FS

Groundwater Monitoring Well Sampling Report

December 31, 2012

Former Columbia Oil/Sgt. Bubs Site

1345 Lee Boulevard
Richland, WA 99352

Report Prepared on
January 15, 2013

Submitted To:

Don Roberts
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Project Number: 110-004-07

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1.0 Introduction

White Shield, Inc (WSI) has prepared this report for Mr. Don Roberts, the owner of Roberts Construction, to document the sampling and analysis of four groundwater monitoring wells on the former Columbia Oil/Sgt Bubs facility site located at 1345 Lee Boulevard Richland, WA (Figure 1). Sample collection occurred on December 31, 2012. These wells were installed in order to sample and evaluate groundwater beneath the site to determine the extent of contamination by petroleum hydrocarbons from former underground storage tanks (USTs) that were removed from the site in March of 2000.

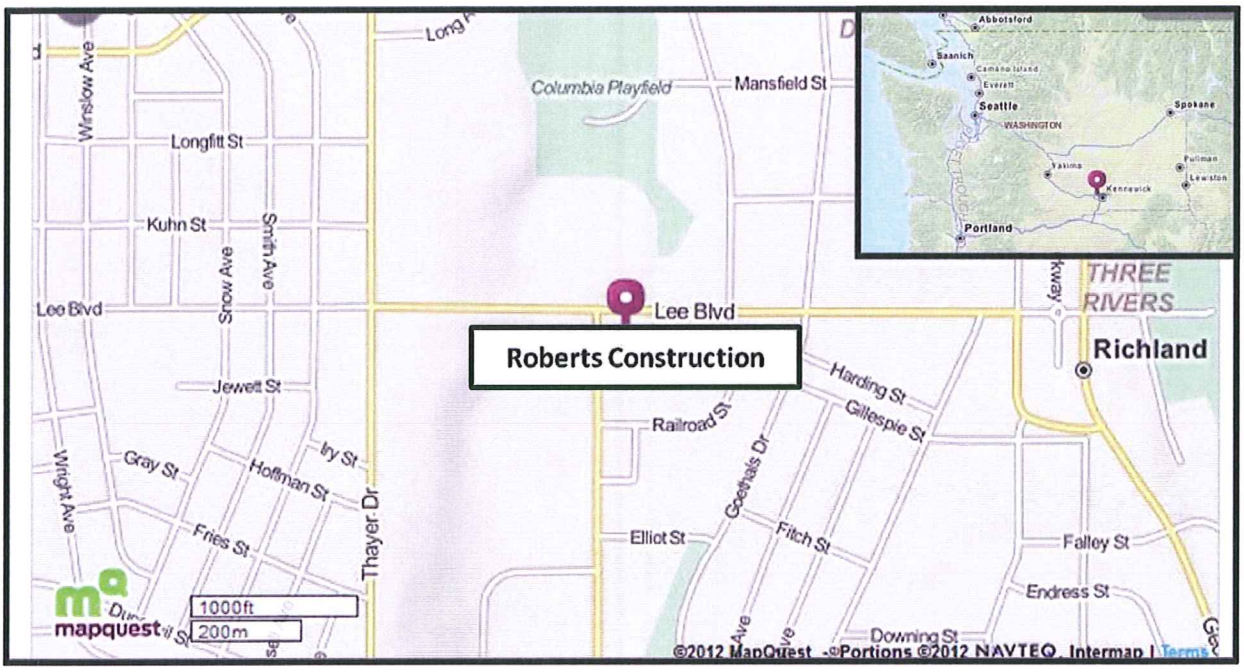

Figure 1 Map of Roberts Construction site within Richland, WA

2.0 Site Location and Background

According to the Benton County Assessor's Office, the 0.723 acre site is located at 1345 Lee Boulevard in Richland, Benton County, Washington (parcel #111983020403001). Site location is diagrammed in Figure 1. This address can be located in the Southwest ¼ of the Southwest ¼ of Section 11, Township 9 North, Range 28 East. The parcel is bordered on the south by commercial development, to the east by a "Quick Lube" oil change facility, a car wash and other commercial development and to the west and north is the Richland High School.

UST closure report prepared by WSI in June 2000 notes that the site was formerly a bulk fuel storage and service station facility operated by Columbia Oil Company from the 1950's to the mid 1980's. USTs at the site were used for the storage of petroleum products for distribution to local service stations and for sale to the public. Although exact operation

dates are unknown, the USTs were in service throughout the property's operation as Columbia Oil Company. The dispensers associated with the UST systems were removed in the 1980's, when the site's use as a bulk fuel facility was discontinued. Retail businesses including Sgt. Bubs' (military surplus store) and Ryder Sausage Haus occupied the site at the time of the UST closure in 2000. The current owner, Roberts Construction purchased the property in 2007.

