



SHANNON & WILSON, INC.

Geotechnical Consultants
Engineering and Applied Geosciences

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35 Years of
Excellence*

2055 Hill Road, P.O. Box 843 • Fairbanks, Alaska 99707 • Telephone (907) 479-0600 • Telefax: (907) 479-5691

September 17, 1990

X-0339

Alaska Department of Commerce
and Economic Development
Division of Investments
P.O.Box DI
Juneau, Alaska 99811-0802

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SEP 19 1990
DEPT. OF ENVIRONMENTAL
CONSERVATION
DEPARTMENT OF COMMERCE
AND ECONOMIC DEVELOPMENT
DIVISION OF INVESTMENTS

Attention: Mr. Geoffrey B. Whistler

RE: MONITORING REMOVAL OF UNDERGROUND STORAGE TANKS AT 30TH AVENUE AND CUSHMAN STREET, FAIRBANKS, ALASKA

Gentlemen:

At your request, underground storage tank removal operations were monitored and soil samples taken at the abandoned 5 Star Station located at 30th Avenue and Cushman Street, Fairbanks, Alaska on August 20, 1990. The primary purpose of this work was to screen soils and obtain samples to document the presence or absence of hydrocarbon contamination during tank removal. This work was intended to satisfy the requirements of 40 CFR 280.72 for site assessment at closure.

Field Methods and Observations

A 500-gallon waste oil tank, a 400-gallon diesel tank, and a 10,000-gallon gasoline tank were removed on August 20, 1990. Approximate locations of the tanks are shown in Figure 1.

The 500-gallon waste oil tank surface was oxidized and dented, however upon inspection no holes or punctures were observed. Approximately three inches of fill material was overlying the tank, and the vent and fill holes were flush with the ground surface. No extensions were attached to the vent and fill holes.

The 400-gallon diesel tank and the 10,000-gallon gasoline tank appeared to be in excellent condition upon removal. No holes or punctures were observed in the tanks, and the vent and fill pipes appeared to be tightly screwed into the tanks. Approximately two feet of fill material was overlying the tanks.

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Sr. Vice President and Manager

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Vice President

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CONSULTANT
William L. Shannon, P.E.

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Mr. Geoffrey B. Whistler
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The waste oil tank and diesel tank were located south of the main building, as shown in Figure 1. The surface soils overlying the tanks were stained black to approximately 1-foot depth. The staining extended to the edge of the existing building and across the entire area in which soil was excavated. Dark gray (possibly stained) granular fill material underlay the blackened surficial soils to the depth of the excavation. A transition to native soils could not be identified. A strong hydrocarbon odor was noted at all depths during excavation.

The gasoline tank was located north of the existing building. The area was covered by a 3-inch thick layer of asphalt. Underlying the asphalt was approximately 2-1/2-feet of darkly stained fill material. Gray fill material underlay the visibly stained soils to the depth of the excavation. Again, a transition to native soils could not be identified, and strong hydrocarbon odor was noted at all depths.

The water table appeared to be at approximately 8.5 to 9.0 feet depth below ground surface at the time of the tank removals.

A Photovac "TIP" photoionization detector (PID) was used as soils were removed from the excavation, to measure total volatile compounds present, as a semi-quantitative indication of hydrocarbon contamination. The detector was calibrated to an isobutylene standard, with the readings mathematically corrected to a benzene standard. All soils suspected of containing hydrocarbons above cleanup levels contained in the June 20, 1990 ADEC cleanup guidelines (100 ppm Total Petroleum Hydrocarbons; 0.5 ppm benzene; and 10 ppm sum of benzene, toluene, ethylbenzene, and xylene) were initially stockpiled.

Excavation boundaries for the tanks are shown on Figure 1. The depth of the excavations was limited to approximately 8 to 9 feet due to the existing water table. The excavation south of the existing building was limited on the northern boundary by the existing building foundations. Readings on the PID suggested that soils at the base of the excavations and the sidewalls contained hydrocarbons above cleanup levels. Upon review of the field screening results from the PID, Mr. Geoffrey Whistler of the Alaska Department of Commerce and Economic Development instructed us to collect the analytical samples without further excavation. He then instructed the equipment operator to replace the excavated soil back in the excavations. Prior to sampling and filling of the excavations, boundaries of the excavations were measured with a tape measure.

