INDEPENDENT REMEDIAL ACTION REPORT

For

Commercial Property
4015 W. Marginal Way SW
Seattle, Washington 98106

Report Prepared For:
Too Marginal L.L.C.
4015 W. Marginal Way SW
Seattle, Washington 98106

Report Prepared by
Global Diving and Salvage, Inc.
3840 W. Marginal Way SW
Seattle, WA 98106

May 23, 2002

Table of Contents

GLOBAL

Global Diving & Salvage, Inc.
3840 West Marginal Way SW
Seattle, Washington 98106
1-800-441-3483
24-hour hotline 206-623-0621
info@globaldivingandsalvage.com
www.globaldivingandsalvage.com

May 23, 2002

Too Marginal L.L.C.
4015 W. Marginal Way SW
Seattle, Washington 98106

Attn: Tim Beaver

Re: Report of Independent Remedial Action
Commercial Property
4015 W. Marginal Way SW
Seattle, Washington
Global Project Number 5814

Mr. Beaver:

Global Diving and Salvage, Inc., Environmental Division (Global) has completed the above referenced project. The enclosed report is being submitted to the Department of Ecology's Voluntary Cleanup Program. Global was retained by Too Marginal L.L.C., to complete a cleanup of the property at the 4015 W. Marginal Way SW address. The property was formerly an automobile wrecking yard (Bry's Auto Wrecking, 4017 W. Marginal Way SW. Reports by Whitman Environmental Services, and selective sampling completed by Global indicated that contamination existed in the top two feet of soil throughout a major portion of the property. The contamination consisted primarily of heavy oil, with some impact by lead detected.

A total of 113.82 tons of petroleum contaminated soil were removed and transported to Waste Management's Seattle disposal facility. Confirmation sampling was conducted to verify that soil containing contaminants, were not present, at levels that exceed the state cleanup standard. Based on this information, we conclude that the contaminants that were present in shallow soils, have been removed. We conclude that the site should now be considered cleaned up, therefore, we do not recommend additional investigative or remedial actions. By submission of this report to the Washington Department of Ecology, through the Voluntary Cleanup Program, we intend to obtain a "No Further Action" letter and determination. We at Global appreciate the opportunity to be of service. As always, if any questions remain, please do not hesitate to call. If we can be of service in the future, please be sure to give us a call.

Respectfully,

Gary Peters
Washington Licensed
Site Assessor

INDEPENDENT REMEDIAL ACTION REPORT

For

Commercial Property
4015 W. Marginal Way SW
Seattle, Washington 98106

May 23, 2002

1.0 Identification of Hazardous Substance

Too Marginal L.L.C. recently purchased the property, with previous knowledge that surface contamination was present. Prior to making the purchase, an investigation was made of historical data and reports of previous investigations reviewed. Global conducted limited soil sampling to satisfy the buyers that the known contamination appeared to be limited. Whitman Environmental Sciences completed limited soil sampling in December of 1998. They also completed a Phase I Environmental Site Assessment, including additional soil sampling, in July, 2000. Contamination was identified as oil range and diesel range hydrocarbons. Global's soil sampling also identified some limited lead contamination. During Global's cleanup activities, a previously unknown heating oil tank was discovered. That tank was removed, with some limited contamination discovered and removed.

2.0 Circumstances of Release and Discovery

The site was operated as an auto wrecking yard, from approximately 1976 to 2001. File information indicates that contamination of the soil was suspected as early as 1993, due to poor housekeeping and uncontrolled discharges of automotive fluids during the process of stripping wrecked cars and trucks. Soil sampling conducted in 1998, by Whitman Environmental Sciences, found oil and diesel range hydrocarbon impact in the top two feet of soil, at various locations throughout the property.

Global's activities consisted of an initial round of soil samples, to characterize the extent of impact. That round of sampling identified lead as an additional contaminant. During removal of contaminated soil, an unknown heating oil tank was discovered. During removal activities, limited impact from heating oil was identified. That contaminated soil was also removed, to legal disposal.

3.0 Remedial Actions

Global completed demolition of the northern most of two houses, with demolition debris loaded into roll off boxes, for ultimate transport to legal disposal. Soil was excavated down to a depth of approximately one to two feet, throughout the area identified as impacted. Some additional excavation was completed, where a dark stained strata was observed. A total of 113.82 tons of petroleum contaminated soil (pcs) were removed. The pcs was transported to Waste Management's Seattle facility, for legal disposal. Weight tickets will be found in the Appendix, documenting the legal disposal of the pcs. Confirmation sampling was conducted, to verify that soil containing contaminants, at levels exceeding the state cleanup standard had successfully been removed. Diagrams of historic soil sampling, current soil sampling, soil removal, and confirmation sampling, will be found in the Appendix.

4.0 Site Investigation

Current Investigation

Global's investigation began with a limited characterization of the site, based on previous sampling conducted by Whitman Environmental Sciences. Sampling verified Whitman's conclusion that the contaminants did not extend to depths exceeding two feet. Additionally, lead impact was discovered during our soil sampling. A copy of the analytical report is included in the Appendix.

Following excavation to remove the top two feet of soil, confirmation sampling was conducted. Analytical results indicate that contaminants of concern were at levels well below the state cleanup standard, or were not detected. That analytical report is to be found in the Appendix. A diagram of sample points will be found in the Appendix also.

5.0 Site Description

The subject site is an irregularly shaped parcel. West Marginal Way SW borders the site on the east. SW Andover Street borders the site on the north. 16th Avenue SW borders the site on the west. SW Dakota Street borders the site on the south.

The legal description of the property is as follows: Lots 1 through 6, inclusive, Block 419, Seattle Tidelands, according to the official maps thereof on file in the office of the Commissioner of Public Lands and Olympia, Washington; except those portions of Lot 6 conveyed to the City of Seattle by deeds recorded under Recording Number 6666257 and 6679633; and except that portion of Lot 1 conveyed to the City of Seattle by deed recorded under Recording Number 6666258.

The local area is a mix of older residential properties, and both commercial and industrial properties, primarily situated on West Marginal Way. Property south of SW Dakota Street is newly constructed multi-occupant commercial. Property west of 16th Avenue SW is commercial at the south, with single family residential properties to the north. Property to the north of SW Andover Street is residential, with commercial properties farther to the north. Properties to the east of West Marginal Way, are industrial in nature. A diagram of the site and adjacent properties will be found in the Appendix.

The local topography is relatively flat. The Duwamish river is located approximately 900 feet to the east, running south to north, toward Elliot Bay. A high bluff, running north to south, is located approximately 200 feet to the west. Based on the topography, the inferred groundwater flow direction is to the east or northeast. Groundwater was not encountered during our shallow excavation activities. Groundwater was not reported in previous test pits completed by Whitman Environmental, to depths of 8 feet. Since contamination is not observed at depths greater than 2 feet bsg, impact to groundwater is not suspected. Actual groundwater flow direction can only be determined by installation of a minimum of three monitoring wells, and measuring actual groundwater elevations. Since impact to groundwater has not been shown to be likely, monitoring wells have not been installed.

Soils encountered during our excavation activities, consisted of sand and gravel. Black sand was encountered in some areas, apparently from historical Duwamish River flood plain deposits. Other areas appeared to be imported fill material. Pieces of metal and wire were found to depths of approximately two feet. This is consistent with findings of WES, during earlier investigations.

6.0 Historical Property Uses

Whitman Environmental Sciences conducted a Phase I Environmental Site Assessment (ESA), producing a report dated July 28, 2000. That report describes historical uses of the subject site. The following information was developed from that report:

- From approximately 1900 to 1940, the properties were residential in nature.
- Houses were replaced in approximately 1940, on at least two of the lots.
- In approximately 1976, at least part of the property was used for an auto wrecking business. The business was shown as A-1 Auto Parts.
- At least one of the houses was used as a residence during that time.
- A-1 Auto Parts occupied the property through the late 1980's
- In 1989, the address was shown as vacant.
- Starting in 1990, the site is listed as Bry's Auto Wrecking.

This information suggests that auto wrecking activities existed on at least part of the property back to 1976.

7.0 On-Site Hazardous Material Handling

On-site activities appear to have consisted of dismantling of automobiles and trucks. During this process, motor oil, hydraulic oil, anti-freeze and motor vehicle fuels appear to have been spilled, if not intentionally allowed to drain.

Housekeeping on the site was reported to be very poor, resulting in numerous complaints from neighboring residences and in numerous visits from city, county and state environmental agencies. See the next section regarding regulatory records.

8.0 Permits and Regulatory Records

Whitman's ESA report contains numerous letters from the Hazardous Waste Management Division of METRO (municipal sewer utility). METRO completed an inspection of the site in 1993. Their report stated that poorly managed wastes were entering illegal catch basins and open sewer pipes. Staining of soils was noted and Mr. Bry cautioned that he would ultimately have to clean it up. The letter made reference to drums of hazardous materials, un-recycled automotive batteries and containers of anti-freeze and solvents.

A site inspection report, by the State Department of Ecology, dated October 6, 1997 states that the site had been visited three times by METRO and twice by Seattle Police Department due to complaints. Widespread oil staining was noted. The report indicates that autos were stacked three high, inside the fence and also stored on the street, outside the fence.

Several letters back and forth, between the Department of Ecology and METRO indicate that numerous visits had not resulted in the hoped for improvements to the site. A "Certified Mail" letter, dated January 7, 1998, from the Department of Ecology, titled "Early Notice Letter", is observed in the file. The letter informed Mr. Wilson (owner) that the site was being added to states list of suspected contaminated sites. The letter was signed by Louise Bardy, of the Northwest Regional Office, located in Bellevue.

9.0 Description of Remedial System

Much debris was present at the time of the start of cleanup operations. A total of 190 automotive tires and 128 automotive wheels were removed for legal disposal and

recycling. In addition several dozen automotive engines and transmissions were removed for recycling. Demolition of structures left one frame house on the entire site. That house is being rehabilitated for use as an office.

Soil sampling completed by Global, prior to the purchase by Too Marginal, showed that contamination was present in very shallow soils only. Remediation of contaminated soils consisted of removal of the top one foot of soil throughout much of the site. Several areas required additional excavation, but depths did not exceed 2 feet. A heating oil tank was discovered and removed, along with several cubic yards of contaminated soil. Confirmation sampling did not reveal the presence of residual contamination above cleanup standards.

10.0 Summary of Cleanup Standards

Model Toxics Control Act (MTCA), Level A Cleanup standards have been attained throughout the site. Table I illustrates the levels of contamination in stockpiled soils, which was removed. Other sample points illustrate the remaining residual contamination, which do not exceed the MTCA, Level A Cleanup standard.

11.0 Compliance Monitoring

Confirmation sampling has shown that remaining residual contamination does not exceed the Level A cleanup standard. Since a Level A cleanup is considered the most stringent method, continued monitoring is not required.

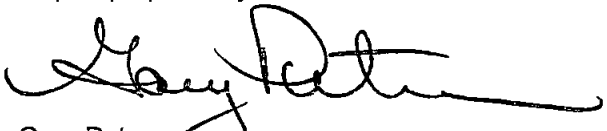
12.0 Institutional Controls

Based on the data collected during this project, which indicates that groundwater has not been shown to be impacted, and that residual contaminants in soil, do not exceed the cleanup standards, institutional controls are not required.

13.0 Independent Remedial Action Report Summary Form

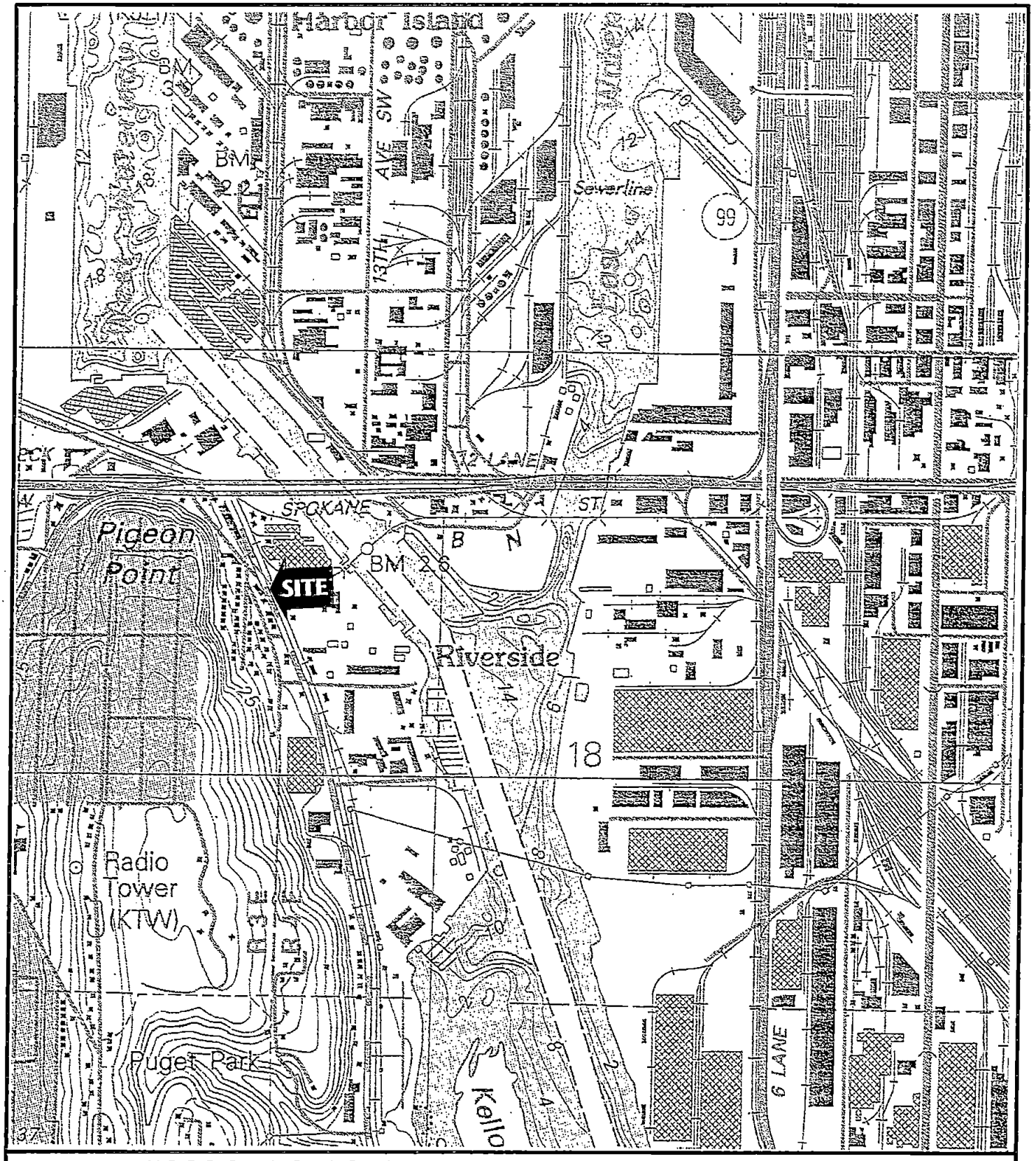
The form is attached on following pages.

Report prepared by



Gary Peters
Washington Licensed
Site Assessor
Global Diving and Salvage, Inc.

VICINITY MAP



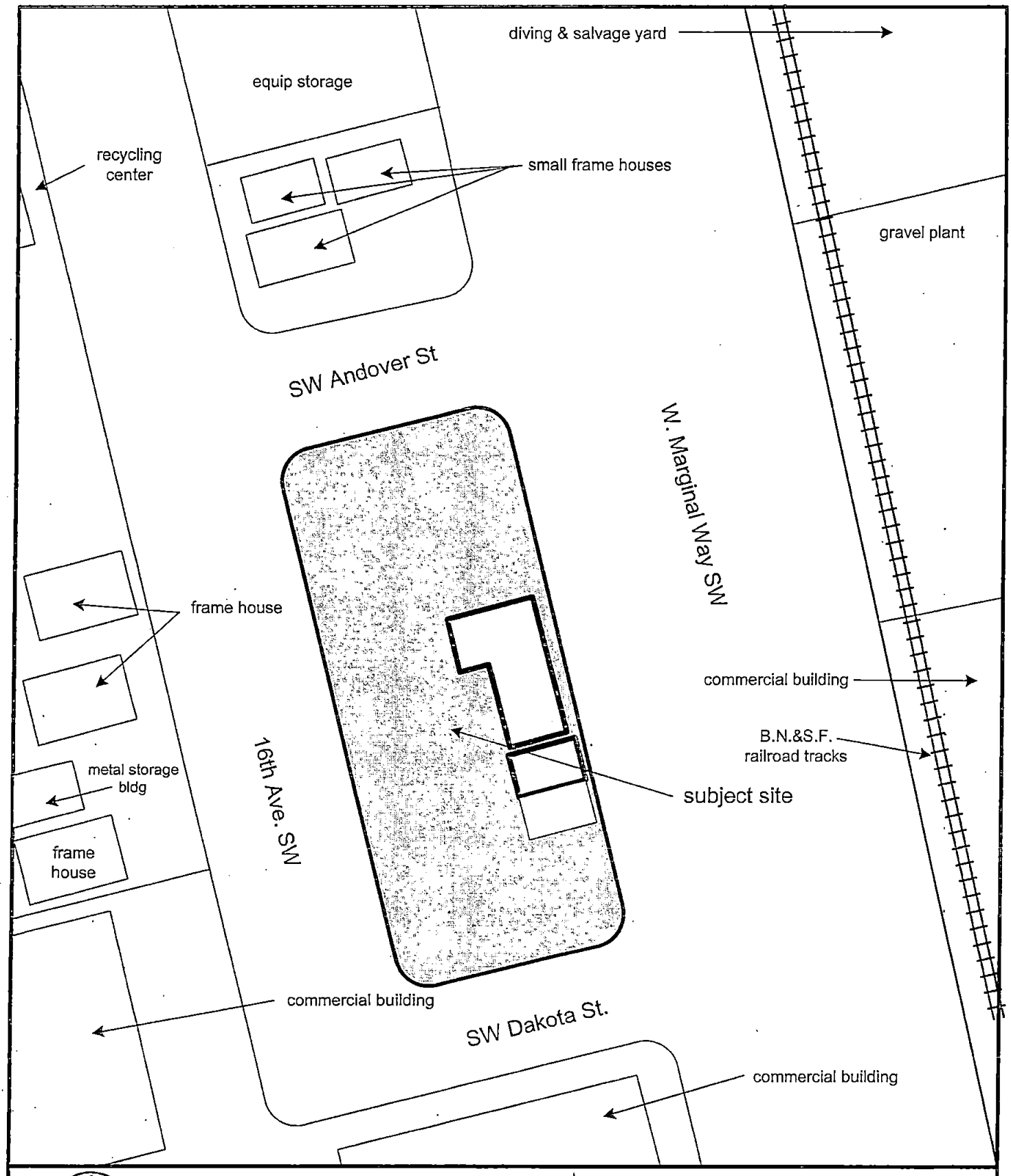
source: U.S.G.S. Seattle South Quad Scale: 1:25,000

GLOBAL ENVIRONMENTAL
A Division of Global Diving & Salvage, Incorporated

Bry Site - Topo Map
4015 W. Marginal Way SW
Seattle, Washington
5-8-02

N

GLOBAL ENVIRONMENTAL
3840 W Marginal Way SW
Seattle, Washington 98106
206-623-0621



GLOBAL ENVIRONMENTAL
A Division of Global Diving & Salvage, Incorporated

Bry Site - Vicinity May 8, 2002
4017 W. Marginal Way SW
Seattle, WA not to scale

N

GLOBAL ENVIRONMENTAL
3840 W Marginal Way SW
Seattle, Washington 98106
206-623-0621

APPENDIX

SUMMARY OF CONTAMINATED SOIL
FROM ARRF

	GLOBAL ENVIRONMENTAL			AS OF 4/5/02	
	Profile#	545334		TYPE BR	
#	Date	Truck#	Ticket#	Net Tons	MANIFEST #
1	4/2/2002	109	361	27.90	
2	4/2/2002	109	367	28.22	
3	4/2/2002	109	373	29.38	
4	4/2/2002	109	377	28.32	
	AVERAGE TONNAGE			28.46	
	TOTAL			113.84	

WASTE MANAGEMENT, INC ...NON HAZARDOUS WASTE DISPOSAL SOLUTIONS FOR THE PACIFIC NORTHWEST

Alaska Street Reload and Recycling

70 South Alaska Street, Seattle Washington 98106

Profile # 545334

PERMIT TO DISPOSE OF NON-HAZARDOUS MATERIALS

EXPIRES: 10/18/03

GENERATOR: GLOBAL ENVIRONMENTAL

DESCRIPTION: *PETROLEUM CONTAMINATED SOIL AND DEBRIS(UNLEADED)*	VOLUME: *1000 tons yr*
☒BENEFICIAL REUSE ☐ADC ☐CLEAN-UP MATERIAL	
LOCATION: *SEATTLE, WASHINGTON*	COUNTY:* *King*
CONTACT: *GREG FLADSETH*	PHONE: *800-441-3483*
Recertification: ☐Yes ☐ No	

