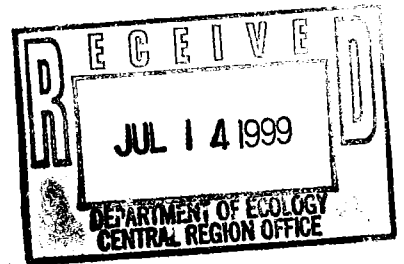


**SITE ASSESSMENT  
UNDERGROUND STORAGE TANK REMOVAL**

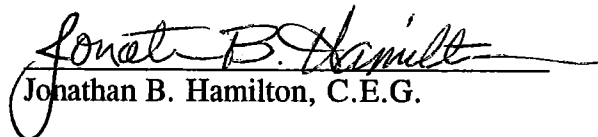
**WENATCHEE CEMETERY**  
Wenatchee, Washington

**PREPARED FOR:  
CITY OF WENATCHEE  
DEPARTMENT OF PUBLIC WORKS**

**JULY 1999**  
HCW-L Project No. 99-80-031



Prepared by:  
**HAMMOND, COLLIER & WADE -  
LIVINGSTONE ASSOC., INC.**

  
Jonathan B. Hamilton, C.E.G.

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## INTRODUCTION

This report presents the results of the field investigation, soil sample analysis, and interviews conducted to determine the use and condition of the Underground Storage Tanks (UST's) being removed and to determine the environmental condition of the soils surrounding the UST's. The assessment follows the "Guide for Site Checks and Site Assessments for Underground Storage Tanks"<sup>1</sup> and Hammond, Collier & Wade - Livingstone Associates' proposal dated May 17, 1999. Work was authorized by Bob Johanson on May 28, 1999, by Purchase Order No. 1900.

## SITE DESCRIPTION

The UST's are at the Wenatchee Cemetery located at 1804 North Western Avenue in Wenatchee, Washington. Residences surround the property. N. Western Avenue is to the east.

The property is about one mile west-southwest of the confluence of the Wenatchee and Columbia Rivers and at an elevation of approximately 810 feet. Normal pool elevation for the Columbia River is 810 feet elevation.<sup>2</sup> The UST site is located in Chelan County, Washington, within the NE 1/4 of the NE 1/4, Section 32, Township 23 N, Range 20 E, W.M. Geologically, the UST site is located on and near the western edge of a relatively level river terrace. The terrace is composed of undifferentiated fluvial deposits.

The surficial soils are described as:

"Burch loam, 3 to 8 percent slopes (BvB). The Burch series consists of well-drained, medium- textured and moderately coarse textured soils that formed in valley fill, chiefly of sandstone origin. These soils are on terraces. permeability is moderate. Runoff is very slow."<sup>3</sup>

Two UST's were removed. UST #1 is a 300-gallon steel tank with an O.D. of 39 inches and length of 62 inches and held diesel fuel. UST #1 is located just west of the southwest corner of a metal storage building. UST #2 is another 300-gallon steel tank with an O.D. of 39 inches and length of 62 inches held gasoline.

---

<sup>1</sup> Washington State Department of Ecology, Underground Storage Tank Program (Revised Oct. 1992).

<sup>2</sup> Wenatchee Quadrangle, 7-1/2 Minute Topo., U.S.G.S., Photorevised 1987.

<sup>3</sup> Soil Survey of Chelan Area, Wash., U.S.D.A., Soil Conservation Service, 1981

UST #2 is located just northeast of the northeast corner of the metal storage building. Gravel parking surrounds the steel building and covered the UST's (see Site Plan, Fig. 2).

## **SITE HISTORY**

It is not known when the UST's were installed, but probably around 1976. The UST's are not registered with Ecology. The UST's were used to fuel on-site equipment.

## **SITE ASSESSMENT**

The UST's were decommissioned by Appleland Pump & Equipment on June 10, 1999. The City of Wenatchee removed the UST's under the supervision of Appleland Pump & Equipment. Vent, fill, and dispensing pipes were all located above the UST's.

Two excavations were made, one around each UST. UST #1 appeared sound and in good condition with a moderate amount of rust scale. UST #2 appeared sound and in very good condition with minor rust scale. Both excavations were visually inspected for signs of petroleum stains. There was no indication of petroleum contamination in the soils beneath UST's #1 and #2.

Both UST's had been placed in a sandy bedding material. The original ground surrounding the UST's was observed to be a medium dense, brown, silty, fine SAND. The soil is a lacustrine deposit.

A total of eight (8) soil samples were acquired. Three (3) from the beneath each UST and one (1) composite sample from each stockpile. The soil samples from beneath the UST's were taken at each end and middle at the top of the original fine sand or just beneath the bedding sand. Two soil samples were taken from beneath the dispenser island, and two soil samples from the stockpiled soil. All soil samples were submitted to North Creek Analytical of Bothell, Washington, for analysis of Total Petroleum Hydrocarbons and Lead.

Samples 1D through 4D were tested for diesel range hydrocarbons (WTPH-D). Samples 1G through 4G were tested for gasoline range hydrocarbons (WTPH-G), Benzene, Toluene, Ethylbenzene, Xylene (BTEX), and Lead. See Table 1 for analytical summary. Lab data sheets are attached.

