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July 11, 2017

Mr. David Pollart
P.O. Box 1096
Mercer Island, WA 98040-1096

Re: June 2017 Groundwater Sampling Report – Twenty-Third Round
Estes West Express Trucking Facility
2102 West Valley Highway North
Auburn, Washington
VCP No. NW 2532

EPI Project No. 61901.1

Dear Mr. Pollart:

Environmental Partners, Inc. (EPI) is pleased to present this *June 2017 Groundwater Sampling Report – Twenty-Third Round* for the Estes West Express Trucking Facility located at 2102 West Valley Highway North in Auburn, Washington (the Site). The general location of the Site is shown on Figure 1.

EPI understands that the Site owner is seeking a No Further Action (NFA) determination from the Washington State Department of Ecology (Ecology). The objective of the groundwater sampling is to monitor groundwater geochemical conditions and petroleum hydrocarbon concentrations in samples from the on-site monitoring wells to track and document groundwater remediation system progress toward achieving a full NFA determination for the Site.

BACKGROUND

Soil and groundwater at the Site were impacted by petroleum hydrocarbon releases from a 550-gallon waste oil underground storage tank (UST) located near the northwest corner of the existing truck maintenance building. The UST and approximately 350 cubic yards of petroleum-contaminated soil (PCS) were removed and four monitoring wells, designated MW-1, MW-2, MW-3, and MW-4, were installed in December 1998. The locations of the former UST and monitoring wells relative to the truck maintenance building are shown on Figure 2.

Ecology issued a conditional NFA determination for the Site in January 2000. The NFA contained the condition that quarterly groundwater monitoring and reporting be continued until "this site demonstrates sustained, continuous compliance with Model Toxics Control Act (MTCA) Groundwater Cleanup Levels (CULs) for at least one year." The NFA letter also stipulated that analytical results for groundwater compliance "shall include BTEX (benzene, toluene, ethylbenzene, and xylene), diesel, and heavy oils." Available records indicate that the monitoring wells were sampled approximately every quarter from December 1998 until October 2002.

In November 2002, the Site owner petitioned for a full NFA determination based on 3 years of data demonstrating that the benzene in groundwater at concentrations greater than MTCA Method A CULs was confined to samples from the area on the north side of the maintenance building around MW-2. At that time, the sample from MW-2 had a gasoline-range petroleum hydrocarbon (GRPH) concentration of 180 micrograms per liter (µg/L) and a benzene concentration of 12.0 µg/L. The GRPH concentration was less than its MTCA Method A CUL of 800 µg/L; however, the benzene concentration exceeded the MTCA Method A CUL of 5 µg/L. No other BTEX compounds, diesel-range petroleum hydrocarbons (DRPH), or higher-range petroleum hydrocarbons (HRPH) were detected in the sample from MW-2 and none of the samples from the other monitoring wells had concentrations exceeding MTCA Method A CULs.

Sampling was discontinued in late 2002 and the Site did not receive a full NFA determination due to the benzene concentration exceeding its MTCA Method A CUL in samples from MW-2. Records indicate that the Site was subsequently dropped from Ecology's Voluntary Cleanup Program (VCP) due to inactivity.

The Site re-entered the VCP in August 2011 and was assigned VCP No. NW 2532. Quarterly groundwater sampling of the four on-site wells under the VCP resumed in August 2011. On March 26, 2012, Ecology notified the Site owner that the January 2000 conditional NFA determination was rescinded because the benzene concentrations in groundwater samples from well MW-2 remained greater than the MTCA Method A CUL and the previous groundwater remedy (excavation of petroleum impacted soils followed by groundwater monitoring) did not achieve and maintain compliance with the applicable MTCA Method A CULs.

On November 28, 2012, a 12,000-gallon diesel fuel UST was removed from south side of the truck maintenance building. The location of the former 12,000-gallon diesel UST is shown in Figure 2. According to available information, the UST was pumped and taken out of service in 1998 when the 550-gallon waste oil UST was removed. The UST was reportedly not used between 1998 and 2012. EPI personnel oversaw the UST decommissioning activities and collected nine soil samples and one sample of water at the bottom of the UST excavation. EPI prepared the *Underground Storage Tank Site Assessment Report,* dated January 4, 2013, for submittal to Ecology's Underground Storage Tank Division. The reviewer is referred to that report for additional details regarding the UST decommissioning activities and soil and groundwater sampling results.

Ecology requested installation of two additional wells designated MW-5 and MW-6. Well MW-5 was installed at the southwest corner of the truck maintenance building to monitor groundwater downgradient of MW-1. Well MW-6 was installed at the southeast corner of the former 12,000-gallon diesel UST excavation to evaluate groundwater quality based petroleum hydrocarbon detections in a water sample from the bottom of the UST excavation that was collected during decommissioning activities.

On August 26, 2016, EPI oversaw the drilling and sampling of two soil borings, designated BH-1 and BH-2; and the installation of two conditional point of compliance (POC) monitoring wells, designated MW-7 and MW-8. BH-1 and BH-2 were drilled east of the former diesel UST to evaluate subsurface conditions immediately downgradient of the former UST. POC well MW-7 was installed southeast and

downgradient of the former 12,000-gallon diesel UST and existing well MW-6. Well MW-8 was installed northeast of MW-7, also downgradient of the former 12,000-gallon diesel UST and existing well MW-6. The purpose of the POC monitoring wells is to monitor groundwater conditions downgradient of the former 12,000-gallon diesel UST, which is a source area for diesel impacts to groundwater at the Site. Figure 2 shows the locations of borings and monitoring wells relative to Site features.

REMEDIATION SYSTEM INSTALLATION AND OPERATION

Despite successful source removal of impacted soil in 1998, analytical data for groundwater samples from the Site indicate that MW-1 has the greatest and most consistently detected concentrations of diesel range petroleum hydrocarbons (DRPH) and heavier range petroleum hydrocarbons (HRPH). The data indicate that natural attenuation of the residual DRPH and HRPH impacts was not occurring at a rate that would result in a reasonable restoration timeframe; therefore, an active groundwater remediation system was designed, installed, and operated for the area around MW-1 as described in the following paragraphs.

In May 2014 EPI installed three shallow air injection wells at locations upgradient of MW-1 as shown in Figure 2. The purpose of the air injection wells and compressor system is to add dissolved oxygen (DO) to the groundwater. The increased DO concentrations in groundwater due to system operation stimulates population growth and increases the activity of aerobic bacteria and provides the oxygen necessary for those bacteria to metabolize dissolved petroleum hydrocarbons in groundwater.

Each of the shallow air injection wells is equipped with a 1-ft. length Kerfoot Technologies C-Sparger® screen set in a sand filter pack and fully submerged in groundwater at approximately 14 to 15-ft bgs. Pressurized air pumped through the C-Sparger® screens forces air, containing oxygen, into groundwater as microbubbles, greatly increasing the surface area of the bubbles for more efficient oxygenation of the groundwater. The remaining well annulus was sealed using hydrated bentonite chips and the surface was completed in 8-inch diameter flush completion steel monuments set in concrete.

An appropriately sized rotary vane air compressor was installed in the fenced area at the north end of the truck maintenance building to provide air to the shallow air injection wells. The shallow air injection wells are connected to the compressor using 1-inch diameter PVC piping installed below the ground surface through the side of each of the well monuments. PVC air supply lines were installed in trenches that were appropriately backfilled and patched with asphalt at the surface to match the surrounding pavement grade.

The remediation system was started and tested on May 15, 2014 after the 12th round of quarterly sampling was completed. An electrical issue with the compressor motor caused the air injection remediation system to shut down in August 2014. Analytical results from the August 2014 (13th round) sampling event indicated that DRPH and HRPH concentrations were non-detect in the sample from MW-1. Based on the favorable result the remediation system remained temporarily off at MW-1 from August 2014 to April 2015 so that follow-on groundwater data could be collected to demonstrate that groundwater was remediated to concentrations below MTCA Method A Groundwater CULs and to provide data intended to demonstrate that contaminant concentration rebound was not occurring.

The success of the air injection remediation system at MW-1 demonstrated that expansion to remediate impacted groundwater at MW-6 was warranted. In January 2015 EPI installed three additional shallow air injection wells at locations upgradient of MW-6 at the locations shown in Figure 2. The three wells are constructed like the air injection wells at MW-1 and are equipped with 1-ft. lengths of Kerfoot Technologies C-Sparger® screen set in a sand filter pack and fully submerged in groundwater at approximately 14- to 15-ft bgs.

The expanded air injection remediation system at MW-6 was first turned on and tested on April 3, 2015. The expanded system at MW-6 ran from April 3, 2015 until June 2015 when an electrical issue with the compressor motor caused the air injection remediation system to shut down, requiring replacement.

Repairs to the air injection system were completed and the remediation system was restarted on February 3, 2016. However, the system was not running during the June 21, 2016 groundwater sampling event and inspection revealed that the compressor motor was damaged beyond repair due to overheating. Upon questioning onsite workers, EPI was informed that the system had been off for several weeks prior to the sampling event. EPI has instructed the onsite workers to immediately inform EPI or the property owner in the event of a system shut down in the future should one occur.

EPI evaluated the potential reasons for the compressor motor overheating and the likely cause is low voltage power throughout the area, which was measured at 208 volts at the air injection system panel. This is significantly lower than the standard of 220-230 volts. Although the compressor motor was rated to operate down to 208 volts it is likely that during certain times of the day in the industrial areas near the site, voltage fluctuations below 208 volts caused high amperage of the motor, resulting in excessive heat that eventually seized the motor.

In November 2016, EPI installed a 1.5 horsepower, Republic Manufacturing, Model DRT-425 rotary vane compressor with a 208-volt specific motor. The compressor was started up on November 16th, 2016 and flows to the air injection wells were established. The system was running before and after the December 20, 2016 groundwater sampling event. Sometime between the December 20, 2016 sampling event and a site visit by EPI personnel on March 20, 2017, the air injection system shut down. On March 20, 2017, EPI personnel inspected the compressor and determined that the vanes were destroyed and must be replaced. The repair work was completed under warranty at the manufacturer's facility.

The repaired compressor was reconnected and returned to service on June 19, 2017. Both areas of the air injection system MW-1 and MW-6, were back in operation following the completion of groundwater sampling on June 19, 2017.

GROUNDWATER SAMPLING PROCEDURES

During the June 16, 2017 sampling event groundwater sampling event samples were collected from MW-1, MW-2, MW-3, MW-4, MW-6, and MW-7. Well MW-8 was under water resulting from heavy rains and was sampled during a separate site visit on June 26, 2017. Analytical tests for the quarterly monitoring events were previously reduced to DRPH and HRPH because GRPH and BTEX compounds were not detected in samples from any well during the first nine quarterly monitoring events.

Prior to sampling EPI opened all onsite wells, except MW-8, which was under water as note above, and allowed water levels to equilibrate then measured the depth to water and total depths using an electronic water level meter. To ensure reproducibility and consistency of the depth to water data, all measurements were made to the north side of the top surface of the PVC well casing. Groundwater elevations ranged from 89.93 feet Site Datum (EPI 2013 surveyed elevations) in MW-8 to 91.21 feet in MW-1.

Groundwater elevation contours indicate that groundwater flow was generally from northwest to southeast at the time of the sampling event as shown in Figure 3. These groundwater contours and flow directions are generally consistent with historical data. Groundwater levels were not affected by the air injection system operation during this monitoring event since the system had been off for several months and was re-started after the water level measurements were completed.

Prior to sampling, EPI purged the monitoring wells using a peristaltic sampling pump and following low flow, low impact well purging techniques. Purge water was tested for stabilization of the key field parameters; temperature, pH, specific conductance, DO, and oxidation-reduction potential (ORP) approximately every three to five minutes. Samples were collected into appropriate pre-labeled containers upon attainment of field parameter stabilization criteria. Field parameter measurements for stabilized parameters are presented in Table 1. Field notes are included in Attachment A.

