

### WATER AND WASTE UTILITIES DEPARTMENT

September 8, 1995

MS. JOYCE SMITH
Permits and Compliance Assistance
Underground Storage Tank Unit
Department of Ecology
P.O. Box 47655
Olympia, WA 98504-7600

SUBJECT: UNDERGROUND STORAGE TANKS - SITE NUMBER 009266

#### Dear Ms Smith:

As requested in your correspondence dated August 21, 1995, please find attached the following information regarding the underground storage tanks at the Boat Shop Marine.

- Permanent Closure/Change-in-Service Checklist
- Site Check/Site Assessment Checklist
- One copy of Site Assessment Report

Should you have any questions, please don't hesitate to call.

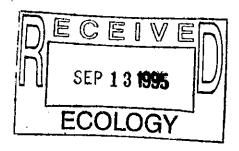
Sincerely,

KATHY A. MURPHY

Environmental Specialist III

Cathy A. Muzzl

Utilities and Environmental Engineering Division



Attachments

c: Roger Wright

#### Introduction 1.0

# 1.1

This report describes findings and actions taken for work associated with the removal of two Underground Storage Tanks. The work and investigation responds to regulatory requirements set forth by the United States Environmental Protection Agency (EPA) and in compliance with Chapter 173-360 WAC and Chapter 173-340 WAC of the State of Washington and enforced by the Department of Ecology (WSDOE).

#### Scope of Work 1.2

White Shield, Inc. (WSI) provided site assessment services for the removal of two 1,000 gallon gasoline USTs. R.H. Smith Distributing Company (Smith) provided the backhoo and decommissioning services. Superior Precision Analytical, Inc. (Superior) provided the laboratory analyses. The site assessment services provided by WSI technicians include collecting a total of 13 soil samples and two groundwater sample for laboratory analysis and preparing and shipping the samples for laboratory analysis.

#### Background Information 2,0

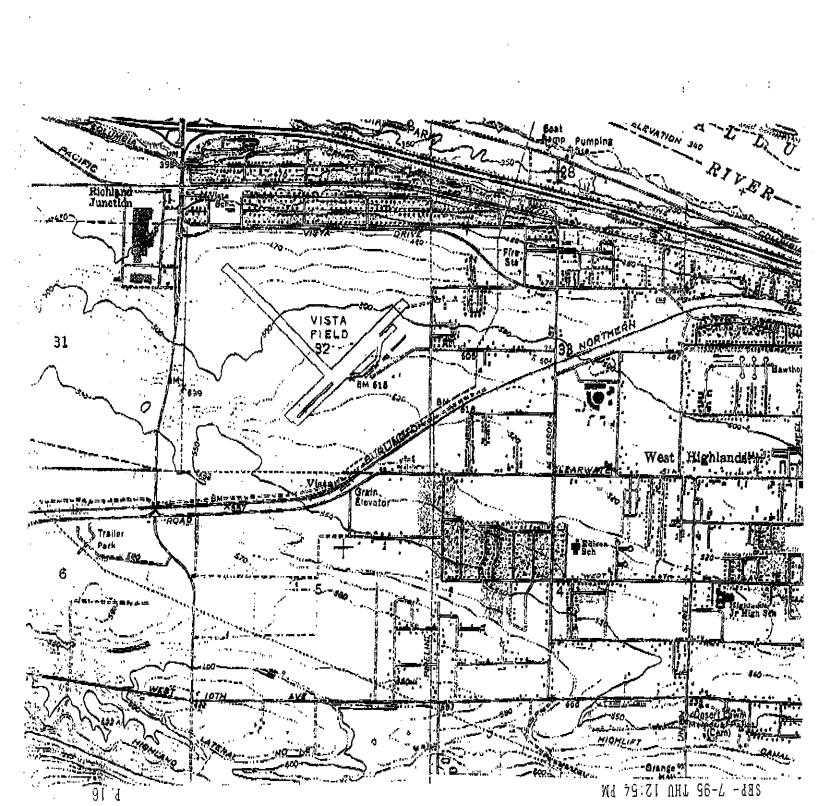
#### Site Location 2.1

The site is located at 1776 Columbia Drive SE, Richland, Washington. The site is described as the NW 1/4, Section 29, T9N, R29E, W.M. Refer to Figure 1, Site Location.

