WSDOT

SR 520 BRIDGE REPLACEMENT AND HOV PROGRAM

LETTER OF TRANSMITTAL

To:	Julia Mizuhata	**Contract & Task Order:**	Y-11848 DA
From:	Todd Harrison *(obo Ron Paananen)*	**File Code:**	Y-11848 DA 4.1.25
Date:	May 10th, 2024		
Copies To:	WSDOT Document Control Project Files	**LOT #:**	LOT-2868

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We are transmitting the following materials:

Y-11848 DA 4.1.25 - Final Q8 Groundwater Monitoring Report

Comments:

Please find the above document(s) enclosed. We are submitting the *Final Q8 Groundwater Monitoring Report* in accordance with Contract Y-11848, Task Order DA, Deliverables 4.1.25.

Program Engineering Manager

5/20/2024
Date

Wells Fargo Building
999 Third Ave., Suite 2300
Seattle, WA 98104
Phone: 206-770-3500

MEMORANDUM

To: Ron Paananen, HDR

From: Joseph Sawdey, LG, LHG
Meg Strong, LG, LHG
Shannon & Wilson

Date: May 8, 2024

Copies To: Robyn Boyd
Dave Becher
Margaret Kucharski

Contract & Task Order: DA Deliverable 4.1.25

File Code:

Subject: Groundwater Monitoring Memorandum – Quarter No. 8, Voluntary Cleanup Program NW3242, Montlake Gas Station, Seattle, Washington

Background

In 2019, the Washington State Department of Transportation (WSDOT) entered the Former Montlake Gas Station property located in Seattle, Washington (site), into the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP).

As part of the VCP application, Shannon & Wilson submitted a Remedial Investigation (RI) work plan and a subsequent RI report to Ecology, on behalf of WSDOT. The RI report included investigation data that was used to characterize the nature and extent of petroleum hydrocarbon contamination in soil and groundwater associated with historic fueling operations at the site (Shannon & Wilson, 2020).

In 2021, PBS Engineering and Environmental prepared and submitted to Ecology a Remedial Action Plan detailing the proposed remediation excavation activities for the site (PBS, 2021a). In August and September 2021, PBS oversaw the closure and removal of the site's underground storage tanks and piping, as well as the excavation of the associated petroleum-contaminated soil source zone (source zone), as documented in the Remedial Action Completion Report (PBS, 2021b). Soil compliance has been achieved at the site, as documented by confirmation sampling performed by PBS during the remedial excavation.

Groundwater compliance is currently being evaluated. On April 19 and 20, 2022, Shannon & Wilson installed additional compliance groundwater monitoring (CGM) wells at the site following Ecology recommendations (Shannon & Wilson, 2022a). The CGM well network

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for the site previously consisted of six monitoring wells: MW-2-19, MW-3-19, MW-6-22, MW-7-22, MW-8-22, and MW-9-22. The monitoring wells have been surveyed and locations are depicted in Exhibit 1.

Ecology has approved decommissioning five (5) of the CGM wells. Ecology approval was provided after a minimum of five (5) consecutive quarterly sampling results at these locations demonstrated groundwater compliance had been achieved within the site property. On July 10, 2023, MW-7-22 was decommissioned, and on March 4, 2024, MW-2-19, MW-6-22, MW-8-22, and MW-9-22 were decommissioned. Decommissioning logs for the wells are provided in Attachment 1.

The CGM well network now consists of MW-3-19, which is the one remaining site monitoring well in which quarterly sampling has not met groundwater compliance. This memorandum presents the results of Quarter No. 8 CGM and documents the continued effect(s) of the source zone removal on site groundwater quality. Results of the Quarter Nos. 1 through 7 CGM have been presented previously under a separate cover (Shannon & Wilson, 2022b, 2022c, 2023a, 2023b, and 2023c, 2023d, 2024a). Per Ecology's guidance, the Quarter No. 8 event was limited to sampling only MW-3-19.

Quarter No. 8 Groundwater Monitoring Activities

Well Gauging

On February 13, 2024, Shannon & Wilson gauged MW-3-19 to monitor for the presence of free product and to measure groundwater elevation at the well. Measurable free product was not encountered within MW-3-19 during Quarter No. 8 gauging; however, a petroleum odor was noted during the removal of the oxygen-releasing compound (ORC®) socks from the well in preparation for the gauging and groundwater sample collection (see next section).

Groundwater Sampling

On February 13, 2024, prior to sampling activities at MW-3-19, Shannon & Wilson removed the three Regenesis ORC® socks from the well. The well was then allowed to equilibrate for six days prior to collecting groundwater samples. On February 19, 2024, Shannon & Wilson purged MW-3-19 using a peristaltic pump with a flow-through cell and a water quality meter to measure the following field parameters: temperature, oxidation-reduction potential, pH, conductivity, dissolved oxygen, turbidity, salinity, and total dissolved solids. Field parameters collected during purging of the CGM wells can be found in Attachment 2 – Groundwater Sampling Field Forms. Upon stabilization of the field parameters during well purging (indicating steady groundwater flow to the well), groundwater samples were collected from MW-3-19 by discharging groundwater from the end of the peristaltic tubing into clean, laboratory-supplied containers. Collected groundwater samples were immediately put on ice and stored within an insulated cooler. Groundwater samples from MW-3-19 were delivered to OnSite Environmental Inc. of Redmond, Washington (OnSite), under standard chain-of-custody procedures and analyzed for:

- Gasoline-range petroleum hydrocarbons using Ecology's Northwest Total Petroleum Hydrocarbon (NWTPH)-Gasoline Extended Method;

- Benzene, toluene, ethylbenzene, and xylene by U.S. Environmental Protection Agency (EPA) Method 8260D;
- Diesel- and oil-range petroleum hydrocarbons using Ecology's NWTPH-Diesel Extended Method; and
- Total and dissolved arsenic by EPA Method 200.8.

For complete details on the groundwater sampling methodology, refer to the Sample Collection and Chemical Testing sections of the Work Plan (Shannon & Wilson, 2019).

ORC Sock Deployment

On February 19, 2024, following the completion of the Quarter No. 8 well gauging and groundwater sampling activities, Shannon & Wilson reinstalled the three Regenesis ORC® socks below the water table and within the screened portion of MW-3-19 due to continued contaminant detections at the well. The ORC® socks are a remedial technology designed by Regenesis to expedite and aid in the natural aerobic degradation process of petroleum hydrocarbon contaminants. The timeline for use is approximately one year, and the current ORC socks deployed in MW-3-19 will be replaced with new ORC® socks upon WSDOT approval.

Quarter No. 8 Results and Interpretation

Groundwater Elevation

Measured groundwater elevations for Quarter No. 8 are displayed in Exhibit 1 and reported in Exhibit 2. Groundwater elevations in North American Vertical Datum (of 1988) at MW-3-19 during February 2024 were approximately 0.5-foot higher compared to groundwater elevations gauged in November 2023. The higher groundwater elevations observed likely reflect the shallow groundwater response to the continued wet season.

As previously reported, the comparatively static nature of the groundwater elevation monitored at MW-3-19 is suggestive of hydraulic isolation from the more uniform groundwater flow regime encountered across the site. However, between Quarter Nos. 7 and 8, the groundwater elevation at MW-3-19 rose to the highest elevation monitored since the well was installed in 2019 (Exhibit 2).

Groundwater Sampling Results

The laboratory analytical results for collected groundwater samples are summarized in Exhibit 3. The laboratory report is included as Attachment 3. Exhibit 1 indicates which monitoring wells had groundwater sample contaminant concentrations that exceeded applicable cleanup levels (CULs) during the February 2024 sampling event.

Groundwater Sampling Interpretation

Groundwater samples from MW-3-19 contained contaminant concentrations that exceeded applicable CULs (Exhibits 1 and 3). During Quarter Nos. 2 and 3, groundwater samples from MW-3-19 were not collected because measurable free product was detected in the well. During Quarter Nos. 4 through 8, a petroleum odor and/or sheen was observed, but with no measurable product, and thus, groundwater samples were collected and analyzed.

Concentrations of gasoline-, diesel-, and lube oil-range petroleum hydrocarbons detected in MW-3-19 during Quarter No. 8 were lower compared to Quarter No. 7. The diesel-range petroleum hydrocarbon concentrations continue to be flagged as being influenced by the gasoline-range petroleum hydrocarbons (Exhibit 3). The concentrations of (1) gasoline-range and (2) diesel-range plus oil-range petroleum hydrocarbons measured in the CGM wells over time have been summarized as trend plots, and included as Exhibits 4 and 5, respectively.

Concentrations of benzene were higher compared to Quarter No. 7; however, the increase is slight, and previously benzene concentrations were trending downward from Quarter Nos. 2 through 7 (Exhibit 6). (Note: toluene, ethylbenzene, and xylene concentrations have not exceeded applicable CULs during any of the quarterly CGM events.)