Purge water was transferred to a 55-gallon drum temporarily stored near the northwest corner of the maintenance building pending disposal characterization.

Groundwater samples were collected for DRPH and HRPH analyses using the Northwest Petroleum Hydrocarbons as Diesel (NWTPH-Dx extended to include oil-range hydrocarbons). Immediately upon collection, filled groundwater sample containers were placed in a cooler with sufficient ice to maintain an internal temperature of 4^{o}C or less pending submittal to the analytical laboratory. The samples were transported under standard Chain-of-Custody protocols to Friedman & Bruya, Inc. in Seattle, Washington. The Chain-of-Custody form is included in Attachment B.

FIELD MEASUREMENTS AND ANALYTICAL RESULTS

The following findings are based on our review of the field parameter measurements presented in Table 1 and the analytical data relative to MTCA Method A Groundwater CULs presented in Table 2. Laboratory data reports are presented in Attachment B.

The following observations were noted for the field parameter data presented in Table 1.

- Depth to water measurements ranged from 4.21 ft. below top of casing (TOC) in MW-8 to 5.36 ft. below TOC in MW-4. The shallow and flat water table is consistent with historical data for the Site.

- Field-measured pH values for purge water from the wells ranged from 6.00 in purge water from MW-2 to 6.48 in purge water from MW-6. These measurements are consistent with historical pH measurements at the Site.

- DO measurements range from 0.23 milligrams per liter (mg/L) in purge water from MW-6 to 0.93 mg/L in purge water from MW-1. Low measured DO concentrations in purge water from the wells indicates anaerobic (reducing) geochemical conditions, which was anticipated because the air injection system was not operational since sometime between December 2016 and March 2017. The air injection system was repaired and re-started during the June 16, 2017 Site visit.

- ORP measurements ranged from -78.9 millivolts (mV) in purge water from MW-6 to +103.1 mV in purge water from MW-2. ORP at MW-1 was also positive and was measured at 76.0 mV. The remaining ORP measurements were all negative. Negative ORP measurements indicate anaerobic (reducing) geochemical conditions in groundwater, while positive ORP measurements indicate more aerobic geochemical conditions, likely resulting from historical operation of the air injection system near MW-1 and MW-2.

The following observations were noted for the analytical data presented in Table 2.

- HRPH was detected in groundwater samples collected from MW-1 and MW-6, at concentrations of 560 and 280 µg/L, respectively, during this sampling event. The 560 µg/L HRPH detection in the sample from MW-1 exceeds the MTCA Method A CUL of 500 µg/L. This is the first HRPH exceedance at MW-1 since February 2013.

- DRPH was detected in samples collected from all 8 monitoring wells sampled during this event at concentrations ranging from 55 µg/L in the sample from MW-5 to 970 µg/L in the sample from MW-6. Concentrations of DRPH did not exceed the MTCA Method A CUL of 500 µg/L except for the sample from MW-6.

Time series plots of analytical data for groundwater samples from the eight onsite monitoring wells are presented in Attachment C. The time series plots include trend lines matched to the data indicating DRPH and HRPH concentration trends where applicable.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions are supported by data presented and evaluated in this quarterly groundwater monitoring report.

- The Puget Sound area experienced a very wet spring in 2017 with approximately 28 inches of rain reported at SeaTac Airport from January to June 2017. The record setting rainfall amounts experienced prior to this sampling event likely flushed and mobilized petroleum hydrocarbons from the vadose zone into the shallow groundwater. We anticipate that the increased concentrations of HRPH and DRPH noted during this event will be a temporary weather-related phenomenon.

- Samples from MW-3, MW-4, MW-5, MW-7, and MW-8 have never had a detection for HRPH.

- HRPH was detected two groundwater samples collected at MW-1 and MW-6 during this sampling event. Only the sample from MW-1 had an HRPH concentration slightly greater than the MTCA Method A CUL.

- DRPH was detected in groundwater samples from all 8 wells sampled. Only the sample from MW-6 had a DRPH concertation that exceeded the MTCA Method A CUL.

- Historical DRPH impacts in samples from MW-1, first observed in November 2011, might have been due to short-term truck parking and outdoor storage of oily engine parts outside of the northwest corner of the truck maintenance building by the tenant. These practices were in violation of the lease agreement and were discontinued by the tenant upon direction from the property owner.

- DRPH concentrations in samples from MW-2, MW-3, and MW-4 have consistently been less than the MTCA Method A CUL quarterly groundwater sampling began in 2011. DRPH concentrations in samples from MW-5, MW-7, and MW-8 have consistently been less than the MCTA Method A CUL since its installation in 2013 for MW-5 and 2016 for MW-7 and MW-8.

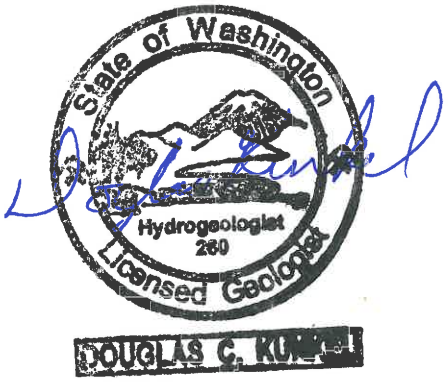
- The DRPH concentration in the sample from MW-6 exceeds the Method A Groundwater CUL during this quarterly monitoring event. DRPH concentrations in samples from MW-6 continue to trend downward as shown in the MW-6 time-series plot in Attachment C.

EPI appreciates the opportunity to be of assistance on this project. If you have any questions or comments, please do not hesitate to contact me at (425) 395-0016.

Sincerely,

Douglas Kunkel

Douglas Kunkel, L.G., L.H.G.
Principal Hydrogeologist



cc: Ms. Louise Bardy, WDOE-Northwest Regional Office

ENCLOSURES

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Table 1	Summary of Groundwater Stabilization Parameters
Table 2	Quarterly Groundwater Monitoring Analytical Results in µg/L

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Figure 1	General Vicinity Map
Figure 2	Air Injection Remediation System Layout
Figure 3	June 16, 2017 Groundwater Elevation Contours and Flow Direction

Attachments

Attachment A	Field Notes and Forms
Attachment B	Analytical Laboratory Report
Attachment C	Time Series Plots

Tables

Table 1: Summary of Groundwater Stabilization Parameters
Estes West Express Facility
2102 West Valley Highway North, Auburn, Washington

Well ID	Date Sampled	Depth to Water (ft)	Top of Casing Elevation	Groundwater Elevation	pH	Specific Conductance (mS/cm^2)	Dissolved Oxygen (mg/L)	Temp. (^oC)	Oxidation Reduction Potential (mV)	Turbidity (NTU)
MW-1	06/16/17	4.25	95.46	91.21	6.02	0.151	0.93	17.4	76.0	NM
MW-2	06/16/17	4.75	95.52	90.77	6.00	0.161	0.51	14.6	103.1	NM
MW-3	06/16/17	5.23	95.47	90.24	6.34	0.660	0.29	14.7	-59.3	NM
MW-4	06/16/17	5.36	95.61	90.25	6.32	0.630	0.24	13.5	-59.3	NM
MW-5	06/16/17	5.27	95.58	90.31	6.30	0.481	0.30	13.9	-43.2	NM
MW-6	06/16/17	5.18	95.44	90.26	6.48	0.517	0.23	15.5	-78.9	NM
MW-7	06/16/17	4.33	94.28	89.95	6.34	0.630	0.31	14.3	-71.9	NM
MW-8	06/26/17	4.21	94.14	89.93	6.28	0.930	0.28	16.4	-54.40	NM

Notes:

NM = Not Measured

Table 2: Quarterly Groundwater Monitoring Analytical Results in µg/L
Estes West Express Trucking Facility
2102 West Valley Highway North - Auburn, WA

Well ID	Date Sampled	DRPH[b]	HRPH[b]	Benzene[c]	Toluene[c]	Ethylbenzene[c]	Total Xylenes[c]
MW-1	8/12/11	<250	<500	<1	<1	<1	<3
	11/11/11	**1,500**	**300**	<1	<1	<1	<3
	2/10/12	**690**	<250	<1	<1	<1	<3
	5/17/12	**1,100**	**480**	<1	<1	<1	<3
	8/28/12	**1,200**	**820**	<1	<1	<1	<3
	11/15/12	**2,700**	**1,200**	<1	<1	<1	<3
	2/14/13	**1,600**	**510**	<1	<1	<1	<3
	5/16/13	**1,500**	**340**	<1	<1	<1	<3
	8/14/13	**1,100**	**290**	<1	<1	<1	<3
	11/25/13	**1,400**	**400**	NA			
	2/20/14	**700**	**280**	NA			
	5/15/14	**940**	<250	NA			
	8/14/14	<50	<250	NA			
	11/24/14	**220**	<250	NA			
	3/31/15	**340**	<250	NA			
	6/29/15	**240**	<250	NA			
	9/28/15	**700**	**290**	NA			
	3/3/16	**220**	<250	NA			
	6/21/16	**160**	<250	NA			
	9/16/16	**580**	**420**	NA			
	12/20/16	**190**	<250	NA			
	3/24/17	**53**	<250	NA			
	6/19/17	**310**	**560**	NA			
MW-2	8/12/11	<250	<500	<1	<1	<1	<3
	11/11/11	**500**	<250	<1	<1	<1	<3
	2/10/12	<50	<250	<1	<1	<1	<3
	5/17/12	<50	<250	<1	<1	<1	<3
	8/28/12	**470**	**730**	<1	<1	<1	<3
	11/15/12	**140**	<260	<1	<1	<1	<3
	2/14/13	**94**	**260**	<1	<1	<1	<3
	5/16/13	**77**	<250	<1	<1	<1	<3
	8/14/13	**280**	<250	<1	<1	<1	<3
	11/25/13	**53**	<250	NA			
	2/20/14	<50	<250	NA			
	5/15/14	<50	<250	NA			
	8/14/14	**100**	<250	NA			
	11/24/14	<50	<250	NA			
	3/31/15	**57**	<250	NA			
	6/29/15	**97**	<250	NA			
	9/28/15	**150**	<250	NA			
	3/3/16	<50	<250	NA			
	6/21/16	**86**	<250	NA			
	9/16/16	**95**	<250	NA			
	12/20/16	<50	<250	NA			
	6/19/17	**61**	<250	NA			
MW-3	8/12/11	<250	<500	<1	<1	<1	<3
	11/11/11	**65**	<250	<1	<1	<1	<3
	2/10/12	**100**	<250	<1	<1	<1	<3
	5/17/12	**53**	<250	<1	<1	<1	<3
	8/28/12	**130**	<250	<1	<1	<1	<3
	11/15/12	**120**	<280	<1	<1	<1	<3
	2/14/13	**150**	<250	<1	<1	<1	<3
	5/16/13	**200**	<250	<1	<1	<1	<3
	8/14/13	**140**	<250	<1	<1	<1	<3
	11/25/13	**170**	<250	NA			
	2/20/14	**160**	<250	NA			
	5/15/14	**120**	<250	NA			
	8/14/14	**140**	<250	NA			
	11/24/14	**130**	<250	NA			
	3/31/15	**220**	<250	NA			
	6/29/15	**130**	<250	NA			
	9/28/15	**110**	<250	NA			
	3/3/16	**92**	<250	NA			
	6/21/16	**85**	<250	NA			
	9/16/16	**100**	<250	NA			
	12/20/16	**99**	<250	NA			
	6/19/17	**310**	<250	NA			

Table 2: Quarterly Groundwater Monitoring Analytical Results in µg/L
Estes West Express Trucking Facility
2102 West Valley Highway North - Auburn, WA

