



REPORT

Groundwater Monitoring September 2020 Bear Creek Village Shopping Center

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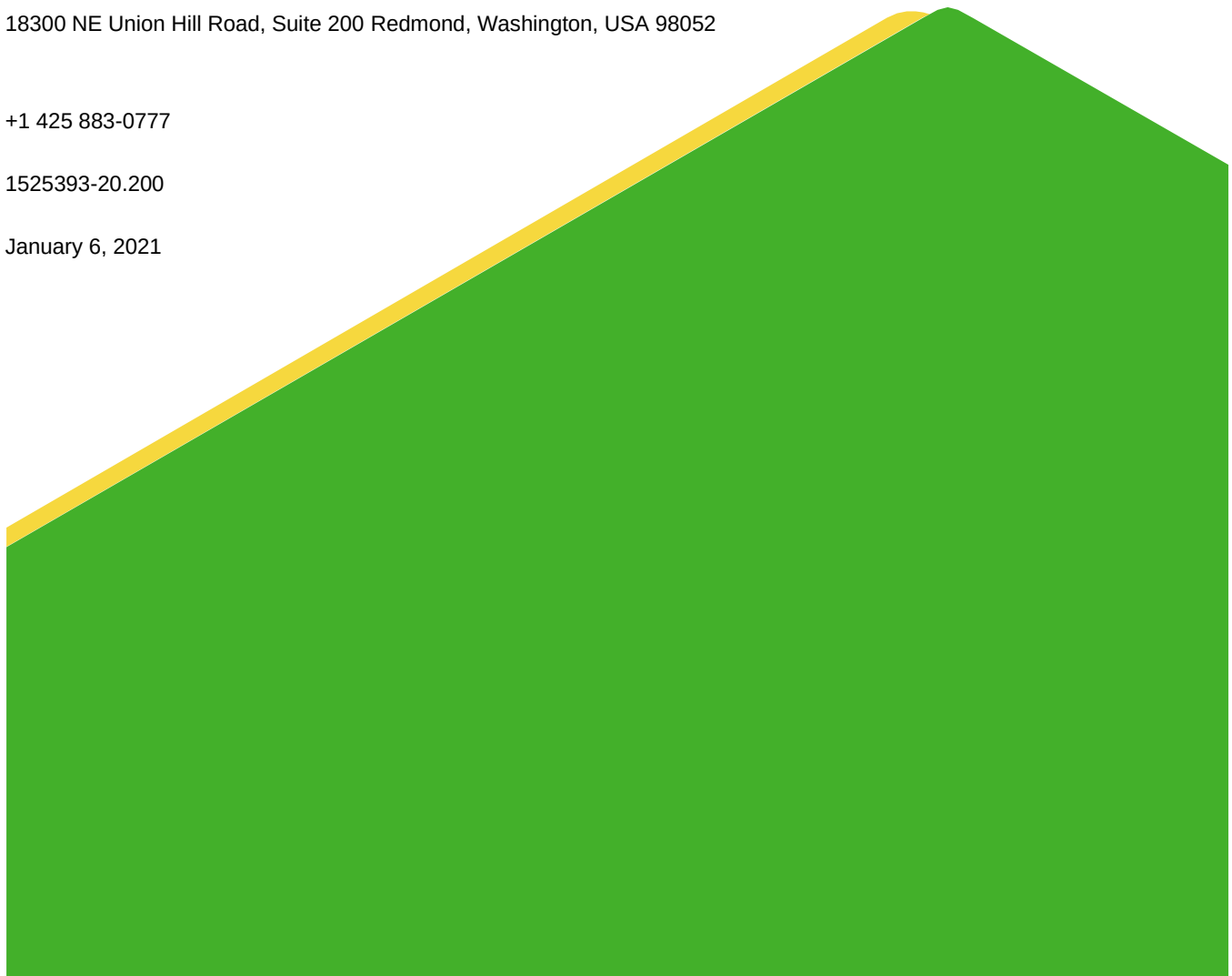
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1.0 INTRODUCTION

This report presents the results of groundwater monitoring conducted by Golder Associates Inc. (Golder) at the Bear Creek Village Shopping Center during the month of September 2020.

1.1 Site Description

The site is currently developed as a shopping center known as the Bear Creek Village Shopping Center, located at 17100 - 17262 Redmond Way, in Redmond, King County, Washington (site). Figure 1 depicts the location of the site on a United States Geological Survey (USGS) topographic map. The existing shopping center development was constructed in phases in approximately 1969, 1977, and 1985. Before the existing shopping center, the site was agricultural land with several houses, outbuildings, and a small warehouse complex along the northern side. The shopping center includes two core building complexes, one stand-alone multi-tenant retail-strip building, and three pad buildings (Taco Time, Jiffy Lube [previously Q-Lube], and O'Reilly Auto Parts [previously Schuck's]). Paved parking areas and limited landscaped areas comprise the remaining area. A dry cleaning establishment known as Bear Creek Cleaners formerly operated on the site. Bear Creek Cleaners was located at the southeastern portion of the site and is the focus of this groundwater monitoring program. A brief background on the history of Bear Creek Cleaners and the resulting remedial investigations is provided in previous monitoring reports (Golder 2020a).

1.2 Purpose and Scope

The purpose of this groundwater monitoring was to determine groundwater quality with respect to the presence of halogenated volatile organic compounds (HVOCs) as a result of the former Bear Creek Cleaners operations, and to obtain groundwater elevation data to determine the groundwater flow direction.

The scope of work for this groundwater monitoring included the following:

- Collection of groundwater samples from two on-site groundwater-monitoring wells (MW) (MW-10A, and MW-13) in accordance with the approved Ecology request on January 14, 2020 to temporarily reduce groundwater sampling from six to two monitor wells (Golder 2020b).
- Collection of other data from these wells including groundwater level measurements, pH, conductivity, dissolved oxygen, turbidity, oxidation-reduction potential, and temperature.
- Quality control procedures, including the analysis of a duplicate sample (duplicate collected from MW-13, which was identified with the sample number MW-23), and an equipment blank.
- Analysis of the groundwater and quality control samples for the presence of HVOCs using United States Environmental Protection Agency (EPA) Method 8260C.

2.0 SEPTEMBER 2020 GROUNDWATER SAMPLING

2.1 Groundwater Investigation Methods

On September 28, 2020, Golder sampled groundwater from two groundwater monitoring wells (MW-10A and MW-13). The wells were purged and sampled in accordance with EPA low-flow sampling guidelines. Figure 2 depicts the location of all pertinent on-site monitoring wells. The September 2020 analytical results are presented in Table 1. Historical analytical results for groundwater sampling conducted since 1999 are summarized in Table 2. A narrative of historical sampling activities was provided in previous monitoring reports (Golder 2020a). Sampling conditions and data collected during the monitoring event were recorded on the Sample Integrity Data Sheets

(SIDS) contained in Appendix A and summarized in Table 3. The following methods and procedures were used in collecting the groundwater samples:

- Depth to groundwater was measured in all on-site wells (MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, MW-9, MW-10A, MW-13, and MW-14) prior to purging and sampling. Water levels were recorded on the SIDS. Table 4 presents depth to water measurements and elevations. Figure 3 depicts groundwater elevations and contours.
- Dedicated tubing is located in all groundwater-monitoring wells and is replaced as needed. Each well was slowly purged of water at a rate of approximately 200 milliliters (mL) per minute using a peristaltic pump connected to the dedicated tubing.
- Field parameters of temperature, pH, conductivity, turbidity, dissolved oxygen, and oxidation-reduction potential were measured and recorded during purging at approximately 5-minute intervals until parameters were stable, Table 3. All field parameters were recorded on the SIDS (Appendix A).
- Upon completion of purging, groundwater samples were collected by directly capturing groundwater in three 40-mL vials pre-preserved with hydrochloric acid. The 40-mL VOA vials were sealed with septa-lined caps and sealed void of air bubbles. The samples were labeled and placed in a cooler with ice.
- For quality control purposes, a duplicate sample and equipment blank were collected. The duplicate sample was collected from MW-13, which was identified with the sample label MW-23. The equipment blank was collected after sampling at MW-10A.
- The collected samples were transported to OnSite Environmental Inc. in Redmond, Washington for chemical analysis on the same day as sample collection, following chain-of-custody protocols.

All groundwater and quality control samples were analyzed for the presence of HVOCs using EPA Method 8260C. The quality control goal for the project analytical data is to achieve a control limit of +/- 20 percent relative percent difference (RPD) between an original and its duplicate sample for an individual well. For the September 2020 Event, the duplicates (MW-13 and MW-23) were collected at the same time from well MW-13. Results for the duplicate are included in Table 2 as bracketed results associated with MW-13. Figure 4 depicts the detected HVOc concentrations for the wells sampled in September 2020. Figures 5 and 6 depict the detected concentrations of HVOcs for each well over time.

2.2 Water Level Measurements and Groundwater Flow Direction

Static groundwater levels were measured in all on-site monitoring wells (including those that are not sampled for HVOcs) on September 28, 2020 for the September 2020 groundwater sampling event. The groundwater levels measured that day (as well as during historical sampling) are summarized in Table 4. Groundwater elevations on the site are generally at their highest levels during the wetter winter/spring months and lower during the drier summer/fall months. The September 2020 sampling event groundwater levels were similar to previous Spring events and the seasonal trend remained consistent with previous events.

The groundwater elevation contour map for September 28, 2020 data is presented in Figure 3. There is some variability in groundwater flow direction across the site, but the inferred groundwater flow direction is generally west or northwesterly, away from Bear Creek, which suggests that Bear Creek loses water to the aquifer. The groundwater gradient measured on September 28, 2020 is generally consistent with historical monitoring results. Low groundwater elevations are observed in MW-3, MW-4, and MW-10A compared with elevation in surrounding

wells. Possible causes for the low groundwater elevations could be from excavations in the area during cleanup actions or storm water pipe installations. MW-3, MW-4, and MW-10A values were not used in contouring for Figure 3.

2.3 Groundwater Quality

The groundwater analytical data for PCE, and PCE's HVOC degradation compounds [trichloroethene (TCE), 1,3-dichlorobenzene (1,3-DCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride] detected in this round of sampling are summarized in Table 1. Table 2 contains the historical sampling results. Appendix B contains a copy of the laboratory analytical data report and data validation. The HVOC concentrations detected during this round of sampling are depicted in Figure 4. Groundwater HVOC concentrations and elevations with respect to time for MW-10/10A and MW-13 are depicted in Figures 5 and 6 for the last 20 years.

PCE or its degradation compounds were detected in both monitoring wells sampled during this period. Both wells are located on the eastern side of the former dry cleaner facility.

2.3.1 Perchloroethylene

PCE was detected in MW-13 at a concentration of 2.7 micrograms per liter ($\mu\text{g/L}$) during the September 2020 sampling event. The practical quantitation limit, or PQL, is 0.20 $\mu\text{g/L}$. Figure 7 depicts the PCE detections for the routinely sampled wells since 1999. This figure shows an overall decline of PCE concentrations across the site over time. PCE concentrations did not exceed the Model Toxics Control Act (MTCA) Method A Cleanup Level of 5.0 $\mu\text{g/L}$ in any wells during the September 2020 sampling event. PCE concentrations have not exceeded the MTCA Method A Cleanup Level of 5.0 $\mu\text{g/L}$ in any Site monitoring well since the March 2013 sampling event.

2.3.2 Trichloroethene

TCE was detected (2.6 $\mu\text{g/L}$) in MW-13 at a concentration greater than the PQL (0.20 $\mu\text{g/L}$) during the September 2020 sampling event. Figure 8 depicts the TCE detections for MW-2, MW-3, MW-4, MW-10A, and MW-13 since 1997. TCE concentrations did not exceed the MTCA Method A Cleanup Level of 5.0 $\mu\text{g/L}$ in any Site wells during the September 2020 sampling event. Figure 8 shows an overall decline of TCE concentrations across the Site over time. MW-13 had a slight increasing TCE trend from 2011 to 2017 but concentrations appear to be decreasing since 2017. Seasonal fluctuations remain common. TCE concentrations have not exceeded the MTCA Method A Cleanup Level of 5.0 $\mu\text{g/L}$ in any Site monitoring well since the March 2005 sampling event with only one exception. The one exception being TCE was detected (5.1 $\mu\text{g/L}$) during the September 2017 monitoring event.

2.3.3 Cis-1,2-Dichlorethene

Cis-1,2-DCE was detected at concentrations greater than the PQL (0.20 $\mu\text{g/L}$) in MW-10A, and MW-13 at concentrations of 2.1 $\mu\text{g/L}$, and 0.82 $\mu\text{g/L}$, respectively. The concentrations of cis-1,2-DCE detected during the September 2020 sampling event were all less than the current MTCA Method B Cleanup Level of 16 $\mu\text{g/L}$. Cis-1,2-DCE has never been detected at a concentration exceeding the current or historical (80 $\mu\text{g/L}$) MTCA Method B Cleanup Level in effect in any of the wells.

2.3.4 Vinyl Chloride

Vinyl Chloride was not detected in any of the groundwater samples, or equipment blank sample, collected during the September 2020 event. Figure 9 depicts the vinyl chloride detections for MW-2, MW-3, MW-4, MW-10A, and MW-13 since 1997. This figure shows a general overall site-wide decline of vinyl chloride concentrations with only

one exception, MW-10A. Vinyl Chloride concentrations have not exceeded the MTCA Method A Cleanup Level of 0.2 µg/L in any Site monitoring well since the March 2007 sampling event except at MW-10A.

2.3.5 1,3-Dichlorobenzene

1,3-Dichlorobenzene was not detected in any of the groundwater samples, or equipment blank samples, collected during the September 2020 event. During the September 2007, March 2008, and more recently in the September 2011 event, 1,3-dichlorobenzene was detected at concentrations greater than the PQL (0.20 µg/L) in groundwater samples. The detection of this compound during the 2007, 2008, and 2011 events is attributed to the degradation of the dedicated tubing located in the monitoring wells at that time. The dedicated tubing in all wells was replaced before the September 2008 and March 2012 events and as a result, 1,3-dichlorobenzene was not detected in any of the groundwater samples or equipment blank samples in subsequent sampling events.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 Findings and Conclusions

The findings and conclusions of this Groundwater Monitoring Report are summarized as follows:

- During the September 2020 sampling event, there were no detections of any of the constituents of concern (COCs) exceeding MTCA Method A Cleanup Levels.
- The current results indicate an overall decrease in PCE concentrations has occurred in MW-10A, and MW-13 since March 2007. PCE has not exceeded the MTCA cleanup level in any of the wells since 2012. PCE has not been detected in MW-10A since the March 2007 sampling event.
- The review of the last five years of groundwater monitoring results indicate that the rate of biodegradation of HVOCs appears to have slowed down, i.e. the decrease in concentrations of HVOCs has leveled off to some degree, particularly MW-13.

3.2 Recommendations

Based on the findings and conclusions of the September 2020 groundwater monitoring period, the following recommendations are made:

- The sampling program at the site will continue on the semi-annual sampling schedule (typically March and September) until two consecutive monitoring events below MTCA cleanup levels are achieved at which time the frequency will be increased to quarterly sampling to confirm that results are clean during all seasons of the year. Thus, the next routine semi-annual monitoring event should be scheduled for March 2021.
- The wells sampled during the next groundwater monitoring event should include MW-10A and MW-13 to confirm trends in HVOC concentrations and to support the goal of four consecutive sampling periods with HVOC concentrations that are less than MTCA Method A Cleanup Levels.

4.0 CLOSING

Golder is pleased to continue working with you on the Bear Creek Village Shopping Center project. If you have any questions regarding this report, please feel free to contact Eric Adams at (425) 883-0777.

Golder Associates Inc.



