APPENDIX A

Historic Tank Closure and Sampling Report

B & C

20320 80th Ave. S. Kent, WA 98032
(206) 872-8890

ENVIRONMENTAL SITE ASSESSMENT

For the property located at
18811 16th Ave. So.
Seattle, WA 98188

File name : Avis Headquarters

Prepared for:
Avis

DEPARTMENT OF ECOLOGY
NWRO/TCP TANK UNIT

3501

INTERIM CLEANUP REPORT	☑
SITE CHARACTERIZATION	☐
FINAL CLEANUP REPORT	☐
OTHER _____	☐
AFFECTED MEDIA: SOIL	☑
OTHER _____ GW	☑
INSPECTOR (INIT.) [illegible] DATE 2-2-95	

Duplicate UST 006132
LUST Inc #300

B & C EQUIPMENT CO.

A Division of PEMCO

20320 80th Ave. S.
Kent, Washington 98032
Office (206) 872-8890
FAX (206) 872-8987
1-800-822-0084

DEPARTMENT OF ECOLOGY
NWRO/TCP TANK UNIT

INTERIM CLEANUP REPORT	☒
SITE CHARACTERIZATION	☐
FINAL CLEANUP REPORT	☐
OTHER	☐
AFFECTED MEDIA: SOIL	☒
OTHER GW	☒
INSPECTOR (INIT.) CH DATE 3-26-93	

RECEIVED
MAR 23 1993
DEPT. OF ECOLOGY

Avis Rent-A-Car System, Inc.
Seattle

June 1, 1992

Washington Department of Ecology
3190 160th Avenue SE
Bellevue, Washington 98008-5452

DEPARTMENT OF ECOLOGY
UNDERGROUND STORAGE TANKS

JUN 15 1992

Attn: Joseph M. Hickey

Re: Avis Headquarters
18811 16th Avenue So.
Seattle, Washington 98188

Dear Mr. Hickey:

This report presents the scope of environmental work performed by B & C Equipment Co. in regard to the removal of (1) 12,000 gallon gasoline and (2) 500 gallon underground storage tanks (UST) at the above referenced address. The (2) 500 gallon tanks were removed from the same excavation and contained (1) motor oil and (1) waste oil tank.

BACKGROUND:

On December 10, 1991, B & C Equipment removed (1) 12,000 gallon gasoline UST from Avis' 16th Ave. So. facility. The location of this gasoline UST is depicted in Figure 1. Three soil samples were collected and processed from this excavation; one from the bottom center at a depth of 12 feet and two from the east and west sidewalls at a depth of 10 feet. All 3 gas tank samples were analyzed for total petroleum hydrocarbons (TPH) by the hydrocarbon identification method (WTPH-HCID); and for benzene, toluene, ethyl benzene, and xylene (BTEX). The BTEX analyses revealed non-detectable levels for all three soil samples and the WTPH-HCID analyses revealed non-detectable levels for the gasoline, diesel, and heavy petroleum oil ranges. Additionally, there were no visible or olfactory signs of contamination from this gas tank excavation.

On January 27, 1992, B & C removed (1) 500 gallon motor oil UST and (1) 500 gallon waste oil UST from in front of the Avis garage maintenance area. Figure 1 shows the location of these tanks in relation to the building. Soil samples were collected at a depth of 7 feet from the north, east, and west sidewalls and at a depth of 9 feet from the bottom center of the excavation. Figure 2 shows the locations from where these samples were taken. No south sidewall sample was collected from the excavation after the two USTs were removed since this sidewall collapsed during collection of the other samples.

There were visible signs of petroleum impacted soil in this excavation, particularly around the area of the southernmost UST fill pipe and it was from this vicinity that sample #4 was collected. All initial excavation samples were analyzed for TPH by the WTPH-HCID method to determine the ranges of petroleum contamination. In addition to the WTPH-HCID analysis, a toxicity characteristic leaching procedure (TCLP) for metals, chlorinated solvents by Method 8010, and PCB analysis was performed on the bottom center sample (sample #1) to document the concentrations of these parameters.

The results of the WTPH-HCID analyses revealed non-detectable levels in the gasoline range from all 4 soil samples and non-detectable levels in all hydrocarbon ranges from the north and east sidewall samples. However, the bottom center and west sidewall samples revealed hydrocarbon levels above detection limits in the diesel and heavy petroleum oil ranges. These hydrocarbon ranges were specifically addressed in samples collected during B & C's succeeding environmental investigation.

On March 5, 1992, B & C excavated and stockpiled an estimated 30 cubic yards of impacted soil from the excavation. Approximately 1 lateral foot of soil was removed from the south sidewall, 2 feet of soil from the west sidewall, and 2 feet of soil vertically from the bottom of the excavation. No further excavation was possible in the south and west directions since subsurface pipelines were encountered at a depth of 2 feet in these directions (refer to Figure 2). During the ensuing excavation, groundwater began to recharge into the tank hole. At this time, the sidewalls of the excavation showed groundwater saturation beginning at a depth of 6 feet and it was from this depth that the south and west sidewall samples were collected. One bottom center sample was collected at a depth of 11 feet from a clay material that showed no signs of contamination. One additional composite soil sample was collected from the excavated stockpile to profile the soil for later disposal. All (4) soil samples collected on March 5th were analyzed for diesel concentration by Method WTPH-D and for total hydrocarbon concentration by Method TPH 418.1. At the request of Rabanco Co., an additional semi-volatile organics analysis by EPA Method 8270 was performed on the stockpile sample to further profile the soil for disposal. The result of the March 5th environmental investigation revealed that all "excavation" samples contained non-detectable TPH concentrations in both the diesel and heavy petroleum oil ranges.

On March 12, 1992, Burlington Environmental Inc. pumped all standing water from the motor oil/waste oil tank excavation so that B & C Equipment could collect a groundwater recharge sample. The water exhibited a "sheen"; however, some of this sheen was probably the result of soil contaminating the recharging groundwater during the removal of soil on March 5th.

The 3,500 gallons of impacted water pumped from the excavation was taken to Burlington Environmental's disposal facility for treatment and processing. The sidewalls and bottom of the excavation showed no visual indications of soil discoloration from a petroleum nature after all the water was pumped from the excavation.

Recharge was relatively rapid into the excavation so the recharging groundwater sample was collected utilizing a stainless steel bailer. Prior to sampling, the bailer was thoroughly rinsed with water, washed with alconox detergent, and once again rinsed with water to remove any contaminants that may have remained on the bailer from previous sampling events. The excavation was backfilled with clean imported pea gravel after the recharge sample was collected.

All samples collected were placed in EPA approved glass containers. The samples were packed for minimal headspace, labeled, and placed on ice for transport to the laboratory accompanied by chain of custody documentation.

RESULTS:

Subsurface Conditions: Soil immediately surrounding the USTs consisted of a medium grained sandy fill material in both the gasoline UST excavation and the motor oil/waste oil UST excavation. Based on the analytical results from the gasoline excavation samples and visible soil conditions in this tank hole, no further excavation was performed into the native soil. Upon receiving the final analytical results from the December 10, 1991 sampling event, a new 10,000 gallon UST was installed into the gas tank excavation.

Soil in the motor oil/waste oil excavation consisted of poorly graded sands and gravels to a depth of 5 feet. Below this depth, the native soil of the site was encountered which consisted of silts and clays to the total depth explored of 11 feet. As previously mentioned, groundwater was encountered in the motor oil/waste oil excavation at a depth of approximately 6 feet.

Chemical Results:

The current DOE soil cleanup standards for the parameters analyzed are:

TPH (gasoline).....100 parts per million (ppm)
TPH (diesel and heavier oils).....200 ppm
Benzene.....0.5 ppm
Toluene.....40.0 ppm
Ethyl benzene.....20.0 ppm
Xylene.....20.0 ppm

The current DOE water cleanup standards for the parameters analyzed are:

TPH (all petroleum ranges).....1000 parts per billion (ppb)
Benzene.....0.5 ppb
Toluene.....40.0 ppb
Ethyl benzene.....30.0 ppb
Xylene.....20.0 ppb

As indicated in the Background Section of this report, the gasoline tank excavation showed non-detectable concentrations for all BTEX and TPH parameters.

The initial analytical results from the motor oil/waste oil UST sampling event performed on January 27th revealed TPH levels over DOE cleanup standards in the diesel and heavy petroleum oil ranges from the west sidewall and bottom center samples. Summarized below are the petroleum range analytical results from B & C Equipment's follow-up investigations performed on March 5th and March 12th. All units are expressed in ppm.

TABLE 1
March 5, 1992

Soil Sample #	WTPH-D (diesel)	TPH 418.1 (total)
*1	5,800	10,000
2	ND	ND
3	ND	ND
4	ND	ND

*Excavated stockpile sample. Note: "ND" denotes non-detected.

TABLE 2
March 12, 1992

Groundwater

Sample #	TPH (8015 Mod.)	Benzene	Toluene	Ethyl benzene	Xylene
**1	9.9	ND	ND	ND	ND

**Groundwater recharge sample. The BTEX parameters for the recharge sample were analyzed to a detection limit expressed in parts per billion (ppb).

Complete analytical methods and results for all sampling events are summarized in the attached certified laboratory reports.