Well ID	Date Sampled	DRPH[b]	HRPH[b]	Benzene[c]	Toluene[c]	Ethylbenzene[c]	Total Xylenes[c]
MW-4	8/12/11	<250	<500	<1	<1	<1	<3
	11/11/11	**72**	<250	<1	<1	<1	<3
	2/10/12	**150**	<250	<1	<1	<1	<3
	5/17/12	**160**	<250	<1	<1	<1	<3
	8/28/12	**200**	<250	<1	<1	<1	<3
	11/15/12	**220**	<250	<1	<1	<1	<3
	2/14/13	**220**	<250	<1	<1	<1	<3
	5/16/13	**210**	<250	<1	<1	<1	<3
	8/14/13	**200**	<250	<1	<1	<1	<3
	2/20/14	**140**	<250	NA			
	5/15/14	**140**	<250	NA			
	8/14/14	**290**	<250	NA			
	11/24/14	**290**	<250	NA			
	3/31/15	**320**	<250	NA			
	6/29/15	**240**	<250	NA			
	9/28/15	**220**	<250	NA			
	3/3/16	**130**	<250	NA			
	6/21/16	**63**	<250	NA			
	9/29/16	**68**	<250	NA			
	12/20/16	**78**	<250	NA			
	3/24/17	<50	<250	NA			
	6/19/17	**110**	<250	NA			
MW-5	6/5/13	**160**	<250	<1	<1	<1	<3
	8/14/13	**56**	<250	<1	<1	<1	<3
	11/24/14	<50	<250	NA			
	3/31/15	**52**	<250	NA			
	6/29/15	<50	<250	NA			
	9/28/15	<50	<250	NA			
	3/3/16	<50	<250	NA			
	6/21/16	<50	<250	NA			
	9/16/16	<50	<250	NA			
	12/20/16	<50	<250	NA			
	6/19/17	**55**	<250	NA			
MW-6	6/5/13	**680**	<250	<1	<1	<1	<3
	8/14/13	**790**	<250	<1	<1	<1	<3
	2/20/14	**740**	<250	NA			
	5/15/14	**950**	<250	NA			
	8/14/14	**1,200**	<250	NA			
	11/24/14	**680**	<250	NA			
	3/31/15	**750**	<250	NA			
	6/29/15	**750**	<250	NA			
	9/28/15	**610**	<250	NA			
	3/3/16	**1,100**	**390**	NA			
	6/21/16	**650**	<250	NA			
	9/16/16	**340**	<250	NA			
	12/20/16	**640**	<250	NA			
	3/24/17	**580**	<250	NA			
	6/19/17	**970**	**280**	NA			
MW-7	9/16/16	**140**	<250	NA			
	12/20/16	**78**	<250	NA			
	3/24/17	<50	<250	NA			
	6/19/17	**100**	<250	NA			
MW-8	10/3/16	**290**	<250	NA			
	12/20/16	**140**	<250	NA			
	3/24/17	<50	<250	NA			
	6/26/17	**180**	<250	NA			
MTCA Method A Groundwater Cleanup Level (in µg/L)		**500**	**500**	**5**	**1,000**	**700**	**1,000**

[a] Analyzed for gasoline-range petroleum hydrocarbons (GRPH) using Ecology Method NWTPH-Gx
[b] Analyzed for diesel (DRPH) and higher-range hydrocarbons (HRPH) using Ecology Method NWTPH-Dx
[c] Analyzed using EPA
[d] Cleanup level is 800 µg/L when benzene is present in groundwater and 1,000 µg/L when benzene is not present

Figures

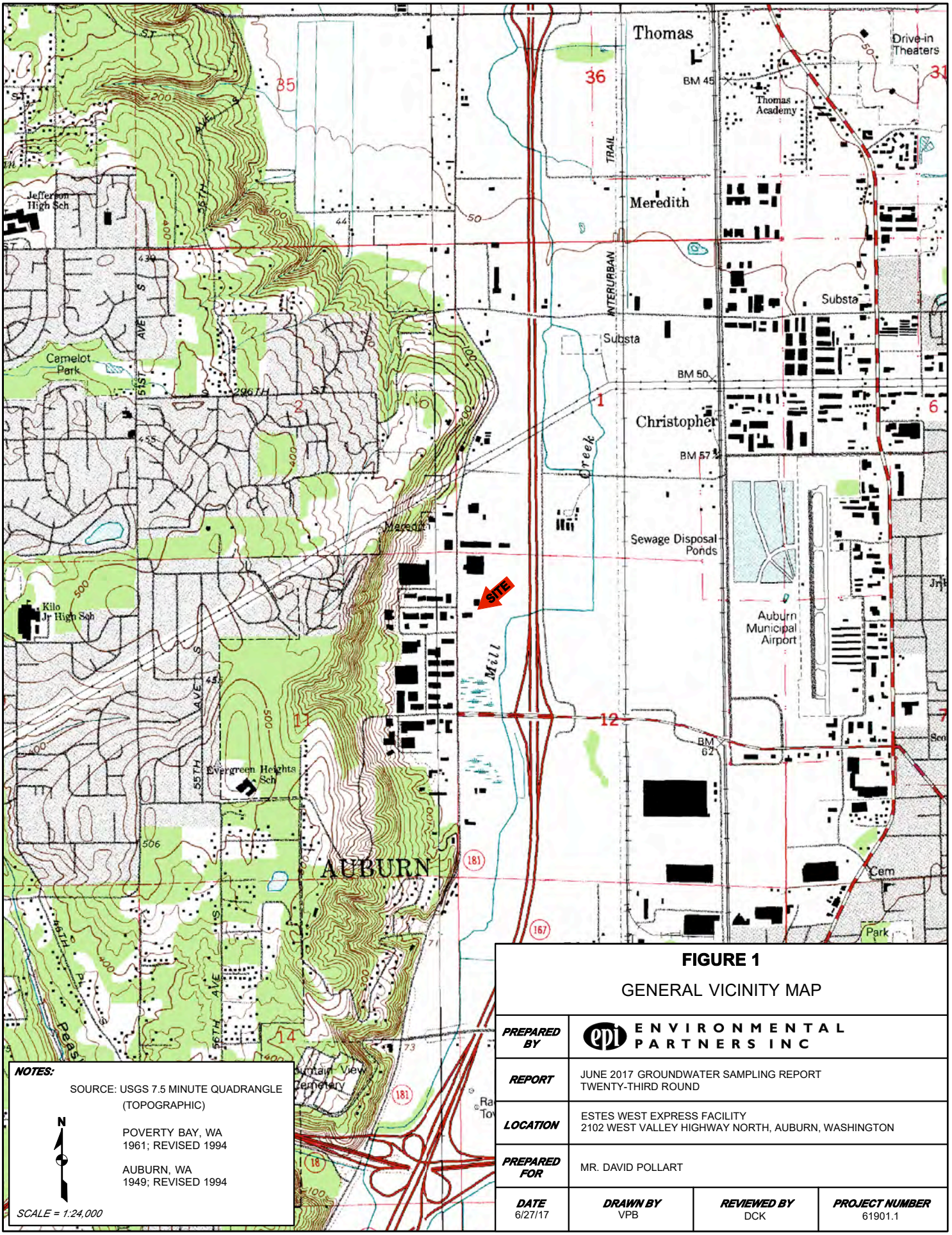


FIGURE 1

GENERAL VICINITY MAP

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	JUNE 2017 GROUNDWATER SAMPLING REPORT TWENTY-THIRD ROUND		
LOCATION	ESTES WEST EXPRESS FACILITY 2102 WEST VALLEY HIGHWAY NORTH, AUBURN, WASHINGTON		
PREPARED FOR	MR. DAVID POLLART		
DATE 6/27/17	**DRAWN BY** VPB	**REVIEWED BY** DCK	**PROJECT NUMBER** 61901.1

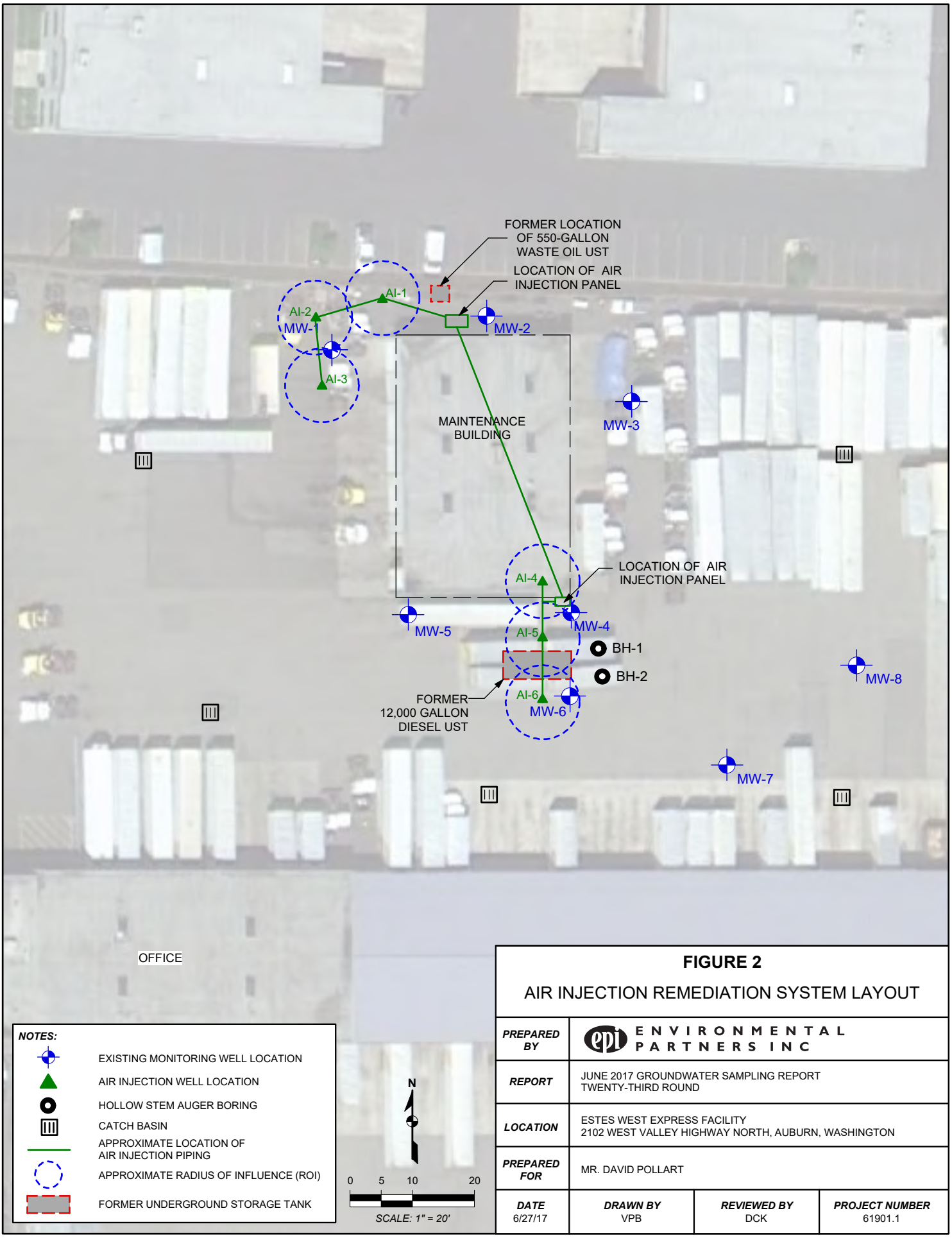


FIGURE 2

AIR INJECTION REMEDIATION SYSTEM LAYOUT

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	JUNE 2017 GROUNDWATER SAMPLING REPORT TWENTY-THIRD ROUND		
LOCATION	ESTES WEST EXPRESS FACILITY 2102 WEST VALLEY HIGHWAY NORTH, AUBURN, WASHINGTON		
PREPARED FOR	MR. DAVID POLLART		
DATE 6/27/17	***DRAWN BY*** VPB	***REVIEWED BY*** DCK	***PROJECT NUMBER*** 61901.1

