



Logical Solutions for Complex Problems

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DEPT OF ECOLOGY

March 8, 2006

G-Logics File Number 01-0297-B

Mr. Trinh Hoang
T T Development
15 South Grady Way
Renton, WA 98055

SUBJECT: SUBJECT: Subsurface Assessment
Hauser Property
SE Corner of South 244th St. and 26th Place South
Des Moines, WA 98198

Dear Mr. Hoang:

G-Logics Inc. presents this letter summarizing the collection and analysis of soil samples at the subject property. We understand that the City of Des Moines requires an assessment of environmental conditions at the subject property prior to approval of a planned residential development. The limitations of this work are presented on page 5.

Background

The property is 0.34 acres of undeveloped land located at the southeast corner of the intersection of South 244th Street and 26th Place South in Des Moines (Figure 1). The property was reportedly used in the 1930s by a neighboring oil-recycling facility for the disposal of oil-recycling sludge. Our review of a 1936 aerial photograph indicates that several small buildings were located at or near the current intersection of South 244th Street and 26th Place South. A small road or trail leading from the buildings to Pacific Highway South crossed the northern end of the subject property. The property appears over-grown in a 1960 aerial photograph. As seen in a 1980 aerial photograph, the soil on the northern end

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01-0297-B-RT2.doc

of the property appears to be disturbed or recently filled. Copies of the photographs are included in Appendix A.

According to documents obtained from Washington State Department of Ecology (Ecology), waste oil/sludge material placed on the subject property was moved to an undeveloped property located across 26th Place South (to the west) in the mid-1980s. This material was then encountered during construction of the Victoria Place II apartments in 1989. The contaminated soil was reportedly moved back to the subject property, though a report was not prepared. Soil samples collected by Hazcon in 1991 from a stockpile of the Victoria Place II soils (then located on the subject property) contained up to 36,000 ppm oil and 3,500 ppm lead. In 1992, the Washington State Department of Ecology (Ecology) determined that the subject site was contaminated with petroleum, arsenic, and lead. Ecology conducted a limited site cleanup in June 1997, removing enough contaminated soil to a point where restricting site access was no longer necessary (Ecology determined that no fences or other control measures would be needed).

In a September 3, 1997 letter, Ecology stated that soil contamination from past practices at the site likely remained following their June 1997 cleanup. Ecology again stated that the contaminants identified on the property were petroleum hydrocarbons, lead, and arsenic. A report of the June 1997 cleanup was not available for G-Logics review (or may not have been prepared).

A geotechnical assessment of the property was conducted by PanGEO Inc. in 2004. Petroleum-contaminated soil was encountered in one of four test pits conducted across the site (Figure 2). Test pit PG-TP-2, excavated on the west central portion of the site contained soils exhibiting a strong petroleum odor to depths up to 9 feet. PanGEO recommended that an environmental firm be retained to assist in assessing environmental issues at the property. Upon review of the 1997 Ecology letter and 2004 PanGEO report, the City of Des Moines indicated that additional environmental assessment would be required prior to allowing residential development of the property (City of Des Moines letter to Mr. Trinh Hoang, dated May 10, 2005).

Test Pit Exploration

To better access possible contamination on the Hauser Property, G-Logics conducted 12 test pits at a variety of locations across the property (TP-1 through TP-12 shown in Figure 2) on July 15, 2005. The test pits were excavated by backhoe (Spooner Contracting LLC) to depths of 7 to 8 feet. In general, the northern half of the property contained 4 to 5 feet of gravelly-sand fill. The fill was underlain by dense glacial till. Soil containing petroleum odors and blue-staining were typically encountered between 4 and 8 feet below grade in test pits conducted on the central-western portion of the property (TP-4 through TP-7 and TP-9). Near surface petroleum-staining was also encountered in TP-7 between 1 and 3 feet.

Two to four soil samples were collected from each of the test pits at depths ranging from 1 to 8 feet (the sampling depths are shown in Table 1). A total of 18 samples were submitted for analysis of diesel and oil-range total petroleum-hydrocarbons (TPH). Ten samples were selected for analysis of lead and arsenic. The results of the petroleum analysis indicated that soils containing concentrations of oil-range TPH above Ecology's Model Toxics Control Act (MTCA) of 2,000 mg/kg were present in soils collected 4 to 8 feet below grade from test pits TP-4 through TP-7 and TP-9 (3,400 to 11,000 mg/kg). A near surface sample collected at 1.5 feet in TP-7 also contained elevated TPH (26,000 mg/kg). The highest TPH concentrations were encountered in test pits TP-6 and TP-7. TPH concentrations are included on Figure 1.

A sample collected from TP-7 at 1.5 feet contained 1,900 mg/kg lead. This concentration is above the MTCA Method A residential cleanup level of 250 mg/kg. All other samples either contained no detectable concentrations of lead and arsenic, or were well below the Method A cleanup levels. Analytical results are summarized in Table 1. Laboratory reports are presented in Appendix B.

Soil Boring Exploration

To further evaluate the depth of petroleum contamination and assess the potential for possible impacts to groundwater, a hollow-stem auger boring was drilled in the area between TP-6 and TP-7 on August 12, 2005 (Boring B-1 shown in Figure 2). The drilling was conducted by Cascade Drilling. The boring was advanced to a depth of 40 feet. Samples were collected at 2.5 to 5.0-foot intervals in the upper 30 feet. Soils containing

strong petroleum odors were encountered at 5 and 7.5 feet. A sample collected at 11 feet contained a faint odor. Soil types encountered were very dense glacial till sands. Groundwater was not encountered to the maximum depth of boring (40 feet). A temporary well screen was placed in the borehole for 30 minutes to check for presence of groundwater. Groundwater was not detected in this boring.

Three soil samples from this boring were submitted for TPH analysis. Sample B1-7.5 (collected at 7.5 feet) contained 10,000 mg/kg oil-range TPH. However, sample B1-11 collected at 11 feet, contained only 160 mg/kg. Sample B1-16.5 (collected at 16.5 feet) contained no detectable TPH. Deeper samples did not have indications petroleum impacts such as odors or staining (see boring log), and therefore were not analyzed.

Three samples collected in the approximate zone of contamination (sampling depths of 5.0, 7.5, and 11 feet) were composited as sample B1-Comp. Sample B1-Comp was submitted for analysis of diesel and oil-range TPH, leachable lead (TCLP lead), PCBs, and carcinogenic polycyclic aromatic hydrocarbons (cPAHs). The analysis of this composite was conducted for characterization purposes in the event of a future soil cleanup requiring off-site disposal. The results for B1-Comp were 5,700 mg/kg oil-range TPH, and no detectable PCBs, TCLP lead, or cPAHs. The results are summarized in Table 2.