CONCLUSIONS & RECOMMENDATIONS:

Upon acceptance of the excavated soil stockpile results, the estimated 30 cubic yards of soil was taken to Rabanco Co.'s transfer station in Seattle for final disposal at Roosevelt Regional Landfill.

Based on the analytical results from the initial motor oil/waste oil excavation samples collected 1/27/92 and the follow-up analytical results from the 3/5/92 excavation samples, B & C feels these results confirm the removal of impacted soils from this UST excavation to within DOE cleanup standards.

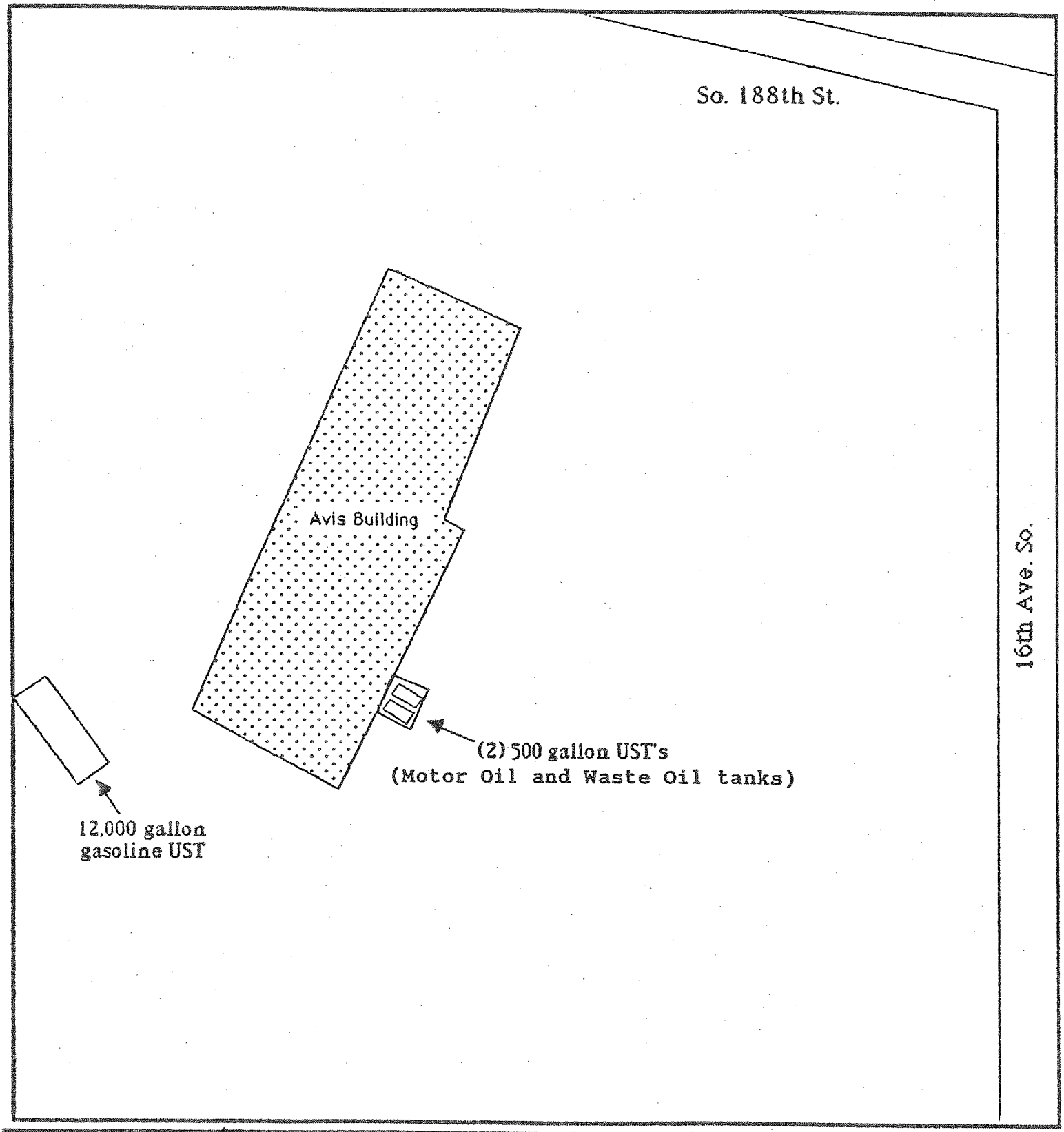
As referenced in the chemical results section, the groundwater recharge sample revealed a TPH concentration of 9.9 ppm and the BTEX concentrations were all non-detectable. Due to the relatively high water table on-site (i.e. 6 feet below surface), it is unknown without further investigation whether impacted groundwater has migrated a significant distance from the excavation. Therefore, B & C recommends the installation of (2) 4" monitoring wells to a total depth of 15 feet at the locations depicted in Figure 1. The actual locations of these 2 wells will be dictated by the location of subsurface utilities. Additionally, since the water table is relatively near the surface, the wells should be installed with 10 feet of screened casing with the remainder of the wells being completed with blank casing. The on-site topography has a definite down gradient slope from north to south. On this premise, the location of these (2) proposed wells should be sufficient to monitor downgradient groundwater conditions.

B & C further recommends to develop the wells by purging at least three casing volumes and sampling the wells on a quarterly basis for a period of (1) year. All wells will be analyzed for TPH by method 8015. Monitoring results would then be reported to the DOE's NW Regional Office quarterly. Upon review of this report, a written confirmation from the DOE's NW Regional Office would be greatly appreciated.

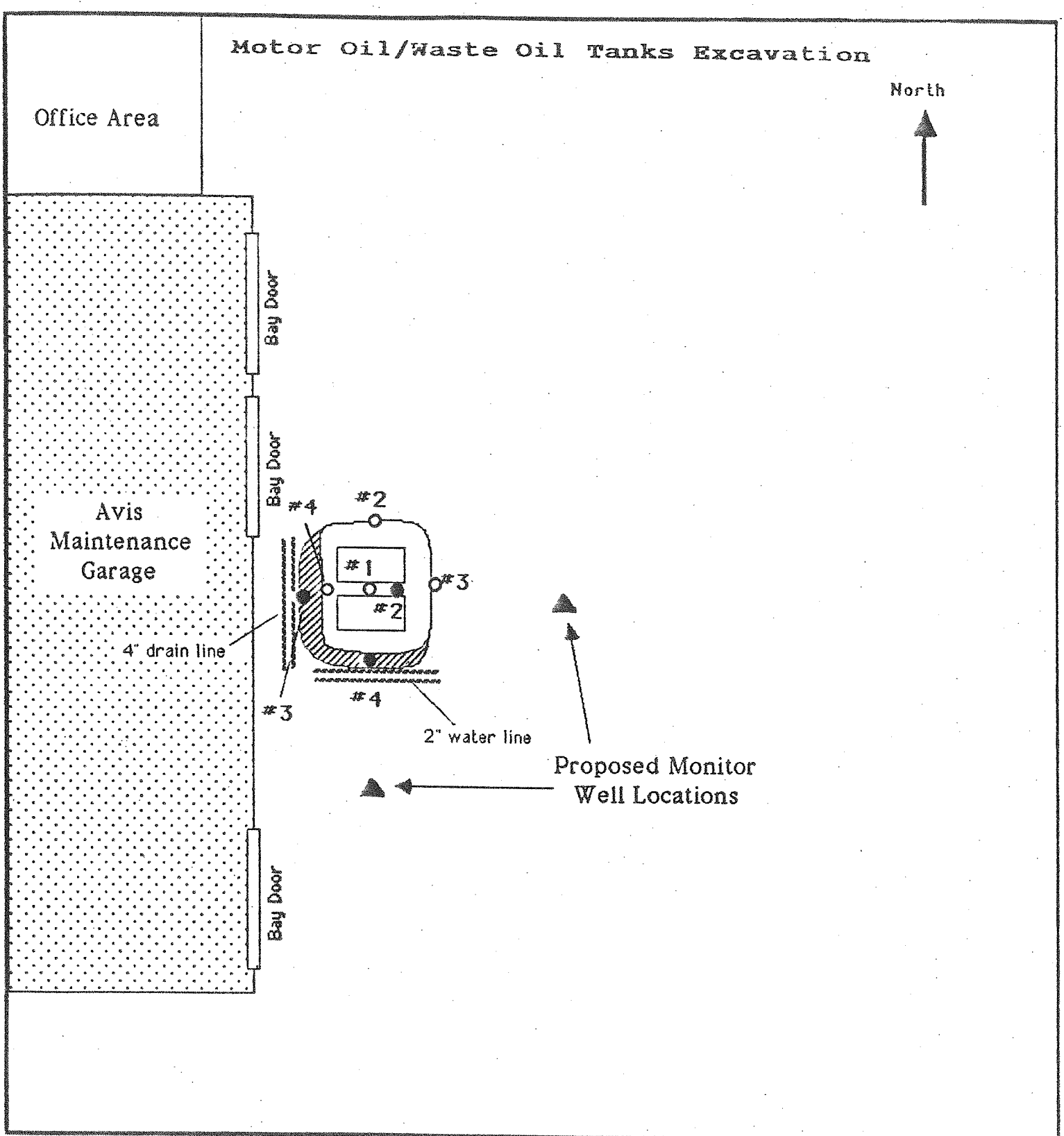
Sincerely,
B & C EQUIPMENT CO.