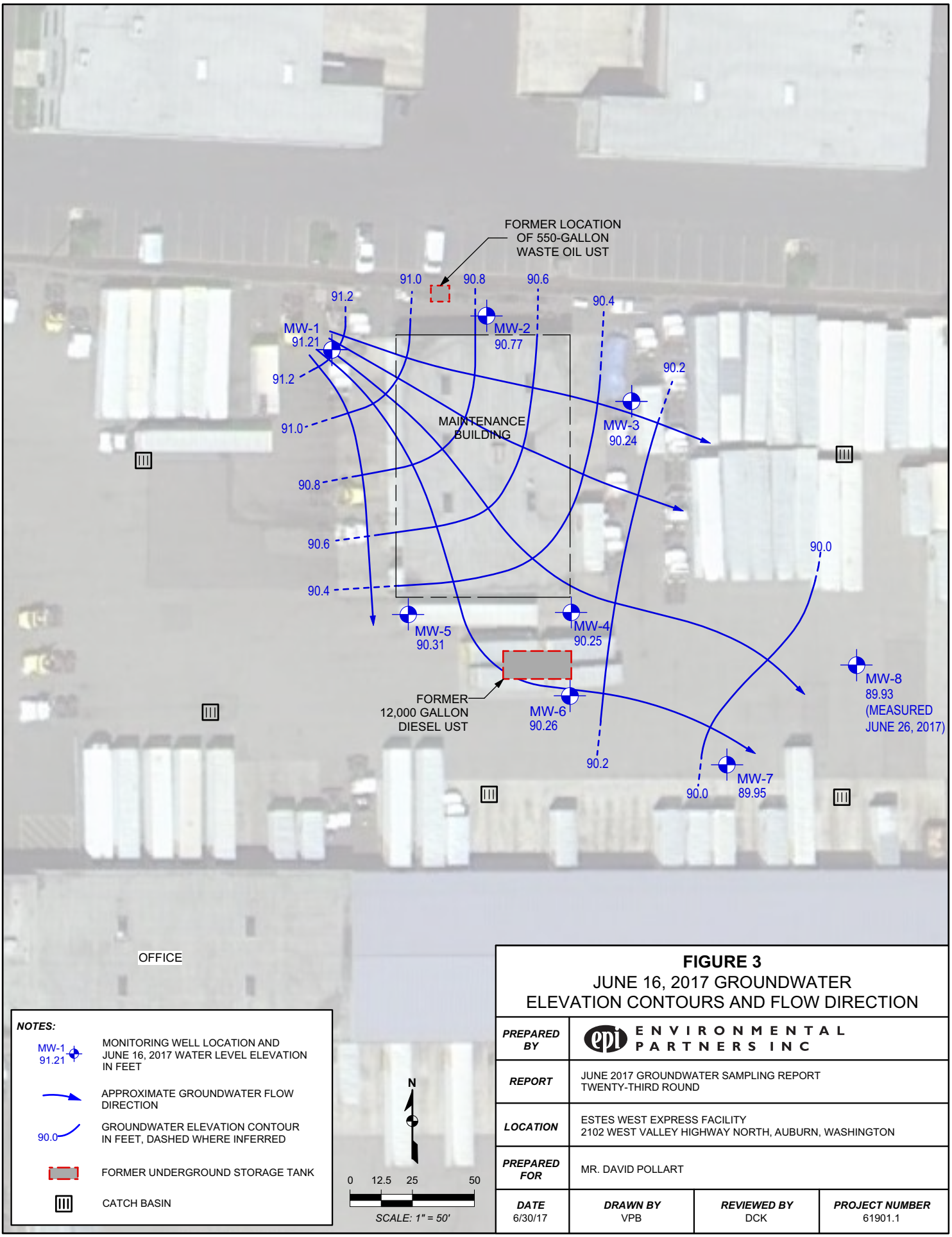


FIGURE 3
JUNE 16, 2017 GROUNDWATER
ELEVATION CONTOURS AND FLOW DIRECTION

PREPARED BY	ENVIRONMENTAL PARTNERS INC		
REPORT	JUNE 2017 GROUNDWATER SAMPLING REPORT TWENTY-THIRD ROUND		
LOCATION	ESTES WEST EXPRESS FACILITY 2102 WEST VALLEY HIGHWAY NORTH, AUBURN, WASHINGTON		
PREPARED FOR	MR. DAVID POLLART		
DATE 6/30/17	***DRAWN BY*** VPB	***REVIEWED BY*** DCK	***PROJECT NUMBER*** 61901.1

Attachment A
Field Notes and Forms

3/24/17 cont.

1050 EPI completed GW sampling. NW drum located on-site, will be returning later today w/ drum to dispose of purge H_2O.

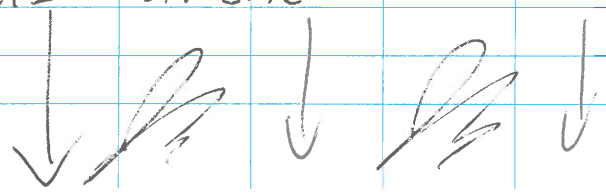
1100 EPI off-site to take samples to lab and pickup drum.

1310 EPI on-site to drop off drum for purge H_2O. Drum placed on N side of mechanic shop.

Damaged Monuments

MW-1: All bolts stripped
MW-5: 1 thread tab broken
MW-3: Stripped
MW-4: 2 thread tabs broken
MW-6: All bolts stripped
MW-8: Monument in large pot hole. Monument badly damaged by truck traffic.

1330 EPI off-site



6/16/17

0645 J. Sherrod on-site, meet w/ site staff to discuss operations

0650 Begin opening well caps, MW-8 covered w/ large volume of water.

well	DTW
MW-7	4.33'
MW-3	5.23'
MW-4	5.36'
MW-6	5.18'
MW-5	5.27'
MW-2	4.76'
MW-1	4.25'

- 0730 complete DTW collection, calibrate YSI and begin setting up on MW-7. Please see stabilization sheets for well specific data.

- 0930 A. Morina on-site to install new sparge compressor.

6/16/17 cont.

1208 complete groundwater sampling. Clean equipment and create chain of custody for samples.

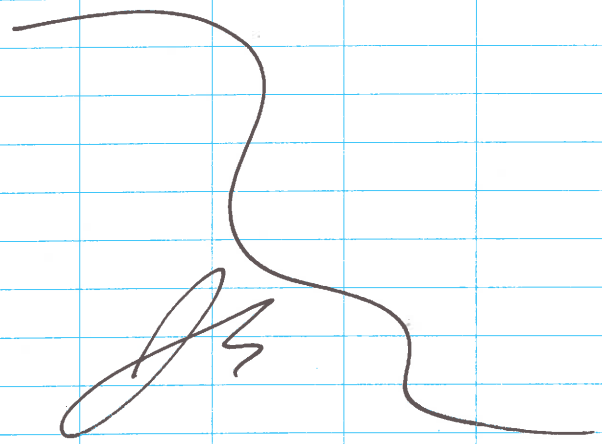
1222 measure catch basin located SW of MW-1.

Catch basin location

22' S → 43' W

No other catch basins have been located in this area.

1245 EPI off-site



EPI Groundwater Sampling Field Data

Project Name: Estes West
Project Number: 61901

Well ID:	MW-7	Date	6/16/17
Sample ID:	MW-7	Field Team: (Initials)	JSF
Field Conditions			

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume (2"=0.163 x depth) (4"=0.653 x depth)	

Purge Method : Submersible pump / Bladder Pump / Peristaltic Pump / Other: _____

Start Time	0723
End Time	
Total Gallons Purged	

Time	Volume Gallons	pH	Conductivity ms/cm²	DO mg/L	Temp. °C	ORP mV	Turbidity NTU	Appearance/Notes
0747	0.1	6.39	0.65	3.22	14.2	-21.8	—	clear
0750	0.3	6.31	0.64	0.90	14.3	-49.9	—	clear
0753	0.5	6.32	0.64	0.49	14.2	-62.4	—	clear
0756	0.7	6.33	0.64	0.41	14.2	-66.1	—	clear
0759	0.9	6.34	0.63	0.34	14.3	-70.1	—	clear
0802	1.1	6.34	0.63	0.31	14.3	-71.9	—	clear

Sample Information

Sample Method(s) : Peristaltic pump / Submersible pump / Bladder Pump / Bailer / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
DRO+ORO	0803			

End Time

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

EPI Groundwater Sampling Field Data

Project Name: Estes West
Project Number: 61901

Well ID:	MW-3	Date	6/16/17
Sample ID:	MW-3	Field Team: (Initials)	JS
Field Conditions			

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume (2"=0.163 x depth) (4"=0.653 x depth)	

Purge Method : Submersible pump / Bladder Pump / Peristaltic Pump / Other: :

Start Time	0816
End Time	
Total Gallons Purged	

Time	Volume Gallons	pH	Conductivity ms/cm²	DO mg/L	Temp. °C	ORP mV	Turbidity NTU	Appearance/Notes
0819	0.1	6.36	0.75	4.54	14.9	-27.4	—	clear
0822	0.3	6.33	0.73	0.71	14.8	-39.8	—	clear
0825	0.5	6.34	0.73	0.50	14.8	-46.8	—	clear
0828	0.7	6.34	0.70	0.42	14.7	-52.8	—	clear
0831	0.9	6.34	0.68	0.34	14.7	-56.2	—	clear
0834	1.1	6.34	0.66	0.29	14.7	-59.3	—	clear

Sample Information

Sample Method(s) : Peristaltic pump / Submersible pump / Bladder Pump / Bailer / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
DRO + ORO	0835	1/2 L Amb	None	

End Time

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

EPI Groundwater Sampling Field Data

Project Name: Estes West
Project Number: 61901
Well ID: MW-4
Sample ID: MW-4
Field Conditions:
Date: 6/16/17
Field Team: (Initials): JS

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume (2"=0.163 x depth) (4"=0.653 x depth)	

Purge Method : Submersible pump / Bladder Pump / Peristaltic Pump / Other:

Start Time	0843
End Time	
Total Gallons Purged	

Time	Volume Gallons	pH	Conductivity ms/cm²	DO mg/L	Temp. °C	ORP mV	Turbidity NTU	Appearance/Notes
0846	0.1	6.34	0.66	1.66	13.7	-39.4	—	clear
0849	0.3	6.31	0.65	0.37	13.5	-46.1	—	clear
0852	0.5	6.31	0.65	0.32	13.5	-50.4	—	clear
0855	0.7	6.31	0.64	0.29	13.5	-53.9	—	clear
0858	0.9	6.31	0.637	0.26	13.5	-57.4	—	clear
~~0860~~ 0901	1.1	6.32	0.630	0.24	13.5	-59.3	—	clear

Sample Information

Sample Method(s) : Peristaltic pump / Submersible pump / Bladder Pump / Bailer / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
DRO + ORO	0902	½ L Amb	N/A	

End Time:

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

EPI Groundwater Sampling Field Data

Project Name: Estes West
Project Number: 61901

Well ID:	MW-6	Date	6/16/17
Sample ID:	MW-6	Field Team: (Initials)	JS
Field Conditions			

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	
(2"=0.163 x depth)	
(4"=0.653 x depth)	

Purge Method : Submersible pump / Bladder Pump / Peristaltic Pump / Other: :