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Project Hydrogeologist



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Tables

Table 1: September 2020 Groundwater Analytical Results

Analytes	Cleanup Level	Units	Monitoring Well		
			MW-10A	MW-13	MW-23*
PCE	5.0 (A)	µg/L	<0.20	2.7	2.8
TCE	5.0 (A)	µg/L	<0.20	2.6	2.6
VC	0.2 (A)	µg/L	<0.20	<0.20	<0.20
cis-1,2-DCE	16 (B)	µg/L	2.1	0.82	0.82
1,3-DCB	---	µg/L	<0.20	<0.20	<0.20
Groundwater Elevation		ft amsl	30.72	37.89	37.89

Notes:

cis-1,2-DCE = *cis*-1,2-Dichloroethene

PCE = Perchloroethylene = Tetrachloroethene

1,3-DCB = 1,3-Dichlorobenzene

TCE = Trichloroethene

VC = Vinyl Chloride

<0.20 = indicates sample was not detected above the laboratory analytical detection limit.

(A) = MTCA Method A Cleanup Level (Model Toxics Control Act Cleanup Regulation - Chapter 173-340 WAC).

(B) = MTCA Method B formula value (Model Toxics Control Act Cleanup Regulation - Chapter 173-340 WAC and Model Toxics Control Act Cleanup Levels and Risk Calculations - February 1996).

Analytical results in parentheses represent duplicate samples.

Bold Italic = indicates the analytical result exceeds the MTCA Method A or B Cleanup Level.

* Duplicate sample collected at MW-13.

Groundwater elevation determined using the surveyed elevation (NAVD 88 datum) of the top of each well casing.

Elevations given in feet above mean sea level.

Table 2: Historical Groundwater Results

Monitoring Well ID	Sampling Date	Volatile Organic Compounds (µg/L)			
		PCE	TCE	VC	cis-1,2-DCE
MW-2	10/22/1997	36.7	2.23	<5.0	7.52
	2/19/1999	270	6	<5.0	6
	6/29/1999	<5.0	<5.0	<5.0	<5.0
	9/15/1999	51	<5.0	<5.0	<5.0
	12/14/1999	150	<5.0	<5.0	<5.0
	3/22/2000	39	<5.0	<5.0	<5.0
	9/27/2000	41	<2.0	<2.0	<2.0
	12/20/2000	34	<2.0	<2.0	<2.0
	3/29/2001	82	2.3	<0.20	3
	6/14/2001	51	1.7	<0.20	0.42
	9/12/2001	36	3.8	0.22	3.3
	12/18/2001	50	1.2	<0.20	0.33
	3/26/2002	17 (18)	0.46 (0.45)	<0.20	0.31 (0.37)
	6/10/2002	21 (21)	8.6 (7.0)	<0.20 (<0.20)	2.6 (2.4)
	9/12/2002	4.4	<0.20	<0.20	<0.20
	12/9/2002	4.8	0.46	<0.20	0.33
	3/13/2003	11	1.2	<0.20	1.1
	6/17/2003	11	2.1	0.47	3
	9/9/2003	*	*	*	*
	12/9/2003	30 (28)	0.63 (0.68)	<0.20	<0.20
	3/10/2004	17	0.6	<0.20	<0.20
	6/9/2004	5.2	3.6	<0.20	2.3
	9/22/2004	11	5.2	<0.20	3.6
	12/13/2004	19	0.35	<0.20	<0.20
	3/23/2005	10	2.1	<0.20	1.5
	6/20/2005	13	0.74	<0.20	<0.20
	9/8/2005	4.5	5.4	<0.20	6.2
	3/6/2006	16	0.33	<0.20	<0.20
	9/21/2006	6.1	3.6	<0.20	3.6
	3/16/2007	14	0.47	<0.20	0.28
	9/13/2007	8.8	4.4	<0.20	4.5
	2/28/2008	9.6	0.22	<0.20	<0.20
	9/8/2008	8.6 (8.1)	1.9 (1.9)	<0.20	0.96 (1.0)
	3/24/2009	11(11)	0.38 (0.28)	<0.20	<0.20
	9/18/2009	5.2	4	<0.20	6.4
	5/18/2010	6	<0.20	<0.20	<0.20
	10/7/2010	8.3	1.3	<0.20	1.1
	3/23/2011	7.9	<0.20	<0.20	<0.20
	9/8/2011	7.2	1.5	<0.20	1.2
	3/23/2012	7.0	<0.20	<0.20	<0.20
	9/14/2012	5.3	0.74	<0.20	0.52
	3/28/2013	2.8	<0.20	<0.20	<0.20
	9/4/2013	4.4	0.70	<0.20	0.53
	4/4/2014	3.3	<0.20	<0.20	<0.20
	9/23/2014	2.9	0.73	<0.20	1.7
	3/17/2015	2.6	<0.20	<0.20	<0.20
	9/28/2015	1.2	0.54	<0.20	6.2
	6/15/2016	2.3	0.2	<0.20	<0.20
	9/27/2016	1.6	0.47	<0.20	4.4
	3/29/2017	0.6	<0.20	<0.20	<0.20
	9/14/2017	*	*	*	*
	3/27/2018	0.57	<0.20	<0.20	<0.20
	11/28/2018	2.2	<0.20	<0.20	<0.20
	3/21/2019	1.4	<0.20	<0.20	<0.20
	9/25/2019	1.7	<0.20	<0.20	0.75

Table 2: Historical Groundwater Results

Monitoring Well ID	Sampling Date	Volatile Organic Compounds (µg/L)			
		PCE	TCE	VC	cis -1,2-DCE
MW-3	10/22/1997	<5.0	<5.0	<5.0	1.09
	2/19/1999	28	11	7	18
	6/29/1999	12	8	4	8
	9/15/1999	<5.0	10	<5.0	10
	12/14/1999	12	8	10	14
	3/22/2000	7	5	<5.0	7
	9/27/2000	<2.0	<2.0	<2.0	12
	12/20/2000	2	<2.0	<2.0	8
	3/29/2001	3.8	4.5	3.3	8.5
	6/14/2001	3.8	4.6	1.5	4.1
	9/12/2001	<0.20	1.4	0.79	6.2
	12/18/2001	1.8	5.7	0.98	5.2
	3/26/2002	0.39	1.5	0.9	3.5
	6/10/2002	<0.20	0.95	0.96	3.3
	9/10/2002	0.23	1.3	0.74	4.3
	12/9/2002	<0.20	0.55	0.74	2.6
	3/13/2003	<0.20	0.5(0.50)	0.45(0.45)	2.7(2.7)
	6/17/2003	<0.20	0.22	0.53	3
	9/9/2003	<0.20	<0.20	0.36	2.7
	12/9/2003	<0.20	0.45	0.33	3.1
	3/11/2004	<0.20	0.48	0.42	1.8
	6/9/2004	<0.20	<0.20	0.35	1.9
	9/22/2004	<0.20	<0.20	0.51	2.0
	12/13/2004	<0.20	0.25	0.31	2.4
	3/23/2005	<0.20	<0.20	0.28	2.0
	6/20/2005	<0.20	<0.20	<0.20	1.2 (1.3)
	9/8/2005	<0.20	<0.20	0.23	1.1
	3/16/2007	<0.20	<0.20	<0.20	0.88
	9/13/2007	<0.20	<0.20	<0.20	0.62
	2/28/2008	<0.20	<0.20	0.22	0.88
	9/8/2008	<0.20	<0.20	<0.20	0.47
	3/24/2009	<0.20	<0.20	<0.20	0.56
	9/18/2009	<0.20	<0.20	<0.20	0.72 (0.73)
	5/18/2010	<0.20	<0.20	<0.20	0.48 (0.52)
	10/7/2010	<0.20	<0.20	<0.20	0.36
	3/23/2011	<0.20	<0.20	<0.20	0.41
	9/8/2011	<0.20	<0.20	<0.20	0.32
	3/23/2012	<0.20	<0.20	<0.20	0.53
	9/14/2012	<0.20	<0.20	<0.20	0.24
	3/28/2013	<0.20	<0.20	<0.20	0.35
	9/4/2013	<0.20	<0.20	<0.20	0.34
	4/4/2014	<0.20	<0.20	<0.20	0.38
	9/23/2014	<0.20	<0.20	<0.20	0.23
	3/17/2015	<0.20	<0.20	<0.20	0.41
	9/28/2015	<0.20	<0.20	<0.20	0.31
	6/15/2016	<0.20	<0.20	<0.20	0.27
	9/27/2016	*	*	*	*
	3/29/2017	<0.20	<0.20	<0.20	0.29
	9/14/2017	*	*	*	*
	3/27/2018	<0.20 (<0.20)	<0.20 (<0.20)	<0.20 (<0.20)	<0.20 (<0.20)
	11/28/2018	<0.20 (<0.20)	<0.20 (<0.20)	<0.20 (<0.20)	0.27 (0.25)
	3/21/2019	<0.20 (<0.20)	<0.20 (<0.20)	<0.20 (<0.20)	<0.20 (<0.20)
	9/25/2019	<0.20 (<0.20)	<0.20 (<0.20)	<0.20 (<0.20)	0.21 (<0.20)

Table 2: Historical Groundwater Results

Monitoring Well ID	Sampling Date	Volatile Organic Compounds (µg/L)			
		PCE	TCE	VC	cis-1,2-DCE
MW-4	10/22/1997	11.8	5.99(0.50)	1.9	6.84
	2/19/1999	74	17	16	26
	6/29/1999	60	16	14	14
	9/15/1999	42	19	19	16
	12/14/1999	38	14	12	12
	3/22/2000	36	9	<5.0	8
	9/27/2000	16	12	8	14
	12/20/2000	16	8	<2.0	8
	3/29/2001	11	7.5	2.8	5.1
	6/14/2001	6.8	6.1	1	2.1
	9/12/2001	8.3	6.8	1.3	5.7
	12/18/2001	12	6.3	1.7	3.4
	3/26/2002	5.1	2.4	<0.20	1.1
	6/10/2002	5.7	2.7	0.57	2
	9/12/2002	5.4	3.9	0.66	3.4
	12/9/2002	5	3	1.6	2.9
	3/13/2003	6.3	1.8	<0.20	0.71
	6/17/2003	2.7	2.6	0.69	4.4
	9/9/2003	3.5	2.8	0.42	3.2
	12/9/2003	5.7	2.5	0.37	2.9
	3/11/2004	4.1	1.8	0.23	2.0
	6/9/2004	1.8	2.2	0.33	2.4
	9/22/2004	1	1.4	0.68	2.1
	12/13/2004	3.8	1.3	<0.20	0.93
	3/23/2005	2.2	1.0	<0.20	1.5
	6/20/2005	0.74	0.93	0.57	2.1
	9/8/2005	0.64 (0.65)	0.88 (0.88)	<0.20 (<0.20)	2.3 (2.3)
	3/6/2006	1.5 (1.4)	1.2 (1.3)	0.36 (0.33)	0.82 (0.85)
	9/21/2006	0.99 (0.85)	1.1 (1.1)	0.22 (0.25)	1.7 (2.1)
	3/16/2007	2.6 (2.7)	1.7 (1.7)	<0.20 (<0.20)	1.2 (1.2)
	9/13/2007	0.68 (0.63)	0.65 (0.71)	<0.20 (<0.20)	1.2 (1.3)
	2/28/2008	0.73 (0.72)	0.64 (0.61)	0.2 (<0.20)	1.1 (1.1)
	9/8/2008	0.23	2.2	<0.20	4.6
	3/24/2009	0.56	2.9	<0.20	4.8
	9/18/2009	<0.20	1.2	<0.20	8.8
	5/18/2010	0.27	1.6	<0.20	6.9
	10/7/2010	<0.20	0.52	<0.20	2.4
	3/23/2011	0.46	0.48	<0.20	0.66
	9/8/2011	0.23 (0.25)	0.52 (0.58)	<0.20 (<0.20)	5.6 (5.1)
	3/23/2012	0.36 (0.34)	0.58 (0.57)	<0.20 (<0.20)	0.48 (0.47)
	9/14/2012	<0.20 (<0.20)	0.23 (0.29)	<0.20 (<0.20)	5.4 (6.1)
	3/28/2013	<0.20 (<0.20)	0.63 (0.62)	<0.20 (<0.20)	3.4 (3.5)
	9/4/2013	<0.20 (<0.20)	0.21 (0.21)	<0.20 (<0.20)	6.8 (6.7)
	4/4/2014	0.31 (0.29)	0.37 (0.36)	<0.20 (<0.20)	0.83 (0.85)
	9/23/2014	<0.20 (<0.20)	<0.20 (<0.20)	<0.20 (<0.20)	3.8 (3.9)
	3/17/2015	<0.20 (<0.20)	0.32 (0.34)	<0.20 (<0.20)	5.1 (5.4)
	9/28/2015	<0.20 (<0.20)	<0.20 (<0.20)	<0.20 (<0.20)	4.6 (4.6)
	6/15/2016	<0.20 (<0.20)	<0.20 (<0.20)	<0.20 (<0.20)	6.0 (5.7)
	9/27/2016	0.42 (0.37)	1.1 (1.1)	<0.20 (<0.20)	5.5 (5.5)
	3/29/2017	<0.20 (<0.20)	0.35 (0.36)	<0.20 (<0.20)	3.6 (3.8)
	9/14/2017	1.4 (1.5)	3.0 (3.0)	<0.20 (<0.20)	8.0 (8.1)
	3/27/2018	<0.20	<0.20	<0.20	2.4
	11/28/2018	<0.20	<0.20	<0.20	5.2
	3/21/2019	<0.20	<0.20	<0.20	2.8
	9/25/2019	<0.20	<0.20	<0.20	6.0

Table 2: Historical Groundwater Results

Monitoring Well ID	Sampling Date	Volatile Organic Compounds (µg/L)			
		PCE	TCE	VC	cis -1,2-DCE
MW-9	10/22/1997	<5.0	<5.0	<5.0	<5.0
	2/19/1999	<5.0	<5.0	<5.0	<5.0
	6/29/1999	<5.0	<5.0	<5.0	<5.0
	9/15/1999	<5.0	<5.0	<5.0	<5.0
	12/14/1999	<5.0	<5.0	<5.0	<5.0
	3/22/2000	<5.0	<5.0	<5.0	<5.0
	9/28/2000	<2.0	<2.0	<2.0	<2.0
	12/20/2000	<2.0	<2.0	<2.0	<2.0
	3/28/2001	<0.20	<0.20	<0.20	<0.20
	6/14/2001	<0.20	<0.20	<0.20	<0.20
	9/12/2001	<0.20	<0.20	<0.20	<0.20
	12/18/2001	<0.20	<0.20	<0.20	<0.20
	3/26/2002	<0.20	<0.20	0.21	0.44
	6/10/2002	<0.20	<0.20	<0.20	0.21
	9/10/2002	<0.20	<0.20	<0.20	0.46
	12/9/2002	<0.20	<0.20	<0.20	0.26
	3/13/2003	<0.20	<0.20	<0.20	<0.20
	6/18/2003	<0.20	<0.20	<0.20	<0.20
	9/9/2003	<0.20	<0.20	<0.20	<0.20
	12/9/2003	<0.20	<0.20	<0.20	<0.20
	3/10/2004	<0.20	<0.20	<0.20	<0.20
	6/9/2004	<0.20	<0.20	<0.20	<0.20
	9/22/2004	<0.20	<0.20	<0.20	<0.20
	12/13/2004	<0.20	<0.20	<0.20	<0.20
	3/23/2005	<0.20	<0.20	<0.20	<0.20
	6/20/2005	<0.20	<0.20	<0.20	<0.20
	9/8/2005	<0.20	<0.20	<0.20	<0.20
	3/6/2006	<0.20	<0.20	<0.20	<0.20
	9/21/2006	<0.20	<0.20	<0.20	<0.20
	3/16/2007	<0.20	<0.20	<0.20	<0.20
	9/13/2007	<0.20	<0.20	<0.20	<0.20
	2/28/2008	<0.20	<0.20	<0.20	<0.20
	9/8/2008	<0.20	<0.20	<0.20	<0.20
	3/24/2009	<0.20	<0.20	<0.20	<0.20
	9/18/2009	<0.20	<0.20	<0.20	<0.20
	5/18/2010	<0.20	<0.20	<0.20	<0.20
	10/7/2010	<0.20	<0.20	<0.20	<0.20
	3/23/2011	<0.20	<0.20	<0.20	<0.20
	9/8/2011	<0.20	<0.20	<0.20	<0.20
	3/23/2012	<0.20	<0.20	<0.20	<0.20
	9/14/2012	<0.20	<0.20	<0.20	<0.20
	3/28/2013	<0.20	<0.20	<0.20	<0.20
	9/4/2013	<0.20	<0.20	<0.20	<0.20
	4/4/2014	<0.20	<0.20	<0.20	<0.20
	9/23/2014	<0.20	<0.20	<0.20	<0.20
	3/17/2015	<0.20	<0.20	<0.20	<0.20
	9/28/2015	<0.20	<0.20	<0.20	<0.20
	6/15/2016	<0.20	<0.20	<0.20	<0.20
	9/27/2016	<0.20	<0.20	<0.20	<0.20
	3/29/2017	<0.20	<0.20	<0.20	<0.20
	9/14/2017	<0.20	<0.20	<0.20	<0.20
	3/27/2018	<0.20	<0.20	<0.20	<0.20
	11/28/2018	<0.20	<0.20	<0.20	<0.20
	3/21/2019	<0.20	<0.20	<0.20	<0.20
	9/25/2019	<0.20	<0.20	<0.20	<0.20

