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November 11, 2016

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

SUBJECT: THIRD 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 third 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 third post-remediation quarterly groundwater monitoring completed in September 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.

INSTALLATION OF SEEP FILTER SOCK

The seep water samples collected from the curb line during the first two quarters (March and June 2016), confirmed that tetrachloroethene (PCE) and vinyl chloride remain 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) were evaluated.

After several attempts to seal the seep (as described in previous summary reports), the use of a carbon sock was recommended to treat the seep water at the point of expression. A right-of-way

obstruction permit was acquired from the City of Olympia in order to install the activated carbon filter sock at the point of the seep expression and directly downgradient. Installation of the sock was completed on September 29, 2016, prior to sample collection. The sock was bolted to the curb on either end of the sock and a berm made out of halved, 2-inch-diameter acrylonitrile-butadiene-styrene (ABS) pipe anchored with adhesive caulk and reinforced with hydraulic cement was placed around the upslope edges of the sock to redirect stormwater. The filter sock will be monitored by the owner on a weekly basis per the right-of-way obstruction permit requirements. In accordance with permit requirements, a catch basin filter was also installed in the downgradient catch basin. Photographs of the installation are included in Attachment 1.

COMPLIANCE MONITORING SAMPLE COLLECTION

This section describes the groundwater and seep water sampling performed during the September 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 September 29, 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 still flowing, but at a slow enough rate that a low-flow sample was collected. The groundwater sample collection forms are included in Attachment 2.

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 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 1.1 feet 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 and June 2016 monitoring events 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 similar rate as in June. A grab sample was collected from the seep on September 29, 2016 prior to the installation of the activated carbon filter sock. An additional seep grab sample (SEEP-POST) was collected after the installation of the activated carbon filter sock, after enough time had passed for the seep to have saturated the sock.

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 six groundwater samples were submitted in one sample delivery group (FB1610004) to Fremont Analytical, Inc. of Seattle, Washington, 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) and laboratory control sample recoveries 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 September 2016 groundwater monitoring are provided in Table 1, along with data from the previous quarterly monitoring events in March and June 2016 as well as the pre-remediation monitoring well sampling in August 2013 (SES 2013) for comparison. The analytical data for surface water, including the seep, are summarized in Table 2. All three quarters of groundwater and surface water monitoring results are also shown on Figure 3. A copy of the laboratory report is included in Attachment 3.

Monitoring Well Groundwater Results

Groundwater collected from monitoring well MW-14 contained TCE, PCE, and *cis*-1,2-DCE at concentrations greater than their respective cleanup levels. The concentration of vinyl chloride

has deceased to non-detect in groundwater collected from MW-14. The concentrations of TCE, PCE, and cis-1,2-DCE are consistent with the June 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 cleanup level and at similar concentrations as in June 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, June 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 September 2016 was fairly similar to past sample dates.

Seep Water Results

The seep water sample collected from the curb line prior to installation of the carbon filter had PCE and vinyl chloride concentrations exceeding their respective cleanup levels, with concentrations 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 June 2016.

The water sample taken at the seep immediately downstream of the carbon filter sock (SEEP-POST) demonstrated a significant improvement in water quality with low-level detections of PCE, *cis*-1,2-DCE, and vinyl chloride. These results confirm that the carbon filter is providing effective treatment for seep water quality at the point of discharge, sufficient to meet the cleanup levels.

DEVIATIONS FROM COMPLIANCE MONITORING PLAN

During the September 2016 compliance monitoring, there were no significant deviations from the CMP.

COMPLIANCE MONITORING SCHEDULE

The next quarterly monitoring event, which will be completed in December 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 results of the December 2016 compliance monitoring will be documented in an Annual Summary Report, which will be submitted to Ecology to summarize the first year of compliance monitoring.

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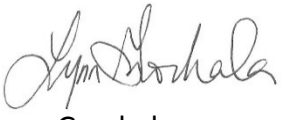
State of Washington. 2014. *Consent Decree No. 14-2-02104-3, State of Washington, Department of Ecology v. The Estate of Katherine Burleson and GJG, LLC*. Thurston County Superior Court. 31 October.

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.

Washington State Department of Ecology (Ecology). 2014. *Former Olympia Dry Cleaners Site Cleanup Action Plan*. 29 October.