BILLING: *GLOBAL ENVIRONMENTAL*	PO#: G 230	JOB#: 5814

TYPE OF DISPOSAL/SPECIAL HANDLING : *BULK, BENEFICIAL REUSE*

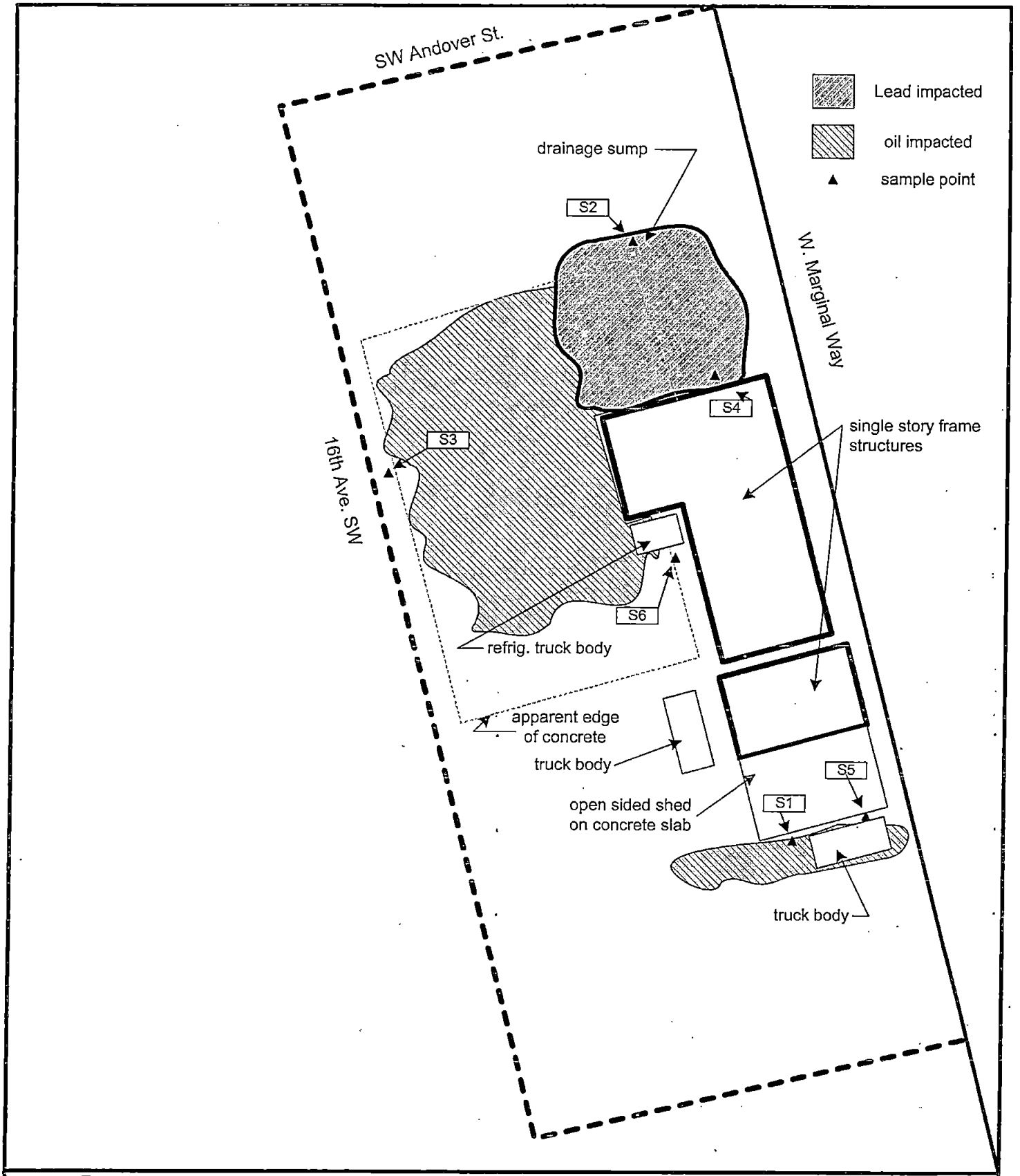
RE *ME* *EN* *MH*

APPROVED: *KRISTIN CASTNER* DATE: *10/09/01 12:10:12 PM*

A COPY OF THIS PERMIT MUST BE SHOWN BY EACH DRIVER

PROJECTS MUST BE SCHEDULED WITH FACILITY MANAGEMENT CALL : 206-763-5025

WASTE MANAGEMENT

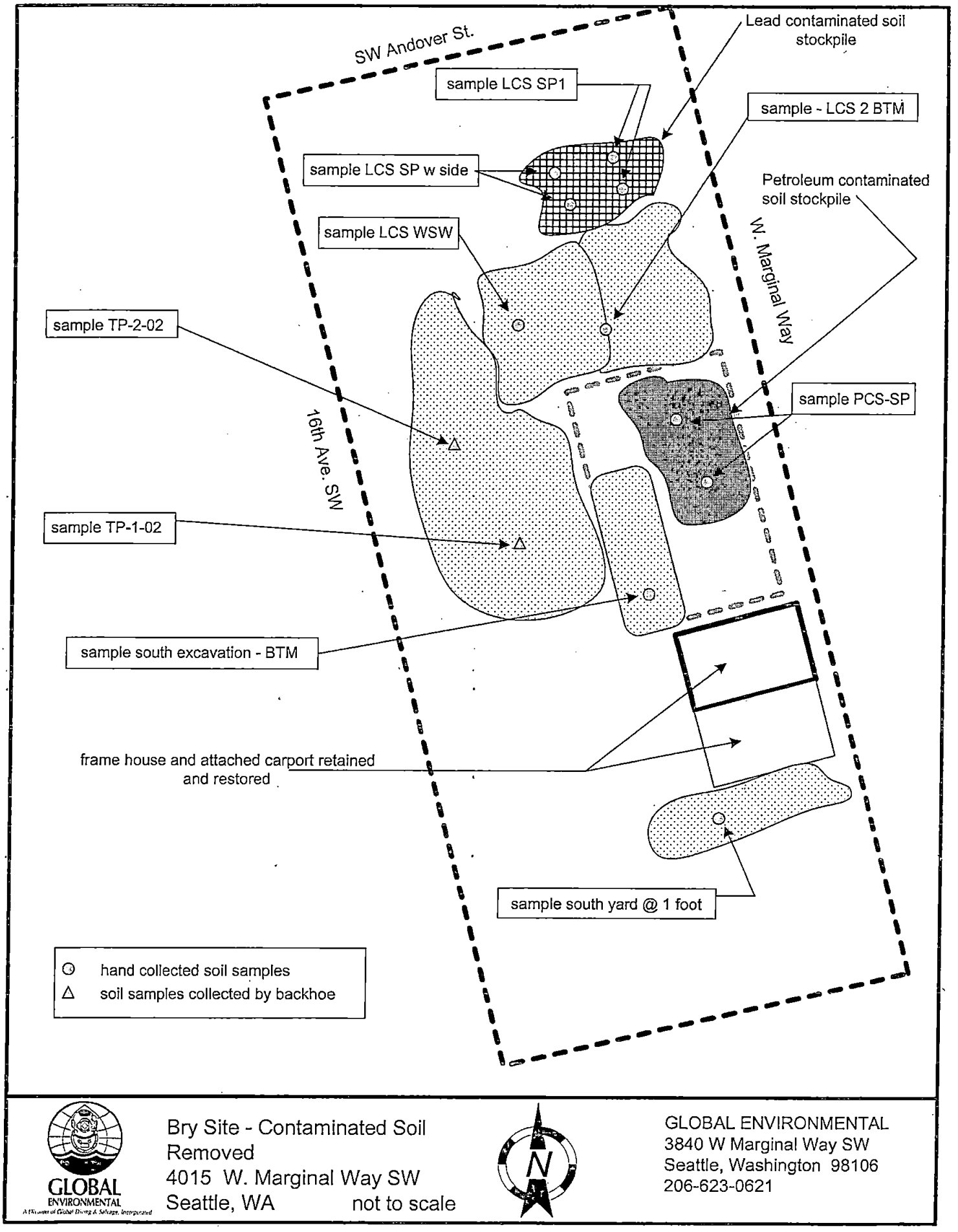


GLOBAL ENVIRONMENTAL
A Division of Global Diving & Salvage, Incorporated

Bry Site - Sampling 12-14-01
4017 W. Marginal Way SW
Seattle, WA not to scale

N

GLOBAL ENVIRONMENTAL
3840 W Marginal Way SW
Seattle, Washington 98106
206-623-0621

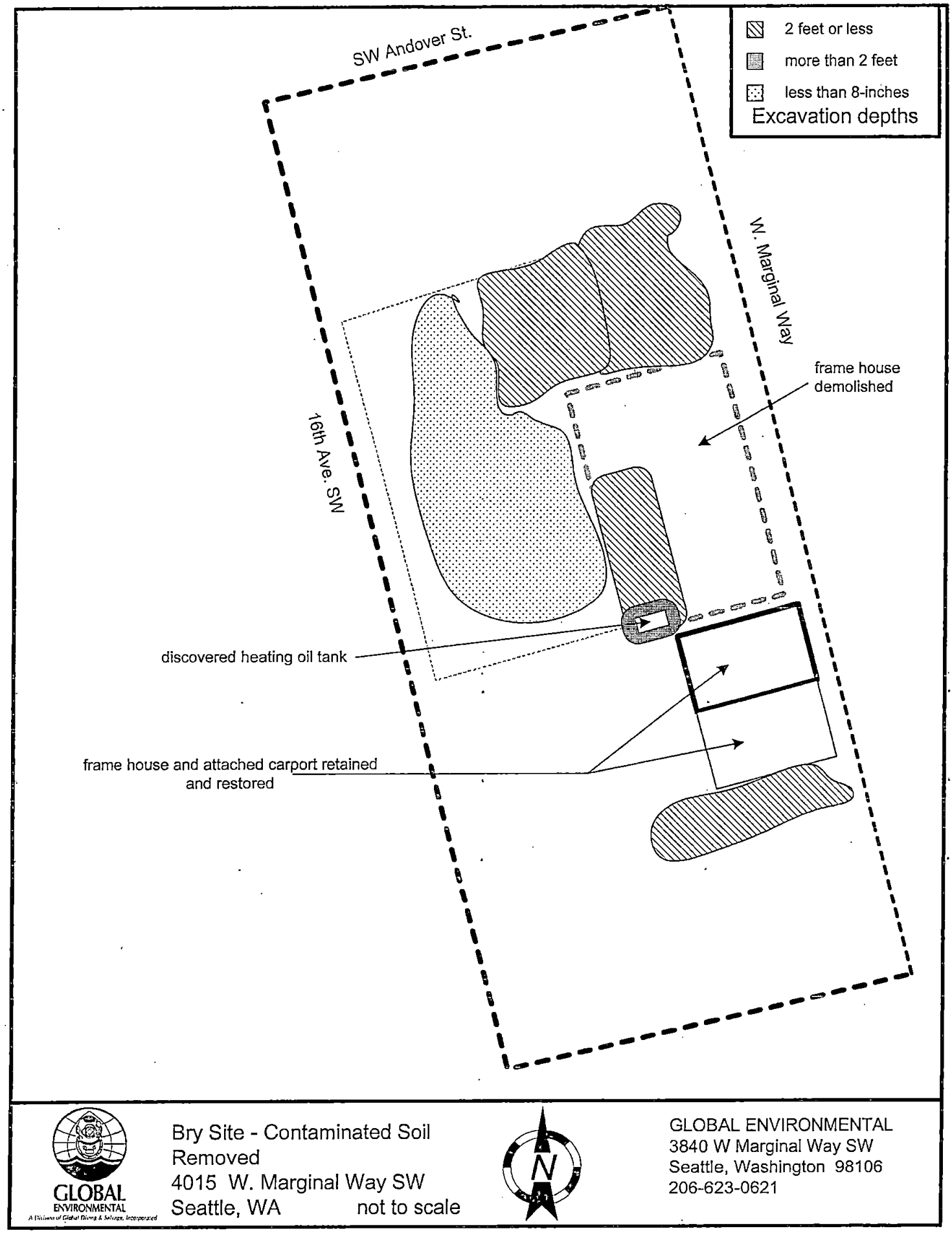


GLOBAL ENVIRONMENTAL

Bry Site - Contaminated Soil Removed
4015 W. Marginal Way SW
Seattle, WA not to scale

N

GLOBAL ENVIRONMENTAL
3840 W Marginal Way SW
Seattle, Washington 98106
206-623-0621



GLOBAL ENVIRONMENTAL
A Division of Global Diving & Salvage, Incorporated

Bry Site - Contaminated Soil Removed
4015 W. Marginal Way SW
Seattle, WA not to scale

N

GLOBAL ENVIRONMENTAL
3840 W Marginal Way SW
Seattle, Washington 98106
206-623-0621

TABLE I
ANALYTICAL DATA

Project #	5814										
Site:	Too Marginal, 4015 W. Marginal Way SW, Seattle, WA										
Analytical Method	NWTPH-HCID, NWTPH-Dx, EPA 6010										
											MTCA
Sample ID	LCS-SP-WS	LCS/EXC/WS	TP-2-02	LCS/EXC/S1	LCS-2BTM	PCS-SP	LCS-SP1	S YRD BTM	TP-1-02	S.EXC-BTM	cleanup
											(soil)
sample depth (bsg)	1 FT	2 FT	2 FT	2 FT	2 FT	1 FT	1 FT	1 FT	2 FT	1 FT	
tph-G (gas)	*	*	*	ND	ND	*	*	*	*	*	100 ppm
dt				HCID	HCID						
tph-D (diesel)	840	1600	110	380	*	330	*	120	730	ND	2000 ppm
dt	50	50	50	50		50		50	50	50	
Total Lead	94	90	46	16	3.2		230				
dt	2	2	2	2	2		2				
Note:	all values in parts per million (ppm)										
	MTCA = Model Toxics Control Act (Chapter 173-340 Washington Administrative Code)										
	bsg = below surface grade										
	* = sample not run for this constituent										
	dt = detection threshold										

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 4, 2002 APR 0 8 2002

Greg Fladseth, Project Manager
Global Environmental
3840 W. Marginal Way SW.
Seattle, WA 98106

Dear Mr. Fladseth:

Included are the results from the testing of material submitted on March 28, 2002 from your W. Marg 4025, PO# 6-227, W# 5814 project. 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
NAA0404R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 04/04/02
Date Received: 03/28/02
Project: W. Marg 4025, PO# 6-227, W# 5814
Date Extracted: 03/28/02
Date Analyzed: 03/29/02

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR GASOLINE, DIESEL AND HEAVY OIL BY NWTPH-HCID
Results Reported as Not Detected (ND) or Detected (D)

THE DATA PROVIDED BELOW WAS PERFORMED PER THE GUIDELINES ESTABLISHED BY THE WASHINGTON DEPARTMENT OF ECOLOGY AND WERE NOT DESIGNED TO PROVIDE INFORMATION WITH REGARDS TO THE ACTUAL IDENTIFICATION OF ANY MATERIAL PRESENT

Sample ID Laboratory ID	Gasoline	Diesel	Heavy Oil	Surrogate (% Recovery) (Limit 50-150)
5814-4 LCS EXC S1 203210-04	ND	D	D	114
5814-5 LCS-2 BTM 203210-05	ND	ND	ND	101
Method Blank	ND	ND	ND	100

ND - Material not detected at or above 20 mg/kg gas, 50 mg/kg diesel and 100 mg/kg heavy oil.

Date of Report: 04/04/02
Date Received: 03/28/02
Project: W. Marg 4025, PO# 6-227, W# 5814
Date Extracted: 03/28/02 and 03/29/02
Date Analyzed: 03/28/02 and 03/30/02

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL USING METHOD NWTPH-Dx
Extended to Include Motor Oil Range Compounds
Results Reported on a Dry Weight Basis
Results Reported as µg/g (ppm)

Sample ID Laboratory ID	Diesel Extended (C_{10}-C_{36})	Surrogate (% Recovery) (Limit 45-147)
5814-1 LCS SP-WSW 203210-01	840	88
5814-2 LCS EXC, WSW 203210-02	1,600	89
5814-3 TP-2-02 203210-03	110	84
5814-4 LCS-EXC S-1 203210-04	380	129
5814-6 PCS-SP 203210-06	330	91
5814-8 SOUTH YARD BTM@1FT 203210-08	120	90
5814-9 TP-1-02 203210-09	730	92
5814-10 SO, EXCAVATION BTM 203210-10	<50	86
Method Blank	<50	69
Method Blank	<50	103

Date of Report: 04/04/02
Date Received: 03/28/02
Project: W. Marg 4025, PO# 6-227, W# 5814
Date Extracted: 03/28/02
Date Analyzed: 03/28/02

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Results Reported as µg/g (ppm)

Sample ID Laboratory ID	Total Lead
5814-1 LCS SP-WSW 203210-01	94
5814-2 LCS EXC, WSW 203210-02	90
5814-3 TP-2-02 203210-03	46
5814-4 LCS-EXC-S-1 203210-04	16
5814-5 LCS-2 BTM 203210-05	3.2
5814-7 LCS-SP1 203210-07	230
Method Blank	<2.0

Date of Report: 04/04/02
Date Received: 03/28/02
Project: W. Marg 4025, PO# 6-227, W# 5814
Date Extracted: 04/01/02
Date Analyzed: 04/02/02

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TCLP METALS IN ACCORDANCE WITH 40 CFR PART 261

Results Reported as mg/L (ppm)

Sample ID Laboratory ID	Lead
5814-7 LCS-SP1 203210-07	<0.5
Method Blank	<0.5
TCLP Limits	*5.0*

Date of Report: 04/04/02
Date Received: 03/28/02
Project: W. Marg 4025, PO# 6-227, W# 5814

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 203210-10 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Diesel Extended	µg/g (ppm)	<50	<50	nm

Laboratory Code: 203210-10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	µg/g (ppm)	500	<50	108	115	65-135	6

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	µg/g (ppm)	500	100	65-135

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

Date of Report: 04/04/02
Date Received: 03/28/02
Project: W. Marg 4025, PO# 6-227, W# 5814

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 203217-03 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Diesel Extended	µg/g (ppm)	<50	<50	nm

Laboratory Code: 203217-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	µg/g (ppm)	500	<50	130	111	60-187	16

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	µg/g (ppm)	500	110	67-140

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

Date of Report: 04/04/02
Date Received: 03/28/02
Project: W. Marg 4025, PO# 6-227, W# 5814

QUALITY ASSURANCE RESULTS FROM TOTAL METALS BY INDUCTIVELY COUPLED PLASMA (ICP) (METHOD 6010)

Laboratory Code: 203210-07 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Lead	µg/g (ppm)	230	180	24 hr	0-20

Laboratory Code: 203210-07 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	% Recovery MS
Lead	µg/g (ppm)	40	230	b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Lead	µg/g (ppm)	40	105	108	80-120	3

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.

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

Date of Report: 04/04/02
Date Received: 03/28/02
Project: W. Marg 4025, PO# 6-227, W# 5814

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES FOR TCLP METALS IN ACCORDANCE WITH 40 CFR PART 261

Results Reported as mg/L (ppm)

Laboratory Code: 203210-07 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference	Acceptance Criteria
Lead	mg/L (ppm)	<0.5	<0.5	nm	0-20

Laboratory Code: 203210-07 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	% Recovery MS	% Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/L (ppm)	2	<0.5	105	103	80-120	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	% Recovery LCS	% Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Lead	mg/L (ppm)	2	100	102	80-120	2

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

SAMPLE CHAIN OF CUSTODY

3/28/02 BO3

Send Report To

Company GLOBAL ENVIRO.

Address 3640 W. MARGINAL WAY SW.

City, State, ZIP SEATTLE

Phone # 623-0627 Fax # 932-9038

SAMPLERS (signature)

PROJECT NAME/NO. W. MARG 4525

PO # auth 5814 G-227

REMARKS ASAP

Page # _____ of _____

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 Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260	SVOCs by 8270	HFS	CLEAN	HCID	Pb by TCLP				Notes
5814-1	01	3-28-2	1100	Soil	1	X						X						LCS SP-WSW
-2	02	"	"	"	1	X						X						LCS EXC, WSW
-3	03	"	"	"	1	X						X						TP-2-02
-4	04	"	"	"	1	X						X	X					LCS-EXC.-S-1
-5	05	"	"	"	1							X	X					LCS-2 BTM
-6	06	"	"	"	1	X								X				LCS-SP
-7	07	"	"	"	1							X		X				LCS-SP1
-8	08	"	"	"	1	X												SOUTH WALL BTM @ 2FT
-9	09	"	"	"	1	X												TP-1-02
-10	10	"	"	"	1	X												SO. EXCAVATION BTM

Per Greg Flaskett 3/27/02

Per Greg Flaskett

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	GREG FLASKETT	GLOBAL	3-28-02	1130
Received by:	ERIC YOUNG	FRI INC.	3-28-02	11:35
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\CHECKIN\COC.DOC

Global Diving & Salvage, Inc.
3840 West Marginal Way SW
Seattle, Washington 98106
1-800-441-3483
24-hour hotline 206-623-0621
info@globaldivingandsalvage.com
www.globaldivingandsalvage.com

January 2, 2002

To: Tim Beaver
Too Marginal Group

From: Gary Peters

Re: Investigation of Contamination
Former Bry's Auto Wrecking Site
4017 W. Marginal Way SW
Seattle, WA

I have reviewed the report by Whitman Environmental Sciences (WES) dated 12-5-01. Daniel Whitman indicates in his Phase II Soil Sampling Program that subsurface sampling was conducted in July of 2000. WES reportedly conducted an earlier investigation in 1998. The auto wrecking business was in operation at that time and based on observed conditions, a Phase II investigation was recommended.