**Table 1. Analytical Summary**

Sample No.	WTPH-D ppm	WTPH-G ppm	Benzene ppm	Toluene ppm	Ethylbenzene (ppm)	Xylene ppm	Lead ppm	Remarks
1D	5630							UST#1 S @ 6.0'
2D	6920							UST#1 C @ 6.0'
3D	ND							UST#1 N @ 6.5'
4D	27.4							UST#1 Stockpile
1G		ND	ND	ND	.05	ND	12.2	UST#2 E @ 5.5'
2G		ND	ND	ND	ND	ND	90.3	UST#2 C @ 5.5'
3G		ND	ND	ND	ND	ND	15.5	UST#2 W @ 5.5'
4G		ND	ND	ND	ND	ND	24.6	UST#2 Stockpile
Detect Limit	110	5	.05	.05	.05	.10	0.5	
MTCA Method A	200	100	0.5	20	40	20	250	

**CONCLUSIONS AND RECOMMENDATIONS**

The analytical testing indicates that diesel range petroleum contaminated soil (PCS) above MTCA Method A levels is present beneath the south end of UST-1. It is our opinion that the contamination is limited to a few cubic yards. Soil sample (3D) from beneath the north end of UST #1 was "no detect" and is only three feet away from the center soil sample (2D) which indicated contamination.

Ecology Central Region was notified by telephone on June 29, 1999, by Bob Johanson (City of Wenatchee Department of Public Works) that a confirmed release of diesel range hydrocarbons at the UST-1 had occurred.

Possible options could be:

1. No clean up action. Institutional control such as a disclosure statement on deed documents indicating the presents of PCS.
2. Remove PCS, assume 10 c.y. or less, and haul to Waste Management's East Wenatchee landfill. An Independent Remedial Action Report (IRAR) to Ecology with additional soil sampling and analytical testing to confirm that the PCS has been removed would be required.
3. Remove PCS, assume 10 c.y. or less, and spread out on plastic. Monitor and aerate PCS. An IRAR cleanup report to Ecology, with additional soil sampling and analytical testing to confirm that the PCS has been removed, would be required.

For Option 2 or 3, if more than 10 c.y. of PCS are found, the clean-up action should be reviewed.

Possible options should be discussed with Ecology.

The analytical testing on the samples from beneath UST #2 indicates levels below Model Toxics Control Act, Method A levels for all substances tested. Low lead levels were found in all samples from UST #2. We recommend that the UST #2 excavation be backfilled.

The information presented in this report is based upon interviews, HCW-L's observations, experience, and the analytical test results .



# UNDERGROUND STORAGE TANK Site Check/Site Assessment Checklist

For Office Use Only	
Owner #	U1350
Site #	502971

### INSTRUCTIONS:

When a release has **not** been confirmed and reported, this Site Check/Site Assessment Checklist must be completed and signed by a person registered with the Department of Ecology. **The results of the site check or site assessment must be included with this checklist.** This form must be submitted to Ecology at the address shown below within 30 days after completion of the site check/site assessment.

**SITE INFORMATION:** Include the Ecology site ID number if the tanks are registered with Ecology. This number may be found on the tank owner's invoice or tank permit.

**TANK INFORMATION:** Please list all the tanks for which the site check and site assessment is being conducted. Use the tank ID number if available, and indicate tank capacity and substance stored.

**REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT:** Please check the appropriate item.

**CHECKLIST:** Please initial each item in the appropriate box.

**SITE ASSESSOR INFORMATION:** This form must be signed by the registered site assessor who is responsible for conducting the site check/site assessment.

Underground Storage Tank Section  
Department of Ecology  
P. O. Box 47655  
Olympia, WA 98504-7655

### SITE INFORMATION

Site ID Number (on invoice or available from Ecology if the tanks are registered): NONE

Site/Business Name: CITY OF WENATCHEE CEMETERY

Site Address: 1804 N. WESTERN AVE. Telephone: ( 509 ) 664-3377

Street

WENATCHEE WA 98801

City State ZIP-Code

### TANK INFORMATION

Tank ID No.	Tank Capacity	Substance Stored
<u>1</u>	<u>300 GAL.</u>	<u>DIESEL</u>
<u>2</u>	<u>300 GAL.</u>	<u>GASOLINE</u>

### REASON FOR CONDUCTING SITE CHECK/SITE ASSESSMENT

Check one:

- Investigate suspected release due to on-site environmental contamination.
- Investigate suspected release due to off-site environmental contamination.
- Extend temporary closure of UST system for more than 12 months.
- UST system undergoing change-in-service.
- UST system permanently closed-in-place.
- UST system permanently closed with tank removed.
- Abandoned tank containing product.
- Required by Ecology or delegated agency for UST system closed before 12/22/88.
- Other (describe): \_\_\_\_\_

**CHECKLIST**

Each item of the following checklist shall be initialed by the person registered with the Department of Ecology whose signature appears below.

	YES	NO
1. The location of the UST site is shown on the vicinity map.	<i>JBA</i>	
2. A brief summary of information obtained during the site inspection is provided. (see Section 3.2 in the Site Assessment Guidance)	<i>JBA</i>	
3. A summary of UST system data is provided. (see Section 3.1)	<i>JBA</i>	
4. The soils characteristics at the UST site are described. (see Section 5.2)	<i>JBA</i>	
5. Is there apparent groundwater in the tank excavation?	<i>JBA</i>	<i>JBA</i>
6. A brief description of the surrounding land is provided. (see Section 3.1)	<i>JBA</i>	
7. Information has been provided indicating the number and types of samples collected, methods used to collect and analyze the samples, and the name and address of the laboratory used to perform the analyses.	<i>JBA</i>	
8. A sketch or sketches showing the following items is provided:		
- location and ID number for all field samples collected	<i>JBA</i>	
- groundwater samples distinguished from soil samples (if applicable)	<i>JBA</i>	NA
- samples collected from stockpiled excavated soil	<i>JBA</i>	
- tank and piping locations and limits of excavation pit	<i>JBA</i>	
- adjacent structures and streets	<i>JBA</i>	
- approximate locations of any on-site and nearby utilities	<i>JBA</i>	
9. If sampling procedures different from those specified in the guidance were used, has justification for using these alternative sampling procedures been provided? (see Section 3.4)		NA
10. A table is provided showing laboratory results for each sample collected including: sample ID number, constituents analyzed for and corresponding concentration, analytical method and detection limit for that method.	<i>JBA</i>	
11. Any factors that may have compromised the quality of the data or validity of the results are described.	<i>JBA</i>	
12. The results of this site check/site assessment indicate that a confirmed release of regulated substance has occurred.	<i>JBA</i>	