Sincerely yours,

FLOYD | SNIDER



Lynn Grochala
Senior Environmental Scientist

Encl.: Table 1 Groundwater Monitoring Data
Table 2 Surface Water Monitoring Data
Figure 1 Site Vicinity Map
Figure 2 Source Removal Areas and Compliance Monitoring Locations
Figure 3 2016 Quarterly Groundwater and Surface Water Monitoring Results
Attachment 1 Filter Sock Installation Photographs
Attachment 2 Field Forms
Attachment 3 Laboratory Data

Tables

Table 1
Groundwater Monitoring Data

Sample Location	Status[1]	Date	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)	*cis* -1,2-Dichloroethene (µg/L)	*trans* -1,2-Dichloroethene (µg/L)	1,1-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)
MW-06	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
		9/29/2016	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	**2.7**
	Post-remediation	3/12/2016	1.0 U	2.2	11	1.0 U	1.0 U	**5.0**
		6/9/2016	1.0 U	3.2	**26**	1.0 U	1.0 U	**9.8**
		9/29/2016	1.0 U	2.8	**27**	1.0 U	1.0 U	**10.5**
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
		9/29/2016	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
		9/29/2016	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	**52**	**17**	**23**	1.0 U	1.0 U	**2.4**
		6/9/2016[2]	**99**	**34**	**33**	1.0 U	1.0 U	**2.8**
		9/29/2016	**96**	**40**	**42**	1.0 U	1.0 U	0.20 U
FD-01	Post-remediation	3/12/2016	**46**	**26**	**160**	1.0	1.0 U	**36**
		6/9/2016	**31**	**34**	**428**	2.4	1.2	**87**
		9/29/2016	**33**	**48**	**307**	2.0	1.0 U	**73**
Groundwater Cleanup Level (µg/L)			5.0	5.0	16	100	7.0	0.20

Notes:

BOLD Indicates a concentration that exceeds the site cleanup level.

1 Pre-remediation groundwater monitoring data collected by SoundEarth 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.

Table 2
Surface Water Monitoring Data

Sample Location	Status	Date	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)	*cis* -1,2-Dichloroethene (µg/L)	*trans* -1,2-Dichloroethene (µg/L)	1,1-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)
SEEP	Post-remediation	3/8/2016	**33**	15	110	1.0 U	1.0 U	**15**
		3/30/2016	**23**	17	160	1.0 U	1.0 U	**22**
		6/9/2016	**16**	18	170	1.3	1.0 U	**20**
		9/29/2016	**16**	30	177	1.0 U	1.0 U	**16**
SEEP-CB[1]	Post-remediation	6/9/2016	1.0 U	0.50 U	1.8	1.0 U	1.0 U	0.20 U
SEEP-POST[2]	Post-remediation	9/29/2016	1.0 U	0.55	2.3	1.0 U	1.0 U	0.62
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 Sample collected at the downstream catch basin.

2 Sample collected downstream of the carbon filter sock to demonstrate treatment efficiency.

Abbreviations:

µg/L Micrograms per liter

NA Not applicable

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

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6/2/2016

Legend

- Compliance Monitoring Well
- Compliance Monitoring Point
- Seep

Utilities

- E — Underground Electric Line
- GAS — Underground Gas Line
- OE — Overhead Electric Line
- SW — Underground Stormwater Line
- T — Overhead Telephone Line
- W — Underground Water Line
- SS — Underground Sanitary Sewer Line

- Sidewalk
- Concrete Pad
- Building Outline
- Property Boundary
- Building Awning
- Soil Excavation Limits (2015)
- Shrubs/Trees

ASPHALT LOT

GRASSY AREA

ASPHALT LOT

UNION AVE SOUTHEAST

MW-06

Cherry Street Q-Tip Trust Building

MW-09

Boiler Room

Dry Cleaner Machine

Former Olympia Dry Cleaners Building

Roof Line

ARTESIAN SUPPLY WELL

MW-14

FD-01

MW-11

FORMER SEEP AREA

SEEP

CATCHBASIN

MANHOLE

MANHOLE

MANHOLE

CHERRY STREET SOUTHEAST

MW-13

0 12.5 25 50

Scale in Feet

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

Figure 2
Source Removal Areas and
Compliance Monitoring Locations

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11/10/2016

Legend

- Compliance Monitoring Well
- Compliance Monitoring Point
- Seep
- Sidewalk
- Concrete Pad
- Building Outline
- Property Boundary
- Building
- Soil Excavation Limits (2015)
- Carbon Filter Sock
- 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.

ASPHALT LOT

GRASSY AREA

ASPHALT LOT

UNION AVE SOUTHEAST

MW-09

Analyte	3/8/16	6/9/16	9/29/16
PCE	1.0 U	1.0 U	1.0 U
TCE	2.2	3.2	2.8
cis-1,2-DCE	11	**26**	**27**
trans-1,2-DCE	1.0 U	1.0 U	1.0 U
1,1-DCE	1.0 U	1.0 U	1.0 U
Vinyl Chloride	**5.0**	**9.8**	**10.5**

MW-06 Analytes tested for during each event, but not detected.

Cherry Street Q-Tip Trust Building

Boiler Room

Dry Cleaner Machine

Former Olympia Dry Cleaners Building

Roof Line

MW-14

Analyte	3/8/16	6/9/16	9/29/16
PCE	**52**	**99**	**96**
TCE	**17**	**34**	**40**
cis-1,2-DCE	**23**	**33**	**42**
trans-1,2-DCE	1.0 U	1.0 U	1.0 U
1,1-DCE	1.0 U	1.0 U	1.0 U
Vinyl Chloride	**2.4**	**2.8**	0.20 U

MW-11 Analytes tested for during each event, but not detected.