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A total of nine analytical soil samples and nine headspace gas screening samples were collected in the vicinity of the tanks, as shown in Figure 1. Three samples in the waste oil tank vicinity were collected for Total Recoverable Petroleum Hydrocarbons (EPA Method 418.1) and Halogenated Volatiles (EPA Method 8010) analyses. Three samples in the diesel tank vicinity were collected for Total Recoverable Petroleum Hydrocarbons (EPA Method 418.1) analysis. Three samples in the gasoline tank vicinity were collected for Purgeable Aromatics (EPA Method 8020) and Total Volatile Petroleum Hydrocarbons (EPA Method 5030/8015) analyses. Sample locations are shown in Figure 1. Sampling was performed in general accordance with our QA/QC Program Plan for Underground Tank Closure Operations, dated September 5, 1990. The samples taken for laboratory analyses were maintained at or near 4°C and transported to Northern Testing Laboratories, Inc. within 24 hours of collection.

The soil samples obtained for headspace screening were returned to our laboratory and allowed to equilibrate to room temperature prior to screening. The PID was used to measure total volatile compounds present in the headspace of the sample jars. Headspace gas concentrations measured are presented in Table 1, rounded to single digit precision, along with the results of the laboratory analyses from Northern Testing Laboratories, Inc. The laboratory analytical report for this work is provided in Attachment 1.

Discussion of Results and Recommendations

The current ADEC guidelines for cleanup of hydrocarbon contamination as discussed above were exceeded by seven of the nine samples collected. Sample X339-0802-02, taken from the base of the east sidewall of the waste oil tank excavation, contained only 61 ppm Total Recoverable Petroleum Hydrocarbons (TRPH). Sample X339-0820-08, taken from the base of the gasoline tank excavation, contained only 2 ppm Total Volatile Petroleum Hydrocarbons (TVPH) quantified as gasoline and 4 ppm TVPH quantified as diesel. The sample also contained 0.15 ppm benzene and a sum of 0.68 benzene, toluene, ethylbenzene and xylene.

Samples collected from the waste oil tank vicinity were analyzed for Halogenated Volatiles (EPA Method 8010) to check for potential release of chlorinated solvents. All analytes tested were reported to be below the detection limit for the three samples analyzed.

Soils from the vicinity of the waste oil tank were reported to contain from 61 to 772 ppm TRPH. Soils from the vicinity of the diesel tank contained from 601 to 4,600 ppm TRPH.

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High headspace gas concentrations were measured on all these samples, suggesting a volatile source of contamination (at least at the locations sampled), rather than a waste oil source.

The results of the TVPH analyses (EPA Method 8015) from the soils in the vicinity of the gasoline tank are of particular interest. All three samples were reported to contain both concentrations of diesel and gasoline, with the diesel content always the greater of the two. Total concentrations ranged from 6 to 6,900 ppm. Benzene from 0.15 to 9.5 ppm, and total BTEX of 0.68 to 603 ppm, were also reported.

As previously mentioned, the tank excavations were refilled with the excavated soils, which were suspected of being contaminated based on the field screening results with the PID. We recommend that the surface soils in these excavation areas be mounded and covered with plastic sheeting, so that seepage of surface water through the non-compacted soils is minimized. This is especially important for the gasoline tank excavation, which was originally covered with asphalt. It is our opinion that the seepage of surface water through the disturbed contaminated soils may result in the migration of contamination into the groundwater system and areas not previously contaminated.

Notifications

You are reminded that in accordance with Alaska regulation 18AAC75.080, "a person in charge of a facility or operation shall notify a field office of the department [of Environmental Conservation] ...for any discharge of oil to the waters ...[or] the land of the state". ADEC has interpreted this to include underground evidence of spills, such as disclosed by this study. They have stated that the responsibility for reporting rests on the owner or operator of the facility not on the consultant performing the study. Therefore Shannon & Wilson has not, and will not, disclose the results of this study.

