

RESOLVED  
JUL 24 2010  
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TN 3910

GLITSA AMERICAN  
SEATTLE  
RELEASE # 3910

**INDEPENDENT CLEANUP ACTION**

**STATUS REPORT**  
**(LUST RELEASE #3910)**

Former Glitsa, Inc. Property  
327 South Kenyon Street  
Seattle, Washington

**TENOR COMPANY, LLC.**

# ENVIRONMENTAL ASSOCIATES, INC.

1380 - 112<sup>th</sup> Avenue Northeast, Suite 300  
Bellevue, Washington 98004  
(425) 455-9025 Office  
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June 23, 2010

JN-28275-3

Mr. Duane Bartel  
Tenor Company, LLC.  
1313 Washington Street  
Sumner, Washington 98390

Subject: **INDEPENDENT CLEANUP ACTION  
LUST RELEASE #3910 - STATUS REPORT  
Former Glitsa, Inc. Property  
327 South Kenyon Street  
Seattle, Washington**

Dear Mr. Bartel:

Environmental Associates, Inc. (EAI) has completed our review of the documentation provided regarding the time line and performance of the soil and groundwater remediation system currently operating at the above referenced property located in Seattle, Washington. This report summarizes our project review findings along with our interpretation of system performance, and recommendations.

## Background

In March 2009, a former underground stoddard solvent UST was removed from the property along with approximately 178 tons of stoddard solvent impacted soil. Due to the close proximity of the subject building not all of the impacted soil could be directly excavated. Subsequent explorations confirmed that solvent impacted soil and groundwater extended under the west-adjacent subject building. A remediation feasibility study was performed, in which the Client elected to pursue a combination of vapor extraction and groundwater pump and treat. In an effort to control costs, the Client further elected to act as his own contractor in the design and installation and daily operation of the remediation system. EAI's only role in this phase of the project has been to provide occasional comment and prepare summary reports. The Client remains fully responsible for the operation and performance of the remediation system.



Associate Offices: Oregon / San Francisco Bay Area

### **Operational Time Line**

Following completion of our remediation feasibility study in June 2009, the client promptly proceeded to acquire and fabricate the remediation system between June and into July 2009. A used blower and other vapor extraction system components were purchased from H2 Oil Recovery, of Bend, Oregon. The Client proceeded to assemble a basic vapor extraction system (VES) consisting of a 3 horsepower Rotron regenerative blower, equipped with a moisture knockout tank that exhausted through a twin set of 55-gallon drum carbon canisters. A groundwater / free-product recovery system consisting of a down-well pump, a settling tank, and an air-sparging tank was also constructed. The treated groundwater from the air-sparge tank was then pumped back to the former tank excavation to infiltrate back into the subsurface through perforated pipe previously installed. A schematic of the remediation system as drawn by the Client is included in Appendix-A.

The original system went operational 24/7 in July 2009. The VES side of the system was originally connected to draw vacuum from the perforated lines installed in the former tank excavation and three (3) of the VES wells (VES-1, VES-4, and VES-6). Well VES-5, inside the warehouse was equipped with a jet pump in an attempt to recover free product. The solvent-saturated groundwater was pumped from VES-5 into a holding tank, where some of the solvent would separate from the groundwater. The Client would skim off the accumulated solvent 3 to 4 times a week. The recovered solvent was transferred to a set of drums dedicated to that purpose. The jet pump system only processed approximately 200 gallons per day.

In August 2009, the Client shut down the entire system for over 1-week due to ambient air temperatures over 100 degrees and concerns regarding overheating of the remediation system.

The client also became unsatisfied by the performance of the jet-pump and in August 2009 replaced it with three (3) peristaltic pumps working in unison, which yield a more consistent 250 gallons of groundwater per day.

In September 2009, groundwater pumping was increased by installing six (6) more peristaltic pumps, three (3) in VES-4 and three (3) in VES-6. This increased the daily yield to approximately 750 gallons per day. Also in September 2009 the first set of carbon-canisters for the VES were replaced.

Although the expanded use of peristaltic pumps to recover solvent-laden groundwater successfully increased the daily yield, the Client was still unsatisfied and elected to shut down the system and significantly expand the network of extraction wells inside the warehouse building. Between October 2009 and January 2010. A total of 10 more wells were added and an interconnecting trench system was excavated for routing pipe and also as a means to install additional horizontal orientated VES piping and piping that could be later used to apply liquid remediation products. The various vapor extraction lines and peristaltic pump lines are routed to a cabinet that contains a network of control valves and sixteen peristaltic pumps. The air-vapor and solvent-laden groundwater is then routed to the exterior equipment shed. Plates 3 and 4, both present a graphic layout of the expanded system.



The expanded remediation system was brought back into 24/7 service in February 2010. In April the system was shut down for approximately 9 days for a maintenance cycle. At that time the carbon-canisters were changed out again.

### **Remediation System Performance**

The Client reported making regular visitations to the site to monitor the status of the system. Specific tasks performed include visual inspections of the various system components. Exhaust gas is monitored with "Draeger tubes" sensitive to stoddard solvent to determine when carbon canisters are in need of changing. Accumulated phase-separated solvent is also decanted off the top of the water processing tank and transferred to a 55-gallon drum. The peristaltic pump heads are also inspected and the head tubing replaced when worn. The Client reports very few problems with the currently operational system.

The Client further estimates that as of the end of April 2010, the system has processed approximately 17.82 million cubic feet of air and approximately 118,500 gallons of groundwater.

Early testing by the client of pre and post treatment water samples reportedly yielded over 97% contaminant mass removal, with the post-treatment water meeting MTCA Method-A target compliance levels for unrestricted land use. The treated water is discharged back into the former tank excavation, where it is intended to be recaptured by the groundwater pump and treat system, forming a closed-loop. To date approximately 5 (55-gallon) drums of free-product solvent mixed with solvent-saturated groundwater have been decanted off the groundwater processing tank. The Client estimates that approximately 50 to 60 gallons of recovered pure solvent reside within the drums.

In regard to the amount of contaminant mass removed by the VES, it is difficult to calculate since samples of pre-treatment soil vapor have not been collected frequently for laboratory analysis, however, the average absorption rate of activated carbon may provide some indication of mass removed. The Client reports that he is on his third set of carbon canisters, therefore at least four (4) canisters have achieved saturation. According to manufacturers, a 55-gallon canister of activated carbon contains approximately 239 pounds of carbon. The efficiency of absorption for stoddard solvent by activated carbon ranges between 20 to 50 percent (i.e. 0.2 to 0.5 pounds of solvent absorbed per pound of carbon). Applying basic mathematics suggests that approximately 192 to 480 pounds (87 to 217 Kg) of stoddard solvent may be bound up in the four (4) carbon canisters spent to date.

More refined estimates of total mass removed would require frequent monitoring of pre-treatment concentrations in both the vapor stream and groundwater stream.

## **Subsurface Conditions**

### *Soil*

Prior to and during the installation of the original six (6) VES wells (VES-1 through VES-6 and temporary boring LAR-2) soil samples were collected between April and May 2009 and analyzed for stoddard solvent. Concentrations of stoddard solvent exceeding the WDOE's target compliance level of 100 ppm ranged between 980 ppm to 92,000 ppm, as presented in Table 1, lower section. In December 2009 during the system expansion, additional soil samples were collected and analyzed for stoddard solvent (Table 1, upper section). In between these times, the interior and exterior extraction wells were utilized. At the time of the December 2009 sampling event, concentration of stoddard solvent present in study area soil ranged from 318 ppm to 9,800 ppm. The soil testing data from a depth of 7 to 8 feet is also presented graphically on Plate 3, Stoddard in Soil.

Although the above referenced initial and interim soil data sets are different in size and distribution, on balance it would appear that the several months of operation through the summer and fall of 2009 had a net positive effect on reducing overall contaminant concentrations / mass.

### *Groundwater*

Table 2, presents an ongoing tabulation of groundwater sampling data. To date, the remediation system has largely focused on removing contaminant mass from the area directly below the warehouse space. Prior to the remediation system becoming operation four (4) groundwater samples had been collected from borings and monitoring wells inside the warehouse (VES-4, VES-5, VES-6, and LAR2). The average pre-treatment concentration of stoddard solvent in the groundwater in this area was 94,500 parts per billion (ppb). As of April 2010, groundwater samples collected from the interior wells yielded an average concentration of stoddard solvent of 8,818 ppb, which corresponds to a one order of magnitude decline in average concentration since remediation was initiated.

Plate 4 further presents the most recent concentrations made in groundwater across the network of monitoring wells installed inside the warehouse building. Groundwater within several of the extraction wells still yield stoddard concentrations over 10,000. Those locations are the current focus of the remediation system.



## **Conclusions & Recommendations**

EAI simply concludes that the existing remediation system appears to be effectively removing contaminate mass from the subsurface and continued operation of the current system appears to be warranted.