Concentrations of dissolved arsenic were also lower, while total arsenic was slightly higher compared to Quarter No. 7. However, as was concluded in the Remedial Investigation (Shannon & Wilson, 2020), the subsurface petroleum hydrocarbon contamination is suspected to be mobilizing arsenic to groundwater due to the reducing/anaerobic geochemical subsurface conditions produced as a result of the site petroleum hydrocarbon contamination. As petroleum hydrocarbon concentrations continue to diminish (Exhibits 4 and 5), dissolved and total arsenic concentrations at MW-3-19 should also continue to diminish as the groundwater recovers to more oxidizing/aerobic conditions (re-immobilizing the naturally occurring arsenic). The concentrations of total and dissolved arsenic in CGM wells over time have been summarized in trend plots, included as Exhibit 7.

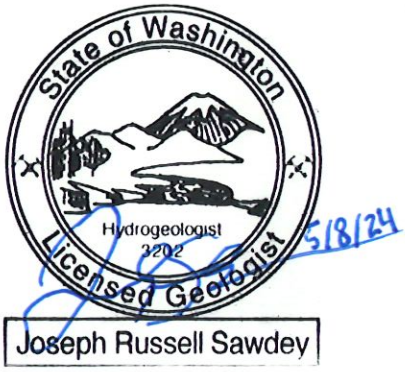
MW-3-19 is the most downgradient CGM well at the site, the furthest from the remedial excavation area, and is located outside the property boundary. The decreasing petroleum hydrocarbon concentrations observed at MW-3-19 during Quarter No. 8 may be reflective of the lagged timing that would be expected for remedial action to manifest in groundwater concentrations near this furthest downgradient well. Quarter No. 8 is the second consecutive monitoring event to document the decreasing trend of petroleum hydrocarbons at MW-3-19, potentially indicating removal of the source zone is becoming manifest in groundwater at this well location.

Given the ongoing exceedance of the compliance values in groundwater at well MW-3-19, it is recommended that monitoring be performed on a semiannual basis until compliance is met. The groundwater elevation data suggests high-stage for the site occurs in February and low-stage occurs in August. Shannon & Wilson recommends these two months for semiannual monitoring, in an attempt to capture the seasonally lowest and highest groundwater elevations as well as contaminant concentrations from the well.

We appreciate this opportunity to provide environmental services to you for this project. If you have questions regarding this letter, please contact the undersigned at (206) 632-8020.

Sincerely,

Shannon & Wilson



Joseph Sawdey, LG, LHG
Senior Hydrogeologist

Meg Strong, LG, LHG
Senior Consultant

JXS:MJS:JNB/meh:jxs

References

PBS Engineering and Environmental, 2021a, Remedial action plan, Montlake Gas Station, State Route 520 Montlake to Lake Washington Interchange and Bridge Replacement Project, Seattle, Washington: Report prepared by PBS, Seattle, Wash., project no. 41221.003, for Graham Contracting Ltd, Bellevue, Wash., March Seattle, Wash., March 2021.

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Shannon & Wilson, 2019, Data gaps investigation work plan/sampling and analysis plan for Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Workplan prepared by Shannon & Wilson, Seattle, Wash., 21-1-22242-101, for Washington State Department of Transportation, July.

Shannon & Wilson, 2020, Remedial investigation report for Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Report prepared by Shannon & Wilson, Seattle, Wash., 21-1-22242-104, for Washington State Department of Transportation, 1 v., March.

Shannon & Wilson, 2022a, Compliance groundwater monitoring well installation exhibit for Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Exhibit prepared by Shannon & Wilson, Seattle, Wash., 21-1-22242-104, for Washington State Department of Transportation, May 2022.

Shannon & Wilson, 2022b, Groundwater monitoring memorandum – quarter no. 1, voluntary cleanup program NW3242, Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Memorandum from Joseph Sawdey and Meg Strong, Shannon & Wilson, Seattle, Wash., 21-1-22242-104, to Ron Paananen, HDR, June 27.

Shannon & Wilson, 2022c, Groundwater monitoring memorandum – quarter no. 2, voluntary cleanup program NW3242, Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Memorandum from Joseph Sawdey and Meg Strong, Shannon & Wilson, Seattle, Wash., 21-1-22242-104, to Ron Paananen, HDR, October 6.

Shannon & Wilson, 2023a, Groundwater monitoring memorandum – quarter no. 3, voluntary cleanup program NW3242, Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Memorandum from Joseph Sawdey and Meg Strong, Shannon & Wilson, Seattle, Wash., 21-1-22242-104, to Ron Paananen, HDR, January 5.

Shannon & Wilson, 2023b, Groundwater monitoring memorandum – quarter no. 4, voluntary cleanup program NW3242, Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Memorandum from Joseph Sawdey and Meg Strong, Shannon & Wilson, Seattle, Wash., 21-1-22242-104, to Ron Paananen, HDR, March 30.

Shannon & Wilson, 2023c, Groundwater monitoring memorandum – quarter no. 5, voluntary cleanup program NW3442, Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Memorandum from Joseph Sawdey and Meg Strong, Shannon & Wilson, Seattle, Wash., 21-1-22242-104, to Ron Paananen, HDR, June 23.

Shannon & Wilson, 2023d, Groundwater monitoring memorandum – quarter no. 6, voluntary cleanup program NW3442, Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Memorandum from Joseph Sawdey and Meg Strong, Shannon & Wilson, Seattle, Wash., 21-1-22242-104, to Ron Paananen, HDR, October 30.

Shannon & Wilson, 2024a, Groundwater monitoring memorandum – quarter no. 7, voluntary cleanup program NW3442, Montlake Gas Station, SR 520 Bridge Replacement and HOV Program, Seattle, Washington: Memorandum from Joseph Sawdey and Meg Strong, Shannon & Wilson, Seattle, Wash., 21-1-22242-104, to Ron Paananen, HDR, January 22.