CATCHBASIN

FORMER SEEP AREA

FD-1

Analyte	3/8/16	6/9/16	9/29/16
PCE	**46**	**31**	**33**
TCE	**26**	**34**	**48**
cis-1,2-DCE	**160**	**428**	**307**
trans-1,2-DCE	1.0	2.4	2
1,1-DCE	1.0 U	1.2	1.0 U
Vinyl Chloride	**36**	**87**	**73**

SEEP-CB

Analyte	6/9/16
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-POST

Analyte	9/29/16
PCE	1.0 U
TCE	0.55
cis-1,2-DCE	2.3
trans-1,2-DCE	1.0 U
1,1-DCE	1.0 U
Vinyl Chloride	0.62

MANHOLE

SEEP

Analyte	3/8/16	6/9/16	9/29/16
PCE	**23**	**16**	**16**
TCE	17	18	30
cis-1,2-DCE	160	170	177
trans-1,2-DCE	1.0 U	1.3	1.0 U
1,1-DCE	1.0 U	1.0 U	1.0 U
Vinyl Chloride	**22**	**20**	**16**

CHERRY STREET SOUTHEAST

MW-13 Analytes tested for during each event, but not detected.

N

0 12.5 25 50

Scale in Feet

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

Figure 3
2016 Quarterly Groundwater and Surface Water Monitoring Results

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10/31/2016

Attachment 1
Filter Sock Installation Photographs

Photograph 1. Filter sock at curb line and ABS pipe berm.

Photograph 2. Upgradient end of filter sock, bolted to concrete curb.

Photograph 3. Downgradient end of filter sock, bolted to concrete curb.

Photograph 4. Filter insert installed in downgradient catch basin.

Photograph 5. Filter sock and berm reinforced with hydraulic cement.

Attachment 2
Field Forms

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH - Olympia
Project Number: t-9
Date of Collection: 9/29/2016
Field Personnel: P. Wichgers

Purge Data

Well ID: MW-14 Secure: ☒ Yes ☐ No Well Condition/Damage Description: good

Depth Sounder decontaminated Prior to Placement in Well: ☐ Yes ☐ No NA One Casing Volume (gal): 3 gal

Depth of water (from top of well casing): artesian Well Casing Type/Diameter/Screened Interval: 2" PVC, 10-15' angled

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

Begin purge (time): 1019

End purge (time): 1052

Volume purged: 15 L

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 ¼"	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 L	pH	DO mg/L	Conductivity mS/cm	Turbidity NTU	Temp °C	ORP mV	Comments
1024	flowing	2	6.38	0.00	0.201	25.9	15.08	-69	
1029	flowing	4	6.18	0.00	0.204	13.3	14.95	-69	
1034	flowing	6	6.11	0.00	0.208	10.6	14.90	-70	
1039	flowing	11	6.12	0.00	0.210	6.5	14.87	-74	purge + bailed H_2O
1044	flowing	13	6.14	0.00	0.213	3.4	14.85	-75	
1049	flowing	15	6.15	0.00	0.215	3.0	14.85	-77	

Sampling Data

Sample No: MW-14-092916 Location and Depth: MW-14, 12.5'

Date Collected (mo/dy/yr): 9/29/16 Time Collected: 1052 Weather: Sunny, 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, mild 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) ☐	C VOCs	(HCl) ☒

Additional Information

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

Signature: _____ Date: 9/26/16

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: _____ Date of Collection: _____

Project Number: _____ Field Personnel: _____

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): artesian Well Casing Type/Diameter/Screened Interval: 2" PVC / 5-10 ft

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

Begin purge (time): 1025

End purge (time): _____

Volume purged: _____

Purge water disposal method: ground on-site

Volume of Schedule 40 PVC Pipe

Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	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 L	pH	DO mg/L	Conductivity mS/cm	Turbidity ~~NTU~~ FNU	Temp °C	ORP mV	Comments
1030	above depth of sensor to tape 0.95	1	7.31	0.37	0.175	4.5	15.9	-106.6	
1035		2	7.22	0.16	0.173	7.7	16.0	-118.4	
1040		3	7.20	0.12	0.173	11.0	16.0	-121.3	
1045		4	7.18	0.09	0.172	23.4	16.3	-123.3	
	~~0.17~~ 1.13								
	1.15								

Sampling Data

Sample No: MW-11-092916 Location and Depth: MW-11, 7.5 ft

Date Collected (mo/dy/yr): 9/29/16 Time Collected: 1050 Weather: _____

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

Sample Collected with: ☐ Bailer ☒ Pump Other: peri Type: _____

Water Quality Instrument Data Collected with: Type: ☐ Horiba U-22 ☐ Horiba U-50 Other: YSI pro DSS

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, 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) ☐	C VOCs	(HCl) ☒

Additional Information

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

Signature: _____ **Date:** 9/29/16

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH - Olympia
Project Number: t-9
Date of Collection: 9-29-16
Field Personnel: P. Wichgers

