



# City of Bothell™

## Public Works Department

City Hall Building  
18415, 101st Ave NE  
Bothell, WA 98011

## LETTER OF TRANSMITTAL

Phone (425) 806-6800  
Fax (425) 806-6130

**Date:** September 6, 2016

**Company:** Department of Ecology  
**Attn:** Sunny Becker NWRO Toxics  
**Address:** Cleanup Program 3190 - 160th SE  
Bellevue, WA 98008

**From:** Nduta Mbutia, Capital Projects Division

### Attached please find: Electronic copy of:-

1) Letter Report (9/6/2016) - QTR 2, Post-Round 2 Supplemental Injections  
Sampling Event Groundwater Monitoring Report for Ultra Custom Care Cleaners

- |   |   |
|---|---|
| <input type="checkbox"/> For your information/files | <input type="checkbox"/> For your action          |
| <input checked="" type="checkbox"/> At your request | <input type="checkbox"/> Approved as noted        |
| <input type="checkbox"/> Returned for correction    | <input type="checkbox"/> Please return all copies |
| <input type="checkbox"/> Other:                     |   |

**Comments:**



September 6, 2016  
HWA Project No. 2007-098

Washington State Department of Ecology  
3190 160th Ave SE  
Bellevue, WA 98008

Attention: Sunny Becker

Subject: **Ultra Custom Care Cleaners Site  
Ground Water Monitoring Report  
Second Quarter After Bioremediation Round 2**

Dear Ms. Becker:

This letter describes HWA Geosciences second quarter ground water monitoring results for the Ultra Custom Care Cleaners site (the Site), which was performed after the second round of in-situ bioremediation that was initiated in March 2016.

## **Introduction and Background**

On January 26, 2016 a technical memorandum detailing the purpose and rationale for a second round of supplemental bioremediation injections was submitted to Ecology, and subsequently approved in February (see attached excerpt for the second round plan). The injections were implemented with minimal deviations from the approved plan.

This September 6 technical report documents the second quarter of monitoring completed in August 2016 following the second round of in-situ bioremediation completed in April 2016. Interim action cleanup and monitoring of the Site is being performed in accordance with Agreed Order DE9704 between the City of Bothell and the Washington Department of Ecology (Ecology). As part of the approved scope of work for Interim Action No. 2 (Ultra Custom Cleaners, Interim Action Work Plan No. 2, November 7, 2014), enhanced in-situ bioremediation materials were injected into subsurface soil and ground water in four areas to stimulate biological activity and accelerate degradation of tetrachlorethene (PCE) and its degradation products trichloroethene (TCE), (cis) 1,2-dichlorethene (DCE), and vinyl chloride, (VC) at the source area and down-gradient plume. Prior and recent injection locations are shown on Figure 1.

Based on past ground water investigations and monitoring data, concentrations of PCE and its degradation products are present in ground water beneath the Site and beneath areas south of the Site under the east side of Bothell Way NE. Some of these concentrations exceed Model Toxics Control Act (MTCA) Method A cleanup levels. Ground water monitoring well locations and analytical results are illustrated on Figure 2.

Post remediation (round 2) ground water monitoring is now being performed to evaluate the effectiveness of remediation efforts and to determine what additional treatment will be needed, if any. The following paragraphs describe ground water monitoring activities, laboratory results for ground water samples, and the results of our data evaluation activities. Laboratory results are summarized in Table 1.

### **Third Party Investigation**

As part of their due diligence activities related to property purchase, a prospective private developer engaged environmental consultant, Farallon Consulting, to perform some investigative work near the Site. On June 23, 2016, Farallon Consulting advanced one hollow stem auger boring (FB-9) on a property addressed at 10005 to 10011 Main Street (King County tax parcel number 0826059096). The boring was advanced as part of the due diligence process performed by a potential buyer of that property to assess if the halogenated volatile organic compound (HVOC) ground water plume from the Site had extended onto this property. Boring FB-9 was advanced to a depth of 50 feet below ground surface (bgs). The boring log from FB-9 is included as an attachment to this report. Reconnaissance ground water samples were collected from depths of 22, 27, and 32 feet bgs and analyzed for HVOCs. PCE was detected at concentrations slightly exceeding the MTCA Method A cleanup level of 5 ug/L in the samples collected from 27 and 32 feet bgs; at 8.7 and 5.8 ug/L, respectively. PCE was detected at a concentration of 0.89 ug/L in the sample collected from 22 feet bgs. PCE degradation products were not detected in any of the reconnaissance ground water samples.

### **Ground Water Monitoring Results**

Figure 2 shows ground water PCE concentrations measured during the August 2016 and previous sampling rounds.

Following is a list of analytes monitored and their significance with respect to the bioremediation efforts:

- Halogenated Volatile Organic Compounds (HVOCs) – PCE should be decreasing in treated areas. TCE, DCE, and VC typically increase (in that order) then decrease during biological treatment, as successive reductive dechlorination occurs. The complete process can take months to a year or two depending on the amount of PCE sorbed to aquifer sediments. “Stalling” at DCE or VC may occur if optimal subsurface conditions are not maintained. Zero valent iron (ZVI) was also deployed in the source area. ZVI can reduce PCE to ethene and/or ethane without the production of DCE or VC intermediates, so stoichiometric (i.e., proportional) production of DCE and/or VC is not expected.
- Dissolved oxygen (DO) / oxidation/reduction potential (ORP) – DO should be depressed (near zero) and ORP should be in the negative range for reductive dechlorination to occur. A reducing environment should be generated and

September 6, 2016

HWA Project No 2007 098

maintained by the injected ZVI and electron donors (emulsified vegetable oil and sodium lactate).

- Nitrate, sulfate – Reducing conditions should eliminate nitrate, and the majority of sulfate (in that order), therefore these parameters can be used to monitor geochemical conditions in addition to other indicators.
- Total organic carbon (TOC) – TOC should be elevated (>10 ppm) where the electron donor has been injected and is set up (bound to soil) in the aquifer.
- Methane, ethane, ethene – Methane is typically present in small amounts in most reduced soils, from anaerobic decomposition of other (natural) organics. Higher methane concentrations (> 1 mg/l) are observed where donor has been added, and is an indicator that methanogenic conditions are present. Ethene is the typical end product of complete dechlorination of VC, with ethane being produced from ethene in very anaerobic environments.
- Sodium – Sodium is an indicator of the injected sodium lactate, but unlike TOC, is a ‘conservative tracer’, meaning it migrates at the same rate as ground water (i.e., will not bind to soil), and is a good indicator of ground water flow rate and direction.
- *vcrA* – This genetic test is a rough measure of the amount of inoculated microbes in ground water. It is used to assess bioremediation potential and monitor enhanced bioremediation performance by quantifying and characterizing key dechlorinating bacterial in ground water.

**Below is a summary of findings, post-round 2 injections**

**Source area** – PCE concentrations in most source area wells have decreased to below cleanup levels, including MW-1, UCCMW-4, UCCMW-17, UCCMW-18, UCCMW-19, UCCMW-24, and BB-3. Reductive dechlorination is generating DCE and some VC, notably in wells MW-1, UCCMW-19 and in UCCMW-20, which is 40 feet down gradient of the source injection area. As expected, these concentrations are decreasing as dechlorination continues. Ethene was detected in monitoring well UCCMW-18 (8.7 ug/L). The concentration indicates that destruction of VC appears to be occurring in the source area.

ORP remains negative in source area wells at and downgradient of the injection area, with some improvement (change from oxidative to reducing) in wells that had not been responding to treatment prior to the second round of injections, e.g., UCCMW-21 and UCCMW-24.

Nitrate remains depleted in the wells tested as does sulfate in most wells. TOC is still elevated or increased where measured, indicating the presence of recently injected oil in some wells, e.g., MW-1.

The consistent decreasing PCE, DCE and VC concentrations in the source area, the presence of ethene and ethane, high TOC, and reducing ground water conditions indicate favorable treatment progress.

Reducing conditions in wells near the injection area are still favorable and the reducing front has now reached the downgradient well UCCMW-21, but UCCMW-5 (located over 50 feet down gradient of the source injection area) has not yet shown significant reducing conditions or changes in HVOC concentrations.

**First injection row** – During previous rounds of sampling before the second round of injections and immediately after, PCE concentrations and redox conditions in UCCMW-25 and UCCMW-7 were essentially unchanged, and it was thought that the first round of injections was too close to these wells, and the injected oil biobarrier had “set up” or bound to aquifer soils downgradient of these wells. The second round of injections was placed further north (upgradient), and appears to have been successful in deploying at or upgradient of these wells. Both wells exhibited a strong change from oxidative to reducing conditions, decreased nitrate and sulfate, and increased methane, all favorable indicators of treatment. In addition, UCCMW-25 showed increases in TOC, ethane and ethene.