Summary and Recommendation

Based on the findings of the subsurface explorations, soils exceeding MTCA Method A cleanup levels for TPH are present in the central-west portion of the property at approximately 4 to 10 feet below grade. TPH and lead contamination is also present between 1 to 3 feet in the immediate area of TP-7. Additional contaminated soil may be present under the 26th Place South sidewalk, however this is not part of the subject property. Groundwater was not discovered in boring B-1 to the maximum depth of exploration (40 feet).

Since the property is to be developed with residential units, removal of petroleum-impacted soil from the property or onsite remediation is recommended prior to construction. Based on G-Logics sample results, at least 1,000 to 2,000 cubic yards of petroleum-contaminated soil is present on the property. More may exist in other areas not sampled. A water line is located along the western edge of the property. Therefore, removal of contaminated soil in this area may not be practicable or would require special construction measures. The area of identified contaminated soil is shown on Figure 4.

If soil excavation is selected, the costs for removal of as much as 2,000 cubic yards of petroleum-contaminated soil is estimated to be \$100,000 to \$200,000. This estimate includes excavation, trucking, and disposal of contaminated soil, sampling and analysis for confirmation of cleanup, reporting, and oversight by G-Logics. Capping and containment of the contaminated soils may also be possible, but permission from Ecology would be required.

Limitations

The areas of identified soil contamination and estimates of remedial costs are based on current site information, as described this document. Cost estimates assume that the cleanup would be managed by G-Logics. The presented cost estimates cannot be verified by G-Logics if the work is managed by another firm.

Subsurface Site Assessments are non-comprehensive by nature and are unlikely to identify all environmental problems or eliminate all risk. This report is a qualitative assessment. G-Logics offers a range of investigative and engineering services to suit the needs of our clients, including more quantitative investigations. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help to better understand and manage site risks. Since such detailed services involve greater expense, we ask our clients to participate in identifying the level of service that will provide them with an acceptable level of risk. Please contact the signatories of this report if you would like to discuss this issue of risk further.

This report is prepared for the sole use of our client. The scope of services performed during this assessment may not be appropriate for the needs of other users. Re-use of this document or the findings, conclusions, or recommendations presented herein, are at the sole risk of said user(s).

No warranty, either express or implied, is made.

Closing

Please contact us if you have questions regarding the results of the explorations or recommendations. At your request, we can provide an estimate for management and removal of the petroleum-contaminated soil, and for the subsequent reporting and Ecology-interaction to pursue site closure.

Sincerely,
G-Logics, Inc.



Rob Roberts
Project Chemist



Rory L. Galloway, LG, LHG
Principal

Attachments:

Table 1 – Test Pit Soil Sample Analysis
Table 2 – Soil Boring Sample Analysis
Figure 1 – Site Location Maps
Figure 2 – Exploration Plan and TPH Results
Figure 3 – Site Plan – Total Lead and Arsenic Results
Figure 4 – Estimated Area of Excavation
Boring Log
Appendix A – Historical Aerial Photographs
Appendix B – Laboratory Reports

TABLE 1

Soil Sample Analysis, Units in mg/kg

Samples Collected on July 15, 2005

Hauser Property, Des Moines, WA

Testpit	Sample Name	Depth (feet)	Diesel-range TPH	Oil-range TPH	Lead	Arsenic
TP-1	TP1-1	1	--	--	--	--
	TP1-4	4	--	--	121	nd
	TP1-7	7	nd	nd	--	--
TP-2	TP2-1	1	--	--	--	--
	TP2-3.5	3.5	nd	nd	--	--
	TP2-4.5	4.5	--	--	--	--
	TP2-6	6	nd	1,900	nd	nd
TP-3	TP3-1	1	--	--	--	--
	TP3-4	4	--	--	--	--
	TP3-5	5	nd	nd	--	--
TP-4	TP4-1	1	nd	nd	11	nd
	TP4-4	4	--	--	--	--
	TP4-5	5	nd	3,400	--	--
	TP4-6.5	6.5	--	--	--	--
TP-5	TP5-1	1	--	--	--	--
	TP5-4	4	nd	nd	nd	nd
	TP5-5.5	5.5	nd	4,900	--	--
	TP5-7	7	--	--	--	--
TP-6	TP6-4	4	nd	7,500	--	--
	TP6-8	8	nd	11,000	nd	nd
TP-7	TP7-1.5	1.5	nd	25,000	1,900	nd
	TP7-3	3	--	--	--	--
	TP7-6	6	nd	8,500	13	nd
TP-8	TP8-4	4	nd	66	--	--
	TP8-7	7	--	--	--	--
TP-9	TP9-4	4	--	--	--	--
	TP9-6	6	nd	4,200	120	nd
	TP9-8	8	nd	6,300	--	--
TP-10	TP10-5	5	nd	nd	15	nd
	TP10-7.5	7.5	--	--	--	--
TP-11	TP11-4	4	nd	nd	nd	nd
	TP11-8	8	--	--	--	--
TP-12	TP12-4	4	--	--	--	--
	TP12-6	6	nd	nd	--	--
MTCA Method A Cleanup Level (2)			2,000	2,000	250	20

Notes:

(1) Diesel and Oil analysis by NWTPH-Dx/Dx Extended. Lead and Arsenic analysis by EPA Method 7000 Series.

(2) Method A Soil Cleanup Levels (mg/kg), Unrestricted Land Use, Amendments Adopted August 2001, Most Conservative Cleanup Level.*

* Exceeding These Levels Do Not Necessarily Trigger Requirements For Cleanup Action Under MTCA.

nd Concentration Less Than The Laboratory Method Detection Limit.

Bold Number(s) Indicates Concentration Detected.

Bold Number(s) and Shading Indicates Concentration Exceeds MTCA Method A Cleanup Level.

-- Sample Not Analyzed.

TABLE 2

Soil Sample Analysis, Units in mg/kg
 Samples Collected on August 12, 2005
 Hauser Property, Des Moines, WA

Boring	Sample Name	Depth (feet)	Kerosene and Diesel-range TPH	Oil-range TPH	TCLP Lead	PCBs	cPAHs
B-1	B1-7.5	7.5	300	10,000	--	--	--
	B1-11	11	nd	160	--	--	--
	B1-16.5	16.5	nd	nd	--	--	--
	B1-Comp	5 to 11	230	5,700	nd	nd	nd
MTCA Method A Cleanup Level (2)			2,000	2,000			

Notes:

(1) Diesel and Oil analysis by NWTPH-Dx/Dx Extended. Lead and Arsenic analysis by EPA Method 7000 Series.

(2) Method A Soil Cleanup Levels (mg/kg), Unrestricted Land Use, Amendments Adopted August 2001, Most Conservative Cleanup Level.*

* Exceeding These Levels Do Not Necessarily Trigger Requirements For Cleanup Action Under MTCA.