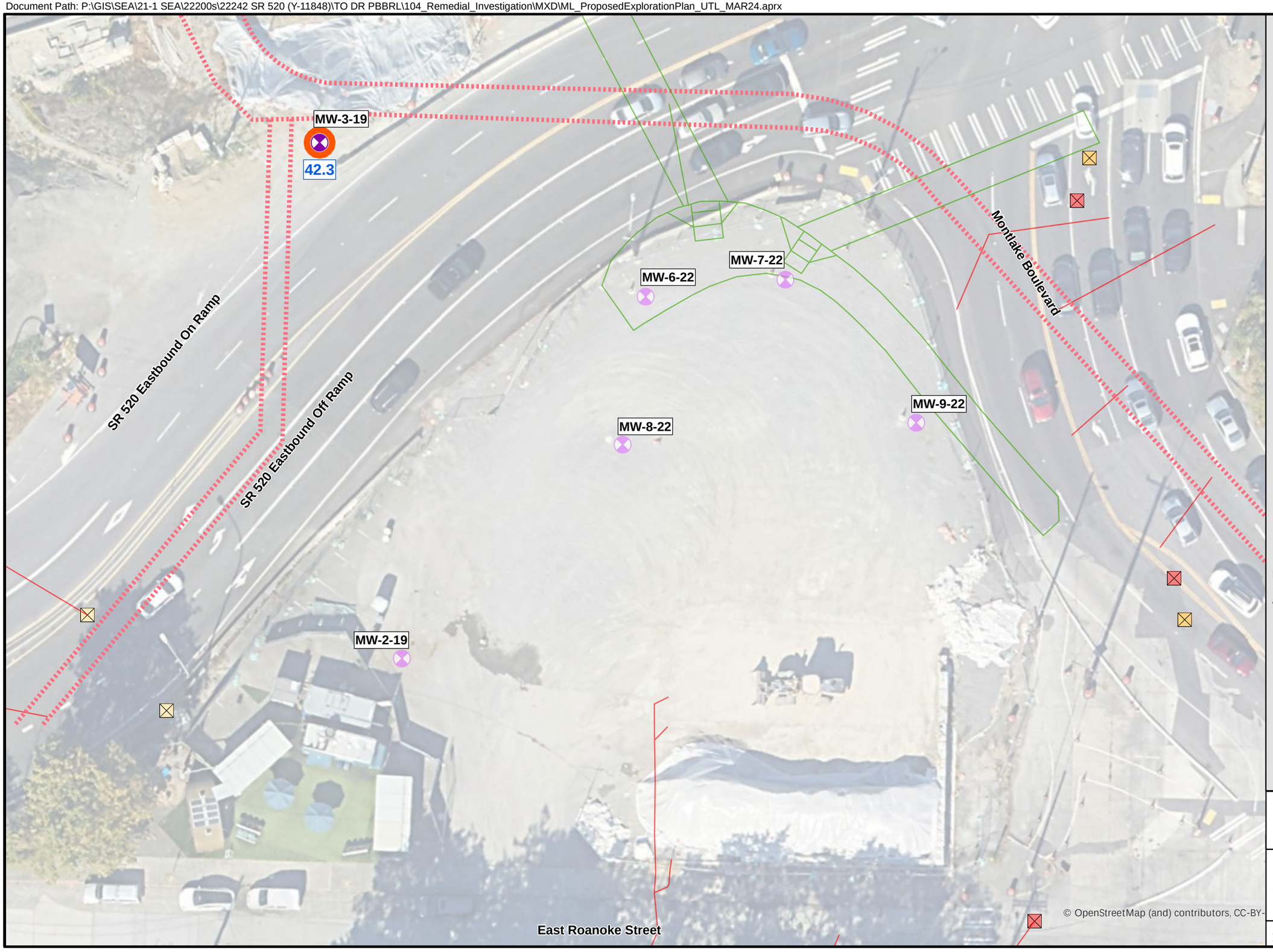
Exhibits

Exhibit 1 – Groundwater Potentiometric Surface Map with Groundwater Elevation
Exhibit 2 – Groundwater Level Measurements
Exhibit 3 – Summary of Groundwater Analytical Results
Exhibit 4 – Groundwater Concentration Trend Plot – Gasoline
Exhibit 5 – Groundwater Concentration Trend Plot – Diesel plus Oil
Exhibit 6 – Groundwater Concentration Trend Plot – Benzene
Exhibit 7 – Groundwater Concentration Trend Plot – Arsenic

Attachments

Attachment 1 – Groundwater Monitoring Well Decommissioning Logs
Attachment 2 – Groundwater Sampling Field Forms
Attachment 3 – Laboratory Report and Chain-of-Custody Form

Document Path: P:\GIS\SEA\21-1 SEA\22200s\22242 SR 520 (Y-11848)\TO DR PBBRL\104_Remedial_Investigation\MXD\ML_ProposedExplorationPlan_UTL_MAR24.aprx



LEGEND

Decommissioned Monitoring Well Location and Designation

Well With Groundwater Concentrations Exceeding Applicable Cleanup Levels

Groundwater Elevation at Monitoring Well (November 2023)

46.9

Existing Utility - Catch Basin

Existing Utility - Inlet

Existing Utility - Wastewater Pipe

Existing Utility - Sewer or Combined-Sewer Line

Approximate Post Construction Crosswalk/Sidewalk Configuration

NOTES:
1. All Existing Utility data should be considered approximate. City of Seattle, 2019.

N
W E
S

0 40
Feet

SR 520 Bridge Replacement and HOV Program
SR 520 I-5 to Montlake -I/C and Bridge Replacement
Groundwater Monitoring Report No. 8
2625 East Montlake Place East
Seattle, WA

GROUNDWATER POTENTIOMETRIC SURFACE MAP WITH GROUNDWATER ELEVATION

May 2024 21-1-22242-104

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

EXHIBIT 1

Montlake Gas Station Monitoring Well	Screened Interval (feet bgs)	Surveyed Monitoring Well Elevation[1] (feet)	TOC Elevation (feet)	Date	Depth to Water (feet below TOC)	Groundwater Elevation (feet)
MW-2-19	10 to 20	58.87	58.12	10/17/2019	10.1	48.0
				5/2/2022	8.3	49.8
				8/16/2022	9.4	48.7
				11/15/2022	9.9	48.2
				2/14/2023	8.4	49.8
				5/17/2023	8.6	49.6
				8/9/2023	9.8	48.3
				11/17/2023	8.2	49.9
				2/19/2024[2]	-	-
MW-3-19	10 to 25	59.29	59.01	10/17/2019	17.4	41.6
				5/2/2022	17.3	41.8
				8/16/2022	17.4	41.6
				11/15/2022	17.5	41.5
				2/14/2023	17.5	41.6
				5/17/2023	17.4	41.6
				8/25/2023	17.5	41.6
				11/17/2023	17.2	41.8
				2/19/2024	16.7	42.3
MW-6-22	11 to 26	59.71	59.36	5/2/2022	12.2	47.2
				8/16/2022	13.9	45.5
				11/15/2022	14.9	44.4
				2/14/2023	12.5	46.8
				5/17/2023	13.0	46.4
				8/9/2023	14.7	44.7
				11/17/2023[3]	-	-
				2/19/2024[2]	-	-

Montlake Gas Station Monitoring Well	Screened Interval (feet bgs)	Surveyed Monitoring Well Elevation[1] (feet)	TOC Elevation (feet)	Date	Depth to Water (feet below TOC)	Groundwater Elevation (feet)
MW-7-22	10.5 to 25.5	59.68	59.18	5/2/2022	12.1	47.1
				8/17/2022	13.8	45.4
				11/15/2022	14.8	44.4
				2/14/2023	12.4	46.8
				5/17/2023	12.8	46.3
				7/5/2023[4]	13.9	45.2
MW-8-22	10.5 to 25.5	58.90	58.55	5/2/2022	11.3	47.2
				8/16/2022	13.0	45.6
				11/15/2022	14.0	44.5
				2/14/2023	11.6	46.9
				5/17/2023	12.1	46.5
				8/9/2023	13.8	44.8
				11/17/2023	9.6	49.0
				2/19/2024[2]	-	-
MW-9-22	10 to 25	59.93	59.58	5/2/2022	12.4	47.2
				8/17/2022	14.1	45.5
				11/15/2022	15.1	44.5
				2/14/2023	12.7	46.9
				5/17/2023	13.1	46.4
				8/3/2023	14.9	44.7
				11/17/2023	10.7	48.9
				2/19/2024[2]	-	-

NOTES:

1 Monitoring well elevation was surveyed from the center of the well monument lid.

2 Monitoring well elevations were not surveyed in wells that were not sampled.

3 Monitoring well was inaccessible; no measurement was taken.

4 MW-7-22 was gauged and sampled prior to it being decomissioned on 7/10/2022 by Graham.

The reference vertical datum is the North American Vertical Datum (of 1988).

bgs = below ground surface; TOC = top of casing

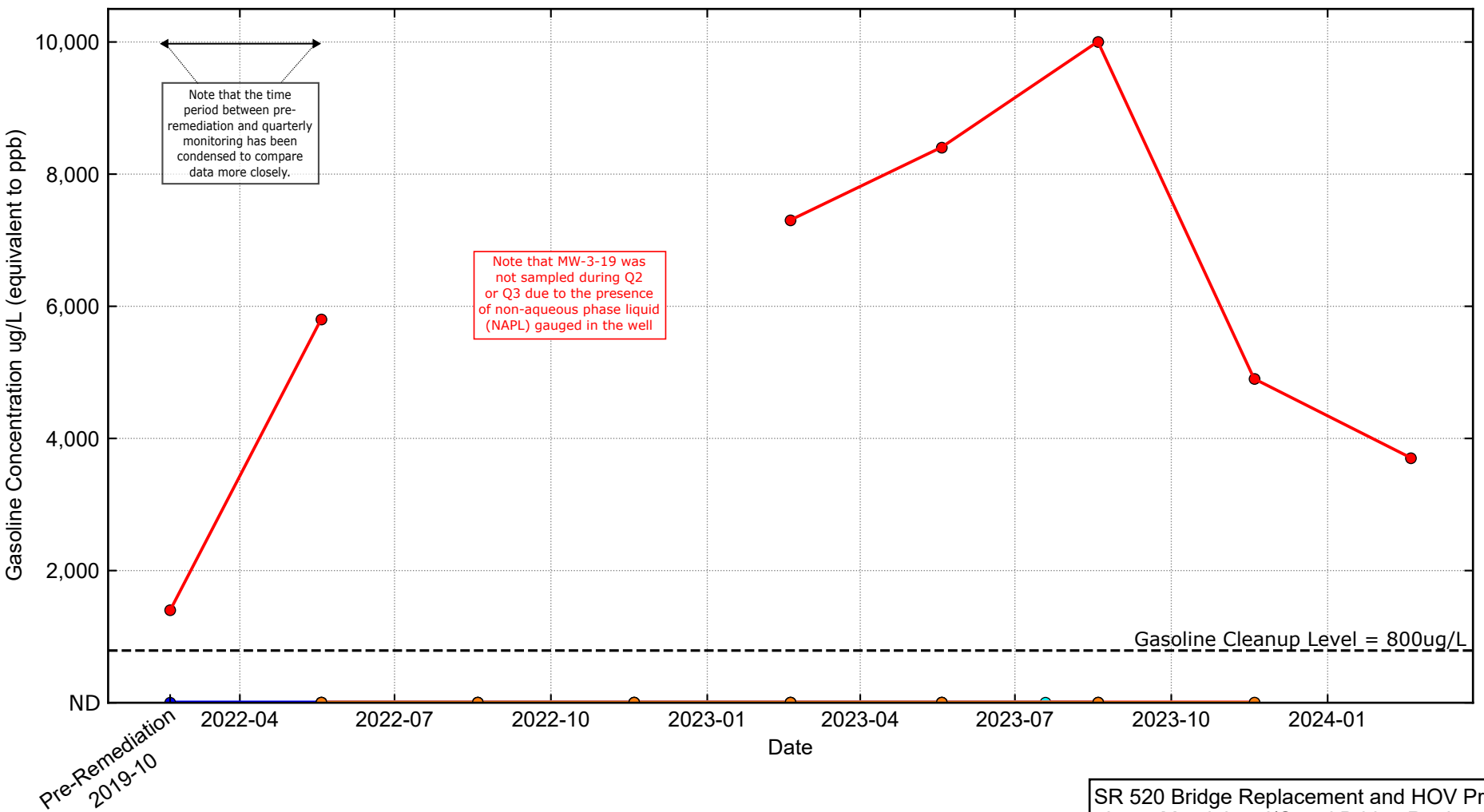
EXHIBIT 3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