In March 2000, WSI removed seven USTs from the site: three 8,000 gallon gasoline USTs, one 10,000 gallon diesel fuel UST, one 5,000 gallon gasoline UST, one 500 gallon used oil UST, and one 250 gallon heating oil UST. With the exception of the 250 gallon heating oil tank, all of the tanks were located on the east side of the building at the site. The 250 gallon tank was located on the west side of the building. The gasoline, diesel and used oil tanks were removed from two separate excavations at the site. Figure 2 diagrams the location of these tanks.

During the removal of the USTs, it was discovered that the soil and groundwater were both contaminated by petroleum hydrocarbons. Approximately 425 cubic yards of petroleum-contaminated soils were removed and disposed of from the site. The concentration of gasoline range hydrocarbons varied from 270mg/kg to 14,000 mg/kg in the northern excavation and the concentration of diesel range hydrocarbons varied from 91mg/kg to 6,100mg/kg in the southern excavation. Low levels of diesel range contamination was found in the heating oil tank excavation west of the building but the level (44mg.kg) were well below the Washington State Department of Ecology (Ecology) Model Toxics Cleanup Act (MTCA) cleanup standard of 222mg/kg in effect at the time. However, because contamination adjacent to the building on site appeared to be recent and logistical difficulties involved in removal, contamination above the MTCA cleanup levels remained in situ at this location.

During excavation, groundwater was encountered at approximately 13' below ground surface (bgs). One water sample was collected from each excavation unit. Results of sampling revealed a gasoline concentration of 170,000µg/l in the southern excavation. Because soil containing petroleum contamination remained in the ground and the groundwater appeared to be contaminated WSI recommended that groundwater monitoring wells be installed at the site.

In April of 2005, Blue Mountain Environmental Consulting was contracted to perform a Phase 2 Environmental Site Assessment (ESA) at the site. Blue Mountain installed seven "Geoprobe®" borings along the northern and eastern perimeter of the site (Figure 2). One of the borings (Boring 3) was not advanced beyond 2' bgs because of refusal. The rest of the borings were advanced to approximately 15' to 20' bgs. Soil was sampled in four of the borings that were advanced to targeted depth (borings 2,4,6 and 7). Water was sampled in two of the borings (borings 1 and 6).

Results of soil sampling showed contamination below MTCA cleanup level, while water sampling results did not reveal groundwater contamination at Boring 6 located at the northwest corner of the site. However, at Boring 1 in the north-central portion of the site, the water sample contained gasoline at a concentration 24,000 µg/l as well as ethylbenzene at 960µg/l. The MTCA Method A cleanup level for gasoline is 800µg/l if benzene is present and 1000µg/l if benzene is not present. The cleanup level for ethylbenzene is 700µg/l. The results of the Blue Mountain sampling are presented in Table 1. Based on this Phase 2 ESA, Blue Mountain recommended the installation of three to four monitoring wells at the site.

Contaminate (mg/kg) soil (µg/l) water	Soil Sample Number				Water Sample Number	
	SB317-2-01 (Boring 2)	SB317-4-01 (Boring 4)	SB317-6-02 (Boring 6)	SB317-7-01 (Boring 7)	SB317-1-01 (Boring 1)	SB317-6-01 (Boring 6)
NWTPH-Gx	ND	ND	ND	ND	2,400	ND
Toluene	0.0023	ND	0.0016	0.0014	40	0.25
Ethylbenzene	ND	ND	0.0019	0.0042	960	0.42
m,p-Xylene	ND	ND	ND	0.0052	1,000	0.71
o-Xylene	ND	ND	ND	ND	54	ND
n-Propylbenzene	ND	ND	ND	0.0018	320	0.57
1,3,5-Trimethylbenzene	0.0024	ND	ND	0.0028	440	0.94
1,2,4-Trimethylbenzene	0.0069	ND	ND	0.0078	1,400	2.2
p-Isopropyltoluene	ND	ND	ND	ND	17	0.21
Naphthalene	0.0069	ND	ND	0.0017	190	ND
Chloroform	ND	ND	ND	ND	ND	0.36
Acetone	ND	0.097	0.02	0.028		
Benzene	ND	ND	0.0023	0.0028		
Dichloropropane	ND	ND	ND	0.001		
2-Butanone	ND	ND	ND	0.0064		

Table 1 Blue Mountain Sample Results. Soil samples are recorded in mg/kg, while water sample results are recorded in µg/l. Results listed in red exceed MTCA Method A cleanup levels. ND=Non Detect

On May 4, 2009, the Washington State Department of Ecology (Ecology) sent DR Roberts Enterprises LLC a letter advising them that they are considered a potentially liable party for the contaminated soil and water beneath the property. On May 24, 2009, Ecology sent a second letter indicating that the monitoring wells recommended by White Shield and Blue Mountain were now required to be installed and sampled quarterly.