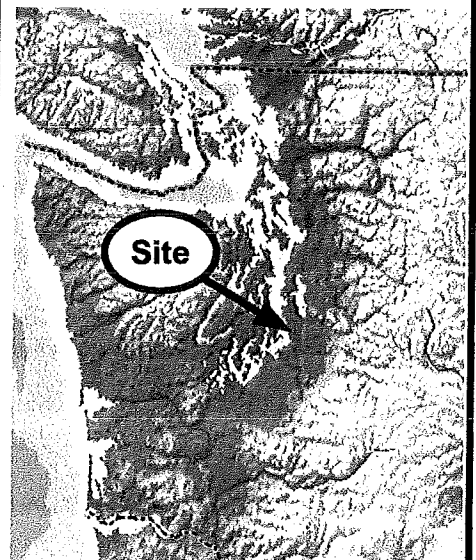
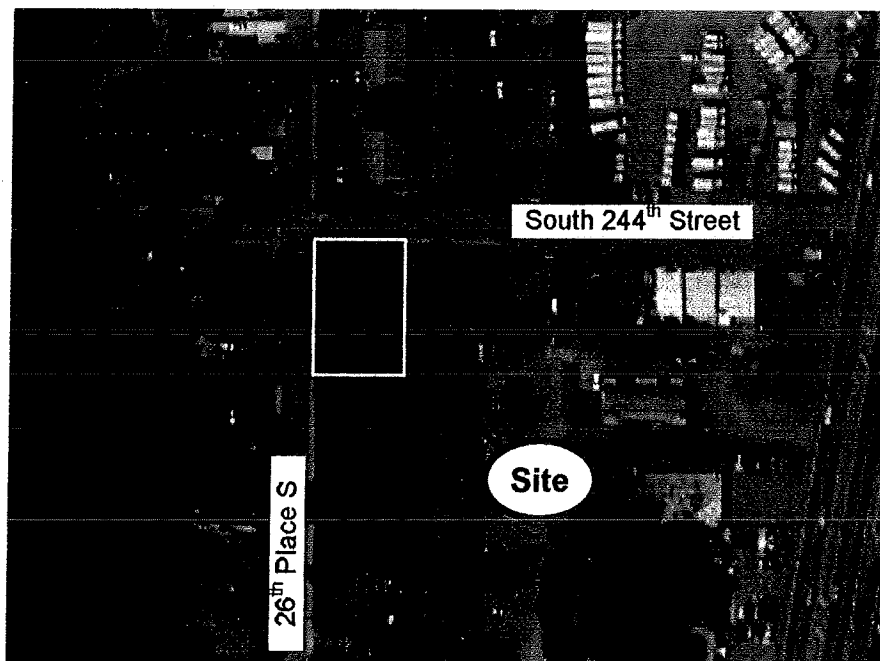
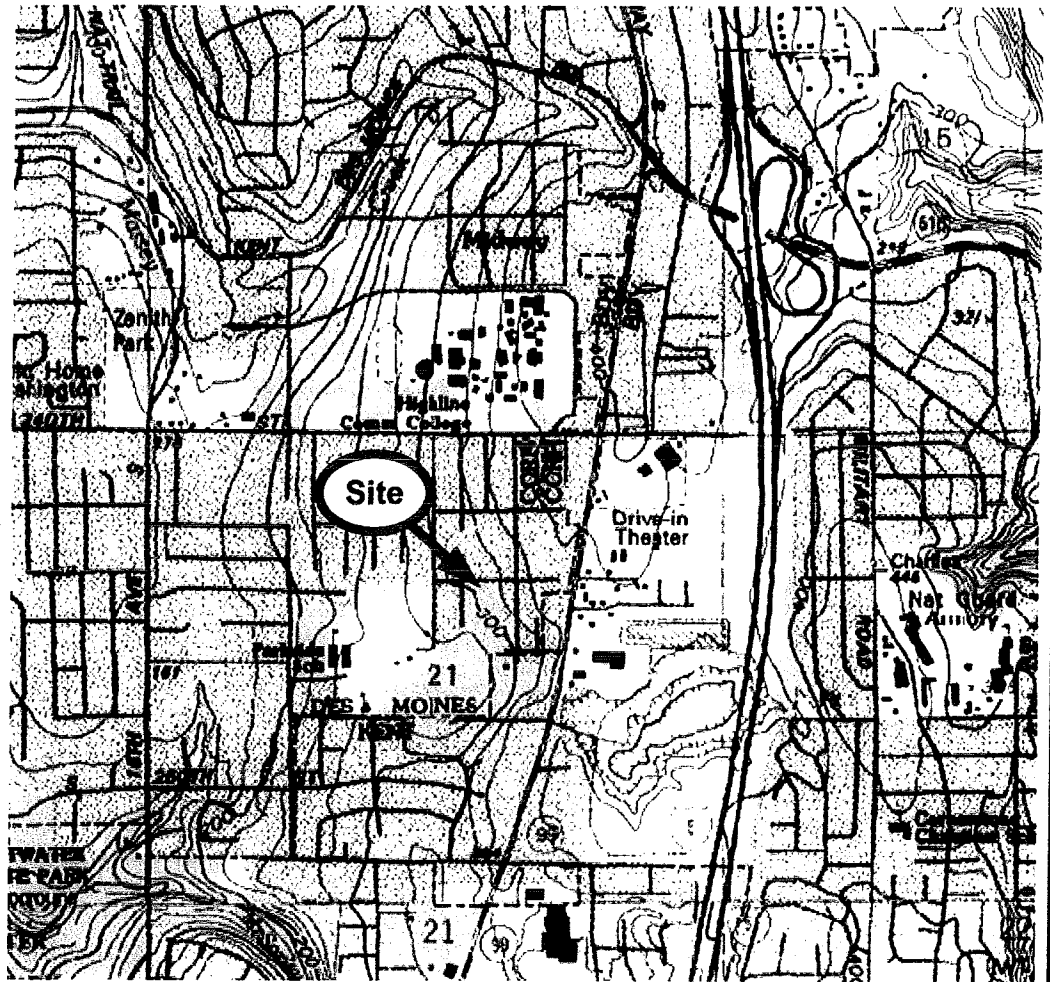
Sample B-1 Comp is a composite of B1-5.0, B1-7.5, and B1-11.

nd Concentration Less Than The Laboratory Method Detection Limit.

Bold Number(s) Indicates Concentration Detected.

Bold Number(s) and Shading Indicates Concentration Exceeds MTCA Method A Cleanup Level.

-- Sample Not Analyzed.