Information obtained from the WES report:

- An auto wrecking operation has been at this site from the mid 1970's to early 2001.
- Stripping of wrecked autos was conducted primarily on the concrete pads located to the west of the two single story frame structures.
- Stripping of wrecked autos conducted in same area prior to construction of concrete pads.
- The concrete pads were constructed several years ago, over soil impacted by auto wrecking operations (for many years).
- It is unlikely that soil was cleaned up prior to the construction of the concrete pads.
- Storm water was collected by a crude drainage system.
- The property lines as plotted by King County plat maps are well inside of the fence lines and curbs around the property.
- 10 locations were selected for sampling.
- Soil was excavated by backhoe.
- Excavations ranged in depth from 2 feet to 12 feet deep.
- Groundwater was encountered at a depth of 12 feet below surface grade.
- A total of 12 soil samples were collected from the 10 excavations.
- The soil samples were analyzed for diesel and oil range hydrocarbons, PAHs and EPH / VPH partitioning method (for soil cleanup threshold computations).
- The report concluded that hydrocarbon impact was present, primarily in the top 12-inches of soil.
- The report estimated that approximately 250 to 300 cubic yards of petroleum-contaminated soil required excavation and disposal.
- Additional soil sampling was recommended, with analysis for metals and PCBs.
- A diagram included in the report shows the area to the north and west of the northern structure to be stained and requiring removal.
- The diagram indicates that the area south of the shed structure would require removal as contaminated.
- Soil sample results in the report indicate areas outside of the shaded ("stained soil")area indicate that impact was detected in a larger area than staining suggested.

- The highest concentrations of oil range hydrocarbons were identified at the north side of the northern structure.

Global's Current Investigation

Using the WES report as a basis for our investigation, five locations were selected for additional sampling and analysis. One additional location was sampled, due to severe oil staining in an area not previously shown as sampled. Table I illustrates the analytical results obtained. All soil sampling was completed on 12-14-01. The soil samples were collected directly into the sample jars (new glass jars with plastic lids with Teflon liners). Samples were labeled as collected, sealed and placed in an iced cooler. The six samples were transported to OnSite Lab, in Redmond, WA, under chain-of-custody protocol.

Soil sampling was conducted using a small pick and shovel. Concrete covered with a 2 to 3-inch layer of crushed gravel was encountered over much of the area north and west of the northern structure. Five sample locations were abandoned when concrete was encountered within 2 to 3 inches of the surface. Since the intent of this investigation was to further define the contaminants present in known contaminated soil, samples were collected in areas known or suspected to contain elevated concentrations of petroleum hydrocarbons. The WES report concluded that the contamination was primarily present in the top 12 inches of soil. Based on that information, current samples were collected within 12 inches of the surface.

Soil samples (a total of five (5)) were submitted for analysis for total RCRA metals and halogenated volatiles (solvents). One additional sample was run for diesel and oil range hydrocarbons.

A sump, apparently constructed of concrete was observed in the area north of the northern structure. Two samples collected from the area north of the northern structure returned the highest concentrations for lead (1100 ppm and 820 ppm). Other samples from locations to the west and south were shown to contain lead, but at levels below the state clean standard of 250 ppm (parts per million). Barium, cadmium and chromium were present in all of the samples, at levels below cleanup standards.

Methylene Chloride was detected in all of the soil samples, at levels below current cleanup standards. The compound is used in degreasing products (fuel system cleaners, brake cleaners).

The stained area adjacent to the west of the southern structure was sampled for diesel and oil range hydrocarbons, returning a value of 23,000 ppm for oil range.

A copy of the laboratory report will be found as an attachment to this report.

Conclusions

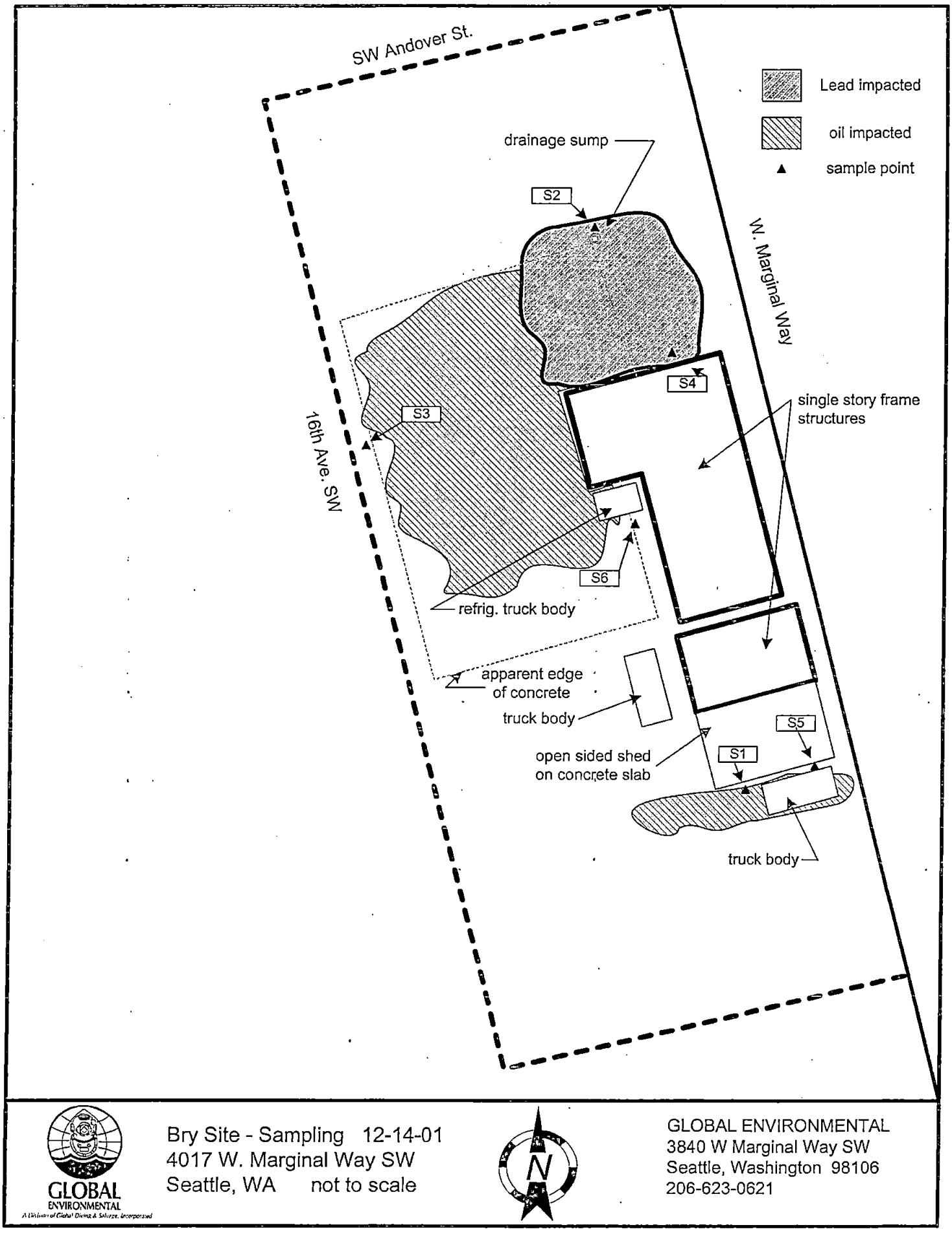
Based on the limited sampling conducted by WES and by Global, we can conclude that the estimate of 250 to 300 cubic yards of soil requiring removal and disposal may be conservative. I estimate that approximately one third of that volume may contain lead that will prohibit normal disposal as petroleum contaminated soil (PCS). Based on Global's sampling, approximately 100 cubic yards of PCS may have to be transported to Arlington, WA as lead contaminated soil. The remaining 200 cubic yards of PCS can be disposed of locally.

It should be noted that the WES report states that soil beneath the concrete slabs, to the west of the two structures, more than likely contains elevated levels of petroleum contamination, and may contain lead at levels requiring more stringent disposal.

Cost Estimate for Cleanup

Cost estimates are based on 300 tons (200 cubic yards) of non-hazardous petroleum contaminated soil, and 150 tons (100 cubic yards) of lead contaminated soil. Discovery of additional volumes of both categories of soil is likely, resulting in increased costs.

The following tasks contribute to the overall cost of this project.



GLOBAL ENVIRONMENTAL
A Division of Global Diving & Salvage, Incorporated

Bry Site - Sampling 12-14-01
4017 W. Marginal Way SW
Seattle, WA not to scale

N

GLOBAL ENVIRONMENTAL
3840 W Marginal Way SW
Seattle, Washington 98106
206-623-0621

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

December 21, 2001

Gary Peters
Global Environmental
3840 W Marginal Way SW
Seattle, WA 98106

Re: Analytical Data for Project 890
Laboratory Reference No. 0112-115

Dear Gary:

Enclosed are the analytical results and associated quality control data for samples submitted on December 14, 2001.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

NWTPH-Dx

Date Extracted:	12-18-01
Date Analyzed:	12-18-01
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	S-6
Lab ID:	12-115-06
Diesel Fuel:	ND
PQL:	130
Heavy Oil:	23000
PQL:	260
Surrogate Recovery:	
o-Terphenyl	---
Flags:	S

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-18-01
Date Analyzed:	12-18-01
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB1218S1
Diesel Fuel:	ND
PQL:	25
Heavy Oil:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	103%

Flags:

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	12-18-01
Date Analyzed:	12-18-01
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	12-120-05	12-120-05 DUP
Diesel Fuel:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery:		
o-Terphenyl	89%	88%

Flags:

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Date Extracted: 12-18-01
Date Analyzed: 12-18-01

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: 12-115-01
Client ID: S-1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0012
Chloromethane	ND		0.0012
Vinyl Chloride	ND		0.0012
Bromomethane	ND		0.0012
Chloroethane	ND		0.0012
Trichlorofluoromethane	ND		0.0012
1,1-Dichloroethene	ND		0.0012
Iodomethane	ND		0.0060
Methylene Chloride	0.017	B	0.0060
(trans) 1,2-Dichloroethene	ND		0.0012
1,1-Dichloroethane	ND		0.0012
2,2-Dichloropropane	ND		0.0012
(cis) 1,2-Dichloroethene	ND		0.0012
Bromochloromethane	ND		0.0012
Chloroform	ND		0.0012
1,1,1-Trichloroethane	ND		0.0012
Carbon Tetrachloride	ND		0.0012
1,1-Dichloropropene	ND		0.0012
1,2-Dichloroethane	ND		0.0012
Trichloroethene	ND		0.0012
1,2-Dichloropropane	ND		0.0012
Dibromomethane	ND		0.0012
Bromodichloromethane	ND		0.0012
2-Chloroethyl Vinyl Ether	ND		0.0060
(cis) 1,3-Dichloropropene	ND		0.0012
(trans) 1,3-Dichloropropene	ND		0.0012
1,1,2-Trichloroethane	ND		0.0012
Tetrachloroethene	ND		0.0012
1,3-Dichloropropane	ND		0.0012

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Lab ID: 12-115-01
Client ID: S-1

Compound	Results	Flags	PQL
Dibromochloromethane	ND		0.0012
1,2-Dibromoethane	ND		0.0012
Chlorobenzene	ND		0.0012
1,1,1,2-Tetrachloroethane	ND		0.0012
Bromoform	ND		0.0012
Bromobenzene	ND		0.0012
1,1,2,2-Tetrachloroethane	ND		0.0012
1,2,3-Trichloropropane	ND		0.0012
2-Chlorotoluene	ND		0.0012
4-Chlorotoluene	ND		0.0012
1,3-Dichlorobenzene	ND		0.0012
1,4-Dichlorobenzene	ND		0.0012
1,2-Dichlorobenzene	ND		0.0012
1,2-Dibromo-3-chloropropane	ND		0.0060
1,2,4-Trichlorobenzene	ND		0.0012
Hexachlorobutadiene	ND		0.0060
1,2,3-Trichlorobenzene	ND		0.0012

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	96	65-125
Toluene, d8	77	77-116
4-Bromofluorobenzene	76	67-133

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Date Extracted: 12-18-01
Date Analyzed: 12-18-01

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: 12-115-02
Client ID: S-2

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0014
Chloromethane	ND		0.0014
Vinyl Chloride	ND		0.0014
Bromomethane	ND		0.0014
Chloroethane	ND		0.0014
Trichlorofluoromethane	ND		0.0014
1,1-Dichloroethene	ND		0.0014
Iodomethane	ND		0.0068
Methylene Chloride	0.0084	B	0.0068
(trans) 1,2-Dichloroethene	ND		0.0014
1,1-Dichloroethane	ND		0.0014
2,2-Dichloropropane	ND		0.0014
(cis) 1,2-Dichloroethene	ND		0.0014
Bromochloromethane	ND		0.0014
Chloroform	ND		0.0014
1,1,1-Trichloroethane	ND		0.0014
Carbon Tetrachloride	ND		0.0014
1,1-Dichloropropene	ND		0.0014
1,2-Dichloroethane	ND		0.0014
Trichloroethene	ND		0.0014
1,2-Dichloropropane	ND		0.0014
Dibromomethane	ND		0.0014
Bromodichloromethane	ND		0.0014
2-Chloroethyl Vinyl Ether	ND		0.0068
(cis) 1,3-Dichloropropene	ND		0.0014
(trans) 1,3-Dichloropropene	ND		0.0014
1,1,2-Trichloroethane	ND		0.0014
Tetrachloroethene	ND		0.0014
1,3-Dichloropropane	ND		0.0014

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Lab ID: 12-115-02
Client ID: S-2

Compound	Results	Flags	PQL
Dibromochloromethane	ND		0.0014
1,2-Dibromoethane	ND		0.0014
Chlorobenzene	ND		0.0014
1,1,1,2-Tetrachloroethane	ND		0.0014
Bromoform	ND		0.0014
Bromobenzene	ND		0.0014
1,1,2,2-Tetrachloroethane	ND		0.0014
1,2,3-Trichloropropane	ND		0.0014
2-Chlorotoluene	ND		0.0014
4-Chlorotoluene	ND		0.0014
1,3-Dichlorobenzene	ND		0.0014
1,4-Dichlorobenzene	ND		0.0014
1,2-Dichlorobenzene	ND		0.0014
1,2-Dibromo-3-chloropropane	ND		0.0068
1,2,4-Trichlorobenzene	ND		0.0014
Hexachlorobutadiene	ND		0.0068
1,2,3-Trichlorobenzene	ND		0.0014

Surrogate	Percent Recovery		Control Limits
Dibromofluoromethane	100		65-125
Toluene, d8	70	Q	77-116
4-Bromofluorobenzene	61	Q	67-133

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Date Extracted: 12-18-01
Date Analyzed: 12-18-01

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: 12-115-03
Client ID: S-3

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0012
Chloromethane	ND		0.0012
Vinyl Chloride	ND		0.0012
Bromomethane	ND		0.0012
Chloroethane	ND		0.0012
Trichlorofluoromethane	ND		0.0012
1,1-Dichloroethene	ND		0.0012
Iodomethane	ND		0.0058
Methylene Chloride	0.012	B	0.0058
(trans) 1,2-Dichloroethene	ND		0.0012
1,1-Dichloroethane	ND		0.0012
2,2-Dichloropropane	ND		0.0012
(cis) 1,2-Dichloroethene	ND		0.0012
Bromochloromethane	ND		0.0012
Chloroform	ND		0.0012
1,1,1-Trichloroethane	ND		0.0012
Carbon Tetrachloride	ND		0.0012
1,1-Dichloropropene	ND		0.0012
1,2-Dichloroethane	ND		0.0012
Trichloroethene	ND		0.0012
1,2-Dichloropropane	ND		0.0012
Dibromomethane	ND		0.0012
Bromodichloromethane	ND		0.0012
2-Chloroethyl Vinyl Ether	ND		0.0058
(cis) 1,3-Dichloropropene	ND		0.0012
(trans) 1,3-Dichloropropene	ND		0.0012
1,1,2-Trichloroethane	ND		0.0012
Tetrachloroethene	ND		0.0012
1,3-Dichloropropane	ND		0.0012

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Lab ID: 12-115-03
Client ID: **S-3**

Compound	Results	Flags	PQL
Dibromochloromethane	ND		0.0012
1,2-Dibromoethane	ND		0.0012
Chlorobenzene	ND		0.0012
1,1,1,2-Tetrachloroethane	ND		0.0012
Bromoform	ND		0.0012
Bromobenzene	ND		0.0012
1,1,2,2-Tetrachloroethane	ND		0.0012
1,2,3-Trichloropropane	ND		0.0012
2-Chlorotoluene	ND		0.0012
4-Chlorotoluene	ND		0.0012
1,3-Dichlorobenzene	ND		0.0012
1,4-Dichlorobenzene	ND		0.0012
1,2-Dichlorobenzene	ND		0.0012
1,2-Dibromo-3-chloropropane	ND		0.0058
1,2,4-Trichlorobenzene	ND		0.0012
Hexachlorobutadiene	ND		0.0058
1,2,3-Trichlorobenzene	ND		0.0012

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	99	65-125
Toluene, d8	78	77-116
4-Bromofluorobenzene	80	67-133

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Date Extracted: 12-18-01
Date Analyzed: 12-18-01

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: 12-115-04
Client ID: S-4

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0013
Chloromethane	ND		0.0013
Vinyl Chloride	ND		0.0013
Bromomethane	ND		0.0013
Chloroethane	ND		0.0013
Trichlorofluoromethane	ND		0.0013
1,1-Dichloroethene	ND		0.0013
Iodomethane	ND		0.0064
Methylene Chloride	0.0084	B	0.0064
(trans) 1,2-Dichloroethene	ND		0.0013
1,1-Dichloroethane	ND		0.0013
2,2-Dichloropropane	ND		0.0013
(cis) 1,2-Dichloroethene	ND		0.0013
Bromochloromethane	ND		0.0013
Chloroform	ND		0.0013
1,1,1-Trichloroethane	ND		0.0013
Carbon Tetrachloride	ND		0.0013
1,1-Dichloropropene	ND		0.0013
1,2-Dichloroethane	ND		0.0013
Trichloroethene	ND		0.0013
1,2-Dichloropropane	ND		0.0013
Dibromomethane	ND		0.0013
Bromodichloromethane	ND		0.0013
2-Chloroethyl Vinyl Ether	ND		0.0064
(cis) 1,3-Dichloropropene	ND		0.0013
(trans) 1,3-Dichloropropene	ND		0.0013
1,1,2-Trichloroethane	ND		0.0013
Tetrachloroethene	0.0015		0.0013
1,3-Dichloropropane	ND		0.0013

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Lab ID: 12-115-04
Client ID: S-4

Compound	Results	Flags	PQL
Dibromochloromethane	ND		0.0013
1,2-Dibromoethane	ND		0.0013
Chlorobenzene	ND		0.0013
1,1,1,2-Tetrachloroethane	ND		0.0013
Bromoform	ND		0.0013
Bromobenzene	ND		0.0013
1,1,2,2-Tetrachloroethane	ND		0.0013
1,2,3-Trichloropropane	ND		0.0013
2-Chlorotoluene	ND		0.0013
4-Chlorotoluene	ND		0.0013
1,3-Dichlorobenzene	ND		0.0013
1,4-Dichlorobenzene	ND		0.0013
1,2-Dichlorobenzene	ND		0.0013
1,2-Dibromo-3-chloropropane	ND		0.0064
1,2,4-Trichlorobenzene	ND		0.0013
Hexachlorobutadiene	ND		0.0064
1,2,3-Trichlorobenzene	ND		0.0013

Surrogate	Percent Recovery		Control Limits
Dibromofluoromethane	103		65-125
Toluene, d8	76	Q	77-116
4-Bromofluorobenzene	62	Q	67-133

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Date Extracted:	12-18-01
Date Analyzed:	12-18-01
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	12-115-05
Client ID:	**S-5**