On June 7 and 8, 2010, WSI Installed and sampled four monitor wells at the site. The water from the wells was tested for the presence of petroleum contamination following Table 830-1 in the MTCA regulations. Figure 2 shows the location of the monitor wells.

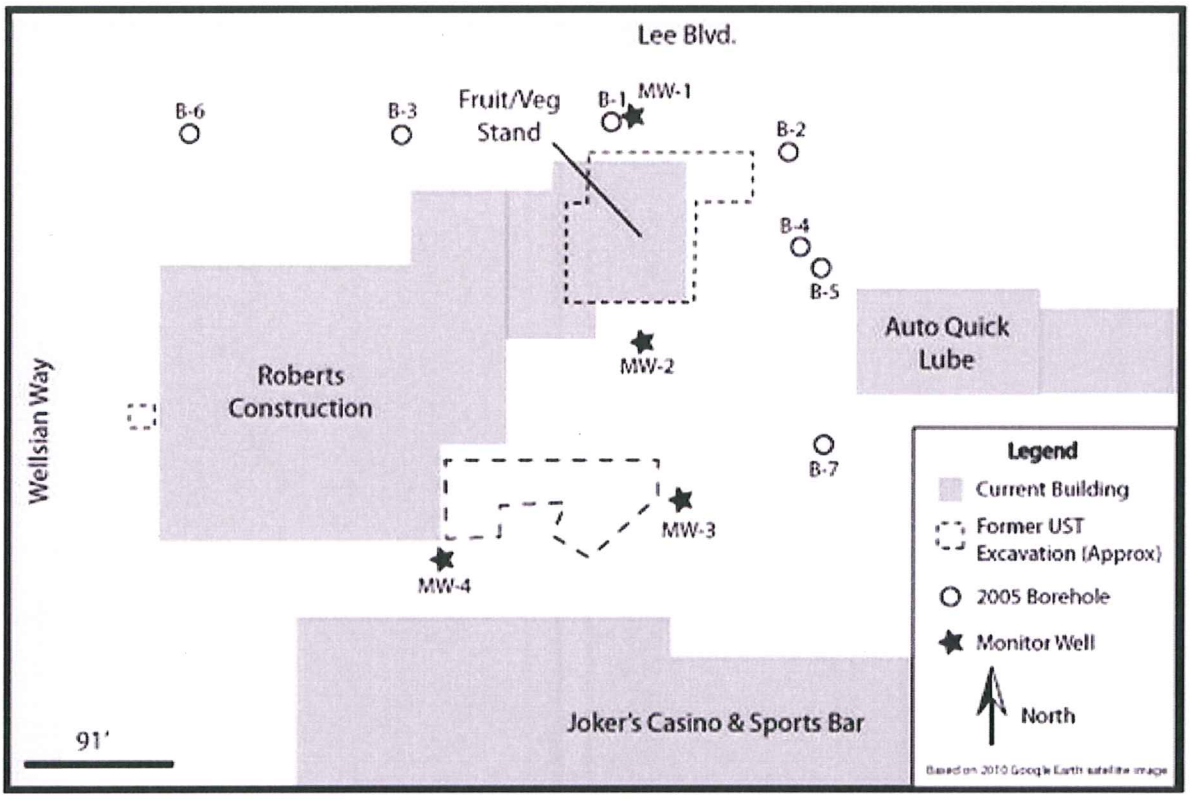

Figure 2 Site map for Roberts Construction detailing location of current buildings, historic USTs, former borehole and current monitor well locations.

Water sampling during well installation showed TPH-G and TPH-Dx compounds were present in each well location. Ethylbenzene was also detected in the sample from Monitoring Well 2 (MW-2). The laboratory indicated that the diesel in the samples appeared to have originated from weathered gasoline, not a true diesel fuel. Groundwater samples from MW-1 and MW-2 also contained naphthalene. None of the concentrations detected in the groundwater exceeded the MTCA Method A cleanup levels for the respective compound. Appendix A presents the results of groundwater samples.

On March 11, 2011, WSI again sampled the four monitoring wells at the site. The results of that sampling showed that TPH-Gasoline was present in the samples from MW-1 and MW-2 at 681µg/l and 187µg/l respectively. Diesel fuel, heavy oil, benzene, toluene, ethylbenzene and xylenes were not detected at the laboratory reporting limit. Gasoline detected in water samples from MW-1 and MW-2 did not exceed the MTCA Method A cleanup level of 1,000µg/l for gasoline when benzene is not present.

On July 19, 2011 WSI performed the second quarterly sampling event for 2011. The results of that sampling showed that gasoline contamination was present below MTCA Method A

cleanup levels in MW-1. Gasoline was not detected in the other wells. Diesel was not present in any of the wells.