**SITE ASSESSOR INFORMATION**

JONATHAN B. HAMILTON  
PERSON REGISTERED WITH ECOLOGY

HAMMOND, COLLIER & WADE - LIVINGSTONE ASSOC., INC.  
FIRM AFFILIATED WITH

BUSINESS ADDRESS: 104 EAST 9TH ST. TELEPHONE: (509) 662-1762

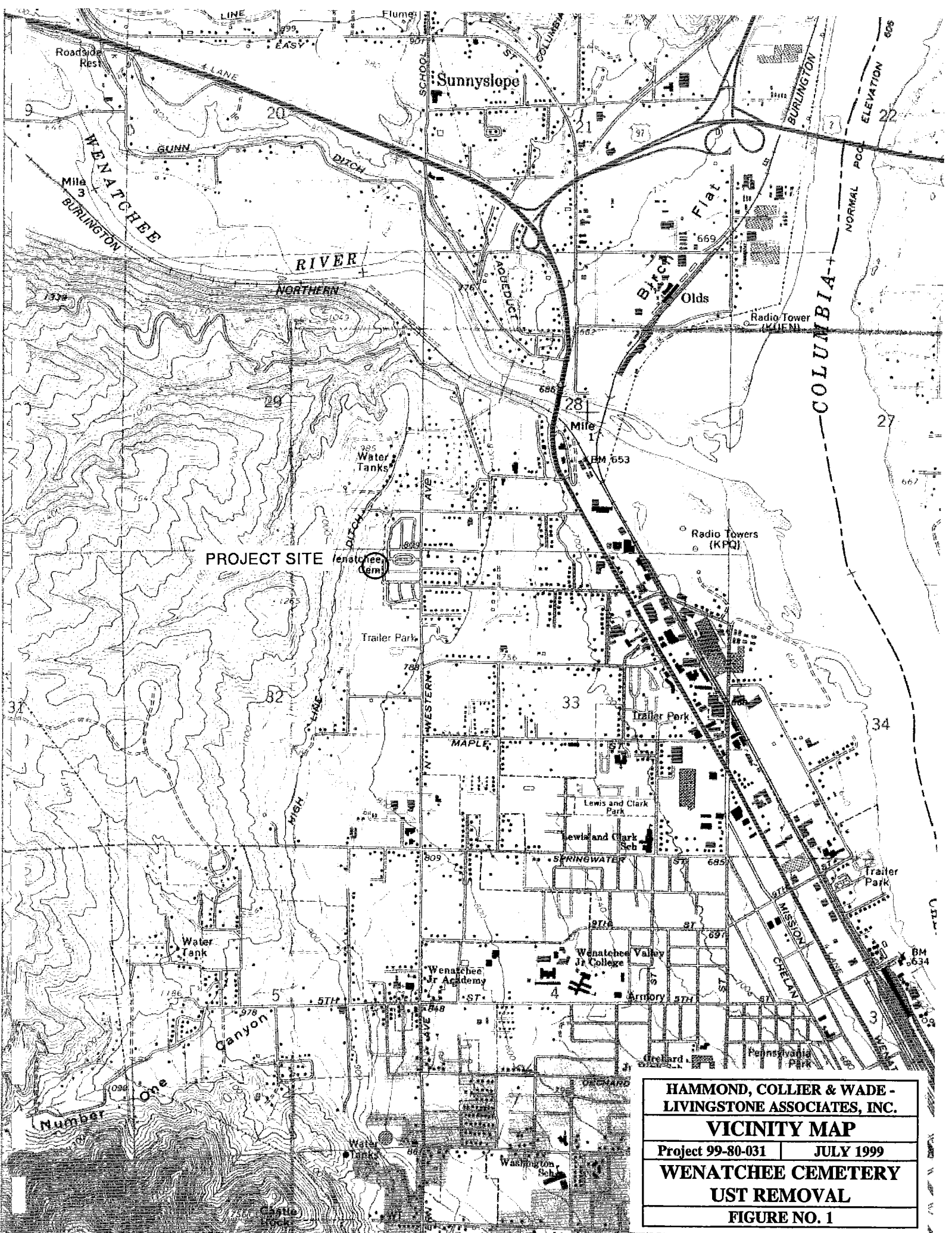
WENATCHEE WA 98801

CITY STATE ZIP+CODE

*I hereby certify that I have been in responsible charge of performing the site check / site assessment described above. Persons submitting false information are subject to penalties under Chapter 173-360 WAC.*

