

August 10, 2016

Mr. Steve Teel  
Washington State Department of Ecology  
Southwest Regional Office  
300 Desmond Drive SE  
Lacey, WA 98503

**SUBJECT: SECOND QUARTER 2016 GROUNDWATER COMPLIANCE MONITORING REPORT  
Former Olympia Dry Cleaners Site  
601 Union Avenue SE  
Olympia, Washington**

Dear Mr. Teel:

This quarterly groundwater compliance monitoring report is the second report for the Former Olympia Dry Cleaners Site (Site) prepared on behalf of the Estate of Katherine Burleson and GJG, LLC, to meet the reporting requirements of Consent Decree No. 14-2-02104-3 (State of Washington 2014) and the Cleanup Action Plan (CAP; Ecology 2014). The Site is located at 606 Union Avenue SE in Olympia, Washington (Figure 1).

In September 2015, an excavation to remove accessible soil contaminated with chlorinated solvents was completed in accordance with the Remedial Action Work Plan (RAWP; Floyd Snider 2015a) and RAWP Addendum (Floyd|Snider 2015b). After the remedial action was completed, a Compliance Monitoring Plan (CMP) for post-remediation monitoring was developed in coordination with the Washington State Department of Ecology (Ecology; Floyd|Snider 2016). The objective of this report is to document the results of the second post-remediation quarterly groundwater monitoring completed in June 2016. The cumulative results from these quarterly monitoring events will be used to assess the effectiveness of the cleanup action and will be further documented in an annual report to be prepared after the fourth round of monitoring.

#### **COMPLIANCE MONITORING SAMPLE COLLECTION**

This section describes the groundwater and seep water sampling performed during the June 2016 monitoring event. Except for the deviations noted in the section “Deviations from Compliance Monitoring Plan,” the field methods used during the monitoring event were in substantive accordance with the CMP. The compliance monitoring locations are shown on Figure 2.

### Monitoring Well Groundwater Sampling

Groundwater samples were collected from the five compliance wells (identified in the CMP) on June 9, 2016. Groundwater samples were collected from monitoring wells MW-06, MW-09, MW-11, MW-13, and MW-14 using standard low-flow sampling methods described in the CMP. Monitoring well MW-14 (artesian) was flowing much slower than it had during the March event; therefore, a low-flow sample was collected. A field duplicate was also collected from MW-14. The groundwater sample collection forms are included in Attachment 1.

The samples were submitted to Fremont Analytical, Inc., in Seattle, Washington, under chain of custody for analysis of the chemicals of concern (COCs) at the Site, which are tetrachloroethene (PCE), trichloroethene (TCE), *cis*- and *trans*-1,2-dichloroethene (DCE), 1,1-DCE, and vinyl chloride.

### French Drain Water Sampling

At the time of the quarterly monitoring, the French drain sampling standpipe that collects artesian water downgradient of the excavated area was found to have approximately 1 foot of accumulated water. The volume of the entire drain pipe, approximately 20 gallons of water, was purged using a 1 gallon-per-minute (gpm) submersible pump. The water level in the stand pipe showed minimal drawdown during purging, suggesting a recharge rate of about 1 gpm. In accordance with the CMP, a water sample (FD-01) was collected from the standpipe after purging.

The sample was submitted to Fremont Analytical, Inc. under chain of custody for analysis of PCE, TCE, *cis*- and *trans*-1,2-DCE, 1,1-DCE, and vinyl chloride.

### Seep Water Sampling

The groundwater seep observed during the March 2016 monitoring was observed to still be flowing between curb sections along the curb line of Cherry Street SE north of the main excavation area and the former seep area, between the concrete curb and the asphalt roadway (Figure 2). The seep is being expressed through a small void in the asphalt under the curb and was noted to be flowing at a slower rate than in March. A grab sample was collected from the seep on June 9, 2016. An additional seep grab sample (Seep-CB) was collected downhill at the point of discharge on the southern end of the catch basin on the west side of Cherry Street SE (Figure 2).

The samples were submitted to Fremont Analytical, Inc. under chain of custody for analysis of PCE, TCE, *cis*- and *trans*-1,2-DCE, 1,1-DCE, and vinyl chloride.

### Data Validation

A Compliance Screening, Tier 1 data quality review was performed on volatile organic compound data resulting from laboratory analysis by USEPA Method 8260C. The analytical data were

validated in accordance with the USEPA *National Functional Guidelines for Superfund Organic Methods Data Review* (USEPA 2014).

A total of two seep samples and seven groundwater samples were submitted in one sample delivery group (FB1606154) to Fremont Analytical, Inc. for chemical analysis. For all analyses, the analytical holding times were met and the method blanks had no detections. The surrogate, matrix spike (MS), matrix spike duplicate (MSD), laboratory control sample recoveries, MS/MSD, and sample/sample duplicate relative percent differences all met USEPA requirements.

No qualifiers were added to the analytical results based on the data quality review. Data are determined to be of acceptable quality for use as reported by the laboratory.

## COMPLIANCE MONITORING ANALYTICAL RESULTS

The analytical results from the June 2016 groundwater monitoring are provided in Table 1, along with data from the first quarter monitoring event in March 2016 and the pre-remediation monitoring well sampling in August 2013 (SES 2013) for comparison. Both the March and June 2016 groundwater monitoring results are also shown on Figure 3. A copy of the laboratory report is included in Attachment 2.

### Monitoring Well Groundwater Results

Groundwater collected from monitoring well MW-14 contained TCE, PCE, *cis*-1,2-DCE, and vinyl chloride at concentrations greater than their respective cleanup levels, consistent with the March 2016 data. MW-14 is located south of the main excavation area and downgradient of residual soil contamination underlying the Cherry Street Q-Tip Trust building. This well is located within the artesian groundwater aquifer where groundwater flow direction has likely been altered by the use of impermeable controlled density fill as backfill in the main excavation area.

The groundwater sample collected from well MW-09 contained *cis*-1,2-DCE and vinyl chloride at concentrations greater than the CUL and at slightly greater concentrations than in March 2016. MW-09 is located in the alleyway between the Former Olympia Dry Cleaners building and the Cherry Street Q-Tip Trust building, downgradient of the secondary excavation area.

Groundwater samples collected from monitoring wells MW-06, MW-11, and MW-13 had no detectable COC concentrations, consistent with both the March 2016 and the pre-remediation monitoring data.

### French Drain Water Results

The water sample from the artesian aquifer south of the excavation, which is captured by the French drain sampling location (FD-01) had PCE, TCE, *cis*-1,2-DCE, and vinyl chloride concentrations exceeding their respective cleanup levels. Similar to MW-14, the French drain

collects water from the artesian aquifer south of the primary excavation area, and the water quality at both FD-01 and MW-14 in June 2016 was fairly similar to past sample dates.

### **Seep Water Results**

The seep water samples collected from the curb line had PCE and vinyl chloride concentrations exceeding their respective cleanup levels, with water quality similar (but less than) the groundwater collected from MW-14 and FD-01. The concentrations of all analytes are nearly unchanged from the previous monitoring period in March 2016.

The water sample taken at seep discharge location, Seep-CB, had no exceedances for the tested analytes, confirming that the water quality at the point of discharge meets the CULs.

### **DEVIATIONS FROM COMPLIANCE MONITORING PLAN**

During the June 2016 compliance monitoring, there were no significant deviations from the CMP except for the additional sample location, Seep-CB, to confirm the water quality at the point of discharge (at the catch basin).

### **CORRECTIVE ACTIONS**

The seep water sample collected from the curb line on June 9, 2016, confirmed that PCE and vinyl chloride are present at concentrations greater than their respective cleanup levels. Per the CMP, contingency actions for addressing the groundwater seep identified between the curb line and the asphalt roadway along Cherry Street SE (Figure 2) are currently being evaluated.

On May 27, 2016, a local asphalt company (Affordable Asphalt) cleaned the curb line in the seep area using compressed air, and attempted to apply a rubberized sealant between the curb and the roadway. The seal started south of the seep, but the ground was too wet in the seep area for the seal to adhere and they were not able to get a good seal and complete the application.

During the June sampling event, Floyd|Snider observed the seep flow while purging the French drain and it appeared that pumping from the artesian aquifer at a fairly low rate (about 1 to 2 gpm) did not have an effect on the seep flow.

On June 9, 2016, an attempt was made at plugging the seep area with hydraulic cement, but again it could not set up and the seep continued to flow around the cement. Hydraulic cement is an expanding product suitable for wet use, but may not be suitable for v-shaped cracks. Further attempts at plugging the seep with hydraulic cement may require enlargement and undermining of the crack between the curb and the roadway for the hydraulic cement plug to be effective.

Floyd|Snider has continued to evaluate other options for sealing or treating the seep area, and has been in communication with the City of Olympia (City) regarding potential options, as the seep is discharging in the City roadway. A passive treatment option (activated carbon filter sock) was selected as the best option, due to limited disruption of the City street. The filter sock is

made of a heavy duty geotextile fabric sock that contains activated carbon. The specification for the filter sock is included as Attachment 3. It is 9 feet long and would be tied down tight (using bolts) in the gutter in front of the seep and immediately downslope. A small berm would be placed on the up-hill side so stormwater is diverted around the sock. A City right-of-way Obstruction Permit will be required for the installation of a filter sock. The City will require that the filter sock be bolted to the curb and routinely checked to make sure it doesn't become detached from the curb, that it is immediately replaced if it gets damaged, and that, if possible, it is removed within 6 months of the date of permit issuance and bolt holes filled. This option was verbally discussed with Ecology on July 27, 2016. The application for the right-of-way Obstruction Permit was submitted for preliminary review on August 9, 2016. The sock will be installed within 1 week of permit issuance.