Table 2: Historical Groundwater Results

Monitoring Well ID	Sampling Date	Volatile Organic Compounds (µg/L)			
		PCE	TCE	VC	cis -1,2-DCE
MW-10	10/22/1997	<5.0	<5.0	1.39	2.53
	2/19/1999	67	14	<5.0	22
	6/29/1999	30	14	<5.0	11
	9/15/1999	7	8	<5.0	7
	12/14/1999	15	14	<5.0	21
	3/22/2000	17	9	<5.0	11
	9/28/2000	3	5	<2.0	5
	12/20/2000	4	<2.0	<2.0	6
	3/28/2001	4.2 (4.6)	6.6 (6.2)	2.1 (2.2)	11 (10)
	6/14/2001	4.4	6	0.97	4.6
	9/12/2001	1.1	4.4	1.2	3.6
	12/18/2001	1.8	5.7	0.98	5.2
	3/26/2002	1.1	5.1	0.76	5.1
	6/10/2002	0.28	4.8	0.95	4.5
	9/10/2002	1.3	2	<0.20	2.4
	12/9/2002	<0.20	2.5	0.61	4.9
	3/13/2003	<0.20	2.2	0.22	3.1
	6/18/2003	<0.20	1.6	0.38	5.7
	9/9/2003	<0.20	0.84	0.33	1.9
	12/9/2003	0.31	3.6	0.59	7.5
	3/11/2004	<0.20	2.8	0.53	5.7
	6/9/2004	<0.20	0.64	1.3	4.4
	9/22/2004	<0.20	0.94	1.1	3.2
	12/13/2004	<0.20	0.81	0.51	4.8
	3/23/2005	<0.20	0.62	0.62	4.1
	6/20/2005	0.5	1.5	0.25	3.9
MW-10A	3/16/2007	1.1	1.1	0.28	7.10
	9/13/2007	<0.20	1.5	<0.20	9.1
	2/28/2008	<0.20	0.82	0.33	14
	9/8/2008	<0.20	0.21	0.34	8.7
	3/24/2009	<0.20	<0.20	0.24	6.5
	9/18/2009	<0.20	<0.20	0.27	5
	5/18/2010	<0.20	<0.20	0.52	5.2
	10/7/2010	<0.20	<0.20	0.26 (0.21)	6.4 (6.3)
	3/23/2011	<0.20	<0.20	<0.20 (<0.20)	6.8 (6.8)
	9/8/2011	<0.20	<0.20	0.43	4.1
	3/23/2012	<0.20	<0.20	0.21	4.5
	9/14/2012	<0.20	<0.20	<0.20	4.1
	3/28/2013	<0.20	<0.20	<0.20	4.7
	9/4/2013	<0.20	<0.20	0.54	5.9
	4/4/2014	<0.20	<0.20	<0.20	4.2
	9/23/2014	<0.20	<0.20	0.39	5.5
	3/17/2015	<0.20	<0.20	0.65	5.9
	9/28/2015	<0.20	<0.20	0.41	3.7
	6/15/2016	<0.20	<0.20	0.91	5.8
	9/27/2016	<0.20	<0.20	0.37	3.2
	3/29/2017	<0.20	<0.20	0.59	3.8
	9/14/2017	<0.20	<0.20	0.29	2.3
	3/27/2018	<0.20	<0.20	1.3	3.7
	11/28/2018	<0.20	<0.20	0.32	3.7
	3/21/2019	<0.20	<0.20	1.0	2.9
	9/25/2019	<0.20	<0.20	<0.20	3.1
	3/17/2020	<0.20	<0.20	0.7	3.1
	9/28/2020	<0.20	<0.20	<0.20	2.1

Table 2: Historical Groundwater Results

Monitoring Well ID	Sampling Date	Volatile Organic Compounds (µg/L)			
		PCE	TCE	VC	cis -1,2-DCE
MW-13	6/29/1999	54	42	<5.0	45
	9/15/1999	38	35	<5.0	41
	12/14/1999	53	48	<5.0	67
	3/22/2000	58	40	<5.0	28
	9/27/2000	27	19	<2.0	16
	12/20/2000	24	13	<2.0	9
	3/28/2001	19	18	0.78	15
	6/14/2001	24	17	0.49	6
	9/12/2001	20	12	<0.20	4.5
	12/18/2001	26	27	0.44	14
	3/26/2002	24	21	<0.20	12
	6/11/2002	22	14	<0.20	6.5
	9/12/2002	14 (12)	11 (9.2)	<0.20 (0.24)	5.8 (4.6)
	12/9/2002	10 (10)	6.5 (6.6)	0.30 (0.29)	2.8 (2.7)
	3/13/2003	12	9.3	0.27	3.8
	6/18/2003	10	6.8	<0.20	4.3
	9/9/2003	10	6.7	<0.20	1.9
	12/9/2003	12	7.2	<0.20	2.7
	3/10/2004	16 (15)	7.7 (7.4)	<0.20	2.2 (2.2)
	6/9/2004	7.9	5.9	<0.20	2.3
	9/22/2004	11(11)	7.7 (7.8)	<0.20 (<0.20)	2.7 (2.7)
	12/13/2004	9.7	5.9	<0.20	2.3
	3/23/2005	8.0	5.1	<0.20	1.7
	6/20/2005	4.9	3.1	<0.20	1.0
	9/8/2005	5.0	3.9	<0.20	1.5
	3/6/2006	8.2	3.5	<0.20	0.78
	9/21/2006	4.2	2.8	<0.20	0.67
	3/16/2007	6.8	3.1	<0.20	0.81
	9/13/2007	3.1	2.2	<0.20	0.59
	2/28/2008	5.7	1.4	<0.20	0.35
	9/8/2008	1.8	2.4	<0.20	0.57
	3/24/2009	4.3	1.4	<0.20	0.47
	9/18/2009	2	2.2	<0.20	0.66
	5/18/2010	4	1.4	<0.20	0.37
	10/7/2010	1.9	2.5	<0.20	0.66
	3/23/2011	4.8	1	<0.20	<0.20
	9/8/2011	1.5	2.2	<0.20	0.47
	3/23/2012	4.5	2.1	<0.20	0.55
	9/14/2012	1.5	2	<0.20	0.51
	3/28/2013	4.1	2.7	<0.20	0.87
	9/4/2013	3.1	3.4	<0.20	1.4
	4/4/2014	4.4	2.2	<0.20	0.54
	9/23/2014	3.7	3.8	<0.20	1.1
	3/17/2015	3.5	2.9	<0.20	1.2
	9/28/2015	4.3	3.6	<0.20	1.1
	6/15/2016	3	3.4	<0.20	0.74
	9/27/2016	3.2	3.9	<0.20	1.1
	3/29/2017	3.6	2.3	<0.20	0.49
	9/14/2017	1.2	5.1	<0.20	1.5
	3/27/2018	2.9	2	<0.20	0.46
	11/28/2018	4	2.5	<0.20	0.64
	3/21/2019	2.9	1.9	<0.20	0.46
	9/25/2019	3	1.9	<0.20	0.47
	3/17/2020	2.7(2.7)	1.9 (1.9)	<0.20 (<0.20)	0.46 (0.45)
	9/28/2020	2.7(2.8)	2.6 (2.6)	<0.20 (<0.20)	0.82 (0.82)

Table 2: Historical Groundwater Results

Monitoring Well ID	Sampling Date	Volatile Organic Compounds (µg/L)			
		PCE	TCE	VC	cis -1,2-DCE
MW-1	10/22/1997	<5.0	<5.0	7.7	25.2
	2/19/1999	<5.0	<5.0	<5.0	<5.0
	6/29/1999	<5.0	<5.0	<5.0	<5.0
	9/15/1999	<5.0	<5.0	<5.0	<5.0
	12/14/1999	<5.0	<5.0	<5.0	<5.0
	3/22/2000	<5.0	<5.0	<5.0	<5.0
MW-5	10/22/1997	1.58	2.55	<5.0	<5.0
	2/19/1999	<5.0	<5.0	<5.0	<5.0
	6/29/1999	<5.0	<5.0	<5.0	<5.0
	9/15/1999	<5.0	<5.0	<5.0	<5.0
	12/14/1999	<5.0	<5.0	<5.0	<5.0
	3/22/2000	<5.0	<5.0	<5.0	<5.0
MW-6	10/22/1997	<5.0	<5.0	<5.0	<5.0
	2/19/1999	<5.0	<5.0	<5.0	<5.0
MW-7	10/22/1997	<5.0	<5.0	<5.0	<5.0
	2/18/1999	<5.0	<5.0	<5.0	<5.0
MW-8	10/22/1997	<5.0	<5.0	<5.0	<5.0
	2/18/1999	<5.0	<5.0	<5.0	<5.0
MW-11	10/22/1997	<5.0	<5.0	<5.0	<5.0
	2/18/1999	<5.0	<5.0	<5.0	<5.0
MW-12	10/22/1997	<5.0	<5.0	<5.0	<5.0
	2/19/1999	<5.0	<5.0	<5.0	<5.0
MW-14	6/29/1999	<5.0	<5.0	<5.0	<5.0
	9/15/1999	<5.0	<5.0	<5.0	<5.0
	12/14/1999	<5.0	<5.0	<5.0	<5.0
	3/22/2000	<5.0	<5.0	<5.0	<5.0
	9/27/2000	<2.0	<2.0	<2.0	<2.0
	12/20/2000	<2.0	<2.0	<2.0	<2.0
	3/28/2001	<0.20	<0.20	<0.20	<0.20
	6/14/2001	<0.20	<0.20	<0.20	<0.20
	9/12/2001	<0.20	<0.20	<0.20	<0.20
MTCA Cleanup Levels		5.0 A	5.0 A	0.2 A	16 B¹

Notes:

Analytical results in parentheses represent duplicate samples.

Bold Italic = indicates the analytical result exceeds the MTCA Method A or B Cleanup Level.

<0.20 = indicates sample was not detected above the laboratory analytical detection limit.

A = MTCA Method A Cleanup Level (Model Toxics Control Act Cleanup Regulation - Chapter 173-340 WAC).

B = MTCA Method B formula value (Model Toxics Control Act Cleanup Regulation - Chapter 173-340 WAC and Model

¹ Current (2014) MTCA Method B value. Historical value was 80 µg/L.

* Groundwater elevation resided beneath the well screen. Sample could not be collected.

cis -1,2-DCE = cis -1,2-Dichloroethene

PCE = Perchloroethylene = Tetrachloroethene

TCE = Trichloroethene

VC = Vinyl Chloride

Table 3: September 2020 Field Parameters

Monitor Well	pH	Conductivity ($\mu\text{S/cm}$)	Temperature $^{\circ}\text{C}$	Turbidity NTU	Dissolved Oxygen mg/L	eH rel mV	Purge Rate ml/min	Groundwater Elevation ft amsl
Mw-10A	5.21	126.4	14.8	3.3	0.54	130.5	200	30.72
MW-13	5.21	221.2	15.5	3.25	0.44	120.9	200	37.89

Notes:

Groundwater elevation determined using the surveyed elevation (NAVD 88 datum) of the top of each well casing.

Elevations given in feet above mean sea level.

* pH probe not reading properly - pH not correct.