Date \_\_\_\_\_ Signature of Person Registered with Ecology \_\_\_\_\_





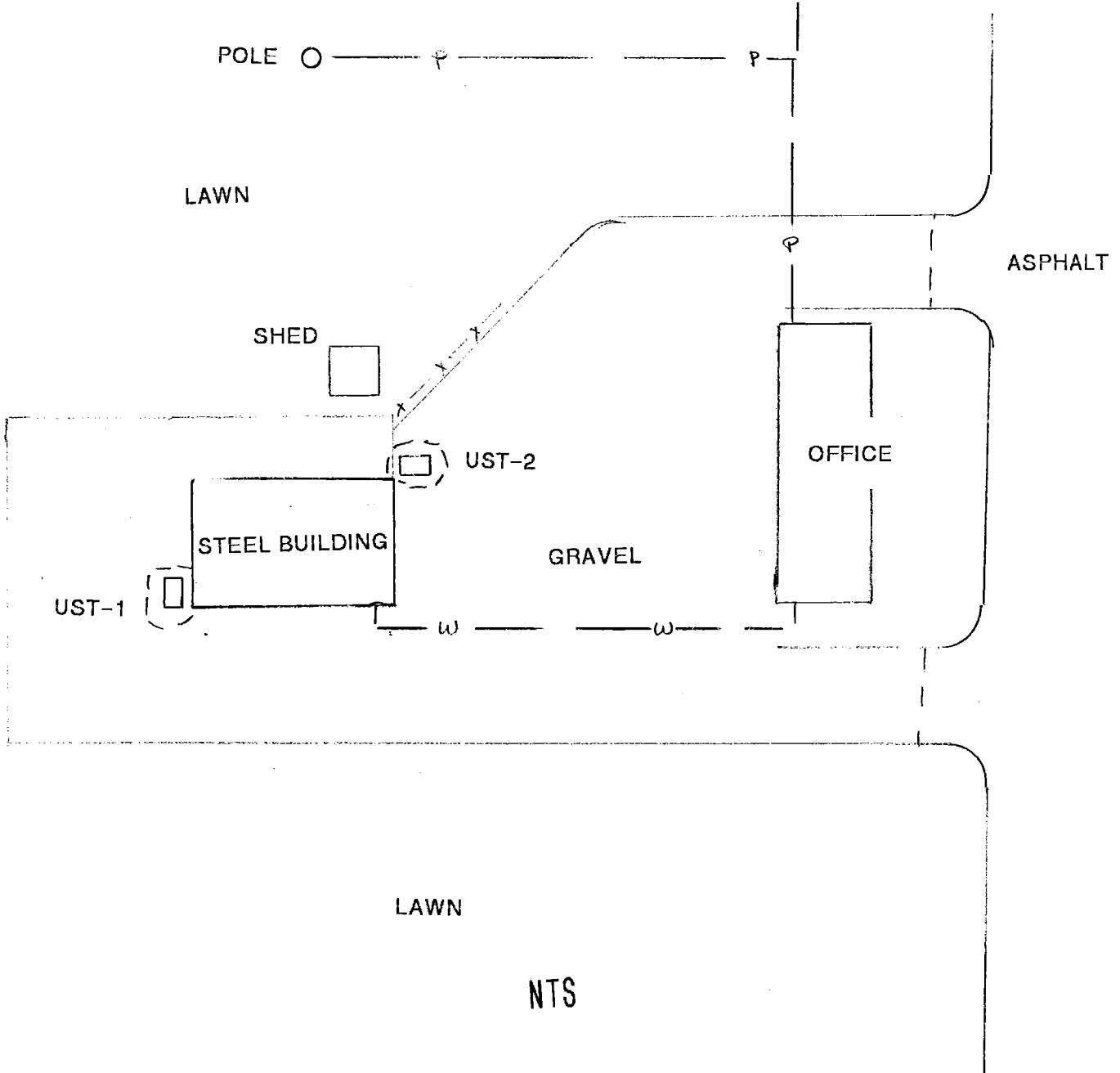
**HAMMOND, COLLIER & WADE -  
LIVINGSTONE ASSOCIATES, INC.**

**VICINITY MAP**

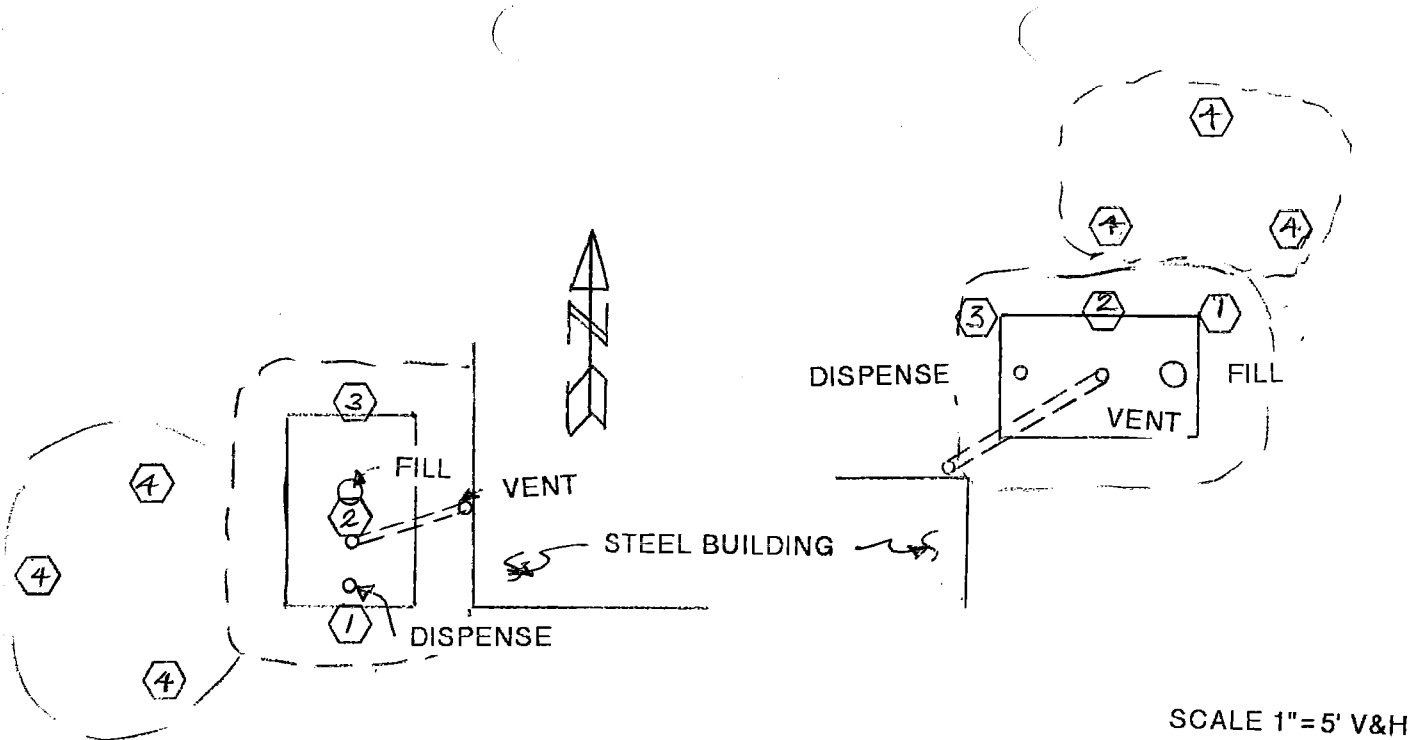
Project 99-80-031 | JULY 1999

**WENATCHEE CEMETERY  
UST REMOVAL**

**FIGURE NO. 1**



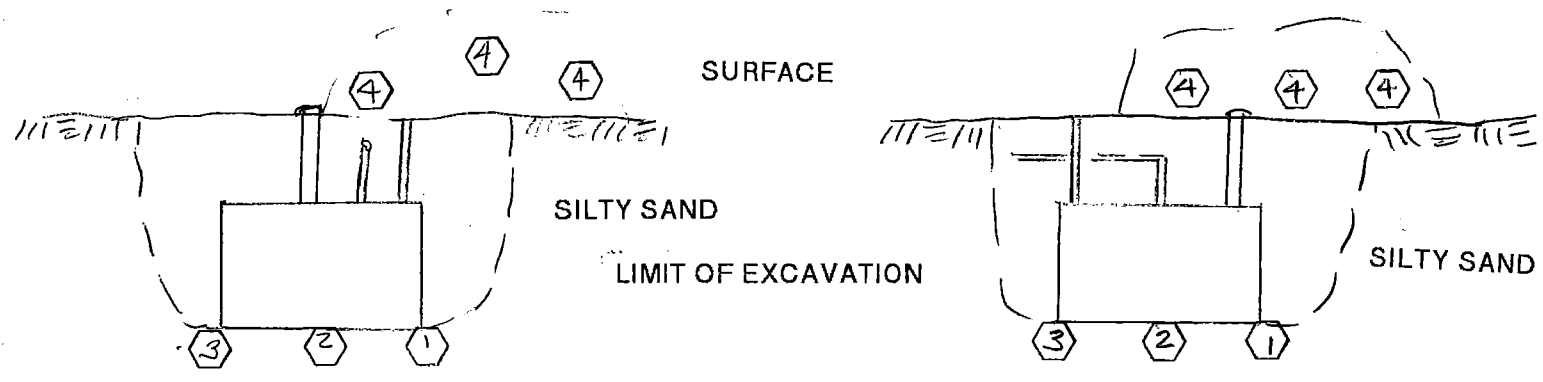
<b>HAMMOND, COLLIER &amp; WADE - LIVINGSTONE ASSOCIATES, INC.</b>	
<b>SITE PLAN</b>	
Project 99-80-031	JULY 1999
<b>WENATCHEE CEMETERY UST REMOVAL</b>	
<b>FIGURE NO. 2</b>	



**SAMPLE PLAN**

UST-1  
DIESEL

UST-2  
GASOLINE



**SAMPLE PROFILE**

UST-1  
LOOKING EAST

UST-2  
LOOKING NORTH

**LEGEND**

(2) SAMPLE LOCATION AND NUMBER

HAMMOND, COLLIER & WADE - LIVINGSTONE ASSOCIATES, INC.	
<b>SAMPLING PLAN</b>	
Project 99-80-031	JULY 1999
<b>WENATCHEE CEMETERY UST REMOVAL</b>	
<b>FIGURE NO. 3</b>	



Seattle 18939 17<sup>th</sup> Avenue NE, Suite 101, Bothell, WA 98011-9508  
 425.420.1111 fax 425.420.9210  
 Spokane East 11115<sup>th</sup> Montgomery, Suite B, Spokane, WA 99206-4776  
 509.924.9200 fax 509.924.9290  
 Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132  
 503.906.9200 fax 503.906.9210  
 Bend 20354 Empire Avenue, Suite E-9, Bend, OR 97708-1883  
 541.383.9310 fax 541.382.7588

HCW-L WENATCHEE 104 E. 9TH ST. Wenatchee, WA.USA 98801	Project: WST Removal,ESA,Wen.com. Project Number: 99831 Project Manager: Jon Hamilton	Sampled: 6/10/99 Received: 6/11/99 Reported: 6/25/99 12:55
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**ANALYTICAL REPORT FOR SAMPLES:**

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
1D	B906302-01	Soil	6/10/99
2D	B906302-02	Soil	6/10/99
3D	B906302-03	Soil	6/10/99
4D	B906302-04	Soil	6/10/99
1G	B906302-05	Soil	6/10/99
2G	B906302-06	Soil	6/10/99
3G	B906302-07	Soil	6/10/99
4G	B906302-08	Soil	6/10/99

**Fig. 4**

North Creek Analytical - Bothell

*The results in this report apply to the samples analyzed in accordance with the chain of custody document.  
 This analytical report must be reproduced in its entirety.*