If the filter sock is not effective in treating the seep water, and if seep water quality does not improve in the next 6 months, then more aggressive treatment or sealing options will be evaluated in consultation with Ecology and the City.

#### COMPLIANCE MONITORING SCHEDULE

The next quarterly monitoring event, which will be completed in September 2016, will consist of the collection of groundwater samples from the five compliance wells and water samples from the French drain and seep. In addition, a sample will be collected from the discharge of the filter sock to document treatment efficiency of the filter sock. The final 2016 quarterly monitoring event will be completed in December 2016. The results of the 2016 compliance monitoring will be documented in an Annual Summary Report, which will be submitted to Ecology after the first year of compliance monitoring has been completed.

#### REFERENCES

Floyd|Snider. 2015a. *Former Olympia Dry Cleaners Site Remedial Action Work Plan*. Prepared for Washington State Department of Ecology. 15 April.

\_\_\_\_\_. 2015b. *Memorandum Re: Remedial Action Work Plan Addendum, Former Olympia Dry Cleaners Site*. Prepared for Steve Teel, Washington State Department of Ecology. 22 June.

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State of Washington. 2014. *Consent Decree No. 14-2-02104-3, State of Washington, Department of Ecology v. The Estate of Katherine Burleson and GJG, LLC*. Thurston County Superior Court. 31 October.

U.S. Environmental Protection Agency (USEPA). 2014. *National Functional Guidelines for Superfund Organic Methods Data Review*. Prepared by the Office of Superfund Remediation and Technology Innovation. OSWER 9355.0-132/EPA-540-R-014-002. August.

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Sincerely yours,

FLOYD | SNIDER



Lynn Grochala  
Senior Environmental Scientist

Encl.:     Table 1 Groundwater Monitoring Data  
             Figure 1 Site Vicinity Map  
             Figure 2 Source Removal Areas and Compliance Monitoring Locations  
             Figure 3 March and June 2016 Groundwater Monitoring Results  
             Attachment 1 Field Forms  
             Attachment 2 Laboratory Data  
             Attachment 3 Filter Sock Specification

## Table

**Table 1**  
**Groundwater Monitoring Data<sup>1</sup>**

Sample Location	Status	Date	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)	<i>cis</i> -1,2-Dichloroethene (µg/L)	<i>trans</i> -1,2-Dichloroethene (µg/L)	1,1-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)
MW-06	Pre-remediation <sup>1</sup>	8/13/2013	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	Post-remediation	3/12/2016	1.0 U	0.50 U	1.0 U	1.0 U	1.0 U	0.20 U
		6/9/2016	1.0 U	0.50 U	1.0 U	1.0 U	1.0 U	0.20 U
MW-09	Pre-remediation	8/13/2013	1.0 U	1.0 U	4.1	1.0 U	1.0 U	<b>2.7</b>
	Post-remediation	3/12/2016	1.0 U	2.2	11	1.0 U	1.0 U	<b>5.0</b>
		6/9/2016	1.0 U	3.2	<b>26</b>	1.0 U	1.0 U	<b>9.8</b>
MW-11	Pre-remediation	8/13/2013	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	Post-remediation	3/12/2016	1.0 U	0.50 U	1.0 U	1.0 U	1.0 U	0.20 U
		6/9/2016	1.0 U	0.50 U	1.0 U	1.0 U	1.0 U	0.20 U
MW-13	Pre-remediation	8/13/2013	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	Post-remediation	3/12/2016	1.0 U	0.50 U	1.0 U	1.0 U	1.0 U	0.20 U
		6/9/2016	1.0 U	0.50 U	1.0 U	1.0 U	1.0 U	0.20 U
MW-14	Pre-remediation	8/13/2013	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.20 U
	Post-remediation	3/8/2016	<b>52</b>	<b>17</b>	<b>23</b>	1.0 U	1.0 U	<b>2.4</b>
		6/9/2016 <sup>2</sup>	<b>99</b>	<b>34</b>	<b>33</b>	1.0 U	1.0 U	<b>2.8</b>
FD-01	Post-remediation	3/12/2016	<b>46</b>	<b>26</b>	<b>160</b>	1.0	1.0 U	<b>36</b>
		6/9/2016	<b>31</b>	<b>34</b>	<b>428</b>	2.4	1.2	<b>87</b>
Groundwater Cleanup Level (µg/L)			5.0	5.0	16	100	7.0	0.20
SEEP	Post-remediation	3/8/2016	<b>33</b>	15	110	1.0 U	1.0 U	<b>15</b>
		3/30/2016	<b>23</b>	17	160	1.0 U	1.0 U	<b>22</b>
		6/9/2016	<b>16</b>	18	170	1.3	1.0 U	<b>20</b>
SEEP-CB	Post-remediation	6/9/2016	1.0 U	0.50 U	1.8	1.0 U	1.0 U	0.20 U
Surface Water Cleanup Level (µg/L)			3.3	30	NA	10,000	3.2	2.4

## Notes:

**BOLD** Indicates a concentration that exceeds the Site cleanup level.

1 Pre-remediation groundwater monitoring data collected by Sound Earth Strategies.

2 Field duplicate taken at this location on this date, the greatest concentration between the two samples is shown.

## Abbreviation:

µg/L Micrograms per liter

## Qualifier:

U The analyte was not detected at the given reporting limit.



## Figures

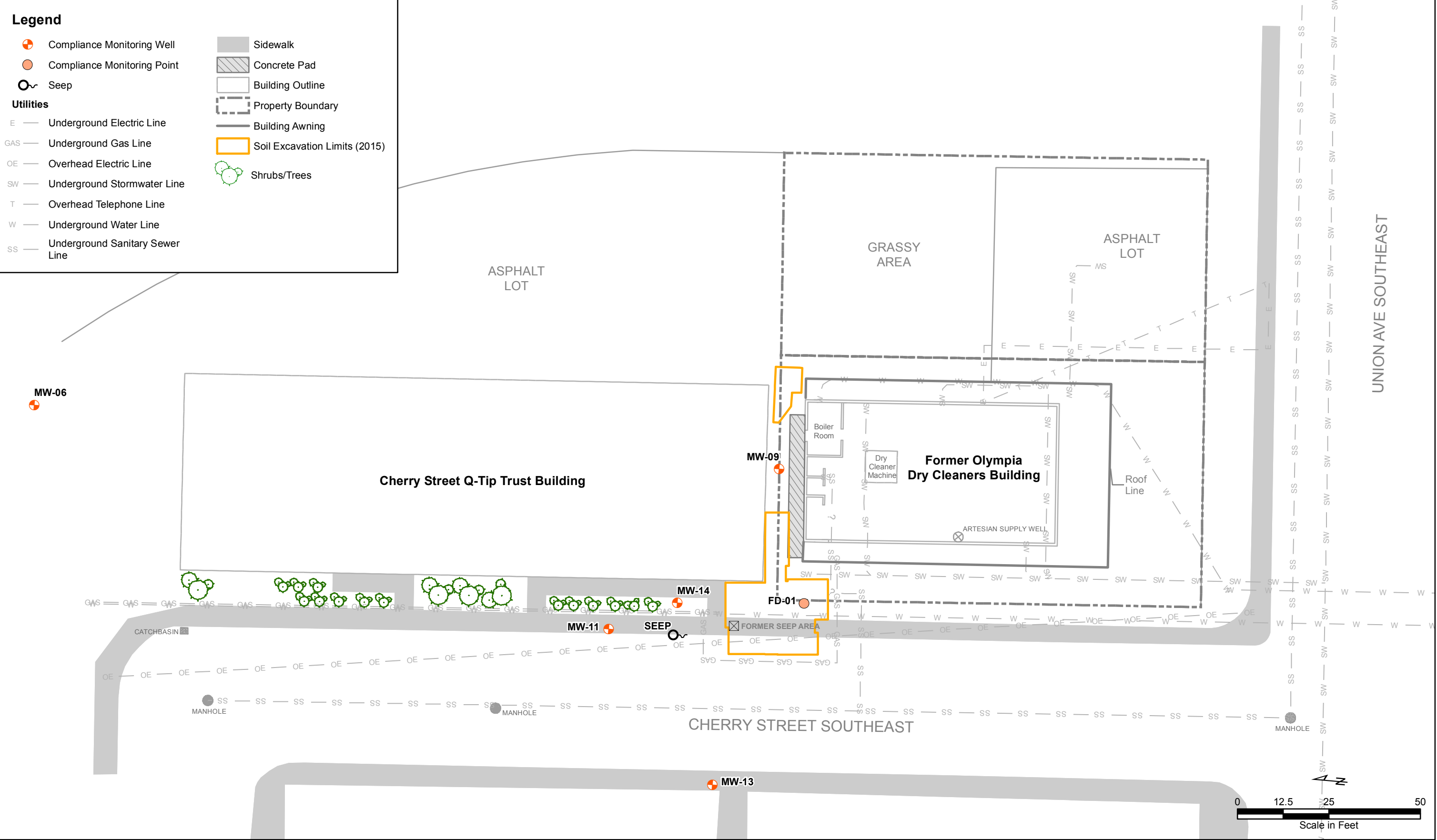


Note:  
· Orthoimage provided by Esri 2016.