Purge Data

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

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): 5"
Well Casing Type/Diameter/Screened Interval: 2" PVC, 4.5-9.5'
After 5 minutes of purging (from top of casing): 2.3'
Begin purge (time): ~~11:14~~ PW 11:20
End purge (time): 11:59
Volume purged: 7 Liters
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 ¼"	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. L Purged	pH	DO mg/L	Conductivity mS/cm	Turbidity NTU	Temp °C	ORP mV	Comments
1125	2.3'	1	7.08	0.35	0.217	5.9	15.66	-60	seal on flow cell
1130	3.5'	2	6.92	0.00	0.215	2.5	15.80	-64	leaking
1135	4.4'	3	6.90	0.00	0.214	3.5	15.89	-69	
1145	3.1' PW	4	7.15	0.20	0.214	0.6	16.43	-52	pump died @ 1139
1150	3.9'	5	7.17	0.00	0.218	1.1	15.09	-70	
1155	4.4'	6	7.10	0.00	0.217	0.1	15.29	-73	

Sampling Data

Sample No: MW-13-092916
Location and Depth: MW-13, 7'
Date Collected (mo/dy/yr): 9/29/16
Time Collected: 1158
Weather: Sunny, 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, 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:
40 mL VOAs w/ HCl	3	N/A	well tag missing

Signature: [signature]
Date: 9/29/16

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH - Olympia
Project Number: t-9
Date of Collection: 9/29/16
Field Personnel: P. Wichgers

Purge Data

Well ID: MW-09 APE-262
Secure: ☒ Yes ☐ No
Well Condition/Damage Description: good, broke lock to Sample. b/c stuck
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): 3.44'
Well Casing Type/Diameter/Screened Interval: 2", 3-16'
After 5 minutes of purging (from top of casing): 3.70'
Begin purge (time): 12:40
End purge (time): 13:03
Volume purged: 9 Liters
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 ¼"	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. L Purged	pH	DO mg/L	Conductivity mS/cm	Turbidity NTU	Temp °C	ORP mV	Comments
12:45	3.70'	1.85	6.44	052	0.284	8.3	16.53	-55	
12:50	3.84'	2.75	6.18	0.00	0.304	7.0	16.26	-50	
12:55	3.90'	4.5	6.11	0.00	0.315	8.5	16.30	-48	
13:00	3.91'	6.5	6.11	0.00	0.319	7.7	16.22	-51	

Sampling Data

Sample No: MW-09-092916
Location and Depth: MW-09, 4.5'
Date Collected (mo/dy/yr): 9/29/16
Time Collected: 13:02
Weather: sunny, 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, 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 VOAs w/HCl	3	N/A	Ecology ID # APE-262

Signature: [signature]
Date: 9/29/16

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH - Olympia Date of Collection: 9/29/16

Project Number: E-9 Field Personnel: ICA

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):

Depth of water (from top of well casing): 1.20 Well Casing Type/Diameter/Screened Interval:

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

Begin purge (time): 1014

End purge (time):

Volume purged: 20 gal

Purge water disposal method: ground on-site

Volume of Schedule 40 PVC Pipe				
Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	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 (mS/cm)	Turbidity (FNU)	Temp (°C)	ORP (mV)	Comments
1224	— (no drawdown)	20	9.15	2.49	0.350	4.5	18.2	-26.4	(meas. taken from bucket) after purge

Sampling Data

Sample No: 9/29/16) Location and Depth: FD-01, ~2.24

Date Collected (mo/dy/yr): FD-01-092916 Time Collected: 1223 Weather:

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

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

Water Quality Instrument Data Collected with: Type: ☐ Horiba U-22 ☐ Horiba U-50 Other: YSI PRO DSS

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:
40mL VOA w/HCl	3	NA	

Signature: Date: 9/29/16

GROUNDWATER OR SURFACE WATER SAMPLE COLLECTION FORM

Project Name: GTH – Olympia Date of Collection: 9/29/16

Project Number: Quarterly GWM Field Personnel: KA

Purge Data

Well ID: MW-06 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): ~20.2ft Well Casing Type/Diameter/Screened Interval: 2" PVC, 10-20'

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

Begin purge (time): 1243

End purge (time):

Volume purged:

Purge water disposal method: ground on-site

Volume of Schedule 40 PVC Pipe				
Diameter	O.D.	I.D.	Volume (Gal/Linear Ft.)	Weight of Water (Lbs/Lineal Ft.)
1 ¼"	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

KA

Time	Depth to Water	Vol. Purged (L)	pH	DO mg/L	Conductivity ms/cm	Turbidity FNU	Temp °C	ORP mV	Comments
1245									
~~1250~~	(cannot	0.25	6.32	0.64	0.275	54.5	21.0	-31.9	air bubbles
1250	AT water	0.75	6.32	0.30	0.278	104.8	20.9	-36.3	interfering w/
1255	level prove	1.25	6.34	0.23	0.323	208.1	20.3	-58.5	turb.
1300	+ tubing	1.75	6.35	0.12	0.406	295.3	20.3	-81	readings,
1305	mud	~~2.25~~ 2	6.33	0.07	0.424	257.4	20.9	-81.9	water visually
									clear
	well going dry	↑	allowed to recharge + sampled						

Sampling Data

Sample No: MW-11-092916 Location and Depth: MW-11, 15 ft

Date Collected (mo/dy/yr): 9/29/16 Time Collected: 1310 Weather:

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

Sample Collected with: ☐ Bailer ☒ Pump Other: Type: peri.