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0011
Chloromethane	ND		0.0011
Vinyl Chloride	ND		0.0011
Bromomethane	ND		0.0011
Chloroethane	ND		0.0011
Trichlorofluoromethane	ND		0.0011
1,1-Dichloroethene	ND		0.0011
Iodomethane	ND		0.0056
Methylene Chloride	0.0070	B	0.0056
(trans) 1,2-Dichloroethene	ND		0.0011
1,1-Dichloroethane	ND		0.0011
2,2-Dichloropropane	ND		0.0011
(cis) 1,2-Dichloroethene	ND		0.0011
Bromochloromethane	ND		0.0011
Chloroform	ND		0.0011
1,1,1-Trichloroethane	ND		0.0011
Carbon Tetrachloride	ND		0.0011
1,1-Dichloropropene	ND		0.0011
1,2-Dichloroethane	ND		0.0011
Trichloroethene	ND		0.0011
1,2-Dichloropropane	ND		0.0011
Dibromomethane	ND		0.0011
Bromodichloromethane	ND		0.0011
2-Chloroethyl Vinyl Ether	ND		0.0056
(cis) 1,3-Dichloropropene	ND		0.0011
(trans) 1,3-Dichloropropene	ND		0.0011
1,1,2-Trichloroethane	ND		0.0011
Tetrachloroethene	ND		0.0011
1,3-Dichloropropane	ND		0.0011

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B

Lab ID: 12-115-05
Client ID: S-5

Compound	Results	Flags	PQL
Dibromochloromethane	ND		0.0011
1,2-Dibromoethane	ND		0.0011
Chlorobenzene	ND		0.0011
1,1,1,2-Tetrachloroethane	ND		0.0011
Bromoform	ND		0.0011
Bromobenzene	ND		0.0011
1,1,2,2-Tetrachloroethane	ND		0.0011
1,2,3-Trichloropropane	ND		0.0011
2-Chlorotoluene	ND		0.0011
4-Chlorotoluene	ND		0.0011
1,3-Dichlorobenzene	ND		0.0011
1,4-Dichlorobenzene	ND		0.0011
1,2-Dichlorobenzene	ND		0.0011
1,2-Dibromo-3-chloropropane	ND		0.0056
1,2,4-Trichlorobenzene	ND		0.0011
Hexachlorobutadiene	ND		0.0056
1,2,3-Trichlorobenzene	ND		0.0011

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	104	65-125
Toluene, d8	79	77-116
4-Bromofluorobenzene	74	67-133

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
page 1 of 2

Date Extracted: 12-18-01
Date Analyzed: 12-18-01

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: MB1218S1

Compound	Results	Flags	PQL
Dichlorodifluoromethane	ND		0.0010
Chloromethane	ND		0.0010
Vinyl Chloride	ND		0.0010
Bromomethane	ND		0.0010
Chloroethane	ND		0.0010
Trichlorofluoromethane	ND		0.0010
1,1-Dichloroethene	ND		0.0010
Iodomethane	ND		0.0050
Methylene Chloride	0.0051		0.0050
(trans) 1,2-Dichloroethene	ND		0.0010
1,1-Dichloroethane	ND		0.0010
2,2-Dichloropropane	ND		0.0010
(cis) 1,2-Dichloroethene	ND		0.0010
Bromochloromethane	ND		0.0010
Chloroform	ND		0.0010
1,1,1-Trichloroethane	ND		0.0010
Carbon Tetrachloride	ND		0.0010
1,1-Dichloropropene	ND		0.0010
1,2-Dichloroethane	ND		0.0010
Trichloroethene	ND		0.0010
1,2-Dichloropropane	ND		0.0010
Dibromomethane	ND		0.0010
Bromodichloromethane	ND		0.0010
2-Chloroethyl Vinyl Ether	ND		0.0050
(cis) 1,3-Dichloropropene	ND		0.0010
(trans) 1,3-Dichloropropene	ND		0.0010
1,1,2-Trichloroethane	ND		0.0010
Tetrachloroethene	ND		0.0010
1,3-Dichloropropane	ND		0.0010

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B
METHOD BLANK QUALITY CONTROL
page 2 of 2

Lab ID: MB1218S1

Compound	Results	Flags	PQL
Dibromochloromethane	ND		0.0010
1,2-Dibromoethane	ND		0.0010
Chlorobenzene	ND		0.0010
1,1,1,2-Tetrachloroethane	ND		0.0010
Bromoform	ND		0.0010
Bromobenzene	ND		0.0010
1,1,2,2-Tetrachloroethane	ND		0.0010
1,2,3-Trichloropropane	ND		0.0010
2-Chlorotoluene	ND		0.0010
4-Chlorotoluene	ND		0.0010
1,3-Dichlorobenzene	ND		0.0010
1,4-Dichlorobenzene	ND		0.0010
1,2-Dichlorobenzene	ND		0.0010
1,2-Dibromo-3-chloropropane	ND		0.0050
1,2,4-Trichlorobenzene	ND		0.0010
Hexachlorobutadiene	ND		0.0050
1,2,3-Trichlorobenzene	ND		0.0010

Surrogate	Percent Recovery	Control Limits
Dibromofluoromethane	91	65-125
Toluene, d8	81	77-116
4-Bromofluorobenzene	89	67-133

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

HALOGENATED VOLATILES by EPA 8260B
MS/MSD QUALITY CONTROL

Date Extracted: 12-18-01
Date Analyzed: 12-18-01

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID: 12-113-01

Compound	Spike Amount	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
1,1-Dichloroethene	0.0500	0.0308	62	0.0336	67	8.7	
Benzene	0.0500	0.0371	74	0.0382	76	3.0	
Trichloroethene	0.0500	0.0380	76	0.0376	75	1.1	
Toluene	0.0500	0.0354	71	0.0366	73	3.3	
Chlorobenzene	0.0500	0.0349	70	0.0352	70	1.1	

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 12-19&20-01
Date Analyzed: 12-19&20-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-115-01
Client ID: S-1

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	12
Barium	6010B	**62**	3.0
Cadmium	6010B	**ND**	0.60
Chromium	6010B	**19**	0.60
Lead	6010B	**29**	6.0
Mercury	7471A	**ND**	0.30
Selenium	6010B	**ND**	12
Silver	6010B	**ND**	0.60

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 12-19&20-01
Date Analyzed: 12-19&20-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-115-02
Client ID: S-2

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	14
Barium	6010B	**240**	3.4
Cadmium	6010B	**7.7**	0.68
Chromium	6010B	**21**	0.68
Lead	6010B	**1100**	6.8
Mercury	7471A	**ND**	0.34
Selenium	6010B	**ND**	14
Silver	6010B	**ND**	0.68

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 12-19&20-01
Date Analyzed: 12-19&20-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-115-03
Client ID: S-3

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	12
Barium	6010B	**48**	2.9
Cadmium	6010B	**1.2**	0.58
Chromium	6010B	**15**	0.58
Lead	6010B	**41**	5.8
Mercury	7471A	**0.42**	0.29
Selenium	6010B	**ND**	12
Silver	6010B	**ND**	0.58

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 12-19&20-01
Date Analyzed: 12-19&20-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-115-04
Client ID: S-4

Analyte	Method	Result	PQL
Arsenic	6010B	**20**	13
Barium	6010B	**130**	3.2
Cadmium	6010B	**7.3**	0.64
Chromium	6010B	**27**	0.64
Lead	6010B	**820**	6.4
Mercury	7471A	**0.36**	0.32
Selenium	6010B	**ND**	13
Silver	6010B	**ND**	0.64

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

TOTAL METALS
EPA 6010B/7471A

Date Extracted: 12-19&20-01
Date Analyzed: 12-19&20-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-115-05
Client ID: S-5

Analyte	Method	Result	PQL
Arsenic	6010B	**ND**	11
Barium	6010B	**21**	2.8
Cadmium	6010B	**0.80**	0.56
Chromium	6010B	**11**	0.56
Lead	6010B	**32**	5.6
Mercury	7471A	**ND**	0.28
Selenium	6010B	**ND**	11
Silver	6010B	**ND**	0.56

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

TOTAL METALS
EPA 6010B/7471A
METHOD BLANK QUALITY CONTROL

Date Extracted: 12-19&20-01
Date Analyzed: 12-19&20-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB1219S1&MB1220S3

Analyte	Method	Result	PQL
Arsenic	6010B	ND	10
Barium	6010B	ND	2.5
Cadmium	6010B	ND	0.50
Chromium	6010B	ND	0.50
Lead	6010B	ND	5.0
Mercury	7471A	ND	0.25
Selenium	6010B	ND	10
Silver	6010B	ND	0.50

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

TOTAL METALS
EPA 6010B/7471A
DUPLICATE QUALITY CONTROL

Date Extracted: 12-19&20-01
Date Analyzed: 12-19&20-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-113-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	**ND**	**ND**	NA	10	
Barium	**49.0**	**55.3**	12	2.5	
Cadmium	**0.591**	**0.716**	19	0.50	
Chromium	**376**	**425**	12	0.50	
Lead	**18.8**	**23.3**	21	5.0	C
Mercury	**ND**	**ND**	NA	0.25	
Selenium	**ND**	**ND**	NA	10	
Silver	**ND**	**ND**	NA	0.50	

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

TOTAL METALS
EPA 6010B/7471A
MS/MSD QUALITY CONTROL

Date Extracted: 12-19&20-01
Date Analyzed: 12-19&20-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 12-113-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	**85.7**	86	**89.3**	89	4.1	
Barium	100	**135**	86	**137**	88	1.1	
Cadmium	50	**44.0**	87	**44.1**	87	0.20	
Chromium	100	**449**	73	**431**	55	4.2	V
Lead	250	**219**	80	**225**	82	2.8	
Mercury	1.0	**1.06**	106	**1.07**	107	1.7	
Selenium	100	**97.2**	97	**99.9**	100	2.7	
Silver	50	**43.7**	87	**42.6**	85	2.6	

Date of Report: December 21, 2001
Samples Submitted: December 14, 2001
Lab Traveler: 12-115
Project: 890

% MOISTURE

Date Analyzed: 12-18 & 12-19-01

Client ID	Lab ID	% Moisture
S-1	12-115-01	17
S-2	12-115-02	27
S-3	12-115-03	14
S-4	12-115-04	22
S-5	12-115-05	10
S-6	12-115-06	4.0

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range (toluene-napthalene) are present in the sample.

O - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects. Spike Blank recovery for Chromium equals 92%.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a silica gel cleanup procedure.

Y - Sample extract treated with an acid cleanup procedure.

Z -

ND - Not Detected at PQL
MRL - Method Reporting Limit
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

Page 1 of 1

OnSite Environmental Inc.
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • Fax: (425) 885-4603

Project Manager: DB

Laboratory No. 12-115

Turnaround Request (in working days)

(Check One)

- ☐ Same Day
- ☐ 1 Day
- ☐ 2 Day
- ☐ 3 Day
- ☑ Standard (Hydrocarbon analyses: 5 days, All other analyses: 7 days)
- ☐ 12/21 (other)

Company: GLOBAL ENVIRO
Project No.: 890
Project Name: BP/E SITE
Project Manager: G. PETERS

Requested Analysis

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	No. Cont	NWTPH-HCID	NWTPH-Gx/BTEX	NWTPH-Dx	Volatiles-by-8260B* NO	Halogenated Volatiles by 8260B	Semivolatiles by 8270C	PAHs by 8270C	PCB's by 8082	Pesticides by 8081	Herbicides by 8151A	Total RCRA Metals (8)	Priority Pollutant Metals (13)	TCLP Metals	VPH	EPH					% Moisture
1	S-1	12-14-01	2:06	Soil	1				X	X						X									X
2	S-2	"	2:05	"	1				X	X						X									X
3	S-3	"	2:07	"	1				X	X						X									X
4	S-4	"	2:22	"	1				X	X						X									X
5	S-5	"	2:25	"	1				X	X						X									X
6	S-6	"	2:30	"	1			X																	X

RELINQUISHED BY	DATE	RECEIVED BY	DATE
	12-14-01		12/14/01
FIRM: GLOBAL	TIME: 16:45	FIRM: OSE	TIME: 16:45
RELINQUISHED BY	DATE	RECEIVED BY	DATE
FIRM	TIME	FIRM	TIME
REVIEWED BY		DATE REVIEWED	

COMMENTS:

Chromatographs with final report ☐

DISTRIBUTION LEGEND: White - OnSite Copy Yellow - Report Copy Pink - Client Copy

Whitman
Environmental Sciences

5508 35th Avenue NE, Suite 106
Seattle, Washington 98105

Phone: (206) 523-3505 Fax: (206) 523-3753

December 17, 1998

Pacific Coast Investment Company
801 Second Avenue, Suite 315
Seattle, WA 98104

Attention: Mr. Chuck Chesterfield

RE: Site Environmental Review and Sampling
Bry's Auto Wrecking Site
4017 W. Marginal Way SW
Seattle, Washington

Dear Mr. Chesterfield:
As you have authorized, Whitman Environmental Sciences (WES) has completed a limited soil sampling program to evaluate whether or not the activities at Bry's Auto Wrecking have adversely impacted the property. I have also reviewed compliance documentation for the company and discussed control of stormwater and auto fluids from their wrecking operations The scope of work for this investigation included the following activites:

- A walkover survey and discussions with Mr. Bryan Wilson about the history of the property and activities which occur on site;
- A limited soil sampling program, targeted to areas where waste materials have been handled and surface water drainage would have the potential to accumulate contaminants;
- Laboratory analysis of five soil samples for Total Petroleum Hydrocarbons (TPH) in the diesel and heavy oil ranges by Washington State Method WTPH-D (extended);
- Discussing drainage controls and reviewing past compliance activities with Mr. Wilson; and,
- Reporting the findings of our study in this letter.

The site is indicated in Figure 1, the Site and Sample Location Map.

Daniel Whitman of WES conducted a walkover survey of the property on Friday, December 4, 1998, accompanied by Mr. Bryan Wilson, owner of Bry's Auto Wrecking. According to Mr. Wilson, the property has been in use as an auto wrecking yard by his company and previous owners since at least the mid-1980s. Several former residences remain on the property, now used as parts storage and operations offices for the business. All of the on-site buildings are

in poor condition. At least two additional foundations were observed from other former buildings on the site. Much of the ground surface in the yard has been stabilized with coarse gravel, low grade concrete or other surfacing materials.

The auto wrecking activities are centered around the main site building, accessed from the west. Cars are stripped of resalable parts on two paved pads adjacent to the building. Parts are stored in various racks and bins to the north and south of the buildings. The northern end of the site is used to store auto bodies which have been partially stripped. In the past, this area was also used to strip cars.

The ground surface throughout the yard appeared oil stained and littered with automobile parts. Several drainage patterns were observed, where oily water and sediment runs to low points on the site. The ground surface in these areas was heavily stained. The wrecking pads have simple drainage control and collection systems, which pass drainage through an oil/water separator. However, the collection systems did not completely trap all water and auto fluids. In particular, curbing along the south edge of one of the pads was incomplete, allowing oil and fluids to collect under a nearby parts rack.

Based on the findings of our walkover survey, it is clear that there have been surficial releases which have contaminated soils with petroleum. These surficial conditions are readily observable and do not require laboratory testing to confirm. WES conducted further investigation to evaluate whether or not contaminants extended to any significant depth below the ground surface.

Field Sampling

WES selected five sample locations on the site, representing the following conditions:

Sample S-1; Soil beneath the former car stripping area near the north gate to the auto storage yard; Sample depth - 1.5 feet below ground surface;

Sample S-2; Soil beneath an oily parts storage rack in the main aisle way from the car stripping pads to the auto body storage area; Sample depth - 1.5 feet;

Sample S-3; Soil beneath a drainage accumulation area on the north side of the buildings; Sample depth - 2.0 feet;

Sample S-4; Soil in a drainage accumulation area in the northwestern corner of the auto stripping pad, west of the buildings; Sample depth - 1.5 feet;

Sample S-5; Soil beneath a drainage accumulation area, near a parts storage rack south of the southern auto cut-up pad; Sample depth - 1 foot.

The approximate sample locations are shown in Figure 1, attached. Each sample was obtained by digging with a post hole digger and breaker bar through the surficial fill material into soil that had the appearance of natural soil or dredge fill, unrelated to and pre-dating the surface soil. All of the test holes extended to at least two feet below the ground surface.

Surface gravel and concrete fill was extremely dense and extended to a depth of 6-12 inches in all of the tested locations. Staining and miscellaneous debris, including car parts, was found throughout the surficial fill.

Beneath the shallow fill, the test holes encountered a distinct layer of brown clayey soil (probably fill). The brown clayey soil ranged from a few inches to about 18 inches in thickness. There were no field indications of contamination (staining or odor) in the clayey soil, or underlying sediment. At four of the five test locations the clay was found to overlie clean, even textured sand, which may have been old dredge spoils from the nearby Duwamish River. One test hole, S-2 encountered a dense dark gray organic clay beneath the brown clay, rather than dredge spoils.

The test holes extended into, but not through the dredge sand deposit. At the location of sample S-3, the hole was dug to a depth of 4.5 feet below the surface. After penetrating the shallow clayey fill, the test hole encountered dredge sand to its full depth.

Groundwater was not encountered in any of the test holes.

Based on the profile of soil and distinct change from the stained surficial fill to the underlying soil, all five samples were obtained from relatively shallow depths (one to two feet below the surface). The samples were obtained with decontaminated sampling equipment and placed in laboratory prepared glass jars. The jars were sealed with teflon lined lids, chilled and were delivered to the laboratory under chain of custody on the same day.

Laboratory Analyses

Laboratory testing was subcontracted to On-Site Environmental, Inc. of Redmond, Washington. All five of the samples were analyzed for Total Petroleum Hydrocarbons (TPH) in the ranges of diesel fuel and heavy oil, by Washington Method WTPH-D (extended). Based on the activities observed on the site, releases of heavy oil would be the most common cause of contamination. The testing did not detect diesel or oil range hydrocarbons in any of the samples. The laboratory report of analytical results is attached.

WES used the TPH testing as an initial screening tool, with the intent to conduct further testing for other parameters, if warranted. The WTPH-D (extended) method does not quantify lighter hydrocarbons, such as in gasoline. However, review of the laboratory chromatograms did not find evidence of a light petroleum fraction that would require further testing.

Sampling Conclusions and Recommendations

Washington State regulates releases and cleanup of hazardous and toxic materials through the Washington Model Toxics Control Act (MTCA) Chapter 173-340 WAC. MTCA establishes risk-based cleanup levels for toxic and hazardous materials. The most simple and comprehensive cleanup levels for soil are listed as "Method A" cleanup levels in Chapter 173-340-740 WAC. Method A cleanup levels are concentrations suitable for any future land use without environmental restrictions. The MTCA Method A cleanup level for diesel or oil range hydrocarbons in soil is 200 parts per million (ppm). None of the samples obtained during this sampling program equaled or exceeded the MTCA Method A cleanup level.

Typically, the surficial fill with obvious staining and petroleum odor extended to depths of 6-12 inches below the ground surface. Where sampled, the underlying material did not evidence contamination. The lack of detectable hydrocarbons at shallow depth beneath surficially contaminated areas suggests infiltration or migration of contaminants has not occurred to any great extent. This suggests any required cleanup will most likely be limited.

Waste oil, grease or other auto fluids would be the primary source of metals, polynuclear aromatic hydrocarbons, PCBs, or other contaminants. Since petroleum was not detected, these associated analytical parameters would not be expected in high concentrations. However, this was a limited testing program; if cleanup is to be conducted in the future, further testing may be needed to better define areas needing action.

Review of Compliance Documentation

WES reviewed documents provided by Mr. Wilson which outlined the compliance history of the site. In 1993, Metro inspected the property and identified a number of issues, including oil and hazardous materials management, drainage controls and soil contamination. Metro's concerns were outlined in three letters to the business sent in July and August 1993. According to Mr. Wilson, the Metro inspection and letters resulted in many changes to the way the business was operated. A 1994 follow-up letter from the City of Seattle acknowledged that many cleanup and management changes had been made, but recommended several additional compliance efforts.

Although these letters are several years old, many of the recommendations relate to the day-to-day management of oil and regulated substances on the property. These letters should be reviewed by Bry's to be sure the company's practices meet the recommendations.

WES also reviewed two letters from the Washington Department of Ecology regarding stormwater management. According to their 1996 correspondences, the site does not need to be covered by an general NPDES permit, since drainage is not conveyed to a storm drain system or discharged to surface water. This interpretation by Ecology avoids the need for a Stormwater Pollution Prevention Plan and other requirements under the NPDES program. Bry's should be sure to avoid off-site stormwater discharges, or an NPDES permit may become necessary.

As part of their stormwater permit compliance programs, Ecology has prepared a summary of Best Management Practices (BMPs) for auto wrecking yards. Although not required, many of the BMPs are prudent business practices that will limit the potential for future contamination. I will forward a copy of the Ecology summary as soon as possible. Bry's should review the recommended BMPs and determine which of these practices are applicable and practical for this site.