#### Site Description and History 2.2

The USTs are approximately 25 years old and have been out of service for at least 7 years. The USTs were located in a single excavation approximately 22 feet north of The Boat Shop and approximately 40 feet south of the Columbia River. The property is owned by the U.S. Army Corps of Engineers, leased to Benton County, sub-leased to the City of Richland and sub-leased under a concession agreement to The Boat Shop, which is owned by Lynne Koehler, owner of Sundown Marina. The entire property is bounded by a chain link fence. Refer to Figure 2, Site Plan.

The site is located approximately 12 feet above the Columbia River normal pool elevation of 340 feet above mean sea level. Columbia Park is located immediately east of the Refer to Photos 1, 2, and 3. The area to the west of the site is subject site. undeveloped.



## 2.3 Soils Description

The soil in the UST excavation is a dark brown silty loam.

## 3.0 Field Activities

# 3.1 General Investigative Methods

We visually inspected the USTs, the soil, the fill and the water in the excavation. We also used analytical laboratory analyses and interviews for data. The methods and general conclusions are discussed below.

# 3.1.1 Soil Sampling

The Sampling Plan (Figure 3) shows the location, depth and types of samples taken. In general, sample collection and control followed the following protocol:

- Select a laboratory certified clean sample jar for sample collection.
- 2. Using clean latex gloves and clean sampling utensils (tri-sodium phosphate, chlorine solution, and/or Alconox Detergent, tap water rinse and distilled water rinse cycle) tightly pack the soil sample in the sample jar (4 oz.) to the top of the jar to prevent any airspace. Collect co-located duplicate samples using the same procedure.
- 3. Label the jar with the soil sample number, the type of laboratory test required, the date, name of site and sampler. The sample is then entered on the chain of custody form.
- 4. Cool the sample in wet ice to approximately 4 degrees centigrade.
- 5. Repack the samples for shipment to the laboratory in blue ice and a cooler.
- Relinquish sample to courier for shipment to the laboratory.

# 3.1.2 Water Sampling

Water sampling followed the same general protocol as for soil sampling, except:

- 1. The water samples were collected with a clean disposable plastic bailer.
- 2. The water was transferred from the bailer, with a minimum of agitation, to two clean 40 ml vials and preserved with hydrochloric acid (HCl) for analysis for volatiles and a clean 500 ml plastic

Mental 1994 - Commission of the Commission of th RO, BOX 477, 401 GRANDRIDGE ROAD, GRANDVIEW, WA SESSO TELEPHONE; (808) 883-1144 VOICE (809) 828-4445 FAX

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	FIGURE 2 - SITE PLAN
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bottle and preserved with nitric acid (HNO<sub>3</sub>) for analysis for total lead. The containers were completely filled so that no headspace was present in the containers.

## 3.2 Tank Inspection

We removed attached soil and scale to completely expose the tanks. With the soil and scale removed, we carefully examined the tanks. Tank #1 had 2 holes measuring approximately 1/2 inch in diameter located approximately 6 inches from the bottom of the tank and one 2 inch long gash at the bottom of the tank beneath the fill spout. Tank #2 appeared to be sound and in good condition with minimal corrosion. Refer to Photos 4 and 5.

## 3.3 Tank Removals/Site Assessment

Charles Robinson, WSI, a site assessor registered with the Washington State Department of Ecology Underground Storage Tank Program, performed the site assessment on April 8, 1994 after the removal of the USTs. The tanks had been removed prior to the arrival of WSI. Keith Withrow and Rod Smith, R.H. Smith Distributing Company, said that some residual fuel leaked from the holes in Tank #1, described in Section 3.2, as the tank was being removed from the excavation.

The turbines and fill pipes were left in place while the tanks were removed. The pump turbines and the fuel dispensers were located in the center of the excavation area between the two tanks. After the tanks were removed approximately 100 gallons of additional fuel was pumped out of Tank #1 and approximately 20 gallons, out of Tank #2. Keith Withrow and Rod Smith, R.H. Smith Distributing, said that the two tanks were sloping down toward the turbines, hence the residual fuel accumulated at the turbine end of the tanks and could not be reached when the fuel was pumped out prior to the removal.

