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EA Engineering, Science, and Technology

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10 July 1997
81008.06 LN0005

Mr. Tom Wilson, P.E.
Exxon USA
800 Bell Street, Room 2753C
PO Box 2180
Houston, Texas 77252-2180

FILE COPY

Subject Results of Additional SVE Pilot Test and Soil Sampling at Waste Oil Tank Location, Former Exxon 7-6929, Renton, WA

Dear Mr. Wilson:

EA Engineering, Science, and Technology (EA) recently conducted an additional soil vapor extraction (SVE) pilot test and soil sampling at the above-referenced location. This letter summarizes the results of the pilot test and the soil samples collected.

Background - Additional SVE Pilot Test

The prior site investigation by EA, documented in the remedial action plan, discovered elevated levels of gasoline-range hydrocarbons in the tank field backfill and also near the southern and western site boundary. The investigation concluded that a release of gasoline-range hydrocarbons occurred at the former tank field and under the western pump island. The hydrocarbons were observed starting a depth of 3 feet bgs down to a maximum depth of 16 feet bgs, were sample refusal was generally encountered in dense glacial soils.

The goal of the upcoming remedial effort at this site is to reduce the level of BTEX compounds in the zone of affected soils. The remedial action plan described the results of a low vacuum pilot test to examine the feasibility of using SVE to remediate site soils. The pilot test was conducted on 27 March 1997. A Rotron 1.5 hp regenerative blower was used. Regenerative blowers are successfully used at many other SVE sites in the Seattle area. The blower stabilized at approximately 50 inches of water vacuum, a typical value for a single-phase regenerative blower. The results indicated that over 15 lbs/day of volatile organic compounds (VOCs) in the subsurface could be removed per SVE well. While this mass flux is considered sufficient to warrant implementation of SVE, a vacuum influence could not be measured in any of the six vacuum monitoring points (VMPs). The VMPs are located at a distance of 15 to 35 feet from the tested extraction wells. Since 50 inches of water vacuum was found to be insufficient to induce a

measurable influence in the VMPs, it was decided that a regenerative blower would not be suitable for this site. The lack of influence was thought to be a result of the tight, glacially-derived soils which have a relatively low air permeability. Another pilot test, using a higher vacuum, was recommended in the remedial action plan. The establishment of the radius of influence is a critical field screening criterion for justifying SVE and is also an important design parameter in the placement of SVE extraction wells.

Medium Range Vacuum SVE Pilot Test

The second pilot test would have to be performed with an blower capable of developing approximately 150 inches of water vacuum. The value of 150 inches of water vacuum was chosen because it is typical of single-phase positive displacement blowers, Exxon's standard equipment when medium-range vacuum is required. Based on experience at other low-permeability SVE sites, it is unlikely that a high vacuum (up to 300 inches of water) would be necessary for site conditions.

Rather than incur the expense of renting and configuring a positive-displacement blower, EA rented a vacuum truck as a source of vacuum. While the truck was capable of over 300 inches of water vacuum, the operator was able to pulse vacuum pump operation such that vacuum was maintained at approximately 135 inches of water.

The first well tested was SVE-2. Vacuum influence was first observed seven minutes into the test at VMP-2 and VMP-4. Figure 1 shows the extraction wells and VMP locations. During the three hours of the test, vacuum measured at VMP-2 ranged from less than 0.01 inches of water to 0.46 inches of water. Vacuum measured at VMP-4 ranged from 0.03 inches of water to 1.4 inches of water. No influence was observed at VMP-3. Influence was observed sporadically at VMP-1, the highest vacuum recorded there being 0.12 inches of water. PID readings at the vacuum pump exhaust (taken only when the pump was running) fluctuated between approximately 550 and 1400 ppm. An air flow rate was not able to be measured. Water levels were checked at SVE-3 and at the VMPs periodically. Approximately 10 gallons of water were extracted into the vacuum truck holding tank.

