LUST #1365

GLACIER
NORTHWEST

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UST # 2211

April 29, 2003

Department of Ecology
Northwest Regional Office
3190 160th Avenue S.E.
Bellevue, Washington 98008-5452

COPY

Attention: Mr. John Bails

Subject: Leak Investigation
Glacier Northwest, Inc. Seattle Ready-Mix Plant

Dear Mr. Bails:

The purpose of this letter is to transmit the results of our investigation into a leak of diesel fuel that occurred at the Glacier Northwest, Inc. Seattle Ready-Mix Plant on March 5, 2003. The leak was reported to the State Division of Emergency Management promptly after it was discovered, and was at that time assigned tracking number 03-044. As indicated in our initial spill report and in the attached report, the leak occurred from a fitting in the diesel pump that serves the underground dieselfuel storage tank at our Seattle facility.

The consulting firm that assisted us with the investigation concluded that groundwater was not affected by the leak, and that the effects of the spill appear to be confined to the backfill directly under the pump. Based on these conclusions and the recommendations in the attached report, Glacier Northwest plans to remove the affected backfill from under the pump and collect confirmatory samples to make sure that contamination associated with the spill has been addressed. We propose to mix the contaminated backfill, which consists of fine sand and pea gravel, with concrete, and form the mixed concrete into Ecology blocks. We also plan on upgrading the fuel island as recommended by the consultant to prevent similar spills from occurring in the future.

Feel free to contact me at (206) 768-7612 if you should have any questions or require additional information.

Sincerely,

Thomas G. Hanson
Environmental Manager, Washington Division

Enc.

cc: Scott Isaacson
Mark Leatham (w/o enclosure)
Darrell Herman

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UST # 2211

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Logical Solutions for Complex Problems

GLACIER NORTHWEST INC

Pump Island and UST Area Exploration
Seattle Ready Mix Plant
5975 E. Marginal Way S
Seattle, WA 98134

⇒ UST # 2211
ERTS # 532284

Prepared for: Mr. Thomas Hanson
Glacier Northwest
PO Box 1730
Seattle, WA 98111-1730

Prepared by: G-Logics, Inc.
175 First Place NW, Suite A
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Telephone: (425) 391-6874
Facsimile: (425) 313-3074

April 3, 2003

G-Logics Project 01-0272-A

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Logical Solutions for Complex Problems

April 3, 2003
G-Logics Project 01-0272-A

Mr. Thomas Hanson
Glacier Northwest
PO Box 1730
Seattle, WA 98111-1730

Subject: Pump Island and UST Area Exploration
Seattle Ready Mix Plant
5975 E. Marginal Way S
Seattle, WA 98134

Dear Mr. Hanson:

Presented in this report are the results of G-Logics' site exploration conducted in response to a recently discovered diesel leak at the above referenced property. This report documents the purpose, approach, and results of this exploration as well as G-Logics' conclusions and recommendations for additional work. We trust the information presented in this report meets your needs at this time. Should you require additional information or have any questions, please contact us at your convenience. Thank you again for this opportunity to be of service.

Sincerely,

G-Logics, Inc.

Rory L. Galloway, RG
Principal

Rob Roberts
Project Manager

G-Logics, Inc.
175 First Place NW, Suite A
Issaquah, WA 98027
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01-0272-A-RT.doc

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EXECUTIVE SUMMARY

A Phase II soil and groundwater exploration was conducted at the Glacier Northwest (Glacier) Seattle Ready Mix Plant to characterize the nature and extent of petroleum hydrocarbon impacts related to a leaking fitting in the eastern diesel dispenser. Approximately three cubic yards of petroleum-impacted soil has been excavated and removed from the site by Glacier. G-Logics and subcontract personnel completed six soil borings on the subject property on March 21, 2003. The borings were completed at locations surrounding the fuel dispensers and adjacent gasoline and diesel tanks.

Soil and groundwater samples were collected using a truck-mounted Strataprobe system and analyzed for gasoline-range organics (GRO), diesel-range organics (DRO), benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tertiary-butyl ether (MTBE). None of the soil or groundwater samples submitted for analysis contained detectable concentrations of the analytes listed above.

Based on the results of this exploration, G-Logics concludes that:

- Groundwater has not been impacted by the diesel release or other fuel releases related to the tank systems.
- Soil impacted by the diesel release is still present, though appears to be confined to the tank backfill material surrounding the diesel fuel dispenser.
- Remediation of additional diesel-impacted soil (where practical), with the collection of confirmation samples is recommended to minimize the potential for future impacts to groundwater.

1.0 INTRODUCTION

This report documents a soil and groundwater exploration designed to identify if soil or groundwater has been impacted with petroleum hydrocarbons due to a discovered leak in the diesel fuel dispenser. Based on the results of this exploration and a comparison to MTCA Cleanup Levels, recommendations then can be made regarding the need for remediation or treatment to reduce any contaminants to levels acceptable under MTCA.

Our work was performed in accordance with our workplan dated March 12, 2003. The results of our site exploration are presented in this report and are subject to the limitations presented in this report.

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2.0 BACKGROUND

Two underground storage tanks (USTs) are located at Glacier's Seattle Ready Mix property (Figure 1) in an area adjacent to the truck-wash rack (Figure 2). The area surrounding the USTs and wash rack is paved with 12-inch thick concrete. Rain water and wash-water drain to a facility-wide stormwater system equipped with settling basins and an oil/water separator. The fuel USTs (6,000-gallon gasoline and 10,000-gallon diesel) provide fuel to management vehicles and facility-support equipment. The tank systems reportedly were installed in 1989. During an upgrade of the fuel-delivery documentation system in early March 2003, Glacier personnel identified a leaking fitting within the eastern diesel-fuel dispenser. A drip pan was not located beneath this dispenser, allowing the diesel fuel to enter soil directly beneath the dispenser. Glacier subsequently reported the release to Mr. Carl Andersen at the Washington State Department of Ecology (Ecology).

Glacier personnel disconnected the dispenser, removed a section of concrete paving, and excavated approximately three cubic yards of affected soil immediately east of the diesel dispenser. Glacier discovered that the contamination apparently extends into the tank-backfill materials. The excavation was covered with plastic to prevent surface water infiltration.

During a site visit by G-Logics on March 7, 2003, two existing monitoring wells within the corners of the UST excavation were inspected. The wells contained 4-inch diameter PVC casings (slotted to the surface) and contained a few inches of water at approximately 10 feet below grade. The amount of water in the wells did not appear to be sufficient for sampling. Based on the observed site conditions, G-Logics prepared a workplan for exploration (dated March 12, 2003).

2.1 Regulatory Background

The rules that guide the cleanup process at sites within Washington are known as the Model Toxics Control Act (MTCA), which is administered by the Washington Department of Ecology. MTCA "establishes administrative processes and standards to identify, investigate, and cleanup facilities where hazardous substances have come to be located" (WAC 173-340-100). Soil and groundwater Cleanup Levels promulgated under MTCA are used as standards for deciding when additional investigation or cleanup is appropriate.