The USTs were located end to end in a single excavation measuring approximately 23 feet x 10 feet x 8 feet deep. There was no visible contamination in the soil and a slight sheen was visible on the surface of the water in the excavation. Refer to Photo 6. Approximately 20 cu. yds. of soil were removed from this area and stockpiled on the north side of the excavation. Refer to Photo 1. The west end of the stockpiled soil from the vicinity of Tank #1 had a gasoline odor, however, sample RHS-1094-110SP, from the west end of the stockpile, revealed no gasoline above the MTCA Cleanup Level.

A total of six soil samples, RHS-1094-101 through RHS-1094-106, were collected from the excavation for laboratory analysis. Three samples, RHS-1094-101, 102 and 106, were collected from the side walls of the Tank #1 excavation. RHS-1094-101 was collected from the west wall at a depth of 6 feet, RHS-1094-102, from the north wall at a depth of 5 feet, and RHS-1094-106, from the south at a depth of 5 feet. Because the

two tanks were end to end, no sample was collected from the east wall between the two tanks. Refer to Figure 2, Site Plan and Figure 3, Sample Location Sketch.

Three samples, RHS-1094-103 through 105, were collected from the side walls of the Tank #2 excavation. Sample RHS-1094-103 was collected from the north side wall at a depth of 5 feet, RHS-1094-104, from the east end wall at a depth of 6 feet, and RHS-1094-105, from the south side wall at a depth of 5 feet. Refer to Figure 2, Site Plan and Figure 3, Sample Location Sketch.

Three samples, RHS-1094-110SP through 112SP, were collected from the single stockpile for laboratory analysis.

Water was intersected in the excavation at a depth of 8 feet. Because of the water in the excavation, no soil samples were collected beneath either of the two tanks. A sump measuring approximately 3 feet square x 2 feet deep was excavated beneath the tanks, and 2 1/2 barrels, approximately 125 gallons, of contaminated water was pumped from the sump until no water remained in the excavation. The excavation was recharged with water in approximately 15 minutes. Sample RHS-1094-150W was collected with a disposable baller from the groundwater at a depth of 9 feet for laboratory analysis.

The water showed a light brown scum and a slight oily sheen, but did not have the multicolored rainbow appearance typical of free petroleum on water. Refer to Photo 6.

# 4.0 Soil Analysis/Initial Site Assessment

## 4.1 Excavation

The laboratory analytical results of the initial samples revealed no gasoline contamination in the soil in the side walls of the excavation above the MTCA cleanup levels. However, gasoline contamination was detected in the groundwater at the bottom of the excavation (Refer to Section 3.5). The analytical results revealed gasoline at 39000 ppb (39 ppm) in the groundwater within the excavation. Refer to Field Sampling Log. Appendix A, laboratory analytical results, Appendix B and Table 1.

# 4.2 Stockpile

The initial stockpile contains approximately 20 cu. yds. of soil. The laboratory analytical results of Samples RHS-1094-110SP through 112SP revealed no gasoline contamination above the MTCA cleanup level. Refer to Field Sampling Log, Appendix A, laboratory analytical results. Appendix B and Table 1. The stockpile is classified as Class 1 soil according Table V. End Use Criteria for Petroleum Contaminated Soils, from the WSDOE Guidance for Remediation of Releases from Underground Storage Tanks, dated July, 1991 (Appendix E).

#### Dispensers 4.3

The fuel dispensers the UST system was located within the UST excavation area between the two tanks. The fuel dispensers had been removed prior to the arrival of WSI. Piping associated with the UST system was completely contained within the UST excavation and was removed along with the UST. No additional soil or groundwater samples were collected.

## Groundwater Analysis/Site Assessment 5.0

A slight visible sheen was observed on the groundwater in the UST excavation. The groundwater appeared to be flowing in a southwesterly direction into the excavation. The laboratory analytical results revealed gasoline at 39,000 ppb (39 ppm) in the groundwater within the excavation. Refer to Field Sampling Log. Appendix A, laboratory analytical results, Appendix B and Table 1.

#### Cleanup Action 6.0

### Cleanup of petroleum contaminated water 6.1

In an attempt to remediate the petroleum contaminated groundwater, The Boat Shop set up a small water aeration system within the excavation. On May 17, 1994, Charles Robinson returned to the site to collect an additional water sample. The water was pumped from the excavation into two 55 gallon barrels. The water did not recharge as expected, so Charles Robinson returned to collect a sample on May 23, 1994 after the water had an opportunity to recharge.