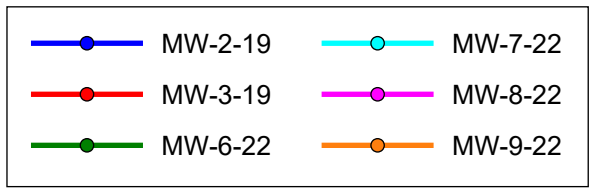
		Petroleum Hydrocarbons (µg/L)			Volatile Organic Compounds (µg/L)[3]					Metals (µg/L)[4]	
Montlake Gas Station Monitoring Well	Sample Date	Gasoline Range Organics[1]	Diesel Range Organics[2]	Lube Oil Range Organics[2]	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Total Arsenic	Dissolved Arsenic
MW-2-19	10/17/2019	<100	<260	<420	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	5/2/2022	<100	<180	<240	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	8/16/2022	<100	<130	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	11/15/2022	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	2/14/2023	<100	<200	<200	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	5/17/2023	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	8/9/2023	<100	<110	<220	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
MW-3-19 [5]	10/17/2019	**1400**	**630**	**660**	**98**	<4	**24**	**9.3**	**1.1**	**17**	**7.4**
	5/2/2022	**5800**	**1300 M**	**500**	**170**	<10	**190**	**220**	**3.2**	**16**	**11**
	2/14/2023	**7300**	**2100 M**	**320**	**140**	<5.0	**72**	**94**	**2.3**	**22**	**13**
	5/17/2023	**8400**	<1700 M	**340**	**100**	<20	**79**	**120**	<4.0	**25**	**14**
	8/25/2023	**10000**	**2900 M**	**320**	**82**	<20	**37**	**90**	<4.0	**24**	**21**
	11/18/2023	**4900**	**1700 M**	**320**	**43**	<10	**11**	**22**	<2.0	**20**	**21**
	2/19/2024	**3700**	**1300 M**	**290**	**67**	<20	**8.5**	**10**	<4.0	**21**	**15**
MW-6-22	5/2/2022	<100	**210**	**330**	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	8/16/2022	<100	<130	**290**	<0.20	<1.0	<0.20	<0.40	<0.20	**6.3**	**4.5**
	11/15/2022	<100	<200	<200	<0.20	<1.0	<0.20	<0.40	<0.20	**7.3**	**4.6**
	2/14/2023	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	5/17/2023	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	8/9/2023	<100	<100	<210	<0.20	<1.0	<0.20	<0.40	<0.20	**4.6**	<3.0
	8/25/2023	--	<160	<160	--	--	--	--	--	--	--
MW-7-22	5/2/2022	<100	<170	<230	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	8/17/2022	<100	<130	**250**	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	11/15/2022	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	11/15/2022	<100	<210	**220**	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	2/14/2023	<100	<200	<200	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	5/17/2023	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	7/6/2023	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0

EXHIBIT 3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

		Petroleum Hydrocarbons (µg/L)			Volatile Organic Compounds (µg/L)[3]					Metals (µg/L)[4]	
Montlake Gas Station Monitoring Well	Sample Date	Gasoline Range Organics[1]	Diesel Range Organics[2]	Lube Oil Range Organics[2]	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Total Arsenic	Dissolved Arsenic
MW-8-22	5/2/2022	<100	<170	<220	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	5/2/2022	<100	<170	**240**	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	8/16/2022	<100	<130	**360**	<0.20	<1.0	<0.20	<0.40	<0.20	**6.6**	**3.8**
	8/16/2022	<100	<140	**340**	<0.20	<1.0	<0.20	<0.40	<0.20	**6.5**	**4.3**
	11/15/2022	<100	<200	<200	<0.20	<1.0	<0.20	<0.40	<0.20	**6**	**5.7**
	2/14/2023	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	**4.2**	<3.0
	2/14/2023	<100	<200	<200	<0.20	<1.0	<0.20	<0.40	<0.20	**4.4**	<3.0
	5/17/2023	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	**4**	<3.0
	5/17/2023	<100	<220	<220	<0.20	<1.0	<0.20	<0.40	<0.20	**4.1**	<3.0
	8/9/2023	<100	<110	**260**	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	8/9/2023	<100	<110	<230	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	11/17/2023	<100	<110	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	11/17/2023	<100	<110	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
MW-9-22	5/2/2022	<100	<160	<220	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	8/17/2022	<100	**1900**	<300	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	11/15/2022	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	2/14/2023	<100	<210	<210	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	**3.0**
	5/17/2023	<100	<220	<220	<0.20	<1.0	<0.20	<0.40	<0.20	**3.9**	<3.0
	8/9/2023	<100	<110	**310**	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
	11/17/203	<100	<100	<200	<0.20	<1.0	<0.20	<0.40	<0.20	<3.3	<3.0
Trip Blank	5/2/2022	<100	--	--	<0.20	<1.0	<0.20	<0.40	<0.20	--	--
	8/18/2022	<100	--	--	<0.20	<1.0	<0.20	<0.40	<0.20	--	--
	11/15/2022	<100	--	--	<0.20	<1.0	<0.20	<0.40	<0.20	--	--
	2/14/2023	<100	--	--	<0.20	<1.0	<0.20	<0.40	<0.20	--	--
	7/6/2021	<100	--	--	<0.20	<1.0	<0.20	<0.40	<0.20	--	--
	8/9/2023	<100	--	--	<0.20	<1.0	<0.20	<0.40	<0.20	--	--
	2/19/2024	<100	<0.16	<0.16	<0.20	<1.0	<0.20	<0.40	<0.20		
MTCA Method A CUL		**1000/800***	**500**	**500**	**5.00**	**1000**	**700**	**1000†**	**1000†**	**20§**	**20§**

NOTES:
1 Gasoline-range petroleum hydrocarbons using Washington State Department of Ecology's (Ecology's) NWTPH-Gasoline Extended Method
2 Diesel- and oil-range petroleum hydrocarbons using Ecology's NWTPH-Diesel Extended Method
3 Volatile organic compounds by EPA Method 8260D
4 Total and dissolved arsenic by EPA Method 200.8
5 In August and November 2022, MW-3-19 had measurable free product and was not sampled.
Highlighted text indicates the analyte was detected above the MTCA Method A CUL.
Highlighted text indicates the analyte was not detected; however, the practical quantitation limit is above the MTCA Method A CUL.
Bold text indicates the analyte was detected above laboratory practical quantitation limit.
M flag indicates hydrocarbons in the gasoline range are impacting the diesel range result.
* Cleanup level (CUL) for gasoline-range organics is 1,000 µg/L without the presence of benzene and 800 µg/L with the presence of benzene.
† MTCA Method A CUL for total xylenes is used because a MTCA Method A CUL is not established for the isomers of m-, p-, or o-xylene.
§ Site specific CUL for arsenic (total and dissolved) based on statistical analysis of natural background levels of arsenic in groundwater.
-- = not analyzed; < = not detected above laboratory reporting limit; CUL = cleanup level; EPA = U.S. Environmental Protection Agency; MTCA = Model Toxics Control Act; µg/L = micrograms per liter; NWTPH = Northwest Total Petroleum Hydrocarbon





Note: Gasoline concentrations non detect (ND) in MW-2-19, MW-6-22, MW-7-22, MW-8-22, and MW-9-22 while these CGM wells were included in quarterly sampling efforts.

