANY: Hart Crowser	2:15 pm	COMPANY	
RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE		SIGNATURE: [redacted]	9/15/00
PRINT NAME	TIME	PRINT NAME: [redacted]	TIME
COMPANY		COMPANY: [redacted]	1420

SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS:

Direct Bill to Signature Flight Services

TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐ YES ☐ NO ☐ N/A
GOOD CONDITION ☐ YES ☐ NO
TEMPERATURE: _____
SHIPMENT METHOD: ☐ HAND ☐ COURIER ☐ OVERNIGHT

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____ for Other Contract Requirements

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐ 48 HOURS ☐ STANDARD
☐ 72 HOURS OTHER _____

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser

corel\forms\custody

Sample Custody Record

1005582

HARTCROWSER

Samples Shipped to: _____

JOB NUMBER 8653 LAB NUMBER _____

PROJECT NAME 19th - C Street Assessment

HART CROWSER CONTACT Rick Girouard

SAMPLED BY: BT / RG

LAB NO.	SAMPLE ID	DESCRIPTION	DATE	TIME	MATRIX	DRO (AK102)	GRO (BTEX) (AK101)	PAH (8310)	NO. OF CONTAINERS	OBSERVATIONS/COMMENTS/ COMPOSITING INSTRUCTIONS
13	19-SB1-WS1		9/15	925	H20	X	X			
14	19-SB2-WS1			1000		X	X			
15	19-SB3-WS1			1040		X	X			
16	19-SB4-WS1			1055		X	X			
17	19-SB5-WS1			1120		X	X			
18	19-RWN-WS1			1150		X	X	X		
19	19-RWS-WS1			1155		X	X	X		

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE	9/15/00	SIGNATURE	
PRINT NAME Brodie Theiser	TIME	PRINT NAME	TIME
COMPANY Hart Crowser	1415	COMPANY	

RELINQUISHED BY	DATE	RECEIVED BY	DATE
SIGNATURE		SIGNATURE	9/15/00
PRINT NAME	TIME	PRINT NAME	TIME
COMPANY		COMPANY CT&E	1420

SPECIAL SHIPMENT/HANDLING OR STORAGE REQUIREMENTS:
Direct Bill To Signature Flight Services

COOLER NO.: STORAGE LOCATION:

See Lab Work Order No. _____ for Other Contract Requirements

TOTAL NUMBER OF CONTAINERS

SAMPLE RECEIPT INFORMATION
CUSTODY SEALS: ☐ YES ☐ NO ☐ N/A
GOOD CONDITION ☐ YES ☐ NO
TEMPERATURE: _____
SHIPMENT METHOD: ☐ HAND ☐ COURIER ☐ OVERNIGHT

TURNAROUND TIME:
☐ 24 HOURS ☐ 1 WEEK
☐ 48 HOURS ☐ STANDARD
☐ 72 HOURS OTHER _____

White and Yellow Copies to Lab Pink to Project Manager Lab to Return White Copy to Hart Crowser

corel\forms\custody

1005582

CT&E Environmental Services Inc.

SAMPLE RECEIPT FORM

CT&E WO#:

Yes	No	
	✓	Are samples **RUSH**, priority, or *within 72 hrs* of **hold time**?
		If yes, have you done *e-mail notification*?
	✓	Are samples *within 24 hrs* of **hold time** or **due date**?
		If yes, have you *spoken with* Supervisor?
	✓	Are there any **problems** (e.g., ids, analyses)?
		Were samples preserved correctly and pH verified?

HCl was added to #13, 14, 15, 17.

Yes	No		
	✓	Has Project Manager been notified of problems?	
	✓	Is this an ACOE/AFCEE/ADEC project?	
		Will a **data package** be required?	
		If this is for PWS, provide **PWSID**.	
	✓	Is there a **quote** for this project?	
		Will **courier** charges apply?	

Completed by (sign): [signature] (print): Eva Neuman

*** The following *must* be completed for *all* ACOE & AFCEE projects: ***

Yes	No		Notes:
		Is cooler temperature 4 ± C?	
		thermometer used:	
		Was there an airbill, etc? note #:	
		Was cooler sealed with custody seals?	
		#/where?	
		Were seals intact upon arrival?	
		Was there a COC with cooler?	
		Was the COC filled out properly?	
		Did the COC indicate ACOE/AFCEE project?	
		Did the COC and samples correspond?	
		Were samples screened with Geiger counter?	
		Were all samples packed to prevent breakage?	
		packing material:	
		Were all samples unbroken and clearly labelled?	
		Were all samples sealed in separate plastic bags?	
		Were all bottles for volatiles free of headspace?	
		Were correct container/sample sizes submitted?	
		Was client notified of problems? (specify below)	

Individual contacted:

Date & Time: Phone/Fax #:

Due Date: 9/26/00

Received Date/Time: 9/15 - 14:20

Cooler Temperature: 3.0°, 4.1°, 3.3°C

Sample Condition: (Good) / Poor

Matrix of each Sample:

2	" "	1-12
1	" "	13-19
	" "	
	" "	
2/1	Trip Blank	20/21
	MS/MSD	

Additional Sample Remarks:

AK101s/____ 8260s field pres'd?

Field-filtered for dissolved____?

Lab-filter for dissolved____?

Ref Lab required?