Since the water had not recharged a water sample RHS-1094-350W was collected from the water remaining in the excavation. The laboratory analysis revealed no petroleum contamination above the MTCA cleanup levels.

#### Cleanup of petroleum contaminated soil 6.2

The laboratory analytical results revealed that there is no petroleum contaminated soil in the side walls of the UST excavation or under the dispensers. Stockpile #1 from the initial excavation may be used for backfilling the excavation.

On May 23, 1994, a slight petroleum odor was detected in the soil beneath the tanks, therefore, soil sample #RHS-1094-301S was collected at a depth of approximately 9 feet or approximately 1 foot below the soil/water interface. The laboratory results revealed 6300 ppm, therefore Terry Miller, WSI Geologist, returned to the site for further remediation and sampling.

When Ms. Miller arrived at the site the groundwater level had dropped to just below the bottom of the excavation. Rod Smlth had removed and stockpiled, Stockpile #2, approximately 7 cu. yds. of soil from the bottom of the excavation. Soil sample RHS-1094-302 was taken from the bottom of the excavation, just above the current 94 13:4 HITE SHIELD, INC.

groundwater level. Samples RHS-1094-303 and 304 were taken from Stockpile #2.

# 6.3 Residual Fuel

The residual fuel pumped from the two tanks was placed in 55 gallon barrels for recycling by R.H. Smith Distributors, Inc.

# 6.4 Soil & Groundwater Analysis/Final Cleanup

The laboratory analytical results of soil sample RHS-1094-302 from the bottom of the excavation and soil samples RHS-1094-303 and 304 from Stockpile #2 revealed no gasoline contamination below the MTCA Cleanup Levels. Stockpile #2 was taken to the City of Richland Landfill for disposal as a Class 2 soil.

The laboratory results reveal no gasoline contamination remaining in the soil or groundwater within the confines of the excavation.

# 7.0 Ground Water & Well Logs

The static level of the groundwater in the vicinity of this site is approximately 8 feet below the ground surface and is directly influenced by the rise and fall of the water level of the Columbia River, which is approximately 40 feet north of the UST excavation. Groundwater was intercepted in the excavation at a depth of 8 feet and subsequently fell approximately 1 foot to a depth of 9 feet. Refer to Section 3.3 and Table I & II for the sample location and laboratory analytical results of the groundwater in the excavation.

# 8.0 End Use of Soil

Stockpile #1, approximately 20 cu. yds., is classified as a class 1 soil and was used as backfill at the site, according the guidelines in Table V. End Use Criteria for Petroleum Contaminated Soils, from the WSDOE Guidance for Remediation of Releases from Underground Storage Tanks, dated July, 1991, and referenced in Appendix E. Stockpile #2, approximately 7 cu. yds., is classified as Class 2 soil and was transported to the City of Richland Landfill for disposal and/or remediation.

Table I, Initial Sample Locations and Results

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		SOU	94\\ -				
LOCATION AND DEPTH	Sample #	Garoline tag/kg	В	E.	T	X	Pb
Tank #1 6 fect/ W and	RHS-1094-101	nd	nd	nd	nd	nd	•
Tank #1 5 feet N wall	RHS-1094-102	rά	rd.	nd.	nd	nd	
Tank #2 5 feet/ N wall	RH\$-1094-103	nd	nd	nd	nd	nd	*
Tank #2 6 feet/ E end	RNS-1094-104	nd	nd	nd	n4	nd	*
Tank #2 5 feet/ 5 wall	RHS-1094-105	p.d.	nd.	kq	πά	na	*
Tank #1 5 feed S wall	RHS-1094-106	. nd	nd	nd	рd	nd	· · · · · ·
Bottom Excavation 9 feet	RHS-1094-301 (5/23/94)	6300	12	105	302	637	
Stockpile	RKS-1094-1103P	6	nd	,007	,012	.63	_
Swekpile	RHS-1094-111SP	, nó	.017	.012	,062	.069	
Stockpile	RHS-1094-1128P						
MTUA Cleamup Level	_	100	0.5	20	40	20	
	(	SALVALER.			12		
LOCATION AND DEPTH	SAMPLE #	Gasoline ug/L	B ug/l	. ng/1	T Type	. Wy/1	<u></u>
Excavation  9 feet	RHS-1094-150W	39	1,1	0.7	4.0	5.1	
MTCA Cleanup	T T T T T T T T T T T T T T T T T T T	1.0	5	30	40	20	