Collected samples were analyzed in general accordance with Table 830-1 (Required Testing for Petroleum Releases) found in the MTCA Cleanup Regulation. For this project, we have compared analytical laboratory results to published MTCA Method A Cleanup Levels for soil and groundwater. However, the MTCA regulation states that published Cleanup Levels should not automatically be used to define contaminant concentrations that must be met for financial, real estate, insurance coverage, or similar purposes. Additionally, exceeding MTCA published Cleanup Levels does not necessarily mandate a cleanup action for a site.

3.0 SITE EXPLORATION ACTIVITIES

To provide information on possible soil and groundwater contamination in the area surrounding the leaking pump and associated USTs, a subsurface exploration was conducted on the subject property. The exploration included completion of six Strataprobe soil borings. In order to access the shallow groundwater quality within the area of concern, groundwater samples were extracted from five of the boreholes. A G-Logics field representative was present during the exploration to observe and document soil conditions. (Note: All G-Logics field representatives are registered with the Washington Department of Ecology (Ecology) Underground Storage Tank Program to perform tank site assessments [WAC 173-360-600 through 173-360-680].) The following tasks were executed under this scope of services:

3.1 Soil Borings

On March 21, 2003, Strataprobe soil borings were advanced at six locations (TB-1 through TB-6). Boring locations were selected based on the location of the dispenser, tanks, and Glacier's soil excavation. During drilling, soil samples were collected for soil identification and chemical analysis. Samples were collected using a 1.5-inch inner diameter split-spoon sampler. Samples were also field-screened for visual and olfactory indications of petroleum impacts.

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Selected soil samples were submitted to the analytical laboratory and analyzed by the following methods:

Analyses	Quantity
Total Petroleum Hydrocarbons as Diesel and Oil (NWTPH-Dx)	8
Total Petroleum Hydrocarbons as Gasoline (NWTPH-G)	4
BTEX (EPA 8260B)	4
MTBE (EPA Method 8260B)	2

Since gasoline was not detected in any of the samples, analysis of gasoline additives including lead, dibromoethane (EDB), and dichloroethane (EDC) were not performed. Similarly, since elevated concentrations of diesel were not detected, analysis of PAHs, and napthalenes were also not performed. Results of these analyses are presented in Section 4.1 of this report. Please see our description of the site exploration methods in Appendix A. Boring logs are presented in Appendix B.

3.2 Groundwater Sampling

Groundwater samples were collected from five of the Strataprobe bore holes (TB-1, TB-2, TB-4, TB-5, and TB-6). The samples were collected by peristaltic pump and PVC tubing from a temporary stainless-steel screen set at 10 to 12 feet below grade. Collected samples from each well were submitted to the analytical laboratory and analyzed by the following methods:

Analyses	Quantity
Total Petroleum Hydrocarbons as Gasoline (NWTPH-G)	8
Total Petroleum Hydrocarbons as Diesel and Oil (NWTPH-Dx)	1
BTEX (EPA 8260B)	2
MTBE (EPA Method 8260B)	4

Since gasoline was not detected in any of the samples, analysis of gasoline additives including lead, dibromoethane (EDB), and dichloroethane (EDC) were not performed. Similarly, since elevated concentrations of diesel were not detected, analysis of PAHs, and napthalenes were not performed. Results of these analyses are presented in Section 4.2 of this report.

3.3 Quality Assurance/Quality Control

Quality Assurance/Quality Control (QA/QC) included generally accepted procedures for sample collection, storage, tracking, documentation, and analysis. All sampling equipment was washed with an alconox wash and distilled water rinse before the collection of the samples. All samples were labeled with a sample number, date, time, and sampler name, and were stored in an ice chest containing frozen blue ice. Appropriate chain-of-custody documentation was completed.

4.0 SITE EXPLORATION OBSERVATIONS AND FINDINGS

The findings of this site exploration are presented below. A summary of the analytical results obtained during this investigation for soil and groundwater samples are presented on Tables 1 and 2, respectively. The analytical laboratory reports are attached as Appendix C of this report. Chain-of custody forms are also included in Appendix C.

4.1 Soil Boring Findings

The borings drilled during the site exploration were advanced to depths ranging from approximately 12 to 16 feet below ground surface. Borings conducted within the UST backfill encountered approximately 12 feet of sand and gravel. Other borings generally encountered poorly graded (well sorted) sands to the explored depths. Outside of the tank backfill area, fill material was encountered to a depth of about 9 to 10 feet below grade,and was underlain by native tideland sands. Soil types and descriptions are presented in the boring logs in Appendix B.

Collected soil samples were screened during drilling for visual and olfactory indications of petroleum impacts. No petroleum odors or sheens were noted during drilling. One of these samples (sample TB-1-4) was submitted for analysis of gasoline, diesel, BTEX, and MTBE. Analytical results are summarized below.

Gasoline-Range Organics

The four soil samples submitted for analysis contained no detectable concentrations of gasoline-range organics. The laboratory detection limit (5 mg/kg) was well below the MTCA Method A Cleanup Level of 100 mg/kg.

Diesel and Oil-Range Organics

The eight soil samples submitted for analysis contained no detectable concentrations of diesel- or oil-range organics. The laboratory detection limits (20 mg/kg for diesel and 500 mg/kg for oil) were well below the MTCA Method A Cleanup Level of 2,000 mg/kg.

BTEX

The four soil samples submitted for analysis contained no detectable concentrations BTEX. The laboratory detection limits (20 mg/kg for benzene and 50 mg/kg for toluene, ethylbenzene, and xylenes) were below the MTCA Method A Cleanup Levels (30 mg/kg for benzene, 7,000 mg/kg for toluene, 6,000 mg/kg for ethylbenzene, and 9,000 mg/kg for xylenes).

MTBE

The two soil samples submitted for analysis contained no detectable concentrations of MTBE. The laboratory detection limit (0.5 mg/kg) was greater than the MTCA Method A Cleanup Level of 0.1 mg/kg. However, since no gasoline or BTEX was detected in any of the other samples, it is unlikely that MTBE exists at a concentration exceeding Method A levels in the soil samples. MTBE was also not discovered in the groundwater samples (see Section 4.2 of this report).

4.2 Groundwater Sample Findings

Groundwater was encountered during drilling in all borings at depths indicated on the boring logs (generally 10 feet below grade). This depth was near the fill-native soil interface (typically 9 to 10 feet). Groundwater samples were withdrawn from the borehole by peristaltic pump. A 4-slot (0.004-inch slot width) stainless-steel screen was inserted into the borehole to act as a temporary well screen. Approximately two gallons of water were purged from each borehole prior to sample collection. The water appeared clear and absent of suspended particulates during sample collection. Groundwater samples were collected from borings TB-1, TB-2, TB-4, TB-5, and TB-6. Approximate depths to groundwater are shown in the boring logs in Appendix B.

Gasoline-Range Organics

All five groundwater samples contained no detectable concentrations of gasoline-range organics. The laboratory detection limit (100 ug/L) was well below the MTCA Method A Cleanup Level of 1,000 ug/L.

Diesel and Oil-Range Organics

All five groundwater samples contained no detectable concentrations of diesel- or oil-range organics. The laboratory detection limits (200 ug/L for diesel and 500 ug/L for oil) were at or below the MTCA Method A Cleanup Level of 500 ug/L.