SR 520 Bridge Replacement and HOV Program
I-5 to Montlake - I/C and Bridge Replacement
Groundwater Monitoring Report - Quarter No. 8

Groundwater Concentration Trend Plot - Gasoline

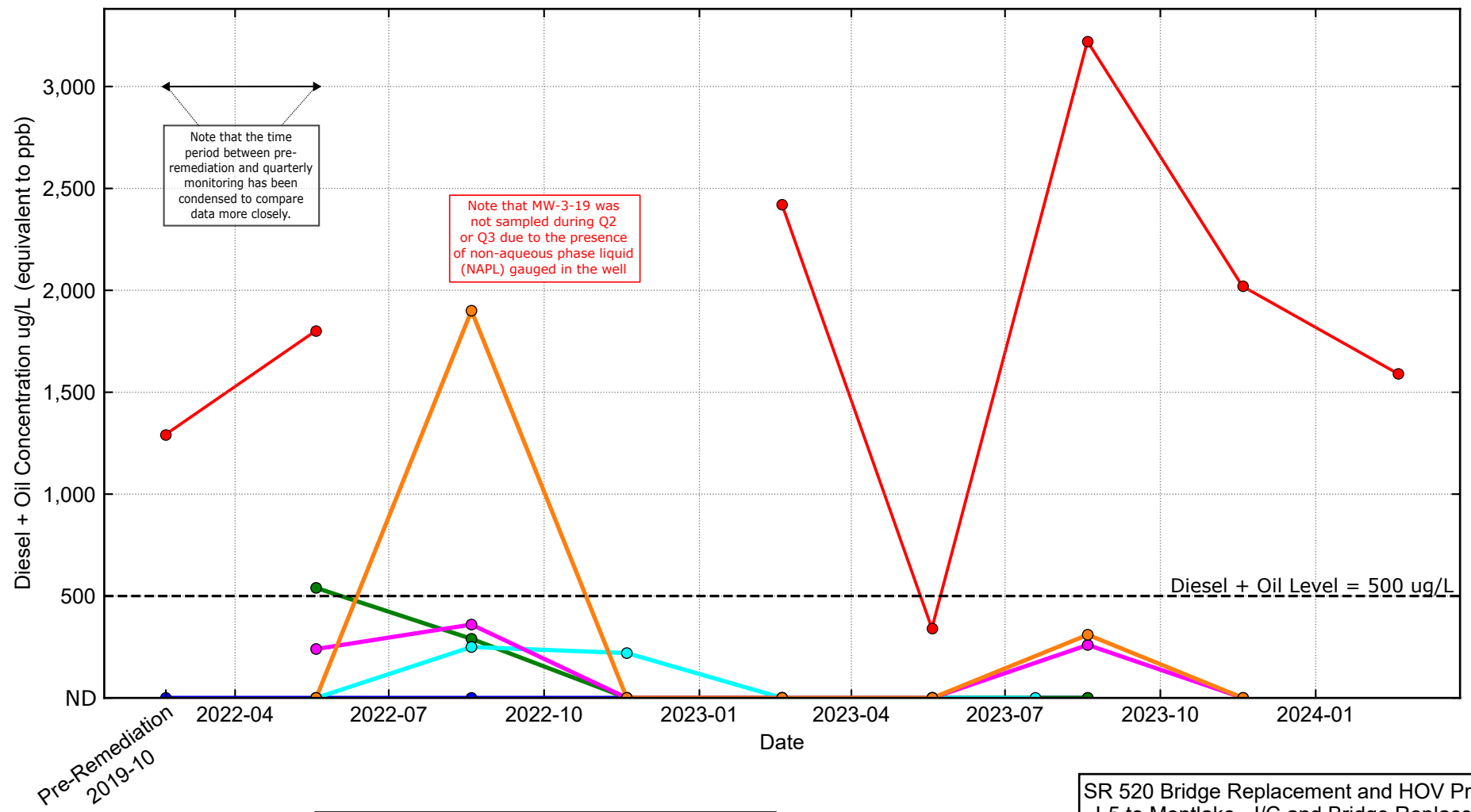
May 2024

21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXH. 4

EXH. 4



Note: Diesel/Oil concentrations non detect (ND) or below applicable cleanup levels levels for MW-2-19, MW-6-22, MW-7-22, MW-8-22, and MW-9-22 since November 2022 (Quarter No. 3) for a minimum of five subsequent (5) quarterly monitoring events.

EXH. 5

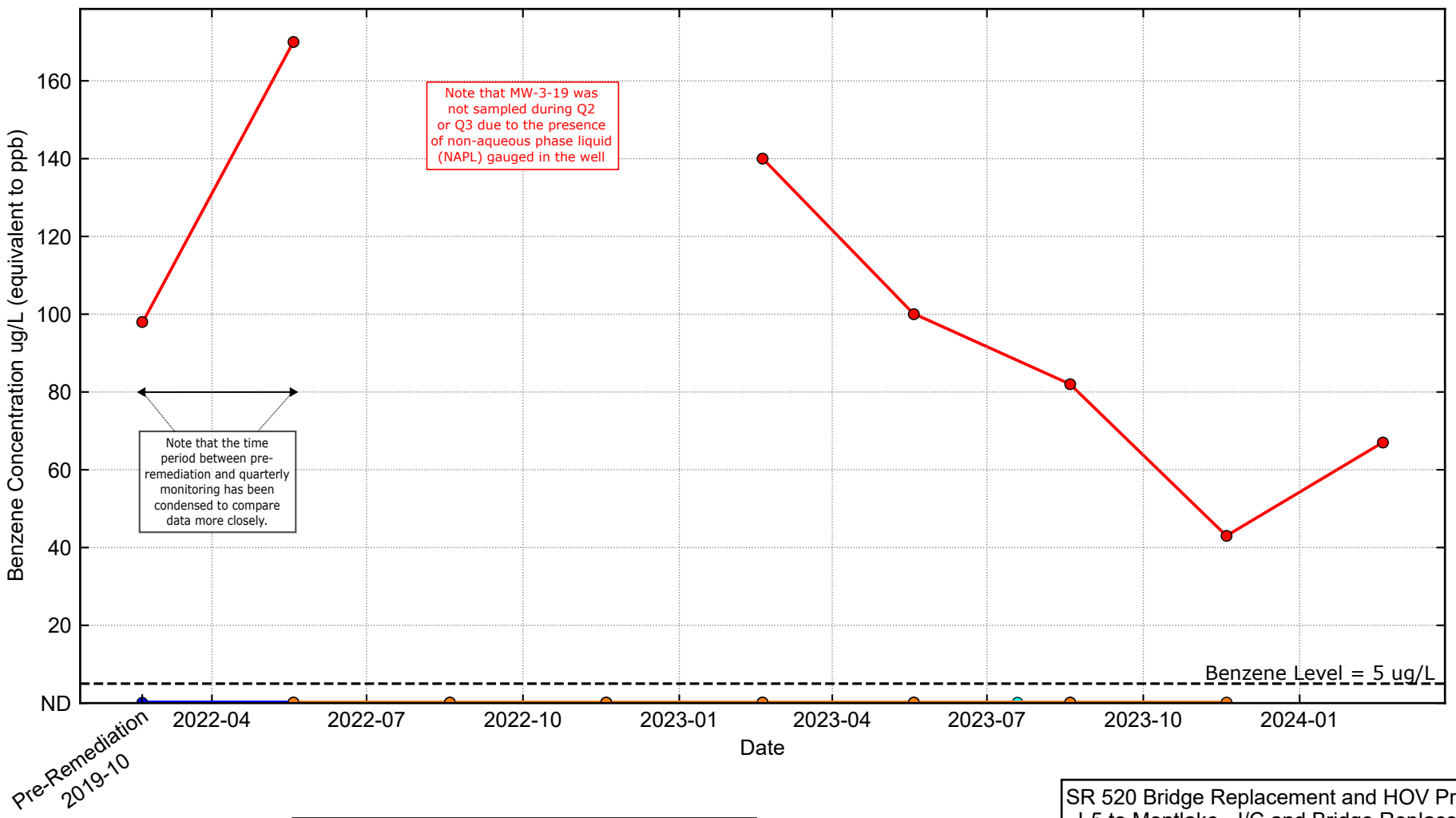
SR 520 Bridge Replacement and HOV Program
I-5 to Montlake - I/C and Bridge Replacement
Groundwater Monitoring Report - Quarter No. 8

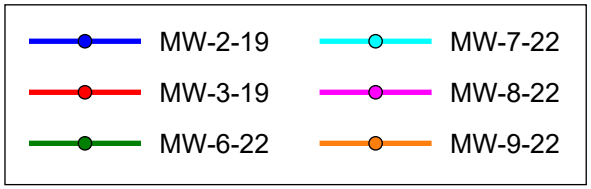
Groundwater Concentration Trend Plot - Diesel plus Oil

May 2024 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXH. 5





Note: Benzene concentrations non detect (ND) in MW-2-19, MW-6-22, MW-7-22, MW-8-22 and MW-9-22 while these CGM wells were included in quarterly sampling efforts.