In terms of recommendations, EAI offers the following:

- Continue to operate the existing system, focusing the VES and groundwater pumping on those extraction points, where groundwater concentrations remain greater than 10,000 ppb stoddard solvent. Once the concentration of stoddard solvent at all of the monitoring points have declined below 10,000 and preferably below 8,000, contaminant masses may be reduced to the point where other remediation approaches could be considered to augment the treatment system, if it appears that the current system is no longer efficiently removing contaminate mass. At these lower concentrations bio-remediation processes may become more effective and efficient.
- More frequent sampling and testing of the pre-treatment soil vapor and pumped groundwater would be useful if the Client desires more refined estimates of system performance in terms of efficiency and total mass removed from the system.
- Periodic sampling of the outlying perimeter wells may also be of use in monitoring and documenting overall stability of site groundwater.
- Lastly, to fulfil the regulatory reporting requirements of Washington States's Model Toxics Control Act; MTCA (WAC 173-340), EAI recommends that a copy of this status report along with any future reports regarding this remediation project be forwarded to the WDOE for inclusion in their file for the subject property.

## **Limitations**

This report has been prepared for the exclusive use of Tenor Company, LLC., along with their several representatives, for specific application to this site. Our work for this project was conducted in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with the terms and conditions set forth in our proposal PR-28275-3 dated April 7, 2009. The opinions expressed in this report are based upon interpretations, observations and testing made at separated sampling locations and conditions may of course vary between those localities or at other locations, media, or depths. No other warranty, expressed or implied, is made. If new information is developed in future site work that may include excavations, borings, studies, etc., Environmental Associates, Inc., must be retained to reevaluate the conclusions of this report and to provide amendments as required.

Tenor Company, LLC  
June 23, 2010

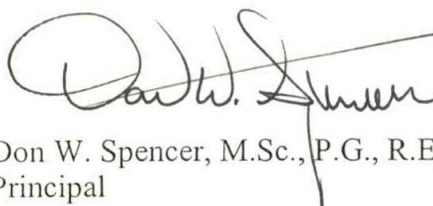
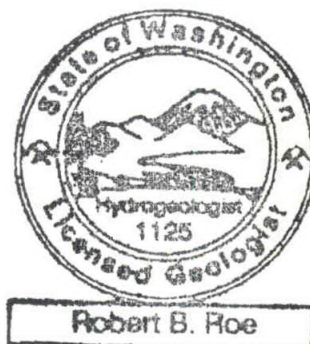
JN-28275-3  
Page-6

We appreciate the opportunity to be of service on this assignment. If you have any questions or if we may be of additional service, please do not hesitate to contact us.



Robert B. Roe, M. Sc., LHG.  
Project Manager / Hydrogeologist

Licence: 1125 (Washington)



Don W. Spencer, M.Sc., P.G., R.E.A.  
Principal



Registered Site Assessor/Licensed UST Supervisor  
State Certification #0878545-U7

License: 604 (Washington)  
License: 11464 (Oregon)  
License: 876 (California)  
License: 5195 (Illinois)  
License: 0327 (Mississippi)



**TABLE 1 - Stoddard Solvent - Soil Sampling Results**  
**All results and limits in parts per million (ppm)**

Boring / Sample Name	Depth	Stoddard Solvent (mineral spirits)	Benzene	Toluene	Ethylbenzene	Total Xylenes
<b>Soil Samples Collected During Expansion of VES System in December 2009</b>						
W2 (SGB7)	3 to 4 feet	<10	NA	NA	NA	NA
	7 to 8 feet	<b>9,800</b>	NA	NA	NA	NA
W3 (SGB8)	3 to 4 feet	<b>9,400</b>	NA	NA	NA	NA
	7 to 8 feet	<b>7,700</b>	NA	NA	NA	NA
W6 (SGB6)	3 to 4 feet	<10	NA	NA	NA	NA
	7 to 8 feet	<b>1,700</b>	NA	NA	NA	NA
W7 (SGB5)	3 to 4 feet	<10	NA	NA	NA	NA
	7 to 8 feet	<b>4,700</b>	NA	NA	NA	NA
W10 (SGB3)	3 to 4 feet	<10	NA	NA	NA	NA
	7 to 8 feet	<b>318</b>	NA	NA	NA	NA
W11 (SGB2)	3 to 4 feet	<10	NA	NA	NA	NA
	7 to 8 feet	<b>2,100</b>	NA	NA	NA	NA
W12 (SGB1)	3 to 4 feet	13	NA	NA	NA	NA
	7 to 8 feet	<b>4,700</b>	NA	NA	NA	NA
	11 to 12 feet	<b>9,000</b>	NA	NA	NA	NA

**Soil Samples Collected In April / May 2009, Prior To Installation of the Original VES Wells (VES 1 through VES 6)**

LAR-2	3-4 feet	10	NA	NA	NA	NA
	5-6 feet	<b>92,000</b>	NA	NA	NA	NA
HA1 (VES-1)	3-4 feet	<b>980</b>	NA	NA	NA	NA
HA2 (VES-2)	3-4 feet	<50	NA	NA	NA	NA
HA3 (VES-3)	3-4 feet	<b>1,500</b>	NA	NA	NA	NA
HA4 (VES-4)	5-6 feet	<50	NA	NA	NA	NA
	7-8 feet	<b>15,000</b>	NA	NA	NA	NA
HA5 (VES-5)	5-6 feet	<50	NA	NA	NA	NA
	7-8 feet	<50	NA	NA	NA	NA
HA6 (VES-6)	5-6 feet	<50	NA	NA	NA	NA
	7-8 feet	<50	NA	NA	NA	NA
Reporting Limit <sup>3</sup>		1	0.02	0.02	0.02	0.06
WDOE Target Compliance Level <sup>4</sup>		100	<b>0.03</b>	<b>7</b>	<b>6</b>	<b>9</b>

## Notes:

- 1 - "ND" denotes analyte not detected at or above listed Reporting Limit.
- 2 - "NA" denotes sample not analyzed for specific analyte.
- 3 - "Reporting Limit" represents the laboratory lower quantitation limit.
- 4 - Method A soil cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC.
- 5 - The MTCA gasoline (stoddard) TPH cleanup level is 30 ppm for soils with benzene otherwise it is 100 ppm.
- 6 - Samples screened for the presence of petroleum hydrocarbons (gasoline, diesel, and heavy oil) by test method NWTPH-HCID. HD indicates no petroleum fractions were detected.

Bold and Italics denotes concentrations above MTCA Method A soil cleanup levels.



**TABLE 2 - Petroleum Hydrocarbons - Groundwater Sampling Results**  
**All results and limits in parts per billion (ppb)**

Monitoring Point / Sample Name	Sample Obtained From	Sample Date	Gasoline (Stoddard)	Benzene	Toluene	Ethylbenzene	Total Xylenes
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## Previously Installed Wells / Borings

MW-1	Probe boring prior to well installation	12/2/2008	<b>11,000</b>	<5	<1	5	14
MW-2	Permanent Well	12/16/2008	92	<1	<1	<1	<3
MW-3	Permanent Well	12/16/2008	71	<1	<1	<1	<3
MW-4	Permanent Well	12/16/2008	<b>2,500</b>	1	<1	5	<3
MW-5	Permanent well	4/20/2009	<100	<1	<1	<1	<3
MW-6	Permanent well	4/20/2009	<100	<1	<1	<1	<3
LAR2	Probe boring grab sample	4/20/2009	<b>170,000</b>	<b>29</b>	1.5	28	<3
B-5	Probe boring grab sample	12/16/2008	<50	<1	<1	<1	<3

## Remediation System Wells

W1 (SGB-9)	Remediation Wells	4/7/2010	<b>27,000</b>	NA	NA	NA	NA
W2 (SGB-7)	Remediation Wells	12/9/2009	<b>3,500</b>	NA	NA	NA	NA
W3 (SGB-8)	Remediation Wells	12/9/2009	120	NA	NA	NA	NA
W4 (SGB-10)	Remediation Wells	4/7/2010	<b>15,000</b>	NA	NA	NA	NA
W5 (VES-4)	Remediation Wells	5/14/2009	<b>86,000</b>	7.9	<1	7.5	7.8
		4/18/2010	<b>6,100</b>	NA	NA	NA	NA
W6 (SGB-6)	Remediation Wells	12/9/2009	<b>24,000</b>	NA	NA	NA	NA
		4/18/2010	<b>13,000</b>	NA	NA	NA	NA
W7 (SGB-5)	Remediation Wells	12/9/2009	<b>24,000</b>	NA	NA	NA	NA
		4/18/2010	<b>16,000</b>	NA	NA	NA	NA
W8 (SGB-4)	Remediation Wells	12/9/2009	<b>3,500</b>	NA	NA	NA	NA
		4/18/2010	<b>6,400</b>	NA	NA	NA	NA
W9 (VES-5)	Remediation Wells	05/14/209	<b>57,000</b>	4.7	<1	<1	<3
		4/18/2010	<b>4,500</b>	NA	NA	NA	NA
W10 (SGB-3)	Remediation Wells	12/9/2009	<b>3,300</b>	NA	NA	NA	NA
W11 (SGB-2)	Remediation Wells	12/9/2009	<b>3,600</b>	NA	NA	NA	NA
		4/18/2010	<b>4,800</b>	NA	NA	NA	NA
W12 (SGB-1)	Remediation Wells	12/9/2009	ND	NA	NA	NA	NA
W13 (VES-6)	Remediation Wells	5/14/2009	<b>65,000</b>	4.4	<1	1.2	<3
		12/9/2009	<b>6,100</b>	NA	NA	NA	NA