BTEX

All five groundwater samples contained no detectable concentrations BTEX. The laboratory detection limits (1 ug/L for each BTEX compound) were well below the MTCA Method A Cleanup Levels (5 ug/L for benzene, 700 ug/L for ethylbenzene, and 1,000 ug/L for toluene and xylenes).

MTBE

All five groundwater samples contained no detectable concentrations of MTBE. The laboratory detection limit (0.1 ug/L) was well below the MTCA Method A Cleanup Level of 10 ug/L.

5.0 CONCLUSIONS

Information regarding our findings and conclusions concerning the potential presence of soil and/or shallow groundwater contamination on the subject property is presented below.

- The Strataprobe borings outside of the tank area encountered approximately 9 to 10 feet of sand fill underlain by native tideland sands. Borings conducted within the tank backfill area (TB-1 and TB-2) encountered sand and pea gravel to a depth of approximately 12 feet below grade.
- Groundwater was encountered in all borings at a depth of approximately 10 feet below grade.
- No evidence of immiscible petroleum product, sheens, or strong odors was noted during the borings.
- None of the samples submitted for chemical analysis contained detectable concentrations of diesel, oil, gasoline, BTEX, or MTBE. Other than MTBE results for soil, all of the laboratory detection limits were at, or below Method A Cleanup Levels.

- Groundwater has not been impacted by the diesel release.
- Diesel-impacted soil appears to be limited to shallow soils and around the diesel-fuel dispenser.

6.0 RECOMMENDATIONS

Based on the results of our assessment, G-Logics provides the following recommendations:

- To minimize the potential for future releases of residual diesel to underlying groundwater, additional petroleum-impacted soil should be removed while the excavation is still open and the system upgrades have not been completed.
- After additional soil removal is completed, soil samples should be collected and analyzed for presence of petroleum hydrocarbons to assess the effectiveness of the cleanup.
- Containment (drip) pans and sensors should be installed beneath the dispensers to prevent future releases to underlying soils. Alternatively, the exposed soils can be capped with concrete to allow any spills or leaks to be readily observed and handled by the facility's storm water system.
- The results of this investigation and any further remediation should be reported to Ecology.
- Consideration should be given to abandonment of the two existing groundwater monitoring wells, as they serve no monitoring purpose and are slotted up to the ground surface, thereby acting as a potential conduit for surface spills.

7.0 LIMITATIONS

The scope of work on this project was presented in our identified workplan and subsequently approved by you as our client. Please be aware our scope of work was limited to those items specifically identified in the workplan. Other activities not specifically included in the presented scope of work (in a workplan, correspondence, or this report) are excluded and are therefore not part of our services. No warranty, either express or implied, is made.

REFERENCES

Ecology 1997a. Analytical Methods for Petroleum Hydrocarbons. Toxics Cleanup Program and the Ecology Environmental Laboratory. Washington State Department of Ecology, Olympia, Washington. Publication No. ECY97-602.

Washington Department of Ecology (Ecology), 2001, The Model Toxics Control Act cleanup regulation, chapter 173-340 WAC: Olympia, Wash., Washington State Department of Ecology Publication No 94-06, Amended February 12, 2001.

TABLE 1

Soil Sample Analysis - Total Petroleum Hydrocarbons as Gasoline, Diesel, Oil, BETX, and MTBE (1)

Samples Collected on March 21, 2003

Seattle Ready Mix Plant, Seattle, WA

Exploration Location	Sample Number	Depth (feet)	Gasoline	Diesel	Oil	Benzene	Ethylbenzene	Toluene	Xylenes	MTBE
Soil Samples (units in mg/kg)										
TB-1	TB-1-4	4	nd	nd	nd	nd	nd	nd	nd	nd
	TB-1-12	12	-	nd	nd	-	-	-		
TB-2	TB-2-4	4	nd	nd	nd	nd	nd	nd	nd	nd
	TB-2-12	12	nd	nd	nd	nd	nd	nd	nd	nd
TB-3	TB-3-12	12	-	nd	nd	-	-	-	-	-
TB-4	TB-4-12	12	nd	nd	nd	nd	nd	nd	nd	nd
TB-5	TB-5-12	12	-	nd	nd	-	-	-	-	-
TB-6	TB-6-12	12	-	nd	nd	-	-	-	-	-
MTCA Method A Soil Cleanup Level (2)			100**	2,000	2,000	0.03	6.0	7.0	9.0	0.10

Notes: Refer to site diagram(s) for sampling locations.

(1) Methods NWTPH-G, NWTPH-Dx Extended, for gasoline, diesel, and oil fractions Method 8260 for BTEX and MTBE.

(2) Method A Soil Cleanup Levels (mg/kg) for Unrestricted Land Use, MTCA, Amendments adopted in August 2001. *

* Exceeding these levels do not necessarily trigger requirements for cleanup action under MTCA.

** Cleanup Level for Gasoline with no detectable benzene in soil.

nd Concentration less than the laboratory method detection limit.

\- Not Analyzed

TABLE 2

Groundwater Sample Analysis - Total Petroleum Hydrocarbon Gasoline, Diesel, Oil, BTEX, and MTBE Analysis (1)

Samples Collected on March 21, 2003

Seattle Ready Mix Plant, Seattle, WA

Exploration Location	Sample Number	Depth (feet)	Date Collected	NWTPH - as Gasoline	NWTPH - as Diesel	NWTPH - as Oil	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
(units in ug/L)											
TB-1	TB-1-W	10 to 12	03/21/03	nd	nd	nd	nd	nd	nd	nd	nd
TB-2	TB-2-W	10 to 12	03/21/03	nd	nd	nd	nd	nd	nd	nd	nd
TB-4	TB-4-W	10 to 12	03/21/03	nd	nd	nd	nd	nd	nd	nd	nd
TB-5	TB-5-W	10 to 12	03/21/03	nd	nd	nd	nd	nd	nd	nd	nd
TB-6	TB-6-W	10 to 12	03/21/03	nd	nd	nd	nd	nd	nd	nd	nd
MTCA Method A Cleanup Level for Groundwater (2)				1,000**	500	500	5.0	1,000	700	1,000	20

Notes Refer to site diagram for sampling locations.