Data from the August 2016 sampling event indicate that PCE concentrations in UCCMW-7 have decreased to below cleanup levels while TCE and DCE concentrations have increased (as expected). PCE concentrations remained around the same in UCCMW-25, and TCE and DCE also increased.

Well BI-3 was damaged due to construction activities and was not sampled.

**Second injection row** – PCE concentrations and ORP in wells UCCMW-8 and BB-2 have decreased indicating that the second round of injections have been effective in these locations. UCCMW-8 is now below cleanup levels for all HVOCs.

**Third injection row** – PCE in UCCMW-26 remains below cleanup levels and TCE, DCE and VC concentrations are now showing decreasing concentrations. The PCE concentration in UCCMW-27 has decreased since the last sampling event while TCE and DCE have increased slightly. Both wells exhibited a strong change from oxidative to reducing conditions. These results indicate that the second round of injections are successfully treating this area.

### **Summary & Recommendations**

Results are still encouraging, with active treatment observed in many wells, as evidenced by decreasing PCE, increased daughter products, and anoxic/reducing conditions. Other indicator parameters also indicate positive results from the second round of injections.

September 6, 2016  
HWA Project No 2007 098

Treatment has been effective in the source area, which is the most important element of the cleanup. In addition, downgradient areas also appear to be responsive to the second round of injections.

- Source area – the farthest downgradient well, UCCMW-5, appears to have not received much (if any) treatment, and HVOC concentrations, albeit initially low, remain relatively unchanged. Future monitoring may show whether treatment reaches this area.
- First injection row – The downgradient well UCCMW-7 has shown positive results with a reduction of the PCE concentration in this well. The PCE concentration in UCCMW-25 has increased slightly as has the concentrations of TCE and DCE. This may be indicative of some treatment taking place at that well location, which future monitoring will confirm.
- Second injection row – BB-2 and UCCMW-8 appear to be responding positively to treatment (decreased PCE concentrations).
- Third injection row – Both wells UCCMW-26 and UCCMW-27 also appear to be responding to treatment from the last round of injections.

Injection locations from the second round of the March/April in-situ bioremediation are shown on Figure 1.



We appreciate the opportunity to provide our services to you on this project. Please feel free to call us if you have any questions or need more information.

Sincerely,  
**HWA GEOSCIENCES INC.**

Nicole Kapise  
Senior Environmental Geologist

Arnie Sugar, LG, LHG  
Principal Hydrogeologist

**Attachments:**

- Excerpt from January 26 Technical Memo
- FB-9 Boring log
- Figure 1: Monitoring well and injection locations
- Figure 2: PCE in ground water, last few rounds
- Table 1: Analytical results for ground water samples

September 6, 2016  
HWA Project No 2007 098

**EXCERPT FROM JANUARY 26 TECHNICAL MEMO**

## Second Round Bioremediation Plan

Additional injections of electron donor (emulsified edible oil with sodium lactate) and micro zero valent iron (mZVI) are planned in the following areas. Figure 1 shows past and planned injection sites. Details of the technology and process to be used can be found in the *Ultra Custom Cleaners, Interim Action Work Plan No. 2* dated November 7, 2014.

- Source area – In order to target the area monitored by wells UCCMW-21 and UCCMW-5, injections will be completed at:
  - The five easternmost, one-inch diameter injections wells (screened 8 -13 feet bgs)
  - Ten new, direct push injections east of the easternmost injection well, at depths of 9-13 and 14-18 feet bgs (injecting in two separate lifts at each location).
  
- First injection row – In order to target the area monitored by wells UCCMW-7 and UCCMW-25, a line of eight direct push injections north and upgradient of these wells will be completed, , at depths of 8-12 and 13-17 feet bgs (injecting in two separate lifts at each location).
  
- Second injection row – In order to target the area monitored by wells BB-2 and UCCMW-8, a line of 17 direct push injections east of and overlapping the initial line of injections will be completed, at depths of 8-12 and 13-17 feet bgs (injecting in two separate lifts at each location).
  
- Third injection row – In order to target the area monitored by UCCMW-26 and UCCMW-27, a line of 25 direct push injections east of and overlapping the initial line of injections will be completed, at depths of 8-12 and 13-17 feet bgs (injecting in two separate lifts at each location).

Injection protocol for each location will include the following elements:

- Mix hydrant water with granular zero-valent iron (ZVI) for approximately 24 hours to remove chlorine and create anoxic water (oxidation/reduction potential [ORP] < - 100 mV, dissolved oxygen [DO] < 0.5 mg/L) in a tank large enough for the next day's injection volume.
- Inject 100 gallons emulsified oil (5% oil:water) with micro ZVI (0.08 lbs/gallon) plus dispersant (500 ml/100lbs mZVI) in anaerobic water
- Inject bioaugmentation culture (approximately 1 liter/ 200 gallons injected at wells, and 1liter/ 150 gallons injected at direct push injection sites)
- Inject remainder of emulsified oil with micro ZVI (approximately 1,060 gallons per well, 442 gallons per DP probe)



September 6, 2016  
HWA Project No 2007 098

## **FB-9 BORING LOG**

**Client:** TRF Equities Bothell, LLC  
**Project:** Bothell/Blocks EFG  
**Location:** Bothell, Washington

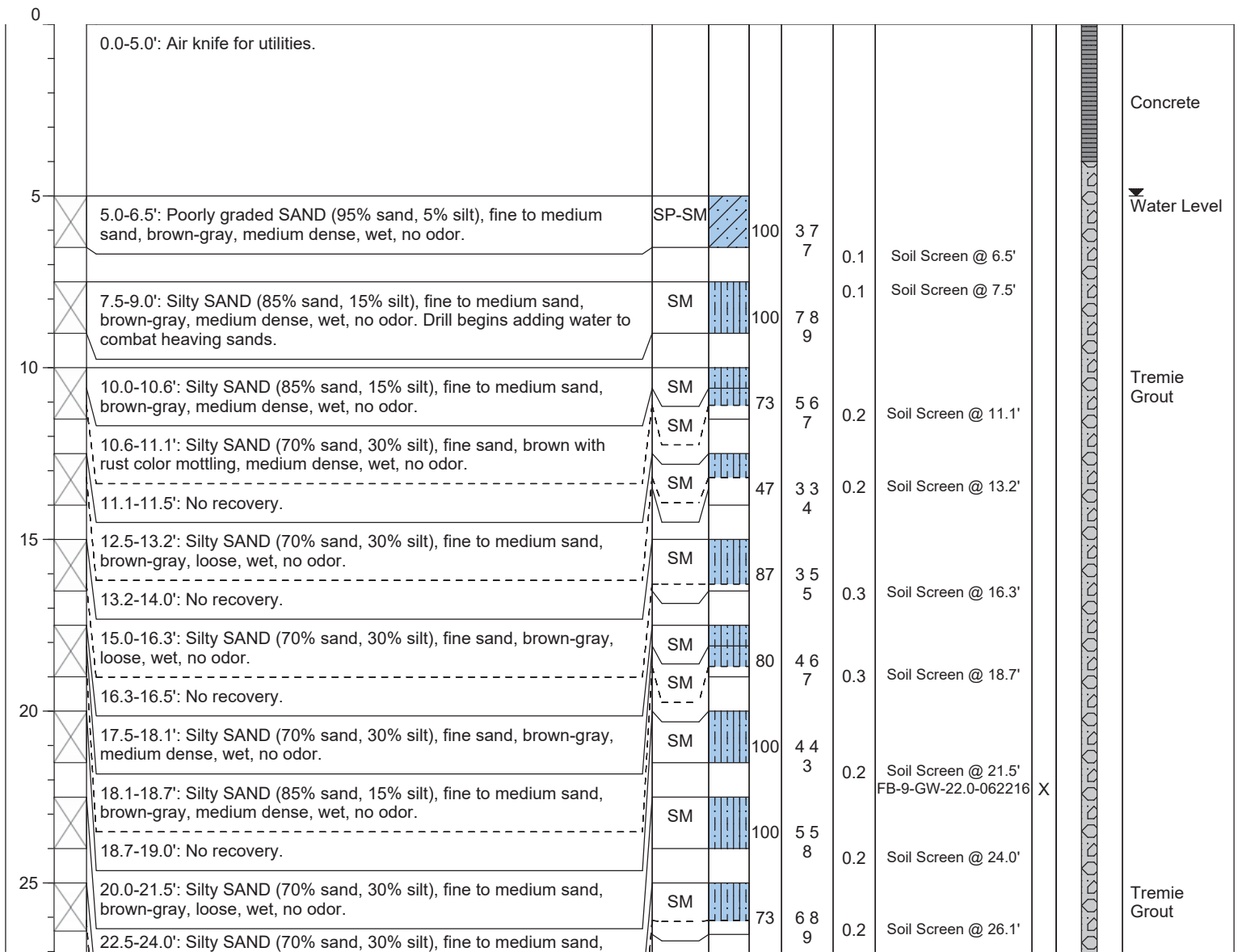
**Date/Time Started:** 6/22/16 @ 0830  
**Date/Time Completed:** 6/22/16 @ 1600  
**Equipment:** Mobile B61  
**Drilling Company:** Holocene  
**Drilling Foreman:** Matt Graham  
**Drilling Method:** Hollow Stem Auger