# Table II, Final Sample Locations and Results

nd	=	not	detected	*	<b>4</b>	test	not	ru
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Location and depth	Sample #	Gasolina mg/kg	Ŗ	æ	Т	x	Ph
Boxom 9 Kes	RHS-1094-302 (6/3/94)	66	nd	.25	27	4.1	
Bostom Exceptation 8 feet	RHS-1094-301 (5/23/94)	6300	12	302	105	637	
Bottom Recavation 9 feet	RH\$-1094-302 (6/3/94)	66	nd	.25	.27	4.3	*
Stockpile #2	RHS-1094-303	8.6	.16	nd	.27	.94	*
Stockpile #2	RHS-1094-304	36.4	.22	,36	,92	3.0	y de
MTCA Cleanup Level		100	0.5	20	40	20	250
	gaget (UE) gag	V/478-0			7		ng ang e Start
Location and depth	Sample #	Gaseline 11 <u>4</u> /L	n n/L	e ps/L	nā/T Ļ	nā\t X	Pb mg/L
Excavation 9 fact	RHS-1004-350W	nd	ρd	nd	Δď	ų	á
MTCA Cisanup Level	êlu .	1.0	5	30	40	20	.00.5

### 9.0 Conclusion

## 9.1 Summary

Based upon the analytical results and our investigation, WSI finds no evidence of petroleum concentrations remaining in the soil or groundwater within the confines of the excavation in excess of the Cleanup Levels as established by the Model Toxics Control Act (WAC 173-340-720). The existence of holes in Tank #1 provides evidence that the tank may have been leaking over an extended period of time and an unknown quantity of gasoline may have been released to the groundwater. There may be groundwater petroleum contamination in excess of the Cleanup Levels remaining within an unit.

1995/441(89)

distance surrounding the former tank site.

The excavation was backfilled with clean soil. No determination was made regarding the limits of groundwater contamination.

# 9.2 Recommendations

In order to meet the requirements of the Model Toxics Control Act (WAC 173-340-450 (3)(a)(iii) to document the possible migration of groundwater contamination, WSI recommends installing at least one groundwater monitoring well upgradient, north, from the UST site and at least two groundwater monitoring wells downgradient, southwest and southeast, from the UST site.

We recommend continued monitoring of the proposed groundwater monitoring wells to document the condition of the groundwater on the site.

## 10.0 Limitations

In performing our professional services, WSI uses a degree of care ordinarily exercised under similar circumstances by members of our profession. No warranty, expressed or implied, is made or intended. Our conclusions and recommendations, developed from our field and laboratory investigation reported herein, are based upon this firm's understanding of the project and are in concurrence with generally accepted practice.



# Superior Precision Analytical, Inc.

825 Arnold Drive, Suite 114 - Martinez, California 94553 - (510) 229-1512 / fax (510) 229-1526

WHITE SHIELD INC. Attn: STUART FRICKE

Project RHS-1094 Reported 17-April-1994

### WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE (WTPH-G)

Laboratory Number	elgmag	Identificat	Matrix					
91458 1	RH8-1094	1-101	· · · · · · · · · · · · · · · · · · ·		oil			
91458- 2	RHS-1094			Soil				
91455- 3	RHS-1094	4-103		Soil				
91458- 4	RHS-1094	<b>104</b>	•	soil soil soil				
91458- 5	RHS-1094	4-105	•					
91458- 6	RH\$-1094							
91458- 7	RHS-1094				oil .			
91458~ 8		4-111, 112	<b>9</b> P		pil			
91458- 9	RHS-1094	4+150W		Water				
		rs of analy						
Laboratory Number:	91450- 1	91458- 2	91458- 3	91458- 4	91458- 5			
Gasoline:	ND<1	ND<1	ND<1	ND«1	ND<1.			
Banzena		ND< .005	ND<.005					
Toluene:	ND<.005		ND<.005					
Ethyl Benzene:	ND<.005	ND<.005	ND<.005	ND<.005				
Total Xylenes:	ND<.005	ND<.005 ND<.005	ND<.005	ND<.005				
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	mg/k <b>g</b>			
Surrogate & Recov	veries							
Trifluorotoluene (SS	3); 129	102	87	106	106			
Laboratory Number:	91458- 6	91458- 7	91458- 8	91458- 9				
Gasoline:	ND<1	6	ND<1	39000 .				
Bonzene:		WD<.005		1100				
Toluene:	ND<.005		0.062	4600				
Ethyl Benzene:	ND< .005	0.007	0.012	730				
Total Xylenes:	NDc,005			5100				
Concentration:	mg/ <b>kg</b>	mg/kg	mg/ <b>kg</b>	ug/L				
Surrogate % Recov Trifluorotoluene (88		96	110	88				
	<b>15</b> – .							