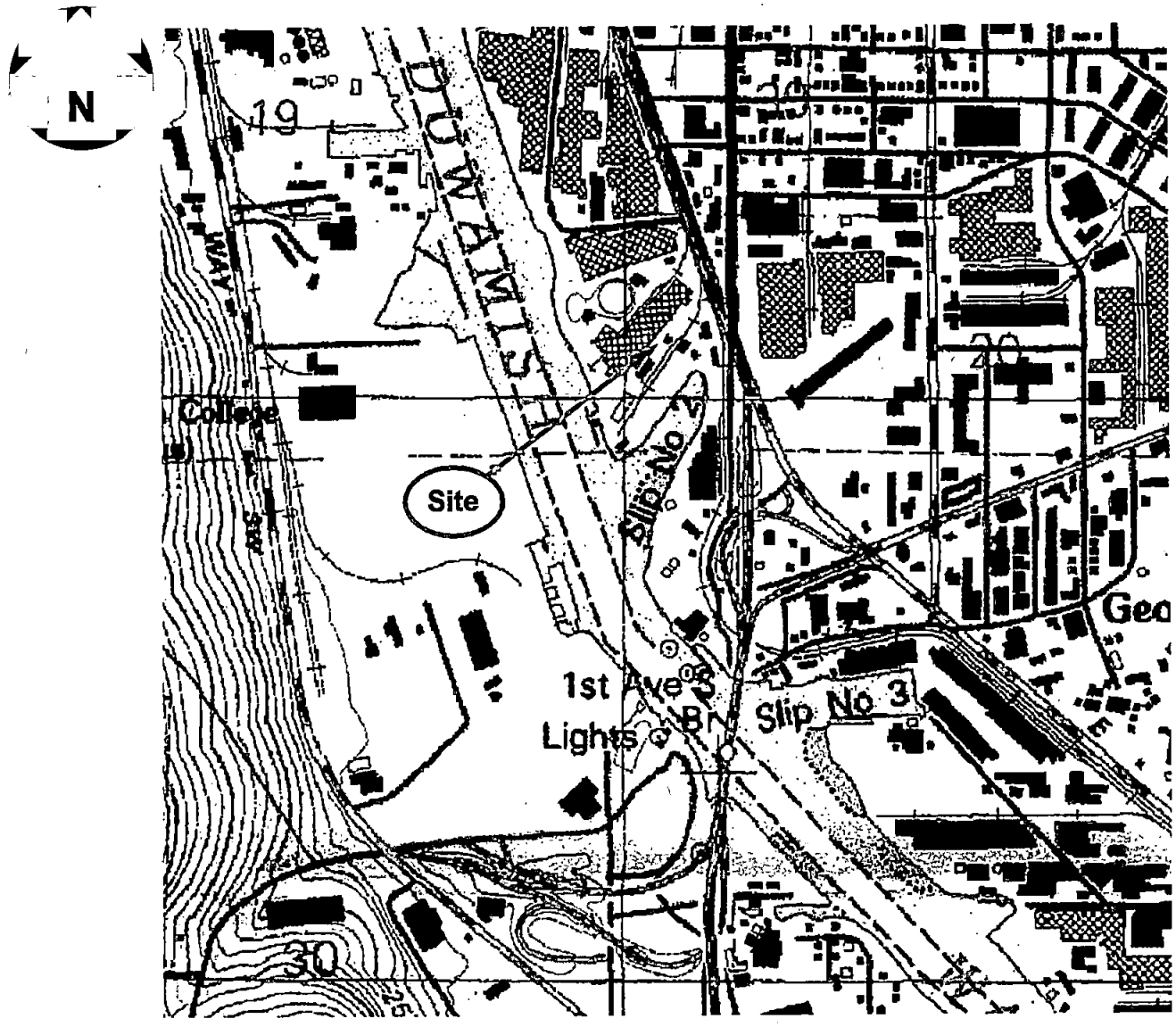
(1) TPH by NWTPH-G and NWTPH-Dx methods, BTEX and MTBE by Method 8260

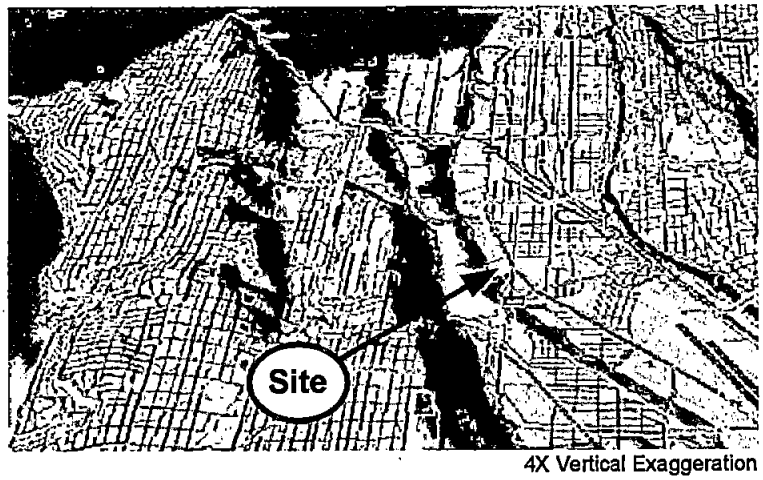
(2) Method A Groundwater Cleanup Levels, MTCA, Amended February 2001. *

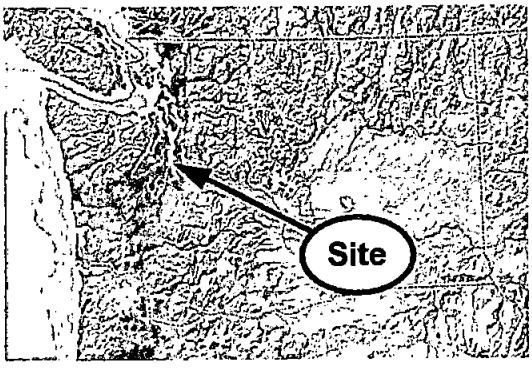
* Exceeding these levels do not necessarily trigger requirements for cleanup action under MTCA.

** Groundwater Cleanup Level for Gasoline with no detectable benzene in the ground water.

nd Concentration less than the laboratory method detection limit







4X Vertical Exaggeration

Project File: 01-0272-A-F1.vsd

Topographic mapping from Delorme 3-D TopoQuads

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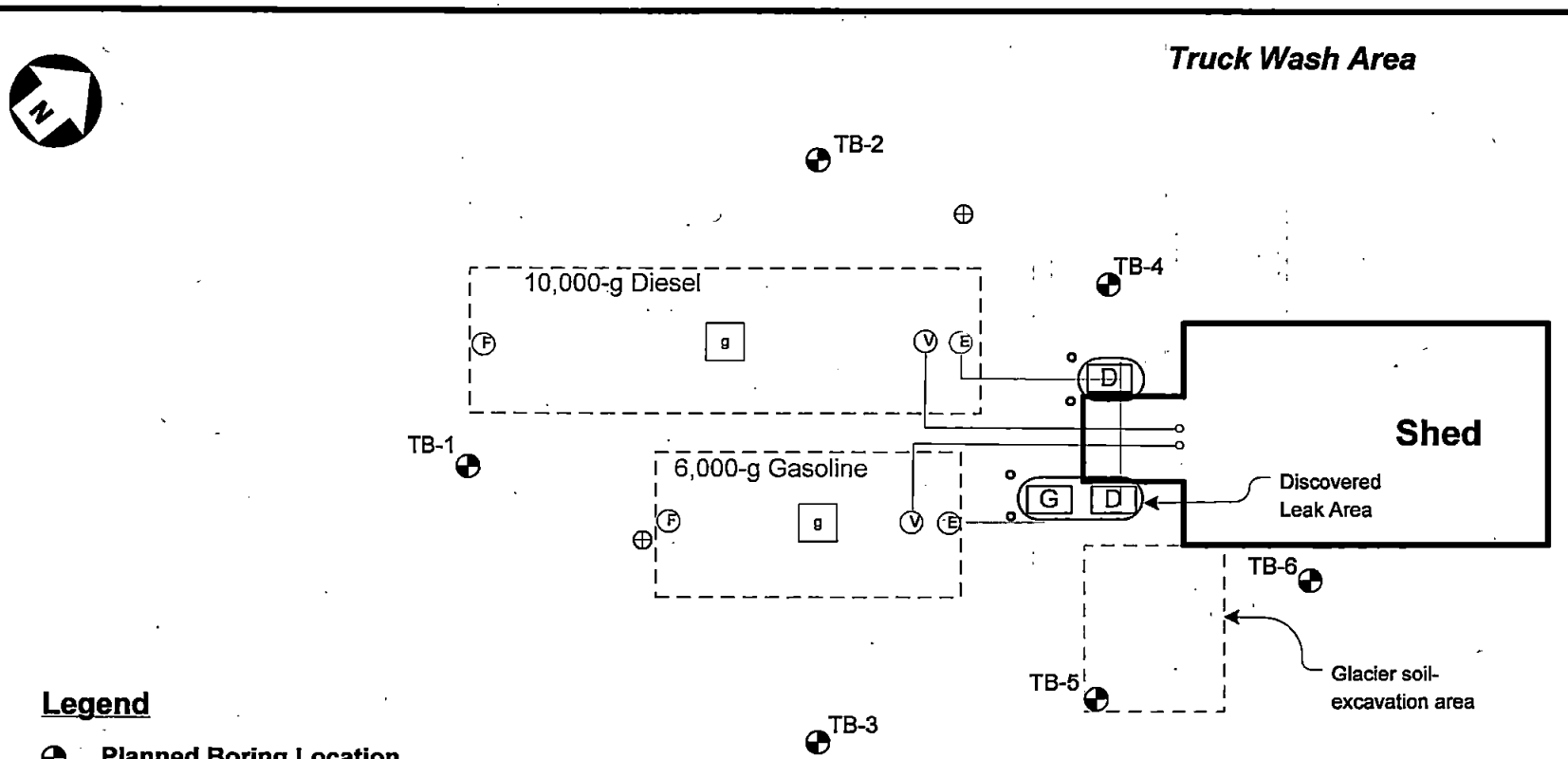
Site Location Maps
Seattle Ready Mix Plant
5975 E. Marginal Way S
Seattle, WA 98143