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

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, v. 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) ☐	C-VOCs	(HCl) ☒

Additional Information

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

Signature: **Date:** 9/29/16

Attachment 3
Laboratory Data

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

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

RE: GTH-Olympia Dry Cleaners
Work Order Number: 1610004

October 10, 2016

Attention Lynn Grochala:

Fremont Analytical, Inc. received 9 sample(s) on 9/30/2016 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
Laboratory Director

CC:
Kristin Anderson

Date: *10/10/2016*

CLIENT: Floyd | Snider
Project: GTH-Olympia Dry Cleaners
Work Order: 1610004

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1610004-001	MW-14-092916	09/29/2016 10:52 AM	09/30/2016 4:25 PM
1610004-002	MW-11-092916	09/29/2016 10:50 AM	09/30/2016 4:25 PM
1610004-003	MW-13-092916	09/29/2016 11:58 AM	09/30/2016 4:25 PM
1610004-004	MW-09-092916	09/29/2016 1:02 PM	09/30/2016 4:25 PM
1610004-005	FD-01-092916	09/29/2016 12:23 PM	09/30/2016 4:25 PM
1610004-006	MW-06-092916	09/29/2016 1:10 PM	09/30/2016 4:25 PM
1610004-007	SEEP-PRE-092916	09/29/2016 10:15 AM	09/30/2016 4:25 PM
1610004-008	SEEP-POST-092916	09/29/2016 1:40 PM	09/30/2016 4:25 PM
1610004-009	Trip Blank	09/26/2016 2:38 PM	09/30/2016 4:25 PM

Case Narrative

WO#: **1610004**
Date: **10/10/2016**

CLIENT: Floyd | Snider
Project: GTH-Olympia Dry Cleaners

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

Work Order: **1610004**
Date Reported: **10/10/2016**

Client: Floyd | Snider
Project: GTH-Olympia Dry Cleaners
Lab ID: 1610004-001
Client Sample ID: **MW-14-092916**

Collection Date: 9/29/2016 10:52:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15018		Analyst: EM
Vinyl chloride	ND	0.200		µg/L	1	10/8/2016 12:36:43 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/8/2016 12:36:43 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/8/2016 12:36:43 PM
cis-1,2-Dichloroethene	41.9	10.0	D	µg/L	10	10/8/2016 12:54:46 AM
Trichloroethene (TCE)	39.6	5.00	D	µg/L	10	10/8/2016 12:54:46 AM
Tetrachloroethene (PCE)	95.9	10.0	D	µg/L	10	10/8/2016 12:54:46 AM
Surr: Dibromofluoromethane	102	45.4-152		%Rec	1	10/8/2016 12:36:43 PM
Surr: Toluene-d8	100	40.1-139		%Rec	1	10/8/2016 12:36:43 PM
Surr: 1-Bromo-4-fluorobenzene	96.9	64.2-128		%Rec	1	10/8/2016 12:36:43 PM

Analytical Report

Work Order: **1610004**
Date Reported: **10/10/2016**

Client: Floyd | Snider
Project: GTH-Olympia Dry Cleaners
Lab ID: 1610004-002
Client Sample ID: **MW-11-092916**

Collection Date: 9/29/2016 10:50:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15018		Analyst: EM
Vinyl chloride	ND	0.200		µg/L	1	10/7/2016 10:28:14 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 10:28:14 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 10:28:14 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 10:28:14 PM
Trichloroethene (TCE)	ND	0.500		µg/L	1	10/7/2016 10:28:14 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	10/7/2016 10:28:14 PM
Surr: Dibromofluoromethane	99.7	45.4-152		%Rec	1	10/7/2016 10:28:14 PM
Surr: Toluene-d8	100	40.1-139		%Rec	1	10/7/2016 10:28:14 PM
Surr: 1-Bromo-4-fluorobenzene	95.7	64.2-128		%Rec	1	10/7/2016 10:28:14 PM

Analytical Report

Work Order: **1610004**
Date Reported: **10/10/2016**

Client: Floyd | Snider
Project: GTH-Olympia Dry Cleaners
Lab ID: 1610004-003
Client Sample ID: **MW-13-092916**