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# Superior Precision Analytical, Inc.

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WHITE SHIELD INC. Attn: STUART FRICKE

Project RHS-1094 Reported 17-April-1994

# WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE (WTPH-G)

Laboratory Number	Sample I	dentificat	ion	Matrix		
91458- 1	RHS-1094	-101	Soil			
91458- 2	RHS-1094	-102			51 <u>1</u>	
91458- 3	RHS-1094	-103	•		Sil	
91458- 4	RHS-1094	-104	•		al	
91458- 5	RHS-1094	-105			oil	
91458- 6	RHS-1094	-106			il	
91458- 7	RHS-1094				11	
91458- 8		111, 1129	<b>"</b>			
91458- 9	RHS-1094		*	Soil Water		
	result:	s of analy	sis			
Laboratory Number:	91458- 1	91458- 2	91458- 3	91458- 4	91458~ 5	
Gasoline:	ND<1	ND<1	ND<1	ND<1	ND<1	
Benzene:	ND<.005			ND<.005		
Toluene:	ND<.005			ND<.005		
Ethyl Benzene:	ND<.005		ND<.005	ND<.005		
Total Xylenes:	ND<.005	MD4.005	ND<.005	ND<.005		
Concentration:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
Surrogate & Reco						
Trifluorotoluene (S	S): 129	102	87	1)6	106	
Laboratory Number:	91458- 6	91458- 7	91458- 8	91458- 9		
Gasoline:	ND<1	6	ND<1	39000		
Benzene:	ND<.005	ND<.005	0.017	1100		
Toluene:		0.012	0.062	4600		
Ethyl Benzene:	ND<.005	0.507	0.012	730		
Total Xylenes:	ND<.005	0.63	0.069	51.00		
Concentration:	mg/kg	-uâ∖ <b>k</b> â	wā\rā	ug/L		
Surrogate % Reco Trifluorotoluene (S	veries S): 108	96	110	86		



# Superior Precision Analytical, Inc.

825 Arnold Drive, Suite 114 • Martinez, California 94553 • (510) 229-1512 / fax (510) 229-1526

WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE (WTPH-G)
Quality Assurance and Control Data - Soil

Laboratory Number 91458

Compound	Method Blank (mg/kg)	RL (mg/kg)	Spika Recovery (%)	Limits (%)	RPD (%)
Gasoline: Benzene: Toluene: Ethyl Benzene: Total Xylenes:	ND<1 ND<.005 ND<.005 ND<.005 ND<.005	1 .005 .005 .005	91/73 95/93 100/92 79/91 93/97	70-130 70-130 70-130 70-130 70-130	10% 2% 8% 14% 4%

Definitions:
ND = Not Detected
RPD = Relative Percent Difference
RL = Reporting Limit
mg/kg = Parts per million (ppm)
QC File No. 91458

Page 3 of 4

# 229-1512 / fax [510] 229-1526 WASHINGTON TOTAL PETROLEUM HYDROCARBONS - GASOLINE

(WTPH-C) Quality Assurance and Control Data - Water

Laboratory Number 91458

Compound	Method Blank (ug/L)	RL (ug/L)	Spike Recovery (%)	Limits (%)	RPD (%)	
Gasoline: Bensene: Toluene: Ethyl Bensene: Total Xylenes:	ND<50 ND<0.5 ND<0.5 ND<0.5 ND<0.5	50 0.5 0.5 0.5	126/126 88/90 90/95 83/86 95/100	70-130 70-130 70-130 70-130 70-130	0% 2% 5% 4% 5%	-

Definitions:

ND - Not Detected

RPD = Relative Percent Difference

RL = Reporting Limit ug/L = Parts per billion (ppb)

QC File No. 91458

Addount Manager

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Certified Laboratories