**Sampler Type:** 1.5' SPT  
**Drive Hammer (lbs.):** 140  
**Depth of Water ATD (ft bgs):** 5.0  
**Total Boring Depth (ft bgs):** 51.5  
**Total Well Depth (ft bgs):** NA

**Farallon PN:** 1210-003

**Logged By:** Ryan Ostrom

Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
-------------------	-----------------	------------------------	------	--------------	------------	-------------------	-----------	-----------	-----------------	----------------------------------



Well Construction Information			
<b>Monument Type:</b> NA	<b>Filter Pack:</b> NA	<b>Ground Surface Elevation (ft):</b> NA	
<b>Casing Diameter (inches):</b> 2.0	<b>Surface Seal:</b> Concrete	<b>Top of Casing Elevation (ft):</b> NA	
<b>Screen Slot Size (inches):</b> 0.010	<b>Annular Seal:</b> NA	<b>Surveyed Location:</b> X: NA	
<b>Screened Interval (ft bgs):</b> 19-24, 24-29, 29-34	<b>Boring Abandonment:</b> Tremie Grout	Y: NA	

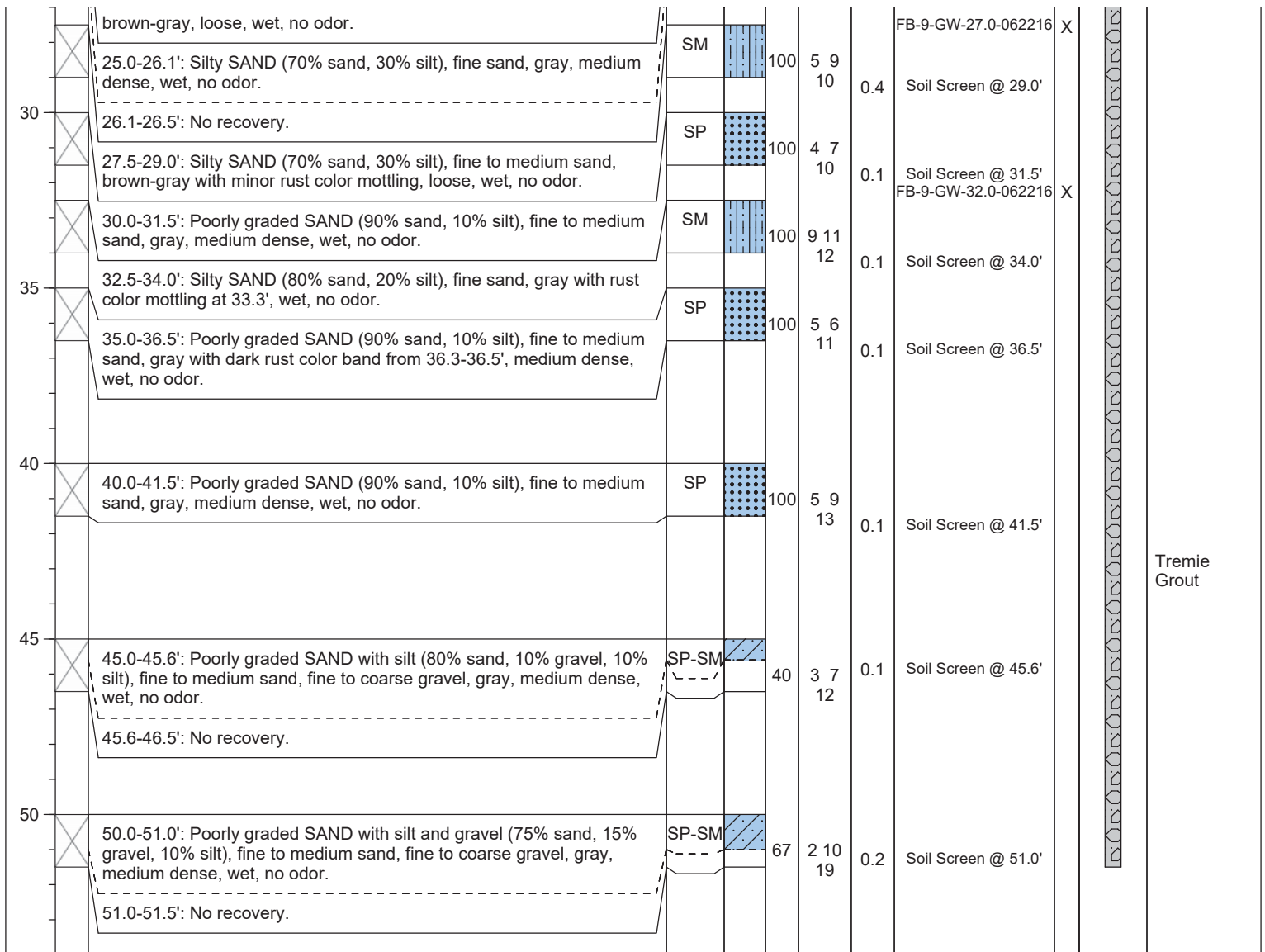
**Client:** TRF Equities Bothell, LLC  
**Project:** Bothell/Blocks EFG  
**Location:** Bothell, Washington

**Date/Time Started:** 6/22/16 @ 0830      **Sampler Type:** 1.5' SPT  
**Date/Time Completed:** 6/22/16 @ 1600      **Drive Hammer (lbs.):** 140  
**Equipment:** Mobile B61      **Depth of Water ATD (ft bgs):** 5.0  
**Drilling Company:** Holocene      **Total Boring Depth (ft bgs):** 51.5  
**Drilling Foreman:** Matt Graham      **Total Well Depth (ft bgs):** NA  
**Drilling Method:** Hollow Stem Auger

**Farallon PN:** 1210-003

**Logged By:** Ryan Ostrom

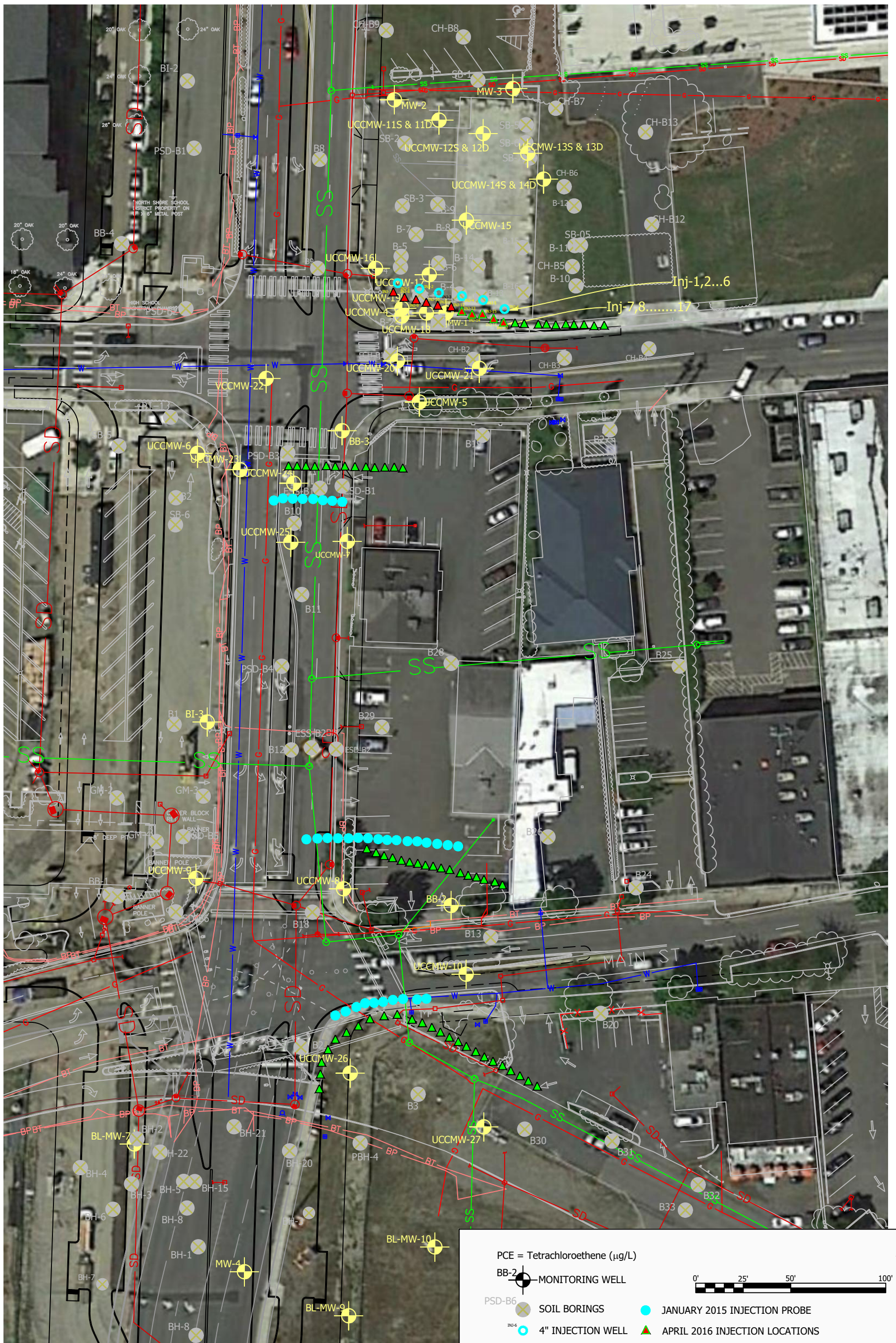
Depth (feet bgs.)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 8/8/8	PID (ppm)	Sample ID	Sample Analyzed	Boring/Well Construction Details
-------------------	-----------------	------------------------	------	--------------	------------	-------------------	-----------	-----------	-----------------	----------------------------------