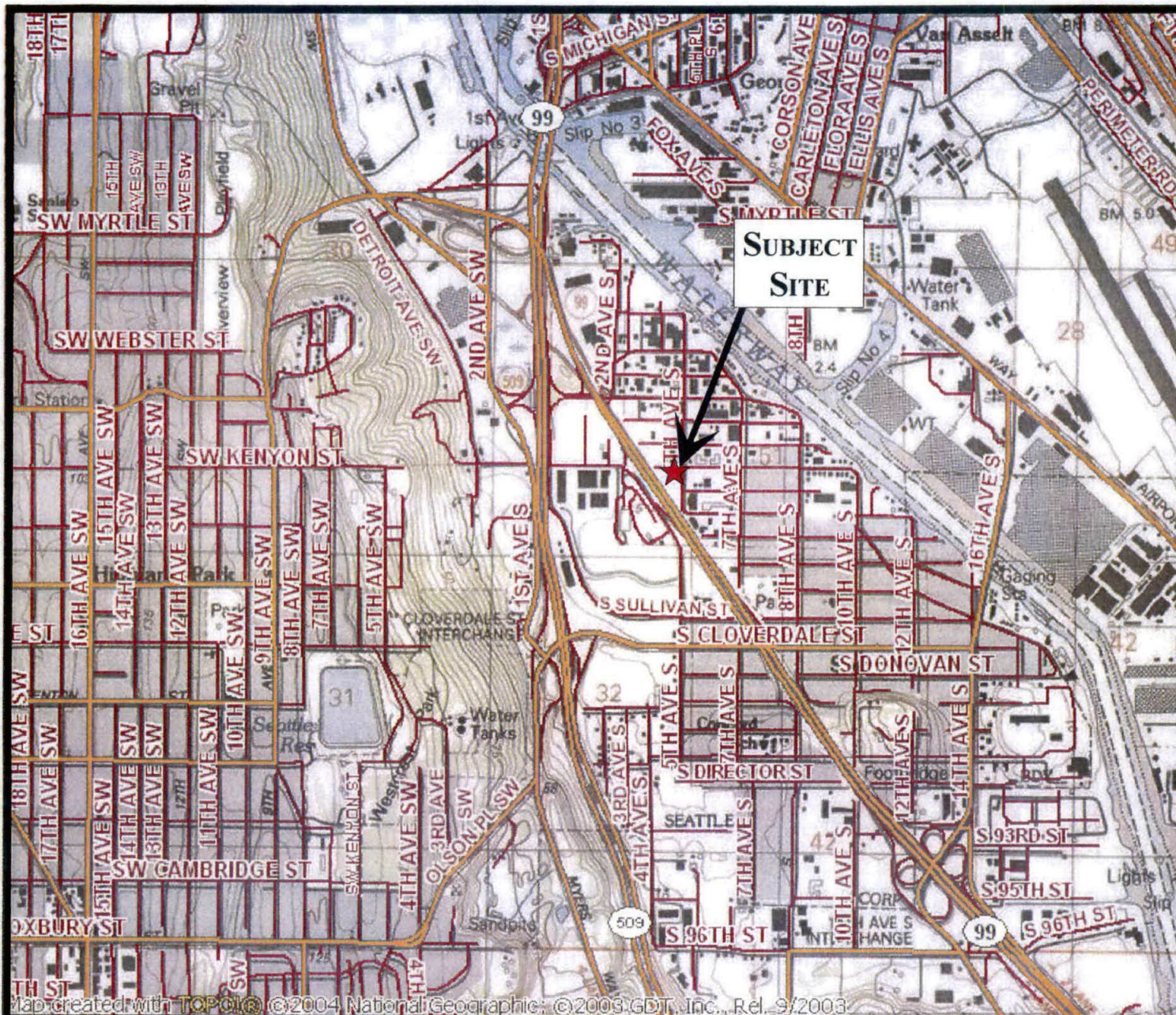
Reporting Limit <sup>3</sup>		100	1	1	1	3
MTCA-Method-A Cleanup Levels <sup>4</sup>		800 or 1000 <sup>5</sup>	5	1000	700	1000

## Notes:

- 1 - "ND" denotes analyte not detected at or above listed Reporting Limit.
- 2 - "NA" denotes sample not analyzed for specific analyte.
- 3 - "Reporting Limit" represents the laboratory lower quantitation limit.
- 4 - Method A groundwater cleanup levels as published in the Model Toxics Control Act (MTCA) 173-340-WAC.
- 5 - The MTCA gasoline TPH cleanup level is 800 ppb for groundwater with benzene. Otherwise, the cleanup level is 1000 ppb.

Bold and Italics denotes concentrations above existing or proposed MTCA Method A groundwater cleanup levels.





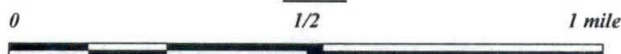
# LEGEND:



Approximate Site Location



Scale



Contour Interval: 5 Meters



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380- 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

## VICINITY/TOPOGRAPHIC MAP

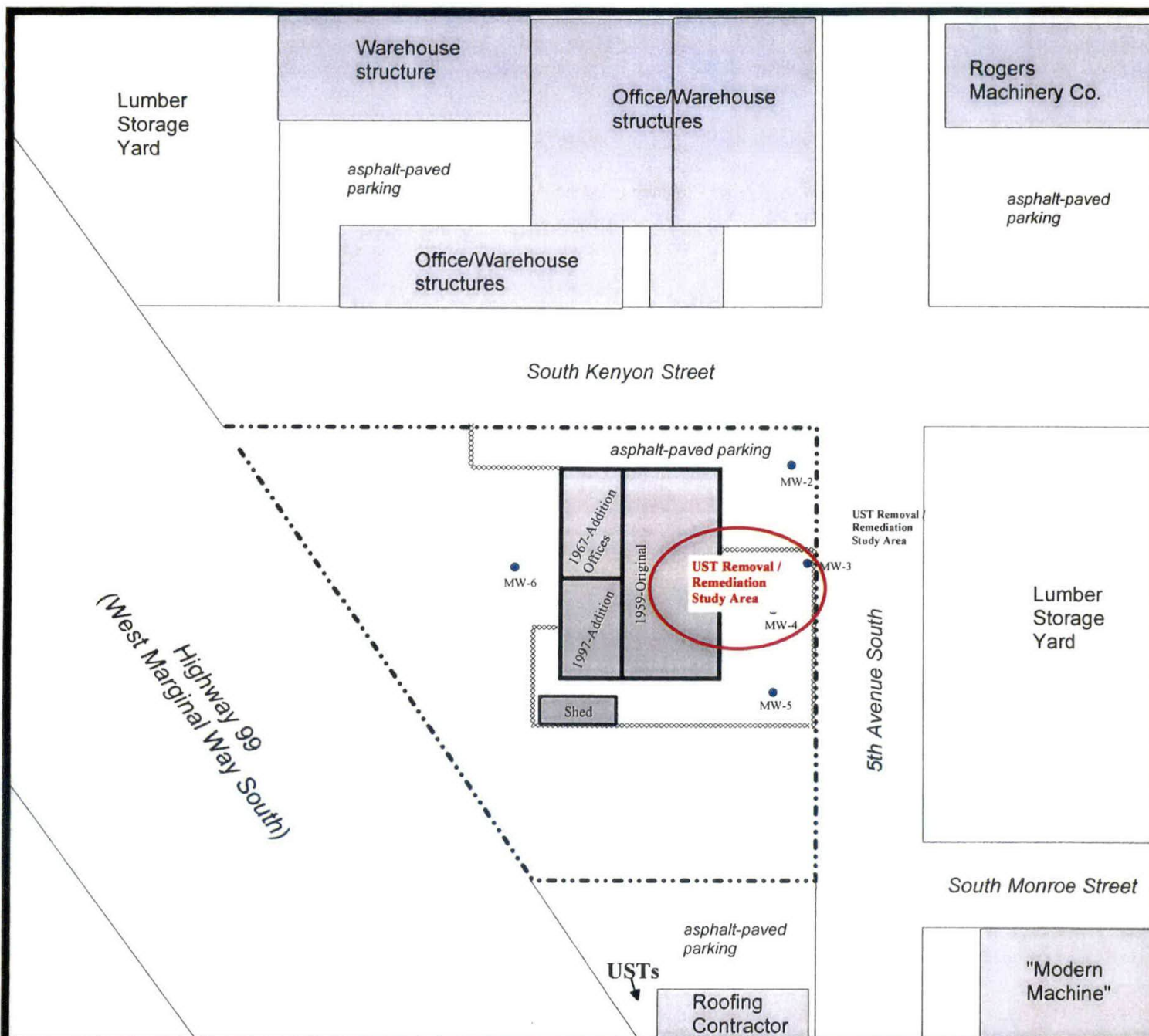
Former Glitsa, Inc. Property  
327 South Kenyon Street  
Seattle, Washington

Job Number:  
JN 28275-3

Date:  
May 2010

Plate:  
1





#### LEGEND:

- Property boundary.
- ..... Fence lines segregating portions of the subject property.
- █ Buildings / improvements.
- Groundwater monitoring wells installed by EAI.