Start Time	0908
End Time	
Total Gallons Purged	

Time	Volume Gallons	pH	Conductivity ms/cm²	DO mg/L	Temp. °C	ORP mV	Turbidity NTU	Appearance/Notes
0911	0.1	6.47	0.549	1.27	15.9	-48.1	—	clear
0914	0.3	6.47	0.539	0.44	15.7	-58.3	—	clear
0917	0.5	6.47	0.532	0.35	15.6	-65.9	—	clear
0920	0.7	6.47	0.528	0.32	15.6	-69.5	—	clear
0923	0.9	6.47	0.525	0.27	15.5	-74.5	—	clear
0926	1.1	6.48	0.520	0.24	15.5	-77.1	—	clear
0929	1.3	6.48	0.517	0.23	15.5	-78.9	—	clear

Sample Information

Sample Method(s) : Peristaltic pump / Submersible pump / Bladder Pump / Bailer / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
DRO + ORO	0930	1/2L Amb	None	

End Time

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Monument damaged

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

EPI Groundwater Sampling Field Data

Project Name: ~~WA~~ T Estes Lease
Project Number: 61961

Well ID:	MW-5	Date	6/16/17
Sample ID:	MW-5	Field Team: (Initials)	JTS
Field Conditions			

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume (2"=0.163 x depth) (4"=0.653 x depth)	

Purge Method : Submersible pump / Bladder Pump / Peristaltic Pump / Other: : _____

Start Time	1002
End Time	
Total Gallons Purged	

Time	Volume Gallons	pH	Conductivity ms/cm²	DO mg/L	Temp. °C	ORP mV	Turbidity NTU	Appearance/Notes
1005	0.2	6.36	0.515	2.19	14.1	-7.9	—	clear
1008	0.4	6.29	0.505	0.74	14.0	-23.5	—	clear
1011	0.6	6.29	0.496	0.42	13.9	-31.5	—	clear
1014	0.8	6.29	0.486	0.33	14.0	-38.8	—	clear
1017	1.0	6.30	0.483	0.31	14.0	-41.5	—	clear
1020	1.2	6.30	0.481	0.30	13.9	-43.2	—	clear

Sample Information

Sample Method(s) : Peristaltic pump / Submersible pump / Bladder Pump / Bailer / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
DRO + ORO	1021	1/2 L Amb	None	

End Time

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

EPI Groundwater Sampling Field Data

Project Name: Estes west
Project Number: 61901

Well ID:	MW-1	Date	6/16/17
Sample ID:	MW-1	Field Team: (Initials)	JJ
Field Conditions			

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume (2"=0.163 x depth) (4"=0.653 x depth)	

Purge Method : Submersible pump / Bladder Pump / Peristaltic Pump / Other: : _____

Start Time	1035
End Time	
Total Gallons Purged	

Time	Volume Gallons	pH	Conductivity ms/cm²	DO mg/L	Temp. °C	ORP mV	Turbidity NTU	Appearance/Notes
1039	0.1	6.24	0.165	2.92	17.2	6.6	—	clear
1042	0.3	6.14	0.158	1.58	17.1	25.9	—	clear
1045	0.5	6.06	0.158	1.05	17.3	40.9	—	clear
1048	0.7	6.05	0.157	0.99	17.4	48.0	—	clear
1051	0.9	6.04	0.155	0.96	17.4	58.2	—	clear
1054	1.1	6.03	0.154	0.95	17.4	62.5	—	clear
1057	1.3	6.03	0.153	0.93	17.4	68.2	—	clear
1100	1.5	6.02	0.152	0.91	17.3	73.2	—	clear
1103	1.7	6.02	0.151	0.93	17.4	76.0	—	clear

Sample Information

Sample Method(s) : Peristaltic pump / Submersible pump / Bladder Pump / Bailer / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
DRO + ORO	1104	½ L Amb	N/A	

End Time

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

EPI Groundwater Sampling Field Data

Project Name: Estes west
Project Number: 61901

Well ID:	MW-2	Date	6/16/17
Sample ID:	MW-2	Field Team: (Initials)	JS
Field Conditions			

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	
(2"=0.163 x depth)	
(4"=0.653 x depth)	

Purge Method : Submersible pump / Bladder Pump / Peristaltic Pump / Other: _____

Start Time	1114
End Time	
Total Gallons Purged	

Time	Volume Gallons	pH	Conductivity ms/cm²	DO mg/L	Temp. °C	ORP mV	Turbidity NTU	Appearance/Notes
1118	0.2	6.03	0.193	0.51	13.8	84.4	—	clear
1121	0.4	6.02	0.192	0.36	14.0	92.7	—	clear
1124	0.6	6.02	0.187	0.47	14.1	95.2	—	clear
1127	0.8	6.02	0.181	0.39	14.3	97.9	—	clear
1130	1.0	6.01	0.169	0.40	14.5	100.1	—	clear
1133	1.2	6.00	0.166	0.45	14.6	101.9	—	clear
1136	1.4	6.00	0.161	0.51	14.6	103.1	—	clear

Sample Information

Sample Method(s) : Peristaltic pump / Submersible pump / Bladder Pump / Bailer / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
DRO	1137	1/2 L Amb	N/A	

End Time

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

EPI Groundwater Sampling Field Data

Project Name: Estes West, Auburn
Project Number: 61901

Well ID:	MW-8	Date	6/26/17
Sample ID:	MW-8	Field Team: (Initials)	JS
Field Conditions			

Purge Information

Well Diameter (in.)	2"
Well Depth (ft.)	
Initial Depth to Water (ft.)	
Depth of Water Column	
3 Casing Volumes	
1 Casing Volume	
(2"=0.163 x depth)	
(4"=0.653 x depth)	

Purge Method : Submersible pump / Bladder Pump / Peristaltic Pump / Other: : _____

Start Time	0650
End Time	0710
Total Gallons Purged	

Time	Volume Gallons	pH	Conductivity ms/cm²	DO mg/L	Temp. °C	ORP mV	Turbidity NTU	Appearance/Notes
0652	0.1	6.29	0.92	3.14	16.1	26.3	—	clear
0655	0.3	6.25	0.92	0.68	16.2	-22.6	—	clear
0658	0.5	6.26	0.92	0.43	16.3	-40.9	—	clear
0701	0.7	6.27	0.92	0.36	16.4	-46.2	—	clear
0704	0.9	6.28	0.92	0.31	16.4	-51.1	—	clear
0707	1.1	6.28	0.93	0.28	16.4	-54.4	—	clear

Sample Information

Sample Method(s) : Peristaltic pump / Submersible pump / Bladder Pump / Bailer / Other

Analysis	Time	Bottle Type	Preservative/Filtration	Comments
DRO + ORO	0708	1/2 L Amb	None	

End Time

Comments / Exceptions:

Presence of floating product? YES / NO Presence of sinking product? YES / NO

Notes: Where multiple visits are required to complete sampling, parameters are to be checked prior to sampling for each visit. Enter data under field comments.

Attachment B
Analytical Laboratory Report

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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Seattle, WA 98119-2029
(206) 285-8282
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www.friedmanandbruya.com

June 23, 2017

Doug Kunkel, Project Manager
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

RE: 61901, F&BI 706290

Dear Mr Kunkel:

Included are the results from the testing of material submitted on June 19, 2017 from the 61901, F&BI 706290 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Cynthia Moon
EPI0623R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 19, 2017 by Friedman & Bruya, Inc. from the Environmental Partners 61901, F&BI 706290 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Environmental Partners
706290 -01	MW-7
706290 -02	MW-3
706290 -03	MW-4
706290 -04	MW-6
706290 -05	MW-5
706290 -06	MW-1
706290 -07	MW-2

All quality control requirements were acceptable.

Date of Report: 06/23/17
Date Received: 06/19/17
Project: 61901, F&BI 706290
Date Extracted: 06/20/17
Date Analyzed: 06/20/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
MW-7 706290-01	100 x	<250	108
MW-3 706290-02	310 x	<250	108
MW-4 706290-03	110 x	<250	111
MW-6 706290-04	970 x	280 x	115
MW-5 706290-05	55 x	<250	118
MW-1 706290-06	310 x	560 x	109
MW-2 706290-07	61 x	<250	119
Method Blank 07-1311 MB2	<50	<250	99

Date of Report: 06/23/17
Date Received: 06/19/17
Project: 61901, F&BI 706290

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	97	100	63-142	3

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

706290

SAMPLE CHAIN OF CUSTODY

ME 06/19/17 B03

Report To Doug Kunkel

Company EPI

Address 1180 NW Maple St.

City, State, ZIP Issaquah, WA 98027

Phone 425-395-0010 Email dougk@epi-wa.com

SAMPLERS (signature) [signature]

PROJECT NAME 61901

PO #

REMARKS

INVOICE TO

Page # 1 of 1

TURNAROUND TIME
☒ Standard Turnaround
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Archive Samples
☐ Other

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel (+ oil)	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-7	01	6/16/17	0803	Water	1		X										
MW-3	02	↓	0835	↓	↓		X										
MW-4	03	↓	0902	↓	↓		X										
MW-6	04	↓	0930	↓	↓		X										
MW-5	05	↓	1021	↓	↓		X										
MW-1	06	↓	1104	↓	↓		X										
MW-2	07	↓	1137	↓	↓		X										

Samples received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Joe Sherrod	EPI	6/19/17	0630
Received by: [signature]	Michael Erdahl	F&Binc	6/19/17	0630
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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(206) 285-8282
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June 30, 2017

Doug Kunkel, Project Manager
Environmental Partners, Inc.
1180 NW Maple St, Suite 310
Issaquah, WA 98027

RE: 61901, F&BI 706421

Dear Mr Kunkel:

Included are the results from the testing of material submitted on June 27, 2017 from the 61901, F&BI 706421 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Cynthia Moon
EPI0630R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on June 27, 2017 by Friedman & Bruya, Inc. from the Environmental Partners 61901, F&BI 706421 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Environmental Partners
706421 -01	MW-8
706421 -02	AI-6R:Drum

All quality control requirements were acceptable.

Date of Report: 06/30/17
Date Received: 06/27/17
Project: 61901, F&BI 706421
Date Extracted: 06/27/17
Date Analyzed: 06/27/17

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
AI-6R:Drum 706421-02	<50	<250	102
Method Blank 07-1376 MB	<50	<250	98

Date of Report: 06/30/17
Date Received: 06/27/17
Project: 61901, F&BI 706421
Date Extracted: 06/27/17
Date Analyzed: 06/27/17

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 47-140)
MW-8 706421-01	180 x	<250	100
Method Blank 07-1368 MB2	<50	<250	97

Date of Report: 06/30/17
Date Received: 06/27/17
Project: 61901, F&BI 706421

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 706357-19 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	393	95	92	63-146	3

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	99	79-144

Date of Report: 06/30/17
Date Received: 06/27/17
Project: 61901, F&BI 706421

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	89	93	61-133	4

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

706421

SAMPLE CHAIN OF CUSTODY

ME 06/27/17 B02

Page # 1 of 1

Send Report To Doug Kunkel

Company Environmental Partners, Inc

Address 1180 NW Maple St Suite 310

City, State, ZIP Issaquah, WA 98027

Phone # (425) 395-0010 Fax # (425) 395-0011

SAMPLERS *(signature)*

PROJECT NAME/NO. 61901

PO#

REMARKS

TURNAROUND TIME
☑ Standard (2 Weeks)
☐ RUSH
Rush charges authorized by

SAMPLE DISPOSAL
☐ Dispose after 30 days
☐ Return samples
☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by8260	SVOCs by 8270	HFS	Dlo + olo						Notes
MW-8	01	6/26/17	0708	Water	1							X						
AI-6L:Drum	02 AB	↓	1430	Soil	2							X						
																		Samples received at 3 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Joe Shemet	EPI	6/27/17	0630
Received by:	Michael Eckl	FGBm	↓	↓
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SAMPLE CHAIN OF CUSTODY

Page # 1 of 1

Report To Doug Kunkel

Company EPI

Address 1180 NW Maple St.