Collection Date: 9/29/2016 11:58:00 AM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15018		Analyst: EM
Vinyl chloride	ND	0.200		µg/L	1	10/7/2016 10:57:35 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 10:57:35 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 10:57:35 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 10:57:35 PM
Trichloroethene (TCE)	ND	0.500		µg/L	1	10/7/2016 10:57:35 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	10/7/2016 10:57:35 PM
Surr: Dibromofluoromethane	99.2	45.4-152		%Rec	1	10/7/2016 10:57:35 PM
Surr: Toluene-d8	99.4	40.1-139		%Rec	1	10/7/2016 10:57:35 PM
Surr: 1-Bromo-4-fluorobenzene	95.6	64.2-128		%Rec	1	10/7/2016 10:57:35 PM

Analytical Report

Work Order: **1610004**
Date Reported: **10/10/2016**

Client: Floyd | Snider
Project: GTH-Olympia Dry Cleaners
Lab ID: 1610004-004
Client Sample ID: **MW-09-092916**

Collection Date: 9/29/2016 1:02:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15018		Analyst: EM
Vinyl chloride	10.5	0.200		µg/L	1	10/8/2016 11:38:11 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/8/2016 11:38:11 AM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/8/2016 11:38:11 AM
cis-1,2-Dichloroethene	27.1	1.00		µg/L	1	10/8/2016 11:38:11 AM
Trichloroethene (TCE)	2.84	0.500		µg/L	1	10/8/2016 11:38:11 AM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	10/8/2016 11:38:11 AM
Surr: Dibromofluoromethane	100	45.4-152		%Rec	1	10/8/2016 11:38:11 AM
Surr: Toluene-d8	100	40.1-139		%Rec	1	10/8/2016 11:38:11 AM
Surr: 1-Bromo-4-fluorobenzene	96.4	64.2-128		%Rec	1	10/8/2016 11:38:11 AM

Analytical Report

Work Order: **1610004**
Date Reported: **10/10/2016**

Client: Floyd | Snider
Project: GTH-Olympia Dry Cleaners
Lab ID: 1610004-005
Client Sample ID: **FD-01-092916**

Collection Date: 9/29/2016 12:23:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15018		Analyst: EM
Vinyl chloride	72.6	4.00	D	µg/L	20	10/8/2016 1:53:18 AM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/8/2016 12:07:28 PM
trans-1,2-Dichloroethene	2.03	1.00		µg/L	1	10/8/2016 12:07:28 PM
cis-1,2-Dichloroethene	307	20.0	D	µg/L	20	10/8/2016 1:53:18 AM
Trichloroethene (TCE)	47.7	10.0	D	µg/L	20	10/8/2016 1:53:18 AM
Tetrachloroethene (PCE)	33.1	1.00		µg/L	1	10/8/2016 12:07:28 PM
Surr: Dibromofluoromethane	98.4	45.4-152		%Rec	1	10/8/2016 12:07:28 PM
Surr: Toluene-d8	100	40.1-139		%Rec	1	10/8/2016 12:07:28 PM
Surr: 1-Bromo-4-fluorobenzene	97.2	64.2-128		%Rec	1	10/8/2016 12:07:28 PM

Analytical Report

Work Order: **1610004**
Date Reported: **10/10/2016**

Client: Floyd | Snider
Project: GTH-Olympia Dry Cleaners
Lab ID: 1610004-006
Client Sample ID: **MW-06-092916**

Collection Date: 9/29/2016 1:10:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15018		Analyst: EM
Vinyl chloride	ND	0.200		µg/L	1	10/7/2016 11:26:56 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 11:26:56 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 11:26:56 PM
cis-1,2-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 11:26:56 PM
Trichloroethene (TCE)	ND	0.500		µg/L	1	10/7/2016 11:26:56 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	10/7/2016 11:26:56 PM
Surr: Dibromofluoromethane	99.6	45.4-152		%Rec	1	10/7/2016 11:26:56 PM
Surr: Toluene-d8	99.7	40.1-139		%Rec	1	10/7/2016 11:26:56 PM
Surr: 1-Bromo-4-fluorobenzene	95.2	64.2-128		%Rec	1	10/7/2016 11:26:56 PM

Analytical Report

Work Order: **1610004**
Date Reported: **10/10/2016**

Client: Floyd | Snider
Collection Date: 9/29/2016 10:15:00 AM
Project: GTH-Olympia Dry Cleaners
Lab ID: 1610004-007
Matrix: Water
Client Sample ID: **SEEP-PRE-092916**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15018		Analyst: EM
Vinyl chloride	15.8	0.200		µg/L	1	10/8/2016 1:06:01 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/8/2016 1:06:01 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/8/2016 1:06:01 PM
cis-1,2-Dichloroethene	177	10.0	D	µg/L	10	10/8/2016 2:22:40 AM
Trichloroethene (TCE)	29.8	0.500		µg/L	1	10/8/2016 1:06:01 PM
Tetrachloroethene (PCE)	15.9	1.00		µg/L	1	10/8/2016 1:06:01 PM
Surr: Dibromofluoromethane	100	45.4-152		%Rec	1	10/8/2016 1:06:01 PM
Surr: Toluene-d8	99.7	40.1-139		%Rec	1	10/8/2016 1:06:01 PM
Surr: 1-Bromo-4-fluorobenzene	97.2	64.2-128		%Rec	1	10/8/2016 1:06:01 PM