Notes:

# of each Container Received:

#	Container	
4	950 ml amber	unpres'd
14	950 ml amber	w/ HCl
	500 ml amber	w/ H2SO4
	1L cubies	unpres'd
	1L cubies	w/ HNO3
	1L cubies	w/ H2SO4
	1L cubies	w/ NaOH + ZnAc
	120 ml coli	bottles
	60 ml	Nalg
11	8 oz amber	unpres'd
3	4 oz amber	unpres'd
13	4 oz w/ septa	w/ MeOH
16	40 ml vials	w/ HCl
	Other (specify)	
	Other (specify)	

#/Log In Proofed by: [signature]

Form Number: F004r2
Printed: 7/12/99

CT&E Environmental Services Inc.
Laboratory Division

Laboratory Analysis Report

200 W. Potter Drive
Anchorage, AK 99518-1605
Tel: (907) 562-2343
Fax: (907) 561-5301
Web: http://www.cteesi.com

Ray Woodworth
Copper Valley Electric
P.O. BOX 45
Glennallen, AK 99588

Work Order:	1006409
	CVEA @ Glennallen Job 8257-17
Client:	Copper Valley Electric
Report Date:	October 18, 2000

Enclosed are the analytical results associated with the above workorder.

As required by the state of Alaska and the USEPA, a formal Quality Assurance/Quality Control Program is maintaned by CT&E. A copy of our Quality Control Manual that outlines this program is available at your request.

Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth in our Quality Assurance Program Plan.

If you have any questions regarding this report or if we can be of any other assistance, please call your CT&E Project Manager at (907) 562-2343.

The following descriptors may be found on your report which will serve to further qualify the data.

U	Indicates the analyte was analyzed for but not detected.
J	Indicates an estimated value that falls below PQL, but is greater than the MDL.
B	Indicates the analyte is found in the blank associated with the sample.
*	The analyte has exceeded allowable limits.
GT	Greater Than
D	Secondary Dilution
LT	Less Than
!	Surrogate out of range

SGS Member of the SGS Group (Societe Generale de Surveillance)
200 W. Potter Drive, Anchorage, AK 99518-1605 — Tel: (907) 562-2343 Fax: (907) 561-5301
3180 Peger Road, Fairbanks, AK 99709-5471 — Tel: (907) 474-8656 Fax: (907) 474-9685

CT&E Environmental Services Inc.

CT&E Ref.#	1006409001	**Client PO#**	
Client Name	Copper Valley Electric	**Printed Date/Time**	10/18/2000 16:07
Project Name/#	CVEA @ Glennallen Job 8257-17	**Collected Date/Time**	10/12/2000 12:25
Client Sample ID	CVEA-1 Site 1	**Received Date/Time**	10/13/2000 9:30
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	J Windeblank

Sample Remarks:

DRO - Pattern consistent with weathered middle distillate.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	80.4		%	SM20 2540G			10/14/00	JCO
Semivolatile Organic Fuels Department								
Diesel Range Organics	212	12.4	mg/Kg	AK102 DRO		10/14/00	10/17/00	MCM
Surrogates								
5a Androstane <surr>	128		%	AK102 DRO	50-150	10/14/00	10/17/00	MCM

CT&E Environmental Services Inc.

CT&E Ref.#	1006409002	**Client PO#**	
Client Name	Copper Valley Electric	**Printed Date/Time**	10/18/2000 16:07
Project Name/#	CVEA @ Glennallen Job 8257-17	**Collected Date/Time**	10/12/2000 12:30
Client Sample ID	CVEA-2 Site 2	**Received Date/Time**	10/13/2000 9:30
Matrix	Soil/Solid	**Technical Director**	**Stephen C. Ede**
Ordered By		**Released By**	J Windeblank

Sample Remarks:

DRO - Pattern consistent with weathered middle distillate.

Parameter	Results	PQL	Units	Method	Allowable Limits	Prep Date	Analysis Date	Init
Solids								
Total Solids	85.2		%	SM20 2540G			10/14/00	JCO
Semivolatile Organic Fuels Department								
Diesel Range Organics	264	11.3	mg/Kg	AK102 DRO		10/14/00	10/17/00	MCM
Surrogates								
5a Androstane <surr>	132		%	AK102 DRO	50-150	10/14/00	10/17/00	MCM

APPENDIX C
ADEC METHOD 3 CALCULATIONS

Table C1 - Method 3 Calculation for DRO-Aromatic
19th & "C" Street Site

Soil Cleanup Level (mg/kg) = C_w { ($K_{oc}F_{oc}$) + ((Θ_w +Θ_aH')/ρ_b) } {1}

		Default Value	Measured Value
Dilution Factor (DF)		3.3	
C_w = 1.5 (10 + DF) =	20.0 (mg/L)		
K_{oc} (L/kg)		5010 (Table C-3)	
f_{oc}			0.01
Θ_w (L_{water}/L_{soil})		0.3	
Θ_a(L_{air}/L_{soil})		0.13	
H'		0.0302 (Table C-3)	
ρ_b		1.5	

SCL= 20.0 (mg/L) {(5.37E6 (L/kg)*0.005) + ((.03 + (0.13)(75.9)/1.5) } = 1.00E+03 mg/kg

Note: {1} 18 AAC 75 Guidance on Cleanup Standards, Equations and Input Parameters, Equation 11.

A-8653

19-method3.xls:dro-ar