A third sampling of the Roberts Construction monitoring wells was performed on January 30, 2012. This event recorded both gasoline and ethylbenzene present in MW-1 and MW-2 at levels below MTCA Method A Cleanup Standards. Both gasoline and diesel contamination were reported in MW-3. MW-4 showed 240µg/l diesel contamination. However, it was noted that the pattern of peaks recorded in the laboratory reports for MW-3 and MW-4 did not resemble diesel contamination.

Results of monitor well sampling on May 30, 2012 showed that gasoline contamination in wells MW-1 and MW-4 are elevated from levels recorded in January 2012. Gasoline contamination in well MW-2 has decreased, while levels in MW-3 have remained non detect. Present concentrations in all four monitoring wells are below MTCA Method A cleanup levels for all analytes tested.

3.0 Methodology

3.1 Groundwater Sampling

The following methodology was used to sample monitoring wells at the site.

3.1.1 Water Level Measurement

Prior to purging, the depth to water and total well depths were measured using the following method:

- A clean electronic water level probe was inserted into the well until it reached water. The depth to water from the designated measuring point at the top of the casing was measured to the nearest 0.01'bgs. The measuring point was located on the north side of the well casing indicated with black marker. Water levels are presented along with historic water levels in Appendix C.
- The total depth of the well was also measured using the water level indicator. The same datum was used for both water level and well depth.

3.1.2 Purging

After initial measurements were recorded, the volume of water (gallons) in the casings was calculated by multiplying the thickness of the water column by 0.16. The monitoring wells were then purged using a peristaltic pump to remove any stagnant water and assure that a representative sample of the groundwater was obtained. Purging used the "low flow" method, pumping water at a rate of 500ml per minute. Pump intake was set approximately 1.5' from the bottom of the well.

Based on past experience by White Shield staff at this site, three well volumes were purged before sampling for each well, which was approximately 5 gallons per well. Purge water was sealed in 5-gallon buckets and stored on site pending the results of laboratory analysis. Parameter results of previous samplings are compared to historic data in Appendix B.

3.1.3 Sample Collection

After purging was complete, groundwater samples were collected using the following protocol:

- Samples were collected from the discharge tube of the peristaltic pump and placed into laboratory provided sample bottles.
- Each sample container was labeled with the sample number, type of laboratory analysis required, the date, time collected, name of site, and the name of the sampler
- After collection, the samples were placed in a cooler at approximately 4 degrees Celsius for delivery to the project laboratory (Libby Environmental, a chemical analytical laboratory in Olympia, WA).
- The sample label information was entered into an industry standard chain of custody/analytical request form to be shipped with the samples.
- The samples were delivered to the laboratory via UPS, where they were determined to be uncompromised before being analyzed as requested.
- Sample PW-1 (Purge Water) was collected approximately half way through the purge cycle and not with sample MW-1. Both samples utilized the same sampling methodology as all MW samples.

3.2 Quality Control

Samples were collected according to industry protocols for the collection, documentation, and handling of samples. In the field:

- All above ground sample tubing used to collect samples was flushed thoroughly with de-ionized water to prevent potential cross-contamination. For further assurance, the portion of sampling tube in the well was replaced with new tubing from the same spool between the sampling of each well.
- Samples were placed into pre-cleaned laboratory provided sample containers.
- Samples were placed immediately into receptacles containing ice in order to maintain sample integrity.

All sample labels were checked for accuracy and compared with the chain of custody documentation to provide sample documentation quality assurance and quality

control (QA/QC). Samples were transported and submitted under standard chain of custody protocols, and were kept refrigerated until delivery to the project laboratory. The laboratory provided standard QA/QC, which included: surrogate recoveries for each sample, method blank results, and duplicate analyses.

4.0 Results and Conclusions

The following section of this report outlines results of groundwater sampling at the former Columbia Oil/Sgt Bubs facility located at 1345 Lee Blvd in Richland, WA which occurred on December 31, 2012. Tasks performed during sampling included:

- Measurement of water levels in all four monitor wells
- Collection of groundwater samples for analysis

4.1 Groundwater Level Results

Water levels were measured in all wells prior to sampling any of the wells. The depths to water and deviation from the previous sampling event for each well are presented in Table 2. Water levels for the end of December, 31, 2012 ranged from 0.06' to 0.40' higher than levels recorded in September 2012. The table in Appendix C shows historic water levels from June 8, 2010 to December 31, 2012.

Well Number	Water Level (Feet below top of casing)	Deviation from previous sampling (feet)
MW-1	14.00	+0.06
MW-2	13.11	+0.19
MW-3	13.19	+0.16
MW-4	13.03	+0.40

Table 2 Results of water level testing and deviation from previous sampling.