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**Quarterly Groundwater  
Compliance Monitoring  
Former Olympia  
Dry Cleaners Site  
Olympia, Washington**

**Figure 1  
Site Vicinity Map**





Legend

- Compliance Monitoring Well

Compliance Monitoring Point

Seep

Sidewalk

Concrete Pad

Building Outline

Property Boundary

Building

Soil Excavation Limits (2015)

Shrubs/Trees
- Notes:
  - All results reported in µg/L.
  - Bold** indicates a concentration that exceeds the cleanup level.
- Abbreviations:

DCE = Dichloroethene  
µg/L = Micrograms per liter  
PCE = Tetrachloroethene  
TCE = Trichloroethene
- Qualifier:

U = Analyte was not detected at the given reporting limit.

MW-06		
Analyte	March 2016	June 2016
PCE	1.0 U	1.0 U
TCE	0.50 U	0.50 U
cis-1,2-DCE	1.0 U	1.0 U
trans-1,2-DCE	1.0 U	1.0 U
1,1-DCE	1.0 U	1.0 U
Vinyl Chloride	0.20 U	0.20 U

Cherry Street Q-Tip Trust Building

MW-11		
Analyte	March 2016	June 2016
PCE	1.0 U	1.0 U
TCE	0.50 U	0.50 U
cis-1,2-DCE	1.0 U	1.0 U
trans-1,2-DCE	1.0 U	1.0 U
1,1-DCE	1.0 U	1.0 U
Vinyl Chloride	0.20 U	0.20 U

SEEP-CB	
Analyte	June 2016
PCE	1.0 U
TCE	0.50 U
cis-1,2-DCE	1.8
trans-1,2-DCE	1.0 U
1,1-DCE	1.0 U
Vinyl Chloride	0.20 U

SEEP		
Analyte	March 2016	June 2016
PCE	<b>23</b>	<b>16</b>
TCE	17	18
cis-1,2-DCE	160	170
trans-1,2-DCE	1.0 U	1.3
1,1-DCE	1.0 U	1.0 U
Vinyl Chloride	<b>22</b>	<b>20</b>

MW-09		
Analyte	March 2016	June 2016
PCE	1.0 U	1.0 U
TCE	2.2	3.2
cis-1,2-DCE	11	<b>26</b>
trans-1,2-DCE	1.0 U	1.0 U
1,1-DCE	1.0 U	1.0 U
Vinyl Chloride	<b>5.0</b>	<b>9.8</b>

MW-14		
Analyte	March 2016	June 2016
PCE	<b>52</b>	<b>99</b>
TCE	<b>17</b>	<b>34</b>
cis-1,2-DCE	<b>23</b>	<b>33</b>
trans-1,2-DCE	1.0 U	1.0 U
1,1-DCE	1.0 U	1.0 U
Vinyl Chloride	<b>2.4</b>	<b>2.8</b>

FD-1		
Analyte	March 2016	June 2016
PCE	<b>46</b>	<b>31</b>
TCE	<b>26</b>	<b>34</b>
cis-1,2-DCE	<b>160</b>	<b>428</b>
trans-1,2-DCE	1.0	2.4
1,1-DCE	1.0 U	1.2
Vinyl Chloride	<b>36</b>	<b>87</b>

MW-13		
Analyte	March 2016	June 2016
PCE	1.0 U	1.0 U
TCE	0.50 U	0.50 U
cis-1,2-DCE	1.0 U	1.0 U
trans-1,2-DCE	1.0 U	1.0 U
1,1-DCE	1.0 U	1.0 U
Vinyl Chloride	0.20 U	0.20 U

CHERRY STREET

FORMER SEEP AREA

GRASSY AREA

ASPHALT LOT

UNION AVE SOUTHEAST

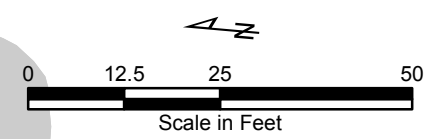
Former Olympia Dry Cleaners Building

Boiler Room

Dry Cleaner Machine

Roof Line

CATCHBASIN



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Quarterly Groundwater Compliance Monitoring  
Former Olympia Dry Cleaners Site  
Olympia, Washington

Figure 3  
March and June 2016 Groundwater Monitoring Results

**Attachment 1**  
**Field Forms**

# GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH - Olympia  
 Project Number: I-9

Date of Collection: 6/9/16  
 Field Personnel: IC - Anderson

## Purge Data

Well ID: MW-06 Secure: ☒ Yes ☐ No Well Condition/Damage Description: good

Depth Sounder decontaminated Prior to Placement in Well: ☐ Yes ☐ No One Casing Volume (gal): < 0.1 gal

Depth of water (from top of well casing): 0.86 Well Casing Type/Diameter/Screened Interval: 3/4" PVC, 10'-20'

After 5 minutes of purging (from top of casing): (too narrow to read)

Begin purge (time): 1320

End purge (time): \_\_\_\_\_

Volume purged: \_\_\_\_\_

Purge water disposal method: ground

Volume of Schedule 40 PVC Pipe				
Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Linear Ft.)
1 1/4"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water	Vol. Purged	pH	DO mg/L	Conductivity $\mu S/cm$	Turbidity NTU	Temp °C	ORP mV	Comments
1325		1	5.37		0.269	272	18.88	116	randy (?) -
1330		2							r. little water
1335		3							purging - stopped
1340		4	5.91	0.95	0.341	188	20.01	99	purging, re-started
1345		2	5.38	0.72	0.381	155	19.49	84	at slow rate at
1350		2.5							1335 - stopped
1355		2.5	5.46	0.96	0.378	156	18.72	57	again to recharge

## Sampling Data

Sample No: MW-06-060916 Location and Depth: MW-6, 15'

Date Collected (mo/dy/yr): 6/9/16 Time Collected: 1400 Weather: mild, cloudy

Type: ☒ Ground Water ☐ Surface Water Other: \_\_\_\_\_ Sample: ☐ Filtered ☒ Unfiltered Other: \_\_\_\_\_

Sample Collected with: ☐ Bailor ☒ Pump Other: \_\_\_\_\_ Type: peristaltic

Water Quality Instrument Data Collected with: Type: ☐ Horiba U-22 ☒ Horiba U-50 Other: \_\_\_\_\_

Sample Decon Procedure: Sample collected with (circle one): decontaminated all tubing; disposable and/or dedicated silicon and poly tubing Other: \_\_\_\_\_

Sample Description (Color, Turbidity, Odor, Other): clear, no odor (possibly slight sulfate?)

## Sample Analyses

TPH-D (HCl) ☐ Chlor / Fluor (unpres) ☐ COD / TOC (H2SO4) ☐ Orthophos (FILTER) ☐ Diss. Metals (HNO3) ☐  
 TPH-G (HCl) ☐ BTEX (HCl) ☐ Total Metals (HNO3) ☐ TKN/Phos (N2SO4) ☐ VOCs (HCl) ☒

## Additional Information

Types of Sample Containers:	Quantity:	Duplicate Sample Numbers:	Comments:
40 mL VOA w/ HCl	3	NA	Ecology TAG # A66836

Signature: \_\_\_\_\_ Date: 6/9/16



# GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH-Olympia

Date of Collection: 6/9/16

Project Number: L-9

Field Personnel: K. Anderson

## Purge Data

Well ID: MW-09 Secure: ☒ Yes ☐ No

Well Condition/Damage Description: good

Depth Sounder decontaminated Prior to Placement in Well: ☐ Yes ☐ No

One Casing Volume (gal): 0.6 gal

Depth of water (from top of well casing): 3.41 ft

Well Casing Type/Diameter/Screened Interval: 2" PVC, 3-6'

After 5 minutes of purging (from top of casing): 3.61 ft

Begin purge (time): 1235

End purge (time): 1300

Volume purged: 52

Purge water disposal method: ground

Volume of Schedule 40 PVC Pipe				
Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Linear Ft.)
1 1/4"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water ft	Vol. Purged L	pH	DO mg/L	Conductivity $\mu S/cm$	Turbidity NTU	Temp $^{\circ}C$	ORP	Comments
1240	3.61	1	5.70	2.12	0.180	13.8	15.95	128	
1245	3.64	2	5.68	0.73	0.185	3.1	15.80	101	
1250	3.68	3	5.67	0.48	0.188	1.9	15.84	82	
1255	3.70	4	5.68	0.40	0.193	1.0	15.65	69	
1300	3.71	5	5.68	0.36	0.195	1.2	15.74	61	

## Sampling Data

Sample No: MW-09-060916 Location and Depth: MW-9, 4.5'

Date Collected (mo/dy/yr): \_\_\_\_\_ Time Collected: 1305 Weather: mild, cloudy

Type: ☒ Ground Water ☐ Surface Water Other: \_\_\_\_\_ Sample: ☐ Filtered ☒ Unfiltered Other: \_\_\_\_\_