Project File: 01-0297-B-F1.vsd

USGS 2002 Aerial Photograph

Topographic mapping from Delorme 3-D TopoQuads

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Site Location Maps

Hauser Property

26th Place South and South 244th

Des Moines, Washington

Figure

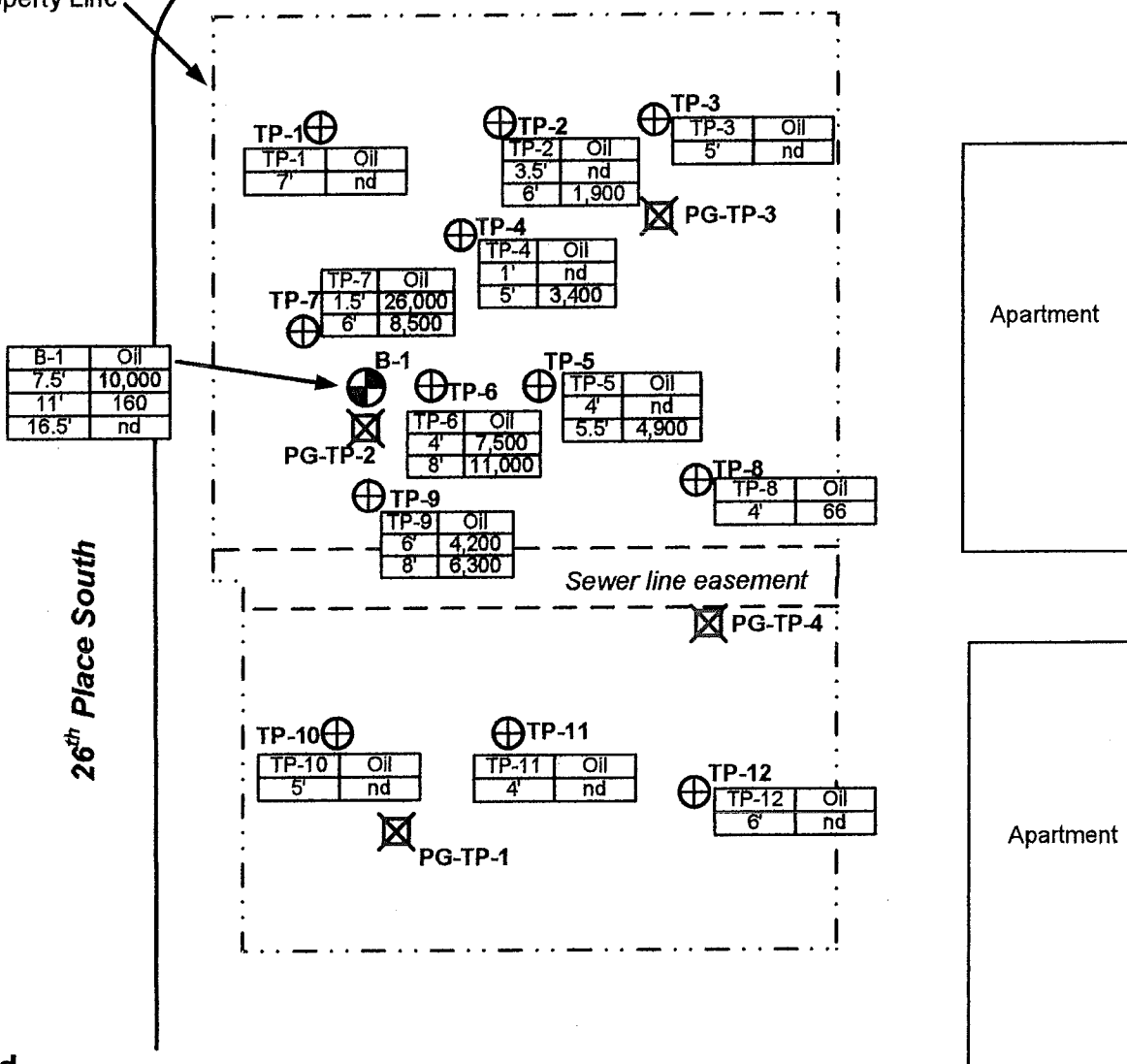
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South 244th Street

Approximate
Property Line

Sidewalk



Legend

- PG-TP-1 PanGEO geotechnical Test Pit (2004)
- B-1 Soil Boring (August 12, 2005)
- TP-1 G-Logics environmental Test Pit location (July 14, 2005)

Exploration I.D.

TP-5	Oil
4'	nd
5.5'	4,900

nd - analyte not detected
Oil concentration in mg/kg

Sample depth in feet

Approximate Drawing Scale: 1" = 30'

0 ft. 18 ft. 30 ft. 60 ft.

Mapping Reference: Cramer Northwest Survey (2003), Pangeo report, USGS aerial photograph (2002), and G-Logics site measurements

Exploration Plan and TPH Results

Hauser Property

Southeast Corner 26th Place South and South 244th Street

Des Moines, Washington

Figure

2

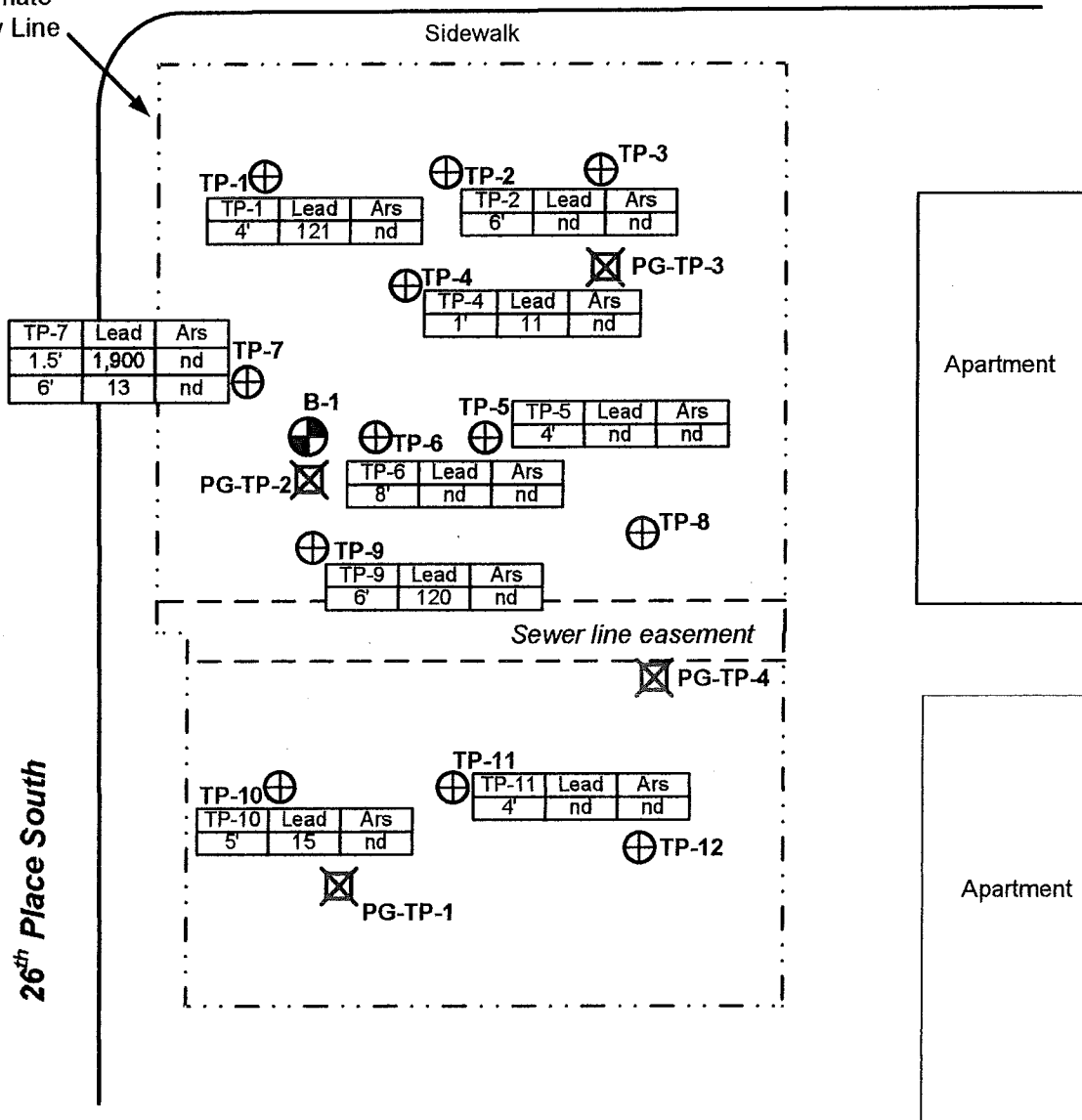
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South 244th Street