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-1	10 - 20	43.70	10/22/1997	12.41	31.29	
			1/14/1998	10.06	33.64	
			2/18/1999	8.86	34.84	
			6/29/1999	12.35	31.35	
			9/15/1999	13.45	30.25	
			12/14/1999	9.01	34.69	
			3/22/2000	10.14	33.56	
			9/27/2000	13.59	30.11	
			12/20/2000	12.60	31.10	
			3/29/2001	12.30	31.40	
			6/13/2001	12.06	31.64	
			9/12/2001	13.43	30.27	
			12/17/2001	6.63	37.07	
			3/26/2002	9.82	33.88	
			6/10/2002	11.85	31.85	
			9/10/2002	13.33	30.37	
			12/9/2002	13.80	29.90	
			3/12/2003	11.22	32.48	
			6/17/2003	12.41	31.29	
			9/9/2003	14.02	29.68	
			12/9/2003	9.59	34.11	
			3/10/2004	10.21	33.49	
			6/9/2004	12.85	30.85	
			9/22/2004	12.91	30.79	
			12/13/2004	11.17	32.53	
			3/23/2005	12.55	31.15	
			6/20/2005	10.95	32.75	
			9/8/2005	13.49	30.21	
			3/6/2006	9.89	33.81	
			9/21/2006	12.55	31.15	
			3/16/2007	9.77	33.93	
			9/13/2007	13.26	30.44	
		43.69	2/28/2008	9.68	34.01	New Elevation***
			9/8/2008	NC	NC	
			3/24/2009	9.91	33.78	
			9/18/2009	12.91	30.78	
			5/18/2010	10.01	33.68	
			10/7/2010	12.58	31.11	
			3/23/2011	9.01	34.68	
			9/8/2011	13.03	30.66	
			3/23/2012	8.27	35.42	
		47.39	7/9/2012	---	---	New Elevation****
			9/14/2012	Dry	Dry	
			3/28/2013	10.34	37.05	
			9/4/2013	14.15	33.24	
			4/4/2014	9.27	38.12	
			9/23/2014	12.44	34.95	
			3/17/2015	9.52	37.87	
			9/28/2015	Dry	Dry	
			6/15/2016	11.33	36.06	
			9/27/2016	Dry	Dry	
			3/29/2017	8.65	38.74	
			9/14/2017	Dry	Dry	
			3/27/2018	12.47	34.92	
			9/13/2018	Dry	Dry	
			10/4/2018	Dry	Dry	
			11/28/2018	12.76	34.63	
			3/21/2019	11.30	36.09	
			9/25/2019	13.08	34.31	
			3/17/2020	10.02	37.37	
			9/28/2020	12.74	34.65	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-2	10 - 20	44.95	10/22/1997	16.70	28.25	
			1/14/1998	11.51	33.44	
			2/18/1999	7.43	37.52	
			6/29/1999	12.97	31.98	
			9/15/1999	15.46	29.49	
			12/14/1999	7.77	37.18	
			3/22/2000	7.77	37.18	
			9/27/2000	16.41	28.54	
			12/20/2000	11.83	33.12	
			3/28/2001	9.67	35.28	
			6/13/2001	9.85	35.10	
			9/12/2001	17.30	27.65	
			12/17/2001	6.42	38.53	
			3/26/2002	7.72	37.23	
			6/10/2002	10.05	34.90	
			9/10/2002	7.11	37.84	
			12/9/2002	15.10	29.85	
			3/12/2003	9.40	35.55	
			6/17/2003	14.94	30.01	
			9/9/2003	below screen	below screen	
			12/9/2003	8.96	35.99	
			3/10/2004	10.42	34.53	
			6/9/2004	12.32	32.63	
			9/22/2004	12.25	32.70	
			12/13/2004	9.45	35.50	
			3/23/2005	10.21	34.74	
			6/20/2005	9.71	35.24	
			9/8/2005	13.20	31.75	
			3/6/2006	8.06	36.89	
			9/21/2006	12.07	32.88	
			3/16/2007	8.00	36.95	
			9/13/2007	12.58	32.37	
		45.01	2/28/2008	8.69	36.32	New Elevation***
			9/8/2008	10.8	34.21	
			3/24/2009	8.85	36.16	
			9/18/2009	13.15	31.86	
			5/18/2010	9.1	35.91	
			10/7/2010	11.17	33.84	
			3/23/2011	7.55	37.46	
			9/8/2011	11.57	33.44	
			3/23/2012	6.97	38.04	
		48.59	7/9/2012	---	---	New Elevation****
			9/14/2012	11.8	36.79	
			3/28/2013	8.01	40.58	
			9/4/2013	11.41	37.18	
			4/4/2014	7.54	41.05	
			9/23/2014	12.25	36.34	
			3/17/2015	7.84	40.75	
			9/28/2015	13.56	35.03	
			6/15/2016	10.18	38.41	
			9/27/2016	13.83	34.76	
			3/29/2017	6.29	42.30	
			9/14/2017	16.93	31.66	
			3/27/2018	8.38	40.21	
			9/13/2018	Dry	Dry	
			10/4/2018	17.2	31.39	
			11/28/2018	9.44	39.15	
			3/21/2019	8.51	40.08	
			9/25/2019	12.31	36.28	
			3/17/2020	7.99	40.60	
			9/28/2020	13.76	34.83	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-3	10 - 20	45.27	10/22/1997	17.11	28.16	
			1/14/1998	14.26	31.01	
			2/18/1999	12.43	32.84	
			6/29/1999	17.36	27.91	
			9/15/1999	18.70	26.57	
			12/14/1999	12.72	32.55	
			3/22/2000	14.22	31.05	
			9/27/2000	18.72	26.55	
			12/20/2000	17.13	28.14	
			3/28/2001	16.81	28.46	
			6/13/2001	16.82	28.45	
			9/12/2001	18.40	26.87	
			12/17/2001	10.67	34.60	
			3/26/2002	13.52	31.75	
			6/10/2002	16.53	28.74	
			9/10/2002	18.35	26.92	
			12/9/2002	18.12	27.15	
			3/12/2003	15.50	29.77	
			6/17/2003	17.09	28.18	
			9/9/2003	19.30	25.97	
			12/9/2003	13.70	31.57	
			3/10/2004	14.02	31.25	
			6/9/2004	17.46	27.81	
			9/22/2004	17.68	27.59	
			12/13/2004	16.31	28.96	
			3/23/2005	15.04	30.23	
			6/20/2005	16.11	29.16	
			9/8/2005	18.48	26.79	
			3/16/2007	13.15	32.12	
			9/13/2007	17.93	27.34	
			2/28/2008	12.45	32.82	
			9/8/2008	15.15	30.12	
			3/24/2009	13.99	31.28	
			9/18/2009	17.73	27.54	
			5/18/2010	13.96	31.31	
			10/7/2010	16.73	28.54	
			3/23/2011	10.34	34.93	
			9/8/2011	17.47	27.80	
			3/23/2012	9.03	36.24	
		48.91	7/9/2012	---	---	New Elevation****
			9/14/2012	18.41	30.5	
			3/28/2013	10.47	38.44	
			9/4/2013	17.46	31.45	
			4/4/2014	9.34	39.57	
			9/23/2014	15.47	33.44	
			3/17/2015	8.54	40.37	
			9/28/2015	17.56	31.35	
			6/15/2016	12.52	36.39	
			9/27/2016	Dry	Dry	
			3/29/2017	8.80	40.11	
			9/14/2017	Dry	Dry	
			3/27/2018	13.54	35.37	
			9/13/2018	18.40	30.51	
			10/4/2018	17.66	31.25	
			11/28/2018	13.98	34.93	
			3/21/2019	11.26	37.65	
			9/25/2019	16.75	32.16	
			3/17/2020	10.11	38.80	
			9/28/2020	17.40	31.51	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-4	10 - 20	44.44	10/22/1997	16.18	28.26	
			1/14/1998	13.13	31.31	silted up to 18-19'
			2/18/1999	11.85	32.59	
			6/29/1999	15.44	29.00	
			9/15/1999	17.76	26.68	
			12/14/1999	9.46	34.98	
			3/22/2000	10.50	33.94	
			12/9/2002	15.97	28.47	
			12/20/2000	12.66	31.78	
			3/28/2001	9.64	34.80	
			6/13/01/	9.68	34.76	
			9/12/2001	15.32	29.12	
			12/17/2001	8.42	36.02	
			3/26/2002	8.60	35.84	
			6/10/2002	10.24	34.20	
			9/10/2002	14.40	30.04	
			12/9/2002	15.50	28.94	
			3/12/2003	9.00	35.44	
			6/17/2003	10.53	33.91	
			9/9/2003	13.2	31.24	
			12/9/2003	9.56	34.88	
			3/10/2004	8.46	35.98	
			6/9/2004	11.97	32.47	
			9/22/2004	12.83	31.61	
			12/13/2004	9.86	34.58	
			3/23/2005	16.36	28.08	
			6/20/2005	10.03	34.41	
			9/8/2005	13.53	30.91	
			3/6/2006	8.10	36.34	
			9/21/2006	14.81	29.63	
			3/16/2007	10.45	33.99	
			9/13/2007	14.45	29.99	
		44.32	2/28/2008	10.74	33.58	New Elevation***
			9/8/2008	14.70	29.62	
			3/24/2009	12.80	31.52	
			9/18/2009	16.56	27.76	
			5/18/2010	14.00	30.32	
			10/7/2010	15.48	28.84	
			3/23/2011	10.43	33.89	
			9/8/2011	16.62	27.70	
			3/23/2012	9.02	35.30	
		47.96	7/9/2012	---	---	New Elevation****
			9/14/2012	17.36	30.6	
			3/28/2013	12.08	35.88	
			9/4/2013	17.19	30.77	
			4/4/2014	11.70	36.26	
			9/23/2014	16.66	31.30	
			3/17/2015	12.37	35.59	
			9/28/2015	17.37	30.59	
			6/15/2016	16.47	31.49	
			9/27/2016	18.02	29.94	
			3/29/2017	13.33	34.63	
			9/14/2017	18.33	29.63	
			3/27/2018	16.08	31.88	
			9/13/2018	19.38	28.58	
			10/4/2018	19.15	28.81	
			11/28/2018	15.98	31.98	
			3/21/2019	13.88	34.08	
			9/25/2019	17.06	30.90	
			3/17/2020	11.82	36.14	
			9/28/2020	17.14	30.82	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-5	10 - 20	44.87	10/22/1997	14.42	30.02	
			1/14/1998	NA	NA	Well not accessible
			2/18/1999	7.69	37.18	
			6/29/1999	10.10	34.77	
			9/15/1999	11.12	33.75	
			12/14/1999	8.06	36.81	
			3/22/2000	8.25	36.62	
			9/27/2000	11.58	33.29	
			12/20/2000	9.84	35.03	
			3/29/2001	9.51	35.36	
			6/13/2001	9.32	35.55	
			9/12/2001	10.63	34.24	
			12/17/2001	6.60	38.27	
			3/26/2002	7.21	37.66	
			6/10/2002	9.65	35.22	
			9/10/2002	9.30	35.57	
			12/9/2002	9.66	35.21	
			3/12/2003	8.38	36.49	
			6/17/2003	9.97	34.9	
			9/9/2003	11.64	33.23	
			12/9/2003	8.66	36.21	
			3/10/2004	7.91	36.96	
			6/9/2004	11.36	33.51	
			9/22/2004	10.15	34.72	
			12/13/2004	8.91	35.96	
			3/23/2005	10.04	34.83	
			6/20/2005	9.00	35.87	
			9/8/2005	10.83	34.04	
			3/6/2006	7.77	37.10	
			9/21/2006	10.61	34.26	
			3/16/2007	7.15	37.72	
			9/13/2007	10.44	34.43	
		44.92	2/28/2008	8.82	36.10	New Elevation***
			9/8/2008	9.79	35.13	
			3/24/2009	8.71	36.21	
			9/18/2009	10.97	33.95	
			5/18/2010	9.02	35.90	
			10/7/2010	9.98	34.94	
			3/23/2011	6.86	38.06	
			9/8/2011	10.42	34.50	
			3/23/2012	6.35	38.57	
		48.52	7/9/2012	---	---	New Elevation****
			9/14/2012	10.69	37.83	
			3/28/2013	7.93	40.59	
			9/4/2013	10.43	38.09	
			4/4/2014	8.09	40.43	
			9/23/2014	10.13	38.39	
			3/17/2015	6.37	42.15 ¹	
			9/28/2015	10.52	38.00	
			6/15/2016	9.73	38.79	
			9/27/2016	11.13	37.39	
			3/29/2017	5.87	42.65	
			9/14/2017	11.28	37.24	
			3/27/2018	7.70	40.82	
			9/13/2018	10.47	38.05	
			10/4/2018	10.11	38.41	
			11/28/2018	8.79	39.73	
			3/21/2019	8.11	40.41	
			9/25/2019	10.11	38.41	
			3/17/2020	7.26	41.26	
			9/28/2020	10.62	37.90	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-6	10 - 20	45.22	10/22/1997	11.01	33.43	
			1/14/1998	9.63	35.59	
			2/18/1999	8.43	36.79	
			6/29/1999	10.70	34.52	
			9/15/1999	11.86	33.36	
			12/14/1999	8.69	36.53	
			3/22/2000	8.80	36.42	
			9/27/2000	11.24	33.98	
			12/20/2000	10.45	34.77	
			3/28/2001	10.19	35.03	
			6/13/2001	9.83	35.39	
			9/12/2001	10.69	34.53	
			12/17/2001	7.61	37.61	
			3/26/2002	8.01	37.21	
			6/10/2002	9.62	35.60	
			12/9/2002	10.30	34.92	
			3/12/2003	9.40	35.82	
			6/17/2003	10.03	35.19	
			9/9/2003	13.11	32.11	
			12/9/2003	9.05	36.17	
			3/10/2004	8.79	36.43	
			6/9/2004	11.40	33.82	
			9/22/2004	10.21	35.01	
			12/13/2004	9.71	35.51	
			3/23/2005	9.84	35.38	
			6/20/2005	8.44	36.78	
			9/8/2005	10.55	34.67	
			3/6/2006	8.00	37.22	
			9/21/2006	10.06	35.16	
			3/16/2007	8.48	36.74	
			9/13/2007	10.17	35.05	
		45.27	2/28/2008	9.13	36.14	New Elevation***
			9/8/2008	9.50	35.77	
			3/24/2009	9.09	36.18	
			9/18/2009	10.76	34.51	
			5/18/2010	9.30	35.97	
			10/7/2010	9.62	35.65	
			3/23/2011	7.84	37.43	
			9/8/2011	10.18	35.09	
			3/23/2012	7.52	37.75	
		48.84	7/9/2012	---	---	New Elevation****
			9/14/2012	10.51	38.33	
			3/28/2013	8.20	40.64	
			9/4/2013	9.81	39.03	
			4/4/2014	7.90	40.94	
			9/23/2014	9.30	39.54	
			3/17/2015	7.95	40.89	
			9/28/2015	10.54	38.30	
			6/15/2016	9.58	39.26	
			9/27/2016	10.96	37.88	
			3/29/2017	7.32	41.52	
			9/14/2017	10.75	38.09	
			3/27/2018	8.31	40.53	
			9/13/2018	8.72	40.12	
			10/4/2018	8.49	40.35	
			11/28/2018	9.39	39.45	
			3/21/2019	8.72	40.12	
			9/25/2019	10.15	38.69	
			3/17/2020	7.56	41.28	
			9/28/2020	10.35	38.49	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-7	10 - 20	44.01	10/22/1997	18.59	25.85	
			1/14/1998	15.79	28.22	
			2/18/1999	14.27	29.74	
			6/29/1999	18.89	25.12	
			9/15/1999	19.91	24.10	
			12/14/1999	14.19	29.82	
			3/22/2000	16.16	27.85	
			9/27/2000	19.75	24.26	
			12/20/2000	18.44	25.57	
			3/28/2001	18.36	25.65	
			6/13/2001	18.36	25.65	
			9/12/2001	19.43	24.58	
			12/17/2001	12.65	31.36	
			3/26/2002	15.81	28.20	
			6/10/2002	18.21	25.80	
			9/10/2002	19.79	24.22	
			12/9/2002	19.52	24.49	
			3/12/2003	17.02	26.99	
			6/17/2003	18.44	25.57	
			9/9/2003	19.88	24.13	
			9/16/2003	abandoned	abandoned	
MW-8	10 - 20	46.23	10/22/1997	20.79	23.65	
			1/14/1998	17.95	28.28	
			2/18/1999	16.51	29.72	
			6/29/1999	21.11	25.12	
			9/15/1999	22.17	24.06	
			12/14/1999	16.43	29.80	
			3/22/2000	18.34	27.89	
			9/27/2000	22.02	24.21	
			12/20/2000	20.66	25.57	
			3/28/2001	20.52	25.71	
			6/13/2001	20.54	25.69	
			9/12/2001	21.63	24.60	
			12/17/2001	14.86	31.37	
			3/26/2002	18.00	28.23	
			6/10/2002	20.38	25.85	
			9/10/2002	22.00	24.23	
			12/9/2002	21.74	24.49	
			3/12/2003	19.22	27.01	
			6/17/2003	20.60	25.63	
			9/9/2003	22.09	24.14	
			9/16/2003	abandoned	abandoned	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-9	10 - 20	44.83	10/22/1997	16.15	28.29	
			1/14/1998	13.23	31.60	
			2/18/1999	10.51	34.32	
			6/29/1999	15.60	29.23	
			9/15/1999	17.67	27.16	
			12/14/1999	11.02	33.81	
			3/22/2000	11.89	32.94	
			9/27/2000	17.01	27.82	
			12/20/2000	15.58	29.25	
			3/28/2001	15.02	29.81	
			6/13/2001	14.84	29.99	
			9/12/2001	16.88	27.95	
			12/17/2001	8.74	36.09	
			3/26/2002	11.42	33.44	
			6/10/1992	14.64	30.19	
			9/10/2002	16.23	28.60	
			12/9/2002	16.78	28.05	
			3/12/2003	13.65	31.18	
			6/17/2003	15.34	29.49	
			9/9/2003	18.15	26.68	
			12/9/2003	12.59	32.44	
			3/10/2004	12.68	32.15	
			6/9/2004	15.76	29.07	
			9/22/2004	15.94	28.89	
			12/13/2004	14.04	30.79	
			3/23/2005	14.08	30.75	
			6/20/2005	14.51	30.32	
			9/8/2005	17.33	27.5	
			3/6/2006	11.65	33.18	
			9/21/2006	16.15	28.68	
			3/16/2007	12.07	32.76	
			9/13/2007	16.94	27.89	
			2/28/2008	12.57	32.26	
			9/8/2008	15.32	29.51	
			3/24/2009	14.18	30.65	
			9/18/2009	16.79	28.04	
			5/18/2010	13.68	31.15	
			10/7/2010	15.73	29.1	
			3/23/2011	10.47	34.36	*Well box replaced.
			9/8/2011	16.63	31.81	These water levels were corrected using the 7/9/12 survey data.
			3/23/2012	10.10	38.3	
		48.44	7/9/2012	---	---	New Elevation****
			9/14/2012	16.09	32.35	
			3/28/2013	12.34	36.1	
			9/4/2013	16.29	32.15	
			4/4/2014	11.25	37.19	
			9/23/2014	15.66	32.78	
			3/17/2015	11.61	36.83	
			9/28/2015	16.77	31.67	
			6/15/2016	15.12	33.32	
			9/27/2016	18.02	30.42	
			3/29/2017	9.71	38.73	
			9/14/2017	17.57	30.87	
			3/27/2018	14.09	34.35	
			9/13/2018	18.67	29.77	
			10/4/2018	18.48	29.96	
			11/28/2018	16.25	32.19	
			3/21/2019	12.03	36.41	
			9/25/2019	16.05	32.39	
			3/17/2020	10.11	38.33	
			9/28/2020	16.17	32.27	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-10	10 - 20	44.84	10/22/1997	16.61	27.83	
			1/14/1998	13.86	30.98	
			2/18/1999	12.11	32.73	
			6/29/1999	16.91	27.93	
			9/15/1999	18.22	26.62	
			12/14/1999	12.37	32.47	
			3/22/2000	13.87	30.97	
			9/27/2000	18.24	26.60	
			12/20/2000	16.63	28.21	
			3/28/2001	16.40	28.44	
			6/13/2001	16.43	28.41	
			9/12/2001	17.92	26.92	
			12/17/2001	9.92	34.92	
			3/26/2002	12.32	35.52	
			6/10/2002	16.14	28.70	
			9/10/2002	12.84	32.00	
			12/9/2002	18.08	26.76	
			3/12/2003	15.12	29.72	
			6/17/2003	16.67	28.17	
			9/9/2003	18.80	26.04	
			12/9/2003	13.56	31.28	
			3/10/2004	13.75	31.09	
			6/9/2004	17.04	27.80	
			9/22/2004	17.22	27.62	
			12/13/2004	14.97	29.87	
			3/23/2005	16.21	28.63	
			6/20/2005	15.88	28.96	
			8/31/2005	abandoned	abandoned	
MW-10A	15 - 20	44.74	3/16/2007	13.80	30.94	
			9/13/2007	17.67	27.07	
			2/28/2008	13.80	30.94	
			9/8/2008	15.93	28.81	
			3/24/2009	15.26	29.48	
			9/18/2009	17.19	27.55	
			5/18/2010	14.89	29.85	
			10/7/2010	16.72	28.02	
			3/23/2011	12.83	31.91	
			9/8/2011	17.64	27.10	
			3/23/2012	12.03	32.71	
		48.37	7/9/2012	---	---	New Elevation****
			9/14/2012	17.52	30.85	
			3/28/2013	14.20	34.17	
			9/4/2013	17.39	30.98	
			4/4/2014	13.40	34.97	
			9/23/2014	17.26	31.11	
			3/17/2015	14.27	34.10	
			9/28/2015	17.91	30.46	
			6/15/2016	16.95	31.42	
			9/27/2016	18.45	29.92	
			3/29/2017	13.93	34.44	
			9/14/2017	18.78	29.59	
			3/27/2018	17.25	31.12	
			9/13/2018	Dry	Dry	
			10/4/2018	Dry	Dry	
			11/28/2018	17.26	31.11	
			3/21/2019	15.56	32.81	
			9/25/2019	17.78	30.59	
			3/17/2020	13.84	34.53	
			9/28/2020	17.65	30.72	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-11	10 - 25	47.18	10/22/1997	21.91	22.53	
			1/14/1998	19.05	28.13	
			2/18/1999	17.51	29.67	
			6/29/1999	22.24	24.94	
			9/15/1999	23.31	23.87	
			12/14/1999	17.44	29.74	
			3/22/2000	19.42	27.76	
			9/27/2000	23.13	24.05	
			12/20/2000	21.75	25.43	
			3/28/2001	21.64	25.54	
			6/13/2001	21.85	25.33	
			9/12/2001	22.73	24.45	
			12/17/2001	15.94	31.24	
			3/26/2002	19.10	28.08	
			6/10/2002	21.50	25.68	
			9/10/2002	23.13	24.05	
			12/9/2002	22.84	24.34	
			3/12/2003	20.28	26.90	
			6/17/2003	21.78	25.40	
			9/9/2003	23.20	23.98	
			9/16/2003	abandoned	abandoned	
MW-12	10 - 25	44.03	10/22/1997	17.41	27.03	
			1/14/1998	14.16	29.87	
			2/18/1999	12.95	31.08	
			6/29/1999	17.65	26.38	
			9/15/1999	18.81	25.22	
			12/14/1999	12.84	31.19	
			3/22/2000	14.68	29.35	
			9/27/2000	18.78	25.25	
			12/20/2000	17.30	26.73	
			3/28/2001	17.25	26.78	
			6/13/2001	17.25	26.78	
			9/12/2001	18.49	25.54	
			12/17/2001	11.11	32.92	
			3/26/2002	14.46	29.57	
			6/10/2002	17.05	26.98	
			9/10/2002	18.78	25.25	
			12/9/2002	18.62	25.41	
			3/12/2003	15.94	28.09	
			6/17/2003	17.39	26.64	
			9/9/2003	19.06	24.97	
			9/16/2003	abandoned	abandoned	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-13	10 - 20	43.86	6/29/1999	11.27	32.59	
			9/15/1999	12.50	31.36	
			12/14/1999	6.86	37.00	
			3/22/2000	7.47	36.39	
			9/27/2000	12.26	31.60	
			12/20/2000	12.02	31.84	
			3/28/2001	9.86	34.00	
			6/13/2001	10.71	33.15	
			9/12/2001	12.00	31.86	
			12/17/2001	5.49	38.37	
			3/26/2002	7.12	36.74	
			6/10/2002	9.84	34.02	
			9/10/2002	9.59	34.27	
			12/9/2002	10.10	33.76	
			3/12/2003	9.61	34.25	
			6/17/2003	10.66	33.20	
			9/9/2003	12.62	31.24	
			3/10/2004	7.61	36.25	
			6/9/2004	10.99	32.87	
			9/22/2004	11.85	32.01	
			12/13/2004	12.47	31.39	
			3/23/2005	9.57	34.29	
			6/20/2005	9.90	33.96	
			9/8/2005	11.78	32.08	
			3/6/2006	7.27	36.59	
			9/21/2006	11.78	32.08	
			3/16/2007	7.45	36.41	
			9/13/2007	11.76	32.10	
		43.89	2/28/2008	7.80	36.09	New Elevation***
			9/8/2008	10.74	33.15	
			3/24/2009	8.41	35.48	
			9/18/2009	11.93	31.96	
			5/18/2010	8.6	35.29	
			10/7/2010	11.52	32.37	
			3/23/2011	7.02	36.87	
			9/8/2011	11.52	32.37	
			3/23/2012	6.70	37.19	
		47.47	7/9/2012	---	---	New Elevation****
			9/14/2012	11.28	36.19	
			3/28/2013	7.74	39.73	
			9/4/2013	10.34	37.13	
			4/4/2014	7.45	40.02	
			9/23/2014	10.96	36.51	
			3/17/2015	7.01	40.46	
			9/28/2015	10.62	36.85	
			6/15/2016	9.31	38.16	
			9/27/2016	10.95	36.52	
			3/29/2017	5.85	41.62	
			9/14/2017	11.97	35.5	
			3/27/2018	7.52	39.95	
			9/13/2018	11.2	36.27	
			10/4/2018	10.35	37.12	
			11/28/2018	8.10	39.37	
			3/21/2019	7.93	39.54	
			9/25/2019	9.52	37.95	
			3/17/2020	7.42	40.05	
			9/28/2020	9.58	37.89	