Sample Collected with: ☐ Bailer ☒ Pump Other: \_\_\_\_\_ Type: peristaltic

Water Quality Instrument Data Collected with: Type: ☐ Horiba U-22 ☒ Horiba U-50 Other: \_\_\_\_\_

Sample Decon Procedure: Sample collected with (circle one): decontaminated all tubing; disposable and/or dedicated silicon and poly tubing Other: \_\_\_\_\_

Sample Description (Color, Turbidity, Odor, Other): clear, no odor

## Sample Analyses

TPH-D (HCl) ☐ Chlor / Fluor (unpres) ☐ COD / TOC (H2SO4) ☐ Orthophos (FILTER) ☐ Diss. Metals (HNO3) ☐  
 TPH-G (HCl) ☐ BTEX (HCl) ☐ Total Metals (HNO3) ☐ TKN/Phos (N2SO4) ☐ C VOCs (HCl) ☒

## Additional Information

Types of Sample Containers:	Quantity:	Duplicate Sample Numbers:	Comments:
<u>40 mL VOA w/ HCl</u>	<u>3</u>	<u>N/A</u>	<u>Ecology ID# APE262</u>

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

# GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH - Olympia  
Project Number: t-9

Date of Collection: 6/9/16  
Field Personnel: K. Anderson

## Purge Data

Well ID: MW-11 Secure: ☒ Yes ☐ No Well Condition/Damage Description: \_\_\_\_\_

Depth Sounder decontaminated Prior to Placement in Well: ☒ Yes ☐ No One Casing Volume (gal): \_\_\_\_\_

Depth of water (from top of well casing): overlapping Well Casing Type/Diameter/Screened Interval: 2" PVC, 5-10'

After 5 minutes of purging (from top of casing): 0.450

Begin purge (time): 10:15

End purge (time): 5L

Volume purged: ground

Purge water disposal method: ground

Volume of Schedule 40 PVC Pipe				
Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 1/4"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water ft	Vol. Purged L	pH	DO mg/L	Conductivity $\mu S/cm$	Turbidity NTU	Temp $^{\circ}C$	ORP mV	Comments
0955	0.57	1	5.16	0.53	0.107	13.1	16.59	220	
1000		2	5.16	0.41	0.105	7.3	16.37	184	
1005	0.89	3	5.19	0.36	0.105	5.3	16.05	155	
1010	0.70	4	5.20	0.36	0.106	3.2	16.10	141	
1015	0.70	5	5.21	0.35	0.106	2.5	16.01	130	

## Sampling Data

Sample No: MW-11-060916 Location and Depth: MW-11, 7.5'

Date Collected (mo/dy/yr): 6/9/16 Time Collected: 1020 Weather: mild, clear

Type: ☒ Ground Water ☐ Surface Water Other: \_\_\_\_\_ Sample: ☐ Filtered ☒ Unfiltered Other: \_\_\_\_\_

Sample Collected with: ☐ Bailer ☒ Pump Other: \_\_\_\_\_ Type: peristaltic

Water Quality Instrument Data Collected with: Type: ☐ Horiba U-22 ☒ Horiba U-50 Other: \_\_\_\_\_

Sample Decon Procedure: Sample collected with (circle one): decontaminated all tubing; disposable and/or dedicated silicon and poly tubing Other: \_\_\_\_\_

Sample Description (Color, Turbidity, Odor, Other): clear, slight sulfide odor

## Sample Analyses

TPH-D (HCl) ☐ Chlor / Fluor (unpres) ☐ COD / TOC (H2SO4) ☐ Orthophos (FILTER) ☐ Diss. Metals (HNO3) ☐  
TPH-G (HCl) ☐ BTEX (HCl) ☐ Total Metals (HNO3) ☐ TKN/Phos (N2SO4) ☐ VOCs (HCl) ☒

## Additional Information

Types of Sample Containers:	Quantity:	Duplicate Sample Numbers:	Comments:
40 mL WFA w/ HCl	3	N/A	well tag missing

Signature: \_\_\_\_\_ Date: 6/9/16



# GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH - Olympia  
Project Number: 6-9

Date of Collection: 6/9/16  
Field Personnel: K. Andersen

## Purge Data

Well ID: MW-13 Secure: ☒ Yes ☐ No Well Condition/Damage Description: good

Depth Sounder decontaminated Prior to Placement in Well: ☐ Yes ☐ No

One Casing Volume (gal): 1.9 gal

Depth of water (from top of well casing): 0.17 ft

Well Casing Type/Diameter/Screened Interval: 2" PVC, 4.5-9.5'

After 5 minutes of purging (from top of casing): 2.67

Begin purge (time): 0910

End purge (time): 0930

Volume purged: 4L

Purge water disposal method: ground

Volume of Schedule 40 PVC Pipe				
Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Linear Ft.)
1 1/2"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water ft	Vol. Purged L	pH	DO mg/L	Conductivity mS/cm	Turbidity NTU	Temp °C	ORP mV	Comments
0915	2.67	1	4.80	0.48	0.124	2.9	14.06	303	purging as
0920	3.10	2	4.98	0.46	0.125	1.1	14.12	288	slowly as possible
0925	3.41	3	5.20	0.47	0.125	0.0	13.95	273	
0930	3.25	4	5.33	0.47	0.125	0.0	13.80	261	

## Sampling Data

Sample No: MW-13-060916 Location and Depth: MW-13, 7'

Date Collected (mo/dy/yr): 6/9/16 Time Collected: 0935 Weather: mild, sunny

Type: ☒ Ground Water ☐ Surface Water Other: Sample: ☐ Filtered ☒ Unfiltered Other:

Sample Collected with: ☐ Bailer ☒ Pump Other: Type: peristaltic

Water Quality Instrument Data Collected with: Type: ☐ Horiba U-22 ☒ Horiba U-50 Other:

Sample Decon Procedure: Sample collected with (circle one): decontaminated all tubing; disposable and/or dedicated silicon and poly tubing Other:

Sample Description (Color, Turbidity, Odor, Other): clear, no odor

## Sample Analyses

TPH-D (HCl) ☐ Chlor / Fluor (unpres) ☐ COD / TOC (H2SO4) ☐ Orthophos (FILTER) ☐ Diss. Metals (HNO3) ☐  
TPH-G (HCl) ☐ BTEX (HCl) ☐ Total Metals (HNO3) ☐ TKN/Phos (N2SO4) ☐ CVOCs (HCl) ☒

## Additional Information

Types of Sample Containers:	Quantity:	Duplicate Sample Numbers:	Comments:
50ml VOA w/ HCl	3	N/A	well tag missing

Signature: [Signature] Date: 6/9/16

# GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH - Olympia

Date of Collection: 6/9/16

Project Number: 6-9

Field Personnel: K. Anderson

## Purge Data

Well ID: MW-14

Secure: ☒ Yes ☐ No

Well Condition/Damage Description: \_\_\_\_\_

Depth Sounder decontaminated Prior to Placement in Well: ☒ Yes ☐ No

One Casing Volume (gal): 3 gal

Depth of water (from top of well casing): overtopping casing

Well Casing Type/Diameter/Screened Interval: 2" PVC, 10-15' (angled)

After 5 minutes of purging (from top of casing): overtopping

Begin purge (time): 1120

End purge (time): 1145

Volume purged: 10L

Purge water disposal method: ground

### Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Linear Ft.)
1 1/4"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water	Vol. Purged	pH	DO mg/L	Conductivity $\mu S/cm$	Turbidity NTU	Temp $^{\circ}C$	ORP mV	Comments
1125	<u>1</u>	<u>2</u>	<u>6.30</u>	<u>0.37</u>	<u>0.116</u>	<u>3.9</u>	<u>15.35</u>	<u>175</u>	
1130	<u>1</u>	<u>4</u>	<u>6.12</u>	<u>0.33</u>	<u>0.118</u>	<u>5.2</u>	<u>15.03</u>	<u>135</u>	
1135	<u>1</u>	<u>6</u>	<u>5.99</u>	<u>0.33</u>	<u>0.119</u>	<u>10.9</u>	<u>14.88</u>	<u>96</u>	
1140	<u>1</u>	<u>8</u>	<u>5.84</u>	<u>0.30</u>	<u>0.122</u>	<u>6.3</u>	<u>14.91</u>	<u>76</u>	
1145	<u>1</u>	<u>10</u>	<u>5.84</u>	<u>0.30</u>	<u>0.123</u>	<u>6.9</u>	<u>14.85</u>	<u>60</u>	

## Sampling Data

Sample No: MW-14-060916

Location and Depth: MW-14, 12.5'

Date Collected (mo/dy/yr): 6/9/16

Time Collected: 1150

Weather: cloudy, mild

Type: ☒ Ground Water ☐ Surface Water Other: \_\_\_\_\_

Sample: ☐ Filtered ☒ Unfiltered Other: \_\_\_\_\_

Sample Collected with: ☐ Bailer ☒ Pump Other: \_\_\_\_\_

Type: peristaltic

Water Quality Instrument Data Collected with: Type: ☐ Horiba U-22 ☒ Horiba U-50 Other: \_\_\_\_\_

Sample Decon Procedure: Sample collected with (circle one): decontaminated all tubing; disposable and/or dedicated silicon and poly tubing Other: \_\_\_\_\_

