

24 August 2000

Vancouver Housing Authority c/o Troy A. Drawz 2500 Main Street Vancouver, Washington 98660-2697

Subject:

Phase II Underground Storage Tank Environmental Assessment

3200 NE 62nd Avenue, Vancouver, Washington

PBS Project #70086.002

Dear Mr. Drawz:

At your request, and in accordance with our proposal dated August 3, 2000, PBS Environmental has completed a Limited Phase II Underground Storage Tank (UST) Environmental Assessment at 3200 NE 62nd Ave, Vancouver, Washington. The purpose of this assessment was to investigate the possibility of leakage at the subject property from an underground storage tank.

In July of 2000, a Phase One Environmental Site Assessment was completed by PBS, which highlighted the presence of the tank as a recognized environmental concern and subsequently recommended further work to evaluate soils adjacent to the tank for possible leakage of contents.

BACKGROUND

The site has been primarily in residential use, except during the 1980s, when Powers Excavating, apparently a commercial excavation contractor business, was present on the subject property in addition to residential usage. It is unknown what type of commercial activities were conducted on the subject property, pertaining to Powers Excavating; there is a possibility that storage and maintenance of machinery and heavy equipment occurred on the subject property. No additional commercial businesses were on file or reported concerning the subject property.

A geophysical survey, conducted by GeoPotential, indicated that a gasoline/diesel UST of approximately 675 to 1,000 gallons was present on the subject property, located along the southwest corner of the garage/shop structure, buried at an approximate depth of 1 to 1 ½ feet below the ground surface. The tank was used for a period of time to supply fuel, but is no longer in use. An associated

Vancouver Housing Authority Re: Phase II - 3200 NE 62nd Ave 24 August 2000 Page 2

former pump station was located approximately 12 feet north of the fill and vent pipes of this tank. The actual pump, reportedly removed in 1998, was used by the previous owners of the subject property to fuel farm maintenance machines. In addition, the pump may have been used during the 1980s by Powers Excavating to dispense fuel for heavy machinery/equipment. No evidence was observed that would indicate that any past release of fuel had occurred. However, it was observed that the piping from the pump island appears to run underground.

FIELD METHODS/DISCUSSION

Field work at 3200 NE 62nd Ave. occurred on August 10, 2000 and was performed by Jason G. Cook and Tim Leavitt of PBS Environmental. The tank is located in a relatively flat area southwest of the garage/storage structure (Figure 1). Nearby underground utilities and the tank were located using magnetic and electro-magnetic subsurface surveys, conducted by GeoPotential. Following the location of the utilities, Geo-Tech Explorations of Tualatin, Oregon and PBS personnel began a subsurface soils evaluation adjacent to the tank. Four holes were advanced to a depth of 8 feet below ground surface; approximately 1 foot below the estimated base of the UST. Four holes were placed on the south (downgradient) side of the tank, 2 to 3 feet from the side of the tank.

The soil/stratigraphy in each hole was similar. Gravel and sand with some silts and clays extended to a depth of 8 feet below ground surface. Minor variances in gravel, sand, moisture percentage, plasticity, consistency, stickiness and soil color/hue were observed (see attached bore logs 1 to 4). At approximately 5 to 8 feet below ground surface, coarse, moist gray mottled sand with minor amounts of gravel and silt was encountered. Groundwater was not encountered during the investigation.

Sampling and soil characterization was completed at the 5 and 7 foot depths for each sampling bore hole as drilling progressed. Laboratory analytical characterization was completed for the samples from the bottom interval of each hole at 5 feet below ground surface. This is the zone that is expected to most likely to show contamination. The soil samples were stored on-ice and delivered to Environmental Services Laboratory in Portland, Oregon, for characterization of Total Petroleum Hydrocarbons - Hydrocarbon Identification (NWTPH-HCID).

FIELD RESULTS AND ANALYTICAL

Written results from Environmental Sciences Laboratory (August 17, 2000) indicated that gasoline and diesel-fraction petroleum hydrocarbons were detected in SS-7 (Boring #3, 5' depth). Per PBS recommendations and at the request of the Client, the sample was further analyzed by the laboratory for quantification of the petroleum hydrocarbon species (NWTPH-Dx - diesel; NWTPH-Gx - Gasoline/BTEX). In addition, sample SS-6 (Boring #3, 7' depth) was analyzed for hydrocarbon identification (NWTPH-HCID) to determine if vertical contamination extended in depth at this location.