SVE-3 was the next well tested. During the two-hour test, vacuum was observed at VMP-2 and VMP-4 at between 0.03 and 0.38 inches of water. No vacuum was observed at VMP-1 or VMP-3. PID readings ranged between approximately 770 and 1200 ppm, trending downward. Approximately 10 gallons of water was extracted during the test.

A third test was performed, at SVE-1. During the 30-minute test, vacuum was observed only at VMP-4, at between 0.01 and 0.02 inches of water vacuum. PID readings were consistently in the 900 to 1000 ppm range. The vacuum truck operator remarked that he had to run the truck's vacuum pump much less than during the tests at SVE-2 and SVE-3, which would be consistent with less soil vapor flow. No water was extracted from SVE-1. A summary of the field data is

attached. This data will be used to located permanent soil vapor extraction wells during system design.

The variation in vacuum data from the pilot test indicated site soils are of mixed permeability, with layers of low permeability soil interbedded with higher permeability soils. This interpretation is consistent with the logs of the soil borings, indicating mixed layers of sand, silty sand, and silt. A generally accepted rule of thumb is that a observed vacuum of at least 0.1 inches of water in VMPs will induce sufficient air flow to extract volatile soil vapors. A better evaluation criteria is presented in Peargin and Mohr (1994). Based on their evaluation of numerous pilot tests, SVE passed the screening criteria for implementation when the vacuum measured in the VMP was greater than a certain percentage of the extraction well vacuum. Specifically, they found that 0.1- 0.01 percent of the extraction well vacuum should be measured when the distance of the VMP was 1-2x the distance of the depth to water or other impermeable boundary, in this case, depth to refusal at 16'. Therefore, at a distance of 32' from the extraction well, a vacuum of at least 0.0135 inches of water is expected, and at a VMP distance of 16 feet, a vacuum of 0.135 inches is expected. This minimum vacuum was exceeded at most of the VMPs measured when SVE2 and SVE3 were tested. The lack of influence measured at VMPs during the test at SVE1 is attributable to the short time period of the test, which was insufficient to induce a measurable vacuum in the low permeability soils at that location.

Hand Borings - Former Waste Oil Tank Location

The only site plan found for this former retail station is a 1963 building plan. This plan indicates that off of the northwest corner of the original two bay building was a 500-gallon waste oil tank. The site plan contains mark ups indicating a third bay building addition in 1970. The mark ups indicate that the vent line for the tank was relocated. It also indicated a 10" manhole over the center of the tank and a 3" fill pipe. These features do not currently exist. Instead, a concrete storm drain sump is located over the location shown for the waste oil tank. According to the site lessee, the drain collects runoff through a grate and discharges effluent to an oil/water separator located under the central car lift in the station building. Effluent from the oil/water separator flows into the storm sewer. Previous soil sampling by EA near the location of the former waste oil tank (boring SB15) did not detect petroleum hydrocarbons. However, only a single geoprobe boring was attempted which was located approximately 10 feet north of the storm drain, due to the interfering mechanical car lift located over the drain.

EA recommended that hand borings be advanced around the drain to test for the presence of petroleum hydrocarbons and to determine if a tank exists in that location. On 22 May 1997, two borings were advanced with a hand-held power auger. The borings were located approximately 2 feet off of the northwest and southeast corners of the drain. Figure 1 shows the sample locations and identification. The analytical report is attached to this letter. The borings were advanced to a depth of 4 feet. Cobbles prevented further advancement. A hydrocarbon odor was noted at 2

feet below grade in sample SB-19. Sample SB-20 was collected from the base of the boring at a depth of 3.5 feet below grade, where a strong hydrocarbon odor and soil staining was noticed.

The samples were first analyzed for hydrocarbon identification by Washington State method WTPH-HCID. The samples tested positive for both gasoline and heavy oil range hydrocarbons. The samples were then analyzed for gasoline, diesel, and heavy oil range hydrocarbons by Washington State methods WTPH-gasoline, WTPH-diesel and WTPH-heavy. In addition, the compounds benzene, toluene, ethyl benzene, and xylene were quantified. The results are shown on Figure 1. Both samples contained concentrations of exceedences of the MTCA Method A cleanup standards for both gasoline (100 mg/kg) and heavy oil hydrocarbons (200 mg/kg).