Sample Description (Color, Turbidity, Odor, Other): clear, slight sulfide odor

## Sample Analyses

TPH-D (HCl) ☐ Chlor / Fluor (unpres) ☐ COD / TOC (H2SO4) ☐ Orthophos (FILTER) ☐ Diss. Metals (HNO3) ☐  
 TPH-G (HCl) ☐ BTEX (HCl) ☐ Total Metals (HNO3) ☐ TKN/Phos (N2SO4) ☐ VOCs (HCl) ☒

## Additional Information

Types of Sample Containers:

Quantity:

Duplicate Sample Numbers:

Comments:

40 mL VOA w/ HCL

MW-14-060916-

D @ 1155

well tag missing

Signature: \_\_\_\_\_

Date: 6/9/16



# GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH - Olympia

Date of Collection: 6/9/16

Project Number: \_\_\_\_\_

Field Personnel: K. Anderson

## Purge Data

Well ID: FD-01 Secure: ☐ Yes ☒ No

Well Condition/Damage Description: \_\_\_\_\_

Depth Sounder decontaminated Prior to Placement in Well: ☒ Yes ☐ No

One Casing Volume (gal): ~ 20 gal

Depth of water (from top of well casing): 1.30

Well Casing Type/Diameter/Screened Interval: 4" PVC French drain

After 5 minutes of purging (from top of casing): 1.36

Begin purge (time): 1055

End purge (time): 1103

Volume purged: 20 gal

Purge water disposal method: ground

Volume of Schedule 40 PVC Pipe				
Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Linear Ft.)
1 1/4"	1.660"	1.380"	0.08	0.64
2"	2.375"	2.067"	0.17	1.45
3"	3.500"	3.068"	0.38	3.2
4"	4.500"	4.026"	0.66	5.51
6"	6.625"	6.065"	1.5	12.5

Time	Depth to Water	Vol. Purged gal	pH	DO mg/L	Conductivity	Turbidity NTU	Temp °C	ORP mV	Comments
1055	1.36	4							
1057	1.44	8							
1059	1.50	12							
1101	1.53	16							
1103	1.58	20	6.01	3.36	0.200	0.8	18.52	218	

## Sampling Data

Sample No: FD-01-060916 Location and Depth: \_\_\_\_\_

Date Collected (mo/dy/yr): 6/9/16 Time Collected: 1110 Weather: cloudy, m. td

Type: ☐ Ground Water ☐ Surface Water Other: \_\_\_\_\_ Sample: ☐ Filtered ☒ Unfiltered Other: \_\_\_\_\_

Sample Collected with: ☐ Bailer ☒ Pump Other: \_\_\_\_\_ Type: centrifugal (2 gpm)

Water Quality Instrument Data Collected with: Type: ☐ Horiba U-22 ☒ Horiba U-50 Other: collected 1 row after purging 20 gal

Sample Decon Procedure: Sample collected with (circle one): decontaminated all tubing; disposable and/or dedicated silicon and poly tubing Other: \_\_\_\_\_

Sample Description (Color, Turbidity, Odor, Other): clear, no odor

## Sample Analyses

TPH-D (HCl) ☐ Chlor / Fluor (unpres) ☐ COD / TOC (H2SO4) ☐ Orthophos (FILTER) ☐ Diss. Metals (HNO3) ☐  
 TPH-G (HCl) ☐ BTEX (HCl) ☐ Total Metals (HNO3) ☐ TKN/Phos (N2SO4) ☐ VOCs (HCl) ☒

## Additional Information

Types of Sample Containers:	Quantity:	Duplicate Sample Numbers:	Comments:
40 mL vial w/ HCl	3	NA	

Signature: \_\_\_\_\_ Date: 6/9/16

**Attachment 2**  
**Laboratory Data**



**Fremont**  
*Analytical*

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info@fremontanalytical.com

**Floyd | Snider**  
Lynn Grochala  
601 Union St., Suite 600  
Seattle, WA 98101

**RE: GTH - Olympia**  
**Lab ID: 1606154**

June 17, 2016

**Attention Lynn Grochala:**

Fremont Analytical, Inc. received 10 sample(s) on 6/10/2016 for the analyses presented in the following report.

***Volatile Organic Compounds by EPA Method 8260C***

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway  
President

DoD/ELAP Certification #L2371, ISO/ICC 17025:2005  
ORELAP Certification: WA 100009-007 (NELAP Recognized)

**CLIENT:** Floyd | Snider  
**Project:** GTH - Olympia  
**Lab Order:** 1606154

## Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1606154-001	MW-13-060916	06/09/2016 9:35 AM	06/10/2016 11:12 AM
1606154-002	MW-11-060916	06/09/2016 10:20 AM	06/10/2016 11:12 AM
1606154-003	MW-14-060916	06/09/2016 11:50 AM	06/10/2016 11:12 AM
1606154-004	MW-09-060916	06/09/2016 1:05 PM	06/10/2016 11:12 AM
1606154-005	MW-06-060916	06/09/2016 2:00 PM	06/10/2016 11:12 AM
1606154-006	FD-01-060916	06/09/2016 11:10 AM	06/10/2016 11:12 AM
1606154-007	SEEP-060916	06/09/2016 10:10 AM	06/10/2016 11:12 AM
1606154-008	SEEP-CB-060916	06/09/2016 12:05 PM	06/10/2016 11:12 AM
1606154-009	MW-14-060916-D	06/09/2016 11:55 AM	06/10/2016 11:12 AM
1606154-010	Trip Blank	06/08/2016 9:34 AM	06/10/2016 11:12 AM

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**CLIENT:** Floyd | Snider  
**Project:** GTH - Olympia

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**I. SAMPLE RECEIPT:**

Samples receipt information is recorded on the attached Sample Receipt Checklist.

**II. GENERAL REPORTING COMMENTS:**

Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

**III. ANALYSES AND EXCEPTIONS:**

Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

**Qualifiers:**

- \* - Flagged value is not within established control limits
- B - Analyte detected in the associated Method Blank
- D - Dilution was required
- E - Value above quantitation range
- H - Holding times for preparation or analysis exceeded
- I - Analyte with an internal standard that does not meet established acceptance criteria
- J - Analyte detected below Reporting Limit
- N - Tentatively Identified Compound (TIC)
- Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
- S - Spike recovery outside accepted recovery limits
- ND - Not detected at the Reporting Limit
- R - High relative percent difference observed

**Acronyms:**

- %Rec - Percent Recovery
- CCB - Continued Calibration Blank
- CCV - Continued Calibration Verification
- DF - Dilution Factor
- HEM - Hexane Extractable Material
- ICV - Initial Calibration Verification
- LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
- MB or MBLANK - Method Blank
- MDL - Method Detection Limit
- MS/MSD - Matrix Spike / Matrix Spike Duplicate
- PDS - Post Digestion Spike
- Ref Val - Reference Value
- RL - Reporting Limit
- RPD - Relative Percent Difference
- SD - Serial Dilution
- SGT - Silica Gel Treatment
- SPK - Spike
- Surr - Surrogate





## Analytical Report

WO#: 1606154

Date Reported: 6/17/2016

Client: Floyd | Snider

Collection Date: 6/9/2016 9:35:00 AM

Project: GTH - Olympia

Lab ID: 1606154-001

Matrix: Water

Client Sample ID: MW-13-060916

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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### Volatile Organic Compounds by EPA Method 8260C

Batch ID: R29987

Analyst: EM

Vinyl chloride	ND	0.200		µg/L	1	6/15/2016 8:55:01 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 8:55:01 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 8:55:01 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 8:55:01 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	6/15/2016 8:55:01 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	6/15/2016 8:55:01 AM
Surr: Dibromofluoromethane	96.4	45.4-152		%Rec	1	6/15/2016 8:55:01 AM
Surr: Toluene-d8	96.6	40.1-139		%Rec	1	6/15/2016 8:55:01 AM
Surr: 1-Bromo-4-fluorobenzene	95.6	64.2-128		%Rec	1	6/15/2016 8:55:01 AM



Client: Floyd | Snider

Collection Date: 6/9/2016 10:20:00 AM

Project: GTH - Olympia

Lab ID: 1606154-002

Matrix: Water

Client Sample ID: MW-11-060916

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: R29987

Analyst: EM

Vinyl chloride	ND	0.200		µg/L	1	6/15/2016 9:24:15 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 9:24:15 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 9:24:15 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 9:24:15 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	6/15/2016 9:24:15 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	6/15/2016 9:24:15 AM
Surr: Dibromofluoromethane	95.8	45.4-152		%Rec	1	6/15/2016 9:24:15 AM
Surr: Toluene-d8	97.6	40.1-139		%Rec	1	6/15/2016 9:24:15 AM
Surr: 1-Bromo-4-fluorobenzene	94.6	64.2-128		%Rec	1	6/15/2016 9:24:15 AM