Vancouver Housing Authority Re: Phase II - 3200 NE 62nd Ave 24 August 2000 Page 3

Follow-up laboratory analysis indicated that SS-7 contained 357 milligrams per kilogram (mg/Kg) gasoline. SS-6 was a non-detect for petroleum hydrocarbons. According to the Washington Administrative Code Model Toxics Control Act (WAC 173-340), the Method A Cleanup Standard for soils contaminated with TPH (gasoline) is 100 mg/Kg.

CONCLUSIONS

The results of this assessment suggest that there has been a release of gasoline from the UST/product dispenser system. Contamination was found in one soil sample at 5 feet below ground surface near the location of the former fuel dispenser. Contamination was not detected deeper than 5' below ground surface in the same boring, suggesting that the release may be the result of leakage of product piping at the pump island or spilled fuel occurring during fueling activities.

The concentration of gasoline detected in the soil (357 mg/Kg) was in excess of the Model Toxics Control Act Method A Cleanup Standard of 100 mg/Kg, therefore some type of soil remediation is indicated.

RECOMMENDATIONS

According to the Washington Administrative Code Underground Storage Tank Regulations (WAC 173-360-360), owners/operators of USTs are required to report suspected and confirmed releases of regulated substances from underground storage tank systems (tanks, product lines, dispensers, etc.) to the Washington Department of Ecology (WDOE) within 24 hours of discovery. Since it is suspected that the discovered release may be the result of leakage from the product dispenser, the release should be reported to WDOE by the owner/operators.

Since it is no longer in use, PBS recommends that the tank be decommissioned in accordance with state regulations. The decommissioning will also involve the removal and proper treatment/disposal of all accessible petroleum-contaminated soils in excess of MTCA Method A cleanup levels. Based on the findings of the current investigation, the soil contamination does not appear to be extensive.

LIMITATIONS

This work was performed in accordance with the generally accepted practices of other consultants undertaking similar studies during the same time period and geographical area. PBS Environmental observed the same degree of care and skill generally exercised by other consultants under similar circumstances and conditions. The findings and conclusions of this report are not scientific certainties, but rather, are based on professional judgement concerning the significance of data gathered during the course the this assessment. The recommendations of this report, or lack thereof,

Vancouver Housing Authority Re: Phase II - 3200 NE 62nd Ave 24 August 2000 Page 4

are not to be considered a legal opinion as to the client's duty concerning due diligence relating to potential liabilities in leasing, owning, or purchasing real estate.

PBS is not able to represent that the site or adjoining land contains no hazardous waste, oil or other latent conditions beyond that detected or observed by PBS during this study. The possibility always exists for contaminants to migrate through surface water, air, or groundwater. The ability to accurately address the environmental risk associated with transport in these media is beyond the scope of this investigation.

If you have any questions concerning this report or need further information, please feel free to contact me at (360) 690₇4331.

Sincerely

Tim Leavitt, FE, CHMM Senior Project Manager

Reviewer: Erik Anderson, RG

WDOE Certified Site Assessor

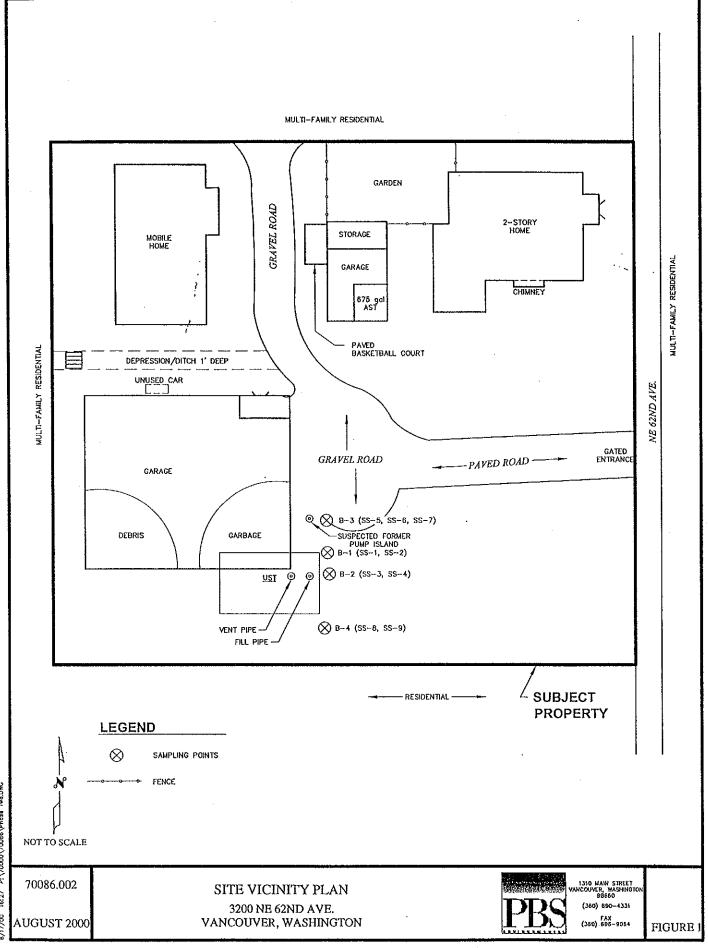
Attachments:

Figure 1

Laboratory Report and Sample Chain-of-Custody

Soil Boring Logs

V:\70000\70086\Phase II\Report-COOK revised.wpd



7/00 16:27 P:\70000\70086\Phase Two.DWG



17400 SW Upper Boones Ferry Road . Suite 270 . Portland, OR 97224 . (503) 670-8520

August 24, 2000

Tim Leavitt
PBS Environmental
1220 SW Morrison

Portland, OR 97205

TEL: (503)248-1939 FAX (503) 248-0223

RE: 70086.002

Order No.: 0008051

Dear Tim Leavitt,

Environmental Services Laboratory received 9 samples on 8/8/00 for the analyses presented in the following report.

The Samples were analyzed for the following tests:

GAS/BTEX, Soil (8015/8021) HCID Soil (EPA 8015) NWTPH-Dx Soil (EPA 8015)

PERCENT MOISTURE (D2216)

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative. Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety, without the written approval from the Laboratory.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Nichole Karl

Project Manager

Nichole Karl

Technical Review

ANALYTICAL SERVICES FOR THE ENVIRONMENT

Services Laboratory, Inc CHAIN OF CUSTODY

Æ		-		.,	SXGNIA:ny)s co			1			T	T	T		Γ	1	Γ	\Box		١.	4	3	3	1	6,	Time	2	1	
					-		Г	T		Γ	Τ	T		T	T	Τ	T	Г	\Box		╛	Ì	<u> </u>	۵.		١	7	Δ		
•							1	1	1	T	T	1-	t	1	1	T	╅	┢	Н	-	\dashv			٠.						
			}		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	· · · · · · · · ·	1	†-	1-	十	✝	+-	十	卞	1-	†	╁	┪	\vdash	┝┯╋										
			1				1	+	1 -	╁╌	╁╴	╁┈	╁	1-	+	 -	╁	╌	╁┤	+	- ;	×				9				
	1	2		\vdash			╁	╁╾	╄	╀	╀	╄	╀	+-	+-	╀	┼-	┼	<u> </u>			2				Ġ]
		2		\vdash			╂╾	╀	╂	╂╌	╀	1-	╀		+-	├	-	1	\bigcup		[<u> </u>	¥		ΕĀ		į į	1	
	700		1	\vdash		, , , , , , , , , , , , , , , , , , , 	╀	╄	╀	╂	╂┈	 	╀	-	╌┼─	╂	↓-	<u> </u>		4	<u>\</u>	KELANGUISHED BY	SIGNAJ UKE:	Printed Name:	į	RECEIVED BY: AAB)	ğ	Printied Name	ESIL Inc.	
	2	7		-			╀	╀	-	ļ.,		1_	╀	↓	↓_	↓_	1_	<u> </u>		1	— 5		2	Patri	Соправу	ĕ	Signstance	1.2	<u>ڌ</u>	
	ੂ <			-		 	╂_	<u> </u>	1	↓_	ļ.	╄	1.	1	$oldsymbol{\perp}$	<u> </u>	_	<u> </u>		\perp	٤	4 :	5	&	10	2	8	12	123	
		1	1	\vdash			╄	↓_	1	┺	╙	<u> </u>	┖	上	1_	L	乚	<u>L</u>		_	,	4	<u> </u>	Dele		7	Time	Dec.		
- [ğ			L			╙	ļ.,	上	L	_					L	L	L				Ê	-	A			H	Δ .		
	LABORATORY	1]	L	······································		_	L	┸	L	L	1_	L	<u> </u>						\Box		ı						1		
-	Se .		1	_	iş.		L	L				L								T				•				-		
	<u> </u>	╝,	4		À,									T							<u>خ</u> [-				١,			ļ		
	V		L.	L					Γ		Γ	Г	Τ	Т					П	\top										
	. 4	S			0152 solibalovino	s 4JJ)I			1		Π		†	1	1	1	1	 		+	- 5		أق	ÿ) BY		ij		
,	Y	ြင္တ	<u> </u>	IX.	3·HZ 0921 == [[n][0,	ICE D.		Ţ	1	1	-	1	1	T	T	1-				7	Ş	3		ž	S	Z	ii Ir	Z	ny:	
		S. R.] [(B) alend			Г	1	1	-		1		1	┪		-		+	BET TWO RELIED BY	Ī	archar ave	Printed Nume:	Company:	RECEIVED BY	Signature	Printed Nume:	Сотрелу:	1 1
3	L	ANALYSIS REQUEST	Ţ			स्टब्स्			†	1	 	 	┪	╁		 			\vdash	十	╣	4 5	5 . I	<u>~</u>] 0	2	<u>بر</u>	<u> K</u>	ပိ	
< 1		7	NORGANKS	(E	I) Next mission		╂	Г	┢	一	 	 	+	┿	 	 —			\vdash	+	- -		,	ر. آر.		-	15 × 15 × 15 × 15 × 15 × 15 × 15 × 15 ×	Diffe		
3	#	12	S	-	(४) म्राज्य	RCRA		 	 	 	 —	┢	 	┿	\vdash	╁	-	_			-	۲	``\	<u>، ۵</u>	-		F~	ы		