Approximate
Property Line

Sidewalk



Legend

- B-1 Soil Boring (August 12, 2005)
- PG-TP-1 PanGEO geotechnical Test Pit (2004)
- TP-1 G-Logics environmental Test Pit location (July 14, 2005)

Test Pit

I.D.

TP-7	Lead	Ars
1.5'	1,900	nd
6'	13	nd

nd - analyte not detected

Soil concentration in mg/kg

Sample depth in feet

Note: Soil concentrations exceeding MTCA Method A cleanup level (Lead=250 mg/kg, Arsenic 20 mg/kg) are **highlighted**

Approximate Drawing Scale: 1" = 30'

0 ft. 18 ft. 30 ft. 60 ft.

Mapping Reference: Cramer Northwest Survey (2003), Pangeo report, USGS aerial photograph (2002), and G-Logics site measurements

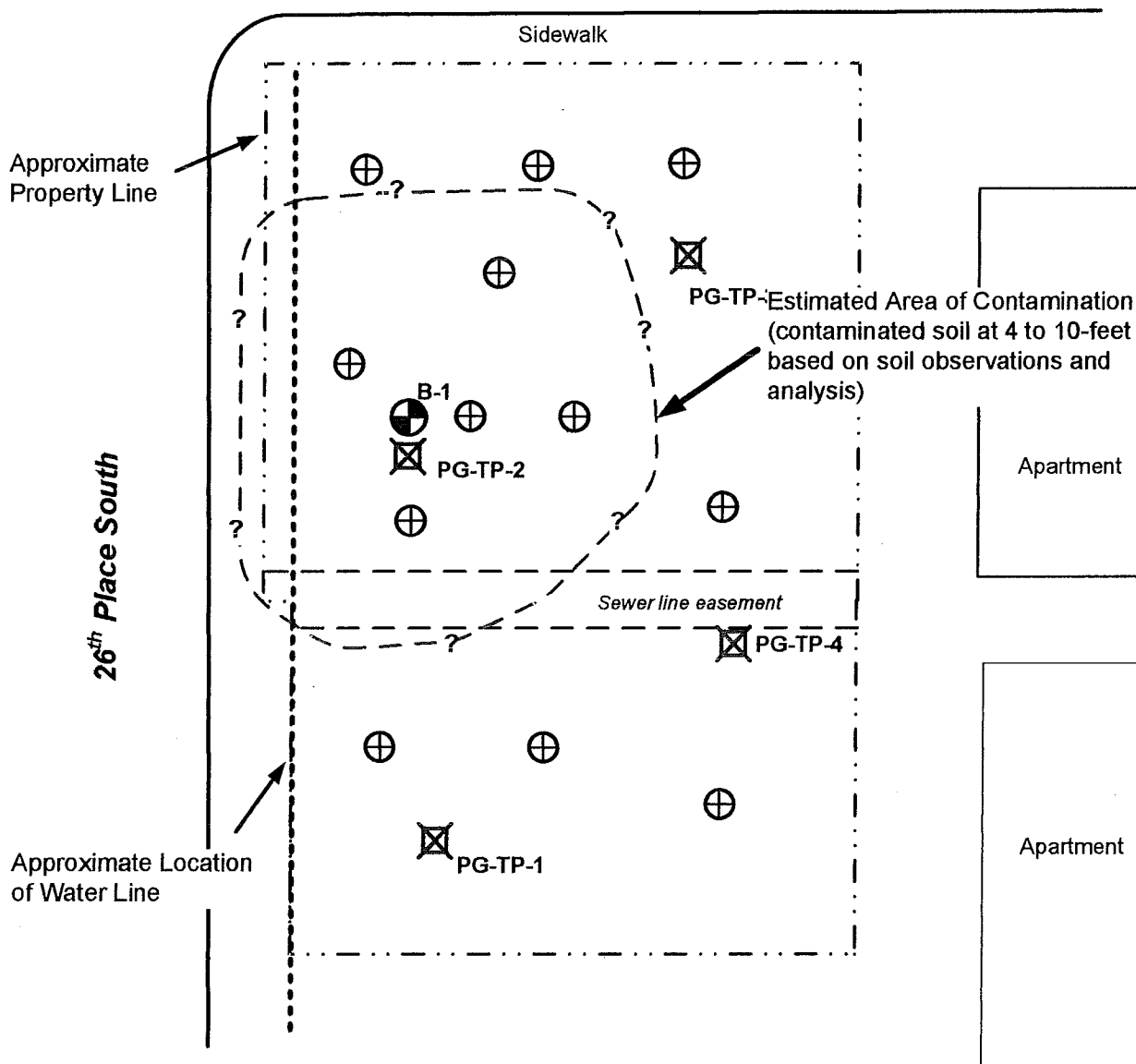
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Site Plan – Total Lead and Arsenic Results
Hauser Property Test Pits
SE Corner of 26th Place South and South 244th Street
Des Moines, Washington




Figure
3



South 244th Street



Legend

- PG-TP-1  PanGEO Test Pit (2004)
- B-1  Soil Boring (August 12, 2005)
-  G-Logics Test Pit location (July 14, 2005)

Approximate Drawing Scale: 1" = 30'

0 ft. 18 ft. 30 ft. 60 ft.