In addition, the federal underground storage tank (UST) regulations, 40CFR part 280.50, state that "owners and operators of UST systems must report to the implementing agency within 24 hours ... the discovery ... of released regulated substances at the UST site or in the surrounding area (such as the presence of free product or vapors in soils...)". Corrective action or additional investigation and confirmation is required to follow the discovery, within a defined time frame.

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Limitations

This report presents conclusions based on a limited number of soil samples. The samples were intended to confirm the presence or absence of hydrocarbon contamination at the locations selected. The sample locations were selected to be representative of the soils at the base of the excavations. However, levels observed may not be the greatest levels present at the site. It was also not the intent of our exploration to detect other than contamination by fuel products, with the exception of the three samples analyzed for halogenated volatiles. No conclusions can be drawn on the presence or absence of other contaminants.

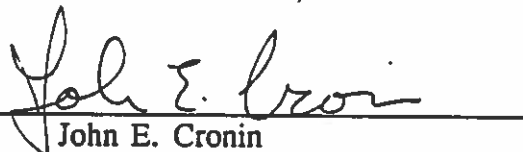
This report was prepared for the exclusive use of the owner and our client in the study of potential contamination in accordance with the scope of work. If it is made available to others, it should be for information on factual data only and not as a warranty of subsurface conditions, such as those interpreted from the discussions included in this report.

We trust that this information is sufficient for your needs at the present time. If you desire, we are available to perform additional exploratory work, or to assist with the design of remedial measures. If you have any questions, or if we can be of further assistance, please call.

Sincerely,

SHANNON & WILSON, INC.

By



John E. Cronin
Vice President
Waste Management/Hydrogeology

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Enclosures: Figure 1, Table 1, Attachment 1

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TABLE 1
Purgable Aromatics (EPA Method 8020)(a), Total Recoverable Petroleum Hydrocarbons (EPA Method 418.1), Total Volatile Petroleum Hydrocarbons (EPA Method 8015), and Headspace Gas Concentrations in Soil (all concentrations in ppm)