Analytical Report

Work Order: **1610004**
Date Reported: **10/10/2016**

Client: Floyd | Snider
Collection Date: 9/29/2016 1:40:00 PM
Project: GTH-Olympia Dry Cleaners
Lab ID: 1610004-008
Matrix: Water
Client Sample ID: **SEEP-POST-092916**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Volatile Organic Compounds by EPA Method 8260C				Batch ID: 15018		Analyst: EM
Vinyl chloride	0.621	0.200		µg/L	1	10/7/2016 11:56:13 PM
1,1-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 11:56:13 PM
trans-1,2-Dichloroethene	ND	1.00		µg/L	1	10/7/2016 11:56:13 PM
cis-1,2-Dichloroethene	2.33	1.00		µg/L	1	10/7/2016 11:56:13 PM
Trichloroethene (TCE)	0.551	0.500		µg/L	1	10/7/2016 11:56:13 PM
Tetrachloroethene (PCE)	ND	1.00		µg/L	1	10/7/2016 11:56:13 PM
Surr: Dibromofluoromethane	99.5	45.4-152		%Rec	1	10/7/2016 11:56:13 PM
Surr: Toluene-d8	100	40.1-139		%Rec	1	10/7/2016 11:56:13 PM
Surr: 1-Bromo-4-fluorobenzene	95.6	64.2-128		%Rec	1	10/7/2016 11:56:13 PM

Work Order: 1610004
CLIENT: Floyd | Snider
Project: GTH-Olympia Dry Cleaners

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **LCS-15018** SampType: **LCS** Units: **µg/L** Prep Date: **10/4/2016** RunNo: **32142**
Client ID: **LCSW** Batch ID: **15018** Analysis Date: **10/5/2016** SeqNo: **607638**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	16.3	0.200	20.00	0	81.6	53.6	139				
1,1-Dichloroethene	18.8	1.00	20.00	0	94.0	65.6	136				
trans-1,2-Dichloroethene	19.7	1.00	20.00	0	98.6	71.7	129				
cis-1,2-Dichloroethene	27.8	1.00	20.00	0	139	70.2	139				
Trichloroethene (TCE)	18.7	0.500	20.00	0	93.4	65.2	136				
Tetrachloroethene (PCE)	19.3	1.00	20.00	0	96.5	47.5	147				
Surr: Dibromofluoromethane	24.7		25.00		98.7	45.4	152				
Surr: Toluene-d8	25.1		25.00		100	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	25.1		25.00		100	64.2	128				

Sample ID **MB-15018** SampType: **MBLK** Units: **µg/L** Prep Date: **10/4/2016** RunNo: **32142**
Client ID: **MBLKW** Batch ID: **15018** Analysis Date: **10/5/2016** SeqNo: **607639**

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	24.7		25.00		98.6	45.4	152				
Surr: Toluene-d8	23.5		25.00		94.1	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	23.3		25.00		93.2	64.2	128				

Sample ID **1610014-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **10/4/2016** RunNo: **32142**
Client ID: **BATCH** Batch ID: **15018** Analysis Date: **10/5/2016** SeqNo: **607627**

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: 1610004
CLIENT: Floyd | Snider
Project: GTH-Olympia Dry Cleaners

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610014-001ADUP** SampType: **DUP** Units: **µg/L** Prep Date: **10/4/2016** RunNo: **32142**
Client ID: **BATCH** Batch ID: **15018** Analysis Date: **10/5/2016** SeqNo: **607627**

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	23.8		25.00		95.2	45.4	152		0		
Surr: Toluene-d8	23.3		25.00		93.2	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	24.8		25.00		99.0	64.2	128		0		

Sample ID **1610039-015CMS** SampType: **MS** Units: **µg/L** Prep Date: **10/4/2016** RunNo: **32142**
Client ID: **BATCH** Batch ID: **15018** Analysis Date: **10/5/2016** SeqNo: **607634**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	9.65	0.200	20.00	0	48.3	58.1	158				S
1,1-Dichloroethene	13.4	1.00	20.00	0	67.0	63	141				
trans-1,2-Dichloroethene	19.6	1.00	20.00	0	98.2	63.5	138				
cis-1,2-Dichloroethene	25.9	1.00	20.00	0	130	67.1	123				S
Trichloroethene (TCE)	17.4	0.500	20.00	0	87.0	60.4	134				
Tetrachloroethene (PCE)	12.7	1.00	20.00	0	63.4	50.3	133				
Surr: Dibromofluoromethane	24.5		25.00		98.1	45.4	152				
Surr: Toluene-d8	15.8		25.00		63.0	40.1	139				
Surr: 1-Bromo-4-fluorobenzene	24.8		25.00		99.3	64.2	128				