City, State, ZIP Issaquah, WA 98027

Phone 425 395-[illegible] Email dougk@epi-wa.com

SAMPLERS (*signature*)	
PROJECT NAME 61901	PO #
REMARKS	INVOICE TO

TURNAROUND TIME

- ☑ Standard Turnaround
- ☐ RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL

- ☐ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
MW-7		6/16/17	0803	water	1		X										
MW-3		↓	0835	↓	↓		X										
MW-4		↓	0902	↓	↓		X										
MW-6		↓	0930	↓	↓		X										
MW-5		↓	1021	↓	↓		X										
MW-1		↓	1104	↓	↓		X										
MW-2		↓	1137	↓	↓		X										

Friedman & Bruya, Inc.

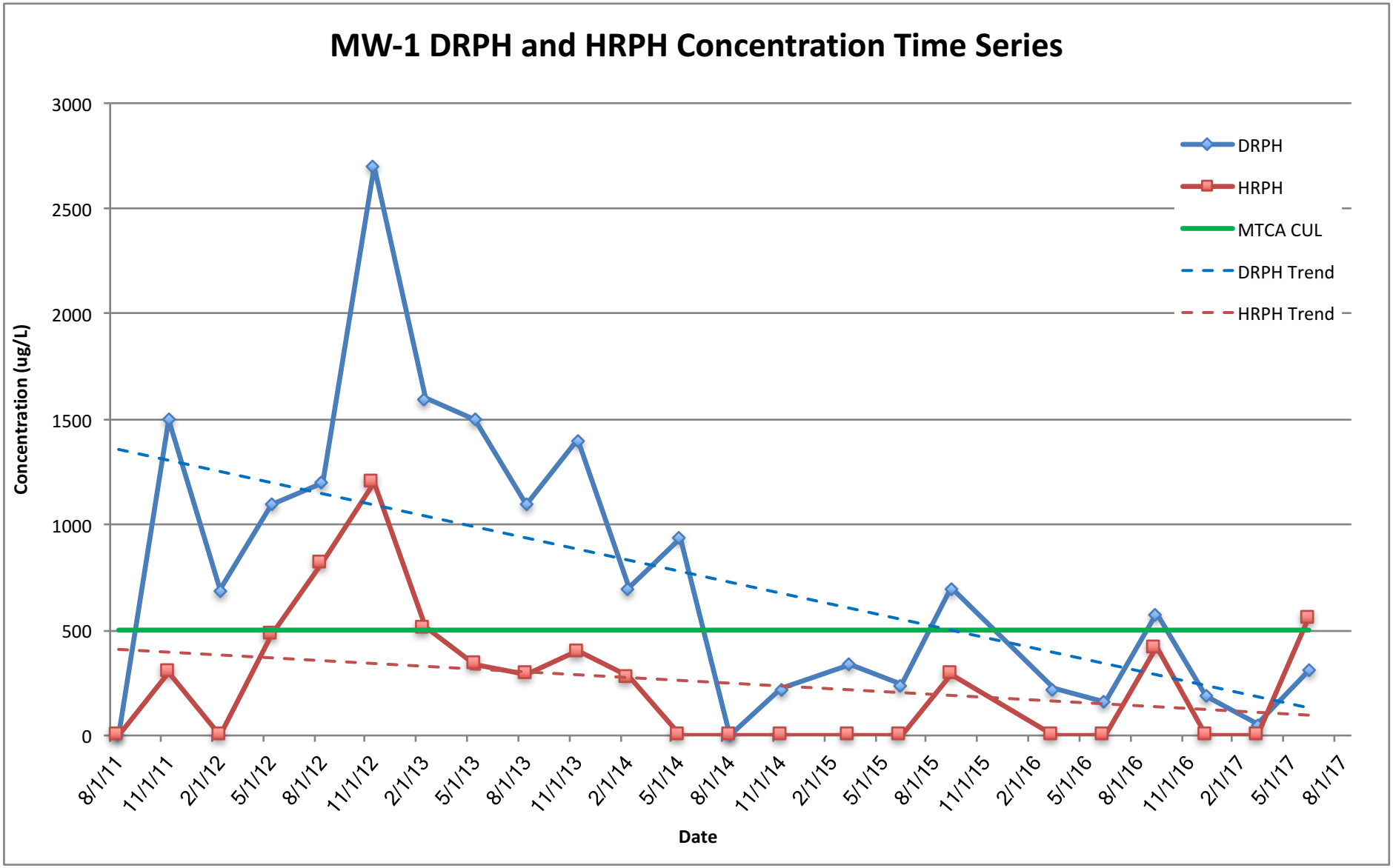
3012 16th Avenue West

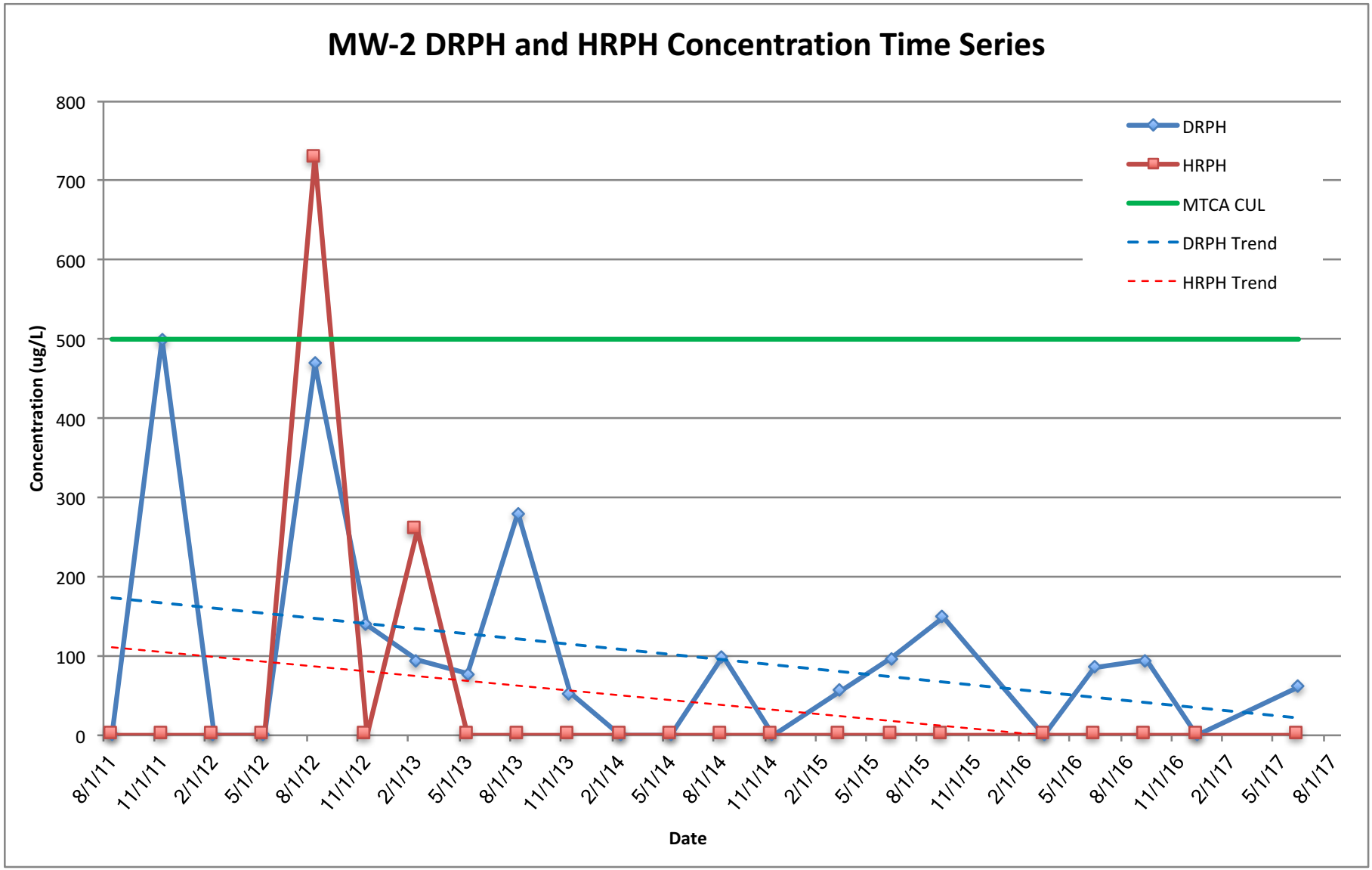
Seattle, WA 98119-2029

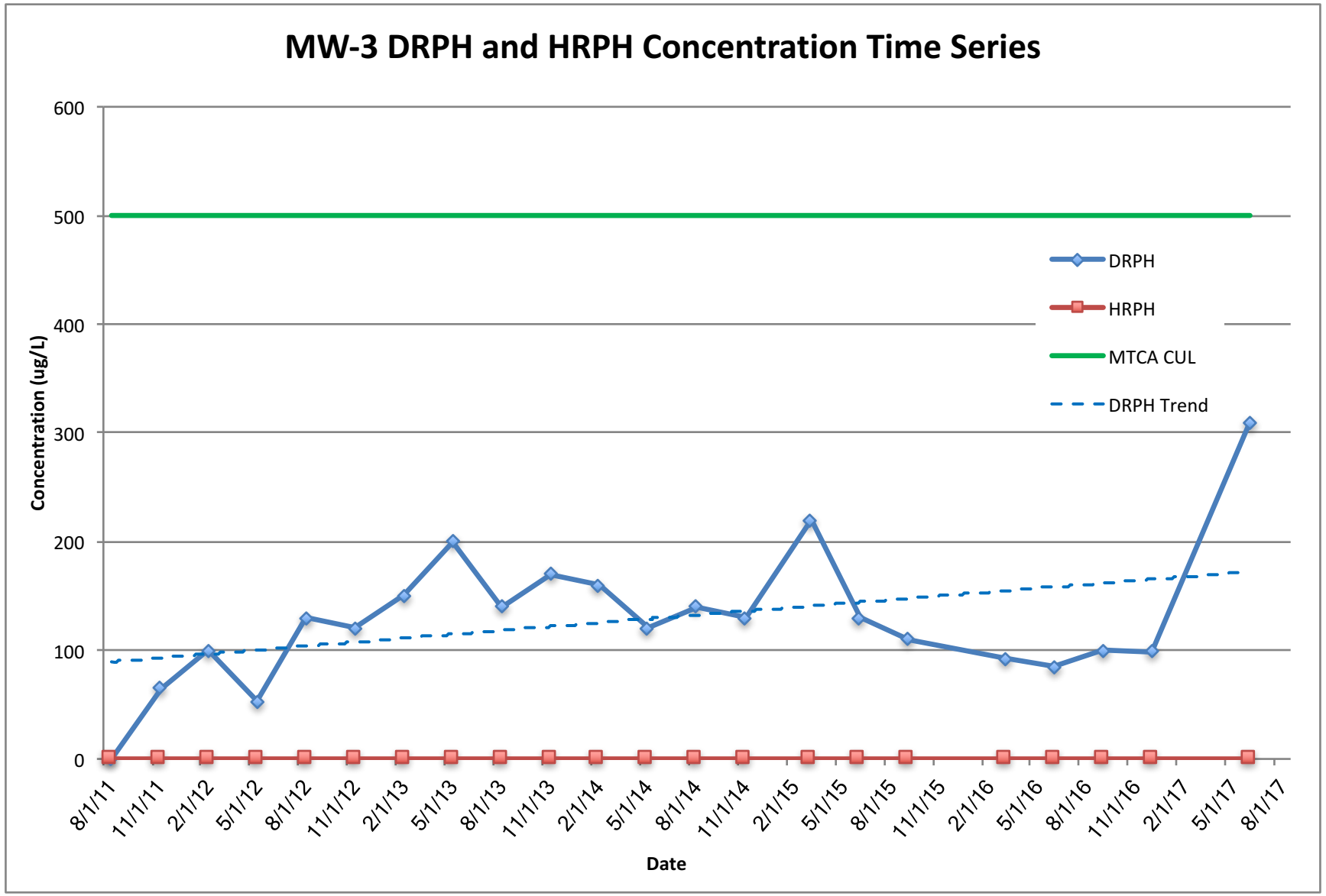
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [signature]	Joe Sherrard	EPI	6/19/17	0630
Received by: [signature]	Michael Erdahl	F&B Inc	6/19/17	0630
Relinquished by:				
Received by:				