Barry D. DePan

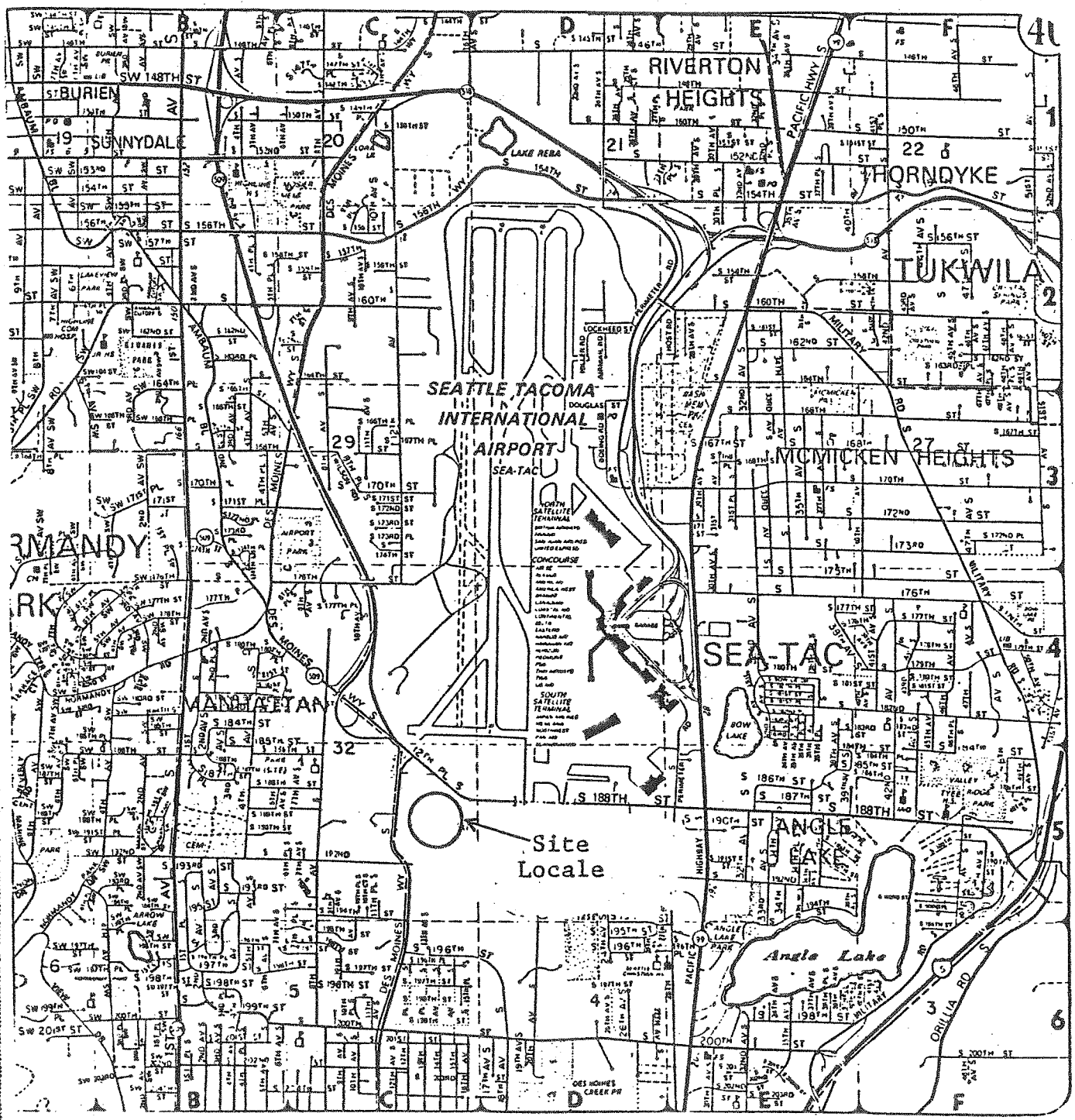
Barry D. DePan
Environmental Specialist



Avis 18811 16th Ave. So. Seattle, WA 98188 Figure 1	KEY	B & C Job # 1387 Date: 4/30/92 Barry DePan



Avis 18811 16th Ave. So. Seattle, WA 98188 Figure 2	KEY ○ Samples collected 1/27/92 ● Samples collected 3/5/92	B & C Job # 1387 Date: 4/30/92 Barry DePan



Vicinity Map

Figure 3

B&C EQUIPMENT CO.

A Division of PEECO

20320 80th Ave. S.
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1-800-822-0084

CHAIN OF CUSTODY
REQUEST FOR LABORATORY ANALYSIS

PROJ. NO. #1387

PROJECT NAME: Avis

ADDRESS: 18811 - 16th So.

SAMPLER: MK

SAMPLE NUMBER	DATE	TIME	Water	Soil	Sludge	Iced	SAMPLE LOCATION TANK SIZE & PRODUCT	Depth	BTEX 602/8020	WTPH-HCID	WTPH-G w/BTEX	WTPH-D	WTPH-418.1 Mod.	TPH 8015 Mod.	Total Pb	PAH 625/8270	Total Halogens 9076	PCB 608/8080	TCLP (As, Cd, Cr, Pb)	TCLP Pb
1	12-10	4:00		✓		✓	Bottom Center 12000	12'	✓	✓										
2	12-10	4:00		✓		✓	West wall 10'	10'	✓	✓										
3	12-10	4:00		✓		✓	East wall 10'	10'	✓	✓										
~~4~~	~~12-10~~						~~North wall 10'~~	~~10'~~												
~~5~~	~~12-10~~						~~South wall 10'~~	~~10'~~												

Relinquished by:	Date	Time	Received by:
Relinquished by: Mike Kirsch	12-10	5:30	Received by: Mark T. Hamm
Relinquished by: Barry D. De Pan	12/11/91	2:40	Received by: S Wang

RUSH: YES (NO)

COMMENTS:

SOUND ANALYTICAL SERVICES, INC.

SPECIALIZING IN INDUSTRIAL & TOXIC WASTE ANALYSIS

4813 PACIFIC HIGHWAY EAST, TACOMA, WASHINGTON 98424 - TELEPHONE (206)922-2310 - FAX (206)922-5047

Report To: B & C Equipment Co. Date: December 18, 1991

Report On: Analysis of Soil Lab No: 21643

IDENTIFICATION:

Samples received on 12-11-91
Project: #1387 Avis, 18811 - 16th South

ANALYSIS:

Lab Sample No.	1	2	3
Client ID	#1	#2	#3
Units	mg/kg	mg/kg	mg/kg
WTPH-HCID			
Gasoline (C_7-C_{12})	< 20	< 20	< 20
Diesel (> C_{12}-C_{24})	< 50	< 50	< 50
Heavy Petroleum Oils (C_{24}+)	< 100	< 100	< 100
BTEX by Method 8020			
Benzene	< 0.05	< 0.05	< 0.05
Toluene	< 0.05	< 0.05	< 0.05
Ethyl Benzene	< 0.05	< 0.05	< 0.05
Xylenes	< 0.05	< 0.05	< 0.05
SURROGATE RECOVERIES			
WTPH-HCID			
1-Chlorooctane %	90	104	105
Perylene %	95	107	98
BTEX-			
Trifluorotoluene %	70	73	75

< = less than
> = greater than

Results are reported on a dry weight basis.

SOUND ANALYTICAL SERVICES

STAN P. PALMQUIST

B & C EQUIPMENT CO.
A Division of PEECO

20320 80th Ave. S.
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Office (206) 872-8890
FAX (206) 872-8987
1-800-822-0084

CHAIN OF CUSTODY
REQUEST FOR LABORATORY ANALYSIS

PROJ. NO. 1387

PROJECT NAME: Avis

ADDRESS: 18811 16th Ave So. Seattle, WA 98188

SAMPLER: Mike Kirsch

SAMPLE NUMBER	DATE	TIME	Water	Soil	Sludge	Iced	SAMPLE LOCATION TANK SIZE & PRODUCT	Depth	BTEX 602/8020	WTPH-HCID	WTPH-G w/BTEX	WTPH-D	WTPH-418.1 Mod.	TPH 8015 Mod.	TPH 418.1	Chlorinated Solvents 601/8010	Total Halogens 9076	PCB 608/8080	TCLP (As, Cd, Cr, Pb)	TCLP (8 metals)
1	1/27/92	2:00		✓		✓	Bottom center	9'		✓						✓		✓		✓
2	1/27	2:10		✓		✓	N sidewall	7'		✓										
3	1/27	2:15		✓		✓	E sidewall	7'		✓										
4	1/27	2:30		✓		✓	W sidewall	7'		✓										

	Date	Time	
Relinquished by: Mike Kirsch	2/5/92	12:00	Received by: Barry W. DePan
Relinquished by: Barry W. DePan	2/5/92	3:07 pm	Received by:
Relinquished by:			Received by:

RUSH: YES (NO)

COMMENTS:

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

Lab Sample ID : 9202314-01 Date Collected: 01/27/92
Client Sample ID: #1 Bottom Center Date Received : 02/05/92

---------- WTPH-HCID ----------

Preparation Date: 02/05/92
Analysis Date : 02/05/92

	Result		SDL	
Gasoline Range Hydrocarbons...	25	U	25	mg/kg DB
Diesel Range Hydrocarbons.....	3800		63	mg/kg DB
Lube Oil and Related Products.	54000		130	mg/kg DB

Surrogate recoveries	% Rec	LCL	UCL
Bromofluorobenzene	97.5	50	150
2-Fluorobiphenyl	95.0	50	150
p-Terphenyl	100	50	150

Comments: Although the sample gave a result for diesel, there was no chromatographic pattern recognition when compared with the diesel standard. Sample was not concentrated for oil analysis to avoid off-scale readings and/or equipment contamination.