Client: Floyd | Snider

Collection Date: 6/9/2016 11:50:00 AM

Project: GTH - Olympia

Lab ID: 1606154-003

Matrix: Water

Client Sample ID: MW-14-060916

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: R29987

Analyst: EM

Vinyl chloride	2.77	0.200		µg/L	1	6/15/2016 9:54:36 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 9:54:36 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 9:54:36 AM
cis-1,2-Dichloroethene	30.6	1.00		µg/L	1	6/15/2016 9:54:36 AM
Trichloroethene (TCE)	33.2	0.500		µg/L	1	6/15/2016 9:54:36 AM
Tetrachloroethene (PCE)	98.8	10.0	D	µg/L	10	6/16/2016 12:30:09 PM
Surr: Dibromofluoromethane	97.0	45.4-152		%Rec	1	6/15/2016 9:54:36 AM
Surr: Toluene-d8	97.4	40.1-139		%Rec	1	6/15/2016 9:54:36 AM
Surr: 1-Bromo-4-fluorobenzene	95.6	64.2-128		%Rec	1	6/15/2016 9:54:36 AM



## Analytical Report

WO#: 1606154

Date Reported: 6/17/2016

Client: Floyd | Snider

Collection Date: 6/9/2016 1:05:00 PM

Project: GTH - Olympia

Lab ID: 1606154-004

Matrix: Water

Client Sample ID: MW-09-060916

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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### Volatile Organic Compounds by EPA Method 8260C

Batch ID: R29987

Analyst: EM

Vinyl chloride	9.77	0.200		µg/L	1	6/15/2016 10:24:58 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 10:24:58 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 10:24:58 AM
cis-1,2-Dichloroethene	26.4	1.00		µg/L	1	6/15/2016 10:24:58 AM
Trichloroethene (TCE)	3.17	0.500		µg/L	1	6/15/2016 10:24:58 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	6/15/2016 10:24:58 AM
Surr: Dibromofluoromethane	98.0	45.4-152		%Rec	1	6/15/2016 10:24:58 AM
Surr: Toluene-d8	98.0	40.1-139		%Rec	1	6/15/2016 10:24:58 AM
Surr: 1-Bromo-4-fluorobenzene	94.7	64.2-128		%Rec	1	6/15/2016 10:24:58 AM



## Analytical Report

WO#: 1606154

Date Reported: 6/17/2016

Client: Floyd | Snider

Collection Date: 6/9/2016 2:00:00 PM

Project: GTH - Olympia

Lab ID: 1606154-005

Matrix: Water

Client Sample ID: MW-06-060916

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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### Volatile Organic Compounds by EPA Method 8260C

Batch ID: R29987

Analyst: EM

Vinyl chloride	ND	0.200		µg/L	1	6/15/2016 10:55:29 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 10:55:29 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 10:55:29 AM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 10:55:29 AM
Trichloroethene (TCE)	ND	0.500		µg/L	1	6/15/2016 10:55:29 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	6/15/2016 10:55:29 AM
Surr: Dibromofluoromethane	96.5	45.4-152		%Rec	1	6/15/2016 10:55:29 AM
Surr: Toluene-d8	95.7	40.1-139		%Rec	1	6/15/2016 10:55:29 AM
Surr: 1-Bromo-4-fluorobenzene	95.6	64.2-128		%Rec	1	6/15/2016 10:55:29 AM



Client: Floyd | Snider

Collection Date: 6/9/2016 11:10:00 AM

Project: GTH - Olympia

Lab ID: 1606154-006

Matrix: Water

Client Sample ID: FD-01-060916

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: R29987

Analyst: EM

Vinyl chloride	87.4	4.00	D	µg/L	20	6/16/2016 1:00:51 PM
1,1-Dichloroethene	1.21	1.00		µg/L	1	6/15/2016 11:25:59 AM
trans-1,2-Dichloroethene	2.43	1.00		µg/L	1	6/15/2016 11:25:59 AM
cis-1,2-Dichloroethene	428	20.0	D	µg/L	20	6/16/2016 1:00:51 PM
Trichloroethene (TCE)	34.1	0.500		µg/L	1	6/15/2016 11:25:59 AM
Tetrachloroethene (PCE)	31.0	1.00		µg/L	1	6/15/2016 11:25:59 AM
Surr: Dibromofluoromethane	99.6	45.4-152		%Rec	1	6/15/2016 11:25:59 AM
Surr: Toluene-d8	97.8	40.1-139		%Rec	1	6/15/2016 11:25:59 AM
Surr: 1-Bromo-4-fluorobenzene	96.3	64.2-128		%Rec	1	6/15/2016 11:25:59 AM



## Analytical Report

WO#: 1606154

Date Reported: 6/17/2016

Client: Floyd | Snider

Collection Date: 6/9/2016 10:10:00 AM

Project: GTH - Olympia

Lab ID: 1606154-007

Matrix: Water

Client Sample ID: SEEP-060916

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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### Volatile Organic Compounds by EPA Method 8260C

Batch ID: R29987

Analyst: EM

Vinyl chloride	19.8	0.200		µg/L	1	6/15/2016 11:56:25 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 11:56:25 AM
trans-1,2-Dichloroethene	1.30	1.00		µg/L	1	6/15/2016 11:56:25 AM
cis-1,2-Dichloroethene	170	10.0	D	µg/L	10	6/16/2016 1:31:37 PM
Trichloroethene (TCE)	17.7	0.500		µg/L	1	6/15/2016 11:56:25 AM
Tetrachloroethene (PCE)	15.7	1.00		µg/L	1	6/15/2016 11:56:25 AM
Surr: Dibromofluoromethane	99.6	45.4-152		%Rec	1	6/15/2016 11:56:25 AM
Surr: Toluene-d8	98.4	40.1-139		%Rec	1	6/15/2016 11:56:25 AM
Surr: 1-Bromo-4-fluorobenzene	95.4	64.2-128		%Rec	1	6/15/2016 11:56:25 AM



## Analytical Report

WO#: 1606154

Date Reported: 6/17/2016

Client: Floyd | Snider

Collection Date: 6/9/2016 12:05:00 PM

Project: GTH - Olympia

Lab ID: 1606154-008

Matrix: Water

Client Sample ID: SEEP-CB-060916

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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### Volatile Organic Compounds by EPA Method 8260C

Batch ID: R29987

Analyst: EM

Vinyl chloride	ND	0.200		µg/L	1	6/15/2016 12:26:57 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 12:26:57 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 12:26:57 PM
cis-1,2-Dichloroethene	1.75	1.00		µg/L	1	6/15/2016 12:26:57 PM
Trichloroethene (TCE)	ND	0.500		µg/L	1	6/15/2016 12:26:57 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	6/15/2016 12:26:57 PM
Surr: Dibromofluoromethane	98.0	45.4-152		%Rec	1	6/15/2016 12:26:57 PM
Surr: Toluene-d8	97.2	40.1-139		%Rec	1	6/15/2016 12:26:57 PM
Surr: 1-Bromo-4-fluorobenzene	94.4	64.2-128		%Rec	1	6/15/2016 12:26:57 PM





Client: Floyd | Snider

Collection Date: 6/9/2016 11:55:00 AM

Project: GTH - Olympia

Lab ID: 1606154-009

Matrix: Water

Client Sample ID: MW-14-060916-D

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**Volatile Organic Compounds by EPA Method 8260C**

Batch ID: R29987

Analyst: EM

Vinyl chloride	2.83	0.200		µg/L	1	6/15/2016 12:57:33 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 12:57:33 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	6/15/2016 12:57:33 PM
cis-1,2-Dichloroethene	33.2	1.00		µg/L	1	6/15/2016 12:57:33 PM
Trichloroethene (TCE)	34.3	0.500		µg/L	1	6/15/2016 12:57:33 PM
Tetrachloroethene (PCE)	93.8	10.0	D	µg/L	10	6/16/2016 2:02:19 PM
Surr: Dibromofluoromethane	99.0	45.4-152		%Rec	1	6/15/2016 12:57:33 PM
Surr: Toluene-d8	97.4	40.1-139		%Rec	1	6/15/2016 12:57:33 PM
Surr: 1-Bromo-4-fluorobenzene	95.6	64.2-128		%Rec	1	6/15/2016 12:57:33 PM



**Work Order:** 1606154  
**CLIENT:** Floyd | Snider  
**Project:** GTH - Olympia

## QC SUMMARY REPORT

### Volatile Organic Compounds by EPA Method 8260C

Sample ID	LCS-R29987	SampType: LCS		Units: µg/L		Prep Date: 6/15/2016		RunNo: 29987			
Client ID:	LCSW	Batch ID: R29987		Analysis Date: 6/15/2016				SeqNo: 566668			
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	16.7	0.200	20.00	0	83.4	53.6	139				
1,1-Dichloroethene	18.3	1.00	20.00	0	91.4	65.6	136				
trans-1,2-Dichloroethene	18.5	1.00	20.00	0	92.6	71.7	129				
cis-1,2-Dichloroethene	18.4	1.00	20.00	0	91.9	71.1	130				
Trichloroethene (TCE)	19.0	0.500	20.00	0	94.8	65.2	136				
Tetrachloroethene (PCE)	18.5	1.00	20.00	0	92.3	47.5	147				
Surr: Dibromofluoromethane	24.4		25.00		97.8	45.4	152				
Surr: Toluene-d8	25.0		25.00		99.8	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.1		25.00		100	64.2	128				