Attachment C
Time Series Plots


MW-1 DRPH and HRPH Concentration Time Series
Concentration (ug/L)
3000
2500
2000
1500
1000
500
0
8/1/11
11/1/11
2/1/12
5/1/12
8/1/12
11/1/12
2/1/13
5/1/13
8/1/13
11/1/13
2/1/14
5/1/14
8/1/14
11/1/14
2/1/15
5/1/15
8/1/15
11/1/15
2/1/16
5/1/16
8/1/16
11/1/16
2/1/17
5/1/17
8/1/17
Date
DRPH
HRPH
MTCA CUL
DRPH Trend
HRPH Trend


MW-2 DRPH and HRPH Concentration Time Series
800
700
600
500
400
300
200
100
0
Concentration (ug/L)
DRPH
HRPH
MTCA CUL
DRPH Trend
HRPH Trend
8/1/11
11/1/11
2/1/12
5/1/12
8/1/12
11/1/12
2/1/13
5/1/13
8/1/13
11/1/13
2/1/14
5/1/14
8/1/14
11/1/14
2/1/15
5/1/15
8/1/15
11/1/15
2/1/16
5/1/16
8/1/16
11/1/16
2/1/17
5/1/17
8/1/17
Date


MW-3 DRPH and HRPH Concentration Time Series
600
500
400
300
200
100
0
Concentration (ug/L)
DRPH
HRPH
MTCA CUL
DRPH Trend
8/1/11
11/1/11
2/1/12
5/1/12
8/1/12
11/1/12
2/1/13
5/1/13
8/1/13
11/1/13
2/1/14
5/1/14
8/1/14
11/1/14
2/1/15
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8/1/15
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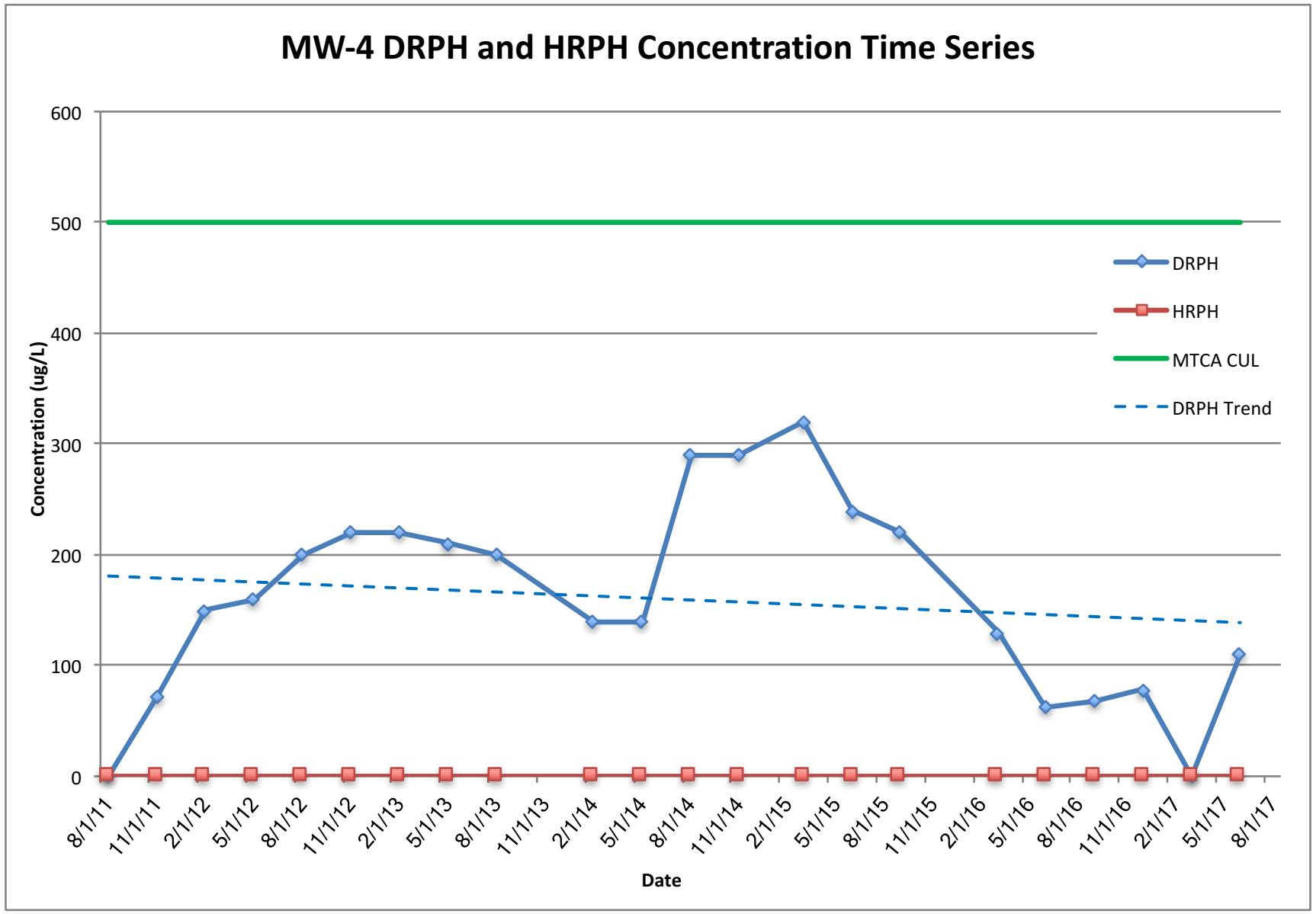
8/1/16
11/1/16
2/1/17
5/1/17
8/1/17
Date