Analysis performed in accordance with Washington State Department of Ecology method WTPH-HCID.

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

REPORT ON SAMPLE: 9202597-01A
Client Sample ID: #1 Bottom Center - 9'

Date Received : 02/12/92
Test Code : TCLP_M
Collection Date : 01/27/92
Date Extracted : 02/12/92

Prepared by the Toxic Characteristic Leaching Procedure (TCLP), Method 1311, Test Methods for Evaluating Solid Waste, U.S.E.P.A., 3rd edition. Metals were determined on the aqueous extract or the as-received sample (if applicable) using either the EPA's 7000 series or EPA Method 6010 or a combination of both.

mg/L

Analyte	Result		MCL	SDL	Analysis Date
Silver	0.10	U	5.0	0.10	02/19/92
Barium	0.83		100.	0.10	02/19/92
Cadmium	0.010	U	1.0	0.01	02/19/92
Lead	0.10	U	5.0	0.10	02/19/92
Chromium	0.10	U	5.0	0.10	02/19/92
Selenium	0.20	U	1.0	0.20	02/19/92
Arsenic	0.20	U	5.0	0.20	02/19/92
Mercury	0.005	U	0.2	0.005	02/26/92

MCL = Maximum Contamination Level, as established by regulation.

SDL = Sample Detection Limit

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

REPORT ON SAMPLE: 9202597-01B
Client Sample ID: #1 Bottom Center - 9'

Collection Date : 01/27/92
Date Received : 02/12/92
Date Analyzed : 02/14/92
Date Confirmed : 02/13/92

Test Code : 8010_S
Test Method : SW 8010

Analyte	Result (ug/kg DB)	SDL (ug/kg DB)	PQL (ug/kg DB)	Analyte	Result (ug/kg DB)	SDL (ug/kg DB)	PQL (ug/kg DB)
Dichlorodifluoromethane ...	1200 U	120	1200	Tetrachloroethylene	0.36 U	0.04	0.36
Chloromethane	0.96 U	0.10	0.96	Chlorodibromomethane	1.1 U	0.11	1.1
Vinyl chloride	2.2 U	0.22	2.2	Chlorobenzene	3.0 U	0.30	3.0
Bromomethane	120 U	12	120	Bromoform	2.4 U	0.24	2.4
Chloroethane	6.2 U	0.62	6.2	1,1,2,2-Tetrachloroethane	0.36 U	0.04	0.36
Trichlorofluoromethane	60 U	6.0	60	1,3-Dichlorobenzene	3.8 U	0.38	3.8
1,1-Dichloroethylene	1.6 U	0.16	1.6	1,4-Dichlorobenzene	2.9 U	0.29	2.9
Dichloromethane	60 U	6.0	60	1,2-Dichlorobenzene	1.8 U	0.18	1.8
trans-1,2-Dichloroethylene	1.2 U	0.12	1.2	Benzyl chloride	12 U	1.2	12
1,1-Dichloroethane	0.84 U	0.08	0.84	bis(2-Chloroethoxy)methane	12000 U	1200	12000
Chloroform	0.60 U	0.06	0.60	bis(2-Chloroisopropyl)ether	2400 U	240	2400
1,1,1-Trichloroethane	0.36 U	0.04	0.36	Bromobenzene	12 U	1.2	12
Carbon tetrachloride	1.4 U	0.14	1.4	1-Chlorohexane	12 U	1.2	12
1,2-Dichloroethane	0.36 U	0.04	0.36	2-Chloroethyl vinyl ether	2400 U	240	2400
Trichloroethylene	1.4 U	0.14	1.4	Chloromethylmethyl ether ..	12000 U	1200	12000
1,2-Dichloropropane	0.48 U	0.05	0.48	Chlorotoluene	12 U	1.2	12
Bromodichloromethane	1.2 U	0.12	1.2	Dibromomethane	48 U	4.8	48
trans-1,3-Dichloropropylene	4.1 U	0.41	4.1	1,1,1,2-Tetrachloroethane	12 U	1.2	12
1,1,2-Trichloroethane	0.24 U	0.02	0.24	Trichloropropane	12 U	1.2	12

Surrogate recovery report for sample 9202597-01B

Surrogate	Percent Recovery		Limits: Min.	Max.
Bromochloromethane	94		66	126
4-Bromofluorobenzene	61	*	63	125
1,2,3-Trichlorobenzene ...	13	*	34	148

* = Indicates that recovery is outside control limits

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

REPORT ON SAMPLE: 9202597-01B
Client Sample ID: #1 Bottom Center - 9'

Collection Date : 01/27/92
Date Received : 02/12/92

Date Extracted : 02/21/92
Date Analyzed : 02/26/92
Date Confirmed : 02/26/92

Test Code : 8080AS
Test Method : SW 8080
Extraction Method : SW 3550

Analyte	Result (ug/kg DB)		SDL (ug/kg DB)
Aroclor-1016	58	U	58
Aroclor-1221	120	U	120
Aroclor-1232	58	U	58
Aroclor-1242	58	U	58
Aroclor-1248	58	U	58
Aroclor-1254	58	U	58
Aroclor-1260	58	U	58

Surrogate recovery report for sample 9202597-01B

Surrogate	Percent Recovery		Limits: Min.	Max.
Isodrin	55		20	146
Tetrachloro-m-xylene	80		60	150
Decachlorobiphenyl	39	*	60	150

* = Indicates that recovery is outside control limits

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

Lab Sample ID : 9202314-02 Date Collected: 01/27/92
Client Sample ID: #2 N. Sidewall Date Received : 02/05/92

WTPH-HCID

Preparation Date: 02/05/92
Analysis Date : 02/05/92

	Result		SDL	
Gasoline Range Hydrocarbons...	24	U	24	mg/kg DB
Diesel Range Hydrocarbons.....	59	U	59	mg/kg DB
Lube Oil and Related Products.	120	U	120	mg/kg DB

Surrogate recoveries	% Rec	LCL	UCL
Bromofluorobenzene	75.0	50	150
2-Fluorobiphenyl	77.5	50	150
p-Terphenyl	75.0	50	150

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

Lab Sample ID : 9202314-03 Date Collected: 01/27/92
Client Sample ID: #3 E. Sidewall Date Received : 02/05/92

---------- WTPH-HCID ----------

Preparation Date: 02/05/92
Analysis Date : 02/05/92

	Result		SDL	
Gasoline Range Hydrocarbons...	23	U	23	mg/kg DB
Diesel Range Hydrocarbons.....	57	U	57	mg/kg DB
Lube Oil and Related Products.	110	U	110	mg/kg DB

Surrogate recoveries	% Rec	LCL	UCL
Bromofluorobenzene	90.0	50	150
2-Fluorobiphenyl	87.5	50	150
p-Terphenyl	90.0	50	150

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

Lab Sample ID : 9202314-04
Client Sample ID: #4 W. Sidewall

Date Collected: 01/27/92
Date Received : 02/05/92

WTPH-HCID

Preparation Date: 02/05/92
Analysis Date : 02/05/92

	Result		SDL	
Gasoline Range Hydrocarbons...	23	U	23	mg/kg DB
Diesel Range Hydrocarbons.....	39000		58	mg/kg DB
Lube Oil and Related Products.	380000		120	mg/kg DB

Surrogate recoveries	% Rec		LCL	UCL
Bromofluorobenzene	92.5		50	150
2-Fluorobiphenyl	110		50	150
p-Terphenyl	698	*	50	150

Comments: Although the sample gave a result for diesel, there was no chromatographic pattern recognition when compared with the diesel standard. Sample was diluted 50% for oil analysis to avoid equipment contamination. One of three surrogates had recovery outside of control limits due to matrix interference.

Analysis performed in accordance with Washington State Department of Ecology method WTPH-HCID.