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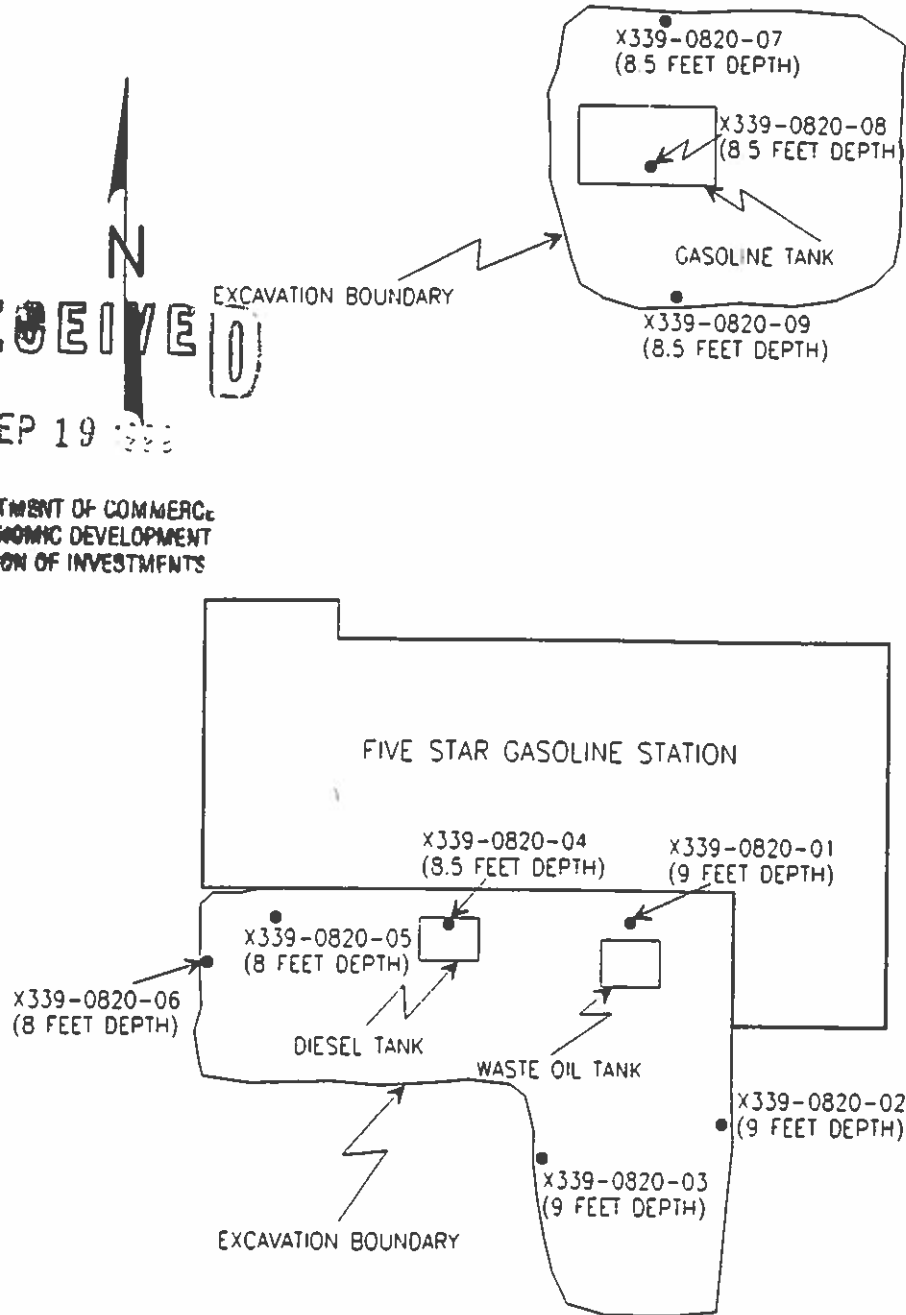
Sample	Headspace Gas Concentrations					Total Recoverable Petroleum Hydrocarbons	Total Volatile Petroleum Hydrocarbons	
	Benzene	Ethylbenzene	Toluene	Xylene	Diesel		Gasoline	
X339-0820-01	1000	-	-	-	-	341	-	-
X339-0820-02	700	-	-	-	-	61	-	-
X339-0820-03	1000	-	-	-	-	772	-	-
X339-0820-04	800	-	-	-	-	4320	-	-
X339-0820-05	900	-	-	-	-	601	-	-
X339-0820-06	800	-	-	-	-	4600	-	-
X339-0820-07	900	9.5	83	120	390	-	5200	1700
X339-0820-08	1000	0.15	0.04	0.22	0.27	-	4	2
X339-0820-09	700	7.5	40	94	200	-	1870	1000

(a) Only analytes detected are listed. See laboratory reports for a complete list of analytes tested.
(-) Denotes not tested.

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South Cushman Street

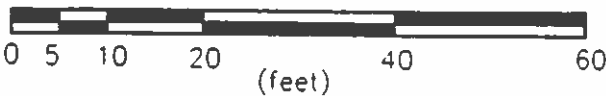
30th Avenue

LEGEND.

● Analytical Sample Location and Number
X339-0820-06 (8 FEET DEPTH)

State of Alaska
Department of Commerce
and Economic Development
Tank Removals at 30th and S. Cushman
Fairbanks, Alaska

APPROXIMATE SCALE. 1" = 20'



SITE PLAN AND SAMPLE LOCATIONS

Sept. 1990

X-339

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Fig. 1

ATTACHMENT 1
ANALYTICAL LABORATORY REPORTS

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Note: Sample identity can be determined from the listed "S&W #".
In the listed S&W #, the first number indicates the job number, the second number indicates the boring number or the date the sample was taken, and the final number indicates the sample sequence or a unique sample number.



NORTHERN TESTING LABORATORIES, INC.