### Well Construction Information

<b>Monument Type:</b> NA	<b>Filter Pack:</b> NA	<b>Ground Surface Elevation (ft):</b> NA
<b>Casing Diameter (inches):</b> 2.0	<b>Surface Seal:</b> Concrete	<b>Top of Casing Elevation (ft):</b> NA
<b>Screen Slot Size (inches):</b> 0.010	<b>Annular Seal:</b> NA	<b>Surveyed Location:</b> X: NA
<b>Screened Interval (ft bgs):</b> 19-24, 24-29, 29-34	<b>Boring Abandonment:</b> Tremie Grout	Y: NA

S:\2007 PROJECTS\2007-098-22 BOTHELL CROSSROADS\CAD 2007-098\HWA 2007-098-21 T2024B.DWG <fig 1 8-30-16> Plotted: 9/6/2016 11:28 AM



BASE MAP PROVIDED BY:



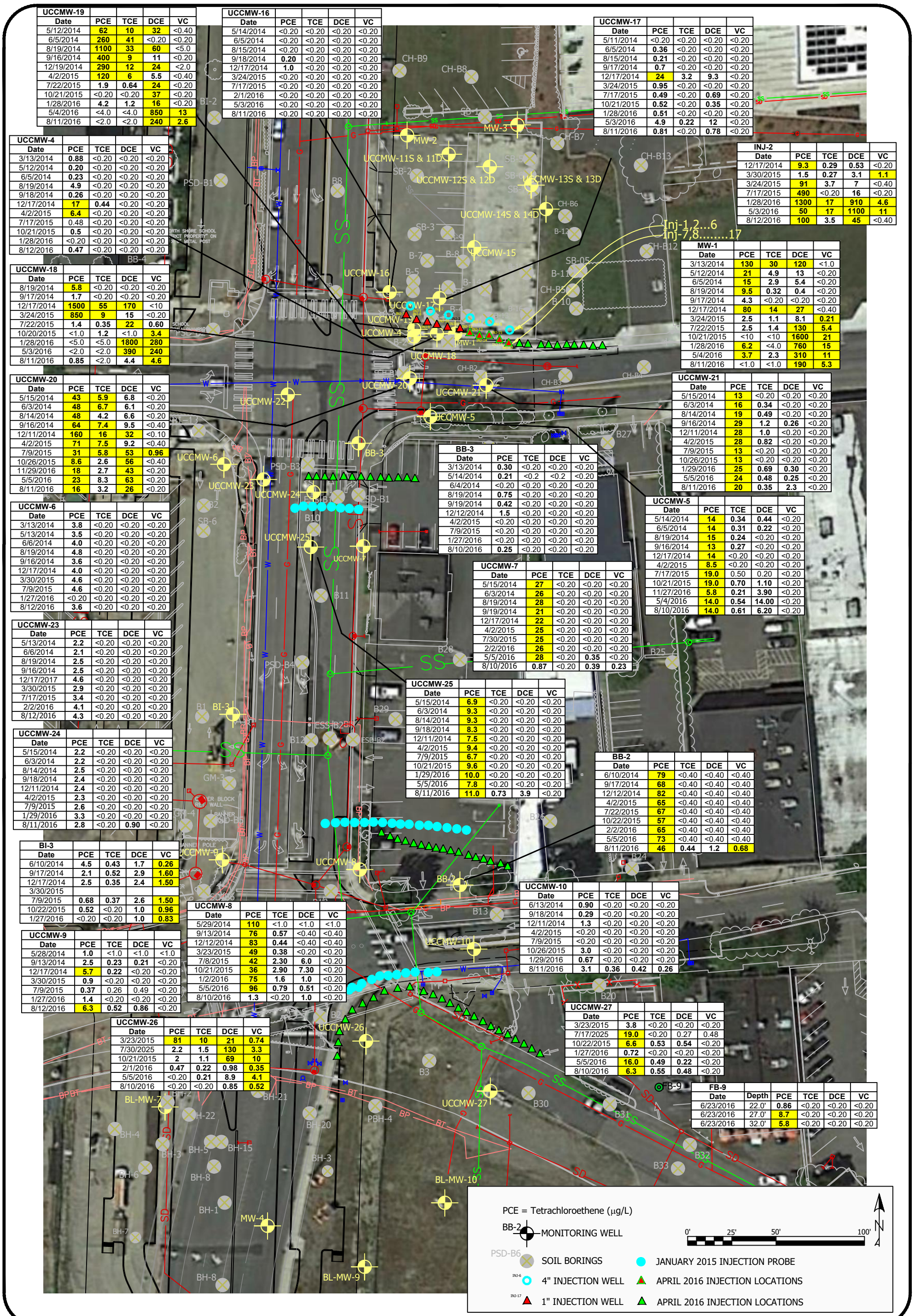
HWA GEOSCIENCES INC.

ULTRA CUSTOM CARE CLEANERS SITE  
BOTHELL, WASHINGTON

SITE  
PLAN

DRAWN BY  
EFK  
CHECK BY  
AS/NN  
DATE:  
05.20.14

FIGURE #  
**1**  
PROJECT #  
2007-098-21  
T 996



BASE MAP PROVIDED BY:



HWA GEOSCIENCES INC.