Mapping Reference: Cramer Northwest Survey (2003), Pangeo report, USGS aerial photograph (2002), and G-Logics site measurements

Project File: 01-0297-B-F4.vsd

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Estimated Area of Impacted Soils

Hauser Property

Southeast Corner 26th Place South and South 244th Street

Des Moines, Washington

Figure

4

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	WELL CONSTRUCTION
0			Surface: Grass			No Well Installed (see note on Page 2 regarding temporary well screen).
			Initial drill cuttings have no odors.			
100/6		B1-5	Very Dense, damp, blue-gray silty sand (FILL) Strong petroleum odor.	30	SM	
31						
50/6		B1-7.5	Same as above (FILL), with more gravel, strong odor	30		
100/6		B1-11	Very dense, Olive-green damp silty gravelly sand (Native Glacial TILL). Moderate to faint odor.	40		
50/6		B1-14	Same as above, no odor	90		
50/6		B1-16.5	Same as above, becomes very gravelly, more brown.	90		
50/6		B1-21.5	Same as above. No odor.	50		
50/6		B1-26	Same as above, some oxidation noted.	30		
30	Depth in feet					

Drilling Method: Hollow Stem Auger

Date: 08-12-05

Other Information:

Drilling Company: Cascade Drilling

Weather: Clear/Sunshine

Sampled with 300 lb. wire line hammer and 18"

Boring Diameter: 8 inches

Page 1 of 2

Dames & Moore split spoon.

Logged By: Rob Roberts

g-logics

Boring Log
Hauser Property
South 244th and 26th Place
Shoreline, WA

B-1

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	WELL CONSTRUCTION
30	50/6	B1-31	Same As Above. No odor.	40	SM	
35		No sample	Same As Above. No odor.	30		
40	50/6	B1-41	Same As Above. No groundwater encountered. Bottom of Boring at 41 feet on 8-12-05.	25	▽	
45						
50						
55						
60						

Depth in feet

Drilling Method: Hollow Stem Auger	Date: 08-12-05	Other Information: Installed temporary well screen (10-slot) at 35 to 40 feet for 30 minutes. No groundwater was encountered.
Drilling Company: Cascade Drilling	Weather: Clear/Sunshine	
Boring Diameter: 8 inches	Page <u>2</u> of <u>2</u>	
Logged By: Rob Roberts		



Boring Log
Hauser Property
South 244th and 26th Place
Des Moines, WA

B-1

APPENDIX A



1936

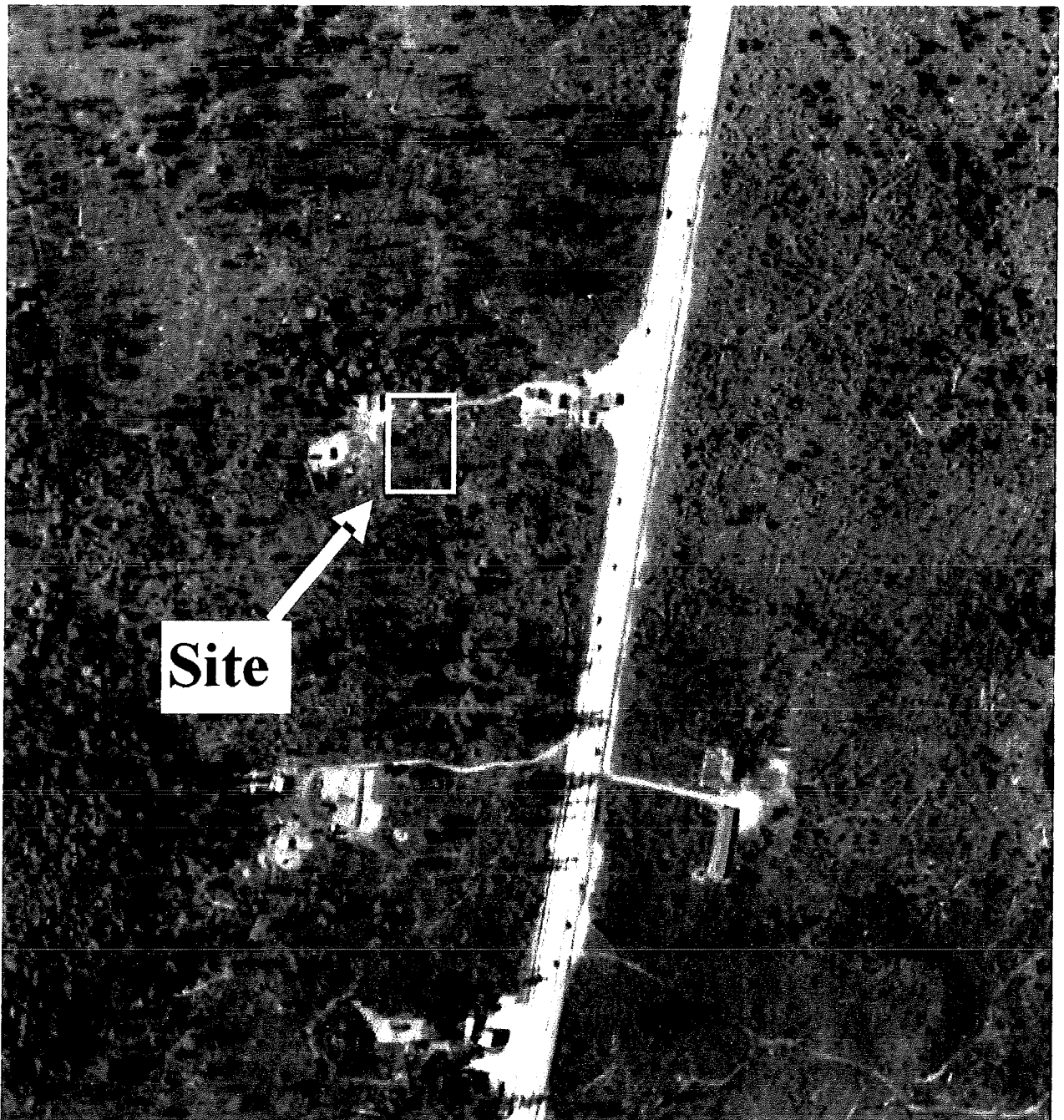


Photo Source: Walker & Associates



1960



Photo Source: Walker & Associates



1980



Photo Source: Walker & Associates

APPENDIX B

July 22, 2005

Rob Roberts
G – Logics
175 First Place NW
Suite A
Issaquah, WA 98027

Dear Mr. Roberts:

Please find enclosed the analytical data report for the Hauser Project located in Des Moines, Washington. Soil samples were analyzed for Diesel and Oil by NTWPH-Dx/Dx Extended and Pb & As by Method 7000 series on July 19 & 20, 2005.