Discussion

The results of the additional vacuum test at the site indicated that SVE would be effective at this site using a positive displacement blower. Heterogeneity is indicated by the results, indicating mixed permeability soils. To optimize the effectiveness of SVE, the extraction wells will be located closer together than normally necessary in homogeneous soil to insure overlapping areas of influence. In addition, the extraction well screens will be set at different intervals to insure recovery of hydrocarbons throughout the contaminated zone.

The results of the soil borings at the former waste oil tank location indicated gasoline and heavy range hydrocarbons within several feet of ground surface. No evidence of a tank was observed to a depth of 4 feet. The waste oil tank was likely removed to make way for the storm drain. The presence of hydrocarbons at shallow depths near the drain implies a new surface release. One possible source is that the hydrocarbons may have originated from motor oil and fuel spillage during vehicle maintenance occurring at the car lift. It is unlikely that the release was from the waste oil tank due to the shallow nature of the release and the presence of the gasoline range hydrocarbons in the soil. In our experience, the seals of the effluent pipes from drainage sumps degenerate with time, and can act as a conduit for leakage from the sump to the surrounding soils.

Sincerely,

Thomas H. Colligan, R.G.
Senior Geologist

THC/lp
Attachments

cc: Gerald Turner, Exxon

REFERENCES

Peargin, T. and Mohr, D. 1994. Field Criteria for SVE Pilot Test to Evaluate Data Quality and Estimate Remediation Feasibility, in Proceedings of Petroleum Hydrocarbons and Organic Chemicals in Ground Water Conference, National Ground Water Association 1994.