SR 520 Bridge Replacement and HOV Program
I-5 to Montlake - I/C and Bridge Replacement
Groundwater Monitoring Report - Quarter No. 8

Groundwater Concentration Trend Plot - Benzene

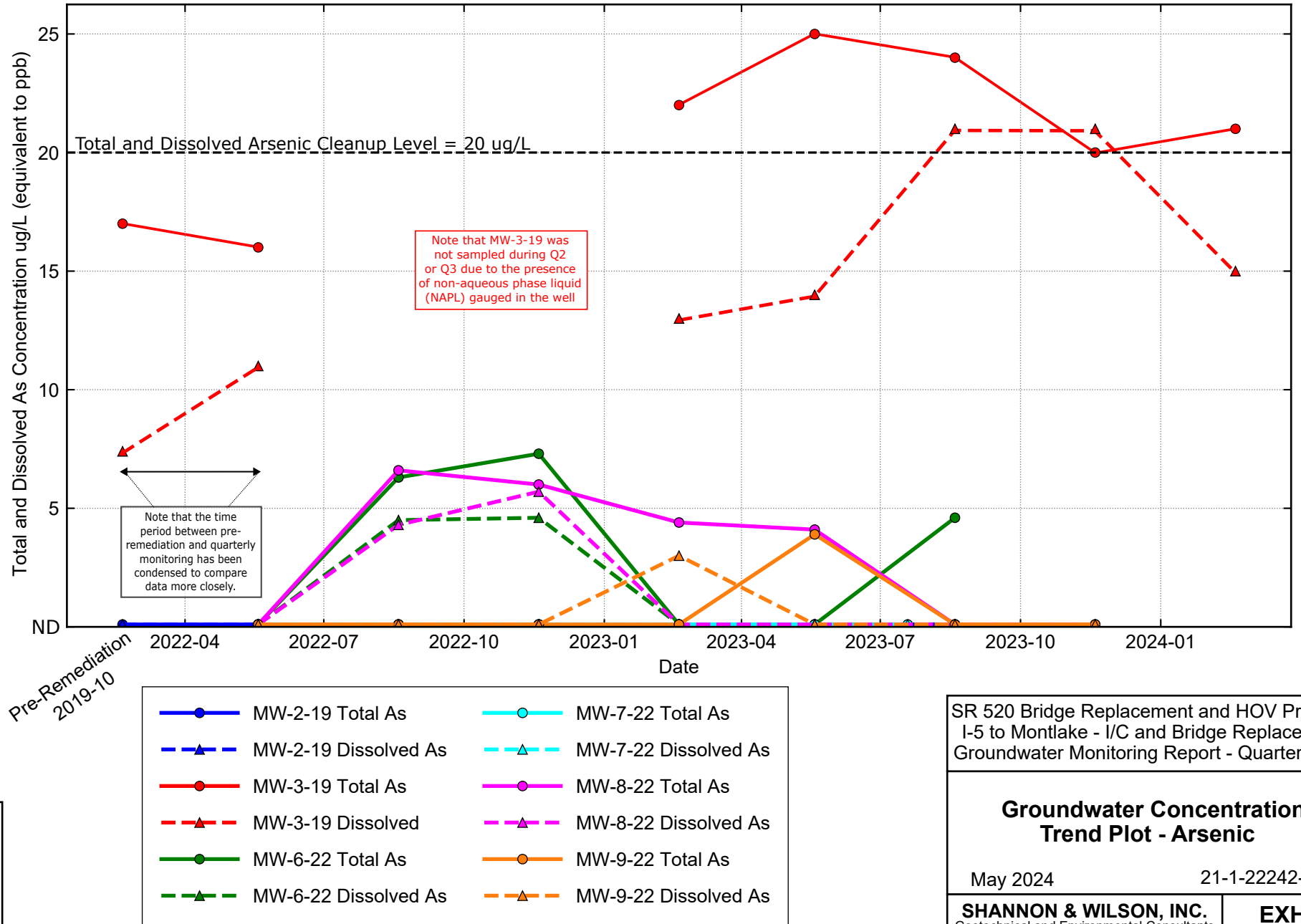
May 2024

21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXH. 6

EXH. 6



SR 520 Bridge Replacement and HOV Program
I-5 to Montlake - I/C and Bridge Replacement
Groundwater Monitoring Report - Quarter No. 8

Groundwater Concentration Trend Plot - Arsenic

May 2024 21-1-22242-104

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

EXH. 7

EXH. 7

Attachment 1

Contents:

Groundwater Monitoring Well Decommissioning Logs

DEPARTMENT OF ECOLOGY
State of Washington

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:

☐ Construction
■ Decommission ⇨ Original NOI No. RE 18174

Ecology Well ID Tag No. BLT - 996

Site Well Name MW--2-19

Consulting Firm Graham

Was a variance approved for this well/boring? ☐ Yes ■ No

If yes, what was the variance for? _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) Meron Okbay

Driller/Engineer/Trainee Signature _____

License No. 3260

Company Name In Situ Engineering

If trainee box is checked, sponsor's license number: _____

Sponsor's signature _____

Notice of Intent No. AE81669

Type of Well:

■ Resource Protection Well ☐ Injection Point
☐ Remediation Well ☐ Grounding Well
☐ Geotechnical Soil Boring ☐ Ground Source Heat Pump
☐ Environmental Boring ☐ Other _____

↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner WSDOT

Well Street Address 2625 E Montlake Place East

City Seattle County King

Tax Parcel No. _____

Location (see instructions): WWM ☐ or EWM ■

NE ¼-¼ NW ¼, Section 21 Town 25N Range 4E

Latitude (Example: 47.12345) _____

Longitude (Example: -120.12345) _____

(WGS 84 Coordinate System)

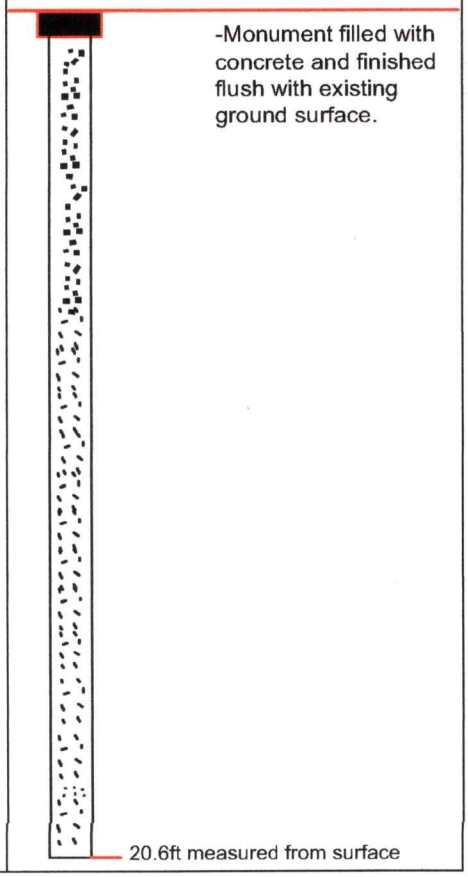
Borehole diameter 8 inches Casing diameter 2 inches

Static water level N/A ft below top of casing Date _____

☐ Above-ground completion with bollards ■ Flush monument

↳ Stick-up of top of well casing -0.75 ft above ground surface

Start Date 3/04/82024 Completed Date 3/04/2024

Construction Design	Well Data	Driller's Log
-Decommissioning of resource protection wells installed for SR-520 project, completed on 9-23-2019. -See Attached for Construction design. > Gravel Pack 8.0 - 20.0ft > Bentonite Chips backfill 2 - 8.0ft > Concrete Surface Seal 0 - 2ft	- Well found Sealed & Capped. - 2" PVC casing, Well ID tag found - Total measured depth 20.6ft. - Monument diameter = 9" - Well chipped from bottom of casing to top of casing using 3/8" bentonite chips. - Well monument filled and capped with concrete flush with surface. Chip used: ~ 34lbs	

ECOLOGY

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Notice of Intent No. RE18174

Type of Work:

☒ Construction

☐ Decommission ⇒ Original NOI No. _____

Ecology Well ID Tag No. BLT996

Site Well Name MW-2-19

Consulting Firm _____

Was a variance approved for this well/boring? ☐ Yes ☐ No

If yes, what was the variance for? _____

Type of Well:

☒ Resource Protection Well ☐ Injection Point

☐ Remediation Well ☐ Grounding Well

☐ Geotechnical Soil Boring ☐ Ground Source Heat Pump

☐ Environmental Boring ☐ Other _____

↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner Kemper Development Co.

Well Street Address 2625 E Montlake Pl E

City Seattle County King

Tax Parcel No. _____

Location (see instructions): WWM ☐ or EWM ☒

NE ¼-¼ NW ¼, Section 21 Town 25 Range 4E

Latitude (Example: 47.12345) _____

Longitude (Example: -120.12345) _____

(WGS 84 Coordinate System)

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

☐ Driller ☒ Trainee ☐ Engineer

Name (Print Last, First Name) Thrash, Corey

Driller/Engineer/Trainee Signature _____

License No. 3266T

Company Name Holocene Drilling Inc.