ULTRA CUSTOM CARE CLEANERS SITE  
BOTHELL, WASHINGTON

HVOCs in  
Ground Water

DRAWN BY	EFK	FIGURE #	2
CHECK BY	AS	PROJECT #	
DATE:	5.20.16	T	2024

Table 1  
Ultra Custom Care Cleaners Site  
Ground Water Analytical Data

Sample Location	Screened Depth, (ft bgs)	Sample Date	Depth to Water (ft bgs)	pH (units)	Conductivity (mS)	Temperature (°C)	Diss. Oxygen (mg/L)	Fe <sup>+2</sup> (mg/L)	Redox Potential (millivolt)	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)	(cis) 1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)	Methane (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Total Sodium (ug/L)	Dissolved Sodium (ug/L)	Vinyl Chloride Reductase (vcrA) Gene Copies/Liter		
MTCA Method A/B Cleanup Level (Table 720-1, WAC 173-340-900)										5	5	16 (B)	0.2	NA	NA	NA	NA	NA	NA					
Source Area																								
MW-1	5-15	3/13/2014	7.75	6.27	568	12.5	7.9			130	30	120	<1.0	4.4	27	<1.0	<0.50	<0.50	<0.50			Baseline		
		5/12/2014	8.56	6.09	517	15.0	3.17	0.0	+323	21	4.9	13	<0.20	6.0	13	<1.0	<0.50	<0.50	<0.50			Baseline		
		6/5/2014	8.77	5.94	604	15.0	4.05			15	2.9	5.4	<0.20										2 weeks after first injection	
		8/19/2014	9.05	5.56	6.04	20.1	25.68			9.5	0.32	0.4	<0.20										2 weeks after second injection	
		9/17/2014	9.37	5.91	504	18.5	9.14			4.3	<0.20	<0.20	<0.20										6 weeks after second injection	
		12/17/2014	10.14	4.85	3295	13.5	2.24			80	14	27	<0.40											
		3/24/2015	9.88	5.65	1511	13.51	0.00		-135.1	2.5	1.1	8.1	0.21	<0.050	30	840	110	65	52	210000			5 weeks after in situ bio injections	
		7/22/2015		5.11	1489	19.43	0.00	2.0	-112.7	2.5	1.4	130	5.4	0.16	<50	550					66000	57000		
		10/21/2015	11.26	6.34	1297	15.94	0.00	1.4	-119	<10	<10	1600	21	0.27	<25	320	7700	<500	<0.5		59000	61000	9 months after in situ bio injections	
		1/28/2016		5.97	544	13.2	4.10	2.0	-90.3	6.2	<4.0	760	15	<0.050	<5.0	190	6000	<22	<9.8		60000	62000		
5/4/2016	9.78	5.77	2123	14.23	0.00	4.0	-98.1	3.7	2.3	310	11	0.77	<25	2400	5000	<67	7.7	310000						
8/11/2016	9.69	6.14	1379	16.81	0.79			-177.9	<1.0	<1.0	190	5.3	0.12	<25	650	6400	<91	<8.7	130000					
UCCMW-4	35-40	3/13/2014	9.45	6.70	675	14.3	4.61			0.88	<0.20	<0.20	<0.20	<0.05	8.1	<1.0	<0.50	<0.50	<0.50			Baseline		
		5/12/2014	8.30	6.83	523	15.7	0.16	0.0	+247	0.20	<0.20	<0.20	<0.20	<0.05	<5	<1	1.9	<0.5	<0.5			Baseline		
		6/5/2014	8.18	6.71	589	16.0	0.20			0.23	<0.20	<0.20	<0.20										2 weeks after first injection	
		8/19/2014	8.2	6.93	340	22.2	0.37			4.9	<0.20	<0.20	<0.20										2 weeks after second injection	
		9/18/2014	8.41	6.95	361	18.9	0.60			0.26	<0.20	<0.20	<0.20										6 weeks after second injection	
		12/17/2014	9.24	6.51	288	14.5	1.32			17	0.44	<0.20	<0.20											
		4/2/2015	9.21	7.19	248	15.0	1.24		+126.7	6.4	<0.20	<0.20	<0.20											6 weeks after in situ bio injections
		7/17/2015		6.48	229	17.0	0.01		-12.3	0.48	<0.20	<0.20	<0.20											
		10/21/2015	10.20	7.35	196	20.5	2.05		-29.1	0.5	<0.20	<0.20	<0.20											9 months after in situ bio injections
		1/28/2016		6.87	134	14.49	3.59		-25.9	<0.20	<0.20	<0.20	<0.20											
8/12/2016	9.05	6.72	178	17.47	4.02		-0.9	4.47	<0.20	<0.20	<0.20													
UCCMW-17	10-20	5/11/2014	8.16	6.20	351	14.6	2.03	0.0	-100	<0.20	<0.20	<0.20	<0.20	3.1	11	<1.0	1.5	<0.50	<0.50			Baseline		
		6/5/2014	8.19	6.05	621	14.7	4.85			0.36	<0.20	<0.20	<0.20										2 weeks after first injection	
		8/15/2014	8.45	6.10	563	17.0	28.84			0.21	<0.20	<0.20	<0.20										2 weeks after second injection	
		9/17/2014	8.78	6.40	645	19.1	8.64			0.7	<0.20	<0.20	<0.20											6 weeks after second injection
		12/17/2014	9.80	6.93	376	14.8	3.25			24	3.2	9.3	<0.20											
		3/24/2015	9.47	5.80	271	15.1	50.0		197.5	0.95	<0.20	<0.20	<0.20											5 weeks after in situ bio injections
		7/17/2015		5.46	227	17.5	43.9		88.6	0.49	<0.20	0.69	<0.20											
		10/21/2015	10.82	6.77	174	19.3	38.1		63.4	0.52	<0.20	0.35	<0.20											9 months after in situ bio injections
		1/28/2016		5.75	112	15.31	5.53	0.0	104.3	0.51	<0.20	<0.20	<0.20		3.2	17	1.1	10	<0.50	<0.50	9100	9400		
		5/3/2016	9.35	5.80	222	20.53	7.23		125.0	4.9	0.22	12	<0.20											
8/11/2016	9.21	5.80	185	17.39	2.50		2.19	0.81	<0.20	0.78	<0.20		1.8	19	1.0	<0.50	<0.50	<0.50	17000					
UCCMW-18	10-20	8/19/2014	8.68	5.82	480	20.8	NA			5.8	<0.20	<0.20	<0.20									2 weeks after second injection		
		9/17/2014	8.99	5.93	759	19.2	6.63			1.7	<0.20	<0.20	<0.20										6 weeks after second injection	
		12/17/2014	9.83	6.01	372	14.1	1.02			1500	55	170	<10											
		3/24/2015	9.54	5.56	1252	14.8	0.00		-144.7	850	9	15	<0.20	<0.050	<5.0	670	19	8.5	10	170000		8.00E+04		
		7/22/2015		5.64	489	20.8	0.00	1.0	-210.1	1.4	0.35	22	0.60	0.29	75	31					29000	28000		
		10/20/2015	10.89	6.26	263	17.9	3.72	0.8	-106.9	<1.0	1.2	<1.0	3.4	1.2	13	21	4000	<250	<0.50				4.00E+04	9 months after in situ bio injections
		1/28/2016		6.10	790	13.95	3.05	1.0	-87.4	<5.0	<5.0	1800	280	1.1	<10	250	12000	<110	<15	27000	28000			
		5/3/2016	9.45	5.66	379	15.57	4.17	3.0	5.4	<2.0	<2.0	390	240	2.0	<20	67	5500	<67	240	20000				
		8/11/2016	9.32	6.14	211	16.29	2.35		-73.3	0.85	<0.20	4.4	4.6	1.9	10	13	12000	<94	8.7	12000				
		5/12/2014	8.12	6.31	440	15.2	1.46	0.0	-166	62	10	32	<0.40		3.6	17	<1.0	15	3.3	1.7	19000	18000	Baseline	
UCCMW-19	10-20	6/5/2014	8.13	5.98	1011	16.3	5.32			260	41	<0.20	<0.20									Post injection		
		8/19/2014	8.34	6.07	1072	21.6	29.85			1100	33	60	<5.0										2 weeks after second injection	
		9/16/2014	8.60	6.14	1004	20.9	7.95			400	9	11	<0.20										6 weeks after second injection	
		12/19/2014	9.27	6.08	334	14.0	2.07			290	12	24	<2.0											
		4/2/2015	9.07	5.75	459	14.5	0.00		-65.9	120	6	5.5	<0.40	0.76	5.6	490	<0.50	<0.50	0.70	22000			6 weeks after in situ bio injections	
		7/22/2015		5.65	395	19.8	0.00	1.6	-185.0	1.9	0.64	24	<0.20	<0.050	17	15					27000	25000		
		10/21/2015	10.44	6.32	579	17.8	0.00	1.0	-98.2	<0.20	<0.20	37	<0.20	0.078	<10	65	65	<500	<0.5		20000	20000	9 months after in situ bio injections	
		1/28/2016		6.16	492	12.44	4.90	1.6	-79.6	4.2	1.2	16	<0.20	0.54	<5.0	120	330	<6.2	<0.80		36000	39000		
		5/4/2016	9.11	6.21	876	14.12	0.00	2.0	-56.3	<4.0	<4.0	850	13	0.14	<25	200	9500	<67	1.3	85000				
		8/11/2016	8.9	5.96	405	17.95	1.12		-106.1	<2.0	<2.0	240	2.6	0.055	6.8	38	8600	<150	<12	24000				
UCCMW-20	8-18	5/15/2014	7.61	6.28	221	14.2	28.89	0.0	328	43	5.9	6.8	<0.20	2.1	11	1.0	<0.50	<0.50	<0.50			Baseline		
		6/3/2014	7.88	6.07	380	15.3	8.04			48	6.7	6.1	<0.20										2 weeks after first injection	
		8/14/2014	7.99	5.44	548	19.3	9.28			48	4.2	6.6	<0.20										2 weeks after second injection	
		9/16/2014	8.31	5.56	388	20.2	9.34			64	7.4	9.5	<0.40										6 weeks after second injection	
		12/11/2014	8.61	5.53	334	13.1	7.10			160	16	32	<0.10											
		4/2/2015	8.74	6.11	176	12.7	12.90																	