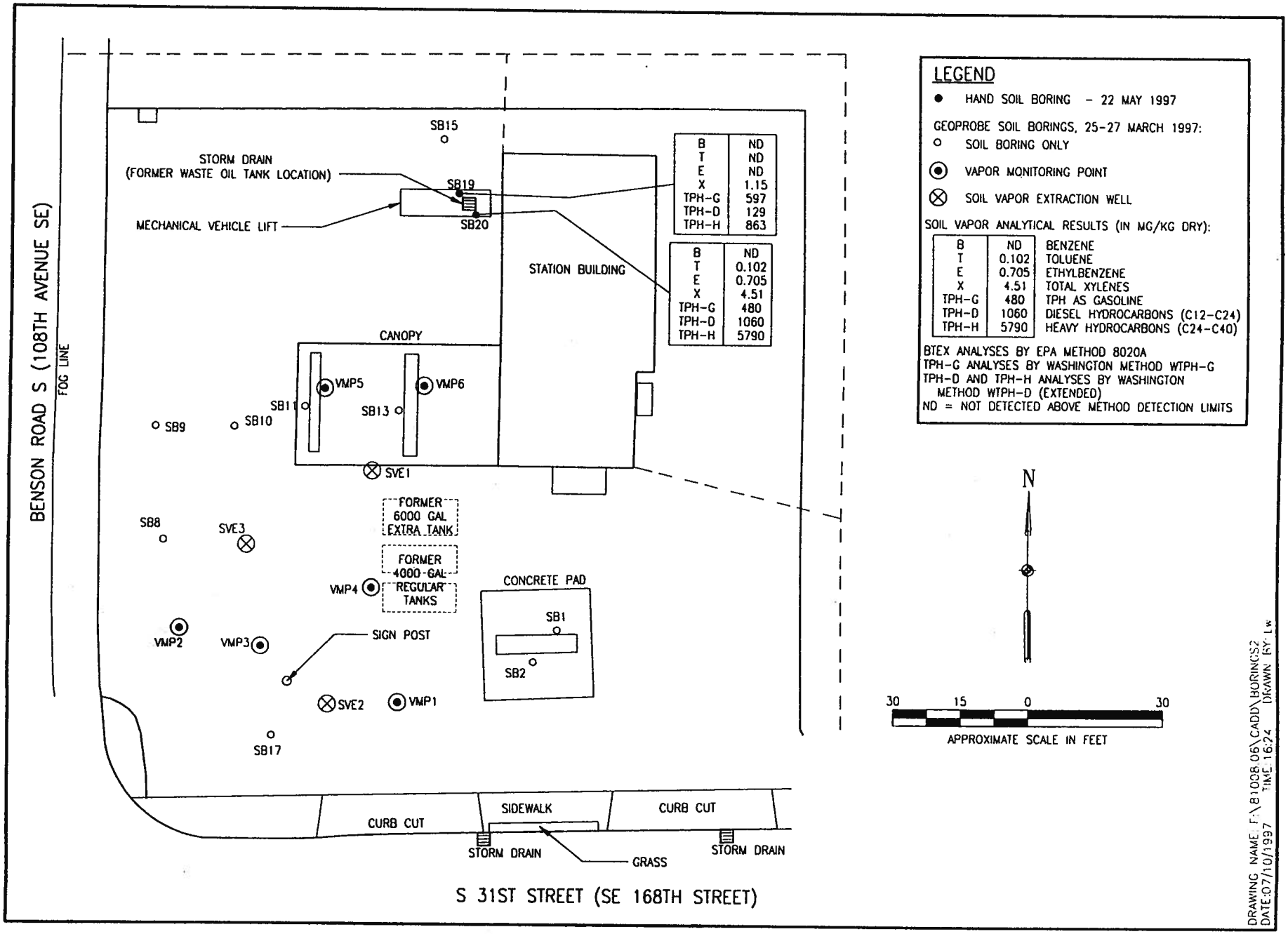

Figure 1. Supplementary soil boring analytical results. Former Exxon 7-6929, Renton, Washington.

Former Exxon 7-6929
High Vacuum Pilot Test
22 May 1997

Ambient Temperature: 55
Weather Condition: pc

Time	SVE Well (Extraction)	PID (ppm)	Vacuum at Well (in. water) psi	Vacuum at Monitoring Points (in. water) VMP-1	VMP-2	VMP-3	VMP-4	VMP-5	VMP-6	Notes
0908	SVE-2		~ 4	ϕ	ϕ	ϕ	ϕ SD			Started Test, WL = 6.08 Ft
0906	↓		4	ϕ	ϕ	ϕ	ϕ			VACUM RISING AT VMP 3,4
0910	↓		4	ϕ	0.30	ϕ	0.38			
0914	↓	1080	4	↑ ~~ϕ~~ 0.03	0.17	ϕ	0.03			BACKGROUND PID ~ 10 ppm
0919	↓	729	4	< 0.01	0.15	ϕ	0.08	ϕ	ϕ	
0926	↓	1148	4	ϕ	0.18	ϕ	0.98			
0931	↓	1126	~ 4	ϕ	< 0.01	< 0.01	0.07	ϕ	ϕ	
0937	↓		4	ϕ	0.11	ϕ	~~2.05~~			HOSE INITIALLY ANCHORED UP & NEW READING = 0.47"
0947	↓	997	4	ϕ	0.28	ϕ	0.08			
0954	↓		4	ϕ	0.16	ϕ	0.94			
1004	↓	549	4	ϕ	~~0.29~~ 0.19	ϕ	1.1			
1013	↓	408	4	ϕ	< 0.01	ϕ	~~1.0~~ 0.96	ϕ	ϕ	
1026	↓	1366	4-5	< 0.01	0.18	ϕ	0.07			
1032	↓		5	0.01	0.28	ϕ	1.2			
1043	↓		5	0.12	0.19	ϕ	1.2	ϕ	ϕ	
1058	↓	1148	5	0.01	0.36	ϕ	1.4			
1112	↓	1162	5	0.02	0.42	ϕ	1.0			
1123	↓	1191	5	< 0.01	0.18	ϕ	1.2			
1142	↓	1247	6	< 0.01	0.42	ϕ	0.80			
1151	↓	1301	4	< 0.01	0.46	ϕ	0.63			
1206	↓	1271	5	ϕ	0.40	ϕ	0.70			~10 GAL IN TRUCK
										WL = 7.33 FT @ END OF TEST