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
MW-14	10 - 20	45.90	6/29/1999	17.02	28.88	
			9/15/1999	18.39	27.51	
			12/14/1999	12.33	33.5 7	
			3/22/2000	13.77	32.13	
			9/27/2000	18.45	27.45	
			12/20/2000	17.00	28.90	
			3/28/2001	16.56	29.34	
			6/13/2001	16.58	29.32	
			9/12/2001	18.12	27.78	
			12/17/2001	9.94	35.96	
			3/26/2002	13.40	32.50	
			6/10/2002	16.22	29.68	
			9/10/2002	18.95	26.95	
			12/9/2002	18.19	27.71	
			3/12/2003	15.22	30.68	
			6/17/2003	16.79	29.11	
			9/9/2003	18.98	26.92	
			3/10/2004	13.81	32.09	
			6/9/2004	17.20	28.70	
			9/22/2004	17.41	28.49	
			12/13/2004	15.36	30.54	
			3/23/2005	16.36	29.54	
			6/20/2005	16.06	29.84	
			9/8/2005	18.25	27.65	
			3/6/2006	13.01	32.89	
			9/21/2006	17.04	28.86	
			3/16/2007	13.64	32.26	
			9/13/2007	17.96	27.94	
		45.89	2/28/2008	12.75	33.14	New Elevation***
			9/8/2008	16.19	29.70	
			3/24/2009	11.37	34.52	
			9/18/2009	Dry	Dry	
			5/18/2010	11.49	34.40	
			10/7/2010	Dry	Dry	
			3/23/2011	10.17	35.72	
			9/8/2011	Dry	Dry	
			3/23/2012	9.67	36.22	
		49.5	7/9/2012	---	---	New Elevation****
			9/14/2012	Dry	Dry	
			3/28/2013	Dry	Dry	
			5/2/2013	12.05	37.45	
			9/4/2013	16.21	33.29	
			4/4/2014	10.58	38.92	
			9/23/2014	16.96	32.54	
			3/17/2015	11.61	37.89	
			9/28/2015	Dry	Dry	
			6/15/2016	16.70	32.80	
			9/27/2016	Dry	Dry	
			3/29/2017	10.78	38.72	
			9/14/2017	Dry	Dry	
			3/27/2018	16.07	33.43	
			9/13/2018	Dry	Dry	
			10/4/2018	Dry	Dry	
			11/28/2018	12.19	37.31	
			3/21/2019	12.66	36.84	
			9/25/2019	15.67	33.83	
			3/17/2020	10.92	38.58	
			9/28/2020	12.66	36.84	

Notes:

* These elevations are of the top of the PVC well casing measured in feet above mean sea level (MSL).

***Wells re-surveyed November 2007 and reported in NGVD29 datum.

****Wells re-surveyed in July 2013 and reported in NAVD88 datum.

1 Anomalous groundwater elevation reading. Value was not used in contouring.

Table 4: Historical Groundwater Elevations

Well No.	Screened Interval (feet bgs)	Reference Elevation*	Date	Depth to Water (feet below TOC)	Groundwater Elevation	Comments
----------	---------------------------------	----------------------	------	------------------------------------	-----------------------	----------

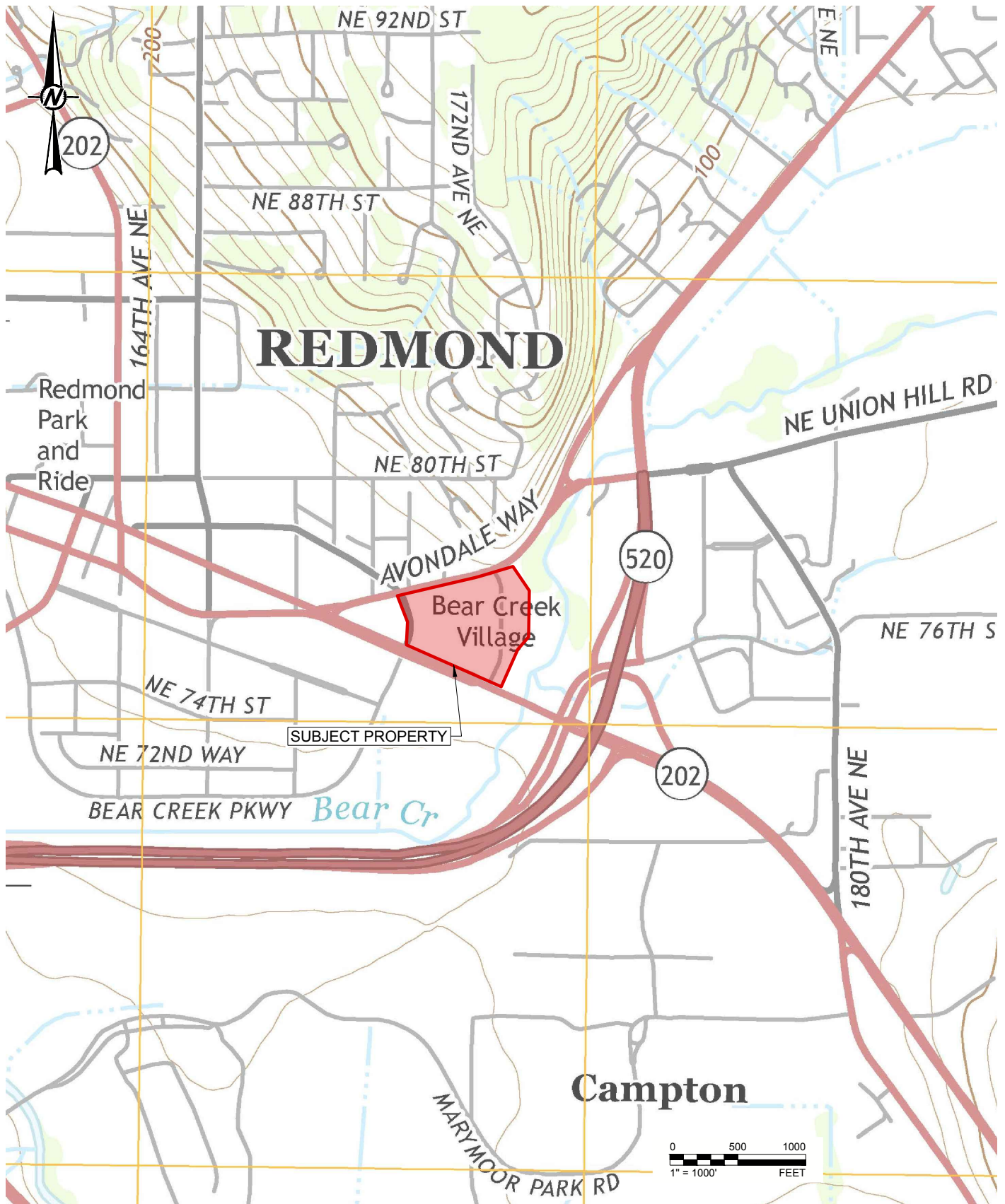
TOC = top of PVC well casing.

NC = Not Collected due to damaged well monument.

bgs = below ground surface.