  
 Kirk Gendron, Project Manager

**North Creek Analytical, Inc.  
 Environmental Laboratory Network**



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 Spokane East 1115 Montgomery, Suite B, Spokane, WA 99206-4776  
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HCW-L WENATCHEE 104 E. 9TH ST. Wenatchee, WA USA 98801	Project: WST Removal, ESA, Wen. cem. Project Number: 99831 Project Manager: Jon Hamilton	Sampled: 6/10/99 Received: 6/11/99 Reported: 6/25/99 12:55
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B  
 North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
				<b>B906302-05</b>				
<b>1G</b> Gasoline Range Hydrocarbons	0690565	6/17/99	6/22/99		5.00	ND	mg/kg dry	<b>Soil</b>
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	<b>0.0532</b>	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		81.5	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		88.5	"	
				<b>B906302-06</b>				
<b>2G</b> Gasoline Range Hydrocarbons	0690565	6/17/99	6/24/99		5.00	ND	mg/kg dry	<b>Soil</b>
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		81.0	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		89.4	"	
				<b>B906302-07</b>				
<b>3G</b> Gasoline Range Hydrocarbons	0690565	6/17/99	6/24/99		5.00	ND	mg/kg dry	<b>Soil</b>
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		83.0	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		90.5	"	
				<b>B906302-08</b>				
<b>4G</b> Gasoline Range Hydrocarbons	0690565	6/17/99	6/24/99		5.00	ND	mg/kg dry	<b>Soil</b>
Benzene	"	"	"		0.0500	ND	"	
Toluene	"	"	"		0.0500	ND	"	
Ethylbenzene	"	"	"		0.0500	ND	"	
Xylenes (total)	"	"	"		0.100	ND	"	
Surrogate: 4-BFB (FID)	"	"	"	50.0-150		84.3	%	
Surrogate: 4-BFB (PID)	"	"	"	50.0-150		91.1	"	

**Fig. 5**

North Creek Analytical - Bothell

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

  
 \_\_\_\_\_  
 Kirk Gendron, Project Manager



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 541.383.9310 fax 541.382.7588

HCW-L WENATCHEE 104 E. 9TH ST. Wenatchee, WA.USA 98801	Project: WST Removal,ESA,Wen.cem. Project Number: 99831 Project Manager: Jon Hamilton	Sampled: 6/10/99 Received: 6/11/99 Reported: 6/25/99 12:55
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**Diesel Hydrocarbons (C12-C24) by WTPH-D  
North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
<b>1D</b> Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i>	0690539	6/16/99	6/18/99	<u>B906302-01</u> 50.0-150	110	5630 NR	Soil mg/kg dry %	I
<b>2D</b> Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i>	0690539	6/16/99	6/18/99	<u>B906302-02</u> 50.0-150	210	6920 101	Soil mg/kg dry %	
<b>3D</b> Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i>	0690539	6/16/99	6/18/99	<u>B906302-03</u> 50.0-150	10.0	ND 92.3	Soil mg/kg dry %	
<b>4D</b> Diesel Range Hydrocarbons <i>Surrogate: 2-FBP</i>	0690539	6/16/99	6/18/99	<u>B906302-04</u> 50.0-150	10.0	27.4 77.6	Soil mg/kg dry %	

**Fig. 6**

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

**North Creek Analytical, Inc.  
Environmental Laboratory Network**



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HCW-L WENATCHEE 104 E. 9TH ST. Wenatchee, WA.USA 98801	Project: WST Removal,ESA,Wen.cem. Project Number: 99831 Project Manager: Jon Hamilton	Sampled: 6/10/99 Received: 6/11/99 Reported: 6/25/99 12:55
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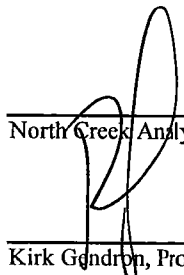
**Total Metals by EPA 6000/7000 Series Methods  
 North Creek Analytical - Bothell**

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
<b>1G</b> Lead	0690612	6/17/99	6/19/99	<u>B906302-05</u> EPA 6020	0.500	12.2	Soil mg/kg dry	
<b>2G</b> Lead	0690612	6/17/99	6/19/99	<u>B906302-06</u> EPA 6020	0.500	90.3	Soil mg/kg dry	
<b>3G</b> Lead	0690612	6/17/99	6/19/99	<u>B906302-07</u> EPA 6020	0.500	15.5	Soil mg/kg dry	
<b>4G</b> Lead	0690612	6/17/99	6/19/99	<u>B906302-08</u> EPA 6020	0.500	24.6	Soil mg/kg dry	

**Fig. 7**

North Creek Analytical - Bothell

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

  
 \_\_\_\_\_  
 Kirk Gendron, Project Manager

**North Creek Analytical, Inc.  
 Environmental Laboratory Network**



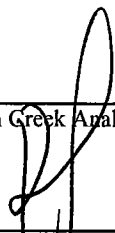
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**Dry Weight Determination  
North Creek Analytical - Bothell**

Sample Name	Lab ID	Matrix	Result	Units
1D	B906302-01	Soil	82.4	%
2D	B906302-02	Soil	84.3	%
3D	B906302-03	Soil	83.6	%
4D	B906302-04	Soil	88.5	%
1G	B906302-05	Soil	88.0	%
2G	B906302-06	Soil	86.5	%
3G	B906302-07	Soil	83.1	%
4G	B906302-08	Soil	89.5	%