MW-4 DRPH and HRPH Concentration Time Series
600
500
400
300
200
100
0
Concentration (ug/L)
DRPH
HRPH
MTCA CUL
DRPH Trend
8/1/11
11/1/11
2/1/12
5/1/12
8/1/12
11/1/12
2/1/13
5/1/13
8/1/13
11/1/13
2/1/14
5/1/14
8/1/14
11/1/14
2/1/15
5/1/15
8/1/15
11/1/15
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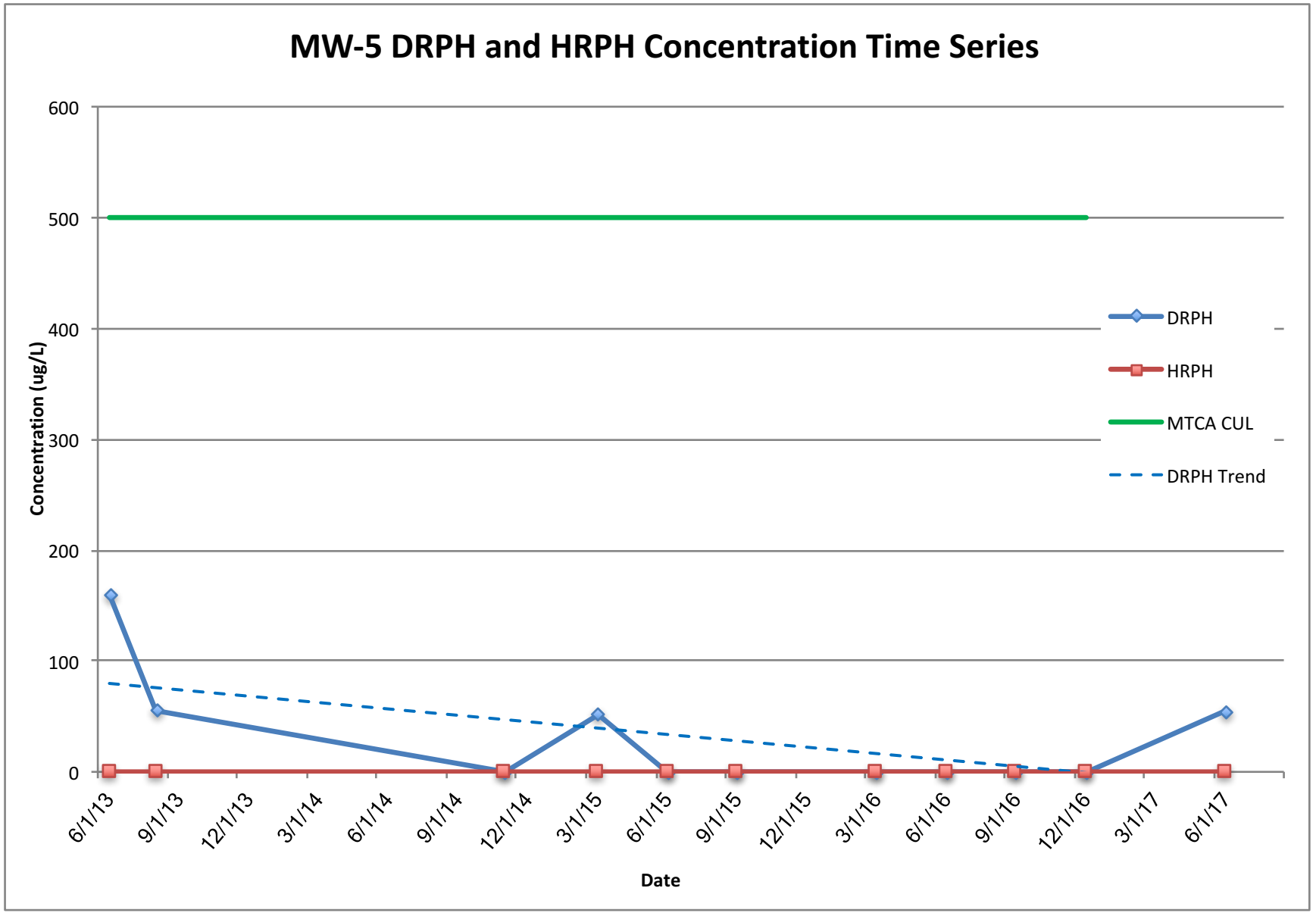
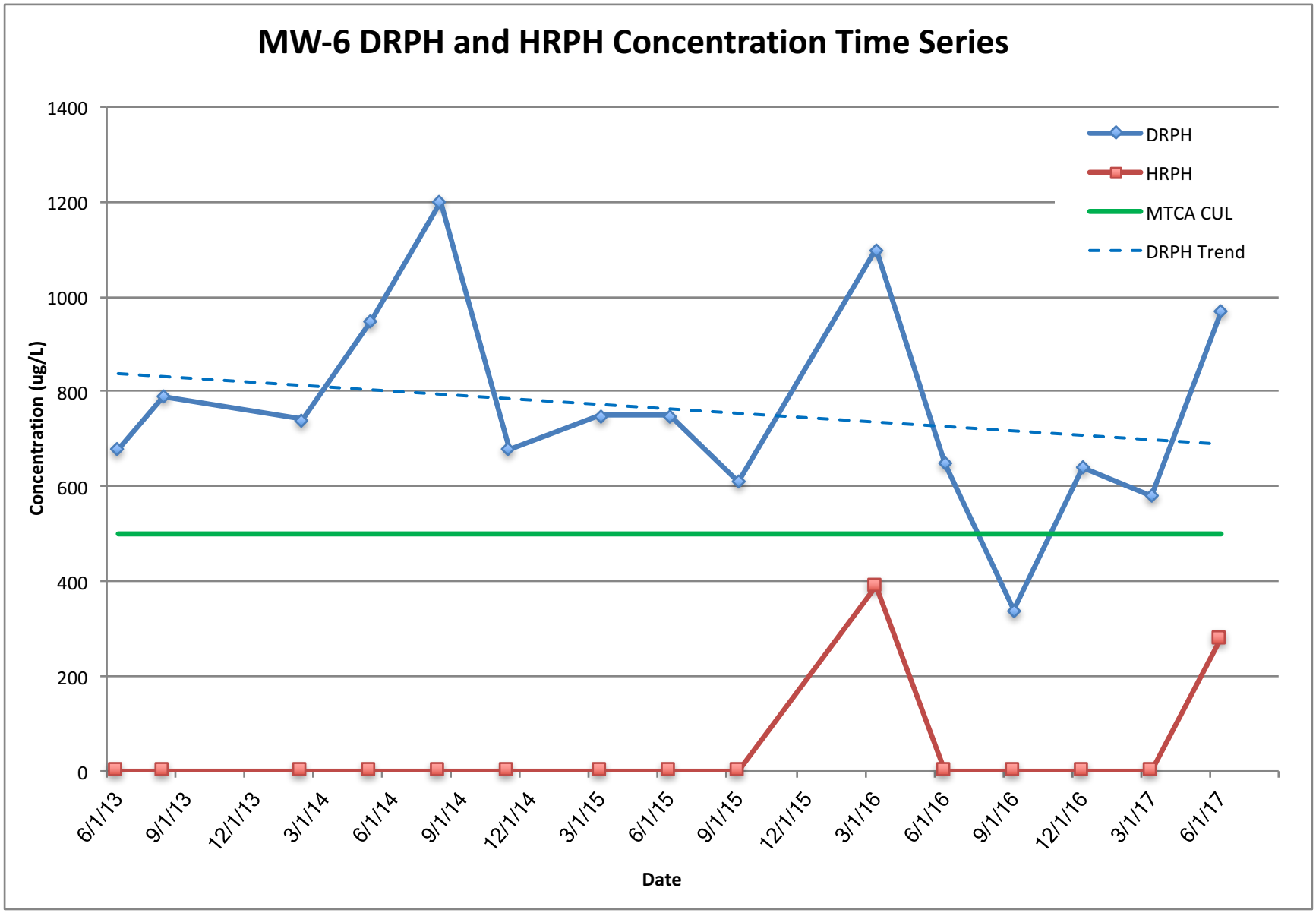
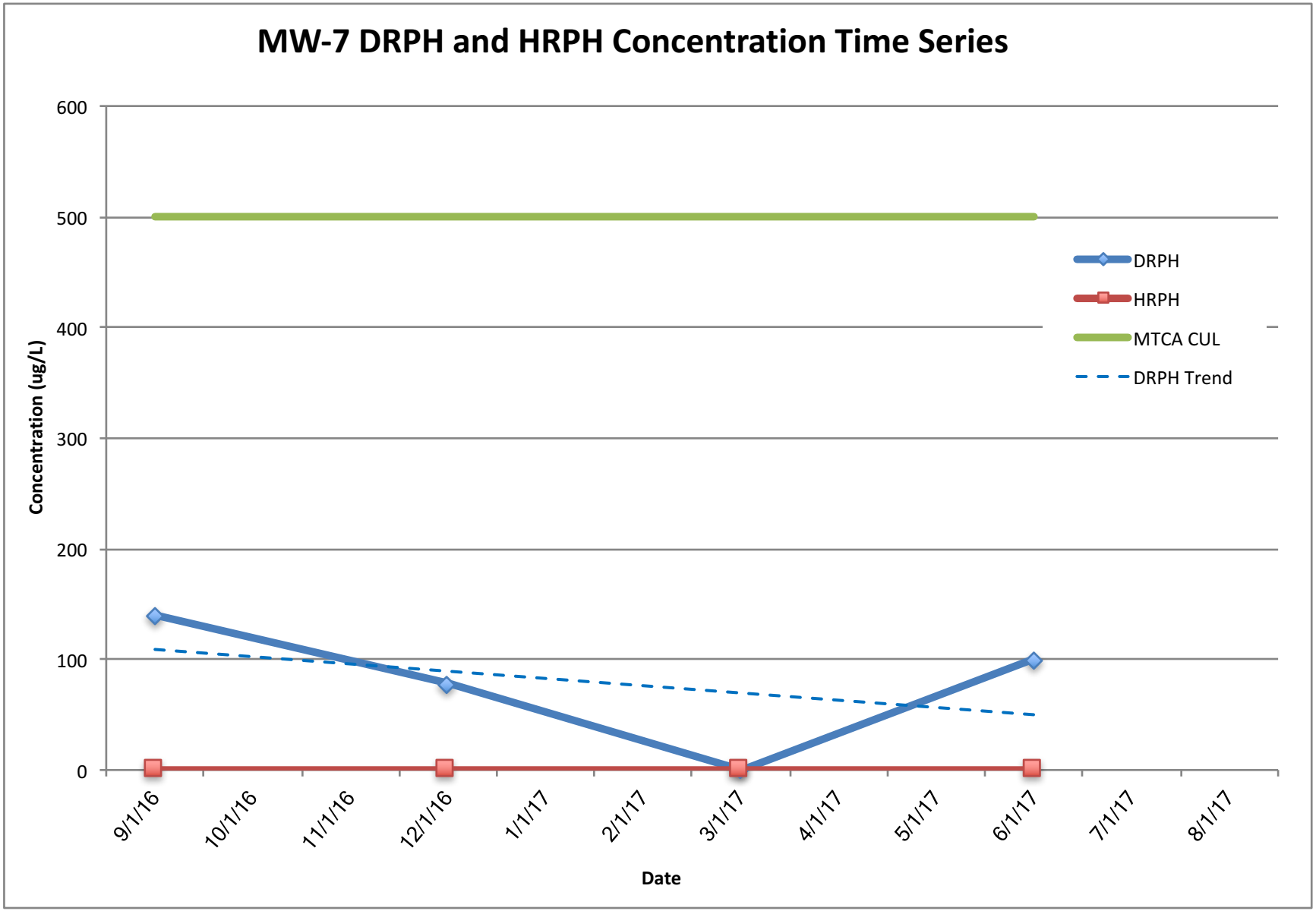
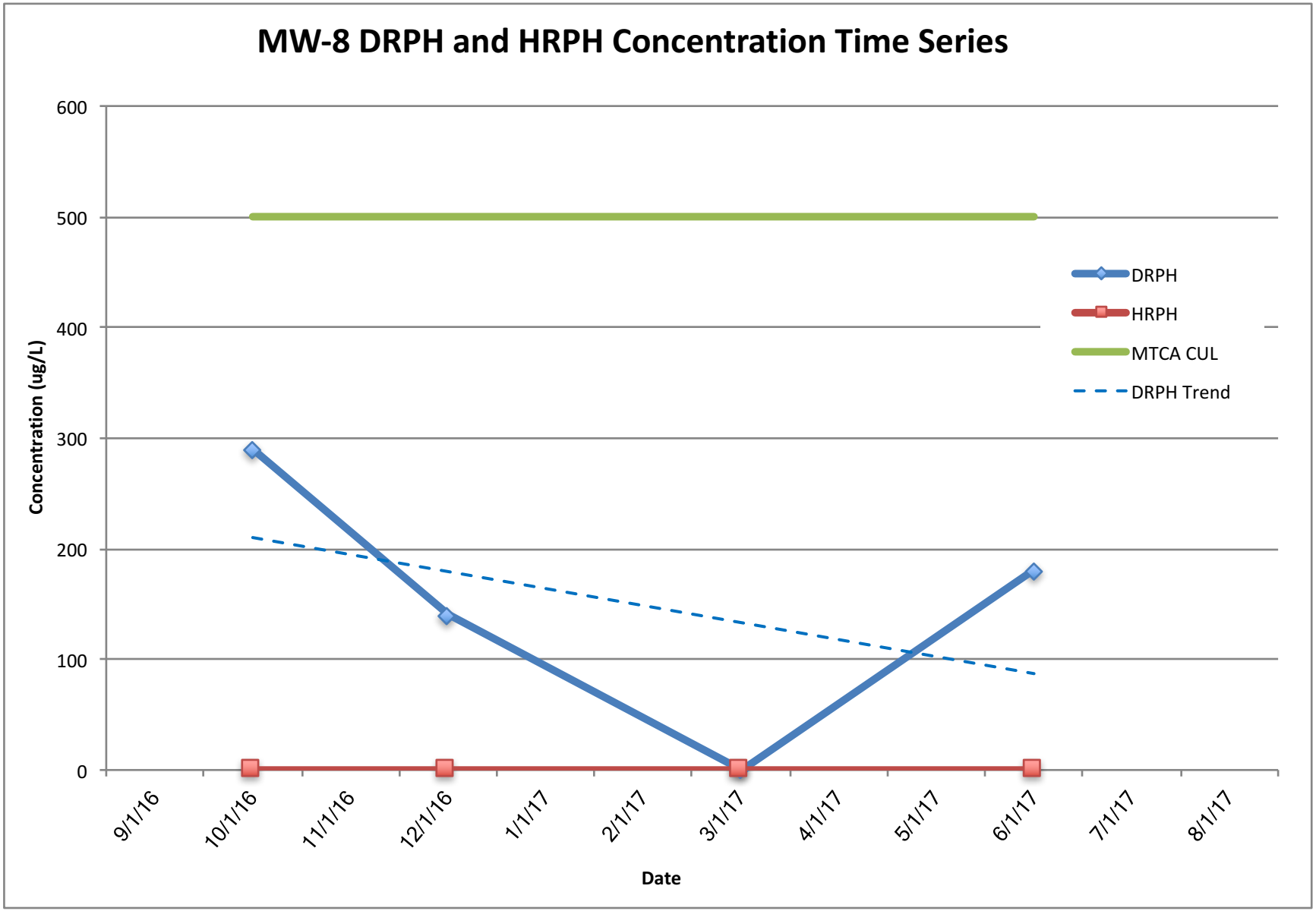
5/1/16
8/1/16
11/1/16
2/1/17
5/1/17
8/1/17
Date


MW-5 DRPH and HRPH Concentration Time Series
600
500
400
300
200
100
0
Concentration (ug/L)
DRPH
HRPH
MTCA CUL
DRPH Trend
6/1/13
9/1/13
12/1/13
3/1/14
6/1/14
9/1/14
12/1/14
3/1/15
6/1/15
9/1/15
12/1/15
3/1/16
6/1/16
9/1/16
12/1/16
3/1/17
6/1/17
Date


MW-6 DRPH and HRPH Concentration Time Series
Concentration (ug/L)
1400
1200
1000
800
600
400
200
0
6/1/13
9/1/13
12/1/13
3/1/14
6/1/14
9/1/14
12/1/14
3/1/15
6/1/15
9/1/15
12/1/15
3/1/16
6/1/16
9/1/16
12/1/16
3/1/17
6/1/17
Date
DRPH
HRPH
MTCA CUL
DRPH Trend


MW-7 DRPH and HRPH Concentration Time Series
600
500
400
300
200
100
0
Concentration (ug/L)
DRPH
HRPH
MTCA CUL
DRPH Trend
9/1/16
10/1/16
11/1/16
12/1/16
1/1/17
2/1/17
3/1/17
4/1/17
5/1/17
6/1/17
7/1/17
8/1/17
Date


MW-8 DRPH and HRPH Concentration Time Series
600
500
400
300
200
100
0
Concentration (ug/L)
9/1/16
10/1/16
11/1/16
12/1/16
1/1/17
2/1/17
3/1/17
4/1/17
5/1/17
6/1/17
7/1/17
8/1/17
Date
DRPH
HRPH
MTCA CUL
DRPH Trend