Dry = water level at or below well casing

Figures



CLIENT
TMT BEAR CREEK SHOPPING CENTER, INC

CONSULTANT



YYYY-MM-DD 2020-10-27

DESIGNED EA

PREPARED REDMOND

REVIEWED EA

APPROVED EA

PROJECT
BEAR CREEK GROUNDWATER MONITORING - SEPTEMBER 2020
BEAR CREEK SHOPPING CENTER
REDMOND, WA

TITLE
SITE LOCATION MAP

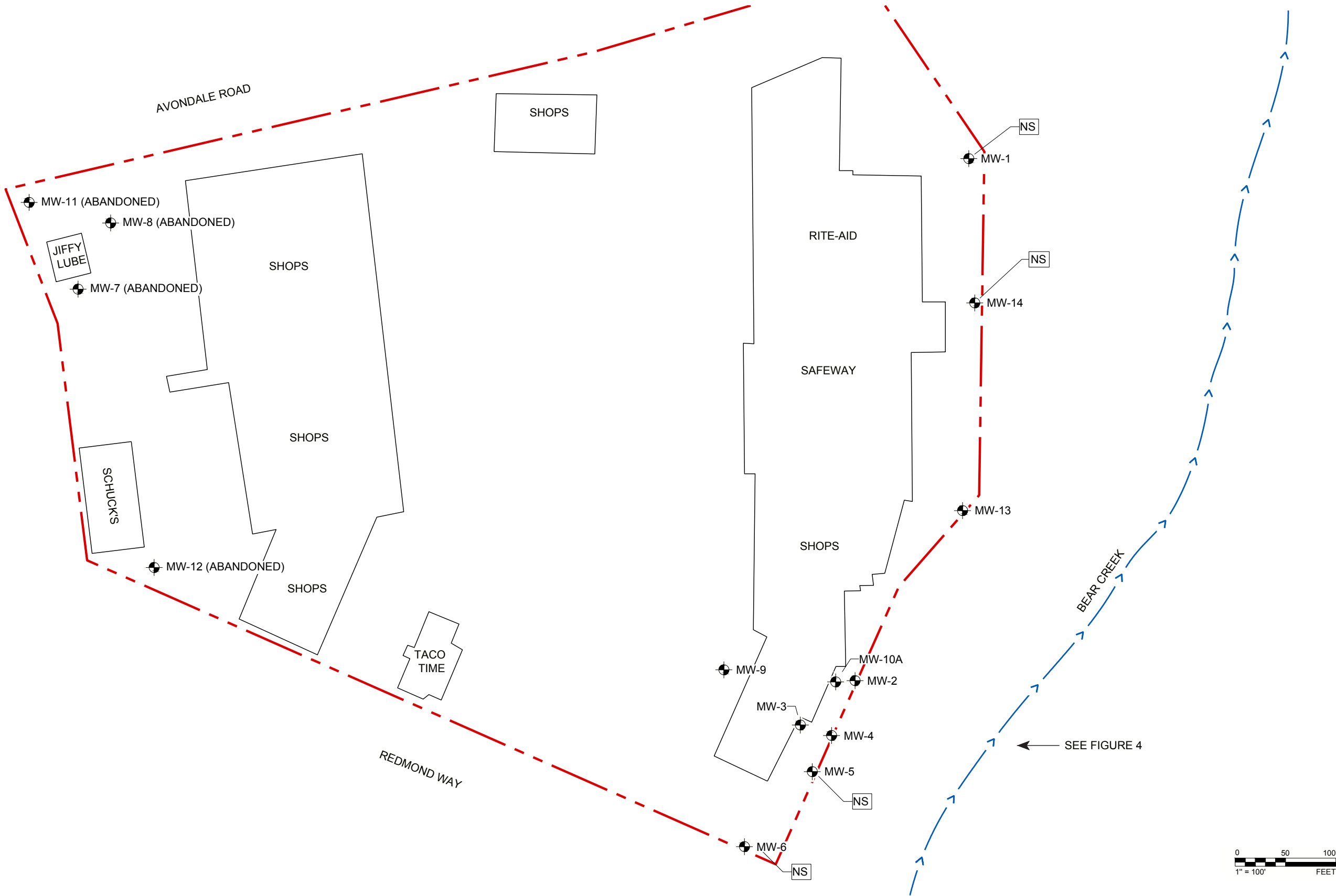
PROJECT NO.
152539320

PHASE
200

REV.
A

FIGURE
1

Path: \\veedmond.golder.com\geomatics\TMT_Bear_Creek_Shopping_Center\Redmond\09_PROJECTS\152539320_GW_Monitoring\2020\200_September_GW02_PRODUCTION\DWG | File Name: 152539320_200_002.dwg



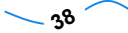
IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B



LEGEND

 MW-2
42.60

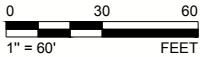
MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION, FEET ABOVE MSL.

 38

APPROXIMATE GROUNDWATER CONTOUR WITH ELEVATION, FEET ABOVE MSL. DASHED WHERE APPROPRIATE.



GROUNDWATER FLOW DIRECTION



CLIENT
TMT BEAR CREEK SHOPPING CENTER, INC

CONSULTANT	YYYY-MM-DD	2020-10-27
	DESIGNED	EA
	PREPARED	REDMOND
	REVIEWED	EA
	APPROVED	EA

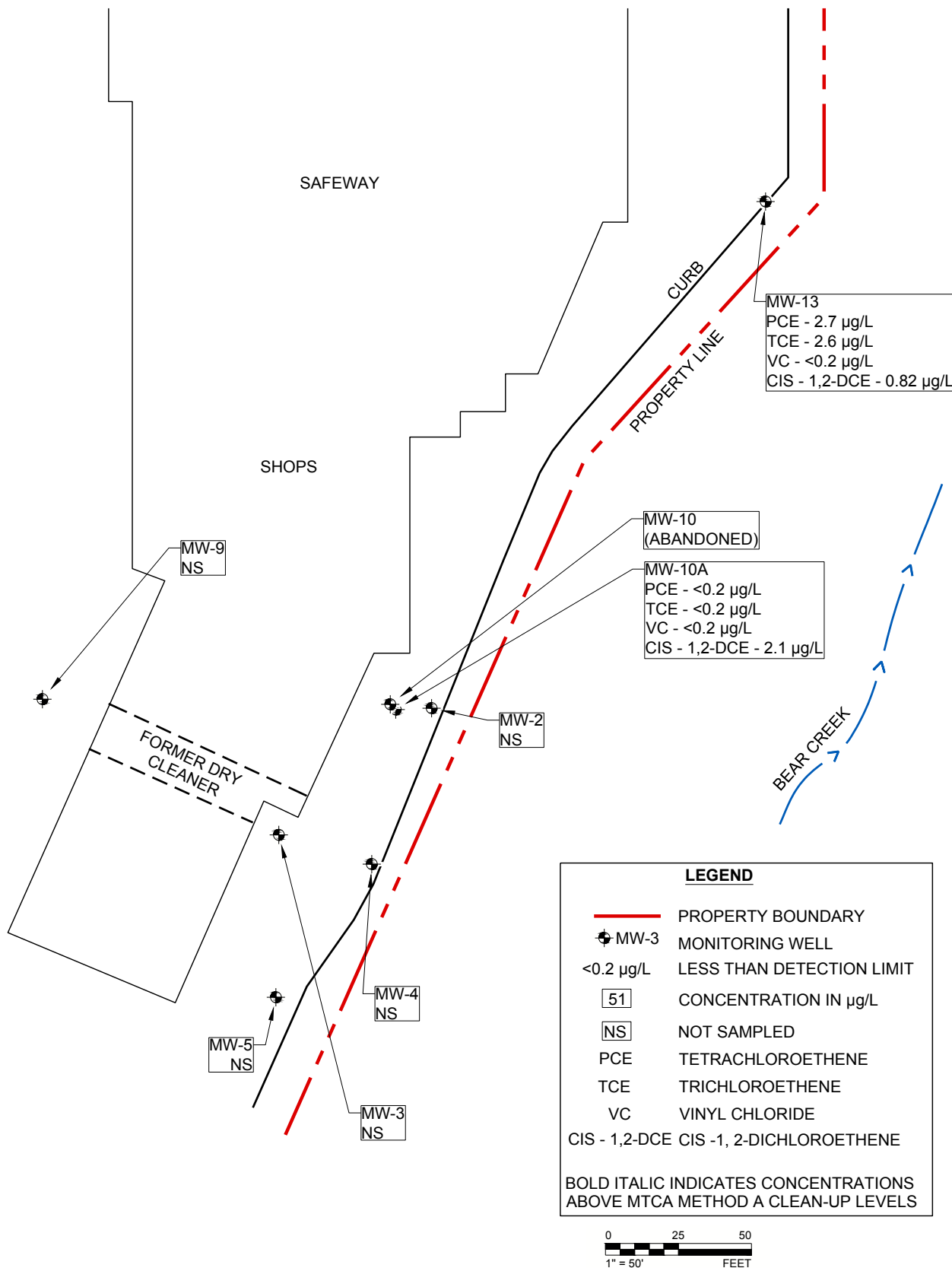


PROJECT
BEAR CREEK GROUNDWATER MONITORING - SEPTEMBER 2020
BEAR CREEK SHOPPING CENTER
REDMOND, WA

TITLE
GROUNDWATER ELEVATIONS

PROJECT NO. 152539320	PHASE 200	REV. A	FIGURE 3
--------------------------	--------------	-----------	-------------

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CLIENT
TMT BEAR CREEK SHOPPING CENTER, INC

CONSULTANT



YYYY-MM-DD 2020-10-27

DESIGNED EA

PREPARED REDMOND

REVIEWED EA

APPROVED EA

PROJECT
BEAR CREEK GROUNDWATER MONITORING - SEPTEMBER 2020
BEAR CREEK SHOPPING CENTER
REDMOND, WA

TITLE
GROUNDWATER CONCENTRATIONS - SOUTHEAST AREA

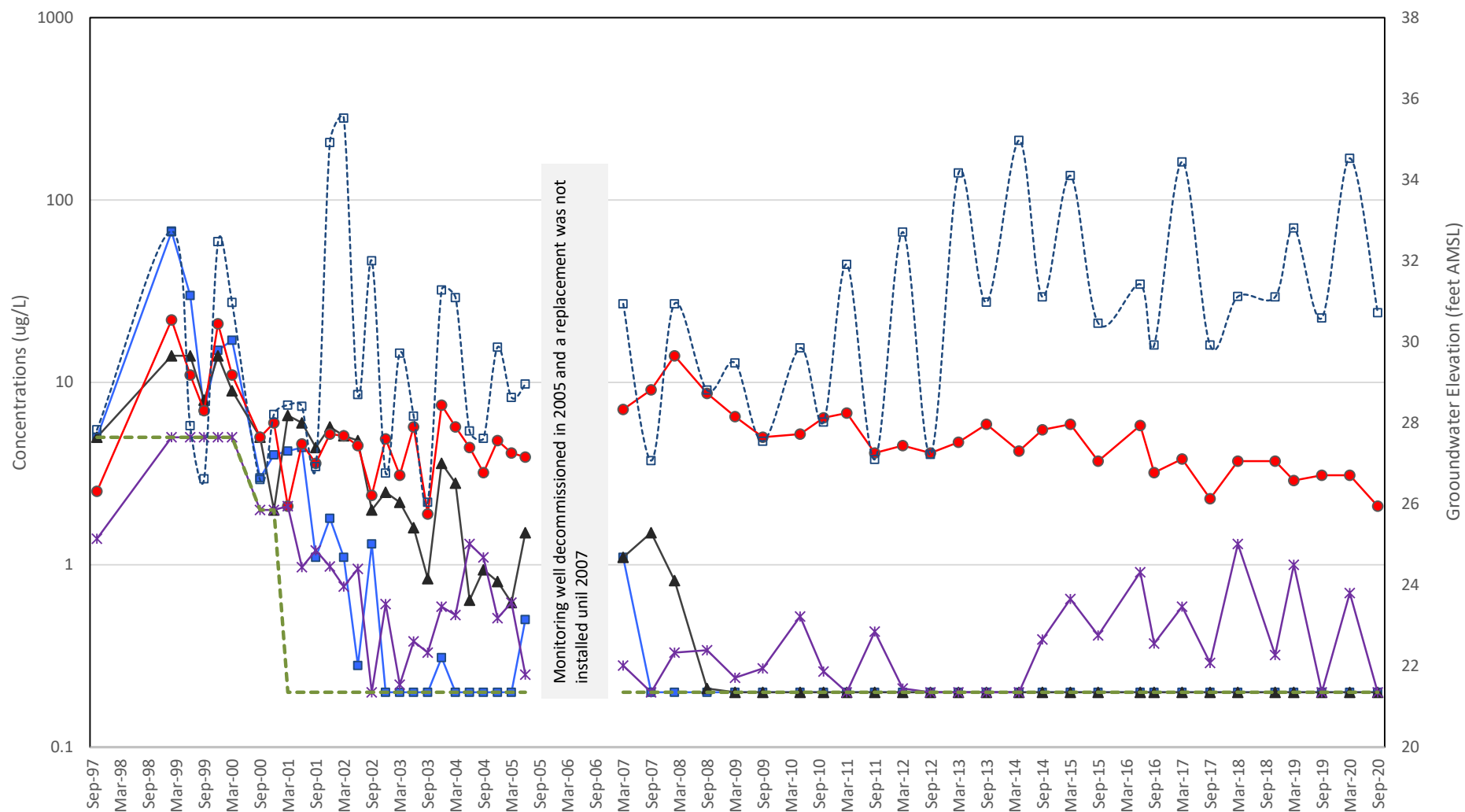
PROJECT NO.
152539320

PHASE
200

REV.
A

FIGURE
4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI A



LEGEND

- Concentration of PCE
- ▲— Concentration of TCE
- Concentration of cis-1,2-DCE
- *— Concentration of Vinyl Chloride
- — Laboratory Detection Limit
- Groundwater Elevation

CLIENT
TMT Bear Creek Shopping Center, Inc.
c/o JSH Properties, Inc.

CONSULTANT



PROJECT
Bear Creek Village Shopping Center
Redmond, Washington

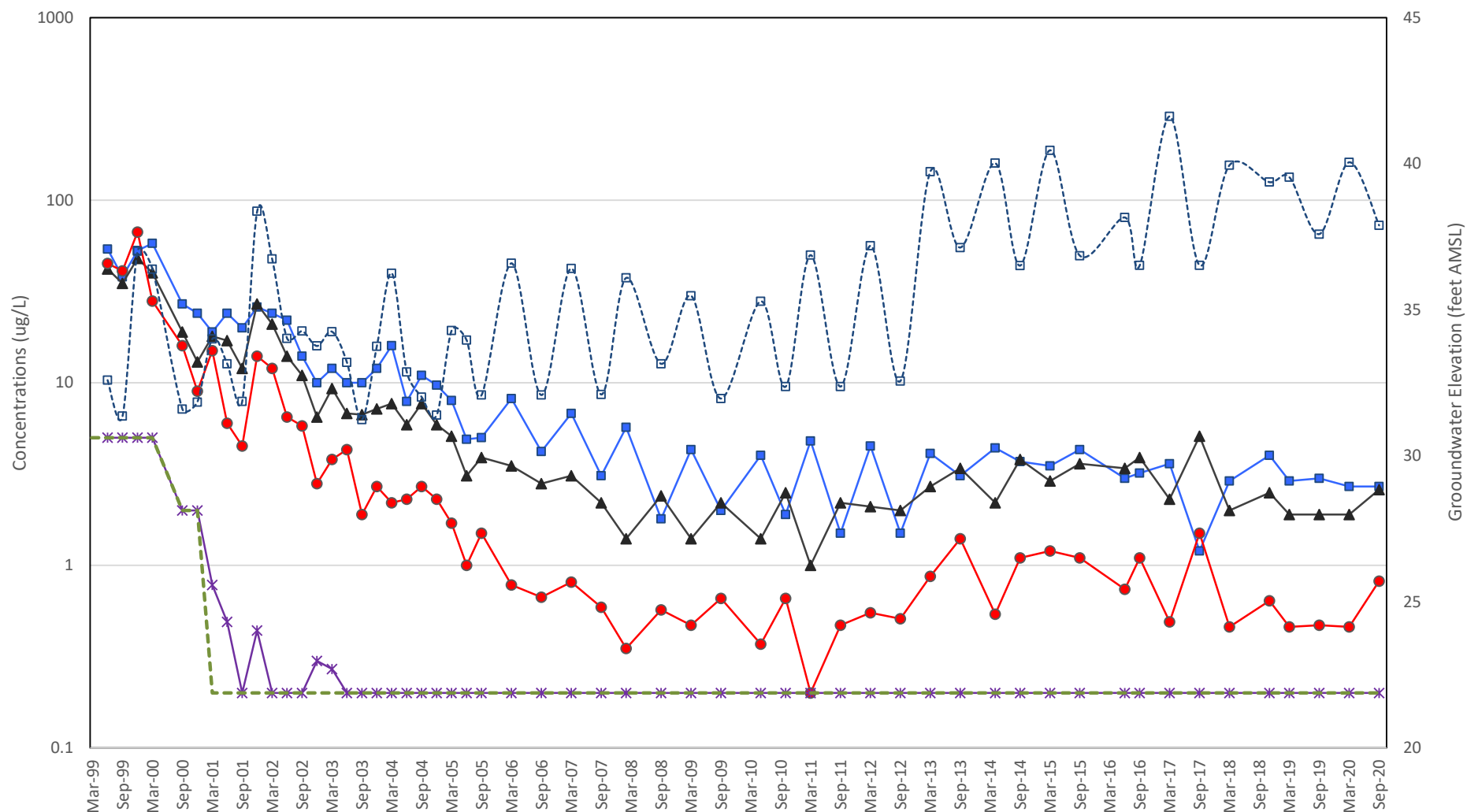
TITLE
MW-10 and MW-10A HVOC Detections Over Time
September 2020 Groundwater Monitoring Event

PROJECT NO.
1525393-20

PHASE
200

REV.
A

FIGURE
5



LEGEND

- Concentration of PCE
- ▲— Concentration of TCE
- Concentration of cis-1,2-DCE
- *— Concentration of Vinyl Chloride
- - - Laboratory Detection Limit
- - -■- - - Groundwater Elevation

CLIENT
TMT Bear Creek Shopping Center, Inc.
c/o JSH Properties, Inc.