The results of the analyses are summarized in the attached tables. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to G – Logics for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Michael A. Korosec
President

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S50715-3
Client: G-LOGICS
Client Job Name: HAUSER
Client Job Number: 297-B

Analytical Results

NWTPH-Dx, mg/kg	MTH BLK	TP1-7	TP2-3.5	TP2-6	TP3-5	TP4-1	TP4-5	TP5-4
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05
Date analyzed	Limits	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05
Moisture, %		5%	6%	4%	8%	4%	10%	4%
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	1,900	nd	nd	3,400	nd
Surrogate recoveries:								
Fluorobiphenyl		93%	88%	81%	89%	84%	88%	83%
o-Terphenyl		109%	107%	100%	110%	102%	106%	100%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S50715-3
Client: G-LOGICS
Client Job Name: HAUSER
Client Job Number: 297-B

Analytical Results

NWTPH-Dx, mg/kg		TP5-5.5		TP6-4		TP6-8		TP7-1.5		TP7-6		TP8-4		TP9-6		TP10-5		TP9-8	
Matrix	Soil	Reporting		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
		Limits		Limits		Limits		Limits		Limits		Limits		Limits		Limits		Limits	
Date extracted	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05	07/18/05
Date analyzed	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05	07/19/05
Moisture, %	8%	8%	11%	11%	8%	8%	9%	9%	6%	6%	7%	16%	2%	17%	17%	17%	17%	17%	17%
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd
Heavy oil	50	4,900	7,500	11,000	25,000	8,500	66	4,200	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	6,300
Surrogate recoveries:																			
Fluorobiphenyl	84%	84%	85%	90%	90%	88%	88%	88%	88%	88%	88%	88%	88%	82%	82%	83%	83%	87%	87%
o-Terphenyl	106%	106%	109%	119%	116%	116%	116%	116%	116%	116%	106%	106%	106%	110%	110%	100%	100%	111%	111%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
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C - coelution with sample peaks
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J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S50715-3
Client: G-LOGICS
Client Job Name: HAUSER
Client Job Number: 297-B

Analytical Results		DUP	
NWTPH-Dx, mg/kg		TP11-4	TP12-6
Matrix	Soil	Soil	Soil
Date extracted	Reporting	07/18/05	07/18/05
Date analyzed	Limits	07/19/05	07/19/05
Moisture, %		7%	7%
Kerosene/Jet fuel	20	nd	nd
Diesel/Fuel oil	20	nd	nd
Heavy oil	50	nd	nd
Surrogate recoveries:			
Fluorobiphenyl		87%	81%
o-Terphenyl		105%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
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J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

CHAIN-OF-CUSTODY RECORD

CLIENT: G-Logics DATE: 7/15/05 PAGE 1 OF 2

ADDRESS: 175 1st Place NW SUITE A PROJECT NAME: HAUSER

PHONE: 425-391-6874 FAX: 425-313-3074 LOCATION: DES MOINES

CLIENT PROJECT #: 297-B PROJECT MANAGER: R. ROBERTS COLLECTOR: DAN ROBERTS DATE OF COLLECTION: 7/14

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	TPH-HCl	TPH 8015 (aqueous)	TPH 8015 (dioxin)	PAH 8100	PCBS 8082	EPH	VPH	Methamphetamine	Hex Chrom	Notes	Total Number of Containers	Laboratory Note Number
TP1-4			S&L	402												1	
TP1-1																1	
TP1-7																1	
TP2-1																1	
TP2-3.5																1	
TP2-4.5																1	
TP2-6																1	
TP3-1																1	
TP3-4																1	
TP3-5																1	
TP4-1																1	
TP4-4																1	
TP4-5																1	
TP4-6.5																1	
TP5-1																1	
TP5-4																1	
TP5-5.5																1	
TP5-7																1	

ELINQUISHED BY (Signature) [Signature] DATE/TIME 7/15/05 RECEIVED BY (Signature) [Signature] DATE/TIME 7/15/05 1030

ELINQUISHED BY (Signature) [Signature] DATE/TIME 7/15/05 RECEIVED BY (Signature) [Signature] DATE/TIME 7/15/05

SAMPLE DISPOSAL INSTRUCTIONS

☐ ESN DISPOSAL @ \$2.00 each ☐ Return ☐ Pickup

LABORATORY NOTES:

TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SEALS Y/N/NA

SEALS INTACT? Y/N/NA

RECEIVED GOOD COND./COLD

NOTES:

Turn Around Time: 24 HR 48 HR 5 DAY

CHAIN-OF-CUSTODY RECORD

CLIENT: G-Lagge DATE: 7/15/05 PAGE 2 OF 2

ADDRESS: 175 1st Place NW Suite A PROJECT NAME: Hauser

PHONE: (125) 391-6871 LOCATION: Des Moines

CLIENT PROJECT #: _____ COLLECTOR: Rob Roberts DATE OF COLLECTION: 7/14

PROJECT MANAGER: Rob Roberts FAX: _____

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES	VOA 8021B	VOA 8021B BTEX ONLY	TPH - HCD	TPH 8015 (Grease)	TPH 8015 (Aqueous)	PAH 8100	PAH 8270	PCBS 8082	EPH	VPH	Methamphetamine	Pb 115	Hex Chrome	NOTES	Total Number of Containers	Laboratory Note Number
TP6-4			3012	402					X	X										1	
TP6-8									X	X										1	
TP7-1.5									X	X										1	
TP7-3									X	X										1	
TP7-6									X	X										2	
TP8-4									X	X										1	
TP8-7									X	X										1	
TP9-4									X	X										1	
TP9-6									X	X										1	
TP10-5									X	X										1	
TP10-7.5									X	X										1	
TP9-8									X	X										1	
TP11-4									X	X										1	
TP11-8									X	X										1	
TP12-4									X	X										1	
TP12-6									X	X										1	

ELINQUISHED BY (Signature) Rob Roberts DATE/TIME 7/15/05 RECEIVED BY (Signature) Rob Roberts DATE/TIME 7/15/05

ELINQUISHED BY (Signature) Rob Roberts DATE/TIME 7/15/05 RECEIVED BY (Signature) Rob Roberts DATE/TIME 7/15/05

SAMPLE DISPOSAL INSTRUCTIONS

☐ ESN DISPOSAL @ \$2.00 each ☐ Return ☐ Pickup

LABORATORY NOTES:

TOTAL NUMBER OF CONTAINERS

CHAIN OF CUSTODY SEALS Y/N/NA

SEALS INTACT? Y/N/NA

RECEIVED GOOD COND./COLD

NOTES:

Turn Around Time: 24 HR 48 HR 5 DAY

ESN NORTHWEST CHEMISTRY LABORATORY

HAUSER PROJECT
Des Moines, Washington
G-Logics

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Lead (Pb) EPA 7420 (mg/kg)	Arsenic (As) EPA 7061 (mg/kg)
Method Blank	7/20/05	nd	nd
TP1-4	7/20/05	121	nd
TP2-6	7/20/05	nd	nd
TP4-1	7/20/05	11	nd
TP5-4	7/20/05	nd	nd
TP6-8	7/20/05	nd	nd
TP7-1.5	7/20/05	1,900	nd
TP7-6	7/20/05	13	nd
TP9-6	7/20/05	120	nd
TP10-5	7/20/05	15	nd
TP10-5 Dup.	7/20/05	11	nd
TP11-4	7/20/05	nd	nd
Method Detection Limits		5	5