B & C EQUIPMENT CO.
A Division of PEECO

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Kent, Washington 98032
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1-800-822-0084

CHAIN OF CUSTODY
REQUEST FOR LABORATORY ANALYSIS

PROJ. NO. 1387-905

PROJECT NAME: Avis

ADDRESS: 18811 16th Ave So, Seattle, WA 98188

SAMPLER: Barry De Pan

SAMPLE NUMBER	DATE	TIME	Water	Soil	Sludge	Iced	SAMPLE LOCATION TANK SIZE & PRODUCT	Depth	BTEX 602/8020	WTPH-HCID	WTPH-G w/BTEX	WTPH-D	WTPH-418.1 Mod.	TPH 8015 Mod.	TPH 418.1	Chlorinated Solvents 601/8010	Total Halogens 9076	PCB 608/8080	TCLP (As, Cd, Cr, Pb)	TCLP Pb
1	3/5/92	12:30		✓		✓	Excavated stockpile	1'				✓			✓					
2	3/5	1:30		✓		✓	Bottom center	11'				✓			✓					
3	3/5	2:15		✓		✓	West sidewall	6'				✓			✓					
4	3/5	2:45		✓		✓	South sidewall	6'				✓			✓					

	Date	Time		
Relinquished by: Barry D. De Pan	3/5/92	3:30	Received by:	RUSH: YES (NO)
Relinquished by:			Received by:	COMMENTS:
Relinquished by:			Received by: Mike Owens	3/5/92 1530

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

CLIENT: B&C Equipment Co.
20320 80th Ave. S.
Kent, WA 98032

ATTN :

Work ID : Avis
Taken By : Client
Transported by: Hand Delivered
Type : Soil

Certificate of Analysis
Work Order# : 92-03-366
DATE RECEIVED : 03/05/92
DATE OF REPORT: 03/10/92
CLIENT JOB ID : Project No. 1387-905

SAMPLE IDENTIFICATION:

	Sample Description	Collection Date
01	#1 Excavated Stockpile	03/05/92 12:30
02	#2 Bottom Center	03/05/92 01:30
03	#3 West Sidewall	03/10/92 02:15
04	#4 South Sidewall	03/05/92 02:45
05	Method Blank	N/A

FLAGGING:

The flag "U" indicates the analyte of interest was not detected, to the limit of detection indicated.

Unless otherwise instructed all samples will be discarded on 04/23/92

Respectfully submitted,
Laucks Testing Laboratories, Inc.

J. M. Owens

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

CLIENT : B&C Equipment Co.

Certificate of Analysis

Work Order # 92-03-366

TESTS PERFORMED AND RESULTS:

Analyte	Units	01	02	03	04
Total Solids	%	87.4	87.3	81.4	82.2
WA TPH Oil and Grease	mg/kg DB	10000.	20. U	20. U	20. U

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

Lab Sample ID : 9203366-01 Date Collected: 03/05/92
Client Sample ID: #1 Excavated StockpDate Received : 03/05/92

---------- WTPH-D ----------

Preparation Date: 03/06/92
Analysis Date : 03/06/92

	Result	SDL	
Diesel Range.....	5800	25	mg/kg DB

Surrogate recoveries	% Rec	LCL	UCL
2-Fluorobiphenyl	98.0	50	150
p-Terphenyl	39.0*	50	150

Comments: Although the sample showed a result in the diesel range, there was no pattern recognition when compared with the diesel standard. P-Terphenyl had a recovery outside of the control limits due to matrix interference.

Analysis performed in accordance with Washington State Department of Ecology method WTPH-D.

Lauck's 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

REPORT ON SAMPLE: 9203759-01A
Client Sample ID: #1 Excavated Stockpile
Collection Date : N/A
Date Received : 03/13/92
Date Extracted : 03/13/92
Date Analyzed : 03/24/92

Test Code : LXTCSS
Test Method : SW8270
Extraction Method : SW3550

Analyte	Result (ug/kg DB)	SDL (ug/kg DB)	Analyte	Result (ug\kg DB)	SDL (ug/kg DB)
Phenol	780 U	780	3-Nitroaniline	3900 U	3900
Aniline	3900 U	3900	Acenaphthene	780 U	780
Bis(2-chloroethyl)ether	780 U	780	2,4-Dinitrophenol	7800 U	7800
2-Chlorophenol	780 U	780	4-Nitrophenol	7800 U	7800
1,3-Dichlorobenzene	780 U	780	Dibenzofuran	780 U	780
1,4-Dichlorobenzene	780 U	780	2,4-Dinitrotoluene	1600 U	1600
Benzyl alcohol	780 U	780	Diethyl phthalate	780 U	780
1,2-Dichlorobenzene	780 U	780	4-Chlorophenyl phenylether	780 U	780
2-Methylphenol	780 U	780	Fluorene	780 U	780
Bis(2-chloroisopropyl)ether	780 U	780	4-Nitroaniline	1600 U	1600
4-Methylphenol	780 U	780	4,6-Dinitro-2-methylphenol	7800 U	7800
N-Nitroso-di-n-propylamine	780 U	780	N-Nitrosodiphenylamine	780 U	780
Hexachloroethane	1600 U	1600	1,2-Diphenylhydrazine	1600 U	1600
Nitrobenzene	780 U	780	4-Bromophenyl phenylether	1600 U	1600
Isophorone	780 U	780	Hexachlorobenzene	1600 U	1600
2-Nitrophenol	1600 U	1600	Pentachlorophenol	7800 U	7800
2,4-Dimethylphenol	780 U	780	Phenanthrene	780 U	780
Benzoic acid	19000 U	19000	Anthracene	780 U	780
Bis(2-chloroethoxy)methane	780 U	780	Carbazole	780 U	780
2,4-Dichlorophenol	1600 U	1600	Di-n-butyl phthalate	780 U	780
1,2,4-Trichlorobenzene	780 U	780	Fluoranthene	780 U	780
Naphthalene	780 U	780	Pyrene	780 U	780
4-Chloroaniline	780 U	780	Benzidine	19000 U	19000
Hexachlorobutadiene	780 U	780	Butylbenzylphthalate	780 U	780
4-Chloro-3-methylphenol	1600 U	1600	3,3'-Dichlorobenzidine	7800 U	7800
2-Methylnaphthalene	780 U	780	Benzo(a)anthracene	780 U	780
Hexachlorocyclopentadiene	1600 U	1600	Chrysene	780 U	780
2,4,6-Trichlorophenol	1600 U	1600	Bis(2-ethylhexyl)phthalate	780 U	780
2,4,5-Trichlorophenol	1600 U	1600	Di-n-octyl phthalate	780 U	780
2-Chloronaphthalene	780 U	780	Benzo(b)fluoranthene	780 U	780
2-Nitroaniline	1600 U	1600	Benzo(k)fluoranthene	780 U	780
Dimethyl phthalate	780 U	780	Benzo(a)pyrene	780 U	780
Acenaphthylene	780 U	780	Indeno(1,2,3-cd)pyrene	780 U	780
2,6-Dinitrotoluene	1600 U	1600	Dibenzo(a,h)anthracene	780 U	780
			Benzo(g,h,i)perylene	780 U	780

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

Lab Sample ID : 9203366-02 Date Collected: 03/05/92
Client Sample ID: #2 Bottom Center Date Received : 03/05/92

---------- WTPH-D ----------

Preparation Date: 03/06/92
Analysis Date : 03/06/92

	Result		SDL	
Diesel Range.....	25	U	25	mg/kg DB

Surrogate recoveries	% Rec	LCL	UCL
2-Fluorobiphenyl	101	50	150
p-Terphenyl	76.0	50	150

Comments:

Analysis performed in accordance with Washington State Department of Ecology method WTPH-D.

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

Lab Sample ID : 9203366-03 Date Collected: 03/10/92
Client Sample ID: #3 West Sidewall Date Received : 03/05/92

---------- WTPH-D ----------

Preparation Date: 03/06/92
Analysis Date : 03/06/92

	Result		SDL	
Diesel Range.....	25	U	25	mg/kg DB

Surrogate recoveries	% Rec	LCL	UCL
2-Fluorobiphenyl	105	50	150
p-Terphenyl	100	50	150

Comments:

Analysis performed in accordance with Washington State Department of Ecology method WTPH-D.

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

Lab Sample ID : 9203366-04 Date Collected: 03/05/92
Client Sample ID: #4 South Sidewall Date Received : 03/05/92

---------- WTPH-D ----------

Preparation Date: 03/06/92
Analysis Date : 03/06/92

	Result		SDL	
Diesel Range.....	25	U	25	mg/kg DB

Surrogate recoveries	% Rec	LCL	UCL
2-Fluorobiphenyl	98.0	50	150
p-Terphenyl	95.0	50	150

Comments:

Analysis performed in accordance with Washington State Department of Ecology method WTPH-D.

B & C EQUIPMENT CO.
A Division of PEECO

20320 80th Ave. S.
Kent, Washington 98032
Office (206) 872-8890
FAX (206) 872-8987
1-800-822-0084

CHAIN OF CUSTODY
REQUEST FOR LABORATORY ANALYSIS

PROJ. NO. 1387-905

PROJECT NAME: Avis

ADDRESS: 18811 16th Ave. So. Seattle, WA 98188

SAMPLER: Barry DePan

SAMPLE NUMBER	DATE	TIME	Water	Soil	Sludge	Iced	SAMPLE LOCATION TANK SIZE & PRODUCT	Depth	BTEX 602/8020	WTPH-HCID	WTPH-G w/BTEX	WTPH-D	WTPH-418.1 Mod.	TPH 8015 Mod.	Total Pb	PAH 625/8270	Total Halogens 9076	PCB 608/8080	TCLP (As, Cd, Cr, Pb)	TCLP Pb
1	3/12/92	9:30	✓			✓	Groundwater recharge	9'	✓					✓						

Relinquished by:	Date	Time	Received by:	
Barry W. DePan	3/12/92	10:30	F. Wilson	3/12/92 10:30
Relinquished by:			Received by:	
Relinquished by:			Received by:	

RUSH: YES (NO)

COMMENTS:

Laucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

CLIENT : B&C Equipment Co.