If trainee box is checked, sponsor's license number: 1850

Sponsor's signature _____

Borehole diameter 8 inches Casing diameter 2 inches

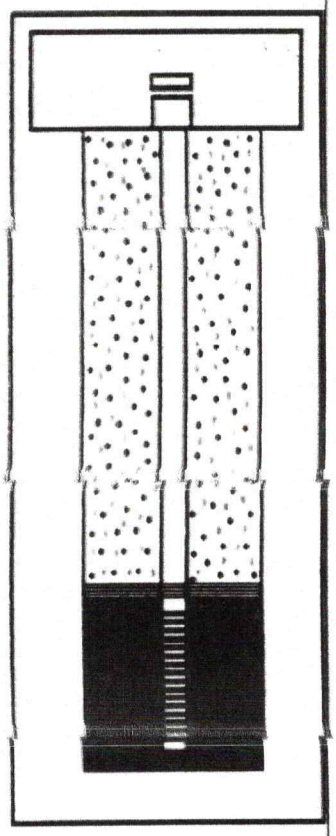
Static water level _____ ft below top of casing Date _____

☐ Above-ground completion with bollards ☒ Flush monument

↳ Stick-up of top of well casing _____ ft above ground surface

Start Date 9-23-19 Completed Date 9-23-19

Construction Design



Vault 0 FT

to 2 FT

Seal 2 FT

to 8 FT

Filter Pack 8 FT

to 20 FT

Well Data

Casing Diameter 2"

Casing Material PVC

☐ Welded ☒ Threaded ☐ Glued

Well Seal Material: Bentonite chips

Borehole Diameter:

8 From 0 to 20

____ From ____ to ____

Screen:

Material 2" PVC

From 10 to 20

Slot Size 10

Filter Pack:

Material Colorado Sands

Size 12/20

Driller's Log

silt & sands

0 FT - 20 FT

____ FT - ____ FT

____ FT - ____ FT

____ FT - ____ FT

RECEIVED
DEPT OF ECOLOGY
OCT 11 2019
WATER RESOURCES PROGRA
NORTHWEST REGIONAL OFFICE

The department of Ecology does NOT Warranty the Data and/or the Information on this Well Report

ECY 050-12


WA DEPARTMENT OF ECOLOGY
UNIQUE WELL #
BLT 996
DO NOT REMOVE TAG

DEPARTMENT OF ECOLOGY
State of Washington

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:

☐ Construction
■ Decommission ⇨ Original NOI No. RE 22804

Ecology Well ID Tag No. BNV - 407

Site Well Name MW--6-22

Consulting Firm Graham

Was a variance approved for this well/boring? ☐ Yes ■ No

If yes, what was the variance for? _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) Meron Okbay

Driller/Engineer/Trainee Signature _____

License No. 3260

Company Name In Situ Engineering

If trainee box is checked, sponsor's license number: _____

Sponsor's signature _____

Notice of Intent No. AE81672

Type of Well:

■ Resource Protection Well ☐ Injection Point
☐ Remediation Well ☐ Grounding Well
☐ Geotechnical Soil Boring ☐ Ground Source Heat Pump
☐ Environmental Boring ☐ Other _____
↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner WSDOT

Well Street Address 2625 E Montlake Place East

City Seattle County King

Tax Parcel No. _____

Location (see instructions): WWM ☐ or EWM ■

NE ¼-¼ NW ¼, Section 21 Town 25N Range 4E

Latitude (Example: 47.12345) 47.6436611

Longitude (Example: -120.12345) -122.3040758

(WGS 84 Coordinate System)

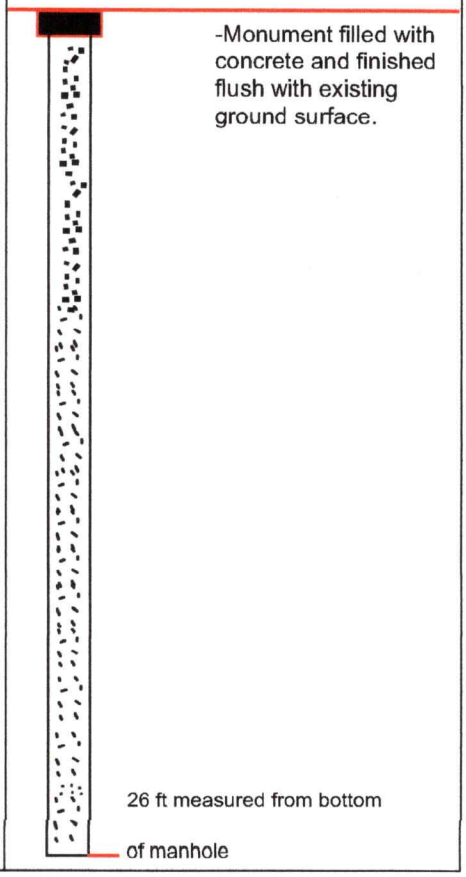
Borehole diameter 6 inches Casing diameter 2 inches

Static water level N/A ft below top of casing Date _____

☐ Above-ground completion with bollards ■ Flush monument

↳ Stick-up of top of well casing -2.0 ft above ground surface

Start Date 3/04/82024 Completed Date 3/04/2024

Construction Design	Well Data	Driller's Log
-Decommissioning of resource protection wells installed for SR-520 project, completed on 4-19-2022. -See Attached for Construction design. > Gravel Pack 9 - 26 ft > Bentonite Chips backfill 3 - 9 ft > Concrete Surface Seal 0 - 3ft	- Well found Sealed & Capped under 2ft deep manhole. - 2" PVC casing, Well ID tag found - Total measured depth 26 ft. - Monument diameter = 9" - Well chipped from bottom of casing to top of casing using 3/8" bentonite chips. - Well monument filled and capped with concrete flush with surface. Chip used: ~ 55 lbs	

The Department of Ecology does not warranty the data and or information on this well report.

DEPARTMENT OF ECOLOGY
State of Washington

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:

■ Construction
☐ Decommission ⇨ Original NOI No. _____

Ecology Well ID Tag No. **BNV 407**

Site Well Name **MW6-22**

Consulting Firm **Shannon & Wilson**

Was a variance approved for this well/boring? ☐ Yes ■ No

If yes, what was the variance for? _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) Staloch, Joe

Driller/Engineer/Trainee Signature _____

License No. 2749

Company Name Cascade Drilling

If trainee box is checked, sponsor's license number: _____

Sponsor's signature _____

Notice of Intent No. **RE22804**

Type of Well:

■ Resource Protection Well ☐ Injection Point
☐ Remediation Well ☐ Grounding Well
☐ Geotechnical Soil Boring ☐ Ground Source Heat Pump
☐ Environmental Boring ☐ Other _____

↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner **WSDOT**

Well Street Address **2625 E Montlake Place East**

City **Seattle** County **King**

Tax Parcel No. **880590-1085**

Location (see instructions): WWM ☐ or EWM ■

NE ¼-¼ **NW** ¼, Section **21** Town **25n** Range **4e**

Latitude (Example: 47.12345) 47.6436611

Longitude (Example: -120.12345) -122.3040758

(WGS 84 Coordinate System)

Borehole diameter **6** inches Casing diameter **2** inches

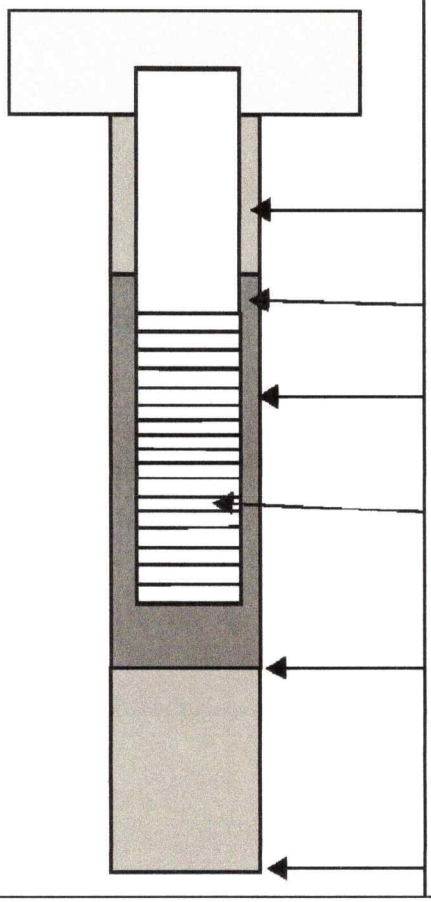
Static water level **9** ft below top of casing Date _____

☐ Above-ground completion with bollards ■ Flush monument

↳ Stick-up of top of well casing _____ ft above ground surface

Start Date April 19 2022 Completed Date April 21 2022

Construction Design



Well Data

Concrete Surface Seal Depth	0-3
Blank Casing (dia x dep)	2" 0-11
Material	PVC
Backfill	3-9
Type	Bentonite Chips
Seal	
Material	
Gravel Pack	9-26
Material	Sand 12x20
Screen (dia x dep)	2" 9-26
Slot Size	.010
Material	PVC
Well Depth	26
Backfill	
Material	
Total Hole Depth	26