<u>.</u>	3	4			PCBs only		+		+	┼─	-	-	├-	╂	┼	├	-					1	1	•	[~		Ì	
	الله (1		 	SEDS/sobbard D		╁	┝	┝	┢╾	 	\vdash	╁	╁	-	 	Н			-	7			X			્ર≾્	1	١ ١	
2	+	2	2	-	CMS Senivolation		╂┈	-	╂─	 	⊢	-	├	╀	╁┈	-			-	-	ڿۣ⊢	ķ.	``\	3				कराम	-2	
	11-	3	ORGANICS	-			⊢	١.	╂╼		⊢	 	-	┼-	 -	-			\vdash	+	REI INOUTSHED BY	1		. `		نڌ	*		4	
	1			\vdash	CAS Adada		├		 	<u> </u>	-	 	 	\vdash	<u> </u>		Н				-[플	ê	į ~;	35	ŀ	B	3	النقا		2
3	H r	9	r		F AOC™ECNE		 		١.,				<u> </u>	<u> </u>	┞				_	_ _	٦ğ	į		Ž	Š	N.	ک لا	Ž	3	<u> </u>
3	rioject Manager:	*		-	ACCACCINE		1	ļ	ļ		Щ.	<u> </u>	_	<u> </u>	L						_ =	TONVE	}	Parised Name:	Company	RECEIVED BY	Signal	Printed Nunfer	Company:	2
-	ਫ਼ []	┢	, Z	<u> </u>	MS PAH.			ldash				L	L	L	L.		Ш			\perp	_ =	1.	ĹΤ	1	H	퀴			٠	ጀ
	8 3)	S S.	<u> </u>	- BETX only			<u> </u>				<u> </u>	L		_	Ш				\perp				1			-			3
	Ş \	9	150 150	<u> </u>	XCH				L														1				ı			2
	~ 4	7	PRTKOLEUM HYDROCARBONS		≕ X2> 1	HLAN		L	<u> </u>																		1			5
	1	. _		١.	व्यञ्चन	HLAN	×	Y	之	×	. Y	入	7	$ \times $	Х					T		o o			È	4	-			g
i.	J	1			-	****												·		T		LAUNERS	3		5				-	
٠,		1			25	à	1			ij		١. ٥	۲	~	6						E	TAG	YN.						Rocalynd vie:	ا قِ
						LAB ID	ļχ	5	17	3	Ų	44	1.	à	79					L		8	75	2	USH PROJE	Š	1_		ź	3
` ;	<i>*</i>	4			1	7	·							4			-					b	5	<u>ا</u> چ	ř	5	: I	—- L		ž
	1:	1									_		<u>.</u>		Ш			_	\bot	4	SAMME RECEI	E	Į.		2 0			3	~ }	5
	Con over 1 to					ğ			•	1	- 1	1				İ			1		P	TOTAL NUMBER OF CONT	COC SEALS INTACTOR // N	RECEIVED COLD? Y / N	AKED FOR Y	ILAB USB ONT Y		څــ	- 1	- 1
	35	Pax:]	MATRIX					ŀ						- 1	- [- [ŀ	11					.5		4	- 1	-
	Ĵ.,	100		ş	<u> </u>	Σ				İ	J						ı	- 1	- 1	1		힏					١.	\ \cdot\ \		
: ×		1.		õ		Æ	24	7.7	. 7	<u>.</u>	.1	3	4	3		7	\dashv	┪	十	+	\Box	٦	7-	1	§ 6		. I	7		
	33			5		TIMB	200	9.4%	1.8	2	S.	10/00	(V.) E.	103	11.7	l	┪	ł	Ì			J	4		A SHAKALIN	٤		15	M	
1	₩	3		R	N.	P.	T								٦,	7	~†	1	1	1	11		1		3		*	1-1	٠٦	-
	4	×	.	5		DATE	듺	প্র	7	.2		প্ৰ	٥	8	Y		ı		ľ			٠	<u>,</u> F	3:	RU3FD:	YES D NO		Cat Fot Notes	2	1
Ń	$\mathbf{\Lambda}_{\mathbf{A}}$	M	. '	L	. ·		7	V	S	·	즥	· 94	÷ .	7	3.5	`		+	+	 	튑	:]	ਖ਼ੂ~	18		• 6	7	2	Υ.	.
Δþ	33,	3 -1	•	SA	*	ı	1			- 1		ł	1.	3	}		. 1	j]	ľ	8	:]	\mathbf{J}_{E}	à.	۲ کا دا	18		~>	्र	}
		4		20		- 1	. [Ì		ļ	ſ			1	•	-			te		٠ [X	187	8 3	ĮΣ	Ë	Δ	ו	
16	4	اخا		OIS		A		اير	ل.		П	0	اد	 		-	۱ ا	ı	-		H	ان	1	E	2 W.K.S	13	II O	<u>′′′</u> 3		
, 	1	5	٠	3	•	SAMPLEID	لا .	T	, ,	25.5	Y	9-3	SY-7.	M	55-9	٦,	Ì	1			PROJECT INFORDALADIN	目	희물	E I		ź	13	Q	13	
įį	12	.,	•	ΜÞ	1.14-6. 1.4	¥	X	ÿ	V	У	٧Į	니	И	\$ -55	Ä		- 1.	;	··- .	1	K	톍	38	K	3	臣	<u>8</u>	1	4	
Chimann	Address:	Phone:		SAMPLE DISPOSAL INSTRUCTIONS	12 2 3 3 4 4 1	233	×.	4	1.73	M	: Կ	M	М	M	Y	:			1		11	PROJECT NUMBER	PROJECT NAME: 2 200 (2 Cd.)	ONDOING PROJECTY YEAR (NO G. V.	TAT MORIMAL!	GREATER THAN 24 HR. NOTICES	SPECIAL DISTRUCTIONS:	بستير	Swapled by:	.
18	궣.	훒		, . -	· Sylvery	ir.	Ĭ.,							1	"		Į.		1	-	41	Ş	2 8	18	170	ă	밇	A STATE OF THE STA	alde	
	٠,						—,Z		1	1		1	_1	1	1	1	. 1	. 1	- 1		1 1	إنم	ուն	101	16	16	125.	•.		- 1