Table 1  
Ultra Custom Care Cleaners Site  
Ground Water Analytical Data

Sample Location	Screened Depth, (ft bgs)	Sample Date	Depth to Water (ft bgs)	pH (units)	Conductivity (mS)	Temperature (°C)	Diss. Oxygen (mg/L)	Fe <sup>+2</sup> (mg/L)	Redox Potential (millivolt)	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)	(cis) 1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)	Methane (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Total Sodium (ug/L)	Dissolved Sodium (ug/L)	Vinyl Chloride Reductase (vcrA) Gene Copies/Liter		
MTCA Method A/B Cleanup Level (Table 720-1, WAC 173-340-900)										5	5	16 (B)	0.2	NA	NA	NA	NA	NA	NA					
UCCMW-25	8-18	12/11/2014	5.30	6.68	331	15.7	4.43			7.5	<0.20	<0.20	<0.20			12	<0.50	<0.50	<0.50	15000				
		4/2/2015	5.56	6.12	321	14.3	36.58		113	9.4	<0.20	<0.20	<0.20	2.4	67	12	<0.50	<0.50	<0.50	15000			6 weeks after in situ bio injections	
		7/9/2015	6.51	5.54	429	17.0	34.30	0.0	100	6.7	<0.20	<0.20	<0.20	<0.050	110	11	<0.50	<0.50	<0.50	14000	13000			
		10/21/2015	6.80	6.50	230	17.1	8.60	0.0	76	9.6	<0.20	<0.20	<0.20	1.8	23	3.7	0.84	<0.50	<0.50	28000	28000		9 months after in situ bio injections	
		1/29/2016		6.42	168	14.75	3.80	0.0	87.0	10.0	<0.20	<0.20	<0.20	4.4	14	2.3	1.4	<0.50	<0.50	29000	31000			
		5/5/2016	6.90	6.19	198	15.28	8.62	0.0	116.8	7.8	<0.20	<0.20	<0.20	1.8	21	2.3	0.84	<0.50	<0.50	32000				
BI-3	5-10	8/11/2016	4.99	6.03	749	17.18	0.76		-37.5	11	0.73	3.9	<0.20	0.3	<5.0	130	1500	<18	6.3	59000				
		6/10/2014	4.27	6.39	493	15.4	1.55	0.0	238	4.5	0.43	1.7	0.26	1.3	10	1.8	128	<1.2	<1.1				2 weeks after first injection	
		9/17/2014	4.17	6.32	394	19.8	0.25			2.1	0.52	2.9	1.6										6 weeks after second injection	
		12/17/2014	3.83	6.77	295	12.00	0.32			2.5	0.35	2.4	1.5											
		3/30/2015	4.30	6.17	204	14.03	0.00		-29.6															6 weeks after in situ bio injections
		7/9/2015		5.86	209	20.31	0.00		-118.3	0.68	0.37	2.6	1.5											
		10/22/2015	4.92	6.69	213	18.79	0.00		-59.5	0.52	<0.20	1.0	0.96											9 months after in situ bio injections
		1/27/2016		7.1	128	12.41	4.63		-72.6	<0.20	<0.20	1.0	0.83											
Second Injection Row																								
UCCMW-8	5-15	5/29/2014	6.07	6.52	490	13.9	1.87	0.0	283	110	<1.0	<1.0	<1.0	2.3	18	<1.0	<0.50	<0.50	<0.50				Baseline	
		9/13/2014	6.29	6.5	289	19.1	1.00			76	0.57	<0.40	<0.40											6 weeks after second injection
		12/12/2014	5.51	6.97	257	14.6	1.30			83	0.44	<0.40	<0.40											
		3/23/2015	5.80	6.12	180	12.7	0.00		-90.1	49	0.38	<0.20	<0.20	0.24	6.2	2.7	48	<0.50	<0.50	<0.50	5400			5 weeks after in situ bio injections
		7/8/2015		5.75	237	17.8	0.00		61.2	42	2.3	6.0	<0.20	0.97	15	1.2	<0.50	<0.50	<0.50	14000			14 weeks after in situ bio injections	
		10/21/2015	7.00	6.41	217	18.2	0.00	0.0	84.6	36	2.9	7.3	<0.20	0.71	16	1.8	110	<10	<0.50	<0.50	12000	12000		9 months after in situ bio injections
		2/2/2016		6.11	112	12.58	2.55	0.0	106.1	75	1.6	1.0	<0.20	2.2	16	1.4	65	<1.1	<0.58	<0.50	13000	12000		
		5/5/2016	6.12	6.08	219	13.99	1.01	0.0	89.7	96	0.79	0.51	<0.20	0.35	19	31	4.1	<0.50	<0.50	16000				
UCCMW-9		8/10/2016	3.03	6.04	194	16.73	1.19		26.5	1.3	<0.20	1.0	<0.20	0.94	16	3.8	15.0	<0.50	<0.50	11000				
		5/28/2014	6.75	6.51	1164	16.2	0.52	0.0	276	1.0	<1.0	<1.0	<1.0	1.0	19	2.0	16.0	<1.0	<1.0				Baseline	
		9/13/2014	6.71	6.75	611	22.8	0.46			2.5	0.23	0.21	<0.20										6 weeks after second injection	
		12/17/2014	6.09	6.30	523	10.8	0.72			5.7	0.22	<0.20	<0.20											
		3/30/2015	6.58	6.00	366	12.8	0.12		-45.5	0.9	<0.20	<0.20	<0.20											6 weeks after second injection
UCCMW-10	5-15	7/9/2015		5.95	389	20.4	0.13		-39.8	0.37	0.26	0.49	<0.20											
		1/27/2016		6.64	282	9.64	8.48		72.5	1.4	<0.20	<0.20	<0.20											
		8/12/2016	3.78	6.31	338	19.71	0.83		46	6.3	0.52	0.86	<0.20											
		6/13/2014	6.15	5.70	736	17.0	0.60	0.0	261	0.90	<0.20	<0.20	<0.20	2.0	24	9.2	48.6	<1.2	<1.1				Baseline	
		9/18/2014	6.02	5.75	414	21.6	0.37			0.29	<0.20	<0.20	<0.20											6 weeks after second injection
		12/11/2014	5.2	5.65	469	14.0	0.49			1.3	<0.20	<0.20	<0.20											
		1/28/2015																						
		4/2/2015	5.56	6.34	352	12.5	0.00		-94.8	<0.20	<0.20	<0.20	<0.20											6 weeks after in situ bio injections
BB-2	9-19	7/9/2015		5.27	297	22.3	0.19		71.7	<0.20	<0.20	<0.20	<0.20			19.0								
		10/26/2015	7.17	6.16	182	17.8	1/0/1900		48.9	3.0	<0.20	<0.20	<0.20										9 months after in situ bio injections	
		1/29/2016		5.94	189	10.96	0.00		101.6	0.67	<0.20	<0.20	<0.20											
		8/11/2016	4.41	6.13	278	18.36	1.40		-29.6	3.1	0.36	0.42	0.26											
		6/10/2014	5.53	6.63	459	14.9	2.70	0.0	269	79	<0.40	<0.40	<0.40	3.2	9.4	<1.0	<0.70	<1.20	<1.10				2 weeks after first injection	
		9/17/2014	5.86	6.9	306	18.6	1.85			68	<0.40	<0.40	<0.40											6 weeks after second injection
		12/12/2014	5.01	6.99	263	15.5	2.40			82	<0.40	<0.40	<0.40											
		4/2/2015	5.31	6.39	192	15.44	56.2			65	<0.40	<0.40	<0.40	3.5	8.6	<1.0	<0.50	<0.50	<0.50	13000				6 weeks after in situ bio injections
7/22/2015		5.75	203	18.99	3.6	0.0	118.2	67	<0.40	<0.40	<0.40	3.4	8.9	<1.0				14000	12000					
10/22/2015	6.92	6.51	189	17.6	2.5	0.0	69.4	57	<0.40	<0.40	<0.40	3.0	9.4	<1.0	2.7	<0.50	<0.50	13000	14000			9 months after in situ bio injections		
2/2/2016		6.21	118	14.71	5.99	0.0	90.1	65	<0.40	<0.40	<0.40	3.3	8.8	<1.0	9.1	<0.50	<0.50	14000	14000					
5/5/2016	5.51	6.36	160	15.15	3.18	0.0	57.9	73	<0.40	<0.40	<0.40	3.6	9.3	<1.0	<0.50	<0.50	<0.50	14000						
8/11/2016	4.35	5.84	269	17.59	0.85		2.8	46	0.44	1.2	0.68	0.36	5.7	1.7	2200	<44	<3.4	19000						
Third Injection Row																								
EFGB-1		9/29/2014								20	<0.20	<0.20	<0.20										DP boring same loc as UCCMW-26	
UCCMW-26	5-15	3/23/2015	5.43	5.72	574	12.3	4.73		-201.1	81	10	21	0.74	0.14	<5.0	200	2100	0.86	0.82	30000			5 weeks after in situ bio injections	
		7/30/2015		5.97	377	20.0	0.00	1.6	-113.9	2.2	1.5	130	3.3	0.054	<5.0	42	12000	<0.50	<0.50	18000	18000			
		10/21/2015	6.97	6.18	424	18.5	0.00	1.2	-72.7	2	1.1	69	10	0.18	<5.0	26	21000	<1000	<5	18000	19000		9 months after in situ bio injections	
		2/1/2016		6.47	1214	11.14	4.50	2.8	-127.5	0.47	0.22	0.98	0.35	0.77	<5.0	61	11000	<110	<14	110000	95000			
		5/5/2016	5.81	5.92	405	14.20	1.40	2.4	53.3	<0.20	0.21	8.9	4.1	0.10	<5.0	70	10000	<120	<7.9	45000				
8/10/2016	4.21	6.37	872	18.39	3.19		-127.5	<0.20	<0.20	0.85	0.52	0.15	<10	28	11000	<130	<20	41000						
EFGB-2		9/29/2014								17	<0.20	<0.20	<0.20									DP boring same loc as UCCMW-27		
		3/23/2015	5.30	7.38	7/11/1902	12.4	0.23		-251.7	3.8	<0.20	<0.20	<0.20										5 weeks after in situ bio injections	
		7/17/2015		5.73	3																			