2505 FAIRBANKS STREET
3330 INDUSTRIAL WAY

ANCHORAGE, ALASKA 99503
FAIRBANKS, ALASKA 99701

907 277 8378 • FAX 274 9645
907 456 3116 • FAX 456 3125

Shannon & Wilson, Inc.
P.O. Box 70843
Fairbanks AK 99701

Report Date: 09/07/90

Date Arrived: 08/24/90
Date Sampled: 08/20/90
Time Sampled: 1615
Collected By: DLO

Attn: LeeAnne Osgood

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Flag Definitions
U = Below Detection Limit
DL Stated in Result
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Below Detection Limit
Estimated Value

Our Lab #: A104211
Location/Project: X-339
Your Sample ID: X-339-0820-1
Sample Matrix: Soil
Comments:

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SECTION OF INVESTMENTS

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104211	EPA 160.3	Solids	%	90.5		08/30/90
A104211	EPA 418.1	Total Petroleum Hydrocarbons	mg/dry kg	341		08/31/90
A104211	EPA 8010	Bromodichloromethane	mg/dry kg	0.10	U	09/03/90
		Bromoform	mg/dry kg	0.30	U	
		Bromomethane	mg/dry kg	0.60	U	
		Carbon Tetrachloride	mg/dry kg	0.05	U	
		Chlorobenzene	mg/dry kg	0.05	U	
		Chloroethane	mg/dry kg	0.60	U	
		2-Chloroethylvinylether	mg/dry kg	0.60	U	
		Chloroform	mg/dry kg	0.05	U	
		Chloromethane	mg/dry kg	0.60	U	
		Dibromochloromethane	mg/dry kg	0.15	U	
		1,2-Dichlorobenzene	mg/dry kg	0.05	U	
		1,3-Dichlorobenzene	mg/dry kg	0.05	U	
		1,4-Dichlorobenzene	mg/dry kg	0.05	U	
		1,1-Dichloroethane	mg/dry kg	0.05	U	
		1,2-Dichloroethane	mg/dry kg	0.05	U	
		1,1-Dichloroethylene	mg/dry kg	0.30	U	
		trans-1,2-Dichloroethylene	mg/dry kg	0.30	U	
		1,2-Dichloropropane	mg/dry kg	0.05	U	
		cis-1,3-Dichloropropene	mg/dry kg	0.05	U	
		trans-1,3-Dichloropropene	mg/dry kg	0.05	U	
		Methylene Chloride	mg/dry kg	0.30	U	
		1,1,2,2-Tetrachloroethane	mg/dry kg	0.10	U	
		Tetrachloroethylene	mg/dry kg	0.05	U	
		1,1,1-Trichloroethane	mg/dry kg	0.05	U	
		1,1,2-Trichloroethane	mg/dry kg	0.05	U	

Reported By: Francois Rodigari
Anchorage Operations Manager



NORTHERN TESTING LABORATORIES, INC.

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FAIRBANKS, ALASKA 99701

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907 456-3116 • FAX 456 3125

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104211	EPA 8010	Trichloroethylene	mg/dry kg	0.05	U	09/03/90
		Trichlorofluoromethane	mg/dry kg	0.15	U	
		Vinyl Chloride	mg/dry kg	0.15	U	

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Reported By: Francois Rodigari
Anchorage Operations Manager



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FAIRBANKS ALASKA 99701

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907 456-3116 • FAX 456 3125

Shannon & Wilson, Inc.
P.O. Box 70843
Fairbanks AK 99701

Report Date: 09/07/90

Date Arrived: 08/24/90
Date Sampled: 08/20/90
Time Sampled: 1615
Collected By: DLO

Attn: LeeAnne Osgood

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Our Lab #: A104212
Location/Project: X-339
Your Sample ID: X-339-0820-2
Sample Matrix: Soil
Comments:

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Flag Definitions
U = Below Detection Limit
DL Stated in Result
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Below Detection Limit
Estimated Value