Figure
1



Mapping Reference: MTM Mapping of 7-10-89 and site-visit measurements

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Site Diagram
Seattle Ready Mix Plant
5975 E. Marginal Way S
Seattle, WA 98134

Figure 2

Project File: 01-0272-A-F2.vsd

APPENDIX A

APPENDIX A

FIELD EXPLORATION METHODS

G-Logics performed subsurface soil and shallow groundwater sampling during the assessment conducted on the subject property. The sampling activities were conducted in general accordance with Ecology's guidelines and regulations.

Health and Safety Plan

In accordance with the Occupational Safety and Health Administration (OSHA) and state regulations, a site-specific Health and Safety Plan was developed for the field activities completed at the subject property. All field personnel reviewed the plan and implemented the procedures while conducting the on-site field activities.

Underground Utility Clearance

Before conducting the subsurface characterization, G-Logics contacted a service that notifies public utilities of proposed subsurface investigations. Additionally, on-site private utilities were located by a private locating company to identify on-site utilities. Consequently, the below-grade utility locations were identified by marking their inferred location on the ground surface. This information was used to aid in identifying the locations of our sampling locations.

Quality Assurance Quality Control

Quality Assurance/Quality Control (QA/QC) for the presented scope of work included generally accepted procedures for sample collection, storage, tracking, and documentation. All sampling equipment was washed with a detergent wash and tap water rinse before the collection of the samples. All samples were labeled with a sample number, date, time, and sampler name, and were stored in an ice chest containing frozen "blue ice". Appropriate chain-of-custody documentation was completed.

Strataprobe Soil Sampling

A Strataprobe subcontractor (Cascade Drilling) performed the drilling at this site. The Strataprobe used for this work consisted of a 1.5-inch internal diameter stainless-steel sampler (sealed piston sampler), in lengths of three feet. Soil samples were collected at two-foot depth intervals by driving/pushing the sampler, containing an acrylic liner, to the sampling depth. After reaching the required depth, the Strataprobe was retrieved and opened. The collected soils contained within the acrylic liner were removed and placed into laboratory-provided glass jars. The extracted sampler was washed and new liners were used for each sampling attempt.

Collected samples were labeled with a sample number, date, time, and sampler's name and stored in an ice chest containing frozen "blue ice". Chain-of-custody procedures were followed to document sample handling.

Upon completion of each soil boring, the probe was extracted and the resulting hole backfilled with bentonite (hydrated with a small amount of water). The ground surface was to be restored at a later date by the property owner.

Strataprobe Groundwater Sampling

A hardened steel tip and a 24-inch-long 4-slot screen (well point) were attached as the lead section of the probe. The probe was hydraulically pushed (or pneumatically driven into the ground) to the desired sampling depth. At this point, the probe rod was withdrawn approximately 24 inches to allow the well point to be exposed to the water bearing strata.

A 3/8 inch-diameter, disposable, flexible PVC tubing was lowered into the probe for the collection of the groundwater samples. Prior to sample collection, approximately two gallons of groundwater was purged from the temporary well. Purging and sampling was conducted using a peristaltic pump.

The samples were then placed into an ice chest containing frozen "blue ice" for preservation. The samples were then forwarded to the analytical laboratory using proper Chain-of-Custody procedures. All soil sample containers were labeled with sample identification numbers, the date, and the sampler's name. Sample containers prepared by the contract laboratory were used to conform to EPA-recommended preservation techniques for the analytes of concern. Sample containers were open only as long as necessary to collect

the samples. The extracted Strataprobe rod was washed between boring locations and new tubing was used between sampling locations.

APPENDIX B

Unified Soil Classification System (USCS)

PRIMARY DIVISIONS			SYMBOL	DESCRIPTIONS
COARSE GRAINED SOILS Sands & Gravels; Over 50% retained on #200 sieve	GRAVELS Over 50% of coarse material retained on #4 sieve	CLEAN GRAVEL Less than 5% passing #200 sieve	GW	Well graded gravel, many different particle sizes, little or no fines
			GP	Poorly graded, few different particle sizes, little or no fines
		GRAVEL WITH FINES	GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	SAND Over 50% of coarse material passed #4 sieve	CLEAN SANDS Less than 5% passing #200 sieve	SW	Well graded gravel, many different particle sizes, little or no fines
			SP	Poorly graded, few different particle sizes, little or no fines
		SAND WITH FINES	SM	Silty gravels, gravel-sand-silt mixtures
			SC	Clayey gravels, gravel-sand-clay mixtures
FINE GRAINED SOILS Silts & Clays; Over 50% passing the #200 sieve	SILTS AND CLAYS Liquid limit is less than 50 %		ML	Inorganic silts, slight to no plasticity
			CL	Inorganic clays, low to moderate plasticity
			OL	Organic silts and clays of low plasticity
	SILTS AND CLAYS Liquid limit is more than 50 %		MH	Inorganic silts, moderate to high plasticity
			CH	Inorganic clays, high plasticity, fat clays
			OH	Organic silts and clays of high plasticity
Highly Organic Soils			PT	Peat and other highly organic soils

Soil Samples

- Disturbed, bag, bulk, or grab sample
- Standard penetration split spoon sample
- Cuttings
- * No Sample Recovery
- P Tube Pushed, Not Driven

Field Measurements

- Water Level Observed During Drilling
- Groundwater Seepage (Testpits)
- OVA Organic Vapor Analyzer
- PID Photoionization Detector
- ppmv Parts Per Million by Volume

Note: Blows per foot is the number of blows used to drive a split-spoon (2" OD) sampler through the last 12 inches of an 18-inch sampling attempt. One blow is a 30-inch fall of a 140-pound hammer.