Drainage Controls

On Monday, December 14th, I returned to the site to discuss drainage controls with Mr. Wilson. At that time, I observed that several efforts had been made to better control drainage from the main vehicle cut-up pad. Additional curbing had been installed along the south side of the pad and an area of previously stained soil had been excavated. New gravel surfacing had been placed in the excavated area.

The added curbing will help control fugitive drainage that had previously been observed in this area. Additional grading in the area west of the pad should be completed to route surface drainage away and limit the volume of water that would need to be managed by the oil/water separator.

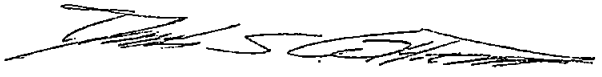
We also discussed methods of controlling fluids from a secondary cut-up pad, immediately west of the office. The slope of the ground surface routes drainage to the north, where it eventually collects in and near the basement of one of the buildings. A strip drain would be useful to collect drainage (and possible spills) from that pad and route it to the oil/water separator.

Finally, an area on the north side of the buildings held a large puddle of water with an oily sheen. I recommended that oil absorbent pads be placed in the areas where drainage water stands, to collect oil before it is deposited on soil or infiltrates to groundwater.

All of these recommended actions are relatively simple procedures that can be carried out without significantly disrupting the business activities at the site.

Whitman Environmental Sciences has been pleased to have the opportunity to be of service to you in this matter. If you have any questions regarding this report, or if I may be of any further assistance, please feel free to contact me at your convenience.

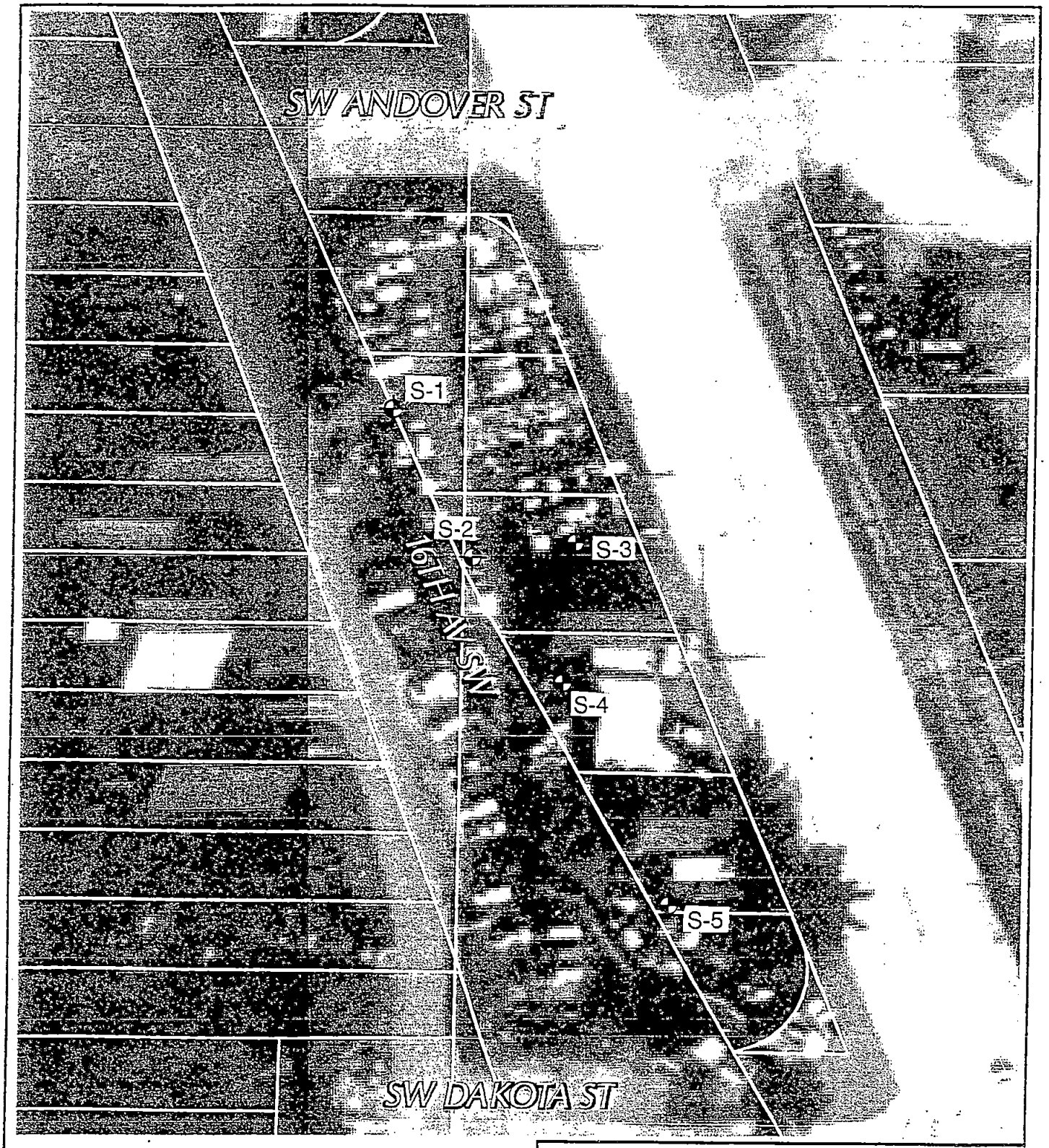
Respectfully submitted,
Whitman Environmental Sciences



Daniel S. Whitman

Attachments: Figure 1 - Site and Sampling Plan
Laboratory Analytical Report

cc: Mr. Bryan Wilson, Bry's Auto Parts



0 50 Ft.

Scale 1" = Approx. 50 ft.

Approximate Soil Sample Locations

Base Map From City of Seattle Public Utilities

Figure 1 - Site and Sampling Plan

Bry's Auto Wrecking
4017 W. Marginal Way SW
Seattle, Washington

Project No.	WES - 1181
Date	Nov 10, 1998
File ID.	1181F1

Whitman Environmental Sciences

OnSite Environmental Inc.
Analytical Testing and Mobile Laboratory Services

December 11, 1998

Dan Whitman
Whitman Environmental Sciences
5508 35th Avenue NE, Suite 108
Seattle, WA 98105

Re: Analytical Data for Project WES-1181
Laboratory Reference No. 9812-042

Dear Dan:

Enclosed are the analytical results and associated quality control data for samples submitted on December 4, 1998.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Chemist

Enclosures

Date of Report: December 11, 1998
Samples Submitted: December 4, 1998
Lab Traveler: 12-042
Project: WES-1181

NWTPH-Dx

Date Extracted:	12-07-98
Date Analyzed:	12-07&08-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Client ID:	S-1 N. ENTRY 1.5'	S-2 RACKAREA 1.5'	S-3 LOWPOINT N. 2.0'
Lab ID:	12-042-01	12-042-02	12-042-03
Diesel Fuel:	ND	ND	ND
PQL:	29	30	27
Heavy Oil:	ND	ND	ND
PQL:	59	60	54
Surrogate Recovery:			
o-Terphenyl	69%	72%	77%

Flags:

Date of Report: December 11, 1998
Samples Submitted: December 4, 1998
Lab Traveler: 12-042
Project: WES-1181

NWTPH-Dx

Date Extracted:	12-07-98	
Date Analyzed:	12-07&08-98	
Matrix:	Soil	
Units:	mg/Kg (ppm)	
Client ID:	S-4 BEHIND OFFICE 1.5'	S-5 S. DRAINAGE 1'
Lab ID:	12-042-04	12-042-05
Diesel Fuel:	ND	ND
PQL:	27	30
Heavy Oil:	ND	ND
PQL:	54	60
Surrogate Recovery:		
o-Terphenyl	75%	93%

Flags:

4

Date of Report: December 11, 1998
Samples Submitted: December 4, 1998
Lab Traveler: 12-042
Project: WES-1181

NWTPH-Dx
METHOD BLANK QUALITY CONTROL

Date Extracted:	12-07-98
Date Analyzed:	12-07-98
Matrix:	Soil
Units:	mg/Kg (ppm)
Lab ID:	MB1207S1
Diesel Fuel:	ND
PQL:	25
Heavy Oil:	ND
PQL:	50
Surrogate Recovery:	
o-Terphenyl	74%

Flags:

5

Date of Report: December 11, 1998
Samples Submitted: December 4, 1998
Lab Traveler: 12-042
Project: WES-1181

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted:	12-07-98
Date Analyzed:	12-07-98
Matrix:	Soil
Units:	mg/Kg (ppm)

Lab ID:	12-042-01	12-042-01 DUP
Diesel Fuel:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery:		
o-Terphenyl	69%	58%

Flags:

Date of Report: December 11, 1998
Samples Submitted: December 4, 1998
Lab Traveler: 12-042
Project: WES-1181

NWTPH-Dx
DUPLICATE QUALITY CONTROL

Date Extracted: 12-07-98
Date Analyzed: 12-08-98

Matrix: Soil
Units: mg/Kg (ppm)

Lab ID:	12-042-02	12-042-02 DUP
Diesel Fuel:	ND	ND
PQL:	25	25
RPD:	N/A	
Surrogate Recovery:		
o-Terphenyl	72%	65%

Flags:

Date of Report: December 11, 1998
Samples Submitted: December 4, 1998
Lab Traveler: 12-042
Project: WES-1181

Date Analyzed: 12-7-98

% MOISTURE

Client ID	Lab ID	% Moisture
S-1 N. Entry 1.5'	12-042-01	15
S-2 Rack Area 1.5'	12-042-02	17
S-3 Law Point N. 2.0'	12-042-03	7.0
S-4 Behind Office 1.5'	12-042-04	7.0
S-5 S. Drainage 1'	12-042-05	16

OnSite Environmental Inc.

DATA QUALIFIERS AND ABBREVIATIONS

A - Due to high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeniety. The sample was re-extracted and re-analyzed with similar results.

M - Predominantly _____ range hydrocarbons present in the sample.

N - Hydrocarbons in the gasoline range (C7-toluene) are present in the sample.

O - Hydrocarbons in the heavy oil range (>C24) are present in the sample.

P - Hydrocarbons in the diesel range (C12-C24) are present in the sample which are elevating the oil result.

Q - The RPD of the results between the two columns is greater than 25.

R - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

X - Sample underwent silica gel cleanup procedures.

Y - Sample underwent acid cleanup procedures.

Z - Interferences were present which prevented the quantitation of the analyte below the detection limit reported.

ND - Not Detected
MRL - Method Reporting Limit
PQL - Practical Quantitation

PHASE I ENVIRONMENTAL SITE ASSESSMENT

FORMER BRY'S AUTO PARTS PROPERTY
4017 W. MARGINAL WAY SW
SEATTLE, WASHINGTON

July 28, 2000
Project No. WES-1222

Prepared for:
Mr. Bryan Wilson
4017 W. Marginal Way SW
Seattle, WA 98106

By:
Whitman Environmental Sciences
5508 35th Avenue NE, Suite 108
Seattle, Washington 98105
(206) 523-3505

PHASE I ENVIRONMENTAL SITE ASSESSMENT

FORMER BRY'S AUTO PARTS PROPERTY
4017 W. MARGINAL WAY SW
SEATTLE, WASHINGTON

EXECUTIVE SUMMARY

Whitman Environmental Sciences (WES) was retained by Mr. Bryan Wilson of Bry's Auto Parts Inc., to conduct a Phase I Environmental Site Assessment of the former location of the company. The property consists of five tax parcels at 4017 W. Marginal Way S.W., in Seattle, Washington, totaling about 16,100 square feet. The property has been used as an auto wrecking yard and parts storage. Bry's Auto Parts has moved to a different location and no longer operates on the site.

This Phase I Environmental Assessment has been performed in accordance with the American Society for Testing and Materials (ASTM) E1527-97 guidance, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process". This study included a site reconnaissance, records review, and interviews. This assessment identified the following evidence of potential recognized environmental conditions on the subject property:

- There is evidence of oil staining on the ground surface in several areas, primarily in the vicinity of old houses that remain on the site. Past activities in these areas have included auto wrecking and repair.

- Containers of regulated or hazardous substances are relatively poorly managed on the property and may be sources of some of the observed staining.

- Stormwater is managed by a series of sumps in the low areas of the site which have collected oily water and sediment.

"Recognized environmental conditions" are defined as the presence or reasonably possible presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release or material threat of a release into structures or into the ground, ground water or surface water of the property. The term recognized environmental conditions includes hazardous substances or petroleum products even under conditions in compliance with environmental laws.

The oil stained areas, poorly managed regulated materials and oily wastes in sumps meet the ASTM definition of recognized environmental conditions.

Prior testing of site soils below stained areas indicate soil contamination does not typically extend to any significant distance below the ground surface. However, additional sampling and testing is warranted to evaluate areas that may require cleanup under the Washington Model Toxics Control Act (MTCA).

This summary is presented for introductory purposes only and should be used only in conjunction with the full text of this report.

PHASE I ENVIRONMENTAL SITE ASSESSMENT

FORMER BRY'S AUTO PARTS PROPERTY
4017 W. MARGINAL WAY S.W.
SEATTLE, WASHINGTON

1.0 PROJECT DESCRIPTION

Whitman Environmental Sciences (WES) was retained by Mr. Bryan Wilson of Bry's Auto Parts Inc., to conduct a Phase I Environmental Site Assessment of the former location of the company. The property consists of five tax parcels at 4017 W. Marginal Way S.W., in Seattle, Washington, totaling about 16,100 square feet. The property has been used as an auto wrecking yard and parts storage. Bry's Auto Parts has moved to a different location and no longer operates on the site.

This Phase I Environmental Assessment has been performed in accordance with the American Society for Testing and Materials (ASTM) E1527-97 guidance, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process". This study included a site reconnaissance, records review, and interviews.

WES has previously conducted a 1997 site investigation which reviewed conditions on the property, including a limited soil sampling program. This earlier work was reviewed as a part of this Phase I ESA and the findings are summarized in this report. A new walk-over survey and additional records review was conducted to find additional information about historical uses and determine whether or not conditions had changed significantly since the time of the earlier study.

The purpose of this ESA is to identify recognized environmental conditions in connection with the property. ."Recognized environmental conditions" may be defined as the presence or reasonably possible presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release or material threat of a release into structures or into the ground, ground water or surface water of the property.

The term "recognized environmental conditions" includes hazardous substances or petroleum products even under conditions in compliance with environmental laws. The term is not intended to include "de minimis" conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

1.1 Limitations

This report has been prepared to attempt to qualify the environmental conditions of the property and vicinity. Environmental conditions and regulations are subject to constant change and reinterpretation. Current conditions or regulatory status should not be assumed to represent conditions at some future time. WES does not guarantee that the site is free of hazardous or potentially hazardous materials or conditions, or that latent or undiscovered

conditions will not become evident in the future. This report represents the professional opinions and judgements of WES, prepared in accordance with commonly practiced environmental assessment procedures. No other warranties, representations, or certifications are made.

WES obtained, reviewed, and evaluated information available from the property owner and local, state, or federal agencies. Regulatory database searches are limited to those facilities which have been identified and listed in the referenced government environmental regulatory files as of the reported dates. WES's conclusions, opinions, and recommendations are based, in part, on this information. Where possible, WES has made efforts to identify mistakes or insufficiencies in the information provided, but verification of all of the information is beyond the scope of a Phase I ESA.

2.0 SITE DESCRIPTION

2.1 Location, Legal Description and Zoning

The property is located on the west side of W. Marginal Way S.W., about 1,000 feet west of the Duwamish River and 1,200 feet south of the West Seattle Bridge, in Seattle, Washington. The site is located in a heavy industrial area south of downtown Seattle. The subject property and surrounding area are shown in Figure 1, the Site Location Map, included in Appendix A.

The property consists of six lots (1 thru 6 of Block 419, Seattle Tide Lands Addition). The lots have been combined into five tax parcels assigned Tax I.D. No.s 766670-3835, -3845, -3855, -3865 and -3870. Figure 2, a Site Plan, indicates the layout of the property, showing the tax parcel lines and site buildings.

The property is located in the SW¼ of Section 18, T. 24 N., R. 4 E., Willamette Meridian. The site is zoned IGI U/85 by the City of Seattle, suitable for heavy industrial uses.

2.2 Site and Vicinity Characteristics

The site is a long narrow property along the west side of W. Marginal Way. The property is about 320 feet long in the north-south direction, and about 65 feet wide. Most of the property is a fenced parking lot. Two old houses and a garage remain on the central part of the property. All of the buildings are in very poor condition and have been used as storage garages and offices for Bry's Auto Parts. The site is relatively flat, with only about six feet of relief. It slopes gently toward the center part of the property, with the lowest part of the site in the area of the northern house.

The surrounding area is of mixed commercial, industrial and residential use. W. Marginal Way is a major thoroughfare for traffic through this area on the west side of the Duwamish River and carries a large volume of truck traffic. The site is bordered on the east by W. Marginal Way, on the west by 16th Avenue S.W., on the north by S.W. Andover Street and on the south by S.W. Dakota Street. Properties to the north and south are similar commercial or industrial sites in relatively poor condition. To the east, across Marginal Way, is a large material handling yard for a sand and gravel company, warehouses owned by the Port of Seattle and a public access to the Duwamish River. To the west, the ground surface rises steeply. There

is a row or houses and small commercial buildings immediately across 16th Avenue, then a wide greenbelt area on the hillside above.

2.3 Description of Site Development

The property is configured as one relatively large open storage yard with two old houses and a garage. The site is fenced on most sides with a dilapidated plywood screen, but the property is open to the street on the southwestern end. Most of the property is gravel surfaced, except for an area around the buildings where concrete pads have been poured. One covered work area is located on the south side of the southernmost building. Another covered work area is located in front of the garage that faces W. Marginal Way. Parts storage racks remain in an open area on the southern end of the site, but most parts and vehicles have been removed.

The buildings apparently date from the 1940s and are wood frame construction. Both houses are one story buildings facing W. Marginal Way, with walkout basement storage areas accessible from the west. Both houses and the garage for many years have been used primarily for auto parts storage.

2.3.1 Utilities

City water and sewer lines extend onto the site from adjacent right-of-ways. Water mains pass through the right-of-way of W. Marginal Way. Sewer lines extend onto the site from 16th Avenue. Overhead power and telephone lines extend along the east and west sides of the property. There are no pad-mounted transformers on or adjacent to the property.

Drainage in the parking lot area is not managed by any permanent collection system and rain water tends to collect in low areas and the basements. Sumps in these areas collect water and pump it into an oil/water separator before discharge to sewer. Because there is no off-site discharge to storm drains, the site does not require a Stormwater NPDES Permit.

No underground or above ground storage tanks or petroleum pipelines were observed or reported on or adjacent to the property.

2.4 Past Uses of the Property

The history of the site was researched through review of historical aerial photographs, city directories, Sanborn Fire Insurance Maps, Tax Assessor's data, Department of Ecology files and interviews. The property has been in use throughout the readily ascertainable history, but early activity appears to have been limited to residential use. Houses have been on the property dating from the early 1900s. All of the original houses had been removed by the 1940s, but additional houses had been built, including those that currently remain on the property.

Since at least 1976 the property has been at least partially used for auto wrecking, originally by a company called A-1 Auto Parts & Wrecking. Throughout much of the time A-1 Auto Parts occupied the site, one or more of the houses remained in use as residences. City directories list A-1 Auto Parts on the site until the late 1980s. In 1989, the site address is listed as being vacant. After that, listings of the site address are for Bry's Auto Wrecking and Bryan Wilson.

According to information from Metro and Department of Ecology files, Bry's Auto Parts stored auto bodies on the property, stacked as much as three high. Most of the autos were stripped of parts on the work pads in the vicinity of the houses, then were moved to the storage yard until taken off the site as scrap. The activities were apparently poorly controlled and the site appeared to be littered with debris and auto parts. Automotive fluids were reportedly spilled in the work areas and the ground surface was noted to have been heavily stained in some areas. Conditions on the site resulted in a series of site inspections by regulatory agencies, as discussed below.

2.4.1 Previous Regulatory Site Investigations

Due to the auto wrecking activities at the site, a number of site inspections have been conducted by regulatory agencies, dating from about 1993 to 1998. Copeis of pertinent documents from the Department of Ecology files are included in Appendix B.

Initial inspections were conducted by Metro Water Pollution Control Department. A letter from Maureen Meehan-Martin dated June 3, 1993, details the findings of her initial inspections and made recommendations for managing hazardous and regulated materials at the site. Her seven page letter addressed drainage concerns, preventing contamination, cleaning up oil stained soil, secondary containment of fuels and hazardous materials, container labeling and disposal of various materials she noted on the site.

The conditions noted in Ms. Meehan-Martin's letters suggest a lack of environmental controls at the site. According to Mr. Bryan Wilson, the Metro inspection and letters resulted in many changes to the way the business was operated. A 1994 follow-up letter from the City of Seattle acknowledged that many cleanup and management changes had been made, but recommended several additional compliance efforts.