### ENVIRONMENTAL ASSOCIATES, INC.

1380 - 112th Avenue N.E., Ste. 300  
Bellevue, Washington 98004

### SITE PLAN - OVERVIEW

Former Glitsa, Inc. Property  
327 South Kenyon Street  
Seattle, Washington

Job Number:  
JN 28275-3

Date:  
May 2010

Plate:  
2

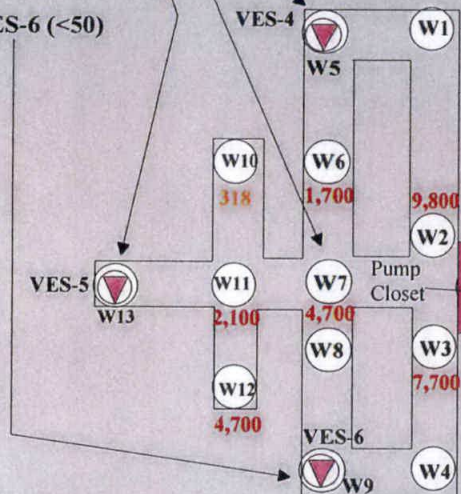
Initial concentrations in soil at a depth of 7 to 8 feet prior to startup of active remediation.

VES-4 (15,000)

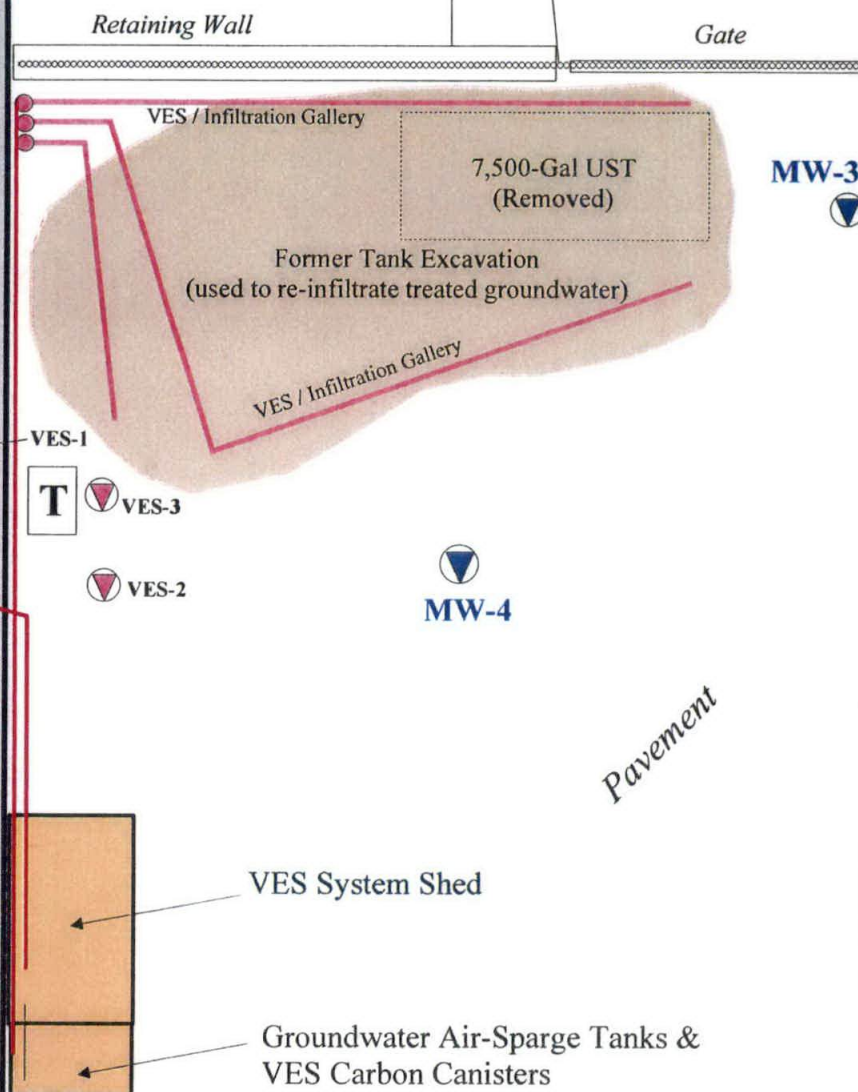
LAR2 (92,000)

VES-5 (<50)

VES-6 (<50)



VES trenching and extraction wells inside the subject building.



## LEGEND



Groundwater monitoring well



Dual-purpose vapor and groundwater extraction well.

Red denotes locations where lab analysis of soil samples collected in December 2009 at 7 to 8 feet below the ground surface were found to contain stoddard solvents above WDOE target compliance levels. Orange denotes locations where stoddard solvent was detected in soil but at levels below WDOE compliance limits.



## ENVIRONMENTAL ASSOCIATES, INC.



1380 - 112th Avenue Northeast, Suite 300  
Bellevue, Washington 98004

## STODDARD IN SOIL

Former Glitsa, Inc. Property  
327 South Kenyon Street  
Seattle, Washington

Job Number

JN-28275-3

Date

May 2010

Scale

1"=10'

Plate

3



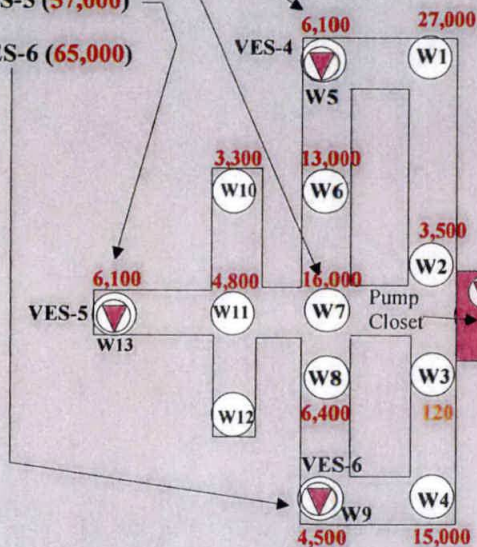
Initial concentrations in groundwater prior to startup of active remediation.

VES-4 (86,000)

LAR2 (170,000)

VES-5 (57,000)

VES-6 (65,000)



VES trenching and extraction wells inside the subject building.

Retaining Wall

Gate

VES / Infiltration Gallery

7,500-Gal UST (Removed)

Former Tank Excavation (used to re-infiltrate treated groundwater)

VES / Infiltration Gallery

MW-3

VES-1

VES-3

VES-2

MW-4

Pavement

VES System Shed

Groundwater Air-Sparge Tanks & VES Carbon Canisters

## LEGEND



Groundwater monitoring well



Dual-purpose vapor and groundwater extraction well.

Red denotes locations where the most recent groundwater samples contained stoddard solvents above WDOE target compliance levels. Orange denotes locations where stoddard solvent was detected in groundwater but at levels below WDOE compliance limits.