Date: 24-Aug-00

CLIENT:

PBS Environmental

Lab Order:

0008051

Project:

Lab ID:

70086.002

0008051-02A

Client Sample ID: SS-2

Tag Number:

Collection Date: 8/8/00

Matrix: SOIL

Analyses	Result	Limit	Qual Units	DF	Date Analyzed
HCID SQIL		NW-TPH			Analyst: smc
O#	ND	127	mg/Kg-dry	1	8/15/00
Gasoline	ND	25.3	mg/Kg-dry	1	8/15/00
Diese)	ND	63.3	mg/Kg-dry	1	8/15/00
50m: O-Terphenyl	76.0	50-150	%REC	1	8/15/00
PERCENT MOISTURE		D2216			Analyst: tmh
% Moisture	21	0.	wt%	1	B/15/100

Qualifierat

NO - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyse detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

8 - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

CLIENT: Lab Order:

PBS Environmental

Client Sample ID: SS-4

0008051

Tag Number:

Project:

70086.002

Collection Date: 8/8/00

Lab ID:

0008051-04A

Matrix: SOIL

Date: 24-Aug-00

Anatyses	Result	Limit Q	asi Units	DF	Date Analyzed
HCID SOIL	N	W-TPH	······································		Analyst: smo
OA .	ND	119	mg/Kg-dry	1	8/15/00
Gatoline	ND	23.8	mg/Kg-ciry	1	8/15/00
Diesel	ND	59.5	mg/Kg-dry	1	8/15/00
Sum O-Terphenyl	85,0	50-150	%REC	1	8/15/00
PERCENT MOISTURE		2216			Analyst: tmh
% Moisture	-16	D.	wt%	1	8/15/100

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Muximum Contaminant Lovel

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

Date: 24-Aug-00

....