Former Exxon 7-6929
High Vacuum Pilot Test
22 May 1997

Ambient Temperature: 65
Weather Condition: SUNNY

Time	SVE Well	PID (ppm)	Vacuum at Well (in water)	Vacuum at Monitoring Points (in. water) VMP-1	VMP-2	VMP-3	VMP-4	VMP-5	VMP-6	Notes
1222	SVE-3	1160	5	~~0.34~~	0.20	ϕ	~~ϕ~~ 0.34	ϕ	ϕ	
1244	↓	918	5	ϕ	0.03	ϕ	0.30	ϕ	ϕ	
1306	↓	865	5	<0.01	0.16	ϕ	0.38	ϕ	ϕ	
1322	↓	824	5	ϕ	0.06	ϕ	0.38	ϕ	ϕ	
1334	↓	758	5	ϕ	0.20	ϕ	0.36			
1349	↓	770	5	ϕ	0.03	ϕ	0.32			
1359	↓	854	5	ϕ	0.15	ϕ	0.34	ϕ	ϕ	
1410	↓	780	5	ϕ	0.17	ϕ	0.34			
1419	↓	771	5	ϕ	0.19	ϕ	0.34			~20 GAL IN TRUCK
~~1445~~	~~↓~~									
1445	SVE-1		5	<0.01	ϕ	ϕ	0.01	ϕ	ϕ	
1454	↓	110	5	ϕ			0.02	ϕ	ϕ	TRUCK HOLDING VACUUM WELL
1505	↓	998	5				0.01	ϕ	ϕ	
1515	↓	1044	5				0.02	ϕ	ϕ	STILL ~20 GAL IN TRUCK

WASTE OIL TANK FARM

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EA Engineering	Project:	EXXON #7-6929, 19605547	Sampled: 5/22/97
155 108th Ave. NE. Ste 400	Project Number:	81008.06	Received: 5/23/97
Bellevue, WA 98004	Project Manager:	Tom Colligan	Reported: 6/6/97 17:07

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
SB-19	B705445-01	Soil	5/22/97
SB-20	B705445-02	Soil	5/22/97

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Hydrocarbon Identification by Washington DOE Method WTPH-HCID
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
SB-19			B705445-01				Soil	
Gasoline Range Hydrocarbons	0570656	5/27/97	5/27/97		20.0	DET	mg/kg dry	1
Diesel Range Hydrocarbons	"	"	"		50.0	DET	"	2
Heavy Oil Range Hydrocarbons	"	"	"		100	DET	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*103*	*%*	
SB-20			B705445-02				Soil	
Gasoline Range Hydrocarbons	0570656	5/27/97	5/27/97		20.0	DET	mg/kg dry	1
Diesel Range Hydrocarbons	"	"	"		50.0	DET	"	2
Heavy Oil Range Hydrocarbons	"	"	"		100	DET	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*106*	*%*	

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**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

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Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
SB-19			B705445-01				Soil	
Gasoline Range Hydrocarbons	0670141	6/4/97	6/5/97		10.0	597	mg/kg dry	
Benzene	"	"	"		0.100	ND	"	
Toluene	"	"	"		0.100	ND	"	
Ethylbenzene	"	"	"		0.100	ND	"	
Xylenes (total)	"	"	"		0.200	1.15	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*146*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*85.6*	"	
SB-20			B705445-02				Soil	
Gasoline Range Hydrocarbons	0670141	6/4/97	6/5/97		5.00	480	mg/kg dry	3
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	0.102	"	
Ethylbenzene	"	"	"		0.0500	0.705	"	
Xylenes (total)	"	"	"		0.100	4.51	"	
Surrogate: 4-BFB (FID)	"	"	"	*50.0-150*		*148*	%	
Surrogate: 4-BFB (PID)	"	"	"	*50.0-150*		*104*	"	