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue Northeast, Suite 300  
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## STODDARD IN GROUNDWATER

Former Glitsa, Inc. Property  
327 South Kenyon Street  
Seattle, Washington

Job Number

JN-28275-3

Date

May 2010

Scale

1"=10'

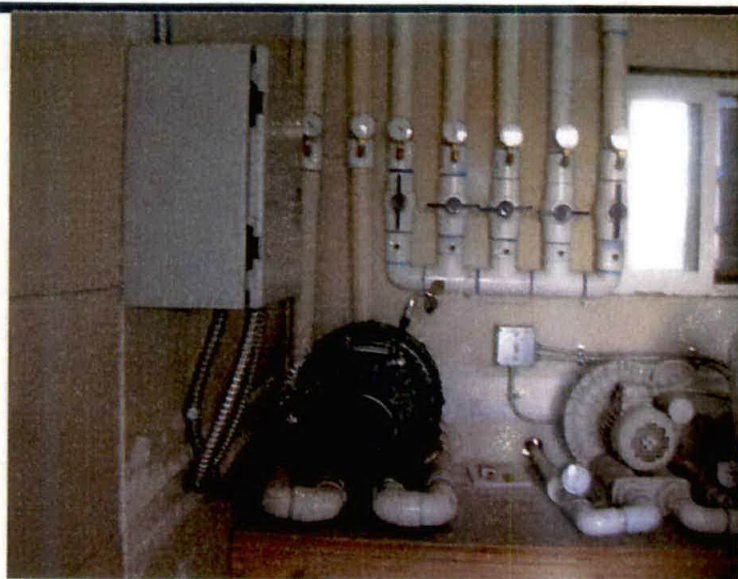
Plate

4

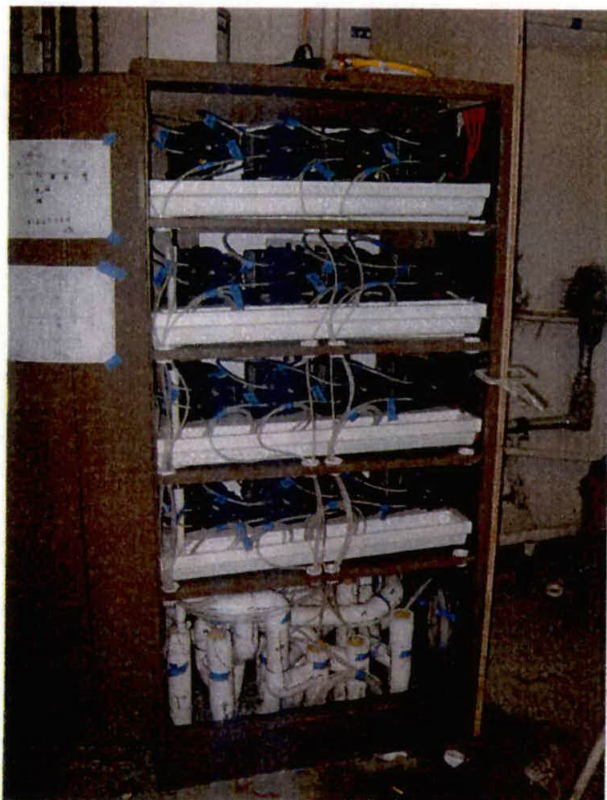




View of the expanded network of extraction wells and associated trench work inside the warehouse building.



VES blower and groundwater solvent stripper tank air injection pump.



Groundwater / solvent recovery pump control closet.



Upper level: VES moisture knock-out tank and twin carbon canisters. Lower level: Groundwater/solvent separating tank and air-stripping tank.



## ENVIRONMENTAL ASSOCIATES, INC.

1380 - 112th Avenue N.E., Suite 300  
Bellevue, Washington 98004

## SITE PHOTOGRAPHS

Former Glitsa, Inc. Property  
327 South Kenyon Street  
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Date:

May 2010

Plate:

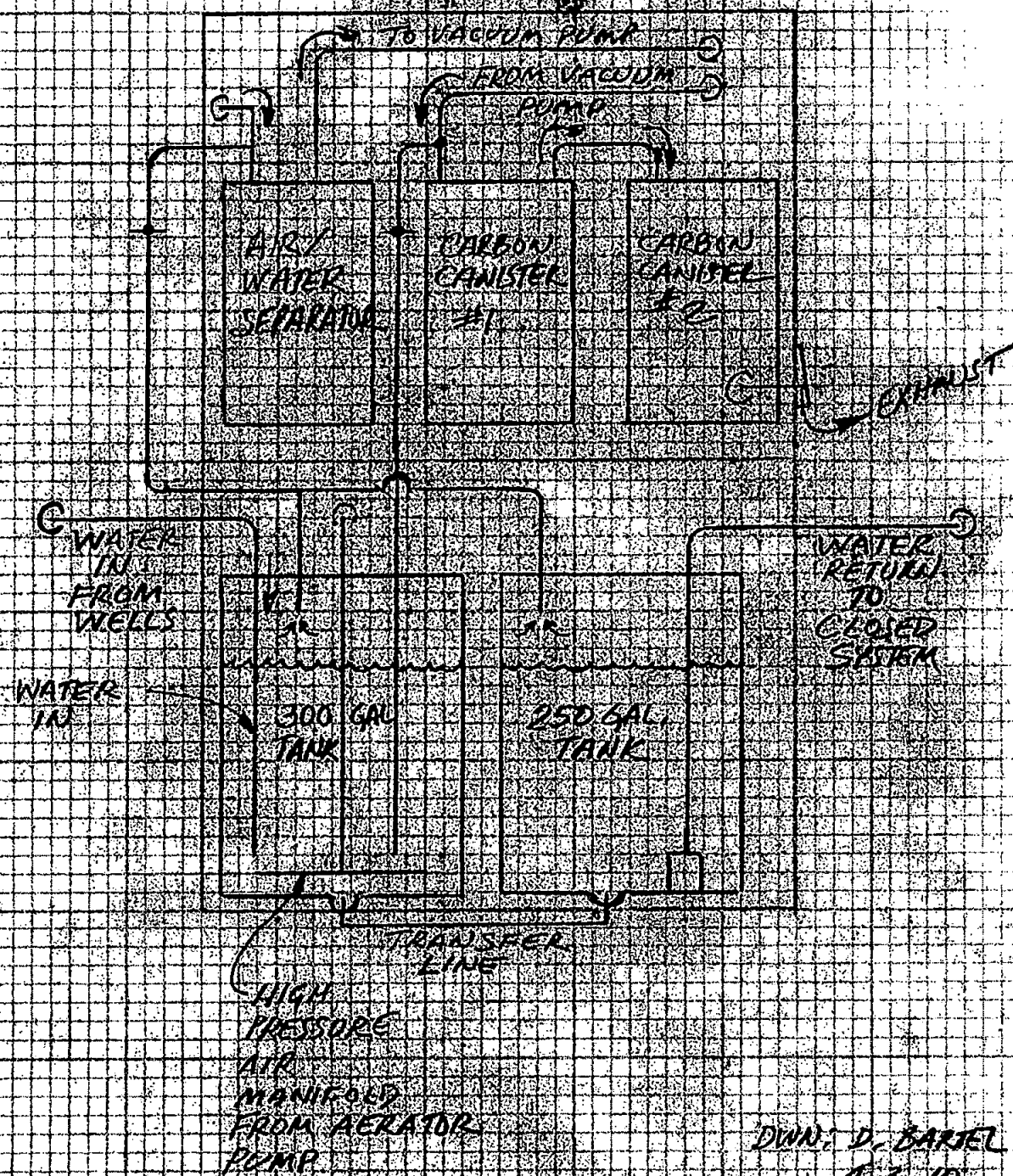
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**ATTACHMENT-A**  
**Remediation System Schematics**