Sample ID	MB-R29987	SampType:	MBLK		Units:	µg/L			Prep Date:	6/15/2016		RunNo:	29987		
Client ID:	MBLKW	Batch ID:	R29987		Analysis Date:						6/15/2016		SeqNo:	566669	
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual			
Vinyl chloride		ND	0.200												
1,1-Dichloroethene		ND	1.00												
trans-1,2-Dichloroethene		ND	1.00												
cis-1,2-Dichloroethene		ND	1.00												
Trichloroethene (TCE)		ND	0.500												
Tetrachloroethene (PCE)		ND	1.00												
Surr: Dibromofluoromethane		23.6		25.00		94.5	45.4	152							
Surr: Toluene-d8		24.2		25.00		96.9	40.1	139							
Surr: 1-Bromo-4-fluorobenzene		23.7		25.00		94.8	64.2	128							

Sample ID	1606136-001ADUP			SampType:	DUP			Units:	µg/L			Prep Date:	6/15/2016			RunNo:	29987		
Client ID:	BATCH			Batch ID:	R29987							Analysis Date:	6/15/2016			SeqNo:	566652		
Analyte		Result	RL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual					
Vinyl chloride		ND	0.200							0			30						
1,1-Dichloroethene		ND	1.00							0			30						

**Work Order:** 1606154  
**CLIENT:** Floyd | Snider  
**Project:** GTH - Olympia

## QC SUMMARY REPORT

### Volatile Organic Compounds by EPA Method 8260C

Sample ID	1606136-001ADUP	SampType:	DUP	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	29987		
Client ID:	BATCH	Batch ID:	R29987	Analysis Date:				6/15/2016	SeqNo:	566652	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
trans-1,2-Dichloroethene	ND	1.00						0		30	
cis-1,2-Dichloroethene	ND	1.00						0		30	
Trichloroethene (TCE)	ND	0.500						0		30	
Tetrachloroethene (PCE)	ND	1.00						0		30	
Surr: Dibromofluoromethane	23.9		25.00		95.4	45.4	152		0		
Surr: Toluene-d8	24.1		25.00		96.5	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	23.8		25.00		95.2	64.2	128		0		

Sample ID	1606153-001AMS	SampType:	MS	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	29987		
Client ID:	BATCH	Batch ID:	R29987			Analysis Date:	6/15/2016	SeqNo:	566654		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	19.6	0.200	20.00	0	97.9	58.1	158				
1,1-Dichloroethene	22.7	1.00	20.00	0	113	63	141				
trans-1,2-Dichloroethene	20.8	1.00	20.00	0	104	63.5	138				
cis-1,2-Dichloroethene	20.0	1.00	20.00	0	100	67.1	123				
Trichloroethene (TCE)	21.1	0.500	20.00	0	106	60.4	134				
Tetrachloroethene (PCE)	20.9	1.00	20.00	0	105	50.3	133				
Surr: Dibromofluoromethane	24.5		25.00		98.1	45.4	152				
Surr: Toluene-d8	25.0		25.00		100	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.4		25.00		102	64.2	128				

Sample ID	1606153-001AMSD	SampType:	MSD	Units:	µg/L	Prep Date:	6/15/2016	RunNo:	29987		
Client ID:	BATCH	Batch ID:	R29987			Analysis Date:	6/15/2016	SeqNo:	566655		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	19.2	0.200	20.00	0	95.9	58.1	158	19.57	2.07	30	
1,1-Dichloroethene	21.2	1.00	20.00	0	106	63	141	22.69	6.65	30	
trans-1,2-Dichloroethene	20.3	1.00	20.00	0	102	63.5	138	20.80	2.29	30	
cis-1,2-Dichloroethene	20.4	1.00	20.00	0	102	67.1	123	19.99	2.08	30	

**Work Order:** 1606154  
**CLIENT:** Floyd | Snider  
**Project:** GTH - Olympia

## QC SUMMARY REPORT

### Volatile Organic Compounds by EPA Method 8260C

Sample ID <b>1606153-001AMSD</b>	SampType: <b>MSD</b>	Units: <b>µg/L</b>				Prep Date: <b>6/15/2016</b>			RunNo: <b>29987</b>		
Client ID: <b>BATCH</b>	Batch ID: <b>R29987</b>					Analysis Date: <b>6/15/2016</b>			SeqNo: <b>566655</b>		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	20.8	0.500	20.00	0	104	60.4	134	21.11	1.72	30	
Tetrachloroethene (PCE)	20.6	1.00	20.00	0	103	50.3	133	20.93	1.59	30	
Surr: Dibromofluoromethane	24.8		25.00		99.3	45.4	152		0	0	
Surr: Toluene-d8	24.9		25.00		99.6	40.1	139		0	0	
Surr: 1-Bromo-4-fluorobenzene	24.9		25.00		99.7	64.2	128		0	0	

Sample ID	CCV-D-R29987	SampType:	CCV	Units:			µg/L	Prep Date:		6/16/2016	RunNo:		29987
Client ID:	CCV	Batch ID:	R29987					Analysis Date:		6/16/2016	SeqNo:		567026
Analyte		Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val		%RPD	RPDLimit	Qual
Vinyl chloride		20.2	0.200	20.00	0	101	80	120					
cis-1,2-Dichloroethene		20.1	1.00	20.00	0	101	80	120					
Tetrachloroethene (PCE)		20.8	1.00	20.00	0	104	80	120					
Surr: Dibromofluoromethane		24.5		25.00		97.9	72.1	122					
Surr: Toluene-d8		24.7		25.00		99.0	62.1	129					
Surr: 1-Bromo-4-fluorobenzene		25.3		25.00		101	63.3	132					

Client Name: **FS**  
 Logged by: **Erica Silva**

Work Order Number: **1606154**  
 Date Received: **6/10/2016 11:12:00 AM**

### Chain of Custody

1. Is Chain of Custody complete? Yes ☒ No ☐ Not Present ☐  
 2. How was the sample delivered? Courier

### Log In

3. Coolers are present? Yes ☒ No ☐ NA ☐  
 4. Shipping container/cooler in good condition? Yes ☒ No ☐  
 5. Custody Seals present on shipping container/cooler?  
 (Refer to comments for Custody Seals not intact) Yes ☒ No ☐ Not Required ☐  
 6. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐  
 7. Were all items received at a temperature of >0°C to 10.0°C\* Yes ☒ No ☐ NA ☐  
 8. Sample(s) in proper container(s)? Yes ☒ No ☐  
 9. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐  
 10. Are samples properly preserved? Yes ☒ No ☐  
 11. Was preservative added to bottles? Yes ☐ No ☒ NA ☐  
 12. Is there headspace in the VOA vials? Yes ☐ No ☒ NA ☐  
 13. Did all samples containers arrive in good condition(unbroken)? Yes ☒ No ☐  
 14. Does paperwork match bottle labels? Yes ☒ No ☐  
 15. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐  
 16. Is it clear what analyses were requested? Yes ☒ No ☐  
 17. Were all holding times able to be met? Yes ☒ No ☐

### Special Handling (if applicable)

18. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified:  Date   
 By Whom:  Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person  
 Regarding:   
 Client Instructions:

19. Additional remarks:

### Item Information

Item #	Temp °C
Cooler	2.6
Sample	2.3
Temp Blank	6.3

\* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C



# Fremont

3600 Fremont Ave N.  
Seattle, WA 98103

Tel: 206-352-3790  
Fax: 206-352-7178

## Chain of Custody Record and Laboratory Services Agreement

Date: 6/9/16

Laboratory Project No (internal): 1606154

Page: 1 of: 1

Client: Floyd Snider  
Address: 601 Union St, Ste 600  
City, State, Zip: Seattle, WA 98101  
Telephone: 206-242-2678 Fax: \_\_\_\_\_

Project Name: GTH - Olympia  
Project No: task 9 Collected by: KA  
Location: Olympia Dry Cleaner  
Report To (PM): Lynn Grochala  
PM Email: lynn.grochala@floydsnider.com

\*Matrix Codes: A = Air, AQ = Aqueous, B = Bulk, O = Other, P = Product, S = Soil, SD = Sediment, SL = Solid, W = Water, DW = Drinking Water, GW = Ground Water, SW = Storm Water, WW = Waste Water