CLIENT:

PBS Environmental

Client Sample ID: SS-6

Tag Number:

Lab Order: Project:

0008051 70086.002

Collection Date: 8/8/00

Lab ID:

Q008051-06A

Matrix: SOIL

Analyses	Result	Limit Qu	ial Units	Dr	Date Analyzed
HCID SOIL	7	W-TPH			Analyst: smc
Oil	ND	127	mg/Kg-dry	1	8/19/00
Gasoline	ND	26.3	mg/Kg-dry	1	8/19/00
Diesel	ND	63.3	mg/Kg-dry	1	8/19/OD
Surr; O-Terphenyl	93.0	50-150	%REC	1	8/19/00
PERCENT MOISTURE	t	2215			Analyst: smc
% Moisture	21	0.	wt%	1	8/18/00

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

^{* .} Vulue exceeds Maximum Contaminant Level

S - Spike Recovery outside accupied recovery limits

R - RPD outside accepted recovery limits

B - Value above quantitation range

Date: 24-Aug-00

CLIENT:

PBS Environmental

Lab Order:

0008051

Project:

Lab ID:

70086.002

0D08051-07A

Client Sample ID: \$\$-7

Tag Number:

Collection Date: 8/8/00

Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HCID SOIL		NW-TPH				Analyst: sma
Oil	ND	123		mg/Kg-dry	1	8/15/00
Gasoline	ND	24.7		mg/Kg-dry	1	8/15/00
Diesel	ND	61.7		mg/Kg-dry	1	8/15/00
Unidentified Hydrocarbon (Gas range)	DETECT	24.7		mg/Kg-dry	1	8/15/00
Unidentified Hydrocarbon (Diosel range)	DETECT	61.7		mg/Kg-dry	1	8/15/00
Sur: O-Terphenyl	84.0	50-150		%REC	1	8/15/00
NWTPH-DX SOIL 7		NW TPH-DX	(1		Analyst; smo
Diesel '	61.7	24.7	AC	mg/Kg-dry	1	8/22/00
Oil	ND	61.7		mg/Kg-dry	1	8/22/00
Sun: O-Terphenyl ,/	84.0	50-150		%REC	1	B/22/00
GAS/BTEX, SOIL		SW-846			•	Analyst; sec
Benzene	NO	2.5		hayka-qu	500	8/21/00
Ethylbenzene	. ND	2.5		pg/Kg-dry	500	B/21/00
Toluene	ND	2.5		µg/Kg-diy	500	8/21/00
Xylenes, Total	ND	7,5		µg/Kg-dry	500	8/21/00
Gasoline	357000.0	500		µg/Kg-dry	500	8/21/00 .
Surr. Trifluorotoluene	97.8	70-130		%REC	500	8/21/00
PERCENT MOISTURE		D2216			***	Analyst: tmh
% Moisture	19	0.		wt%	1	8/15/100

Qualifiers

ND - Not Detected at the Reporting Limit

J - Analyse detected below quantitation limits

B - Analyte delected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

\$ - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

Date: 24-Aug-00

CLIENT:

PBS Environmental

Client Sample ID: \$5-9

Lab Order:

0008051

Tag Number:

Project:

70086.002

Collection Date: 8/8/00

Lab ID:

0008051-09A

Matrix: SOIL

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
HCID SOIL	· · · · · · · · · · · · · · · · · · ·	NW-TPH				Analyst: smc
O₹	ND	120		mg/Kg-ary	1	8/15/00
Gasoline	ND	24.1		mg/Kg-dry	1	6/15/00
Diesel	ND	60.2		mg/Kg-dry	1	8/15/00
Surr: O-Terphonyl	78.0	50-150		%REC	1	8/15/00
PERCENT MOISTURE		D2216				Analyst: tmh
% Moisture	17	0.		ws%	1	8/15/100

Qualifiers:

ND - Not Descreed at the Reporting Limit

I - Analyze detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

Case Narrative

ESL Job: 0008051

Aug 23, 2000

The sample 0008051-07 extracted for NWTPHD-Diesel analysis was classified as gasoline in the diesel range. This pattern extend into both the gas and diesel ranges when HCID was ran but with more thorough testing of NWTPHD-Diesel and Gas affirmed that the hydrocarbon was gasoline.

Please do not hesitate to call if there are any questions, or if we can be of further assistance in this project. Thank you.