A 1997 letter from the King County Water Pollution Control Division (successor agency to Metro) notes that Ms. Meehan-Martin wrote a total of eight consultation letters to the property owner regarding the site from 1993 to 1995. King County and the Washington Department of Ecology (Ecology) corresponded about the business activities at the property, each referring the other to enforcement under one of their programs. Several report logs are in the Department of Ecology file noting complaints filed by citizens about poorly controlled auto fluids and staining on the street adjacent to the site and in work areas.

In January 1997, Ecology received a report about the site from the U.S. Environmental Protection Agency. The EPA had received an anonymous phone call about the auto wrecking activities at the site, noting that the fluids were draining onto the ground. At that time, concrete pads were being poured in the work area and the stained soil was not cleaned up before the concrete was put in place.

In February 1997, Ecology referred the site to the King County Department of Natural Resources - Hazardous Waste Section for investigation. King County representatives reviewed the earlier inspection reports from 1993-95, and visited the site. During their visit, they noted large areas of ground with black discoloration and strong petroleum odors around the disassembly area. The King County representatives reported their findings to Ecology in a letter dated February 12, 1997.

In July 1997, Ecology received another citizen complaint about auto fluids draining into storm drains around the site. Ecology again referred the site to King County, who sent representatives to inspect the property. Inspectors found that the only storm drain catch-basin around the site was on Andover Street and that leakage could only reach the drain from off-site storage or handling of vehicles on the road right-of-way. The inspector's notes indicate the issue was resolved by placing an oil absorbent boom in the catch basin and limiting the wrecking activities in the road.

In August 1997, King County referred the site back to Ecology, noting that King County staff had "put a lot of effort in advising this business, and the hazardous waste management-related changes are not up to their expectations."

In January 1998, Ecology sent an Early Notice Letter to Mr. Wilson, indicating the site was to be added to the state's list of sites suspected to be contaminated by hazardous substances. The letter summarizes Ecology's programs for voluntary cleanup by responsible parties and their enforcement options. There has been no further enforcement or investigation of the property by Ecology since that time.

2.4.2 Prior Site Sampling Events

In 1992, Pacific Testing Laboratories conducted laboratory testing on three samples from the property provided by Mr. Bryan Wilson. The samples were taken as part of an evaluation of the property prior to Mr. Wilson's purchase, but the sample locations are not documented. The three samples were tested for total petroleum hydrocarbons by Washington Method WTPH-HCID. All three samples were found to contain concentrations of diesel fuel range hydrocarbons, but at concentrations less than 100 parts per million (ppm). These concentrations are less than the current Washington Model Toxics Control Act cleanup level of 200 ppm.

Whitman Environmental Sciences conducted a limited environmental site review in December 1998, for Pacific Coast Investment Co. The review was not intended to be a full Phase I Environmental Site Assessment or Phase II site investigation. At the time of that review, WES noted heavily stained surface soils in areas of the site, and relatively poor management of stormwater drainage that collected near the foundations of the buildings. Some parts of the auto wrecking areas did not drain to the collection sumps and oily water and sediment was collecting in the low areas around the building. As part of the review, WES acknowledged the presence of surficial soil contamination and conducted further investigation to determine whether or not contaminants extended to any significant depth below the ground surface.

Five soil samples were taken at depths ranging from one to two feet below the ground surface. Exploratory holes were dug to depths of two to six feet in all of the tested locations. At all of the sampled locations, WES encountered extremely dense surficial gravel fill or concrete that extended from 6-12 inches below the surface. In some areas a few inches of gravel overlies a concrete slab. Staining and miscellaneous debris was found in the fill. However, beneath the surface layers sampling encountered a distinct brown clayey layer up to 18" thick. This soil overlies clean, even textured sand that may have been historical dredge spoils or natural soil deposited by the nearby Duwamish River. Although the surficial fill contained

visually obvious staining and odors, the underlying clayey fill and sand showed no field indications of contamination. Groundwater was not encountered in any of the test holes.

The samples were submitted to a subcontracted analytical laboratory and were tested for total petroleum hydrocarbons (TPH) using Washington Method WTPH-D (extended). The testing did not find concentrations of TPH in any of the samples. The observed soil conditions and laboratory testing suggested that staining and soil contamination were limited to surficial soils and did not extend to appreciable depth beneath the surface. This could be attributed to the dense surficial soil and underlying clay, which limit infiltration.

The report concluded that the stained surficial fill probably exceeded Washington State soil cleanup criteria under the Model Toxics Control Act (MTCA), but that the contamination did not extend to appreciable depth. Cleanup at this site would most likely entail scraping the surface to a depth of 6" to 12"in most of the work areas and the low parts of the property where drainage collects. Cleanup to this extent would be a relatively simple process that could be completed in a short time.

2.5 Current and Past Uses of Adjoining Properties

The surrounding area consists of mostly older commercial developments. Current land use on the adjacent properties consist of:

North, across Andover Street - residences, vacant property and small business buildings;

South - across Dakota Street - a vacant lot that has been used as another auto wrecking yard. Historical documents show the property across Dakota has in the past housed a gas station and dry cleaner;

East - across W. Marginal Way - industrial land and warehouses;

West - residences, a vacant lot used for storage and a small commercial building currently under construction.

Past uses in the area have been a mixture of relatively heavy industrial activities. Most industrial activities have been from the site eastward to the Duwamish River. Residential uses have been mostly from the site westward to a greenbelt area on the steep slope up to West Seattle. As an industrial area, there are an number of properties in the surrounding area that have been the subject of environmental cleanup activities or site investigations. Surrounding area sites identified from regulatory databases are discussed below.

3.0 RECORDS REVIEW

To determine conditions and past uses of the property and vicinity, WES reviewed readily available sources of information including the owner's records, published environmental databases, topographic, soils and geologic references, Tax Assessor's data, old aerial photographs, city directories, City of Seattle records and Puget Sound Archives records about the site and vicinity.

Whitman Environmental Sciences

5508 35th Avenue NE, Suite 108
Seattle, Washington 98105

Phone: (206) 523-3505 Fax: (206) 523-3753

December 5, 2001

Global Diving & Salvage, Inc.
3840 W. Marginal Way SW
Seattle, WA 98136

Attention:

Phase II Soil Sampling Program
Bry's Auto Wrecking Site
4017 W. Marginal Way SW
Seattle, Washington

Dear Mr.

As you have authorized Whitman Environmental Sciences (WES) has completed this report documenting a limited soil sampling program conducted on the former site of Bry's Auto Wrecking, at 4017 W. Marginal Way SW. This work was originally conducted in July, 2000, for the former owner Mr. Bryan Wilson, to evaluate the extent of soil contamination at the site from his operations. As you are aware, Mr. Wilson declared bankruptcy before the project was completed and the information contained in this report has never been issued.

is considering purchase of the property and would like to use all available information to evaluate the extent of cleanup that would be necessary.

The scope of work for this investigation included the following activities:

- Excavating 10 test pits using a backhoe to expose a profile of soil layers at various locations on the site for observation and sampling. The test pits were targeted to areas where waste materials have been handled and surface water drainage points with the potential to accumulate contaminants;
- Obtaining 12 soil samples from the test pits at various depths to evaluate the vertical extent of any contamination that may have occurred from prior site uses;
- Laboratory analysis of the soil samples for Total Petroleum Hydrocarbons (TPH) in the diesel and heavy oil ranges by Washington State Method WTPH-D (extended);
- The sample which demonstrated the highest concentration of TPH was also tested by the Department of Ecology's EPH/VPH partitioning method used in their Interim Policy for Cleanup of Total Petroleum Hydrocarbons;
- Estimating the extent of areas where soil impacts exceed applicable soil cleanup criteria under Washington's Model Toxics Control Act (MTCA) cleanup regulations.

It should be noted that the Washington Department of Ecology has issued new regulations under MTCA since the field and laboratory work for this investigation was completed. This report compares the laboratory data to current MTCA standards and identifies additional data that may allow a more limited cleanup response than would have been required under the old version of the regulation.

Project Background

In December 1998, WES conducted a more limited sampling event at the site (Project No. WES-1182, December 17, 1998). The site conditions as identified in the 1998 work, as well as observations of the property in July, 2000 were used to develop the scope of work for this Phase II investigation. The results of this prior work, where appropriate, are included in the interpretation of site conditions in this investigation.

At the time this investigation was conducted, the prior owner intended to immediately begin cleanup of contaminated soil zones to prepare the property for sale. Therefore, testing was limited to diesel and oil range total petroleum hydrocarbons, the most widely observed potential contaminant on the property, as the indicator hazardous substance. Additional testing of a wider array of potential contaminants was to be conducted following the removal actions, to confirm whether or not the of the site had been adequately addressed. To the best of my understanding, no cleanup or further confirmation testing was ever conducted.

Site Information

The site and surrounding area are indicated in Figure 1, the Site Location Map. Figure 2 indicates the layout of site features. It should be noted that the property lines as shown on King County plat maps are well inside the current fence and curb lines that are visible at the property.

The information collected during our Phase I Environmental Site Assessment indicates the site was used as an auto parts and wrecking yard from at least the mid-1970s until recently. The property currently has two old houses and a garage in the central part of the site, which have been used as offices and parts storage. In the past, parts have been stored in various racks and bins to the north and south of the buildings. The northern end of the site was used to store auto bodies which had been partially stripped. In the past, this area may also have been used to strip cars.

Auto wrecking activities were centered around two paved pads adjacent to the buildings. Observations and information from the Phase I records search suggest the area west of the houses had been paved only a few years ago, after being used for auto wrecking for many years. It is unlikely any cleanup had been conducted before the concrete pavement was added.

The ground surface throughout much of the yard was spotted with oil stains and littered with automobile parts. The ground surface appeared heavily stained in areas where surface drainage collected at low spots around the buildings. The wrecking pad south of the houses has a crude drainage control and collection system, which passes drainage through an

oil/water separator. However, the wrecking area west of the houses and the yard to the north appeared to allow storm water to collect around and in the basement of the northern building. A buried garbage can was used as a sump near the northern house, collecting water and pumping it to a collection basin next to the southern house. Since the site has now been vacated, it is unclear whether or not the drainage system is currently operating.

Based on the observations of the site, WES recommended test pits and soil sampling as a means to evaluate the extent of contamination from the former site uses. Daniel Whitman of WES and a subcontracted backhoe operator conducted a test pit and sampling program on July 26, 2000.

Field Sampling

WES selected ten locations on the site for subsurface exploration. The locations are indicated in Figure 2, the Site and Sampling Plan. Test pits were dug to depths which encountered naturally occurring soil without field observable indications of contamination. The deepest test pit, TP-1 was dug to a depth of approximately 12 feet below the ground surface, in an effort to profile soil at greater depths and determine the depth to groundwater. Other test pits ranged from two to six feet in total depth.

Soil samples were obtained from various depths below the surface in each of the test pits. A summary of the test pit locations and sample depths is included in Table 1.

The samples were obtained by digging into the sidewall or base of the excavation to avoid soil that may have come in contact with the backhoe bucket. Sampling tools were decontaminated prior to each use. Each sample was immediately placed in a laboratory-prepared glass sample jar, sealed with a teflon-lined lid and chilled. The samples were catalogued and held under chain of custody until delivered to the analytical laboratory for testing.

Soil Conditions

Generally, the excavations encountered approximately 12" - 18" of surficial gravel or concrete fill overlying a distinct layer of brown clayey soil. The clay in turn overlies clean, even textured sand, which may have been old natural sediment or dredge spoils from the nearby Duwamish River.

The surficial gravel and concrete fill was extremely dense. In the area around the northern buildings and wrecking pad the test pits found a rough, poured in place concrete slab buried beneath a few inches of gravel. Beneath the concrete was another thin layer of gravel. Staining and miscellaneous debris, including car parts, was found throughout the surficial fill, including beneath the concrete slab.

Under the surficial fill, the brown clayey layer ranged from a few inches to about 18 inches in thickness. There was a distinct, abrupt change in the soil texture from the clay to the underlying sand, suggesting the clay was an artificial fill layer. At most locations there were no field indications of contamination (staining, odor or debris) in the clayey layer or deeper soil.

In test pits TP-3, TP-4 and TP-7, the top few inches of the clay layer were discolored by dark oily staining. The observed conditions are similar to those found by the limited testing program in 1998.

All of the test holes extended into the sand beneath the clay fill. At the location of test pit TP-1, the hole was dug to a depth of 12 feet below the surface. After penetrating the shallow clayey fill, the test hole encountered sand to its full depth. Groundwater was encountered at a depth of about 12 feet. No other test pit encountered groundwater. However, the surface water run-off from much of the site collects around the basement of the northernmost building. This run-off has contributed to soil contamination and may act as a source of seasonal or temporary "perched" groundwater conditions in more permeable zones in the clayey fill. During cleanup, these zones can most likely be removed by superficial excavation, along with the observed soil contamination.

Laboratory Analyses

Laboratory testing was subcontracted to Sound Analytical Services, Inc. of Tacoma, Washington. Twelve samples were selected for analysis, representing soil encountered at varying depths in the test pits. A summary of the samples, noting the depth, type of soil and analytical results is included in Table 2. The laboratory report of the testing results is attached in Appendix A.

All twelve of the samples were analyzed for Total Petroleum Hydrocarbons (TPH) in the ranges of diesel fuel and heavy oil, by Method NWTPH-D (extended). Based on the activities observed on the site, releases of heavy oil would be the most commonly anticipated contamination. The sample containing the highest concentration of oil was then selected for testing by the Department of Ecology's EPH/VPH partitioning method used to calculate human and environmental risk under the Interim Policy for Cleanup of TPH Contaminated Soil. The interim policy has now been replaced by similar calculations in the new MTCA regulation.

The testing detected diesel or oil range hydrocarbons in six of the twelve tested samples. Where found, the hydrocarbons were predominantly heavy oil. Where detected, TPH concentrations ranged up to 12,000 parts per million (ppm) of oil-range and 3,700 ppm of diesel-range hydrocarbons.

The most elevated petroleum concentrations were found in samples from test pits TP-3, TP-4 and TP-5 in the area north of the buildings; and TP-10, south of the southern work pad. The samples where high concentrations of petroleum was detected were taken from the surficial gravelly fill or the upper part of the underlying clayey soil, within the top foot of the test pits. In test pits TP-3, TP-4, TP-7 and TP-10, the testing found soil with low concentrations or no detectable hydrocarbon at shallow depths below heavily contaminated soil. Samples from 1.5 feet below the surface contained a maximum concentration of 160 ppm of oil and 42 ppm diesel range hydrocarbons. This suggests the surficial staining has not migrated to any great depth below the ground surface.

The limited sampling conducted in 1998 found similar results. All five samples taken from depths of one to two feet below the ground surface did not contain detectable concentrations of petroleum hydrocarbons. The results of both sets of soil samples suggest cleanup can be limited to the surficial soil in former work areas and the locations where drainage has carried contaminants.

EPH/VPH Testing

Sample TP-4/S-1, containing the highest reported TPH concentration was subjected to the EPH/VPH testing. As part of the testing, the EPH/VPH test quantifies the concentrations of specific chemicals needed to calculate the health and environmental risk under MTCA. The test results are summarized in Table 3.

The testing found the petroleum mixture to be predominantly heavy aliphatic compounds in the equivalent carbon (EC) range of 16 - 21, and aromatic compounds in the >21 -35 EC range. The concentrations of MTBE, benzene, toluene, ethylbenzene and total xylenes were below the laboratory's practical quantitation limit (PQL), 0.22 mg/kg. However, the analyses was not sensitive enough to determine if MTBE or benzene concentrations meet the new Method A criteria of 0.1 and 0.03 mg/kg, respectively.

Naphthalene was detected at a concentration of 0.18 mg/kg, below the new MTCA Method A limit of 5 mg/kg. No carcinogenic PAHs were found at a PQL of 0.021, which is sufficiently sensitive under the new MTCA regulation.

The findings show the petroleum to be predominantly heavy oil with almost no light end petroleum fraction that would normally be associated with gasoline. Based on the distribution of petroleum fractions, it is unlikely the sample contained MTBE or benzene at concentrations exceeding their respective cleanup criteria.

Regulatory Criteria

Washington State regulates releases and cleanup of hazardous and toxic materials through the Washington Model Toxics Control Act (MTCA) Chapter 173-340 WAC. MTCA establishes risk-based cleanup levels for toxic and hazardous materials. The most simple and comprehensive cleanup levels for soil are listed as "Method A" cleanup levels. Method A cleanup levels are concentrations suitable for any future land use without environmental restrictions. The new version of MTCA allows 2,000 parts per million (ppm) of diesel or oil range total petroleum hydrocarbons (TPH) in soil. Three of the shallow soil samples (TP-3/S-1, TP-4/S-1 and TP-10/S-1) from this sampling program exceeded the MTCA Method A TPH cleanup level. All three of these samples were taken from the top foot of stained soil at their sampled locations.

Method A cleanup levels are based on simplified assumptions and are intended only for sites which require relatively simple cleanup. They are applicable to this property, but are not mandatory. Method B, the more comprehensive review of contaminants, can allow more lenient cleanup levels for some specific chemicals under certain conditions. However, the new version of the regulation makes it difficult to develop higher cleanup levels for total petroleum

hydrocarbons. The regulation has a series of calculations that can be carried out to determine the risk of human exposure and leaching potential for petroleum, but places an upper limit on the allowable concentrations based on residual saturation in the soil. Residual saturation could allow free-phase petroleum to escape the soil and potentially contaminate groundwater.

The regulation sets default residual saturation levels at 2,000 mg/kg for diesel and oil range hydrocarbons, the same levels allowed under Method A. These default values can be modified if site specific testing is conducted to show that residual saturation will not cause an exceedance of groundwater cleanup levels. Since the site investigation was conducted before the new regulation was in effect, this testing has not been conducted. Testing can be by empirical methods (groundwater sampling) or laboratory leach testing.

Given the superficial contamination found at the site, it may be most appropriate to conduct soil cleanup using Method A criteria, rather than attempting to reach a higher cleanup level by additional analysis.

The new version of MTCA tightens restrictions on gasoline range hydrocarbons and specific volatile petroleum components, especially benzene. The testing conducted to date has been mostly limited to heavier hydrocarbons, with the exception of the one most highly contaminated sample. This was appropriate when diesel and oil range hydrocarbon cleanup levels were similar to that for gasoline under the old version of the law. However, now that there is disparity in the cleanup levels, testing for TPH-G/BTEX is increasingly important.

Given the history of the site, it is likely that some of the fluids spilled would include gasoline. Confirmation testing completed after any future cleanup should be sure to test for gasoline range hydrocarbons as the most sensitive indicator hazardous substance.

Areas Requiring Soil Cleanup

The testing found surficial contamination that warrants cleanup in areas adjacent to the concrete work pads on the north and south sides of the houses. Figure 3 shows the approximate extent of surficial contamination. In addition, superficial staining may be expected at spot locations throughout the site, due to poorly controlled work practices. The concrete work pad to the west of the houses was most likely constructed on top of soil which had been previously contaminated, so removing the concrete would most likely be needed as part of cleanup.

The most appropriate cleanup approach would be to excavate and dispose of the contaminated soil, then conduct confirmation testing on the excavation bases. Regrading the site after cleanup would help improve the site drainage and reduce the volume of backfill that would be needed to restore the excavations. The northern end of the property is relatively high and soil from there could be used to level the central part of the site. In the course of regrading, any other zones of contaminated soil which are found could be segregated and properly disposed.

Based on an excavation depth of about one foot, a total volume of about 250 - 300 cubic yards of soil should be anticipated from the cleanup. This soil has not been profiled for

disposal, so it may be appropriate to stockpile it and conduct testing for a wider list of parameters before removing it from the site. Given the past history, testing the soil for PCBs and TCLP extractable concentrations of metals and solvents should be part of the disposal characterization.

Since much of the staining on the site is most likely from waste oil, the excavation bases should be tested for concentrations of petroleum related compounds, priority pollutant metals, PCBs and halogenated solvents. Enough sampling should be conducted to document the cleanup in a statistically valid way.

Limitations / Closure

The recommendations contained in this report represent our professional opinions and are based in part on information supplied by the client and former owners of the property. These opinions are based on currently available information and are arrived at in accordance with accepted environmental assessment practices at the time and place the work was conducted. No other warranty is expressed or implied. This report has been prepared for the exclusive use of their agents and attorneys, for specific application to this project, in accordance with our approved scope of work and our General Terms and Conditions. In the event that other information becomes known regarding conditions of the site or surrounding properties, the conclusions of this report should be reviewed and if necessary, updated by WES to reflect the new information.

Whitman Environmental Sciences has been pleased to have the opportunity to be of service to you in this matter. If you have any questions regarding this report, or if I may be of any further assistance, please feel free to contact me at your convenience.