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Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended)
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
SB-19			**B705445-01**				Soil	
Diesel Range Hydrocarbons	0670127	6/4/97	6/5/97		110	129	mg/kg dry	1,2
Heavy Oil Range Hydrocarbons	"	"	"		275	863	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*72.3*	%	
SB-20			**B705445-02**				Soil	
Diesel Range Hydrocarbons	0670127	6/4/97	6/5/97		210	1060	mg/kg dry	1,2
Heavy Oil Range Hydrocarbons	"	"	"		525	5790	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*105*	%	

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Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
SB-19	B705445-01	Soil	87.3	%
SB-20	B705445-02	Soil	89.3	%

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Hydrocarbon Identification by Washington DOE Method WTPH-HCID/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0570656	**Date Prepared: 5/27/97**				**Extraction Method: HCID (WA)**					
Blank	**0570656-BLK1**									
Gasoline Range Hydrocarbons	5/27/97			ND	mg/kg dry	20.0				
Diesel Range Hydrocarbons	"			ND	"	50.0				
Heavy Oil Range Hydrocarbons	"			ND	"	100				
Surrogate: 2-FBP	"	*DET*		*DET*	"	*50.0-150*	*90.9*			

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Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8020A/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0670141	**Date Prepared: 6/4/97**					**Extraction Method: MeOH Extraction**				
Blank	**0670141-BLK1**									
Gasoline Range Hydrocarbons	6/4/97			ND	mg/kg dry	5.00				
Benzene	"			ND	"	0.0500				
Toluene	"			ND	"	0.0500				
Ethylbenzene	"			ND	"	0.0500				
Xylenes (total)	"			ND	"	0.100				
Surrogate: 4-BFB (FID)	"	*4.00*		*3.88*	"	*50.0-150*	*97.0*			
Surrogate: 4-BFB (PID)	"	*4.00*		*3.56*	"	*50.0-150*	*89.0*			
LCS	**0670141-BS1**									
Gasoline Range Hydrocarbons	6/4/97	25.0		22.5	mg/kg dry	75.0-125	90.0			
Surrogate: 4-BFB (FID)	"	*4.00*		*3.97*	"	*50.0-150*	*99.3*			
Duplicate	**0670141-DUP1**		**B705445-02**							
Gasoline Range Hydrocarbons	6/5/97		480	485	mg/kg dry			50.0	1.04	
Surrogate: 4-BFB (FID)	"	*4.48*		*7.05*	"	*50.0-150*	*157*			*4*
Matrix Spike	**0670141-MS1**		**B706074-03**							
Benzene	6/5/97	0.548	ND	0.486	mg/kg dry	60.0-140	88.7			
Toluene	"	0.548	ND	0.567	"	60.0-140	103			
Ethylbenzene	"	0.548	ND	0.550	"	60.0-140	100			
Xylenes (total)	"	1.64	ND	1.64	"	60.0-140	100			
Surrogate: 4-BFB (PID)	"	*4.38*		*3.67*	"	*50.0-150*	*83.8*			
Matrix Spike Dup	**0670141-MSD1**		**B706074-03**							
Benzene	6/5/97	0.548	ND	0.551	mg/kg dry	60.0-140	101	20.0	13.0	
Toluene	"	0.548	ND	0.567	"	60.0-140	103	20.0	0	
Ethylbenzene	"	0.548	ND	0.556	"	60.0-140	101	20.0	0.995	
Xylenes (total)	"	1.64	ND	1.63	"	60.0-140	99.4	20.0	0.602	
Surrogate: 4-BFB (PID)	"	*4.38*		*3.69*	"	*50.0-150*	*84.2*			