CONSULTANT



PROJECT
Bear Creek Village Shopping Center
Redmond, Washington

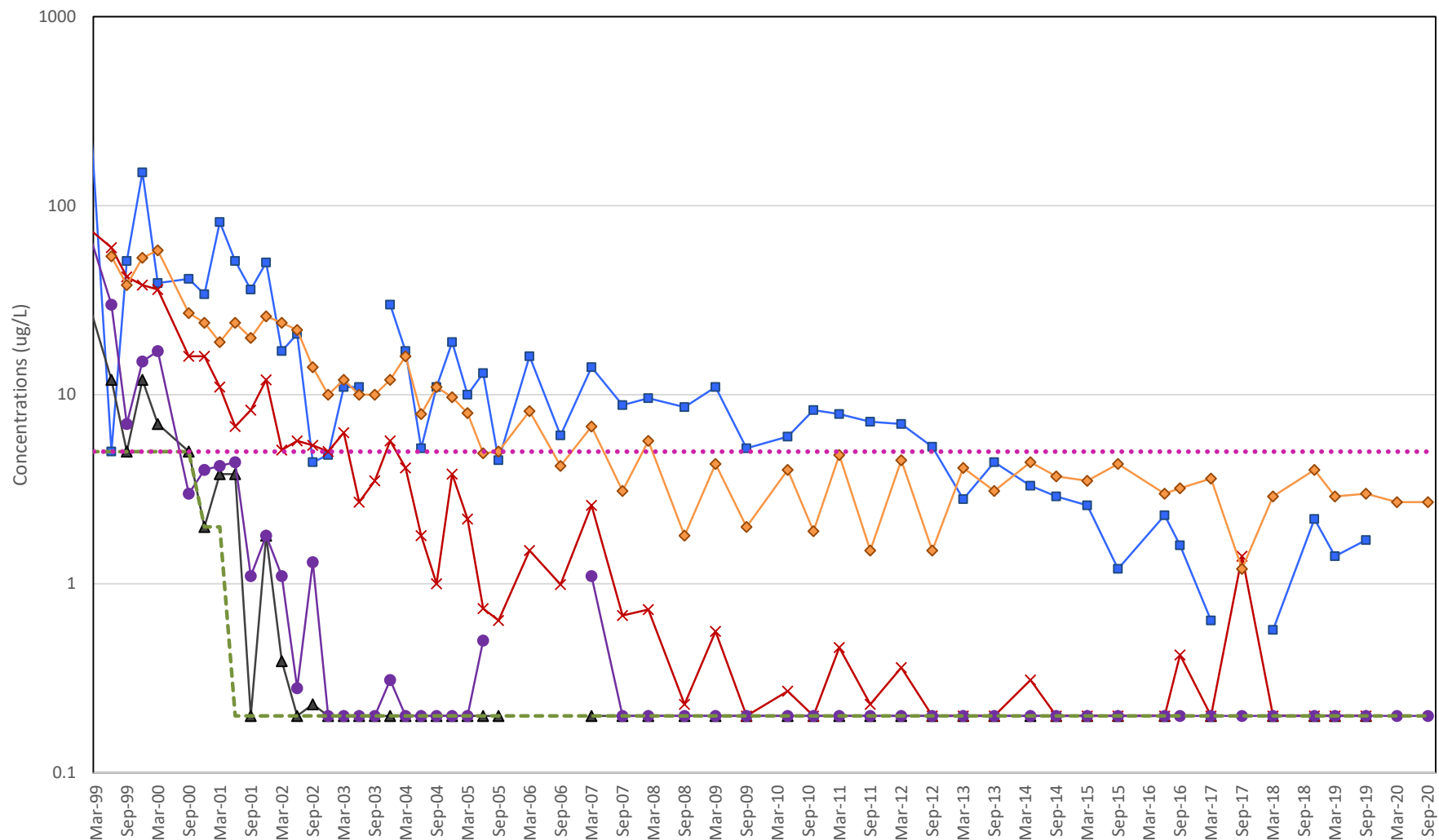
TITLE
MW-13 HVOC Detections Over Time
September 2020 Groundwater Monitoring Event

PROJECT NO.
1525393-20

PHASE
200

REV.
A

FIGURE
6



LEGEND

- MW-2 Concentration of PCE
- ▲— MW-3 Concentration of PCE
- ×— MW-4 Concentration of PCE
- MW-10/10A Concentration of PCE
- ◆— MW-13 Concentration of PCE
- Laboratory Detection Limit
- Cleanup Level (5 ug/L)

CLIENT
TMT Bear Creek Shopping Center, Inc.
c/o JSH Properties, Inc.

CONSULTANT



PROJECT
Bear Creek Village Shopping Center
Redmond, Washington

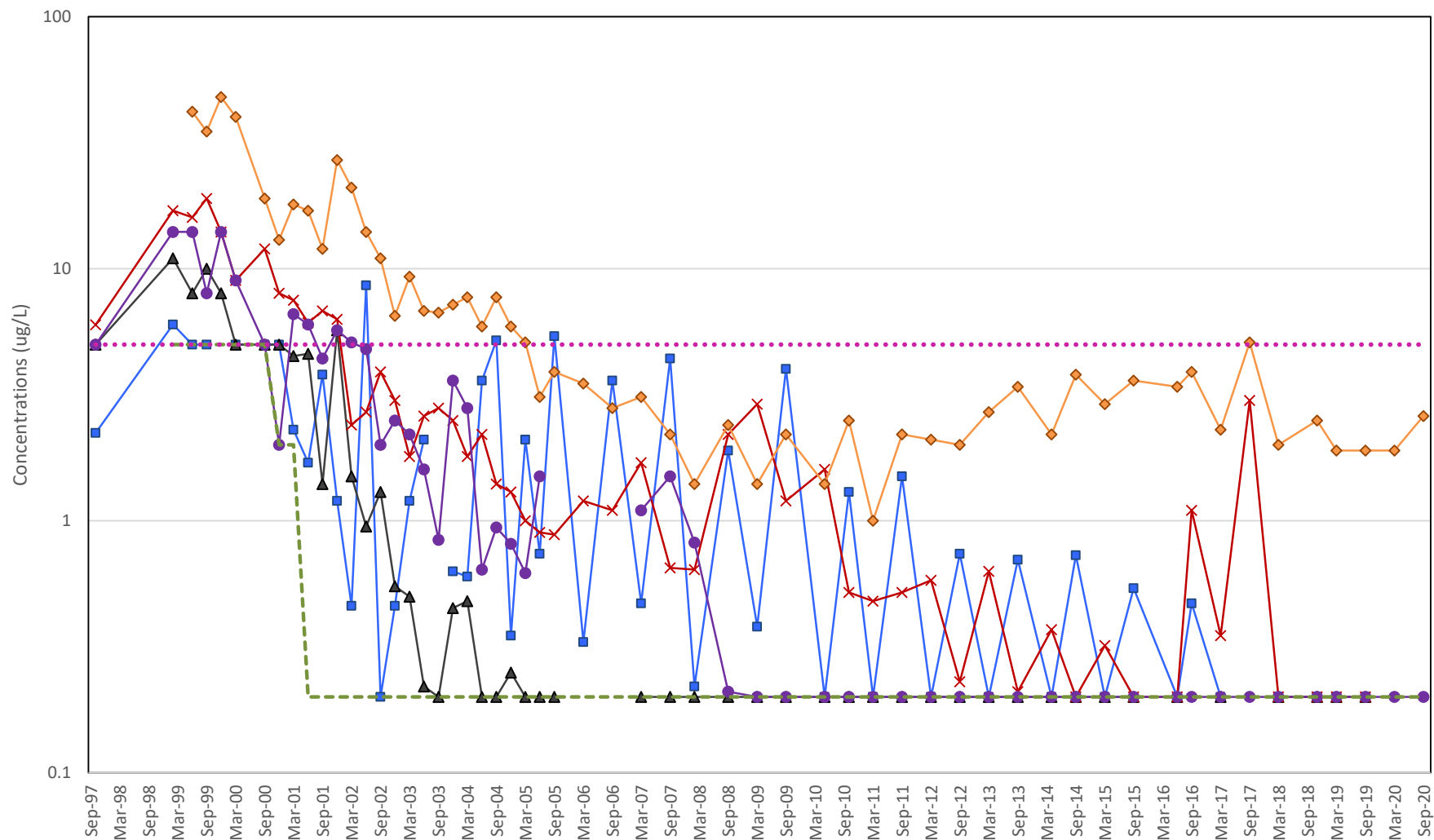
TITLE
PCE Detections Over Time
September 2020 Groundwater Monitoring Event

PROJECT NO.
1525393-20

PHASE
200

REV.
A

FIGURE
7



LEGEND

- MW-2 Concentration of TCE
- ▲— MW-3 Concentration of TCE
- ×— MW-4 Concentration of TCE
- MW-10/10A Concentration of TCE
- ◆— MW-13 Concentration of TCE
- Laboratory Detection Limit
- Cleanup Level (5 ug/L)

CLIENT
TMT Bear Creek Shopping Center, Inc.
c/o JSH Properties, Inc.

CONSULTANT



PROJECT
Bear Creek Village Shopping Center
Redmond, Washington

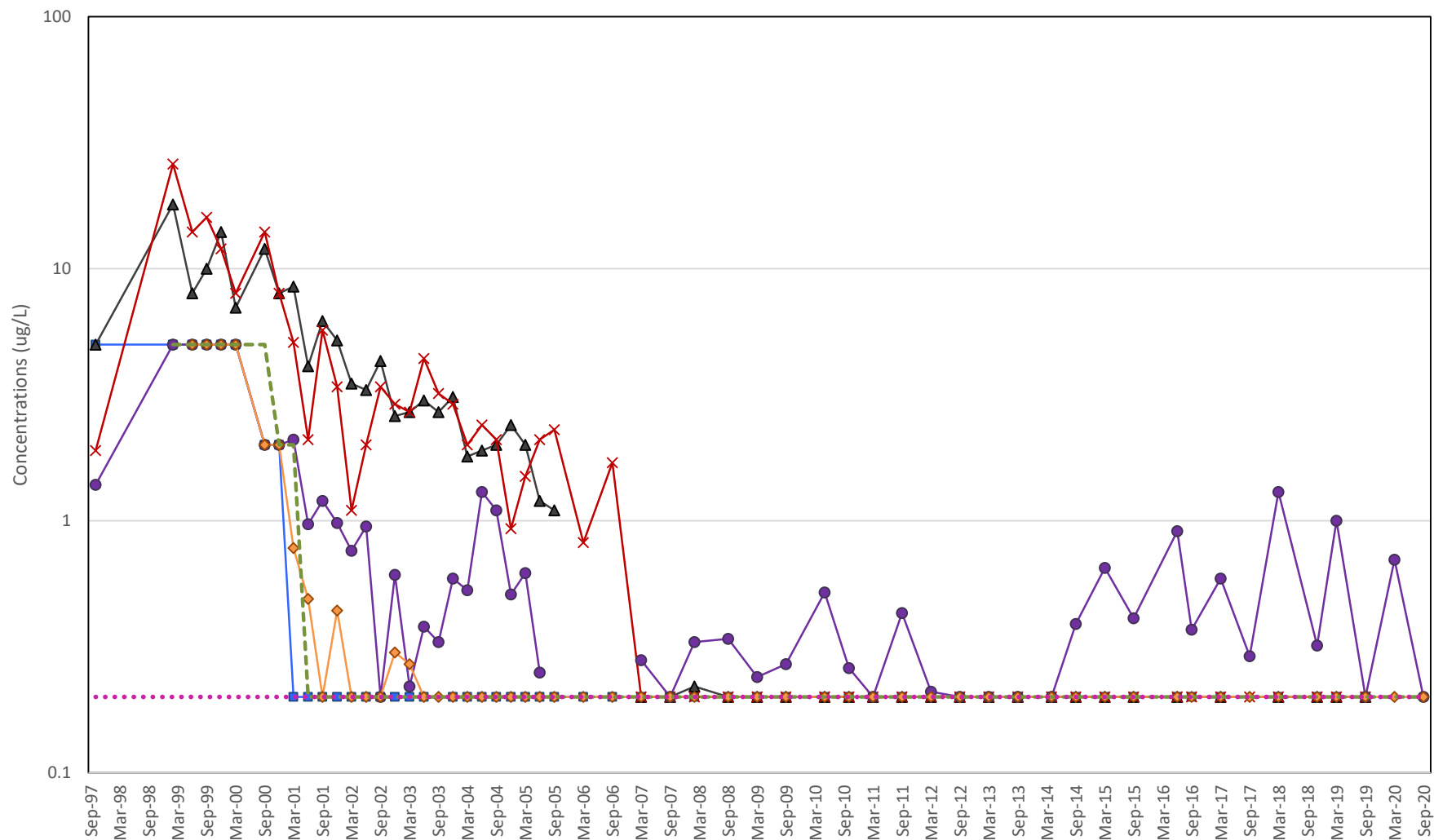
TITLE
TCE Detections Over Time
September 2020 Groundwater Monitoring Event

PROJECT NO.
1525393-20

PHASE
200

REV.
A

FIGURE
8



LEGEND

- MW-2 Concentration of Vinyl Chloride
- ▲ MW-3 Concentration of Vinyl Chloride
- ✕ MW-4 Concentration of Vinyl Chloride
- MW-10/10A Concentration of Vinyl Chloride
- ◆ MW-13 Concentration of Vinyl Chloride
- Laboratory Detection Limit
- Cleanup Level (5 ug/L)

CLIENT

TMT Bear Creek Shopping Center, Inc.
c/o JSH Properties, Inc.