Note: The line separating strata on the logs represents approximate boundaries only. The actual transition may be gradual. No warranty is provided as to the continuity of the strata between exploration locations. Logs represent the soil section observed at the exploration location on the date of exploration only.

ExplorationLogLegend.pub

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Exploration Log Legend

01-0272-a-tb1.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			Surface: Concrete				No Well Installed
			Concrete (12 inches)				
		TB-1-4	Sand, well graded, olive gray, moist, coarse to medium sand (Fill)	50	SW		
		TB-1-8	As above	60	SW		
		TB-1-12	Gravel, poorly sorted, multicolored, wet, fine gravel (Fill)	50	GP		
		TB-1-16	Sand, poorly graded, dark gray, wet, fine sand (native)	80	SC		
			End of Boring at 16.0 feet				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Strataprobe	Date: 3-21-2003	Other Information:
Drilling Company: Cascade Drilling	Weather: Cloudy and Rain	Groundwater sample TB-1-W collected through temporary screen set 10 to 12 feet below grade
Boring Diameter: Two inches	Page 1 of 1	
Logged By: Rob Roberts		

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Boring/Well Log
Glacier NW Seattle Plant
5975 E. Marginal Way S
Seattle, WA

TB-1

01-0272-a-tb2.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			Surface: Concrete				No Well Installed
			Concrete (12 inches)				
		TB-2-4	Sand, well graded, olive gray, moist, coarse to medium sand (Fill)	20	SW		
		TB-2-8	Sand, poorly sorted, gray, moist, medium to fine sand (Native), no odor	70	SP		
		TB-2-12	As above	80	SP		
			End of Boring at 12.0 feet				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Strataprobe	Date: 3-21-2003	Other Information:
Drilling Company: Cascade Drilling	Weather: Cloudy and Rain	Groundwater sample TB-2-W collected through temporary screen set 10 to 12 feet below grade
Boring Diameter: Two inches	Page 1 of 1	
Logged By: Rob Roberts		

g-logics

Boring/Well Log
Glacier NW Seattle Plant
5975 E. Marginal Way S
Seattle, WA

TB-2

01-0272-a-tb3.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			Surface: Concrete				No Well Installed
0			Concrete (12 inches)				
		TB-3-4	Sand, poorly graded, yellow brown, moist, silty fine sand (Fill) No odor	80	SM		
5		TB-3-8	Sand, poorly graded, olive gray, moist, medium sand (fill), no odor	75	SP		
10		TB-3-12	As above, wet	70	SP		
			End of Boring at 12.0 feet				
15							
20							
25							
30							

Depth in feet

Drilling Method: Strataprobe	Date: 3-21-2003	Other Information:
Drilling Company: Cascade Drilling	Weather: Cloudy and Rain	No groundwater sample collected
Boring Diameter: Two inches	Page 1 of 1	
Logged By: Rob Roberts		

g-logics

Boring/Well Log
Glacier NW Seattle Plant
5975 E. Marginal Way S
Seattle, WA

TB-3

01-0272-a-tb4.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			Surface: Concrete				No Well Installed
			Concrete (12 inches)				
		TB-4-4	Sand, poorly graded, red gray, moist, clayey fine sand (Fill), no odor	80	SC		
		TB-4-8	Sand, poorly graded, olive gray to dark brown, moist, medium sand (native fill), no odor	75	SP		
		TB-4-12	As above, wet	50	SP		
			End of Boring at 12.0 feet				

0 5 10 15 20 25 30 Depth in feet

Drilling Method: Strataprobe	Date: 3-21-2003	Other Information: Groundwater sample TB-4-W collected through temporary screen set 10 to 12 feet below grade
Drilling Company: Cascade Drilling	Weather: Cloudy and Rain	
Boring Diameter: Two inches	Page 1 of 1	
Logged By: Rob Roberts		

g-logics

Boring/Well Log
Glacier NW Seattle Plant
5975 E. Marginal Way S
Seattle, WA

TB-4

01-0272-a-tb5.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			Surface: Concrete				No Well Installed
			Concrete (12 inches)				
		TB-5-4	Sand, poorly graded, yellow brown, moist, silty fine sand (Fill) no odor	80	SM		
		TB-5-8	Sand, poorly graded, olive gray, moist, medium to fine sand (Fill)	75	SP		
			As above to 11.0 feet, wet		SP		
		TB-5-12	Sand, poorly graded, yellow brown wet, silty fine sand. no odor	60	SM		
			Sand, poorly graded, gray, wet, fine sand (native)				
		TB-5-16	no odor	60	SP		
			End of Boring at 16.0 feet				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Strataprobe	Date: 3-21-2003	Other Information:
Drilling Company: Cascade Drilling	Weather: Cloudy and Rain	Groundwater sample TB-5-W collected through temporary screen set 10 to 12 feet below grade
Boring Diameter: Two inches	Page 1 of 1	
Logged By: Rob Roberts		

g-logics

Boring/Well Log
Glacier NW Seattle Plant
5975 E. Marginal Way S
Seattle, WA

TB-5

01-0272-a-tb6.vsd

BLOWS/6 inches	INTERVAL	SAMPLE NUMBER	SOIL DESCRIPTION	Recovery %	USCS	PID (ppmv in headspace)	WELL CONSTRUCTION
			Surface: Concrete				No Well Installed
			Concrete (12 inches)				
		TB-6-4	Sand, poorly graded, yellow brown, moist, silty fine sand (Fill), no odor	80	SM		
		TB-6-8	Sand, poorly graded, olive gray, moist, slightly silty medium to fine sand (fill), no odor	90	SP		
		TB-6-12	As above to 11.0 feet, wet		SP		
			Sand, poorly graded, gray (2-inch yellow brown layer at 11.5 feet), wet, fine sand (native), no odor	80	SM		
			End of Boring at 12.0 feet				

0 5 10 15 20 25 30

Depth in feet

Drilling Method: Strataprobe	Date: 3-21-2003	Other Information: Groundwater sample TB-6-W collected through temporary screen set 10 to 12 feet below grade
Drilling Company: Cascade Drilling	Weather: Cloudy and Rain	
Boring Diameter: Two inches	Page 1 of 1	
Logged By: Rob Roberts		

g-logics

Boring/Well Log
Glacier NW Seattle Plant
5975 E. Marginal Way S
Seattle, WA

TB-6

APPENDIX C

ESN NORTHWEST
Environmental
Services Network

April 2, 2003

Rory Galloway
G – Logics
175 First Place NW
Suite A
Issaquah, WA 98027

Dear Mr. Galloway:

Please find enclosed the analytical data report for the Glacier NW 1st Avenue Project located in Vancouver, Washington. Soil and water samples were analyzed for Diesel and Oil by NWTPH-Dx/Dx Extended, Gasoline by NWTPH-Gx, and MTBE & BTEX by Method 8260 on March 27, 2003.