Respectfully submitted,
Whitman Environmental Sciences

Daniel S. Whitman

Attachments: Table 1 - Test Pit and Sampling Summary
Table 2 - Soil Sample Analytical Summary
Table 3 - EPH/VPH Test Results, Sample TP-4/S-1
Figure 1 -Site Location Map
Figure 2 - Site and Sampling Plan
Figure 3 - Approximate Areas of Stained Soil
Appendix A - Laboratory Analytical Report

Table 1
Bry's Auto Parts Property
Test Pit and Sampling Summary

WES-1222

Test Pit	*Sample I.D.*	*Sample Depth (feet)*	*Location and Reason for Sampling*	*Conditions Encountered*
TP-1	S-1	0.5 ft	North end of storage yard; surface stains from former vehicle storage.	0 - 6" - Crushed gravel fill with debris 6" - 2.5' - Light brown to gray silty clay 2.5' - 12' - Dark brown medium sand, wet at 12'
	S-2	3 ft		
TP-2	S-1	1 ft	Through floor slab of a former basement, north of current buildings; former parts storage.	0 - 4" - Silty sediment from surface water collection 4" - 8" - Concrete slab - painted red 8" - 3' - Dark brown medium sand
TP-3	S-1	0.5 ft	In low area along the north side of the northern-most building; former oily parts storage; surficial oil staining and debris visible.	0 - 8' - Crushed gravel fill, stained, with debris 8" - 1.5' - Light brown to gray silty clay 1.5' - 4.5' - Dark brown medium sand
	S-2	1 ft		
	S-3	1.5 ft		
TP-4	S-1	1 ft	Near former water collection sump at lowest point on site; surficial oil staining and debris.	0 - 3" - Stained gravel and debris, steel plate 3" - 8" - Rough concrete slab 8" - 1' - Stained gravel with wire and debris 1' - 2' - Light brown silty clay 2' - 3.5' - Dark brown medium sand
	S-2	1.5 ft		
TP-5	S-1	1 ft	Northern edge of former auto wrecking pad; surficial oil staining and debris.	0 - 4" - Stained gravel and debris 4" - 8" - Rough concrete slab 8" - 1.5' - Stained gravel with debris 1.5 - 3' - Light brown silty clay
TP-6	S-1	1 ft	Northern edge of former auto wrecking pad surficial oil staining.	0 - 4" Stained gravel and debris 4" - 8" - Concrete slab- northern edge of slab found 8" - 1' - Light brown to gray silty clay
TP-7	S-1	0.5 ft	Western edge of the former auto wrecking pad; heavy oil stain at surface; concrete layer visible.	0 - 4" Poor grade concrete slab 4" - 1' - oily crushed gravel with debris 1' - 2' - Gray to light brown silty clay 2' - 3' - Dark brown medium sand
	S-2	1 ft		
	S-3	1.5 ft		

Table 1 (Continued)
Bry's Auto Parts Property
Test Pit and Sampling Summary

Test Pit	Sample I.D.	Sample Depth (feet)	Location and Reason for Sampling	Conditions Encountered
TP-8	S-1	1.5 ft	Through poor grade concrete slab west of ramp to office; check for soil staining beneath slab.	0 - 4" Concrete slab 4" - 1.5' - Brown fine to medium sand
TP-9	S-1	1 ft	Former drum storage area next to west wall of office; surficial staining visible.	0 - 1.5' - Brown fine to medium sand -stained at surface only
TP-10	S-1	0.5 ft	South of the edge of the southern wrecking pad, where drainage stained soil. Surficial staining and debris visible.	0 - 1' - Stained gravel and debris 1' - 2.5' - Brown silty clay fill with gravel, no staining or debris 2.5' - 4.0' - Brown fine to medium sand
	S-2	1.5 ft		

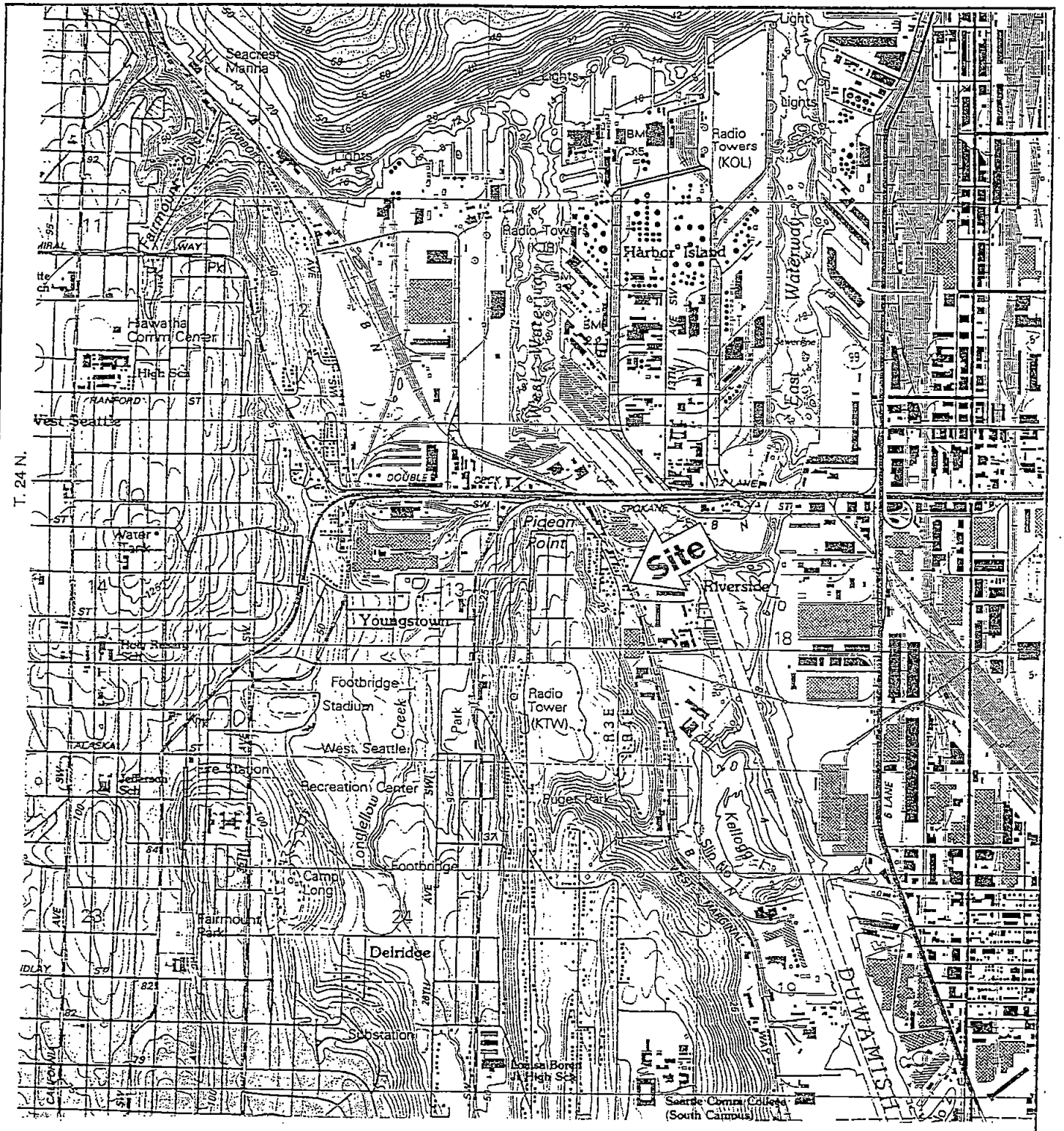
Table 2 *WES-1243*
Bry's Auto Parts Property
Laboratory Analytical Results Summary

Test Pit	*Sample I.D.*	*Sample Depth (feet)*	*Material Sampled*	*NWTPH-Dx (mg/kg)*
TP-1	S-1	0.5 ft	Surficial gravel fill	Diesel: ND (<20) Oil: ND (<39)
	S-2	3 ft	Brown medium sand beneath clayey fill layer	Not analyzed
TP-2	S-1	1 ft	Brown medium sand beneath old floor slab	Diesel: ND (<20) Oil: ND (<40)
TP-3	S-1	0.5 ft	Surficial gravel fill - heavily stained	***Diesel: 1,700*** ***Oil: 8,200***
	S-2	1 ft	Light brown silty clay fill	Not analyzed
	S-3	1.5 ft	Brown fine to medium sand beneath fill	Diesel: ND (<19) Oil: ND (<38)
TP-4	S-1	1 ft	Gravel layer beneath concrete slab; heavily stained	***Diesel: 3,700*** ***Oil: 12,000***
	S-2	1.5 ft	Light brown silty clay; no staining or debris	Diesel: 42 Oil: 160
TP-5	S-1	1 ft	Gravel layer beneath concrete, stained, with debris	Diesel: 310 Oil: 720
TP-6	S-1	1 ft	Light brown silty clay, no staining	Not analyzed
TP-7	S-1	0.5 ft	Oily crushed gravel below concrete slab	Not analyzed
	S-2	1 ft	Light brown silty clay	Diesel: ND (<24) Oil: ND (<47)
	S-3	1.5 ft	Brown fine to medium sand	Diesel: ND (<21) Oil: ND (<42)
TP-8	S-1	1.5 ft	Light brown silty clay fill, no staining	Diesel: 37 Oil: 150
TP-9	S-1	1 ft	Brown fine to medium sand	Not analyzed
TP-10	S-1	0.5 ft	Surficial gravel - heavily stained by run-off, with debris	***Diesel: 920*** ***Oil: 5,100***
	S-2	1.5 ft	Brown silty clay with gravel- no staining or debris	Diesel: ND (<21) Oil: ND (<42)
Washington Model Toxics Control Act Method A Soil Cleanup Criteria				***2,000****

Table 2 Notes:
NWTPH-Dx - Total Petroleum Hydrocarbons by Method NWTPH-D (extended) for diesel and oil range petroleum.
Sample TP-4/S-1 also analyzed for VPH/EPH and cPAHs. See Table 3 for results summary.

Table 3
Bry's Auto Parts Property
EPH/VPH Test Results
Sample TP-4 / S-1

Parameter	*Reported Concentration (mg/kg) = ppm*
Benzene	ND (<0.22)
Ethylbenzene	0.085
Toluene	0.028
Xylenes	0.205
MTBE	ND (<0.22)
Naphthalene	0.18
Aliphatics: EC 5 - 6	ND(<0.66)
EC >6 - 8	ND (<0.44)
EC >8 - 10	6.6
EC >10 - 12	12
EC >12 - 16	83
EC >16 - 21	1,000
Total Aliphatics:	1,100
Aromatics: EC >8 - 10	1.5
EC >10 - 12	ND (<5.1)
EC >12 - 16	9.3
EC >16 - 21	360
EC >21 - 34	870
Total Aromatics:	1,200
Total cPAHs	ND (all <0.021)



From U.S.G.S. 7.5' x 15'
Seattle South, WA Quad.
1983 Metric Series

North

0 2100'

Scale 1 : 25,000

Figure 1 - Site Location Map

Former Bry's Auto Parts Property
4017 W. Marginal Way SW
Seattle, Washington

Project No.	WES - 1222
Date	July 13, 2000
File ID.	1222F1

Whitman Environmental Sciences

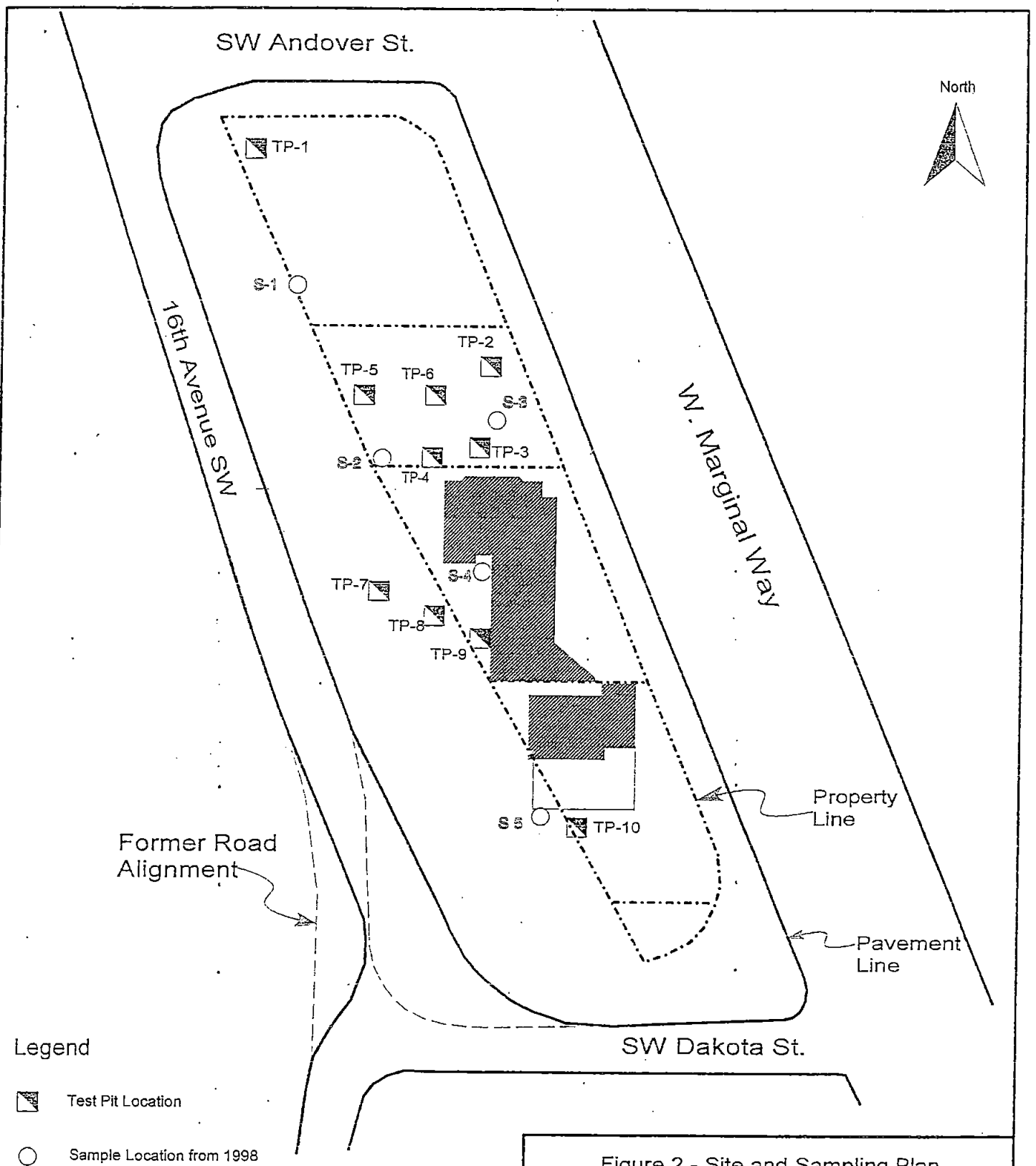


Figure 2 - Site and Sampling Plan

Former Bry's Auto Parts Property
4017 W. Marginal Way SW
Seattle, Washington

Project No.	WES - 1243
Date	July 30, 2000
File ID.	1243P2F2

Whitman Environmental Sciences

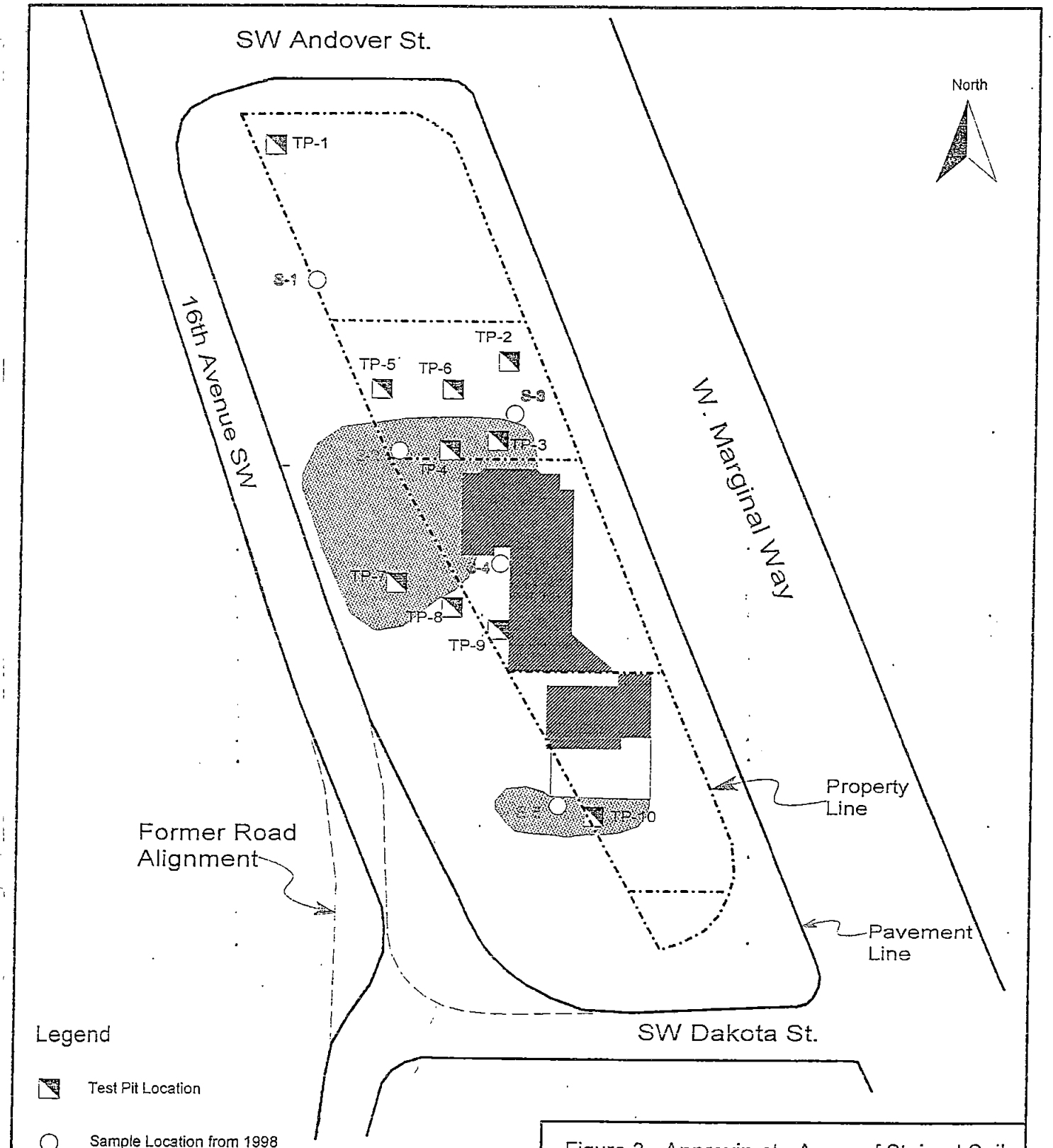


Figure 3 - Approximate Areas of Stained Soil

Former Bry's Auto Parts Property
4017 W. Marginal Way SW
Seattle, Washington

Project No.	WES - 1243
Date	July 30, 2000
File ID.	1243P2F2

Whitman Environmental Sciences

SOUND ANALYTICAL EPH / VPH

SAMPLE SUMMARY REPORTS
AND
WORKSHEETS

SOUND ANALYTICAL EPH / VPH SUMMARY REPORT

Client Sample ID:	TP-4/S-1					
Work Order	91369					
Laboratory ID:	91369-07					
Date Sampled:		Date Received:	7/27/00			
Date Prepared:	EPH	8/8/00	PAHs	8/8/00	VPH	8/7/00
Date Analyzed:	EPH	8/8/00	PAHs	8/9/00	VPH	8/8/00

Matrix: solid % Solids: 83.51

ANALYTICAL RESULTS:

Non-Carcinogen - Human Health Hazard Index Compounds

Compound	mg/kg
Total Aliphatics	1100
Total Aromatics *	1200
Benzene	ND
Ethylbenzene	0.085
Toluene	0.028
Xylenes	0.21

* Total aromatics is aromatic fractions + benzene - ethylbenzene, toluene & xylenes

Carcinogen - Human Health Risk Compounds

Compound	mg/kg	PQL
Benzene *	0.11	0.22
Total cPAHs *	0.07	0.15

* For compounds not detected, 1/2 PQL values are Substituted

Soil to Groundwater - Fate and Transport Fractions

Aliphatic Fractions	mg/kg
C5 - C6	ND
>C6 - C8	ND
>C8 - C10	6.6
>C10 - C12	12
>C12 - C16	83
>C16 - C21	1000
Total Aliphatic Fractions	1100

Aromatic Fractions	mg/kg
>C8 - C10*	1.5
>C10 - C12	ND
>C12 - C16	9.3
>C16 - C21	360
>C21 - C34	870
Total Aromatic Fractions	1200