Table 1  
Ultra Custom Care Cleaners Site  
Ground Water Analytical Data

Sample Location	Screened Depth, (ft bgs)	Sample Date	Depth to Water (ft bgs)	pH (units)	Conductivity (mS)	Temperature (°C)	Diss. Oxygen (mg/L)	Fe <sup>+2</sup> (mg/L)	Redox Potential (millivolt)	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)	(cis) 1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)	Methane (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Total Sodium (ug/L)	Dissolved Sodium (ug/L)	Vinyl Chloride Reductase (vcrA) Gene Copies/Liter					
MTCA Method A/B Cleanup Level (Table 720-1, WAC 173-340-900)										5	5	16 (B)	0.2	NA	NA	NA	NA	NA									
UCCMW-27	5-15	10/22/2015	7.01	6.58	540	17.8	0.00		44.5	6.6	0.53	0.54	<0.20										9 months after in situ bio injections				
		1/27/2016		6.39	760	11.99	2.44		-32.3	0.72	<0.20	<0.20	<0.20														
		5/5/2016	5.65	6.41	444	13.74	1.86	2.0	156.9	16.0	0.49	0.22	<0.20	0.54	47	8.5	730	<8.4	<0.89	23000							
		8/10/2016	4.76	6.05	421	17.86	2.56		-21.30	6.3	0.55	0.48	<0.20														
Other Wells																											
INJ-1	8-23	9/21/2015	9.71	5.8	220	19.37	1.65		-141.4																		
INJ-2	8-23	12/17/2014								9.3	0.29	0.53	<0.20	7.1	55	5.7	1.0	<0.50	<0.50	22000							
		3/30/2015								1.5	0.27	3.1	1.1														
		3/24/2015	9.25	5.66	332	14.75	8.15		105.8	91	3.7	7	<0.40										5 weeks after in situ bio injections				
		7/17/2015		5.16	293	18.07	35.42		89.9	490	<0.20	16	<0.20														
		1/28/2016		5.89	276	14.02	5.49		23.3	1300	17	910	4.6														
		5/3/2016	9.16	5.92	518	17.12	0.67		-18.3	50	17	1100	11														
		8/12/2016	9.02	5.03	239	17.82	3.00		30.9	100	3.5	45	<0.40														
INJ-3	8-23	9/21/2015	10.85	6.16	369	18.91	4.29		-212.3																		
INJ-4	8-23	2/2/2015	10.64	6.26	642	14.3	5.52			2.1	0.28	0.54	<0.20	6.2	49	4.4	0.73	<0.50	<0.50	27000							
INJ-5	8-23	9/23/2015	11.66	6.33	475	23.19	0.00		-210.9																		
INJ-6	8-23	2/2/2015	10.46	6.53	557	15.1	6.50			18	0.33	<0.20	<0.20	7.0	91	2.9	0.65	<0.50	<0.50	21000		Persulfate test =0					
INJ-7	8-13	9/21/2015	9.66	6.19	858	19.86	0.26		-96.2																		
INJ-8	8-13																										
INJ-9	8-13	9/21/2015																									
		10/21/2015	10.5	5.96	756	21.24	0.00		-56.9	<0.20	<0.20	400	10									Well pumped dry, insufficient volume for field parameters					
INJ-10	8-13																										
INJ-11	8-13	9/23/2015	10.85	6.27	1287	19.1	0.37		-106.9																		
INJ-12	8-13																										
INJ-13	8-13	9/23/2015	11.47	6.3	445	23.23	0.00		-89.9																		
INJ-14	8-13																										
INJ-15	8-13	9/23/2015	11.6	6.54	855	22.77	1.40		-82.6																		
INJ-16	8-13																										
INJ-17	8-13	9/23/2015	-	-	-	-	-	-	-																		
MW-2	3-13	5/11/2014	6.28	6.22	663	14.0	3.45	0.0	208	<0.20	<0.20	<0.20	<0.20	8.0	36	4.9	20	<0.50	<0.50			Baseline					
		6/2/2014	6.32	5.91	685	15.6	3.31			0.26	<0.20	<0.20	<0.20									2 weeks after first injection					
		8/13/2014	6.66	5.99	200	17.9	NA			<0.20	<0.20	<0.20	<0.20									2 weeks after second injection					
		9/15/2014	7.02	6.34	392	20.9	2.50			0.22	<0.20	<0.20	<0.20									6 weeks after second injection					
MW-3R	6-16	5/10/2014	6.36	6.23	1045	13.7	7.50	0.0	238	1.7	<0.20	<0.20	<0.20	9.2	110	2.3	<0.50	<0.50	<0.50			Baseline					
		6/3/2014	6.53	6.13	1090	15.3	4.70			1.6	<0.20	<0.20	<0.20									2 weeks after first injection					
		8/19/2014	6.97	6.2	492	18.9	6.49			1.3	<0.20	<0.20	<0.20									2 weeks after second injection					
		9/15/2014	7.32	6.25	426	19.0	2.40			1.0	<0.20	<0.20	<0.20									6 weeks after second injection					
UCCMW-6	5-15	3/13/2014	5.30	5.75	809	10.9	0.80			3.8	<0.20	<0.20	<0.20	0.39	17	1.5	3.8	<0.50	<0.50			Baseline					
		5/13/2014	5.50	5.96	608	13.7	0.11	0.0	363	3.5	<0.20	<0.20	<0.20	1.4	16	<1.0	0.99	<0.50	<0.50			Baseline					
		6/6/2014	5.75	6.02	645	13.8	5.38			4.0	<0.20	<0.20	<0.20									2 weeks after first injection					
		8/19/2014	5.83	5.91	426	16.5	8.11			4.8	<0.20	<0.20	<0.20									2 weeks after second injection					
		9/16/2014	5.96	6.33	412	16.7	2.16			3.6	<0.20	<0.20	<0.20									6 weeks after second injection					
		12/17/2014	6.14	6.27	395	12.4	0.89			4.0	<0.20	<0.20	<0.20														
		3/30/2015	6.00	5.75	282	15.1	0.00		63.6	4.6	<0.20	<0.20	<0.20										6 weeks after in situ bio injections				
		7/9/2015		5.41	310	19.5	0.00		84.9	4.6	<0.20	<0.20	<0.20														
		1/27/2016		6.88	126.9	10.31	6.50		127.6	<0.20	<0.20	<0.20	<0.20														
		8/12/2016	4.85		307	17.13	1.23		47.2	3.6	<0.20	<0.20	<0.20									9 months after in situ bio injections					
UCCMW-15	9-19	5/11/2014	8.15	6.30	475	13.4	6.28	0.0	21	4.8	<0.20	<0.20	<0.20	3.6	42	1.4	0.93	<0.50	<0.50			Baseline					
		6/5/2014	8.22	6.12	601	14.4	5.45			0.61	<0.20	<0.20	<0.20									2 weeks after first injection					
		8/14/2014	8.36	6.22	478	18.3	24.99			4.2	<0.20	<0.20	<0.20									2 weeks after second injection					
		9/15/2014	8.73	6.08	520	21.1	6.91			2.8	<0.20	<0.20	<0.20									6 weeks after second injection					
UCCMW-16	9-19	5/14/2014	4.28	6.42	544	15.1	1.98	0.0	1	<0.20	<0.20	<0.20	<0.20	1.7	16	<1.0	2.5	0.63	<0.50			Baseline					
		6/5/2014	6.73	6.27	761	15.5	5.25			<0.20	<0.20	<0.20	<0.20									2 weeks after first injection					
		8/15/2014	7.13	6.43	261	18.0	6.31			<0.20	<0.20	<0.20	<0.20									2 weeks after second injection					
		9/18/2014	7.24	6.26	282	18.7	3.68			0.20	<0.20	<0.20	<0.20									6 weeks after second injection					
		12/17/2014	8.30	7.15	237	14.0	1.87			1.0	<0.20	<0.20	<0.20														
		3/24/2015	7.83	5.79	205	13.8	26.76		143.5	<0.20	<0.20	<0.20	<0.20										5 weeks after in situ bio injections				
		7/17/2015		5.65	205	17.6	13.30		54.6	<0.20	<0.20	<0.20	<0.20														
		9/23/2015	9.04	6.00	221	17.8	7.02		70.7														Persulfate test =0				
		2/1/2016		5.68	154	13.09	3.41	0.0	79.5	<0.20	<0.20	<0.20	<0.20	2.5	14	<1.0	2.3	<0.50	<0.50	12000	11000						