Certificate of Analysis

Work Order # 92-03-713

TESTS PERFORMED AND RESULTS:

Analyte	Units	01
Total Hydrocarbons (H8015)	mg/L	9.9

Lucks 84 years
Testing Laboratories, Inc.
940 South Harney St., Seattle, WA 98108 (206) 767-5060 FAX 767-5063
Chemistry, Microbiology, and Technical Services

REPORT ON SAMPLE: 9203713-01A
Client Sample ID: #1 Groundwater Recharge

Collection Date : 03/12/92
Date Received : 03/12/92
Date Analyzed : 03/12/92

Test Code : BTEX_W
Test Method : SW 8020/EP602

Report Units : ug/L

Analyte	Result	SDL	Analysis Date	Confirmation Date
Benzene.....	1.0 U	1	03/12/92	03/12/92
Toluene.....	1.0 U	1	03/12/92	03/12/92
Ethylbenzene.....	1.0 U	1	03/12/92	03/12/92
Total xylenes.....	1.0 U	1	03/12/92	03/12/92

Surrogate recovery report for sample 9203713-01A

Surrogate	Percent Recovery	Limits: Min.	Max.
Bromofluorobenzene	108	78	119
1,2,3-Trichlorobenzene ...	121	61	145

Department of Ecology-NWRO

Underground Storage Tank
Notice of Confirmed Release

Notification received by C Madden Date 2/10/92
Reporter name Barry DePan
address
phone no.
006132
Site name Avis Headquarters site phone no. 433-5850
address 18811 - 16th Ave S
city Seattle, WA county King zip 98188-5102
Karl Westermann 4735
Site owner Avis Rent-A-Car Systems owner's phone 516-222-3432
owner's address 900 Old Country Rd Dept93
city Garden City, NY zip 11530-2128

Consultant company B & C Equipment
name Barry DePan phone no. 872-8890

Other contact phone no.
contact affiliation

Description of Incident

Material	# Tanks	Status/Date
gasoline	1	removed 1/27/92
diesel		
waste oil	1	rem 1/27/92
heat fuel	1	rem 1/27/92

Total number tanks: 3 Cleanup Status Ongoing

Comments Gas clean. Fuel & waste hot. No GW at removal.

Date inspected Investigator Referred to

B & C EQUIPMENT CO.
A Division of PEECO

20320 80th Ave. S.
Kent, Washington 98032
Office (206) 872-8890
FAX (206) 872-8987
1-800-822-0084

FACSIMILE COVER LETTER

DATE: 7/30/92 TIME: 9:00 PAGES 2

NAME: Wally Moon LOCATION: DOE (UST section)

FAX NUMBER: 649-7098 REGARDING: Avis response

FROM: Barry DePan

COMMENTS:

Wally, Avis has requested a written response prior to the installation of the monitor wells.

The report is dated June 1, 1992 for the property located at 18811 16th Ave So., Seattle, WA 98188.

I am FAXing a written response from the DOE to reference the format of the letter that Avis is looking for. This letter is from another project but the circumstances are similar.

Please contact me if you have any questions. My phone # is 872-8990.

STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

February 14, 1992

Mr. Barry D. Depan
B & C Equipment Co.
20320 80th Avenue South
Kent, WA 9803?

RE: Tank Removal and Petroleum Contamination Cleanup at the Cascade Autovon Company - 12727 412th Ave. S.E., North Bend, Washington.

Dear Mr. Depan:

Thank you for providing the report on the above referenced situation. The report meets requirements for tank closure and document the cleanup attempt of the release of petroleum under state and federal laws, 70.105D RCW/ WAC 173-340, and 40 CFR 280 of the Federal Register Sept. 1988, respectively.

Based on the information contained in the report, proper procedures have been followed with respect to this petroleum contamination cleanup. However, the cleanup was not entirely successful as some petroleum contamination still remain at the east and western parts of the property.

The report points out that recommended cleanup levels could not be attained because excavation of the remaining contaminated soil was not possible without undermining the structural integrity of the security and the facility's transformer pad.

Based on the above limitation, The Department of Ecology will assign a limited cleanup status to the site and will maintain a record of the property. Please be advised that it may become necessary to remediate more extensively in the future should a threat be demonstrated. There is no exemption from liability, and therefore your client is potentially responsible for any future probleme which might occur from this release.

I will recommend a long term groundwater monitoring program. There is no requirement to implement this precaution, but it may prevent liabilities should the contamination affect other properties.

Please contact me at (206) 649-7099 should questions arise.

Sincerely,

Ben Amoah-Forson, Ph.D
Environmental Engineer
Toxics Cleanup Program/LUST

APPENDIX B

Boring Logs

PROJECT: 18811 SeaTac Push Probe Investigation 2011 18811 16th Ave S, SeaTac, WA	**Log of Boring No. ASB1**
BORING LOCATION: 18811 Avis SeaTac	ELEVATION AND DATUM:
DRILLING CONTRACTOR: Cascade Drilling, Inc.	DATE STARTED: 12/6/11 / DATE FINISHED: 12/6/11
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 16.0 / MEASURING POINT: Ground
DRILLING EQUIPMENT: Power Probe 9630 ProD	DEPTH TO WATER (ft.) FIRST: 12' / COMPL.
SAMPLING METHOD: Geoprobe macro-core sampler [4' x 1.5"]	LOGGED BY: D. O'Reilly
HAMMER WEIGHT: / DROP:	RESPONSIBLE PROFESSIONAL: J. Long / REG. NO. L. Hg. 1354

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ 6 inches	OVM READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
1					Vacuumed to 4'.	
2						
3						
4					SILT (ML): brown (7.5YR 5/4), Dry to moist, low to moderate plasticity, 95% fines, 5% fine grained sand.	OVM readings collected from headspace on soil baggies using a Photovac 2020 calibrated with 100 ppm isobutylene.
5				0.0		
6						
7				0.0		
8						Collected soil sample ASB1-001 (4x40 mL VOA, 2x4 oz jars for NWTPH-HCID, cPAHs, napthalene, hexane, metals and BTEX).
9	ASB1-001			0.0		
10					Color transition to dark gray	
11					POORLY GRADED SAND (SP): dark gray (7.5YR 4/1), Moist, 90% medium sand, 5% nonplastic fines, 5% subrounded gravel.	Collected soil sample ASB1-002 (4x40 mL VOAs, 2x4 oz jars for NWTPH-HCID, cPAHs, napthalene, hexane, metals and BTEX).
12	ASB1-002			0.0	Wet	
13						
14						Collected groundwater sample ASB1-003 (4x40 mL VOAs, 2x ambers, 1x 500 mL with HNO3 and 1x500 mL for NWTPH-HCID, cPAHs, napthalene, hexane, metals and BTEX) through temporary screen set 12-16' BGS.
15						
16					Bottom of boring at 16'. Abandoned with hydrated 3/8" medium bentonite chips.	
17						
18						

PROJECT: 18811 SeaTac Push Probe Investigation 2011 18811 16th Ave S, SeaTac, WA	**Log of Boring No. ASB2**
BORING LOCATION: 18811 Avis SeaTac	ELEVATION AND DATUM:
DRILLING CONTRACTOR: Cascade Drilling, Inc.	DATE STARTED: 12/6/11 / DATE FINISHED: 12/6/11
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 16.0 / MEASURING POINT: Ground
DRILLING EQUIPMENT: Power Probe 9630 ProD	DEPTH TO WATER (ft.) FIRST: 11.5' / COMPL.
SAMPLING METHOD: Geoprobe macro-core sampler [4' x 1.5"]	LOGGED BY: D. O'Reilly
HAMMER WEIGHT: / DROP:	RESPONSIBLE PROFESSIONAL: J. Long / REG. NO. L. Hg. 1354

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ 6 inches	OVM READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter.	REMARKS
					Surface Elevation:	
0					Vacuumed to 4'.	
4					POORLY GRADED SAND (SP): brown (7.5YR 4/4), Moist, 100% coarse to medium sand.	OVM readings collected from headspace on soil baggies using a Photovac 2020 calibrated with 100 ppm isobutylene.
5				0.0	SILT (ML): brown (7.5YR 5/4), Moist, 100% moderate plasticity fines.	
9				0.0		Collected soil sample ASB2-001 (4x40 mL VOA, 2x4 oz jars for NWTPH-HCID, cPAHs, napthalene, hexane, metals and BTEX).
10	ASB2-001				Color transition to gray	
11				0.0	POORLY GRADED SAND with SILT (SP-SM): gray (7.5YR 5/1), Moist, 85% medium sand, 10% nonplastic fines, 5% subrounded gravel.	Collected soil sample ASB2-002 (4x40 mL VOAs, 2x4 oz jars for NWTPH-HCID, cPAHs, napthalene, hexane, metals and BTEX).
13	ASB2-002					
14				0.0		Collected groundwater sample ASB2-003 (4x40 mL VOAs, 2x ambers, 1x 500 mL with HNO3 and 1x500 mL for NWTPH-HCID, cPAHs, napthalene, hexane, metals and BTEX) through temporary screen set 12-16' BGS.
16					Bottom of boring. Abandoned with hydrated 3/8" medium bentonite chips.	
18						

OAKBOREV (REV. 8/2007)