**Fig. 8**

North Creek Analytical - Bothell  
  
Kirk Gendron, Project Manager





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HCW-L WENATCHEE 104 E. 9TH ST. Wenatchee, WA.USA 98801	Project: WST Removal,ESA,Wen.cem. Project Number: 99831 Project Manager: Jon Hamilton	Sampled: 6/10/99 Received: 6/11/99 Reported: 6/25/99 12:55
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control  
 North Creek Analytical - Bothell**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. %	RPD Limit	RPD %	Notes*
<b>Batch: 0690565</b>			<b>Date Prepared: 6/17/99</b>		<b>Extraction Method: EPA 5030B (MeOH)</b>				
<b>Blank</b>			<b>0690565-BLK1</b>						
Gasoline Range Hydrocarbons	6/23/99			ND	mg/kg dry	5.00			
Benzene	"			ND	"	0.0500			
Toluene	"			ND	"	0.0500			
Ethylbenzene	"			ND	"	0.0500			
Xylenes (total)	"			ND	"	0.100			
Surrogate: 4-BFB (FID)	"	4.00		3.85	"	50.0-150	96.2		
Surrogate: 4-BFB (PID)	"	4.00		4.12	"	50.0-150	103		
<b>Blank</b>			<b>0690565-BLK2</b>						
Gasoline Range Hydrocarbons	6/21/99			ND	mg/kg dry	5.00			
Benzene	"			ND	"	0.0500			
Toluene	"			ND	"	0.0500			
Ethylbenzene	"			ND	"	0.0500			
Xylenes (total)	"			ND	"	0.100			
Surrogate: 4-BFB (FID)	"	4.00		3.75	"	50.0-150	93.8		
Surrogate: 4-BFB (PID)	"	4.00		4.00	"	50.0-150	100		
<b>LCS</b>			<b>0690565-BS1</b>						
Gasoline Range Hydrocarbons	6/21/99	25.0		21.4	mg/kg dry	70.0-130	85.6		
Surrogate: 4-BFB (FID)	"	4.00		4.00	"	50.0-150	100		
<b>Duplicate</b>			<b>0690565-DUP1 B906371-01</b>						
Gasoline Range Hydrocarbons	6/21/99		ND	ND	mg/kg dry			50.0	
Surrogate: 4-BFB (FID)	"	4.45		4.03	"	50.0-150	90.6		
<b>Matrix Spike</b>			<b>0690565-MS1 B906302-05</b>						
Benzene	6/21/99	0.568	ND	0.443	mg/kg dry	60.0-140	78.0		
Toluene	"	0.568	ND	0.471	"	60.0-140	82.9		
Ethylbenzene	"	0.568	0.0532	0.481	"	60.0-140	75.3		
Xylenes (total)	"	1.70	ND	1.43	"	60.0-140	84.1		
Surrogate: 4-BFB (PID)	"	4.54		4.17	"	50.0-150	91.9		
<b>Matrix Spike Dup</b>			<b>0690565-MSD1 B906302-05</b>						
Benzene	6/22/99	0.568	ND	0.451	mg/kg dry	60.0-140	79.4	20.0	1.78
Toluene	"	0.568	ND	0.477	"	60.0-140	84.0	20.0	1.32
Ethylbenzene	"	0.568	0.0532	0.477	"	60.0-140	74.6	20.0	0.934
Xylenes (total)	"	1.70	ND	1.41	"	60.0-140	82.9	20.0	1.44

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

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**Fig. 9**



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HCW-L WENATCHEE 104 E. 9TH ST. Wenatchee, WA.USA 98801	Project: WST Removal,ESA,Wen.cem. Project Number: 99831 Project Manager: Jon Hamilton	Sampled: 6/10/99 Received: 6/11/99 Reported: 6/25/99 12:55
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**Gasoline Hydrocarbons (Toluene to Dodecane) and BTEX by WTPH-G and EPA 8021B/Quality Control  
 North Creek Analytical - Bothell**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. %	RPD Limit	RPD %	Notes*
<u>Matrix Spike Dup (continued)</u>	<u>0690565-MSD1</u>	<u>B906302-05</u>							
Surrogate: 4-BFB (PID)	6/22/99	4.54		4.08	mg/kg dry	50.0-150	89.9		

**Fig. 10**

North Creek Analytical - Bothell

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

Kirk Gendron, Project Manager

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 Environmental Laboratory Network**



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HCW-L WENATCHEE 104 E. 9TH ST. Wenatchee, WA USA 98801	Project: WST Removal,ESA,Wen.cem. Project Number: 99831 Project Manager: Jon Hamilton	Sampled: 6/10/99 Received: 6/11/99 Reported: 6/25/99 12:55
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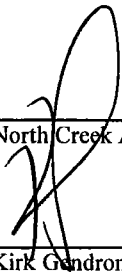
**Diesel Hydrocarbons (C12-C24) by WTPH-D/Quality Control  
 North Creek Analytical - Bothell**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. %	RPD Limit	RPD %	Notes*
<b>Batch: 0690539</b>		<b>Date Prepared: 6/16/99</b>		<b>Extraction Method: EPA 3550B</b>					
<b>Blank</b>									
<b>0690539-BLK1</b>									
Diesel Range Hydrocarbons	6/17/99			ND	mg/kg dry	10.0			
Surrogate: 2-FBP	"	10.8		7.57	"	50.0-150	70.1		
<b>LCS</b>									
<b>0690539-BS1</b>									
Diesel Range Hydrocarbons	6/17/99	66.7		54.1	mg/kg dry	60.0-140	81.1		
Surrogate: 2-FBP	"	10.8		9.72	"	50.0-150	90.0		
<b>Duplicate</b>									
<b>0690539-DUP1 B906302-03</b>									
Diesel Range Hydrocarbons	6/17/99		ND	ND	mg/kg dry			50.0	
Surrogate: 2-FBP	"	13.0		8.73	"	50.0-150	67.2		
<b>Duplicate</b>									
<b>0690539-DUP2 B906302-04</b>									
Diesel Range Hydrocarbons	6/17/99		27.4	44.9	mg/kg dry			50.0	48.4
Surrogate: 2-FBP	"	12.2		10.8	"	50.0-150	88.5		