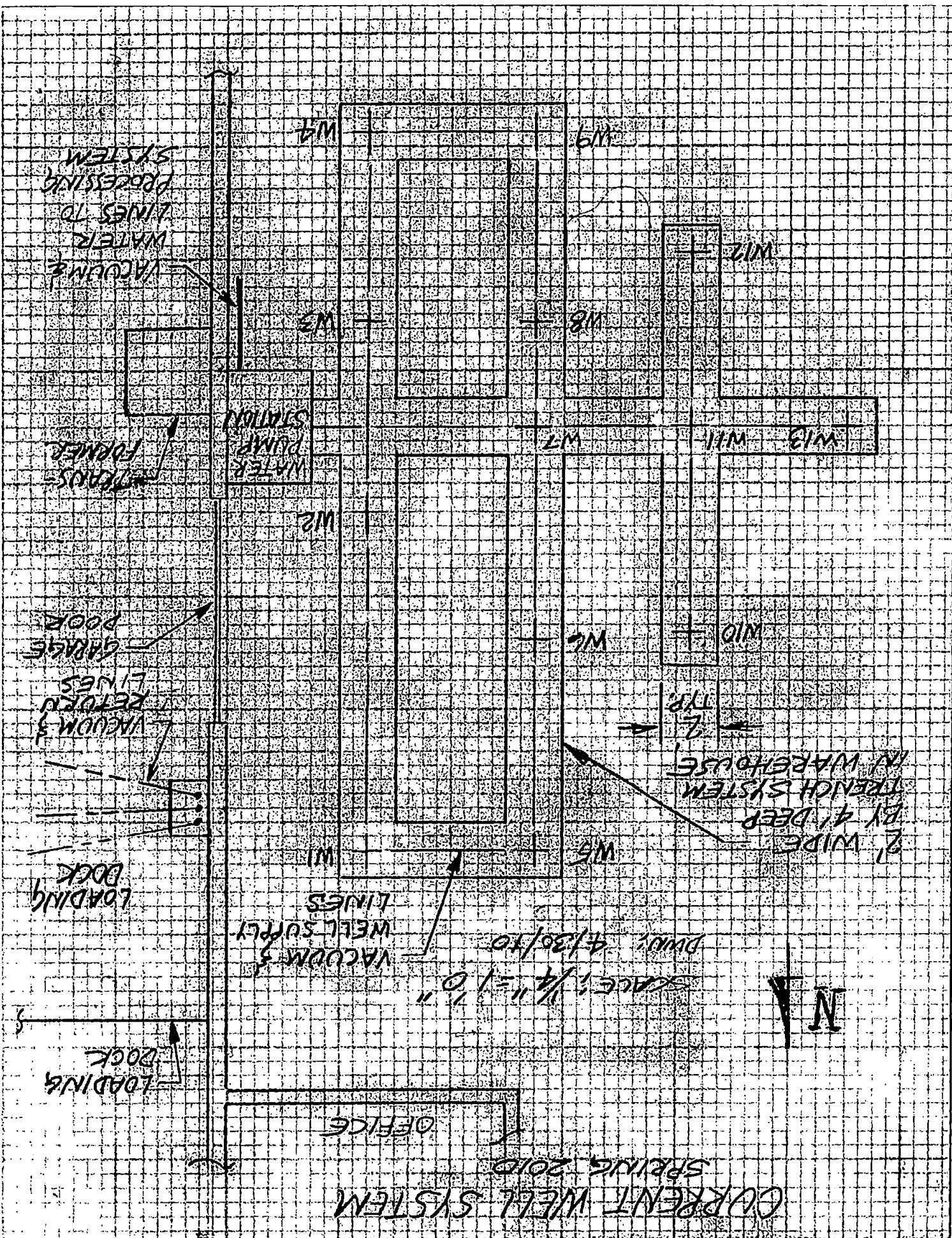
# AIR & WATER PROCESSING SYSTEM

SCALE: APPROX.  $\frac{1}{2}" = 1'0"$



DRAWN: D. BARTEL  
4-3-10





# PERISTALTIC PUMP STATION

TRENCH CROSS SECTION

N

CONCRETE FLOOR

VACUUM & WATER LINES TO PROCESSING SYSTEM

PERISTALTIC PUMP STATION 1/6 PUMPS @ 85 GALLONS PER DAY

WELL VACUUM LINES, 2" DIA. PVC TO CARBON CANISTERS

TRENCH VACUUM LINES 2" DIA. PERFORATED PVC TO CARBON CANISTERS

TRENCH DEPTH 4'

WATER WELLS 15' DEEP (TYP)

TRENCH FILLED W/ 7/8" DRAIN ROCK

SCALE: 1/4" = 1' 0"  
DRAWING 4/30/0



**ATTACHMENT-B**

**Laboratory Reports**

## ESN NORTHWEST CHEMISTRY LABORATORY

Duane Bartel  
FARWEST PROJECT  
Seattle, Washington

ESN Northwest  
1210 Eastside Street SE Suite 200  
Olympia, WA 98501  
(360) 459-4670 (360) 459-3432 Fax  
lab@esnnw.com

### Analysis of Mineral Spirit in Soil by Method NWTPH-Dx/Dx Extended

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Mineral Spirits (mg/kg)
Method Blank	12/3/2009	12/8/2009	108	nd
SGB1-4	12/3/2009	12/8/2009	106	13
SGB1-4 DUP	12/3/2009	12/8/2009	95	15
SGB1-8	12/3/2009	12/9/2009	int	4700
SGB1-12	12/3/2009	12/9/2009	int	9000
SGB2-4	12/3/2009	12/8/2009	93	nd
SGB2-8	12/3/2009	12/9/2009	int	2100
SGB3-4	12/3/2009	12/8/2009	99	nd
SGB3-8	12/3/2009	12/8/2009	93	318
SGB5-4	12/3/2009	12/8/2009	96	nd
SGB5-8	12/3/2009	12/9/2009	int	4700
SGB6-4	12/3/2009	12/9/2009	96	nd
SGB6-8	12/3/2009	12/9/2009	int	1700
SGB7-4	12/3/2009	12/8/2009	104	nd
SGB7-8	12/3/2009	12/9/2009	int	9800
SGB8-4	12/3/2009	12/9/2009	int	9400
SGB8-8	12/3/2009	12/9/2009	int	7700
Reporting Limits				10

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%



# ESN NORTHWEST CHEMISTRY LABORATORY

Duane Bartel  
FARWEST PROJECT  
Seattle, Washington

ESN Northwest  
1210 Eastside Street SE Suite 200  
Olympia, WA 98501  
(360) 459-4670 (360) 459-3432 Fax  
lab@esnnw.com

## Analysis of Mineral Spirit in Water by Method NWTPH-Dx

Sample Number	Date Prepared	Date Analyzed	Surrogate Recovery (%)	Mineral Spirits (ug/L)
Method Blank	11/30/2009	12/9/2009	92	nd
SGB1-W	11/30/2009	12/9/2009	103	nd
SGB2-W	11/30/2009	12/9/2009	108	3600
SGB3-W	11/30/2009	12/9/2009	99	3300
SGB4-W	11/30/2009	12/9/2009	94	3500
SGB5-W	11/30/2009	12/9/2009	int	24000
SGB6-W	11/30/2009	12/9/2009	int	24000
SGB7-W	11/30/2009	12/9/2009	100	3500
SGB8-W	11/30/2009	12/9/2009	94	120
Reporting Limits				100

"nd" Indicates not detected at the listed detection limits.

"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE : 50% TO 150%

**CHAIN-OF-CUSTODY RECORD**

 CLIENT: Duane Bartel

 DATE: 11/30/09 PAGE 1 OF 2

 ADDRESS: 1313 Washington St, Seanner, WA 98390

 PROJECT NAME: Farwest

 PHONE: 1-206-321-5565 FAX: \_\_\_\_\_

 LOCATION: 327 S. Kenyon St, Seattle, WA

CLIENT PROJECT #: \_\_\_\_\_ PROJECT MANAGER: \_\_\_\_\_

COLLECTOR: \_\_\_\_\_ DATE OF COLLECTION: \_\_\_\_\_

Sample Number	Depth	Time	Sample Type	Container Type	ANALYSES																		NOTES	Total Number of Containers	Laboratory Note Number			
					TPH-HClD	TPH - DIESEL & OIL	TPH - GASOLINE	BTEX	VOC 8260CL	VOC 8260	SemiVol 8270	PAH's 8270	PCB's 8082	CL Pesticides 8081	RCRA 8 Metals	MTCA 5 Metals	Pb	Asbestos-PLM	GRO Suite	DRO Suite	WO Suite	Min/2 ml spirits						
1. SG-B1-4	3-4	9:15	Soil	Jar																					Hold	1		
2. SG-B1-8	7-8	9:30	Soil	Jar																							1	
3. SG-B1-12	11-12	9:37	Soil	Jar																					Hold	1		
4. SG-B1-w	15	9:49	Water	Boa																							1	
5. SG-B1-w	15	9:55	Water	Boa																							1	
6. SG-B1-w	15	9:57	Water	Boa																							1	
7. SG-B2-4	3-4	10:07	Soil	Jar																					Hold	1		
8. SG-B2-8	7-8	10:11	Soil	Jar																							1	
9. SG-B2-w	15	10:20	Water	Boa																							1	
10. SG-B2-w	15	10:21	Water	Boa																							1	
11. SG-B2-w	15	10:22	Water	Boa																							1	
12. SG-B3-4	3-4	10:29	Soil	Jar																					Hold	1		
13. SG-B3-8	7-8	10:31	Soil	Jar																							1	
14. SG-B3-w	15	10:44	Water	Boa																							1	
15. SG-B3-w	15	10:45	Water	Boa																							1	
16. SG-B3-w	15	10:46	Water	Boa																							1	
17. SG-B4-w	15	11:05	Water	Boa																							3	
18. SG-B5-4	3-4	11:13	Soil	Jar																					Hold	1		

RELINQUISHED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_

Cory Burkhead 11/30/09

11/30/09 1409

RELINQUISHED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_ RECEIVED BY (Signature) \_\_\_\_\_ DATE/TIME \_\_\_\_\_

Cory Burkhead 11/30/09

**SAMPLE DISPOSAL INSTRUCTIONS**
☐ ESN DISPOSAL @ \$2.00 each ☐ Return ☐ Pickup

**SAMPLE RECEIPT**

 TOTAL NUMBER OF CONTAINERS 20

CHAIN OF CUSTODY SEALS Y/N/NA

SEALS INTACT? Y/N/NA

RECEIVED GOOD COND./COLD

NOTES:

**LABORATORY NOTES:**

Soils = \$40

 H<sub>2</sub>O = \$50

Turn Around Time: 24 HR 48 HR 5 DAY



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West  
Seattle, WA 98119-2029  
TEL: (206) 285-8282  
FAX: (206) 283-5044  
e-mail: fbi@isomedia.com

March 18, 2010

Duane Bartel, Project Manager  
Tenor Co., LLC  
1313 Washington St.  
Sumner, WA 98390

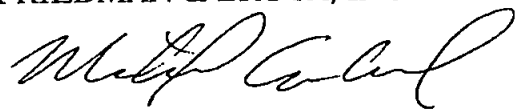
Dear Mr. Bartel:

Included are the results from the testing of material submitted on March 15, 2010 from the Soil/Water Test, F&BI 003143 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
NAA0318R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 15, 2010 by Friedman & Bruya, Inc. from the Tenor Co., LLC Soil/Water Test, F&BI 003143 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Tenor Co., LLC</u>
003143-01	Well 5
003143-02	Well 6
003143-03	Well 7
003143-04	Well 8
003143-05	Well 9
003143-06	Well 11
003143-07	Soil 1
003143-08	Soil 2
003143-09	Soil 3

All quality control requirements were acceptable.