PROJECT: 18811 SeaTac Push Probe Investigation 2011 18811 16th Ave S, SeaTac, WA	**Log of Boring No. ASC1x**
BORING LOCATION: 18811 Avis SeaTac	ELEVATION AND DATUM:
DRILLING CONTRACTOR: Cascade Drilling, Inc.	DATE STARTED: 12/6/11 / DATE FINISHED: 12/6/11
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 16.0 / MEASURING POINT: Ground
DRILLING EQUIPMENT: Power Probe 9630 ProD	DEPTH TO WATER (ft.) FIRST: 11.5' / COMPL.
SAMPLING METHOD: Geoprobe macro-core sampler [4' x 1.5"]	LOGGED BY: D. O'Reilly
HAMMER WEIGHT: / DROP:	RESPONSIBLE PROFESSIONAL: J. Long / REG. NO. L. Hg. 1354

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ 6 inches	OVM READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					Vacuumed to 4'.	
4					POORLY GRADED SAND with GRAVEL (SP): brown (7.5YR 5/4), Moist, 80% medium sand, 15% subrounded gravel, 5% fines.	OVM readings collected from headspace on soil baggies using a Photovac 2020 calibrated with 100 ppm isobutylene.
5					SILT (ML): brown (7.5YR 5/4), Moist, 95% low to moderate plasticity fines, 5% fine sand.	
7				0.0		
8				0.0		Collected soil sample ASC1x-001 (4x40 mL VOA, 2x4 oz jars for NWTPH-HCID, cPAHs, napthalene, hexane, metals and BTEX).
12	ASC1x-001			0.0	Wet	
13				0.0	Color change to brown (7.5YR 5/2)	
15				0.0		
16					Bottom of boring at 16'. Hard driving below. Abandoned with hydrated 3/8" medium bentonite chips.	

OAKBOREV (REV. 8/2007)

PROJECT: 18811 SeaTac Push Probe Investigation 2011 18811 16th Ave S, SeaTac, WA	**Log of Boring No. ASC2**
BORING LOCATION: 18811 Avis SeaTac	ELEVATION AND DATUM:
DRILLING CONTRACTOR: Cascade Drilling, Inc.	DATE STARTED: 12/6/11 / DATE FINISHED: 12/6/11
DRILLING METHOD: Direct push	TOTAL DEPTH (ft.): 16.0 / MEASURING POINT: Ground
DRILLING EQUIPMENT: Power Probe 9630 ProD	DEPTH TO WATER (ft.) FIRST: NA / COMPL.
SAMPLING METHOD: Geoprobe macro-core sampler [4' x 1.5"]	LOGGED BY: D. O'Reilly
HAMMER WEIGHT: / DROP:	RESPONSIBLE PROFESSIONAL: J. Long / REG. NO. L. Hg. 1354

DEPTH (feet)	SAMPLES: Sample No.	SAMPLES: Sample	SAMPLES: Blows/ 6 inches	OVM READING (ppm)	DESCRIPTION NAME (USCS): color, moist, % by wt., plast. density, structure, cementation, react. w/HCl, geo. inter. Surface Elevation:	REMARKS
0					Vacuumed to 4'.	
4					POORLY GRADED SAND (SP): dark brown (7.5YR 3/2), Moist, 95% medium sand, 5% subangular gravel, fill.	OVM readings collected from headspace on soil baggies using a Photovac 2020 calibrated with 100 ppm isobutylene.
5				0.0		
8						Collected soil sample ASC2-001 (4x40 mL VOA, 2x4 oz jars for NWTPH-HCID, cPAHs, napthalene, hexane, metals and BTEX).
9				0.0	SILT (ML): brown (7.5YR 5/4), Moist, 95% low to moderate plasticity fines, 5% fine sand.	
12				0.0		
14	ASC2-001					
15				0.0		
16					Bottom of boring at 16'. Hard driving below. Abandoned with hydrated 3/8" medium bentonite chips.	
18						

OAKBOREV (REV. 8/2007)

APPENDIX C

Laboratory Analytical Data Packages

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

December 13, 2011

John Long, Project Manager
AMEC Geomatrix
One Union Square
600 University Street, Suite 600
Seattle, WA 98101

Dear Mr. Long:

Included are the results from the testing of material submitted on December 6, 2011 from the AVIS Seatac 18811/16029, F&BI 112078 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GMX1213R.DOC

112078

SAMPLE CHAIN OF CUSTODY ME 12/06/11

VS1/V1/COST/AL3

Page # 1 of 1

Send Report To JOHN LONG

Company AMEC

Address 600 UNIVERSITY ST / SUITE 600

City, State, ZIP SEATTLE, WA 98101

Phone # 206 342-1774 Fax #

SAMPLERS *(signature)*

PROJECT NAME/NO. AVIS SEATAC 18811 / # 16029

PO# 16029

REMARKS ~~NO SILICA ACID GEL~~

TURNAROUND TIME
- ☑ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- ☐ Dispose after 30 days
- ☐ Return samples
- ☑ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	NWTPH-HCID						Notes
ASB1-001	01 A-F	12/6/11	1030	SOIL	6							X						X
ASB1-002	02 A-F		1035	SOIL	6							X						X
ASB1-003	03 A-H		1100	WATER	8							X						X
ASB2-001	04 A-F		1210	SOIL	6							X						X
ASB2-002	05 A-F		1215	SOIL	6							X						X
ASB2-003	06 A-H		1240	WATER	8							X						X
ASC2-001	07 A-F		1410	SOIL	6							X						X
ASC1X-001	08 A-F		1445	SOIL	6							X						X

EVERYTHING ELSE — HOLD FOR ANALYSIS

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	DEVIN O'REILLY	AMEC	12/6/11	1600
Received by:	VINH	FBI	12/6/11	1600
Relinquished by:				
Received by:		Samples received at 3 °C		

NP

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

CASE NARRATIVE

This case narrative encompasses samples received on December 6, 2011 by Friedman & Bruya, Inc. from the AMEC Geomatrix AVIS Seatac 18811/16029, F&BI 112078 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	AMEC Geomatrix
112078-01	ASB1-001
112078-02	ASB1-002
112078-03	ASB1-003
112078-04	ASB2-001
112078-05	ASB2-002
112078-06	ASB2-003
112078-07	ASC2-001
112078-08	ASC1x-001

All quality control requirements were acceptable.

Date of Report: 12/13/11
Date Received: 12/06/11
Project: AVIS Seatac 18811/16029, F&BI 112078
Date Extracted: 12/08/11
Date Analyzed: 12/09/11

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 50-150)
ASB1-003 112078-03	ND	ND	ND	82
ASB2-003 112078-06	ND	ND	ND	88
Method Blank 01-2187 MB	ND	ND	ND	85

ND - Material not detected at or above 0.2 mg/L gas, 0.5 mg/L diesel and 0.5 mg/L heavy oil.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/13/11
Date Received: 12/06/11
Project: AVIS Seatac 18811/16029, F&BI 112078
Date Extracted: 12/07/11
Date Analyzed: 12/07/11

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 50-150)
ASB1-001 112078-01	ND	ND	ND	96
ASB1-002 112078-02	ND	ND	ND	92
ASB2-001 112078-04	ND	ND	ND	92
ASB2-002 112078-05	ND	ND	ND	91
ASC2-001 112078-07	ND	ND	ND	90
ASC1x-001 112078-08	ND	ND	ND	91
Method Blank 01-2174 MB2	ND	ND	ND	104

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

February 28, 2012

John Long, Project Manager
AMEC Environment & Infrastructure, Inc.
One Union Square
600 University Street, Suite 600
Seattle, WA 98101

Dear Mr. Long:

Included are the results from the testing of material submitted on February 23, 2012 from the AVIS Seatac 18811 16th Ave S, PO 016029, F&BI 202270 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GMX0228R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 23, 2012 by Friedman & Bruya, Inc. from the AMEC Environment & Infrastructure AVIS Seatac 18811 16th Ave S, PO 016029, F&BI 202270 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	AMEC Environment & Infrastructure
202270-01	AVIS18811-01-022312
202270-02	AVIS18811-02-022312

All quality control requirements were acceptable.

Date of Report: 02/28/12
Date Received: 02/23/12
Project: AVIS Seatac 18811 16th Ave S, PO 016029, F&BI 202270
Date Extracted: 02/24/12
Date Analyzed: 02/24/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
AVIS18811-01-022312 202270-01	4,600	1,800	112
AVIS18811-02-022312 202270-02	<50	<250	99
Method Blank 02-300 MB	<50	<250	107

Date of Report: 02/28/12
Date Received: 02/23/12
Project: AVIS Seatac 18811 16th Ave S, PO 016029, F&BI 202270

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 202272-37 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	101	103	63-146	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	107	79-144

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

202270

SAMPLE CHAIN OF CUSTODY ME 02/23/12

B01

Send Report To John Long

Company AMEC

Address 600 University St. , Ste 600

City, State, ZIP Seattle, WA 98101

Phone # 206-342-1760 Fax # 206-342-1761

SAMPLERS (*signature*)	
PROJECT NAME/NO. AVIS SEATAC 18811 16th Ave. S Project # 016029	PO# 016029
REMARKS	

Page # ____ of ____

TURNAROUND TIME

☒ Standard (2 Weeks)
☐ RUSH ____
Rush charges authorized by ____

SAMPLE DISPOSAL

☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	NWTPH-~~HCID~~ Dx	per JL 2/23/12 MG				Notes
AVIS18811-01-022312	01	2/23/12	1100	S	1							X					need c grams
AVIS18811-02-022312	02	↓	1140	S	1							X					↓

(Unused rows struck through, initialed and dated 2/23/12)

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Trevor Louviere	AMEC	2/23/12	1500
Received by:	[signature]	VINH	FBI	2/23/12	1500
Relinquished by:					
Received by:			Samples received at 4 °C		

FORMS\COC\COC.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

March 1, 2012

John Long, Project Manager
AMEC Environment & Infrastructure, Inc.
One Union Square
600 University Street, Suite 600
Seattle, WA 98101

Dear Mr. Long:

Included are the results from the testing of material submitted on February 28, 2012 from the AVIS 18811 16029, F&BI 202316 project. There are 3 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GMX0301R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 28, 2012 by Friedman & Bruya, Inc. from the AMEC Environment & Infrastructure AVIS 18811 16029, F&BI 202316 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	AMEC Environment & Infrastructure
202316-01	AVIS18811-01-022812
202316-02	AVIS18811-02-022812
202316-03	AVIS18811-03-022812
202316-04	AVIS18811-04-022812
202316-05	AVIS18811-05-022812
202316-06	AVIS18811-06-022812

All quality control requirements were acceptable.