**Fig. 11**

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

  
 Kirk Gendron, Project Manager



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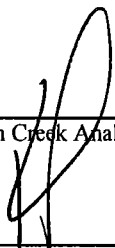
HCW-L WENATCHEE 104 E. 9TH ST. Wenatchee, WA.USA 98801	Project: WST Removal,ESA,Wen.com. Project Number: 99831 Project Manager: Jon Hamilton	Sampled: 6/10/99 Received: 6/11/99 Reported: 6/25/99 12:55
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**Total Metals by EPA 6000/7000 Series Methods/Quality Control  
 North Creek Analytical - Bothell**

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Reporting Limit Units	Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
<b>Batch: 0690612</b>		<b>Date Prepared: 6/17/99</b>		<b>Extraction Method: EPA 3050B</b>						
<b>Blank</b>		<b>0690612-BLK1</b>								
Lead	6/19/99			ND	mg/kg dry	0.500				
<b>LCS</b>		<b>0690612-BS1</b>								
Lead	6/19/99	25.0		26.8	mg/kg dry	80.0-120	107			
<b>Matrix Spike</b>		<b>0690612-MS1</b>		<b>B906152-04</b>						
Lead	6/19/99	27.7	2.52	31.5	mg/kg dry	70.0-130	105			
<b>Matrix Spike Dup</b>		<b>0690612-MSD1</b>		<b>B906152-04</b>						
Lead	6/19/99	26.1	2.52	30.0	mg/kg dry	70.0-130	105	20.0	0	

**Fig. 12**

North Creek Analytical - Bothell



Kirk Gendron, Project Manager

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



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HCW-L WENATCHEE 104 E. 9TH ST. Wenatchee, WA.USA 98801	Project: WST Removal,ESA,Wen.com. Project Number: 99831 Project Manager: Jon Hamilton	Sampled: 6/10/99 Received: 6/11/99 Reported: 6/25/99 12:55
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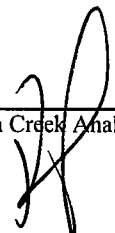
**Notes and Definitions**

#	Note
---	------

- 1 The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interferences.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- Recov. Recovery
- RPD Relative Percent Difference

**Fig. 13**

North Creek Analytical - Bothell



Kirk Gendron, Project Manager

**CHAIN OF CUSTODY REPORT**

Work Order # **B906302**

REPORT TO: **HOW-L WENATCHEE**  
 ATTENTION: **JOHN HAMILTON**  
 ADDRESS: **604 E. 9TH ST, WENATCHEE, WA. 98801**  
 PHONE: **509-662-1762** FAX: **509-663-8534**  
 PROJECT NAME: **UST REMEDIATION, WEN. CEM.**  
 PROJECT NUMBER: **99831**  
 SAMPLED BY: **JOHN HAMILTON**

INVOICE TO: **HOW-L SEATTLE**  
 ATTENTION: **BRENDA CARLSON**  
 ADDRESS: **4010 STONE WAY, N. SUITE 300 SEATTLE, WA. 98103-8090**  
 P.O. NUMBER: **99831** NCA QUOTE #: **99831**

NCA SAMPLE ID (Laboratory Use Only)	SAMPLING DATE/TIME	CLIENT SAMPLE IDENTIFICATION	Analysis Request:		X	DATE	TIME	FIRM	RECEIVED BY (Signature)	DATE	TIME	FIRM	RECEIVED BY (Signature)	DATE	TIME
			LEAD	OTHER											
B906302-01	6/10/99 11:00A	1D			X	6/10/99	3 PM	HOW-L	John Hamilton	6/11/99		NCA	Brenda Carlson	6/11/99	
02	6/10/99 11:00A	2D			X										
03	6/10/99 11:00A	3D			X										
04	6/10/99 11:00A	4D			X										
05	6/10/99 11:00A	1G			X										
06	6/10/99 11:00A	2G			X										
07	6/10/99 11:00A	3G			X										
08	6/10/99 11:00A	4G			X										

RELINQUISHED BY (Signature): **John Hamilton** DATE: **6/10/99** RECEIVED BY (Signature): **Brenda Carlson** DATE: **6/11/99**  
 PRINT NAME: **John Hamilton** FIRM: **HOW-L** PRINT NAME: **Brenda Carlson** FIRM: **NCA**

RELINQUISHED BY (Signature): \_\_\_\_\_ DATE: \_\_\_\_\_ RECEIVED BY (Signature): \_\_\_\_\_ DATE: \_\_\_\_\_  
 PRINT NAME: \_\_\_\_\_ FIRM: \_\_\_\_\_ PRINT NAME: \_\_\_\_\_ FIRM: \_\_\_\_\_

ADDITIONAL REMARKS: \_\_\_\_\_

TURNAROUND REQUEST IN BUSINESS DAYS \*

10	7	5	4	3	2	1
Standard						Same Day

Organic & Inorganic Analyses

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standard	3-4	2	1	1	1	Same Day

Fuels & Hydrocarbon Analyses

OTHER Specify: \_\_\_\_\_  
 \* Turnaround Requests less than standard may incur Rush Charges.

MATRIX (W. S. A. O)	# OF CONTAINERS	COMMENTS
S	JAR	UST-1 S
"	"	UST-1 C
"	"	UST-1 N
"	"	UST-1 STOCKP
"	"	UST-2 E
"	"	UST-2 C
"	"	UST-2 W
"	"	UST-2 STOCK

13.2 w/o