Based on the elevation of groundwater at the time of sampling, a groundwater elevation map was created, and the flow directions and gradient calculated (Figure 3). The flow pattern was created representing flow between the monitoring wells. Results of the flow direction and water level contour map shown in Figure 3 indicate a southeasterly flow direction for all wells. Hydraulic gradients range from 0.003 in the northern portion of the site to a less steep gradient of 0.002 in the southern portion of the site.

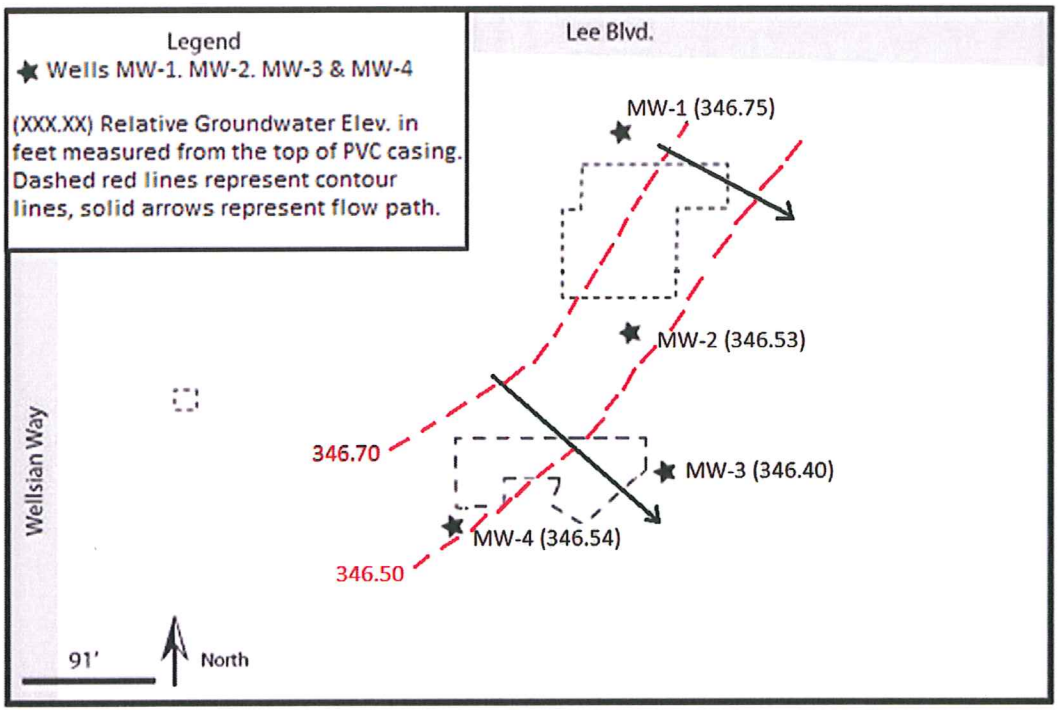

Figure 3 Groundwater flow paths for the Roberts Construction Site

4.2 Groundwater Sample Results

Groundwater samples were collected from each monitoring well and submitted for analysis. Appendix D represents a summary of results as well as MTCA Method A Cleanup Levels for each contaminate. The original laboratory report is located in Appendix E.

Results of groundwater sampling in May 2012 revealed gasoline contamination levels were elevated from those recorded at the previous sampling event (January 2012). Gasoline contamination in May 2012 was 560µg/l in MW-1, 119µg/l in MW-2, and 142µg/l in MW-4, but not detected in MW-3. In the September sampling the concentration of gasoline had declined slightly in MW-1 to 531µg/l, and gasoline was not detected in any of the other 3 monitoring wells. In the December 31, 2012 sampling the concentration of gasoline had increased to 779µg/l in MW-1, which is 46% higher in concentration than in the previous quarterly sampling. Also, in this quarterly sampling the water soluble BTEX components were higher in MW-1, and benzene was still below the MTCA Method A Cleanup Level of 5µg/l as it was in the previous September sampling. None of the other three monitoring wells had gasoline or any BTEX analytes detected, and they were reported as non-detect (ND). The reported concentration of gasoline in MW-1 is just below the MTCA Method A Cleanup Level of 800µg/l when benzene is present. The concentration of gasoline in

the purge water (sample PW-1) from MW-1 was slightly (6 %) above the MTCA Method A Cleanup Level of 800µg/l when benzene is present.

Carcinogenic PAHs (cPAHs), naphthalene and lead were not analyzed for, as former concentrations had been consistently non detect, or extremely low.

4.3 Conclusions

On December 31, 2012, WSI sampled four groundwater monitoring wells at the former Columbia Oil/Sgt. Bubs facility. The depth to water within these wells ranged from 13.03 to 14.00 feet bgs. Results of sampling show that gasoline contamination in well MW-1 is elevated from levels recorded in September 2012. Gasoline contamination and related analytes were not detected in the other three monitoring wells in December 2012. Present concentrations in these three (MW-2, MW-3, and MW-4) monitoring wells are below detection limits and, therefore, below MTCA Method A cleanup levels for all analytes tested; however, gasoline and benzene concentrations in MW-1 are just below the MTCA Method A cleanup levels, and the purgewater from this well for the first time had a concentration 6% more than the cleanup standard for gasoline.