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

HAUSER PROJECT
Des Moines, Washington
G-Logics

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number: #10						
Matrix Spike			Matrix Spike Duplicate			RPD
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Lead	250	219	88	250	213	85
Cadmium	25.0	20.5	82	25.0	21.8	87
Chromium	250	194	78	250	201	80
Arsenic	250	200	80	250	202	81
						2.78
						6.15
						3.54
						1.00

Laboratory Control Sample			
Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)	
Lead	250	236	94
Cadmium	25.0	24.7	99
Chromium	250	242	97
Arsenic	250	230	92

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%
ANALYSES PERFORMED BY: Matthew Sebonia

September 9, 2005

Rob Roberts
G – Logics
175 First Place NW
Suite A
Issaquah, WA 98027

Dear Mr. Roberts:

Please find enclosed the analytical data report for the Former Hauser Project Site located in Des Moines, Washington. Soil samples were analyzed for Diesel and Oil by NTWPH-Dx/Dx Extended, PAH's by Method 8270, PCB's by Method 8082, Pb by Method 7420, and TCLP Pb by Method 1311 on August 16 – 24, 2005.

The results of the analyses are summarized in the attached tables. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to G – Logics for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,



Michael A. Korosec
President

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S50812-6
Client: G-LOGICS
Client Job Name: FORMER HAUSER SITE
Client Job Number: 01-0297-B

Analytical Results															
NWTPH-Dx, mg/kg		MTH BLK		B1-7.5		B1-11		B1-16.5		QC SAMPLE		MTH BLK		B-1 COMP	
Matrix		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Date extracted	Reporting		08/15/05	08/15/05	08/15/05	08/15/05	08/15/05	08/16/05	08/16/05	08/16/05	08/16/05	08/16/05		08/23/05	
Date analyzed	Limits	08/16/05	08/16/05	08/16/05	08/16/05	08/16/05	08/16/05	08/16/05	08/17/05	08/17/05	08/17/05	08/17/05	08/24/05	08/24/05	
Moisture, %			11%		6%		6%		6%					7%	
Kerosene/Jet fuel	20	nd	300	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	230	
Diesel/Fuel oil	20	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd	nd		
Heavy oil	50	nd	10,000	160	nd	nd	nd	nd	nd	nd	nd	nd	nd	5,700	
Surrogate recoveries:															
Fluorobiphenyl		103%	C	103%	98%	92%	93%	94%	129%						
o-Terphenyl		110%	C	109%	103%	99%	98%	102%							

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S50812-6
Client: G-LOGICS
Client Job Name: FORMER HAUSER SITE
Client Job Number: 01-0297-B

Analytical Results		B1-COMP B1-COMP					
PAH(8270), mg/kg	MTH BLK	LCS	B1-COMP	MS	MSD	RPD	
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	
Date extracted	Reporting		08/23/05	08/23/05	08/23/05	08/23/05	
Date analyzed	Limits	08/24/05	08/24/05	08/24/05	08/24/05	08/24/05	
Moisture, %			7%				
Acenaphthene	0.10	nd	102%	nd	87%	97%	11%
Acenaphthylene	0.10	nd		nd			
Anthracene	0.10	nd		nd			
Benzo(a)anthracene*	0.10	nd		nd			
Benzo(a)pyrene*	0.10	nd	117%	nd	112%	119%	6%
Benzo(b)fluoranthene*	0.10	nd		nd			
Benzo(ghi)perylene	0.10	nd		nd			
Benzo(k)fluoranthene*	0.10	nd		nd			
Chrysene*	0.10	nd		nd			
Dibenzo(a,h)anthracene*	0.10	nd		nd			
Fluorene	0.10	nd		nd			
Fluoranthene	0.10	nd	106%	nd	92%	101%	9%
Indeno(1,2,3-cd)pyrene*	0.10	nd		nd			
Naphthalene	0.10	nd		0.14			
1-Methylnaphthalene	0.10	nd		0.10			
2-Methylnaphthalene	0.10	nd		0.11			
Phenanthrene	0.10	nd		0.20			
Pyrene	0.10	nd		0.16			
Total Carcinogens				nd			
Surrogate recoveries:							
2-Fluorobiphenyl		85%	100%	89%	84%	85%	
p-Terphenyl-d14		74%	99%	96%	87%	89%	

Data Qualifiers and Analytical Comments

* - Carcinogenic Analyte

nd - not detected at listed reporting limits

na - not analyzed

C - coelution with sample peaks

M - matrix interference

J - estimated value

Results reported on dry-weight basis

Acceptable Recovery limits: 50% TO 150%

Acceptable RPD limit: 35%

ESN SEATTLE CHEMISTRY LABORATORY
(425) 957-9872, fax (425) 957-9904

ESN Job Number: S50812-6
Client: G-LOGICS
Client Job Name: FORMER HAUSER SITE
Client Job Number: 01-0297-B

Analytical Results					DUP
8082(PCBs), mg/kg	MTH BLK		LCS	B1-COMP	B1-COMP
Matrix	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	08/23/05		08/23/05	08/23/05
Date analyzed	Limits	08/24/05	08/24/05	08/24/05	08/24/05
Moisture, %				7%	7%
A1221	0.50	nd		nd	nd
A1232	0.50	nd		nd	nd
A1242 (A1016)	0.50	nd		nd	nd
A1248	0.50	nd		nd	nd
A1254	0.50	nd		nd	nd
A1260	0.50	nd	93%	nd	nd
Surrogate recoveries:					
Tetrachloro-m-xylene		94%	105%	64%	67%
Decachlorobiphenyl		76%	90%	66%	69%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
na - not analyzed
C - coelution with sample peaks
M - matrix interference
J - estimated value
Results reported on dry-weight basis
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN NORTHWEST CHEMISTRY LABORATORY

FORMER HAUSER SITE PROJECT
Washington
G-Logics

Heavy Metals in Soil by EPA-7000 Series

Sample Number	Date Analyzed	Lead (Pb)
		EPA 7420 (mg/kg)
Method Blank	8/17/05	nd
B1-7.5	8/17/05	nd
B1-7.5 Dup.	8/17/05	nd
Method Detection Limits		5

"nd" Indicates not detected at listed detection limits.

ANALYSES PERFORMED BY: Matthew Sebonia

ESN NORTHWEST CHEMISTRY LABORATORY

FORMER HAUSER SITE PROJECT
Washington
G-Logics

QA/QC Data - Total Metals EPA-7000 Series Analyses

Sample Number: 3-74-1-L
Matrix Spike

Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
250	222	89
Lead		

Spiked Conc. (mg/kg)	Measured Conc. (mg/kg)	Spike Recovery (%)
250	251	100
Laboratory Control Sample		
Lead		

ACCEPTABLE RECOVERY LIMITS FOR MATRIX SPIKES: 65%-135%
ACCEPTABLE RPD IS 35%

ANALYSES PERFORMED BY: Matthew Sebonia