Date of Report: 03/01/12
Date Received: 02/28/12
Project: AVIS 18811 16029, F&BI 202316
Date Extracted: 02/29/12
Date Analyzed: 03/01/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 50-150)
AVIS18811 -01-022812 202316-01	ND	ND	ND	101
AVIS18811 -02-022812 202316-02	ND	ND	ND	99
AVIS18811 -03-022812 202316-03	ND	ND	ND	101
AVIS18811 -04-022812 202316-04	ND	ND	ND	99
AVIS18811 -05-022812 202316-05	ND	ND	ND	100
AVIS18811 -06-022812 202316-06	ND	ND	ND	106
Method Blank 02-321 MB	ND	ND	ND	102

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

202316

SAMPLE CHAIN OF CUSTODY

ME 02/28/12 V4/C03

Page # 1 of 1

Send Report To JOHN LONG

Company AMEC

Address 600 UNIVERSITY ST/SUITE 600

City, State, ZIP SEATTLE, WA 98101

Phone # (206) 342-1760 Fax # (206) 342-1761

SAMPLERS *(signature)*

PROJECT NAME/NO. AVIS 18811 / 16029

PO# 16029

REMARKS

TURNAROUND TIME
- [x] Standard (2 Weeks)
- [ ] RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Return samples
- [ ] Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	NWTPH-HCID						Notes
AVIS18811-01-022812	01 A-C	2/28/12	1320	SOIL	3							X						
AVIS18811-02-022812	02		1330		3							X						
AVIS18811-03-022812	03		1350		3							X						
AVIS18811-04-022812	04		1400		3							X						
AVIS18811-05-022812	05		1415		3							X						
AVIS18811-06-022812	06		1430		3							X						

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	DEVIN O'REILLY	AMEC	2/28/12	1545
Received by:	VINH	FBI	2/28/12	1545
Relinquished by:				
Received by:				

Samples received at 4 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

March 6, 2012

John Long, Project Manager
AMEC Environment & Infrastructure, Inc.
One Union Square
600 University Street, Suite 600
Seattle, WA 98101

Dear Mr. Long:

Included are the results from the testing of material submitted on February 29, 2012 from the AVIS 18811, PO 16029, F&BI 202331 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GMX0306R.DOC

202331

SAMPLE CHAIN OF CUSTODY

ME 02/29/12 VSI/CO3

Page # 1 of 1

Send Report To JOHN LONG

Company AMEC

Address 600 UNIVERSITY ST / SUITE 600

City, State, ZIP SEATTLE WA 98101

Phone # (206) 342-1760 Fax # (206) 342-1761

SAMPLERS *(signature)*

PROJECT NAME/NO. AVIS 19811

PO# 16029

REMARKS TURNAROUND VARIES - SEE REMARKS

TURNAROUND TIME
- ☐ Standard (2 Weeks)
- ☐ RUSH
- Rush charges authorized by

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	NWTPH-HCID						Notes
AVIS1881L-01-022912	01	2/29/12	1345	SOIL	3							X						STANDARD
AVIS19811-02-022912	02		1348		3							X						
AVIS19811-03-022912	03		1351		3							X						
AVIS19811-04-022912	04		1354		3							X						
AVIS19811-05-022912	05		1357		3							X						
AVIS19811-06-022912	06		1440		3							X						RUSH
AVIS19811-07-022912	07		1445		3							X						RUSH
AVIS19811-08-022912	08		1450		3							X						RUSH

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	DENN O'REILLY	AMEC	2/29/12	1600
Received by:	Matt Langston	F&B	2/29/12	1900
Relinquished by:				
Received by:		Samples received at 1 °C		

FORMS\COC\COC.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 29, 2012 by Friedman & Bruya, Inc. from the AMEC Environment & Infrastructure AVIS 18811, PO 16029, F&BI 202331 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	AMEC Environment & Infrastructure
202331-01	AVIS18811-01-022912
202331-02	AVIS18811-02-022912
202331-03	AVIS18811-03-022912
202331-04	AVIS18811-04-022912
202331-05	AVIS18811-05-022912
202331-06	AVIS18811-06-022912
202331-07	AVIS18811-07-022912
202331-08	AVIS18811-08-022912

All quality control requirements were acceptable.

Date of Report: 03/06/12
Date Received: 02/29/12
Project: AVIS 18811, PO 16029, F&BI 202331
Date Extracted: 03/01/12
Date Analyzed: 03/01/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 53-144)
AVIS18811-01-022912 202331-01	ND	ND	ND	108
AVIS18811-02-022912 202331-02	ND	ND	ND	104
AVIS18811-03-022912 202331-03	ND	ND	ND	106
AVIS18811-04-022912 202331-04	ND	ND	ND	104
AVIS18811-05-022912 202331-05	ND	ND	ND	109
AVIS18811-06-022912 202331-06	ND	ND	ND	109
AVIS18811-07-022912 202331-07	ND	ND	ND	109

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Date of Report: 03/06/12
Date Received: 02/29/12
Project: AVIS 18811, PO 16029, F&BI 202331
Date Extracted: 03/01/12
Date Analyzed: 03/01/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 53-144)
AVIS18811- 08-022912 202331-08	ND	ND	ND	98
Method Blank 02-321 MB2	ND	ND	ND	98

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 250 mg/kg heavy oil.

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
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3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
e-mail: fbi@isomedia.com

March 7, 2012

John Long, Project Manager
AMEC Environment & Infrastructure, Inc.
One Union Square
600 University Street, Suite 600
Seattle, WA 98101

Dear Mr. Long:

Included are the results from the testing of material submitted on March 2, 2012 from the AVIS Seatac 18811 16th Ave PO 116029, F&BI 203024 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
GMX0307R.DOC

203024

SAMPLE CHAIN OF CUSTODY

ME 03-02-12 D01

Send Report To John Long
Company AMEC Geomatrix
Address 600 University, Ste 600
City, State, ZIP Seattle, WA, 98101
Phone # 206 342-1779 Fax # —

SAMPLERS (signature) [signature]
PROJECT NAME/NO. Avis SeaTac 18811 16th Ave
PO# 116029
REMARKS

Page # ____ of ____

TURNAROUND TIME
☐ Standard (2 Weeks)
☒ RUSH Monday 3/5/12
Rush charges authorized by [signature]

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	NWTPH-Diesel X	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS						Notes
ANH-1-8 JDL	01	3/1/2012	12:00	SL	1 4oz	X											
ANH-2-8	02	↓	12:05	↓	↓	X											
ANH-3-8	03	↓	12:10	↓	↓	X											
ANH-4-8	04	↓	12:15	↓	↓	X											
ANH-5-9	05	↓	12:30	↓	↓	X											
																	~~Samples received at~~ 1 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	John D. Long	AMEC	3/2/2012	11:15
Received by:	[signature]	R. NELSON	PX	3-2-12	11:15
Relinquished by:	[signature]	R. NELSON	PX	3-2-12	1145
Received by:	[signature]	DO VO	F+BI	〃	〃

FORMS\COC\COC.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 2, 2012 by Friedman & Bruya, Inc. from the AMEC Environment & Infrastructure AVIS Seatac 18811 16th Ave PO 116029, F&BI 203024 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	AMEC Environment & Infrastructure
203024-01	ANH-1-8
203024-02	ANH-2-8
203024-03	ANH-3-8
203024-04	ANH-4-8
203024-05	ANH-5-9

All quality control requirements were acceptable.

Date of Report: 03/07/12
Date Received: 03/02/12
Project: AVIS Seatac 18811 16th Ave PO 116029, F&BI 203024
Date Extracted: 03/02/12
Date Analyzed: 03/03/12

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 50-150)
ANH-1-8 203024-01	<50	<250	113
ANH-2-8 203024-02	<50	<250	107
ANH-3-8 203024-03	<50	<250	112
ANH-4-8 203024-04	<50	<250	110
ANH-5-9 203024-05	<50	<250	110
Method Blank 02-338 MB	<50	<250	108

Date of Report: 03/07/12
Date Received: 03/02/12
Project: AVIS Seatac 18811 16th Ave PO 116029, F&BI 203024

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 203020-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	140	102	103	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	104	79-144

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

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