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,

Julie Mielke
Office Manager

677 Woodland Square Lp. SE, Suite D ■ Lacey, Washington 98503 ■ 360.459.4670 ■ FAX 360.459.3432
Web Site: *www.ESN-USA.com* E-Mail: *esnnw@aol.com*

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

ESN Job Number: S30324-1
Client: G-LOGICS
Client Job Name: GLACIER NW 1ST AVE.
Client Job Number: 01-272-A

Analytical Results

NWTPH-Gx		MTH BLK	TB-1-4	TB-1-4 DUPL	TB-2-4	TB-2-12	TB-4-12
Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/26/03	03/26/03	03/26/03	03/26/03	03/26/03	03/26/03
Date analyzed	Limits	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03
Mineral spirits/Stoddard solvent	5.0	nd	nd	nd	nd	nd	nd
Gasoline	5.0	nd	nd	nd	nd	nd	nd
Surrogate recoveries:							
Bromofluorobenzene		88%	71%	70%	87%	81%	78%

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: S30324-1
Client: G-LOGICS
Client Job Name: GLACIER NW 1ST AVE.
Client Job Number: 01-272-A

Analytical Results

8260, µg/kg		MTH BLK	LCS	TB-1-4	TB-2-4	TB-2-12	TB-4-12
Matrix	Soil			Soil	Soil	Soil	Soil
Date extracted	Reporting	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03
Date analyzed	Limits	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03
Benzene	20	nd	88%	nd	nd	nd	nd
Toluene	50	nd	106%	nd	nd	nd	nd
Ethylbenzene	50	nd		nd	nd	nd	nd
Xylenes	50	nd		nd	nd	nd	nd
MTBE	500	nd		nd	--	--	nd

*-instrument detection limits

Surrogate recoveries						
Dibromofluoromethane	98%	97%	98%	99%	98%	93%
Toluene-d8	99%	101%	100%	103%	101%	104%
4-Bromofluorobenzene	105%	99%	100%	127%	103%	103%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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

ESN Job Number:	S30324-1
Client:	G-LOGICS
Client Job Name:	GLACIER NW 1ST AVE.
Client Job Number:	01-272-A

Analytical Results

8260, µg/kg		MS	MSD	RPD
Matrix	Soil	Soil	Soil	%
Date extracted	Reporting	03/27/03	03/27/03	
Date analyzed	Limits	03/27/03	03/27/03	
Benzene	20	80%	95%	17%
Toluene	50	83%	98%	17%
Ethylbenzene	50			
Xylenes	50			
MTBE	500			

*-instrument detection limits

Surrogate recoveries			
Dibromofluoromethane	98%	99%	
Toluene-d8	100%	99%	
4-Bromofluorobenzene	100%	103%	

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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

ESN Job Number:	S30324-1
Client:	G-LOGICS
Client Job Name:	GLACIER NW 1ST AVE.
Client Job Number:	01-272-A

Analytical Results

NWTPH-Gx		MTH BLK	TB-1-W	TB-2-W	TB-4-W	TB-5-W
Matrix	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	03/26/03	03/26/03	03/26/03	03/26/03	03/26/03
Date analyzed	Limits	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03
Mineral spirits/Stoddard solvent	0.10	nd	nd	nd	nd	nd
Gasoline	0.10	nd	nd	nd	nd	nd

Surrogate recoveries:						
Bromofluorobenzene		108%	83%	88%	94%	77%

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
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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

ESN Job Number:	S30324-1
Client:	G-LOGICS
Client Job Name:	GLACIER NW 1ST AVE.
Client Job Number:	01-272-A

Analytical Results

NWTPH-Gx		TB-6-W	DUPL TB-6-W
Matrix	Water	Water	Water
Date extracted	Reporting	03/26/03	03/26/03
Date analyzed	Limits	03/27/03	03/27/03
Mineral spirits/Stoddard solvent	0.10	nd	nd
Gasoline	0.10	nd	nd

Surrogate recoveries:

Bromofluorobenzene	80%	91%

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
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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

ESN Job Number: S30324-1
Client: G-LOGICS
Client Job Name: GLACIER NW 1ST AVE.
Client Job Number: 01-272-A

Analytical Results

8260, µg/L		MTH BLK	LCS	TB-1-W	TB-2-W	TB-4-W	TB-5-W
Matrix	Water			Water	Water	Water	Water
Date extracted	Reporting	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03
Date analyzed	Limits	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03
Benzene	1.0	nd	88%	nd	nd	nd	nd
Toluene	1.0	nd	106%	nd	nd	nd	nd
Ethylbenzene	1.0	nd		nd	nd	nd	nd
Xylenes	1.0	nd		nd	nd	nd	nd
MTBE	10	nd		nd	nd	nd	nd
*-instrument detection limits							
Surrogate recoveries							
Dibromofluoromethane		98%	97%	99%	100%	97%	97%
Toluene-d8		99%	101%	99%	97%	100%	99%
4-Bromofluorobenzene		105%	99%	100%	98%	101%	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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

ESN Job Number:	S30324-1
Client:	G-LOGICS
Client Job Name:	GLACIER NW 1ST AVE.
Client Job Number:	01-272-A

Analytical Results

8260, µg/L		TB-6-W
Matrix	Water	Water
Date extracted	Reporting	03/27/03
Date analyzed	Limits	03/27/03
Benzene	1.0	nd
Toluene	1.0	nd
Ethylbenzene	1.0	nd
Xylenes	1.0	nd
MTBE	10	nd

*-instrument detection limits

Surrogate recoveries	
Dibromofluoromethane	98%
Toluene-d8	100%
4-Bromofluorobenzene	99%

Data Qualifiers and Analytical Comments

nd - not detected at listed reporting limits
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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

ESN Job Number:	S30324-1
Client:	G-LOGICS
Client Job Name:	GLACIER NW 1ST AVE.
Client Job Number:	01-272-A

Analytical Results

NWTPH-Dx, mg/kg		MTH BLK	TB-1-4	TB-1-4 DUPL	TB-1-12	TB-2-4
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/26/03	03/26/03	03/26/03	03/26/03	03/26/03
Date analyzed	Limits	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd
Surrogate recoveries:						
Fluorobiphenyl		92%	92%	92%	91%	90%
o-Terphenyl		84%	89%	89%	89%	88%

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: S30324-1
Client: G-LOGICS
Client Job Name: GLACIER NW 1ST AVE.
Client Job Number: 01-272-A

Analytical Results

NWTPH-Dx, mg/kg		TB-2-12	TB-3-12	TB-4-12	TB-5-12	TB-6-12
Matrix	Soil	Soil	Soil	Soil	Soil	Soil
Date extracted	Reporting	03/26/03	03/26/03	03/26/03	03/26/03	03/26/03
Date analyzed	Limits	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03
Kerosene/Jet fuel	20	nd	nd	nd	nd	nd
Diesel/Fuel oil	20	nd	nd	nd	nd	nd
Heavy oil	50	nd	nd	nd	nd	nd
Surrogate recoveries:						
Fluorobiphenyl		90%	90%	91%	90%	91%
o-Terphenyl		88%	87%	86%	92%	88%

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:	S30324-1
Client:	G-LOGICS
Client Job Name:	GLACIER NW 1ST AVE.
Client Job Number:	01-272-A