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104212	EPA 160.3	Solids	%	81.4		08/30/90
A104212	EPA 418.1	Total Petroleum Hydrocarbons	mg/dry kg	61		08/31/90
A104212	EPA 8010	Bromodichloromethane	mg/dry kg	0.02	U	09/03/90
		Bromoform	mg/dry kg	0.06	U	
		Bromomethane	mg/dry kg	0.12	U	
		Carbon Tetrachloride	mg/dry kg	0.01	U	
		Chlorobenzene	mg/dry kg	0.01	U	
		Chloroethane	mg/dry kg	0.12	U	
		2-Chloroethylvinylether	mg/dry kg	0.12	U	
		Chloroform	mg/dry kg	0.01	U	
		Chloromethane	mg/dry kg	0.12	U	
		Dibromochloromethane	mg/dry kg	0.03	U	
		1,2-Dichlorobenzene	mg/dry kg	0.01	U	
		1,3-Dichlorobenzene	mg/dry kg	0.01	U	
		1,4-Dichlorobenzene	mg/dry kg	0.01	U	
		1,1-Dichloroethane	mg/dry kg	0.01	U	
		1,2-Dichloroethane	mg/dry kg	0.01	U	
		1,1-Dichloroethylene	mg/dry kg	0.06	U	
		trans-1,2-Dichloroethylene	mg/dry kg	0.06	U	
		1,2-Dichloropropane	mg/dry kg	0.01	U	
		cis-1,3-Dichloropropene	mg/dry kg	0.01	U	
		trans-1,3-Dichloropropene	mg/dry kg	0.01	U	
		Methylene Chloride	mg/dry kg	0.06	U	
		1,1,2,2-Tetrachloroethane	mg/dry kg	0.02	U	
		Tetrachloroethylene	mg/dry kg	0.01	U	
		1,1,1-Trichloroethane	mg/dry kg	0.01	U	
		1,1,2-Trichloroethane	mg/dry kg	0.01	U	

Reported By: Francois Rodigari
Anchorage Operations Manager



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3330 INDUSTRIAL WAY

ANCHORAGE ALASKA 99503
FAIRBANKS ALASKA 99701

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907 456 3116 • FAX 456 3125

Laboratory Number	Method	Parameter	Units	Result Flag	Date Analyzed
A104212	EPA 8010	Trichloroethylene	mg/dry kg	0.01 U	09/03/90
		Trichlorofluoromethane	mg/dry kg	0.03 U	
		Vinyl Chloride	mg/dry kg	0.03 U	

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Shannon & Wilson, Inc.
P.O. Box 70843
Fairbanks AK 99701

Report Date: 09/07/90

Date Arrived: 08/24/90
Date Sampled: 08/20/90
Time Sampled: 1615
Collected By: DLO

Attn: LeeAnne Osgood

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Our Lab #: A104213
Location/Project: X-339
Your Sample ID: X-339-0820-3
Sample Matrix: Soil
Comments:

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Flag Definitions
U = Below Detection Limit
DL Stated in Result
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Below Detection Limit
Estimated Value

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104213	EPA 160.3	Solids	%	88.3		08/30/90
A104213	EPA 418.1	Total Petroleum Hydrocarbons	mg/dry kg	772		08/31/90
A104213	EPA 8010	Bromodichloromethane	mg/dry kg	0.20	U	09/03/90
		Bromoform	mg/dry kg	0.60	U	
		Bromomethane	mg/dry kg	1.20	U	
		Carbon Tetrachloride	mg/dry kg	0.10	U	
		Chlorobenzene	mg/dry kg	0.10	U	
		Chloroethane	mg/dry kg	1.20	U	
		2-Chloroethylvinylether	mg/dry kg	1.20	U	
		Chloroform	mg/dry kg	0.10	U	
		Chloromethane	mg/dry kg	1.20	U	
		Dibromochloromethane	mg/dry kg	0.30	U	
		1,2-Dichlorobenzene	mg/dry kg	0.10	U	
		1,3-Dichlorobenzene	mg/dry kg	0.10	U	
		1,4-Dichlorobenzene	mg/dry kg	0.10	U	
		1,1-Dichloroethane	mg/dry kg	0.10	U	
		1,2-Dichloroethane	mg/dry kg	0.10	U	
		1,1-Dichloroethylene	mg/dry kg	0.60	U	
		trans-1,2-Dichloroethylene	mg/dry kg	0.60	U	
		1,2-Dichloropropane	mg/dry kg	0.10	U	
		cis-1,3-Dichloropropene	mg/dry kg	0.10	U	
		trans-1,3-Dichloropropene	mg/dry kg	0.10	U	
		Methylene Chloride	mg/dry kg	0.60	U	
		1,1,2,2-Tetrachloroethane	mg/dry kg	0.20	U	
		Tetrachloroethylene	mg/dry kg	0.10	U	
		1,1,1-Trichloroethane	mg/dry kg	0.10	U	
		1,1,2-Trichloroethane	mg/dry kg	0.10	U	