* Does not include ethylbenzene and xylenes

HUMAN HEALTH SOILS CONTACT WORKSHEETS

CLIENT ID: TP-4/S-1

LAB ID: 91369-07

Non-Carcinogen--Hazard Index

Compound	Soil ppm		*Residential*			*Commercial*			*Industrial*		
		ORfD	Factor	Res. Mult.	HQ	Factor	Com. Mult.	HQ	Factor	Ind. Mult.	HQ
Total aliphatic	1100	0.06	1.25E-05	2.08E-04	0.23	3.13E-06	5.21E-05	0.06	2.86E-07	4.77E-06	0.01
Total aromatic*	1200	0.03	1.25E-05	4.17E-04	0.50	3.13E-06	1.04E-04	0.13	2.86E-07	9.53E-06	0.01
Benzene	0.0										
Ethylbenzene	0.1	0.10	1.25E-05	1.25E-04	0.00	3.13E-06	3.13E-05	0.00	2.86E-07	2.86E-06	0.00
Toluene	0.0	0.20	1.25E-05	6.25E-05	0.00	3.13E-06	1.56E-05	0.00	2.86E-07	1.43E-06	0.00
Xylenes	0.2	2.00	1.25E-05	6.25E-06	0.00	3.13E-06	1.56E-06	0.00	2.86E-07	1.43E-07	0.00
Hazard Index					0.73			0.18			0.02

* Total aromatic is total of aromatic fractions plus benzene minus ethylbenzene, toluene and xylenes

Carcinogen Risk

Compound	Soil ppm		*Residential*		*Commercial*		*Industrial*	
		OCPF	Res. Mult.	Risk	Com. Mult.	Risk	Ind. Mult.	Risk
Benzene *	0.11	0.029	1.00E-06	3.19E-09	2.50E-07	7.98E-10	7.62E-08	2.43E-10
Total cPAHs *	0.07	7.30	1.00E-06	5.37E-07	2.50E-07	1.34E-07	7.62E-08	4.09E-08

* For parameters not detected 1/2 PQL values are substituted

FATE AND TRANSPORT - SOIL TO GROUNDWATER

"Raoult's Law" Worksheet

CLIENT ID: TP-4/S-1

LAB ID: 91369-07

COMPOUND	Soil mg/kg	MW g/mol	Moles mmol/kg	Mol Frac.	Solubility mg/l	Effect. Sol. mg/l	DF	Well Conc. mg/l
Aliphatics								
EC 5 - 6	0	81	0.0	0.00	2.8E+01	0.0E+00	20	0.0E+00
EC >6 - 8	0	100	0.0	0.00	4.2E+00	0.0E+00	20	0.0E+00
EC >8 - 10	7	130	0.1	0.01	3.3E-01	1.7E-03	20	8.5E-05
EC >10 - 12	12	160	0.1	0.01	2.6E-02	2.0E-04	20	9.9E-06
EC >12 - 16	83	200	0.4	0.04	5.9E-04	2.5E-05	20	1.2E-06
EC >16 - 21	1000	270	3.7	0.38	1.0E-06	3.8E-07	20	1.9E-08
Aromatics								
Benzene	0.0	78	0.0	0.00	1.8E+03	0.0E+00	20	0.0E+00
Toluene	0.0	92	0.0	0.00	5.2E+02	1.6E-02	20	8.0E-04
EC >8 - 10*	2	120	0.0	0.00	6.5E+01	9.9E-02	20	4.9E-03
EC >10 - 12	0	130	0.0	0.00	2.5E+01	0.0E+00	20	0.0E+00
EC >12 - 16	9	150	0.1	0.01	5.8E+00	3.7E-02	20	1.8E-03
EC >16 - 21	360	190	1.9	0.19	5.1E-01	9.8E-02	20	4.9E-03
EC >21 - 35	870	240	3.6	0.37	6.6E-03	2.4E-03	20	1.2E-04
			9.8	1.00				0.0

* Includes ethylbenzene & xylenes

Well Conc. must be 1 mg/l or less for soil concentrations to be protective of Method A drinking water standard.

SOUND ANALYTICAL EPH / VPH

VOLATILE PETROLEUM HYDROCARBONS

ALIPHATIC AND AROMATIC FRACTIONS
TARGET INDICATOR COMPOUNDS

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-4/S-1
Lab ID:	91369-07
Date Received:	7/27/00
Date Prepared:	8/7/00
Date Analyzed:	8/8/00
% Solids	83.51
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

			Recovery Limits	
Surrogate	% Recovery	Flags	Low	High
Trifluorotoluene	85.6		60	140
Bromofluorobenzene	89.6		60	140

Sample results are on a dry weight basis.

Analyte		Result (mg/kg)	PQL		Flags
MTBE	ND		0.22		
Benzene	ND		0.22		
Toluene		0.028	0.22		J
Ethylbenzene		0.085	0.22		J
m- & p-Xylene		0.085	0.44		J
o-Xylene		0.12	0.22		J
Total EC >8-10 Aromatics		1.5	1.1		
Total EC 5-6 Aliphatics	ND		0.66		
Total EC >6-8 Aliphatics	ND		0.44		
Total EC >8-10 Aliphatics		1.7	1.3	–	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - GB2342
Date Received:	-
Date Prepared:	8/7/00
Date Analyzed:	8/8/00
% Solids	
Dilution Factor	1

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
Trifluorotoluene	98.8		60	140
Bromofluorobenzene	104		60	140

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
MTBE	ND	0.2	
Benzene	ND	0.2	
Toluene	ND	0.2	
Ethylbenzene	ND	0.2	
m- & p-Xylene	ND	0.4	
o-Xylene	ND	0.2	
Total EC >8-10 Aromatics	ND	1	
Total EC 5-6 Aliphatics	ND	0.6	
Total EC >6-8 Aliphatics	ND	0.4	
Total EC >8-10 Aliphatics	ND	1.2	–

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	GB2342
Date Prepared:	8/7/00
Date Analyzed:	8/8/00
QC Batch ID:	GB2342

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
MTBE	0	2	1.98	99	1.96	98	-1	
Benzene	0	2	1.81	90.4	1.76	87.8	-2.9	
Toluene	0	2	2.15	108	2.07	104	-3.8	
Ethylbenzene	0	2	1.79	89.7	1.76	88	-1.9	
m- & p-Xylene	0	4	3.93	98.2	3.84	96	-2.3	
o-Xylene	0	2	1.79	89.4	1.75	87.6	-2	
Total EC >8-10 Aromatics	0	10	9.87	98.7	9.66	96.6	-2.2	
Total EC 5-6 Aliphatics	0	6	5.8	96.7	5.74	95.7	-1	
Total EC >6-8 Aliphatics	0	4	4.08	102	3.78	94.5	-7.6	
Total EC >8-10 Aliphatics	0	12	10.4	86.5	10.3	85.8	-0.81	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID:	007217-2
Lab ID:	91468-02
Date Prepared:	8/7/00
Date Analyzed:	8/8/00
QC Batch ID:	GB2342

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
MTBE	0	2.1	1.75	83	
Benzene	0	2.1	1.38	66	X7
Toluene	0	2.1	1.75	83	
Ethylbenzene	0.0739	2.1	1.51	68	X7
m- & p-Xylene	0.0499	4.2	3.44	80	
o-Xylene	0	2.11	1.66	79	
Total EC >8-10 Aromatics	1.17	11	9.79	82	
Total EC 5-6 Aliphatics	0	6.3	3.46	55	X7
Total EC >6-8 Aliphatics	0	4.2	2.97	70	
Total EC >8-10 Aliphatics	1.6	13	10.2	68	X7

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	007217-1
Lab ID:	91468-01
Date Prepared:	8/7/00
Date Analyzed:	8/8/00
QC Batch ID:	GB2342

WSDOE Method for Determination of Volatile Petroleum Hydrocarbon Fractions Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
MTBE	0	0	NC	
Benzene	0	0	NC	
Toluene	0.0563	0.058	-3.0	
Ethylbenzene	0.241	0.236	2.1	
m- & p-Xylene	0.28	0.314	-11.0	
o-Xylene	0.328	0.336	-2.4	
Total EC >8-10 Aromatics	6.42	7.07	-9.6	
Total EC 5-6 Aliphatics	0	0	NC	
Total EC >6-8 Aliphatics	1.21	1.2	0.8	
Total EC >8-10 Aliphatics	12.9	12.4	4.0	

SOUND ANALYTICAL EPH / VPH

EXTRACTABLE PETROLEUM HYDROCARBONS

ALIPHATIC AND AROMATIC FRACTIONS

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-4/S-1
Lab ID:	91369-07
Date Received:	7/27/00
Date Prepared:	8/8/00
Date Analyzed:	8/8/00
% Solids	83.51
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	Recovery Limits High
1-chlorooctadecane	97.8		50	150
o-terphenyl	96.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	Flags
>nC8-nC10 Aliphatic	6.6	5.1	
>nC10-nC12 Aliphatic	12	5.1	
>nC12-nC16 Aliphatic	83	5.1	
>nC16-nC21 Aliphatic	1000	5.1	
>nC21-nC34 Aliphatic	5200	5.1	
>nC10-nC12 Aromatic	ND	5.1	
>nC12-nC16 Aromatic	9.3	5.1	
>nC16-nC21 Aromatic	360	5.1	
>nC21-nC34 Aromatic	870	5.1	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike Report

Lab ID:	EP212
Date Prepared:	8/8/00
Date Analyzed:	8/8/00
QC Batch ID:	EP212

Extractable Petroleum Hydrocarbons (EPH) Modified

Parameter Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	Flag
>nC8-nC10 Aliphatic	0	20	22.3	113	
>nC10-nC12 Aliphatic	0	20	23.4	117	
>nC12-nC16 Aliphatic	0	18	21.7	119	
>nC16-nC21 Aliphatic	0	19	23.3	123	
>nC21-nC34 Aliphatic	0	18	24.1	131	
>nC10-nC12 Aromatic	0	18.4	16.8	92	
>nC12-nC16 Aromatic	0	19	19.9	106	
>nC16-nC21 Aromatic	0	20	26.3	129	
>nC21-nC34 Aromatic	0	16	18.9	122	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID:	TP-4/S-1
Lab ID:	91369-07
Date Prepared:	8/8/00
Date Analyzed:	8/8/00
QC Batch ID:	EP212

Extractable Petroleum Hydrocarbons (EPH) Modified

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
>nC8-nC10 Aliphatic	6.55	23	33.8	118	
>nC10-nC12 Aliphatic	12.3	23	43.7	134	X7a
>nC12-nC16 Aliphatic	83.2	21	122	182	X7a
>nC16-nC21 Aliphatic	1020	22	1250	1030	X7a
>nC21-nC34 Aliphatic	5200	21	6370	5440	X7a
>nC10-nC12 Aromatic	0	21.5	26.2	122	
>nC12-nC16 Aromatic	9.31	22	32	103	
>nC16-nC21 Aromatic	361	24	349	-49	X7a
>nC21-nC34 Aromatic	868	18	829	-214	X7a

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	TP-4/S-1
Lab ID:	91369-07
Date Prepared:	8/8/00
Date Analyzed:	8/8/00
QC Batch ID:	EP212

Extractable Petroleum Hydrocarbons (EPH) Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
>nC8-nC10 Aliphatic	6.55	6.34	3.3	
>nC10-nC12 Aliphatic	12.3	15	-20.0	
>nC12-nC16 Aliphatic	83.2	90.6	-8.5	
>nC16-nC21 Aliphatic	1020	1120	-9.3	
>nC21-nC34 Aliphatic	5200	5820	-11.0	
>nC10-nC12 Aromatic	0	5.22	-200.0	X4a
>nC12-nC16 Aromatic	9.31	9.58	-2.9	
>nC16-nC21 Aromatic	361	368	-1.9	
>nC21-nC34 Aromatic	868	901	-3.7	

SOUND ANALYTICAL EPA 8270 MOD.

EXTRACTABLE PETROLEUM HYDROCARBONS

TARGET PAH COMPOUNDS

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - EP212
Date Received:	-
Date Prepared:	8/8/00
Date Analyzed:	8/8/00
% Solids	
Dilution Factor	10

Extractable Petroleum Hydrocarbons (EPH) Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
1-chlorooctadecane	97.3		60	140
o-terphenyl	97.5		60	140

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	Flags
>nC8-nC10 Aliphatic	ND	4.5	
>nC10-nC12 Aliphatic	ND	4.5	
>nC12-nC16 Aliphatic	ND	4.5	
>nC16-nC21 Aliphatic	ND	4.5	
>nC21-nC34 Aliphatic	ND	4.5	
>nC10-nC12 Aromatic	ND	4.5	
>nC12-nC16 Aromatic	ND	4.5	
>nC16-nC21 Aromatic	ND	4.5	
>nC21-nC34 Aromatic	ND	4.5	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-4/S-1
Lab ID:	91369-07
Date Received:	7/27/00
Date Prepared:	8/8/00
Date Analyzed:	8/9/00
% Solids	83.51
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-Terphenyl	76.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	0.18	0.021	0.021	
2-Methylnaphthalene	0.23	0.021	0.018	
Acenaphthylene	ND	0.021	0.02	
Acenaphthene	ND	0.021	0.018	
Fluorene	ND	0.021	0.015	
Phenanthrene	ND	0.021	0.014	
Anthracene	ND	0.021	0.017	
Fluoranthene	ND	0.021	0.012	
Pyrene	ND	0.021	0.011	
Benzo(a)anthracene	ND	0.021	0.009	
Chrysene	ND	0.021	0.011	
Benzo(b)fluoranthene	ND	0.021	0.011	
Benzo(k)fluoranthene	ND	0.021	0.017	
Benzo(a)pyrene	ND	0.021	0.0084	
Indeno(1,2,3-cd)pyrene	ND	0.021	0.016	
Dibenz(a,h)anthracene	ND	0.021	0.011	
Benzo(g,h,i)perylene	ND	0.021	0.013	

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - EP212
Date Received:	-
Date Prepared:	8/8/00
Date Analyzed:	8/9/00
% Solids	
Dilution Factor	20

Targeted PAH Analytes by Method 8270 Modified.

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-Terphenyl	100		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
Naphthalene	ND	0.018	0.018	
2-Methylnaphthalene	ND	0.018	0.016	
Acenaphthylene	ND	0.018	0.017	
Acenaphthene	ND	0.018	0.016	
Fluorene	ND	0.018	0.013	
Phenanthrene	ND	0.018	0.012	
Anthracene	ND	0.018	0.015	
Fluoranthene	ND	0.018	0.011	
Pyrene	ND	0.018	0.01	
Benzo(a)anthracene	ND	0.018	0.008	
Chrysene	ND	0.018	0.0098	
Benzo(b)fluoranthene	ND	0.018	0.0095	
Benzo(k)fluoranthene	ND	0.018	0.015	
Benzo(a)pyrene	ND	0.018	0.0075	
Indeno(1,2,3-cd)pyrene	ND	0.018	0.014	
Dibenz(a,h)anthracene	ND	0.018	0.01	
Benzo(g,h,i)perylene	ND	0.018	0.011	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike Report

Lab ID:	EP212
Date Prepared:	8/8/00
Date Analyzed:	8/9/00
QC Batch ID:	EP212

Targeted PAH Analytes by Method 8270 Modified.

Parameter Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	Flag
Naphthalene	0	18	21.3	117	
Acenaphthene	0	18	18.6	102	
Pyrene	0	18	21	116	
Benzo(g,h,i)perylene	0	18	21.1	116	

SOUND ANALYTICAL SERVICES, INC.

Matrix Spike Report

Client Sample ID:	TP-4/S-1
Lab ID:	91369-07
Date Prepared:	8/8/00
Date Analyzed:	8/10/00
QC Batch ID:	EP212

Targeted PAH Analytes by Method 8270 Modified.

Parameter Name	Sample Result (mg/kg)	Spike Amount (mg/kg)	MS Result (mg/kg)	MS % Rec.	Flag
Naphthalene	0.178	21	29.4	137	X7
Acenaphthene	0	21	28.5	134	X7
Pyrene	0	21	27.4	129	
Benzo(g,h,i)perylene	0	21	17.4	82	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	TP-4/S-1
Lab ID:	91369-07
Date Prepared:	8/8/00
Date Analyzed:	8/9/00
QC Batch ID:	EP212

Targeted PAH Analytes by Method 8270 Modified.

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
Naphthalene	0.178	0.207	-15.0	
2-Methylnaphthalene	0.229	0.272	-17.0	
Acenaphthylene	0	0	NC	
Acenaphthene	0	0	NC	
Fluorene	0	0	NC	
Phenanthrene	0	0	NC	
Anthracene	0	0	NC	
Fluoranthene	0	0	NC	
Pyrene	0	0	NC	
Benzo(a)anthracene	0	0	NC	
Chrysene	0	0	NC	
Benzo(b)fluoranthene	0	0	NC	
Benzo(k)fluoranthene	0	0	NC	
Benzo(a)pyrene	0	0	NC	
Indeno(1,2,3-cd)pyrene	0	0	NC	
Dibenz(a,h)anthracene	0	0	NC	
Benzo(g,h,i)perylene	0	0	NC	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-1/S-1
Lab ID:	91369-01
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	93.69
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	95		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	9.8	
Motor Oil	29	39	20	J

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-2/S-1
Lab ID:	91369-03
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	94.26
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	96		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	10	
Motor Oil	28	40	20	J

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-3/S-1
Lab ID:	91369-04
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	88.01
Dilution Factor	100

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	-	X8	50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	1700	560	280	X1
Motor Oil	8200	1100	560	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-3/S-3
Lab ID:	91369-06
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	97.01
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

			Recovery Limits	
Surrogate	% Recovery	Flags	Low	High
o-terphenyl	97.8		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	19	9.4	
Motor Oil	26	38	19	J

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-4/S-1
Lab ID:	91369-07
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	83.51
Dilution Factor	100

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	-	X8	50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	3700	550	280	X1
Motor Oil	12000	1100	550	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-4/S-2
Lab ID:	91369-08
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	94.43
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	93.1		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	42	20	10	X1
Motor Oil	160	40	20	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-5/S-1
Lab ID:	91369-09
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	87.36
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	94.9		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	310	22	11	X1
Motor Oil	720	43	22	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-7/S-2
Lab ID:	91369-12
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	82.73
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	86.7		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	24	12	
Motor Oil	25	47	24	J

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-7/S-3
Lab ID:	91369-13
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	95.71
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	92.3		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	21	10	
Motor Oil	ND	42	21	

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-8/S-1
Lab ID:	91369-14
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	79.6
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	102		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	37	24	12	X1
Motor Oil	150	49	24	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-10/S-1
Lab ID:	91369-16
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	93.23
Dilution Factor	40

Diesel and Motor Oil by NWTPH-Dx Modified

			Recovery Limits	
Surrogate	% Recovery	Flags	Low	High
o-terphenyl	100		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	920	200	99	X1
Motor Oil	5100	390	200	

X1 - Chromatogram suggests this might be heavy oil

SOUND ANALYTICAL SERVICES, INC.

Client Name	Whitman Environmental Sciences
Client ID:	TP-10/S-2
Lab ID:	91369-17
Date Received:	7/27/00
Date Prepared:	7/28/00
Date Analyzed:	8/2/00
% Solids	94.89
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	84.5		50	150

Sample results are on a dry weight basis.

Analyte	Result (mg/kg)		PQL	MDL	Flags
#2 Diesel	ND		21	10	
Motor Oil		31	42	21	J

SOUND ANALYTICAL SERVICES, INC.

Lab ID:	Method Blank - DI2703
Date Received:	-
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
% Solids	
Dilution Factor	4

Diesel and Motor Oil by NWTPH-Dx Modified

Surrogate	% Recovery	Flags	Recovery Limits Low	High
o-terphenyl	103		50	150

Sample results are on an as received basis.

Analyte	Result (mg/kg)	PQL	MDL	Flags
#2 Diesel	ND	20	10	
Motor Oil	ND	40	20	

SOUND ANALYTICAL SERVICES, INC.

Blank Spike/Blank Spike Duplicate Report

Lab ID:	DI2703
Date Prepared:	7/28/00
Date Analyzed:	8/2/00
QC Batch ID:	DI2703

Diesel and Motor Oil by NWTPH-Dx Modified

Compound Name	Blank Result (mg/kg)	Spike Amount (mg/kg)	BS Result (mg/kg)	BS % Rec.	BSD Result (mg/kg)	BSD % Rec.	RPD	Flag
#2 Diesel	0	500	428	85.5	496	99.2	15	
Motor Oil	0	494	480	97.2	381	77.1	-23	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	TP-1/S-1
Lab ID:	91369-01
Date Prepared:	7/28/00
Date Analyzed:	8/1/00
QC Batch ID:	DI2703

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	0	0	NC	
Motor Oil	29	24.8	16.0	

SOUND ANALYTICAL SERVICES, INC.

Duplicate Report

Client Sample ID:	TP-10/S-1
Lab ID:	91369-16
Date Prepared:	7/28/00
Date Analyzed:	8/2/00
QC Batch ID:	DI2703

Diesel and Motor Oil by NWTPH-Dx Modified

Parameter Name	Sample Result (mg/kg)	Duplicate Result (mg/kg)	RPD %	Flag
#2 Diesel	923	930	-0.8	
Motor Oil	5080	5400	-6.1	