Analytical Results

NWTPH-Dx, mg/l		MTH BLK	TB-1-W	TB-2-W	TB-4-W	TB-5-W
Matrix	Water	Water	Water	Water	Water	Water
Date extracted	Reporting	03/26/03	03/26/03	03/26/03	03/26/03	03/26/03
Date analyzed	Limits	03/27/03	03/27/03	03/27/03	03/27/03	03/27/03
Kerosene/Jet fuel	0.20	nd	nd	nd	nd	nd
Diesel/Fuel oil	0.20	nd	nd	nd	nd	nd
Heavy oil	0.50	nd	nd	nd	nd	nd
Surrogate recoveries:						
Fluorobiphenyl		93%	90%	91%	101%	90%
o-Terphenyl		89%	90%	87%	95%	86%

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
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

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

ESN Job Number:	S30324-1
Client:	G-LOGICS
Client Job Name:	GLACIER NW 1ST AVE.
Client Job Number:	01-272-A

Analytical Results

NWTPH-Dx, mg/l		TB-6-W	DUPL TB-6-W
Matrix	Water	Water	Water
Date extracted	Reporting	03/26/03	03/26/03
Date analyzed	Limits	03/27/03	03/27/03
Kerosene/Jet fuel	0.20	nd	nd
Diesel/Fuel oil	0.20	nd	nd
Heavy oil	0.50	nd	nd
Surrogate recoveries:			
Fluorobiphenyl		91%	91%
o-Terphenyl		86%	85%

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
Acceptable Recovery limits: 65% TO 135%
Acceptable RPD limit: 35%

ESN NORTHWEST | Environmental Services Network

3505241

CHAIN-OF-CUSTODY RECORD

CLIENT: G-Logics

ADDRESS: 175 First Place NW

PHONE: 425-391-6674 FAX:

CLIENT PROJECT #: 01-272-A PROJECT MANAGER: Bob Rogers

DATE: 3/21/03 PAGE 1 OF 2

PROJECT NAME: GLACIER NW 1ST AVE

LOCATION:

COLLECTOR: Bob Rogers DATE OF COLLECTION 3/21/03

Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	TPH - HCID	TPH 8015 (gasoline)	TPH 8015 (diesel)	PAH 8100	PAH 8270	Resticides 8081	Resticides 8082	EPH	VPH	Methamphetamine	Pb	Hex Chrome	NOTES	Total Number of Containers	Laboratory Note Number
1. TB-1-4			Soil	Jar								X				X	X					1	
2. TB-1-8			"	Jar																		1	
3. TB-1-12			"	Jar												X						1	
4. TB-1-16			"	Jar												X						1	
5. TB-1-W			G-Water	Bottles								X				X	X					8	
6. TB-2-4			Soil	Jar								X				X						1	
7. TB-2-8			"	"																		1	
8. TB-2-12			"	"								X				X						1	
9. TB-2-W			Water	Bottles								X				X	X					8	
10. TB-4-4			Soil	Jar																		1	
11. TB-4-8			"	"																		1	
12. TB-4-12			"	"								X				X	X					1	
13. TB-4-W			Water	Bottles								X				X	X					8	
14. TB-3-8			Soil	Jar																		1	
15. TB-3-12			"	Jar												X						1	
16.																							
17.																							
18.																							

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
Bob Rogers	3/24/03	YOA	3/24/03
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ ESN DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES: SAMPLES STORED @ 4°C	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

ESN NORTHWEST | Environmental Services Network

330324-1

CHAIN-OF-CUSTODY RECORD

CLIENT: GeoLogics

ADDRESS: 175 First Ave NW Issaquah

PHONE: _____ FAX: _____

CLIENT PROJECT #: _____ PROJECT MANAGER: Rob Dahlgren

DATE: 3/21/03 PAGE 2 OF 2

PROJECT NAME: Glacier NW 1st Ave

LOCATION: _____

COLLECTOR: Rob Dahlgren DATE OF COLLECTION 3/21/03

Sample Number	Depth	Time	Sample Type	Container Type	VOA 8021B	VOA 8021B BTEX Only	VOA 8260	SEMI VOL 8270	TPH - HCID	TPH 8015 (gasoline)	TPH 8015 (diesel)	TPH 8015 (d & o)	PAH 8100	PAH-8270 NWTPH-GX	PCBs 8082	Pesticides 8081	EPH NWTPH-DX	VPH NWTPH-MTBE	Methamphetamine	Pb	Hex Chrome	NOTES	Total Number of Containers	Laboratory Note Number
1. TB-5-4			Soil	Jar												X							1	
2. TB-5-4			"	"																			1	
3. TB-5-12			"	"																			1	
4. TB-5-16			"	"																			1	
5. TB-5-W			Water	Bottles									X			X	X						8	
6. TB-6-4			Soil	Jar																			1	
7. TB-6-8			"	"																			1	
8. TB-6-12			"	"												X							1	
9. TB-6-W			Water	Bottles									X			X	X						8	
10.																								
11.																								
12.																								
13.																								
14.																								
15.																								
16.																								
17.																								
18.																								

RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME
[signature]	3/24/03	[signature]	3/24/03
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)	DATE/TIME

SAMPLE DISPOSAL INSTRUCTIONS

☐ ESN DISPOSAL @ $2.00 each ☐ Return ☐ Pickup

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	
CHAIN OF CUSTODY SEALS Y/N/NA	
SEALS INTACT? Y/N/NA	
RECEIVED GOOD COND./COLD	
NOTES: Samples stored @ 4°C	

LABORATORY NOTES:

Turn Around Time: 24 HR 48 HR (5 DAY)

Permission and Conditions for Use and Copying

Pump Island and UST Area Exploration
Seattle Ready Mix Plant
5975 E. Marginal Way S
Seattle, WA 98134

G-Logics Project 01-0272-A

April 3, 2003

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Mailing Address _____

City, State, Zip Code _____

Applicant Name _____

Phone number _____

Facsimile Number _____

Planned Use of Report _____

g-logics

- For my requested use of the subject document, I recognize that the document was prepared for the sole use of the identified client and that my use of the document is for informational purposes only. I also understand and accept that there may be limitations to the reliability of the document's findings due to circumstances beyond the control of G-Logics, the limited scope of project funding, and limitations inherent in the nature of the performed services.
- I agree not to rely on the document as being comprehensive or inclusive of all possible environmental hazards and agree to defend, indemnify, and hold G-Logics harmless from and against any and all claims, damages or liability which arise from or which are alleged to arise from my use of the document.
- I understand that the document is a qualitative evaluation of site conditions. I also understand the document should not be used to estimate site-remediation costs if cleanup is necessary. Remediation cost estimates would require additional data than that presented in the document.
- I agree not to provide the report to any other person or organization without prior authorization from G-Logics.

I have reviewed the above-identified conditions for copying/use of this document, am familiar with the presented limitations of the provided services, and acknowledge my understanding and concurrence, as indicated by my signature below.

Applicant Signature _____

Title _____

Date _____

G-Logics Review and Acknowledgment of Application

Based on our review of the above provided information and your concurrence with the above-presented requirements, G-Logics allows you to rely on the above referenced document for your stated purposes.

G-Logics Signature _____

Title _____

Date _____

g-logics