Reported By: Francois Rodigari
Anchorage Operations Manager



NORTHERN TESTING LABORATORIES, INC.

2505 FAIRBANKS STREET
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ANCHORAGE, ALASKA 99503
FAIRBANKS, ALASKA 99701

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907-456-3116 • FAX 456-3125

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104213	EPA 8010	Trichloroethylene	mg/dry kg	0.10	U	09/03/90
		Trichlorofluoromethane	mg/dry kg	0.30	U	
		Vinyl Chloride	mg/dry kg	0.30	U	

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FAIRBANKS ALASKA 99701

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Shannon & Wilson, Inc.
P.O. Box 70843
Fairbanks AK 99701

Report Date: 09/07/90

Date Arrived: 08/24/90
Date Sampled: 08/20/90
Time Sampled: 1615
Collected By: DLO

Attn: LeeAnne Osgood

Flag Definitions
U = Below Detection Limit
DL Stated in Result
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Below Detection Limit
Estimated Value

Our Lab #: A104214
Location/Project: X-339
Your Sample ID: X-339-8020-04
Sample Matrix: Soil
Comments:

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104214	EPA 160.3	Solids	%	90.7		08/30/90
A104214	EPA 418.1	Total Petroleum Hydrocarbons	mg/dry kg	4320		08/31/90

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Anchorage Operations Manager

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FAIRBANKS, ALASKA 99701

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907 456 3116 • FAX 456 3125

Shannon & Wilson, Inc.
P.O. Box 70843
Fairbanks AK 99701

Report Date: 09/07/90

Date Arrived: 08/24/90
Date Sampled: 08/20/90
Time Sampled: 1615
Collected By: DLO

Attn: LeeAnne Osgood

Flag Definitions
U = Below Detection Limit
DL Stated in Result
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Below Detection Limit
Estimated Value

Our Lab #: A104215
Location/Project: X-339
Your Sample ID: X-339-8020-05
Sample Matrix: Soil
Comments:

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104215	EPA 160.3	Solids	%	90.6		08/30/90
A104215	EPA 418.1	Total Petroleum Hydrocarbons	mg/dry kg	601		08/31/90

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Reported By: Francois Rodigari
Anchorage Operations Manager



NORTHERN TESTING LABORATORIES, INC.

2505 FAIRBANKS STREET
3330 INDUSTRIAL WAY

ANCHORAGE, ALASKA 99503
FAIRBANKS, ALASKA 99701

907 277 8378 • FAX 274 9645
907 456 3116 • FAX 456 3125

Shannon & Wilson, Inc.
P.O. Box 70843
Fairbanks AK 99701

Report Date: 09/07/90

Date Arrived: 08/24/90
Date Sampled: 08/20/90
Time Sampled: 1615
Collected By: DLO

Attn: LeeAnne Osgood

Flag Definitions
U = Below Detection Limit
DL Stated in Result
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Below Detection Limit
Estimated Value

Our Lab #: A104216
Location/Project: X-339
Your Sample ID: X-339-8020-06
Sample Matrix: Soil
Comments:

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104216	EPA 160.3	Solids	%	88.9		08/30/90
A104216	EPA 418.1	Total Petroleum Hydrocarbons	mg/dry kg	4600		08/31/90