5.0 Recommendations

Based on the conclusions presented in this report, WSI makes the following recommendations:

- **Submit sample results to the Washington State Department of Ecology.**
  Because the Washington State Department of Ecology has issued "PLP" and "Compliance" letters, to DR Roberts Enterprises LLC, DR Roberts Enterprises LLC has entered the voluntary cleanup program, the results of this sampling event should be submitted to Ecology for their records. Submittal of this report to Ecology's Central Regional Office will satisfy this recommendation.

- **Sample and Report Monitoring Wells Quarterly**
  Ecology's compliance letter indicates that groundwater needs to be sampled quarterly for up to five years, or until four consecutive quarters of concentration below the MTCA cleanup level is achieved. The results of this sampling event are below the cleanup levels in MW-1 and all monitoring wells, thus completing the required four consecutive quarters of sampling. It is recommended that the client proceed with completion of the VCP program to achieve a letter from Ecology for No Further Action, NFA. Work may include: a letter of acknowledgement from Ecology after review of the documentation, completion of a terrestrial Ecological Evaluation Exclusion Form to avoid a covenant on the NFA, and data entry into the EIM data base.

6.0 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. Should any questions arise from this report, please contact White Shield, Inc at 509.547.0100.

7.0 Qualifications and Signatures of Environmental Professionals

Mr. Stuart Fricke, White Shield owner and president, performed senior oversight and quality control on this project. Mr. Ronald Schalla has over 30 years of expertise in hydrologic, engineering, and geologic data collection and evaluation for soil and ground-water contaminant assessment. His major responsibilities have included: management of CERCLA and RCRA projects; development of innovative and cost-effective data collection/analysis methods and remediation technologies; and evaluations in support of implementation of hazardous waste management activities.

Respectfully submitted,

White Shield, Inc.

Stuart Fricke
President

Ronald Schalla
Hydrogeologist, LHG

State of Washington
Hydrogeologist
1189
Licensed Geologist
RONALD SCHALLA

APPENDIX A

PREVIOUS RESULTS OF GROUNDWATER SAMPLING

Groun ater Monitoring Well Sampling- December 31, 2012 ***January 15, 2013***
Former Columbia Oil/Sgt. Bubs Site
Richland, WA

Well	Sample Number	Sample Depth (bgs)	Date	NW TPH-Gx	Volatile Aromatic Hydrocarbons (µg/l)					NWTHP-Dx (µg/l)		cPAHs		Total Lead (µg/l)
				Gasoline (µg/l)	Benzene	Tolu ene	Ethylbenzene	Xylenes	Other HVOCs	Diesel	Oil	Naphthalene	Other cPAHs	
MW-1	MW-1	24'	6/8/2010	400	ND	ND	ND	ND	ND	390x	ND	0.18	ND	ND
		24'	3/11/2011	681	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
			7/19/2011	325	ND*	ND	ND	ND	NA	ND	ND	NA	NA	NA
			1/30/2012	106	ND	ND	1.7	ND	NA	ND	ND	NA	NA	NA
		23.5'	5/31/2012	560	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
		23.5'	9/28/2012	531	2.6	5.2	3.5	7.2	NA	ND	NA	NA	NA	NA
		23.5'	12/31/2012	779	3.29	7.07	6.21	22.9	NA	ND	NA	NA	NA	NA
MW-2	MW-2	24'	6/8/2010	400	ND	ND	8.3	ND	ND	200x	ND	0.91	ND	ND
		24'	3/11/2011	187	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
			7/19/2011	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA
			1/30/2012	670	ND	ND	1.0	ND	NA	ND	ND	NA	NA	NA
		23.5'	5/31/2012	119	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
		23.5'	9/28/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
		23.5'	12/31/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MW-3	MW-3	23'	6/8/2010	570	ND	ND	ND	ND	ND	200x	ND	ND	ND	ND
		24'	3/11/2011	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
			7/19/2011	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA
			1/30/2012	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA
		23.5'	5/31/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
		23.5'	9/28/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
		23.5'	12/31/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MW-4	MW-4	24'	6/8/2010	ND	ND	ND	ND	ND	ND	200xx	ND	ND	ND	ND
		24'	3/11/2011	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
			7/19/2011	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA
			1/30/2012	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA
		23.5'	5/31/2012	142	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
		23.5'	9/28/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
		23.5'	12/31/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
Purge Water	PW-1	--	3/11/2011	219	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA
Drum	PW-2	--	7/19/2011	ND	ND	ND	ND	ND	NA	ND	ND**	NA	NA	NA
			1/30/2012	ND	ND	ND	ND	ND	NA	ND	ND	NA	NA	NA
MTCA Method A Cleanup Standards				800/1000	5	1,00 0	700	1,000	Varies	500	500	160	Varies	15
Practical Quantitation Limits				100	0.35	1	1	2	1	50	250	0.1	0.1	1

Previous results of groundwater sampling at the former Columbia Oil site as conducted by WSI.