Sarah Chapman, Chemist



1310 MAIN STREET VANCOUVER, WASHINGTON 98660 (350) 690-4331 (350) 595-9064

re Hole/Well Constru B

Project Number: 70086.002

Boring/Well Number: B-1

Sheet 1 of 1

tion Log

Project Nome: Project Location:

VANCOUVER HOUSING AUTHORITY

3200 NE 62NO AVE.

Driller/Equipment: GEOPROBE Geologist/Engineer: JASON G. COOK Sample Method: GRAB

TOC Elevation (feet above datum): N/A Surface Elevation (feet above datum): N/A
Stort/End Date: 8/10/2000
Hole Depth: 8"
Outer Hole Diam.: 6"

30	imple Method:	GKA	i D				Outer Hole Diam.: 6	
2			Sompl	e Doto				
(feet, BGS)	Wall Construction Details	Sample Interval	PID Reading (ppm)	Sample Number	Blows/IL	Lithalogic Column	Soil Description	
_ 2				,			SANDY CLAY LOAM cambic horizon, (~30%) clay content, granular peds, low PI, dry, non-sticky, slightly plastic, no odor detected (SC) Soil.	1 2 3
4 5			/	\$\$-2			SANDY LOAM oxidation features, low plasticity, slightly sticky, low PI, damp, (SM) soil, no odor detected. SS-2 Sample collected @ 5'	4
. 6 . 7				\$S-1			LOAMY SAND Redoxymorphic/mottled features, (SP) soil, poorly graded, non-sticky, non-plastic, low PI, moist, no odor detected. SS-1 Sample collected @7'	6 7
- ⁹			de la constanta de la constant				BOTTOM OF HOLE	9
_ 11								11
13								13
14	·							14
- 16 17								16
. 18								18
19								19 20

NOTES

- 1. SOIL INTERFACES AND DESCRIPTIONS ARE INTERPRETIVE AND ACTUAL CHANCES AND TRANSITIONS MAY BE CRADUAL.
- 2. WATER LEVEL IS FOR DATE SHOWN AND DAY YARY WITH THE OF YEAR.
- 3. ROIL DESCRIPTIONS NOT INTENDED TO BE USED FOR CEOTECHNICAL DESIGN PURPOSES.



1310 main street Vancouver, Washington 94660 (360) 690-4331 FAX (360) 696-9064

$\mathbf{B}($ e Hole/Well Constru

ion Log

Project Number: 70086.002

Boring/Well Number: B-2

Sheet 1 of 1

Project Name: VANCOUVER HOUSING AUTHORITY
Project Location: 3200 NE 62ND AVE.
Driller/Equipment: GEOPROBE
Geologist/Engineer: JASON G. COOK
Somple Method: GRAB

TOC Elevation (feet above datum): N/A
Surface Elevation (feet above datum): N/A
Start/End Date: 8/10/2000
Hole Depth: 8"
Outer Hole Diam.: 6"

5		T	Sompl	• Data		1		
Vert, BGS)	Well Construction Details	Sample	PIO Reading (ppm)	Somple Number	Blows/fl	Lithologic Column	Soil Description	
_ 1 _ 2							SANDY CLAY LOAM cambic horizon, (~30%) clay content, granular peds, low Pl, dry, non-sticky, slightly plastic, no odor detected (SC) Soil.	1 2 3
- 4 5				, SS-4			SANDY LOAM oxidation features, low plasticity, slightly sticky, low PI, damp, (SM) soil, no odor detected. SS-4 Sample collected @ 5'	4
6 _ 7				SS-3			LOAMY SAND Redexymorphic/mottled features, (SP) soil, poorly graded, non-sticky, non-plastic, low PI, moist, no odor detected. SS-3 Sample collected @7'	8
R.								8
_ 9							BOTTOM OF HOLE	9
_ 10		:						10
_ 17								11
. 12								12
_ 13	-							13
_ 14							·	15
_ 16		and a second sec						16
_ 17								17
_ 18								18
_ 19								19
20			<u> </u>					20

NOTES

B-2

^{1,} SOIL INTERFACES AND DESCRIPTIONS ARE INTERPRETIVE AND ACTUAL CHANGES AND TRANSITIONS MAY BE GRADUAL

^{2.} WATER LEVEL IS FOR DATE SHOWN AND MAY VARY WITH TIME OF YEAR.

^{3.} SOM DESCRIPTIONS NOT INTENDED TO BE USED FOR GEOTECHNICAL DESIGN PURPOSES.