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/10

Date Received: 03/15/10

Project: Soil/Water Test, F&BI 003143

Date Extracted: 03/17/10

Date Analyzed: 03/18/10

**RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS  
AS STODDARD SOLVENT  
USING METHOD NWTPH-Dx**

Results Reported on a Dry Weight Basis

Results Reported as mg/kg (ppm)

<u>Sample ID</u> Laboratory ID	<u>Stoddard Solvent Range</u> (C <sub>8</sub> -C <sub>11</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
Soil 1 003143-07	<50	101
Soil 2 003143-08	<50	100
Soil 3 003143-09	<50	100
Method Blank 00-0393 MB	<50	99

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/10

Date Received: 03/15/10

Project: Soil/Water Test, F&BI 003143

Date Extracted: 03/16/10

Date Analyzed: 03/16/10

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS  
AS STODDARD SOLVENT  
USING METHOD NWTPH-Dx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Stoddard Solvent Range</u> (C <sub>8</sub> -C <sub>11</sub> )	<u>Surrogate</u> (% Recovery) (Limit 50-150)
Well 5 003143-01	6,100	102
Well 6 003143-02	13,000	109
Well 7 003143-03	16,000	109
Well 8 003143-04	6,400	113
Well 9 003143-05	4,500	109
Well 11 003143-06	4,800	100
Method Blank 00-0355 MB	<50	103



**FRIEDMAN & BRUYA, INC.**

**ENVIRONMENTAL CHEMISTS**

Date of Report: 03/18/10

Date Received: 03/15/10

Project: Soil/Water Test, F&BI 003143

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
STODDARD SOLVENT USING METHOD NWTPH-Dx**

Laboratory Code: 003143-09 (Duplicate)

Analyte	Reporting Units	(Wet wt) Sample Result	(Wet wt) Duplicate Result	Relative Percent Difference	Acceptance Criteria
Stoddard Solvent	mg/kg (ppm)	<50	<50	nm	0-20

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Stoddard Solvent	mg/kg (ppm)	5,000	88	90	70-130	2

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/10

Date Received: 03/15/10

Project: Soil/Water Test, F&BI 003143

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
STODDARD SOLVENT USING METHOD NWTPH-Dx**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Stoddard Solvent	ug/L (ppb)	2,500	76	83	70-130	9



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

**Data Qualifiers & Definitions**

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

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

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

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

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

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

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

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

fb - Analyte present in the blank and the sample.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

003143

3/14/2010

SAMPLE CH. OF CUSTODY ME 03/15/10

A04

Send Report To Diane BartelCompany Tenor Company LLCAddress 1313 Washington StCity, State, ZIP Sumner, WA 98390Phone # 206-321-5565 Fax #           

SAMPLERS (signature)

PROJECT NAME/NO.

PO #

REMARKS email to:dianesadventures2296@comcast.netPage #            of           

TURNAROUND TIME

☐ Standard (2 Weeks)☐ RUSHRush charges authorized by:           

SAMPLE DISPOSAL

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

						ANALYSES REQUESTED										Notes
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTX by 8021B	VOCs by 8260	SVOCs by 8270	IIFS					
Well 5	01	3/14/10		water	1											Standard ppm
" 6	02				1											
" 7	03				1											
" 8	04				1											
" 9	05				1											↓ ↓
" 11	06				1											Standard ppm
Soil 1	07	3/14/10		Soil	1											Standard ppm
Soil 2	08				1											↓ ↓
Soil 3	09				1											Standard ppm

Friedman & Bruya, Inc.  
3012 16th Avenue West

Seattle, WA 98119-2029

Ph. (206) 285-8282

Fax (206) 283-5044

FORMS\COCCOC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: <u>Cory Burkhead</u>	Cory Burkhead	Tenor Co.	3/15/10	10AM
Received by: <u>M. J. / G. W.</u>	Nhan Phan	FeBT	3/15/10	✓
Relinquished by:				
Received by:		Samples received at	16°C	



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West  
Seattle, WA 98119-2029  
TEL: (206) 285-8282  
FAX: (206) 283-5044  
e-mail: fbi@isomedia.com

April 7, 2010

Duane Bartel, Project Manager  
Tenor Co., LLC  
1313 Washington St.  
Sumner, WA 98390

Dear Mr. Bartel:

Included are the results from the testing of material submitted on April 1, 2010 from the Water Test, F&BI 004015 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
NAA0407R.DOC

FRIEDMAN & BRUYA, INC.

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ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on April 1, 2010 by Friedman & Bruya, Inc. from the Tenor Co., LLC Water Test, F&BI 004015 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Tenor Co., LLC</u>
004015-01	Well No. 1
004015-02	Well No. 4

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/07/10  
Date Received: 04/01/10  
Project: Water Test, F&BI 004015  
Date Extracted: 04/05/10  
Date Analyzed: 04/06/10

**RESULTS FROM THE ANALYSIS OF WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS  
AS STODDARD SOLVENT  
USING METHOD NWTPH-Dx**  
Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Stoddard Solvent Range</u> (C <sub>8</sub> -C <sub>11</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 50-150)
Well No. 1 004015-01	27,000	112
Well No. 4 004015-02	15,000	107
Method Blank 00-0494 MB	<50	99



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/07/10

Date Received: 04/01/10

Project: Water Test, F&BI 004015

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
STODDARD SOLVENT USING METHOD NWTPH-Dx**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Stoddard Solvent	ug/L (ppb)	2,500	81	86	70-130	6

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

**Data Qualifiers & Definitions**

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

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

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

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

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

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

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

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

fb - Analyte present in the blank and the sample.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Phone # 206-321-5565 Fax #                     

## C04

Page # 0

PO #

REMARKS Please email results to:  
lucy@adventure2296@gmail.com

Rush charges authorized by:

☐ Will call with instructions

\* Test for ppm of mineral spirits.

Received by:

Samples received at 14 °C



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West  
Seattle, WA 98119-2029  
TEL: (206) 285-8282  
FAX: (206) 283-5044  
e-mail: fbi@isomedia.com

November 24, 2009

Duane Bartel  
Tenor Co., LLC  
1313 Washington St.  
Sumner, WA 98390

Dear Mr. Bartel:

Included are the results from the testing of material submitted on November 17, 2009 from the Farwest UST, F&BI 911133 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
c: Rob Roe  
NAA1124R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 17, 2009 by Friedman & Bruya, Inc. from the Tenor Co., LLC Farwest UST, F&BI 911133 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Tenor Co., LLC</u>
911133-01	West Well 11/17/09
911133-02	North Well 11/17/09
911133-03	South Well 11/17/09

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/24/09  
Date Received: 11/17/09  
Project: Farwest UST, F&BI 911133  
Date Extracted: 11/17/09  
Date Analyzed: 11/19/09

**RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS  
AS STODDARD SOLVENT  
USING NWTPH-Dx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Stoddard Solvent Range</u> (C <sub>8</sub> -C <sub>11</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 51-137)
West Well 11/17/09 911133-01	6,100	98
North Well 11/17/09 911133-02 1/100r	9,700,000	ip
South Well 11/17/09 911133-03 1/100r	2,100,000	ip
Method Blank	<50	96



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 11/24/09

Date Received: 11/17/09

Project: Farwest UST, F&BI 911133

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS  
STODDARD SOLVENT USING NWTPH-Dx**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Stoddard Solvent	ug/L (ppb)	2,500	90	94	70-130	4

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

**Data Qualifiers & Definitions**

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

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

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

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

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

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

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

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

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

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

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

ht - The sample was extracted outside of holding time. Results should be considered estimates.