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Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended)/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 0670127	**Date Prepared: 6/4/97**					**Extraction Method: EPA 3550**				
Blank	**0670127-BLK1**									
Diesel Range Hydrocarbons	6/5/97			**ND**	mg/kg dry	**10.0**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**25.0**				
Surrogate: 2-FBP	"	*11.7*		*10.4*	"	*50.0-150*	*88.9*			
LCS	**0670127-BS1**									
Diesel Range Hydrocarbons	6/5/97	68.0		69.4	mg/kg dry	59.0-135	102			
Surrogate: 2-FBP	"	*11.7*		*10.1*	"	*50.0-150*	*86.3*			
Duplicate	**0670127-DUP1**	**B705445-02**								
Diesel Range Hydrocarbons	6/5/97		1060	960	mg/kg dry			50.0	**9.90**	
Surrogate: 2-FBP	"	*13.1*		*12.7*	"	*50.0-150*	*96.9*			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (425) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

EA Engineering	Project:	EXXON #7-6929, 19605547	Sampled:	5/22/97
155 108th Ave. NE, Ste 400	Project Number:	81008.06	Received:	5/23/97
Bellevue, WA 98004	Project Manager:	Tom Colligan	Reported:	6/6/97 17:07

Notes and Definitions

#	Note
1	This sample appears to contain volatile range organics.
2	Results in the diesel organics range are primarily due to overlap from a heavy oil range product.
3	This sample appears to contain extractable diesel range organics.
4	The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Kirk Gendron, Project Manager

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

EXXON COMPANY U.S.A. CHAIN OF CUSTODY REPORT

B705445

EXXON INFORMATION

EXXON RAS #: 6929
Site Address: 3100 Benson Rd.
City, State, ZIP: Renton, WA
EXXON Engineer: Tom Wilson (713) 656-5784
Laboratory WR#:

CONSULTANT INFORMATION

Name: EA Engineering Consultant WR #: 19605547
Address: 155 108th Ave. NE Ste 400
Bellevue, WA 98004
Phone: 425-451-7400 Fax: 425-451-7800
Project Manager: Tom Colligan Consultant Project #: 81008.06
Sample Collection by: D.C. Metallo Airbill #:

Turnaround Times

All TPH, Volatiles & BTEX:
[X] Calendar Days
Pest, TCLP, Metals, PP, Etc.
[14] Calendar Days
RUSH Analyses (HOURS)
[24] [48] [72] [96]
Air Analysis
[ ] 72 Hours

O Oregon X Washington O Montana Hydrocarbon Methods

SAMPLE IDENTIFICATION	SAMPLING DATE / TIME	MATRIX (W,S,O)	# OF CONTAINERS	TPH-HCID	TPH-Gas	BTEX (EPA 8020 Mod.)	TPH-Gas + BTEX	TPH-Diesel	TPH-Diesel Extended	TPH-418.1	Halogen. Volatiles (EPA 8010)	Aromatic Volatiles (EPA 8020)	Pesticides/PCBs or PCBs Only	GC/MS Volatiles (EPA 8240/8260)	GC/MS Semi Vols. (EPA 8270)	PAHs by HPLC (EPA 8310)	Lead: Total or Dissolved	TCLP Metals (8)	NCA SAMPLE NUMBER
SB-19	5.22.97 (1100)	S	1	X			X		X										B705445-01
SB-20	5.22.97 (1200)	S	1	X			X		X										-02

2 Run for WTPH-G/BTEX and WTPH-D Ext per T. Colligan 6/3/97 TUE 3-DAY TAT

Relinquished by:	Firm:	Date & Time	Received by:	Firm:	Date & Time
[signature]	EA	5.22.97 (1600)	[signature]	NCA	5/23/97 1225
[signature]	NCA	5/23/97 1445	[signature]	NCA	5/23/97 1445

Comments:
CALL TO RUN FOLLOW-UP TESTS WITHIN HOLDING TIME 10

Rev. 1.0 1/95 Distribution: White - Laboratory Yellow - Consultant Pink - EXXON