Table 1  
Ultra Custom Care Cleaners Site  
Ground Water Analytical Data

Sample Location	Screened Depth, (ft bgs)	Sample Date	Depth to Water (ft bgs)	pH (units)	Conductivity (mS)	Temperature (°C)	Diss. Oxygen (mg/L)	Fe <sup>+2</sup> (mg/L)	Redox Potential (millivolt)	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)	(cis) 1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)	Methane (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Total Sodium (ug/L)	Dissolved Sodium (ug/L)	Vinyl Chloride Reductase (vcrA ) Gene Copies/Liter
<b>MTCA Method A/B Cleanup Level (Table 720-1, WAC 173-340-900)</b>										5	5	16 (B)	0.2	NA	NA	NA	NA	NA	NA			
		5/3/2016	7.46	5.36	218	16.05	1.49		182.3	<0.20	<0.20	<0.20	<0.20									
		8/11/2016	7.55	5.56	224	16.72	0.96		27.5	<0.20	<0.20	<0.20	<0.20	2.2	18	1.0	<0.50	<0.50	<0.50	12000		
UCCMW-22	8-18	6/3/2014	6.29	6.11	472	14.4	2.69			0.81	<0.20	<0.20	<0.20									2 weeks after first injection
		8/15/2014	6.24	6.40	264	17.2	3.86			0.67	<0.20	<0.20	<0.20									2 weeks after second injection
		9/18/2014	6.33	6.37	280	17.8	2.49			0.89	<0.20	<0.20	<0.20									6 weeks after second injection
UCCMW-23	8-18	5/13/2014	5.43	6.31	628	14.1	0.15	0.0	-288	2.2	<0.20	<0.20	<0.20	0.38	10	1.9	34	3.9	2.0			Baseline
		6/6/2014	5.57	6.17	536	13.9	6.48			2.1	<0.20	<0.20	<0.20									2 weeks after first injection
		8/19/2014	5.56	6.13	281	16.9	5.9			2.5	<0.20	<0.20	<0.20									2 weeks after second injection
		9/16/2014	5.74	6.29	291	17.5	3.89			2.5	<0.20	<0.20	<0.20									6 weeks after second injection
		12/17/2014	5.90	6.16	282	13.8	1.59			4.6	<0.20	<0.20	<0.20									
		3/30/2015	5.90	5.27	251	14.4	2.75		116.4	2.9	<0.20	<0.20	<0.20									5 weeks after in situ bio injections
		7/17/2015		5.64	257	19.4	1.09		33.9	3.4	<0.20	<0.20	<0.20									
		2/2/2016		6.18	233	12.63	2.62		76	4.1	<0.20	<0.20	<0.20									
		8/12/2016	5.28	5.50	284	16.60	1.02		44.5	4.3	<0.20	<0.20	<0.20									
HZMW-16	15-25	5/28/2014	6.35	6.52	451	15.5	0.16	0.0	241	0.32	<0.20	0.30	<0.20	1.6	16	<1.0	0.66	<0.50	<0.50			Baseline
		9/18/2014	6.78	7.08	207	17.9	1.23			4.2	<0.20	<0.20	<0.20									6 weeks after second injection
<b>Investigation Results by Others</b>																						
Farallon Consulting																						
FB-9	22	6/23/2016	22							0.86	<0.20	<0.20	<0.20									Reconnaissance ground water sample
	27	6/23/2016	27							8.7	<0.20	<0.20	<0.20									Reconnaissance ground water sample
	32	6/23/2016	32							5.8	<0.20	<0.20	<0.20									Reconnaissance ground water sample
<b>QC Samples</b>																						
Dup 1		5/11/2014								<0.20	<0.20	<0.20	<0.20	3.1	10	<1.0	1.7	0.53	<0.50			Duplicate of UCCMW-17 5/11/14
Dup 2		5/14/2014								<0.20	<0.20	<0.20	<0.20	0.47	15	<1.0	77	12	6.5			Duplicate of UCCMW-12D 5/14/14
Dup 01		6/3/2014								1.7	<0.20	<0.20	<0.20									Duplicate of MW-3R 6/3/14
Dup 6-5-14		6/6/2014								2.1	<0.20	<0.20	<0.20									Duplicate of UCCMW-23 6/6/14
Trip Blank		5/14/2014								<0.20	<0.20	<0.20	<0.20									
Trip Blank		5/15/2014								<0.20	<0.20	<0.20	<0.20									
Trip Blank		6/5/2014								<0.20	<0.20	<0.20	<0.20									
Trip Blank		6/6/2014								<0.20	<0.20	<0.20	<0.20									
Trip Blank		9/15/2014								<0.20	<0.20	<0.20	<0.20									
Trip Blank		9/17/2014								<0.20	<0.20	<0.20	<0.20									
Dup1		9/15/2014								3.1	<0.20	<0.20	<0.20									Duplicate of UCCMW-15 9/15/2014
Dup2		9/19/2014								4.4	<0.20	<0.20	<0.20									Duplicate of UCCMW-4 9/19/2014
Dup 1014		10/8/2014								<0.20	<0.20	<0.20	<0.20									Duplicate of UCCMW-12D 10/8/2014
Trip Blank		10/8/2014								<0.20	<0.20	<0.20	<0.20									
DUP 101714		10/17/2014								0.41	<0.20	<0.20	<0.20									
TB		11/3/2014								<0.20	<0.20	<0.20	<0.20									
DUP		11/3/2014								1.2	<0.20	<0.20	<0.20									Duplicate of UCCMW-13S 11/3/2014
TB		11/14/2014								<0.20	<0.20	<0.20	<0.20									
DUP		11/14/2014								<0.20	<0.20	<0.20	<0.20									Duplicate of UCCMW-14D 11/14/2014
DUP 112114		11/21/2014								1.1	<0.20	<0.20	<0.20									Duplicate of UCCMW-13S on 11/21/2014
TB		12/18/2014								<0.20	<0.20	<0.20	<0.20									
DUP1014		12/18/2014								<0.20	<0.20	<0.20	<0.20									
Dup 21215		2/12/2015								0.70	<0.20	<0.20	<0.20									Duplicate of UCCMW 13D on 2/12/2015
TB		3/30/2015								<0.20	<0.20	<0.20	<0.20									
DUP		3/24/2015								0.85	<0.20	<0.20	<0.20									Duplicate of UCCMW 16 on 3/24/2015
DUP 7915		3/24/2015								0.85	<0.20	<0.20	<0.20									
TB		7/17/2015								<0.20	<0.20	<0.20	<0.20									
TB		7/22/2015								<0.20	<0.20	<0.20	<0.20									
UCCDUP-102115		10/21/2015								<0.20	<0.20	41	<0.20									Duplicate of UCCMW-19 on 10/21/15
TB		10/21/2015								<0.20	<0.20	<0.20	<0.20									
TB		10/21/2015								<0.20	<0.20	<0.20	<0.20									
TB		10/26/2015								<0.20	<0.20	<0.20	<0.20									
DUP-0128		1/28/2016								5.2	<4.0	680	12									Duplicate of MW-1 on 1/28/2016
TB		1/28/2016								<0.20	<0.20	<0.20	<0.20									
DUP-0504		5/4/2016								3.8	2.1	310	12	0.19	2200	<25	6100	<67	5.2	300000		Duplicate of MW-1 on 5/4/2016
TB		5/4/2016								<0.20	<0.20	<0.20	<0.20									
DUP-0812		8/12/2016								<0.20	<0.20	240	2.6	0.053	7.4	39	7200	<81	<8.4	24000		
TB		8/12/2016								<0.20	<0.20	<0.20	<0.20									

Table 1  
Ultra Custom Care Cleaners Site  
Ground Water Analytical Data

Sample Location	Screened Depth, (ft bgs)	Sample Date	Depth to Water (ft bgs)	pH (units)	Conductivity (mS)	Temperature (°C)	Diss. Oxygen (mg/L)	Fe <sup>+2</sup> (mg/L)	Redox Potential (millivolt)	Tetrachloroethene (µg/L)	Trichloroethene (µg/L)	(cis) 1,2-Dichloroethene (µg/L)	Vinyl Chloride (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	Total Organic Carbon (mg/L)	Methane (µg/L)	Ethane (µg/L)	Ethene (µg/L)	Total Sodium (ug/L)	Dissolved Sodium (ug/L)	Vinyl Chloride Reductase (vcrA) Gene Copies/Liter
<b>MTCA Method A/B Cleanup Level (Table 720-1, WAC 173-340-900)</b>										5	5	16 (B)	0.2	NA	NA	NA	NA	NA	NA			

< – Analyte not detected at laboratory's listed reporting limit  
**Bold** indicates analyte detected at a concentration greater than the laboratory reporting limit  
**Yellow highlight indicates** analyte exceeds **MTCA** cleanup level  
 Blank – not analyzed or not measured at that sampling location  
 NA – Not applicable  
 1 – The MTCA Method A ground water cleanup level for gasoline range hydrocarbons is 800 µg/L if benzene is present; the cleanup level is 1000 µg/L if benzene is not detectable