Sample Name	Sample Date	Sample Time	Sample Type (Matrix)*	VOCs (EPA 8260 / 624)														SVOCs (EPA 8270 / 625)														Metals** (EPA 8210 / 200.8)														Anions (IC)***														Comments																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
				GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DO)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Total (T) / Dissolved (D)	Anions (IC)***	ED8 (8011)	ED9 (8012)	ED10 (8013)	ED11 (8014)	ED12 (8015)	ED13 (8016)	ED14 (8017)	ED15 (8018)	ED16 (8019)	ED17 (8020)	ED18 (8021)	ED19 (8022)	ED20 (8023)	ED21 (8024)	ED22 (8025)	ED23 (8026)	ED24 (8027)	ED25 (8028)	ED26 (8029)	ED27 (8030)	ED28 (8031)	ED29 (8032)	ED30 (8033)	ED31 (8034)	ED32 (8035)	ED33 (8036)	ED34 (8037)	ED35 (8038)	ED36 (8039)	ED37 (8040)	ED38 (8041)	ED39 (8042)	ED40 (8043)	ED41 (8044)	ED42 (8045)	ED43 (8046)	ED44 (8047)	ED45 (8048)	ED46 (8049)	ED47 (8050)	ED48 (8051)	ED49 (8052)	ED50 (8053)	ED51 (8054)	ED52 (8055)	ED53 (8056)		ED54 (8057)	ED55 (8058)	ED56 (8059)	ED57 (8060)	ED58 (8061)	ED59 (8062)	ED60 (8063)	ED61 (8064)	ED62 (8065)	ED63 (8066)	ED64 (8067)	ED65 (8068)	ED66 (8069)	ED67 (8070)	ED68 (8071)	ED69 (8072)	ED70 (8073)	ED71 (8074)	ED72 (8075)	ED73 (8076)	ED74 (8077)	ED75 (8078)	ED76 (8079)	ED77 (8080)	ED78 (8081)	ED79 (8082)	ED80 (8083)	ED81 (8084)	ED82 (8085)	ED83 (8086)	ED84 (8087)	ED85 (8088)	ED86 (8089)	ED87 (8090)	ED88 (8091)	ED89 (8092)	ED90 (8093)	ED91 (8094)	ED92 (8095)	ED93 (8096)	ED94 (8097)	ED95 (8098)	ED96 (8099)	ED97 (8100)	ED98 (8101)	ED99 (8102)	ED100 (8103)	ED101 (8104)	ED102 (8105)	ED103 (8106)	ED104 (8107)	ED105 (8108)	ED106 (8109)	ED107 (8110)	ED108 (8111)	ED109 (8112)	ED110 (8113)	ED111 (8114)	ED112 (8115)	ED113 (8116)	ED114 (8117)	ED115 (8118)	ED116 (8119)	ED117 (8120)	ED118 (8121)	ED119 (8122)	ED120 (8123)	ED121 (8124)	ED122 (8125)	ED123 (8126)	ED124 (8127)	ED125 (8128)	ED126 (8129)	ED127 (8130)	ED128 (8131)	ED129 (8132)	ED130 (8133)	ED131 (8134)	ED132 (8135)	ED133 (8136)	ED134 (8137)	ED135 (8138)	ED136 (8139)	ED137 (8140)	ED138 (8141)	ED139 (8142)	ED140 (8143)	ED141 (8144)	ED142 (8145)	ED143 (8146)	ED144 (8147)	ED145 (8148)	ED146 (8149)	ED147 (8150)	ED148 (8151)	ED149 (8152)	ED150 (8153)	ED151 (8154)	ED152 (8155)	ED153 (8156)	ED154 (8157)	ED155 (8158)	ED156 (8159)	ED157 (8160)	ED158 (8161)	ED159 (8162)	ED160 (8163)	ED161 (8164)	ED162 (8165)	ED163 (8166)	ED164 (8167)	ED165 (8168)	ED166 (8169)	ED167 (8170)	ED168 (8171)	ED169 (8172)	ED170 (8173)	ED171 (8174)	ED172 (8175)	ED173 (8176)	ED174 (8177)	ED175 (8178)	ED176 (8179)	ED177 (8180)	ED178 (8181)	ED179 (8182)	ED180 (8183)	ED181 (8184)	ED182 (8185)	ED183 (8186)	ED184 (8187)	ED185 (8188)	ED186 (8189)	ED187 (8190)	ED188 (8191)	ED189 (8192)	ED190 (8193)	ED191 (8194)	ED192 (8195)	ED193 (8196)	ED194 (8197)	ED195 (8198)	ED196 (8199)	ED197 (8200)	ED198 (8201)	ED199 (8202)	ED200 (8203)	ED201 (8204)	ED202 (8205)	ED203 (8206)	ED204 (8207)	ED205 (8208)	ED206 (8209)	ED207 (8210)	ED208 (8211)	ED209 (8212)	ED210 (8213)	ED211 (8214)	ED212 (8215)	ED213 (8216)	ED214 (8217)	ED215 (8218)	ED216 (8219)	ED217 (8220)	ED218 (8221)	ED219 (8222)	ED220 (8223)	ED221 (8224)	ED222 (8225)	ED223 (8226)	ED224 (8227)	ED225 (8228)	ED226 (8229)	ED227 (8230)	ED228 (8231)	ED229 (8232)	ED230 (8233)	ED231 (8234)	ED232 (8235)	ED233 (8236)	ED234 (8237)	ED235 (8238)	ED236 (8239)	ED237 (8240)	ED238 (8241)	ED239 (8242)	ED240 (8243)	ED241 (8244)	ED242 (8245)	ED243 (8246)	ED244 (8247)	ED245 (8248)	ED246 (8249)	ED247 (8250)	ED248 (8251)	ED249 (8252)	ED250 (8253)	ED251 (8254)	ED252 (8255)	ED253 (8256)	ED254 (8257)	ED255 (8258)	ED256 (8259)	ED257 (8260)	ED258 (8261)	ED259 (8262)	ED260 (8263)	ED261 (8264)	ED262 (8265)	ED263 (8266)	ED264 (8267)	ED265 (8268)	ED266 (8269)	ED267 (8270)	ED268 (8271)	ED269 (8272)	ED270 (8273)	ED271 (8274)	ED272 (8275)	ED273 (8276)	ED274 (8277)	ED275 (8278)	ED276 (8279)	ED277 (8280)	ED278 (8281)	ED279 (8282)	ED280 (8283)	ED281 (8284)	ED282 (8285)	ED283 (8286)	ED284 (8287)	ED285 (8288)	ED286 (8289)	ED287 (8290)	ED288 (8291)	ED289 (8292)	ED290 (8293)	ED291 (8294)	ED292 (8295)	ED293 (8296)	ED294 (8297)	ED295 (8298)	ED296 (8299)	ED297 (8300)	ED298 (8301)	ED299 (8302)	ED300 (8303)	ED301 (8304)	ED302 (8305)	ED303 (8306)	ED304 (8307)	ED305 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\* DCE, TCE, CIS-1,2,  
DCE, trans-1,2-DCE,  
1,1-DCE, vinyl chloride

\*\*Metals Analysis (Circle): MTCA-5 RCRA-8 Priority Pollutants TAL Individual: Ag Al As B Ba Be Ca Cd Co Cr Cu Fe Hg K Mg Mn Mo Na Ni Pb Sb Se Sr Sn Ti Tl U V Zn

\*\*\*Anions (Circle): Nitrate Nitrite Chloride Sulfate Bromide O-Phosphate Fluoride Nitrate+Nitrite Turn-around times for samples received after 4:00pm will begin on the following business day. Special Remarks:

Sample Disposal: ☐ Return to Client ☒ Disposal by Lab (Samples will be held for 30 days unless otherwise noted. A fee may be assessed if samples are retained after 30 days.)

I represent that I am authorized to enter into this Agreement with Fremont Analytical on behalf of the Client named above, that I have verified Client's agreement to each of the terms on the front and backside of this Agreement.

Relinquished [Signature] Date/Time 6/10/16 0905

Received [Signature] Date/Time 6/10/16 1112

Relinquished \_\_\_\_\_ Date/Time \_\_\_\_\_

Received \_\_\_\_\_ Date/Time \_\_\_\_\_

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance

**Attachment 3**  
**Filter Sock Specification**



# Part#: 37BFS3



Part #	Description
37BFS3	9453 ACTIVATED CARBON FILTER SOCK FOR STORMWATER 108" X 7" X 4"



Supplied By: **The Cary Company**  
Ph: 630-629-6600  
[www.thecarycompany.com](http://www.thecarycompany.com)





## ULTRA-FILTER SOCK SPECIFICATIONS

MATERIAL SPECIFICATIONS		
Properties	ASTM Test	Value
Material: High Density Polyethylene (HDPE), Woven Geotextile	----	----
Grab Tensile (MD/TD)	D 4632	326 / 216 lbs
Trapezoid Tear (MD/TD)	D 4533	141 / 70 lbs
Puncture	D 4833	109 lbs
Mullen Burst	D 3786	376 psi
UV Resistance (2000 hours)	D 4355	> 70%

MEDIA SPECIFICATIONS	
Media Type	Capacity Information*
Activated Carbon	<ul style="list-style-type: none"> <li>Each Filter Sock is filled with granular activated carbon. This media is an excellent polishing filter, due to its immense surface area and the wide range of components it is capable of absorbing. Helps with removing odors.</li> <li>Dry Filter Sock Weight of approximately 36 lbs</li> </ul>
Heavy Metal Removal Media	<ul style="list-style-type: none"> <li>Each Filter Sock can remove up to 1145 grams of heavy metals</li> <li>Removal rates up to 50% per Filter Sock</li> <li>See Heavy Metal Removal Data Sheet for more information</li> <li>Dry Filter Sock Weight is approximately 32.5 lbs</li> </ul>
Sorb 44	<ul style="list-style-type: none"> <li>Each Filter Sock can absorb up to 5.33 gallons (20 liters) of hydrocarbon</li> <li>Dry Filter Sock Weight is approximately 9 lbs</li> </ul>
PhosFilter	<ul style="list-style-type: none"> <li>Each Filter Sock can remove up to 26 lbs of phosphorus with up to 95% efficiency</li> <li>Dry Filter Sock Weight is approximately 50 lbs</li> </ul>
Sediment Removal Media	<ul style="list-style-type: none"> <li>Recycled rubber material keeps unit in place and allows for maximum water flow</li> <li>Dry Filter Sock Weight is approximately 40 lbs</li> </ul>

\* Note – All information is based on a standard 9-foot long Ultra-Filter Sock

07/12/2011

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904.292.1325

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