X- detections are due to overlap from gasoline range materials
XX- Pattern of peaks does not resemble diesel
*Note Benzene was detected at 2.2µg/l in original analysis by EPA 8021B and re-run with results of 2.5µg/l. It was re-run again using EPA 8260C with a result of ND
**Oil was detected in Sample at 512µg/l but was not expected. Sample was re-run using silica gel Cleanup with a result of ND

APPENDIX B

HISTORIC SAMPLING PARAMETERS

Date	Location	Dissolved Oxygen (mg/l)	pH	Conductivity (mS/cm)	Temp (C)
6/8/2010	**MW-1**	**1.67**	**7.43**		**18.0**
3/11/2011		**0/57**	**7.05**		**16.5**
7/19/2011		--	--		--
1/30/2012		**0.84**	**7.29**		**17.0**
5/30/2012		**0.92**	**6.07**	--	**18.5**
6/8/2010	**MW-2**	**1.29**	**7.62**		**17.1**
3/11/2011		**0.63**	**7.04**		**15.5**
7/19/2011		--	--		--
1/30/2012		**0.51**	**7.43**		**15.9**
5/30/2012		**0.94**	**6.16**	--	**17.8**
6/8/2010	**MW-3**	**0.97**	**7.88**		**16.6**
3/11/2011		**0.87**	**7.18**		**16.1**
7/19/2011		**0.62**	**6.63**		**16.3**
1/30/2012		**1.47**	**7.43**		**16.0**
5/30/2012		**0.95**	**5.99**	--	**17.4**
6/8/2010	**MW-4**	**2.20**	**7.10**		**15.7**
3/11/2011		**0.61**	**6.99**		**14.7**
7/19/2011		**0.77**	**6.33**		**15.5**
1/30/2012		**0.62**	**7.15**		**16.6**
5/30/2012		**0.98**	**6.31**	--	**17.8**

APPENDIX C

GROUNDWATER LEVEL ELEVATIONS

Groun[illegible]ater Monitoring Well Sampling- December 31, 2012 *January 15, 2013*
Former Columbia Oil/Sgt. Bubs Site
Richland, WA

Well	Northing	Easting	Lat.	Long.	Date	Relative Ground Surface Elevation	Relative Elevation Top of Casing	Total Depth (ft) TOC	Depth to Water (ft) TOC	Relative Groundwater Elevation (ft)
MW-1	345669.51	1947863.797	46ø 16'29.09709"N	199ø17'02.75668"W	6/8/2010	361.05	360.75	25.03	13.53	347.22
					3/11/2011				13.56	347.19
					7/19/2011				14.30	346.45
					1/30/2012				14.18	346.57
					5/30/2012				14.91	346.14
					9/28/2012				14.06	346.69
					12/31/2012				14.00	346.75
MW-2	345597.759	1947867.062	46ø16'28.39188"N	119ø17'02.72586"W	6/8/2010	360.00	359.64	24.95	12.63	347.01
					3/11/2011				12.59	347.05
					7/19/2011				13.58	346.06
					1/30/2012				13.30	346.34
					5/30/2012				14.11	345.89
					9/28/2012				13.30	346.70
					12/31/2012				13.11	346.53
MW-3	345549.006	1947881.441	46ø16'27.90846"N	119ø17'02.53188"W	6/8/2010	359.88	359.59	24.33	12.66	346.93
					3/11/2011				12.60	346.99
					7/19/2011				13.65	346.94
					1/30/2012				13.29	346.34
					5/30/2012				14.45	345.43
					9/28/2012				13.35	346.53
					12/31/2012				13.19	346.40
MW-4	345535.650	1947808.976	46ø16'27.78764"N	119ø17'03.56635"W	6/8/2010	359.88	359.57	24.90	12.45	347.12
					3/11/2011				12.34	347.23
					7/19/2011				13.48	346.09
					1/30/2012				13.05	346.52
					5/30/2012				14.00	345.88
					9/28/2012				13.43	346.45
					12/31/2012				13.03	346.54

APPENDIX D

RESULTS OF GROUNDWATER SAMPLING DECEMBER 31, 2012 AND THE PREVIOUS TWO QUARTERLY SAMPLINGS IN 2012

Groun ater Monitoring Well Sampling- December 31, 2012 ***January 15, 2013***
Former Columbia Oil/Sgt. Bubs Site
Richland, WA