1310 main STREET VANCOUVER, WASHINGTON 98660 (350) 690-4331 (360) FAX

e Hole/Well Constru ion Log \mathbf{B}

Project Number: 70086.002

Boring/Well Number: B-3

Sheet 1 of 1

Project Name: Project Location: 3200 NE 62ND AVE.
Driller/Equipment: GEOPROBE
Geologist/Engineer: JASON G. COOK

Sample Method:

VANCOUVER HOUSING AUTHORITY

GRAB

TOC Elevation (feet above datum): N/A Surfoce Elevation (feet obove datum): N/A
Start/End Date: 8/10/2000
Hole Depth: 8"
Outer Hole Diam.: 6"

Outer Hole Diam.:

	Simple Wethou.	0,17					00(01 11010 01011111	
10			Şampi	e Dota				- 1
Depth (feet, BGS)	Well Construction Detoils	Sample	PIO Reading (ppm)	Sample Number	Blows/ft.	Lithologic Column	Soll Description	
- ' ' - 2 - 3				\$8-5			SS-5 Sample collected SANDY CLAY LOAM cambic horizon, (~30%) clay content, granular peds. low PI. dry, non-sticky, slightly plastic, no odor detected (SC) Soil.	2
- - 4			í	SS-7			SANDY LOAM oxidation features, low plasticity, slightly sticky, low PI, damp, (SM) soil, no odor detected. SS-7 Sample collected @ 5'	- ا ا
- 6 - 7				\$\$-6			LOAMY SAND Redoxymorphic/mottled features, (SP) soil, poorly graded, non-sticky, non-plastic, low PI, moist, no odor detected. SS-6 Sample collected @7'	6
							BOTTOM OF HOLE	
10								10
11								11
13			:	÷	E			13
14 15								14
16 16								61
– 17 - - عا								17 - 18
- 19 - _ 20								19 20
	L	J		L	·	L	L	<u> </u>

NOTES

^{1.} SOR INTERFACES AND DESCRIPTIONS ARE INTERPRETIVE AND ACTUAL CHANGES AND TRANSITIONS MAY BE GRADUAL.

^{2.} WATER LEVEL IS FOR DATE SHOWN AND MAY VARY WITH TIME OF YEAR.

^{3.} SOIL DESCRIPTIONS NOT INTENDED TO BE USED FOR GEOTECHNICAL DESIGN PURPOSES.



1310 MAIN STREET VANCOUVER, WASHINGTON 98060 (380) 690-4331 FAX (360) 696-906*

e Hole/Well Constru

Project Number: 70086.002

Boring/Well Number: B-4

Sheet 1 of 1

tion Log

Project Name: Project Location: VANCOUVER HOUSING AUTHORITY

3200 NE 62ND AVE.

Driller/Equipment: GEOPROBE Geologist/Engineer: JASON G. COOK Somple Method: GRAB

TOC Elevation (feet above datum): N/A Surface Elevation (feet above datum): N/A Start/End Date: 8/10/2000
Hole Depth: 8"

6" Outer Hole Diam.:

	ompic wickloo.	GIVA					Outer Hole Bloth., O	
ડો			Sompl	e Dato				
Dapih (fesi, BGS)	Well Construction Detoils	Sample	PiO Reading (ppm)	Somple Number	Blows/It.	Lithologic Column	Soil Description	
_ 1 _ 2 _ 3							SANDY CLAY LOAM cambic horizon, (~30%) clay content, granular peds, low PI, dry, non-sticky, slightly plastic, no odor detected (SC) Soil.	1 2 3
- A			,	SS-9			SANDY LOAM oxidation features, low plasticity, slightly sticky, low PI, damp, (SM) soil, no odor detected. SS-9 Sample collected @ 5'	4
_ 6				SS-8			LOAMY SAND Redoxymorphic/mottled features, (SP) soil, poorly graded, non-sticky, non-plastic, low PI, moist, no odor detected. SS-8 Sample collected @7'	6
3 - 9						12 2 2 2 2 7 T	BOTTOM OF HOLE	<u>8</u> 9
_ 10				,		THE STATE OF THE S		10
. 12	·					er mille de de la contra en mento de la cont		12
13								13
15 16								15 16
17								17
19								18
20		<u></u>				1 1		20

NOTES

2. WATER LEVEL IS FOR DATE SMOWN AND MAY WARY WITH TIME OF YEAR,

B-4

^{1.} SOL INTERPACES AND DESCRIPTIONS ARE INTERPRETIVE AND ACTUAL CHANGES AND TRANSITIONS MAY BE CRADUAL.

^{3.} SOIL DESCRIPTIONS NOT INTENDED TO BE USED FOR GEOTECHNICAL DESIGN PURPOSES.