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

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

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

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

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

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

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

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

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

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

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

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

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

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

911133

## SAMPLE CHAIN OF CUSTODY

ME 11-17-09

B04

Send Report To Duane Bartel  
 Company Tenor Company, LLC  
 Address 1313 Washington St.  
 City, State, ZIP Sumner, WA. 98390  
 Phone # 206-321-5565 ~~duaneadventures~~ 52296@comcast.net  
 email duaneadventures

SAMPLERS (signature)

PROJECT NAME/NO.

PO #

REMARKS

Please email results to me and  
 to Rob Lowe @ Environmental Associates

Page # 1 of 1

## TURNAROUND TIME

☒ Standard (2 Weeks)☐ RUSH

Rush charges authorized by:

## SAMPLE DISPOSAL

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

Sample ID	Lab ID	Date	Time	Sample Type	# of containers	ANALYSES REQUESTED										Notes
						TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Mineral Spirits				
West Well 11/17/09	01	11-17-09	1:00	water	1											
North Well 11/17/09	02	11-17-09	1:00		1											
South Well 11/17/09	03	11-17-09	1:00		1											

Friedman & Bruya, Inc.  
 3012 16th Avenue West

Seattle, WA 98119-  
 0000  
 Ph. (206) 285-8282

Fax (206) 283-5044

FORMS\COC\COC.DOC

## SIGNATURE

Relinquished by:

Received by:

Relinquished by:

Received by:

## PRINT NAME

Duane Bartel

Michael Erdahl

## COMPANY

Tenor Co. LLC

P.B. Inc.

## DATE

11/17

1

## TIME

1:30

1

Samples received at 17°C



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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

3012 16th Avenue West  
Seattle, WA 98119-2029  
TEL: (206) 285-8282  
FAX: (206) 283-5044  
e-mail: fbi@isomedia.com

October 8, 2009

Duane Bartel, Project Manager  
Tenor Co., LLC  
1313 Washington St.  
Sumner, WA 98390

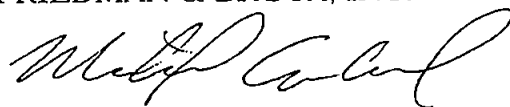
Dear Mr. Bartel:

Included are the results from the testing of material submitted on October 1, 2009 from the Farwest UST Cleanup, F&BI 910015 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

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

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl  
Project Manager

Enclosures  
c: Rob Roe  
NAA1008R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on October 1, 2009 by Friedman & Bruya, Inc. from the Tenor Co., LLC Farwest UST Cleanup, F&BI 910015 project. Samples were logged in under the laboratory ID's listed below.

<u>Laboratory ID</u>	<u>Tenor Co., LLC</u>
910015-01	North Well
910015-02	West Well
910015-03	South Well
910015-04	North Well-3ft E/4'DP
910015-05	West Well-2ft NE/4'DP
910015-06	South Well-3ft.E/4'DP
910015-07	RH Process Tank

Please note that sample North Well had 50 ml of product removed from the container prior to sample extraction. All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/08/09

Date Received: 10/01/09

Project: Farwest UST Cleanup, F&BI 910015

Date Extracted: 10/02/09

Date Analyzed: 10/05/09

**RESULTS FROM THE ANALYSIS OF THE WATER SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS  
AS STODDARD SOLVENT  
USING METHOD NWTPH-Dx**

Results Reported as ug/L (ppb)

<u>Sample ID</u> Laboratory ID	<u>Stoddard Solvent Range</u> (C <sub>8</sub> -C <sub>11</sub> )	<u>Surrogate</u> (% Recovery) (Limit 51-137)
North Well d 910015-01 1/20	260,000	101
West Well 910015-02	2,200	96
South Well d 910015-03 1/100	900,000	137
RH Process Tank 910015-07	130	94
Method Blank	<50	84

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/08/09  
Date Received: 10/01/09  
Project: Farwest UST Cleanup, F&BI 910015  
Date Extracted: 10/02/09  
Date Analyzed: 10/02/09

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS  
AS STODDARD SOLVENT  
USING METHOD NWTPH-Dx**

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

<u>Sample ID</u> Laboratory ID	<u>Stoddard Solvent Range</u> (C <sub>8</sub> -C <sub>11</sub> )	<u>Surrogate</u> <u>(% Recovery)</u> (Limit 67-127)
North Well-3ft E/4'DP 910015-04	<50	98
West Well-2ft NE/4'DP 910015-05	<50	88
South Well-3ft.E/4'DP 910015-06	<50	88
Method Blank	<50	94



FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/08/09

Date Received: 10/01/09

Project: Farwest UST Cleanup, F&BI 910015

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER  
SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS STODDARD  
SOLVENT USING METHOD NWTPH-Dx**

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Stoddard Solvent	ug/L (ppb)	2,500	94	91	70-130	3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 10/08/09

Date Received: 10/01/09

Project: Farwest UST Cleanup, F&BI 910015

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES  
FOR TOTAL PETROLEUM HYDROCARBONS AS  
STODDARD SOLVENT USING METHOD NWTPH-Dx**

Laboratory Code: 910015-04 (Matrix Spike)

Analyte	Reporting Units	Spike Level	(Wet wt) Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Stoddard Solvent	mg/kg (ppm)	5,000	<50	98	108	50-150	10

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Stoddard Solvent	mg/kg (ppm)	5,000	97	70-130

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

**Data Qualifiers & Definitions**

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

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

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

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

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

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

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

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

fb - The analyte indicated was found in the method blank. The result should be considered an estimate.

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

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

ht - The sample was extracted outside of holding time. Results should be considered estimates.

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

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

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

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

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

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

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

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

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

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

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

ve - The value reported exceeded the calibration range established for the analyte. The reported concentration should be considered an estimate.

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

x - The pattern of peaks present is not indicative of diesel.

y - The pattern of peaks present is not indicative of motor oil.

910015

## SAMPLE CHAIN OF CUSTODY

ME 10/01/09 C03

Send Report To Duane BartelCompany Tenor Company LLCAddress 1313 Washington St.City, State, ZIP Skaneateles, WA. 98390Phone # 206-321-5565 Fax # N/A.Email: duane.sadventures2296@comcast.net

SAMPLERS (signature)

PROJECT NAME/NO.

PO #

REMARKS

EAI is working with me on this  
Please CC: report to Rob Lowe

Page # of

## TURNAROUND TIME

☐ Standard (2 Weeks)☐ RUSH

Rush charges authorized by:

## SAMPLE DISPOSAL

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

## ANALYSES REQUESTED

ANALYSES REQUESTED																	
Sample ID	Lab ID	Date	Time	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	Standard Solvent					Notes
North well	01	10-1-09	11:40 AM	Water	1												
<del>West</del> well	02	10-1-09	11:30 AM	Water	1							✓					
South well	03	10-1-09	11:35 AM	Water	1							✓					
North well-3A/E/4'D	04	10-1-09	11:50 AM	Soil	1							✓					
West well-2A/E/4'D	05	10-1-09	11:55 AM	Soil	1							✓					
South well-3A/E/4'D	06	10-1-09	11:55 AM	Soil	1							✓					
RH Process tank	07	10-1-09	11:30 AM	Water	1							✓					

Friedman & Bruya, Inc.  
3012 16th Avenue West

Seattle, WA 98119

Ph (206) 285-8282

Fax (206) 283-5044

FORMS\COC\COC.DOC

## SIGNATURE

## PRINT NAME

## COMPANY

## DATE

## TIME

Relinquished by:

Received by:

Relinquished by:

Received by:

Samples received at 20°C

**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112<sup>th</sup> Avenue Northeast, Suite 300  
Bellevue, Washington 98004  
(425) 455-9025 Office  
(888) 453-5394 Toll Free  
(425) 455-2316 Fax

June 23, 2010

JN-28275-3

Ms. Cathie Richardson  
Washington State Department of Ecology  
UST Division  
3190 - 160<sup>th</sup> Avenue SE  
Bellevue, Washington 98008-5452

**RE: Remediation Feasibility Study &  
Independent Cleanup Action Status Report  
Former Glitsa Property (LUST Release #3910  
327 South Kenyon Street  
Seattle, Washington**

Dear Ms. Richardson:

On behalf of our Client (Tenor Company, LLC) please find enclosed a copy of Environmental Associates, Inc's (EAI's) Supplemental Exploration & Further Remediation Feasibility Study, and a copy of EAI's Independent Cleanup Action Status report.

Sincerely submitted,



Robert B. Roe, M.Sc., LHG.  
Senior Hydrogeologist / Project Manager  
License: 1125 (Washington)



Associate Offices: Oregon / San Francisco Bay Area

RECEIVED

JUN 24 2010

WASHINGTON STATE DEPARTMENT OF ECOLOGY  
JUN 24 2010

UST 6178