CONSULTANT



PROJECT

Bear Creek Village Shopping Center
Redmond, Washington

TITLE

Vinyl Chloride Detections Over Time
September 2020 Groundwater Monitoring Event

PROJECT NO.
1525393-20

PHASE
200

REV.
A

FIGURE
9

APPENDIX A

Sample Integrity Data Sheets

SAMPLE INTEGRITY DATA SHEET

Plant/Site Bear Creek Village **Project No.** 152-5393-20.200
Site Location Redmond, WA **Sample ID** EB-20200928
Sampling Location Groundwater Monitoring well – end of dedicated sampling tube

Technical Procedure Reference(s) TG 1.2-23; TG 1.4-6a; TG 1.2-20

Type of Sampler Peristaltic Pump

Date 9/28/20 **Time** 1100

Media water **Station** MW-10A

Sample Type: ☒ **grab** ☐ time composite ☐ space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: BTOC

Screened Interval: _____

Pump intake at: BTOC

Sample Description 1.5 provided DI pumped through new peristaltic tubing

Field Measurements on Sample (pH, conductivity, etc.) _____

See Field Parameters Sheet N/A

Aliquot Amount		Container	Preservation / Amount
3- 40 mL	HVOC	VOA Vial	HCl

Sampler (signature) [Signature] **Date** 9/28/20

Supervisor (signature) [Signature] **Date** 9/28/20

Well ID MW-1BA

Date 9/25/20

Time Begin Purge_____

Time Collect Sample_____

[illegible]

Comments:

Purge Rate: _____

Sampler's Initials VH

SAMPLE INTEGRITY DATA SHEET

Plant/Site Bear Creek Village

Project No. 152-5393-20.200

Site Location Redmond, WA

Sample ID MW-10A-20200928

Sampling Location Groundwater Monitoring well – end of dedicated sampling tube

Technical Procedure Reference(s) TG 1.2-23; TG 1.4-6a; TG 1.2-20

Type of Sampler Peristaltic Pump

Date 9/28/20 **Time** 1055

Media water **Station** MW-10A

Sample Type: ☒ **grab** ☐ time composite ☐ space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 17.65 BT OC 26

Screened Interval: 1

Pump intake at: BT OC

Sample Description clear, no odor, no sheen

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

Aliquot Amount	Container	Preservation / Amount
3- 40 mL	HVOC	VOA Vial
		HCl

Sampler (signature) [Signature] **Date** 9/28/20

Supervisor (signature) [Signature] **Date** 9/28/20

Well ID MW-10ADate 9/28/20Time Begin Purge 1023Time Collect Sample 1055

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	Turbidity NTU	DO mg/L	eH rel mV
17.75	1028	1L	5.26	128.4	14.9	10.1	3.15	162.7
17.76	1033	2L	5.15	119.2	14.9	6.62	2.24	156.8
17.76	1038	3L	5.15	118.1 ¹¹ 120.4	14.9	4.64	1.55	147.5
17.76	1043	4L	5.20	123.0	14.9	4.73	1.04	140.3
17.77	1048	5L	5.19	124.7	14.8	4.18	0.73	135.5
17.77	1053	6L	5.21	126.4	14.8	3.27	0.54	130.5
	1055	collect	sample					

Comments:

Purge Rate: 200Sampler's Initials DT

SAMPLE INTEGRITY DATA SHEET

Plant/Site Bear Creek Village Project No. 152-5393-20.200

Site Location Redmond, WA Sample ID MW-13-2000928
MW-23-20200928

Sampling Location Groundwater Monitoring well – end of dedicated sampling tube

Technical Procedure Reference(s) TG 1.2-23; TG 1.4-6a; TG 1.2-20

Type of Sampler Peristaltic Pump

Date 9/28/20 Time 1200/1205

Media water Station MW-13

Sample Type: ☒ **grab** time composite space composite

Sample Acquisition Measurements (depth, volume of static well water and purged water, etc.)

Static Water Level: 9.98 BTOC 00827

Screened Interval:

Pump intake at: BTOC

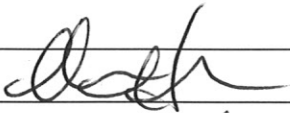
Sample Description Clear, no odor, no sheen

Field Measurements on Sample (pH, conductivity, etc.)

See Field Parameters Sheet

Aliquot Amount	Container	Preservation / Amount
----------------	-----------	-----------------------

6 <u>8-40 mL</u>	HVOC	VOA Vial
		HCl

Sampler (signature)  Date 9/28/20

Supervisor (signature) Eric Olson Date 9/28/20

Well ID MW-13
 Date 9/28/20
 Time Begin Purge 1123
 Time Collect Sample 1200/1205

Water Level feet bmp	Time	Volume Purged	pH	Conductivity uS/cm	Temp. °C	Turbidity NTU	DO mg/L	eH rel mV
10.24	1128	1L	5.11	221.3	14.9	113	0.38	136.2
10.31	1133	2L	5.15	222.4	15.2	27.0	0.42	132.4
10.35	1138	3L	5.17	221.3	15.3	14.1	0.45	129.7
10.38	1143	4L	5.17	221.0	15.4	8.72	0.45	128.0
10.41	1148	5L	5.19	220.8	15.4	4.44	0.44	125.3
10.44	1153	6L	5.20	220.9	15.4	3.27	0.44	123.1
10.45	1158	7L	5.21	221.2	15.5	3.25	0.44	120.9
	1200	collect	primary sample					
	1205	collect	duplicate sample					

Comments: orange bacteria at initial purge

Purge Rate: 200

Sampler's Initials MA

APPENDIX B

Laboratory Analytical Reports

Table B-1: Sample Collection and Analysis Summary

							Analyses
SDG	Field Identification	Collection Date	Location	Sample Identification	Matrix	QC Samples	Halogenated Volatiles (EPA 8260C)
2009-292	MW-10A-20200928	9/28/2020	MW-10A	09-292-01	GW	--	X
2009-292	EB-20200928	9/28/2020	--	09-292-02	DI	EB	X
2009-292	MW-13A-20200928	9/28/2020	MW-13	09-292-03	GW	--	X
2009-292	MW-23A-20200928	9/28/2020	MW-13	09-292-04	GW	FD	X

Notes:

All analyses performed by OnSite Environmental, Inc

Abbreviations:

DI - Deionized Water

EB - Equipment Blank

FD - Field Duplicate

GW - Groundwater

QC - Quality Control

SDG - Sample Delivery Group

Table B-2: Qualifier Summary Table

SDG	Sample Name	Constituent	New Result	New RL	Qualifier	Reason
n/a						

Notes:

No Qualifiers Applied

Abbreviations

RL - Reporting Limit

SDG - Sample Delivery Group

Qualifier Definitions

n/a

Table B-3: Field Duplicate Precision

Parameter	MW-13		RPD2 (%)	QC Goal
	MW-13	MW-23		RPD (%)
PCE	2.7	2.8	-3.6	+/- 0 - 20
TCE	2.6	2.6	0.0	+/- 0 - 20
VC	0.2U	0.2U	NA	+/- 0 - 20
cis-1,2-DCE	0.82	0.82	0.0	+/- 0 - 20
1,3-DCB	0.2U	0.2U	NA	+/- 0 - 20

Notes:

¹ MW-23 duplicate sample² RPD (relative percent difference) = $[(S-D) * 100] / [(S+D)/2]$
where, S = first / original sample value and, D = second (duplicate) sample value.³ U - Analyte was analyzed for but was not detected



14648 NE 95th Street, Redmond, WA 98052 • (425) 883-3881

October 1, 2020

Eric Adams
Bear Creek Village
Golder Associates Inc.
18300 NE Union Hill Road
Suite 200
Redmond, WA 98052-3333

Re: Analytical Data for Project 152539320.200
Laboratory Reference No. 2009-292

Dear Eric:

Enclosed are the analytical results and associated quality control data for samples submitted on September 28, 2020.

The standard policy of OnSite Environmental, Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

A handwritten signature in black ink, appearing to read "DeB" followed by a long horizontal stroke.

David Baumeister
Project Manager

Enclosures



OnSite Environmental, Inc. 14648 NE 95th Street, Redmond, WA 98052 (425) 883-3881

This report pertains to the samples analyzed in accordance with the chain of custody, and is intended only for the use of the individual or company to whom it is addressed.

Date of Report: October 1, 2020
Samples Submitted: September 28, 2020
Laboratory Reference: 2009-292
Project: 152539320.200

Case Narrative

Samples were collected on September 28, 2020 and received by the laboratory on September 28, 2020. They were maintained at the laboratory at a temperature of 2°C to 6°C.

Please note that any and all soil sample results are reported on a dry-weight basis, unless otherwise noted below.

General QA/QC issues associated with the analytical data enclosed in this laboratory report will be indicated with a reference to a comment or explanation on the Data Qualifier page. More complex and involved QA/QC issues will be discussed in detail below.



Date of Report: October 1, 2020
 Samples Submitted: September 28, 2020
 Laboratory Reference: 2009-292
 Project: 152539320.200

VOLATILE ORGANICS EPA 8260D
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Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		MW-10A-20200928				
Laboratory ID:		09-292-01				
Dichlorodifluoromethane	ND	0.27	EPA 8260D	9-29-20	9-29-20	
Chloromethane	ND	1.4	EPA 8260D	9-29-20	9-29-20	
Vinyl Chloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromomethane	ND	0.96	EPA 8260D	9-29-20	9-29-20	
Chloroethane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Iodomethane	ND	4.1	EPA 8260D	9-29-20	9-29-20	
Methylene Chloride	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(cis) 1,2-Dichloroethene	2.1	0.20	EPA 8260D	9-29-20	9-29-20	
Bromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chloroform	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Trichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromomethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromodichloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	



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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		MW-10A-20200928				
Laboratory ID:		09-292-01				
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Tetrachloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromoform	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Bromobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichloropropane	ND	0.29	EPA 8260D	9-29-20	9-29-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>105</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>102</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>99</i>	<i>78-125</i>				



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Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID: EB-20200928						
Laboratory ID: 09-292-02						
Dichlorodifluoromethane	ND	0.27	EPA 8260D	9-29-20	9-29-20	
Chloromethane	ND	1.4	EPA 8260D	9-29-20	9-29-20	
Vinyl Chloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromomethane	ND	0.96	EPA 8260D	9-29-20	9-29-20	
Chloroethane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Iodomethane	ND	4.1	EPA 8260D	9-29-20	9-29-20	
Methylene Chloride	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chloroform	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Trichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromomethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromodichloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	



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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	EB-20200928					
Laboratory ID:	09-292-02					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Tetrachloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromoform	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Bromobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichloropropane	ND	0.29	EPA 8260D	9-29-20	9-29-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>105</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>103</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>100</i>	<i>78-125</i>				



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Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		MW-13A-20200928				
Laboratory ID:		09-292-03				
Dichlorodifluoromethane	ND	0.27	EPA 8260D	9-29-20	9-29-20	
Chloromethane	ND	1.4	EPA 8260D	9-29-20	9-29-20	
Vinyl Chloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromomethane	ND	0.96	EPA 8260D	9-29-20	9-29-20	
Chloroethane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Iodomethane	ND	4.1	EPA 8260D	9-29-20	9-29-20	
Methylene Chloride	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(cis) 1,2-Dichloroethene	0.82	0.20	EPA 8260D	9-29-20	9-29-20	
Bromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chloroform	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Trichloroethene	2.6	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromomethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromodichloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	



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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		MW-13A-20200928				
Laboratory ID:		09-292-03				
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Tetrachloroethene	2.7	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromoform	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Bromobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichloropropane	ND	0.29	EPA 8260D	9-29-20	9-29-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>103</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>100</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>98</i>	<i>78-125</i>				



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 Project: 152539320.200

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Matrix: Water
 Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		MW-23A-20200928				
Laboratory ID:		09-292-04				
Dichlorodifluoromethane	ND	0.27	EPA 8260D	9-29-20	9-29-20	
Chloromethane	ND	1.4	EPA 8260D	9-29-20	9-29-20	
Vinyl Chloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromomethane	ND	0.96	EPA 8260D	9-29-20	9-29-20	
Chloroethane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Iodomethane	ND	4.1	EPA 8260D	9-29-20	9-29-20	
Methylene Chloride	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(cis) 1,2-Dichloroethene	0.82	0.20	EPA 8260D	9-29-20	9-29-20	
Bromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chloroform	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Trichloroethene	2.6	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromomethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromodichloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	



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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:		MW-23A-20200928				
Laboratory ID:		09-292-04				
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Tetrachloroethene	2.8	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromoform	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Bromobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichloropropane	ND	0.29	EPA 8260D	9-29-20	9-29-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>105</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>101</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>100</i>	<i>78-125</i>				



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Matrix: Water

Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0929W1					
Dichlorodifluoromethane	ND	0.27	EPA 8260D	9-29-20	9-29-20	
Chloromethane	ND	1.4	EPA 8260D	9-29-20	9-29-20	
Vinyl Chloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromomethane	ND	0.96	EPA 8260D	9-29-20	9-29-20	
Chloroethane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Trichlorofluoromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Iodomethane	ND	4.1	EPA 8260D	9-29-20	9-29-20	
Methylene Chloride	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(trans) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(cis) 1,2-Dichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chloroform	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Carbon Tetrachloride	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Trichloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromomethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromodichloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
2-Chloroethyl Vinyl Ether	ND	1.0	EPA 8260D	9-29-20	9-29-20	
(cis) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
(trans) 1,3-Dichloropropene	ND	0.20	EPA 8260D	9-29-20	9-29-20	



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Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0929W1					
1,1,2-Trichloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Tetrachloroethene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichloropropane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Dibromochloromethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromoethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Chlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,1,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Bromoform	ND	1.0	EPA 8260D	9-29-20	9-29-20	
Bromobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,1,2,2-Tetrachloroethane	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichloropropane	ND	0.29	EPA 8260D	9-29-20	9-29-20	
2-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
4-Chlorotoluene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,3-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,4-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
1,2-Dibromo-3-chloropropane	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,4-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
Hexachlorobutadiene	ND	1.0	EPA 8260D	9-29-20	9-29-20	
1,2,3-Trichlorobenzene	ND	0.20	EPA 8260D	9-29-20	9-29-20	
<i>Surrogate:</i>	<i>Percent Recovery</i>	<i>Control Limits</i>				
<i>Dibromofluoromethane</i>	<i>107</i>	<i>75-127</i>				
<i>Toluene-d8</i>	<i>103</i>	<i>80-127</i>				
<i>4-Bromofluorobenzene</i>	<i>101</i>	<i>78-125</i>				



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Matrix: Water

Units: ug/L

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0929W1									
	SB	SBD	SB	SBD	SB	SBD				
1,1-Dichloroethene	9.47	10.0	10.0	10.0	95	100	65-126	5	19	
Benzene	9.64	10.3	10.0	10.0	96	103	71-119	7	16	
Trichloroethene	9.54	10.1	10.0	10.0	95	101	82-123	6	18	
Toluene	9.13	9.82	10.0	10.0	91	98	77-119	7	18	
Chlorobenzene	9.18	10.2	10.0	10.0	92	102	80-120	11	17	
Surrogate:										
Dibromofluoromethane					107	105	75-127			
Toluene-d8					105	103	80-127			
4-Bromofluorobenzene					104	101	78-125			





Data Qualifiers and Abbreviations

- A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.
- B - The analyte indicated was also found in the blank sample.
- C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.
- E - The value reported exceeds the quantitation range and is an estimate.
- F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.
- H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.
- I - Compound recovery is outside of the control limits.
- J - The value reported was below the practical quantitation limit. The value is an estimate.
- K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.
- L - The RPD is outside of the control limits.
- M - Hydrocarbons in the gasoline range are impacting the diesel range result.
- M1 - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.
- N - Hydrocarbons in the lube oil range are impacting the diesel range result.
- N1 - Hydrocarbons in diesel range are impacting lube oil range results.
- O - Hydrocarbons indicative of heavier fuels are present in the sample and are impacting the gasoline result.
- P - The RPD of the detected concentrations between the two columns is greater than 40.
- Q - Surrogate recovery is outside of the control limits.
- S - Surrogate recovery data is not available due to the necessary dilution of the sample.
- T - The sample chromatogram is not similar to a typical _____.
- U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- U1 - The practical quantitation limit is elevated due to interferences present in the sample.
- V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.
- W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.
- X - Sample extract treated with a mercury cleanup procedure.
- X1 - Sample extract treated with a sulfuric acid/silica gel cleanup procedure.
- Y - The calibration verification for this analyte exceeded the 20% drift specified in methods 8260 & 8270, and therefore the reported result should be considered an estimate. The overall performance of the calibration verification standard met the acceptance criteria of the method.
- Z -
- ND - Not Detected at PQL
- PQL - Practical Quantitation Limit
- RPD - Relative Percent Difference



Chain of Custody

[illegible]



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