Sample ID **1610039-015CMSD** SampType: **MSD** Units: **µg/L** Prep Date: **10/4/2016** RunNo: **32142**
Client ID: **BATCH** Batch ID: **15018** Analysis Date: **10/5/2016** SeqNo: **607635**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	8.97	0.200	20.00	0	44.8	58.1	158	9.650	7.30	30	S
1,1-Dichloroethene	11.7	1.00	20.00	0	58.4	63	141	13.40	13.8	30	S
trans-1,2-Dichloroethene	14.6	1.00	20.00	0	73.0	63.5	138	19.63	29.5	30	
cis-1,2-Dichloroethene	25.7	1.00	20.00	0	129	67.1	123	25.93	0.813	30	S

Work Order: 1610004
CLIENT: Floyd | Snider
Project: GTH-Olympia Dry Cleaners

QC SUMMARY REPORT

Volatile Organic Compounds by EPA Method 8260C

Sample ID **1610039-015CMSD** SampType: **MSD** Units: **µg/L** Prep Date: **10/4/2016** RunNo: **32142**
Client ID: **BATCH** Batch ID: **15018** Analysis Date: **10/5/2016** SeqNo: **607635**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Trichloroethene (TCE)	18.8	0.500	20.00	0	93.8	60.4	134	17.39	7.63	30	
Tetrachloroethene (PCE)	18.0	1.00	20.00	0	90.1	50.3	133	12.68	34.8	30	R
Surr: Dibromofluoromethane	24.3		25.00		97.2	45.4	152		0		
Surr: Toluene-d8	23.8		25.00		95.4	40.1	139		0		
Surr: 1-Bromo-4-fluorobenzene	23.9		25.00		95.5	64.2	128		0		

Sample ID **CCV-D-15018** SampType: **CCV** Units: **µg/L** Prep Date: **10/7/2016** RunNo: **32225**
Client ID: **CCV** Batch ID: **15018** Analysis Date: **10/7/2016** SeqNo: **609410**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Vinyl chloride	16.4	0.200	20.00	0	82.2	80	120				
1,1-Dichloroethene	18.8	0.500	20.00	0	94.0	80	120				
trans-1,2-Dichloroethene	19.8	0.500	20.00	0	98.8	80	120				
cis-1,2-Dichloroethene	20.7	0.500	20.00	0	103	80	120				
Trichloroethene (TCE)	20.4	0.500	20.00	0	102	80	120				
Tetrachloroethene (PCE)	19.4	0.500	20.00	0	97.1	80	120				
Surr: Dibromofluoromethane	25.1		25.00		100	72.1	122				
Surr: Toluene-d8	25.8		25.00		103	62.1	129				
Surr: 1-Bromo-4-fluorobenzene	26.0		25.00		104	63.3	132				

Sample Log-In Check List

Client Name:	**FS**	Work Order Number:	**1610004**
Logged by:	**Erica Silva**	Date Received:	**9/30/2016 4:25:00 PM**

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 ºC
Cooler	2.0
Sample	5.9
Temp Blank	1.5

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

Chain of Custody Record and Laboratory Services Agreement

Fremont Analytical

3600 Fremont Ave N. *Tel: 206-352-3790*
Seattle, WA 98103 *Fax: 206-352-7178*

Date: 9/29/16 *Laboratory Project No (internal):* 16100004

Page: 1 of: 1

Client: Floyd Snider
Address: 601 Union St, Suite 6000
City, State, Zip: Seattle, WA 98101
Telephone: 206-292-2078 Fax: 206-682-7867

Project Name: GTH - Olympia Dry Cleaners
Project No:
Collected by: P. Wichgers
Location: Olympia, WA
Report To (PM): Lynn Grochala + Kristin Anderson
PM Email: Lynn.grochala@Floydsnider.com, kristin.anderson@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)	GX/BTEX	BTEX	Gasoline Range Organics (GX)	Hydrocarbon Identification (HCID)	Diesel/Heavy Oil Range Organics (DX)	SVOCs (EPA 8270 / 625)	PAHs (EPA 8270 - SIM)	PCBs (EPA 8082 / 608)	Metals** (EPA 6020 / 200.8)	Total (T)	Dissolved (D)	Anions (IC)***	EDB (8011)	cVOCs				Comments
1	MW-14-092916	9/29/16	1052	W															X				
2	MW-11-092916		1050																X				
3	MW-13-092916		1158																X				
4	MW-09-092916		1302																X				
5	FD-01-092916		1223																X				
6	MW-06-092916		1310																X				
7	SEEP-PRE-092916		1015																X				
8	SEEP-POST-092916		1340																X				
9																							
10																							

PCE, TCE, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 1,1-dichloroethene, 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

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.)

Turn-around times for samples received after 4:00pm will begin on the following business day.

Special Remarks:

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	Date/Time	Received	Date/Time
x	9/30/16 @ 2:25pm	x Wayne	9/30/16 16:25
Relinquished	Date/Time	Received	Date/Time
x		x	

TAT → SameDay^ NextDay^ 2 Day 3 Day STD

^Please coordinate with the lab in advance