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Shannon & Wilson, Inc.
P.O. Box 70843
Fairbanks AK 99701

Report Date: 09/07/90

Date Arrived: 08/24/90
Date Sampled: 08/20/90
Time Sampled: 1635
Collected By: DLO

Attn: LeeAnne Osgood

Flag Definitions
U = Below Detection Limit
DL Stated in Result
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Below Detection Limit
Estimated Value

Our Lab #: A104217
Location/Project: X-339
Your Sample ID: X-339-0820-7
Sample Matrix: Soil
Comments:

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104217	EPA 160.3	Solids	%	80.8		08/30/90
A104217	EPA 8020	Benzene	mg/dry kg	9.50		08/30/90
		Chlorobenzene	mg/dry kg	1.25	U	
		1,2-Dichlorobenzene	mg/dry kg	2.50	U	
		1,3-Dichlorobenzene	mg/dry kg	2.50	U	
		1,4-Dichlorobenzene	mg/dry kg	2.50	U	
		Ethylbenzene	mg/dry kg	83.00		
		Toluene	mg/dry kg	120.00		
		Xylenes	mg/dry kg	390.00		
A104217	Mod EPA 8015	Gasoline	mg/dry kg	1700		08/30/90
		Diesel	mg/dry kg	5200		

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Fairbanks AK 99701

Report Date: 09/07/90

Date Arrived: 08/24/90

Date Sampled: 08/20/90

Time Sampled: 1635

Collected By: DLO

Attn: LeeAnne Osgood

Flag Definitions
U = Below Detection Limit
DL Stated in Result
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Below Detection Limit
Estimated Value

Our Lab #: A104218
Location/Project: X-339
Your Sample ID: X-339-0820-8
Sample Matrix: Soil
Comments:

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104218	EPA 160.3	Solids	%	77.6		08/30/90
A104218	EPA 8020	Benzene	mg/dry kg	0.15		08/30/90
		Chlorobenzene	mg/dry kg	0.01	U	
		1,2-Dichlorobenzene	mg/dry kg	0.02	U	
		1,3-Dichlorobenzene	mg/dry kg	0.02	U	
		1,4-Dichlorobenzene	mg/dry kg	0.02	U	
		Ethylbenzene	mg/dry kg	0.04		
		Toluene	mg/dry kg	0.22		
		Xylenes	mg/dry kg	0.27		
A104218	Mod EPA 8015	Gasoline	mg/dry kg	2		08/30/90
		Diesel	mg/dry kg	4		

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Anchorage Operations Manager



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Shannon & Wilson, Inc.
P.O. Box 70843
Fairbanks AK 99701

Report Date: 09/07/90

Date Arrived: 08/24/90
Date Sampled: 08/20/90
Time Sampled: 1645
Collected By: DLO

Attn: LeeAnne Osgood

Flag Definitions
U = Below Detection Limit
DL Stated in Result
B = Below Regulatory Min.
H = Above Regulatory Max.
E = Below Detection Limit
Estimated Value

Our Lab #: A104219
Location/Project: X-339
Your Sample ID: X-339-0820-9
Sample Matrix: Soil
Comments:

Laboratory Number	Method	Parameter	Units	Result	Flag	Date Analyzed
A104219	EPA 160.3	Solids	%	76.7		08/30/90
A104219	EPA 8020	Benzene	mg/dry kg	7.50		08/30/90
		Chlorobenzene	mg/dry kg	0.01	U	
		1,2-Dichlorobenzene	mg/dry kg	0.02	U	
		1,3-Dichlorobenzene	mg/dry kg	0.02	U	
		1,4-Dichlorobenzene	mg/dry kg	0.02	U	
		Ethylbenzene	mg/dry kg	40.00		
		Toluene	mg/dry kg	94.00		
		Xylenes	mg/dry kg	200.00		
A104219	Mod EPA 8015	Gasoline	mg/dry kg	1000		08/30/90
		Diesel	mg/dry kg	1870		

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Anchorage Operations Manager