Well	Sample Number	Sample Depth (bgs)	Date	NW TPH-Gx	Volatile Aromatic Hydrocarbons (µg/l)					NWTHP-Dx (µg/l)		cPAHs		Total Lead (µg/l)
				Gasoline (µg/l)	Benzene	Toluene	Ethylbenzene	Xylenes	Other HVOCs	Diesel	Oil	Naphthalene	Other cPAHs	
MW-1	MW-1	23.5'	5/31/2012	560	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MW-2	MW-2	23.5'	5/31/2012	119	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MW-3	MW-3	23.5'	5/31/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MW-4	MW-4	23.5'	5/31/2012	142	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
Purge Water Drum	PW-1	--	5/31/2012	616	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MTCA Method A Cleanup Standards				800/1000	5	1,000	700	1,000	Varies	500	500	160	Varies	15
Practical Quantitation Limits				100	0.35	1	1	2	1	50	250	0.1	0.1	1

Results of groundwater sampling from the event on May 31, 2012

Well	Sample Number	Sample Depth (bgs)	Date	NW TPH-Gx	Volatile Aromatic Hydrocarbons (µg/l)					NWTHP-Dx (µg/l)		cPAHs		Total Lead (µg/l)
				Gasoline (µg/l)	Benzene	Toluene	Ethylbenzene	Xylenes	Other HVOCs	Diesel	Oil	Naphthalene	Other cPAHs	
MW-1	MW-1	23.5'	9/28/2012	531	2.6	5.2	3.5	7.2	NA	ND	NA	NA	NA	NA
MW-2	MW-2	23.5'	9/28/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MW-3	MW-3	23.5'	9/28/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MW-4	MW-4	23.5'	9/28/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
Purge Water Drum	PW-1	--	9/28/2012	566	2.0	4.9	4.2	8.4	NA	ND	NA	NA	NA	NA
MTCA Method A Cleanup Standards				800/1000	5	1,000	700	1,000	Varies	500	500	160	Varies	15
Practical Quantitation Limits				100	0.35	1	1	2	1	50	250	0.1	0.1	1

Results of groundwater sampling from the event on September 28, 2012

Well	Sample Number	Sample Depth (bgs)	Date	NW TPH-Gx	Volatile Aromatic Hydrocarbons (µg/l)					NWTHP-Dx (µg/l)		cPAHs		Total Lead (µg/l)
				Gasoline (µg/l)	Benzene	Toluene	Ethylbenzene	Xylenes	Other HVOCs	Diesel	Oil	Naphthalene	Other cPAHs	
MW-1	MW-1	23.5'	12/31/2012	779	3.29	7.07	6.21	22.9	NA	ND	NA	NA	NA	NA
MW-2	MW-2	23.5'	12/31/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MW-3	MW-3	23.5'	12/31/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
MW-4	MW-4	23.5'	12/31/2012	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA
Purge Water Drum	PW-1	--	12/31/2012	861	4.83	10.6	6.23	17.4	NA	ND	NA	NA	NA	NA
MTCA Method A Cleanup Standards				800/1000	5	1,000	700	1,000	Varies	500	500	160	Varies	15
Practical Quantitation Limits				100	0.35	1	1	2	1	50	250	0.1	0.1	1

APPENDIX E

LABORATORY RESULTS AND REPORT

Libby Environmental, Inc.

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ROBERTS CONSTRUCTION PROJECT
White Shield, Inc.
Richland, Washington
Libby Project # L130103-2
Client Project # 110-004-07

Analyses of Gasoline (NWTPH-Gx) & BTEX (EPA Method 8021B) in Water

Sample Number	Date Analyzed	Benzene (µg/l)	Toluene (µg/l)	Ethylbenzene (µg/l)	Xylenes (µg/l)	Gasoline (µg/l)	Surrogate Recovery (%)
Method Blank	1/9/13	nd	nd	nd	nd	nd	109
LCS	1/9/13	95%	91%				99
MW-1-123112	1/9/13	3.29	7.07	6.21	22.9	779	109
MW-2-123112	1/9/13	nd	nd	nd	nd	nd	106
MW-3-123112	1/9/13	nd	nd	nd	nd	nd	85
MW-4-123112	1/9/13	nd	nd	nd	nd	nd	98
PW-1-123112	1/9/13	4.83	10.6	6.23	17.4	861	108
'W-1-123112 Dup	1/9/13	4.80	10.1	6.38	17.8	837	114
MW-2-123112 MS	1/9/13	110%	109%				83
Practical Quantitation Limit		1	2	1	3	100	

"nd" Indicates not detected at the listed detection limits.
"int" Indicates that interference prevents determination.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Trifluorotoluene): 65% TO 135%

ANALYSES PERFORMED BY: Paul Burke