Driller's Log

0	-	24	FT

Brown Sand, Gravel

24	-	26	FT

Black Sand, some Gravel Silt

____ - ____ FT

Received
Department of Ecology
August 25, 2023
Water Resources Program
NWRO

Cascade Drilling 110.22.1034


WA DEPARTMENT OF ECOLOGY
UNIQUE WELL#
BNV 407
DO NOT REMOVE TAG

DEPARTMENT OF ECOLOGY
State of Washington

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:

☐ Construction
■ Decommission ⇨ Original NOI No. RE 22804

Ecology Well ID Tag No. BNV 408

Site Well Name MW7-22

Consulting Firm Graham

Was a variance approved for this well/boring? ☐ Yes ■ No

If yes, what was the variance for? _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) Meron Okbay

Driller/Engineer/Trainee Signature _____

License No. 3260

Company Name In Situ Engineering

If trainee box is checked, sponsor's license number: _____

Sponsor's signature _____

Notice of Intent No. AE78636

Type of Well:

■ Resource Protection Well ☐ Injection Point
☐ Remediation Well ☐ Grounding Well
☐ Geotechnical Soil Boring ☐ Ground Source Heat Pump
☐ Environmental Boring ☐ Other _____
↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner WSDOT

Well Street Address 2625 E Montlake Place East

City Seattle County King

Tax Parcel No. _____

Location (see instructions): WWM ☐ or EWM ■

NE ¼-¼ NW ¼, Section 21 Town 25N Range 4e

Latitude (Example: 47.12345) 47.6437804

Longitude (Example: -120.12345) -122.3042301

(WGS 84 Coordinate System)

Borehole diameter 6 inches Casing diameter 2 inches

Static water level N/A ft below top of casing Date _____

☐ Above-ground completion with bollards ■ Flush monument

↳ Stick-up of top of well casing -0.75 ft above ground surface

Start Date 7/10/2023 Completed Date 7/10/2023

Construction Design

-Decommissioning of resource protection wells installed for SR-520 project, completed on 04/21/2022.

-See Attached for Construction design.
> Gravel Pack 8.5 - 25.5ft
> Bentonite Chips backfill 3 - 8.5ft
> Concrete Surface Seal 0 - 3ft

Well Data

- Well found Sealed & Capped.
- 2" PVC casing, Well ID tag found
- Total measured depth 26ft.
- Monument diameter = 9"

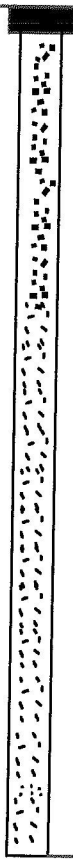
- Well chipped from bottom of casing to top of casing using 3/8" bentonite chips.

- Well monument filled and capped with concrete flush with surface.

Theoretical Chip Volume: 39lbs

Actual Chip used: ~ 37lbs

Driller's Log



-Monument filled with concrete and finished flush with existing ground surface.

26ft measured from surface

DEPARTMENT OF ECOLOGY
State of Washington

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:

☐ Construction
■ Decommission ⇨ Original NOI No. RE 22804

Ecology Well ID Tag No. BNV - 406

Site Well Name MW--8-22

Consulting Firm Graham

Was a variance approved for this well/boring? ☐ Yes ■ No

If yes, what was the variance for? _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) Meron Okbay

Driller/Engineer/Trainee Signature _____

License No. 3260

Company Name In Situ Engineering

If trainee box is checked, sponsor's license number: _____

Sponsor's signature _____

Notice of Intent No. AE81671

Type of Well:

■ Resource Protection Well ☐ Injection Point
☐ Remediation Well ☐ Grounding Well
☐ Geotechnical Soil Boring ☐ Ground Source Heat Pump
☐ Environmental Boring ☐ Other _____

↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner WSDOT

Well Street Address 2625 E Montlake Place East

City Seattle County King

Tax Parcel No. _____

Location (see instructions): WWM ☐ or EWM ■

NE ¼-¼ NW ¼, Section 21 Town 25N Range 4E

Latitude (Example: 47.12345) 47.6436358

Longitude (Example: -120.12345) -122.3043923

(WGS 84 Coordinate System)

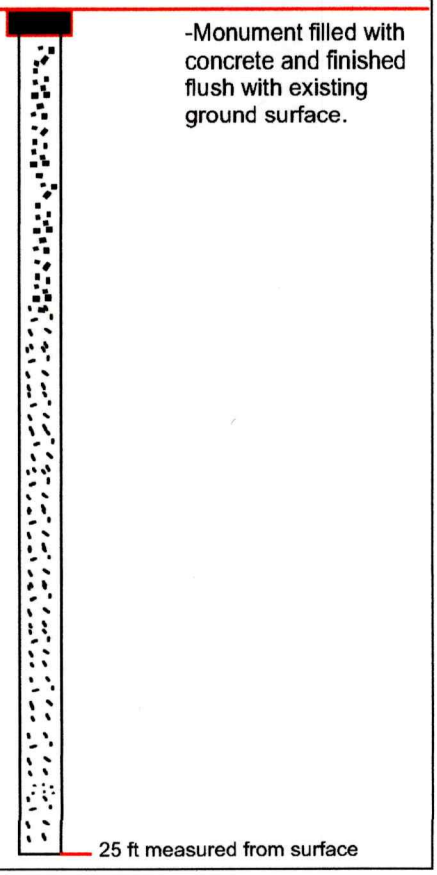
Borehole diameter 6 inches Casing diameter 2 inches

Static water level N/A ft below top of casing Date _____

☐ Above-ground completion with bollards ■ Flush monument

↳ Stick-up of top of well casing -0.75 ft above ground surface

Start Date 3/04/82024 Completed Date 3/04/2024

Construction Design	Well Data	Driller's Log
-Decommissioning of resource protection wells installed for SR-520 project, completed on 4-19-2022. -See Attached for Construction design. > Gravel Pack 8.0 - 25 ft > Bentonite Chips backfill 3 - 8 ft > Concrete Surface Seal 0 - 3 ft	- Well found Sealed & Capped. - 2" PVC casing, Well ID tag found - Total measured depth 25 ft. - Monument diameter = 9" - Well chipped from bottom of casing to top of casing using 3/8" bentonite chips. - Well monument filled and capped with concrete flush with surface. Chip used: ~ 47 bs	

The Department of Ecology does not warranty the data and or information on this well report.

DEPARTMENT OF ECOLOGY
State of Washington

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:
■ Construction
☐ Decommission ⇨ Original NOI No. _____

Ecology Well ID Tag No. **BNV 406**
Site Well Name **MW8-22**
Consulting Firm **Shannon & Wilson**
Was a variance approved for this well/boring? ☐ Yes ■ No
If yes, what was the variance for? _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer
Name (Print Last, First Name) Staloch, Joe
Driller/Engineer/Trainee Signature _____
License No. 2749
Company Name Cascade Drilling

If trainee box is checked, sponsor's license number: _____
Sponsor's signature _____

Notice of Intent No. **RE22804**

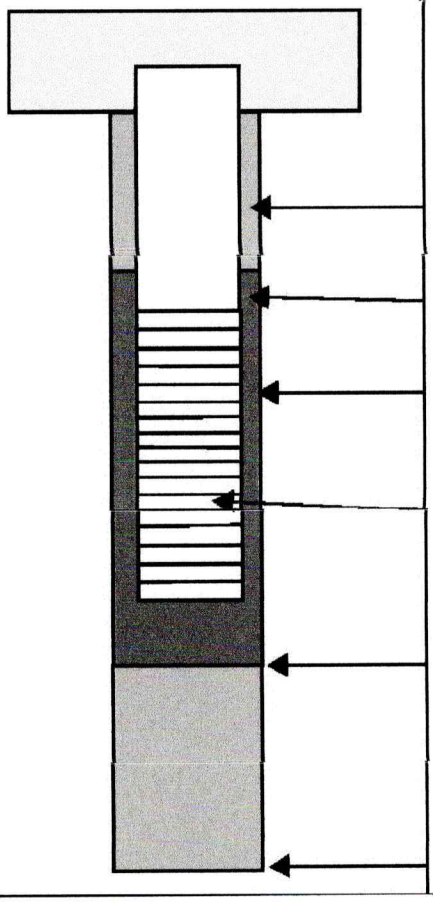
Type of Well:
■ Resource Protection Well ☐ Injection Point
☐ Remediation Well ☐ Grounding Well
☐ Geotechnical Soil Boring ☐ Ground Source Heat Pump
☐ Environmental Boring ☐ Other _____
↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner **WSDOT**
Well Street Address **2625 E Montlake Place East**
City **Seattle** County **King**
Tax Parcel No. 880390-1085

Location (see instructions): WWM ☐ or EWM ■
NE ¼-¼ **NW** ¼, Section **21** Town **25n** Range **4e**
Latitude (Example: 47.12345) 47.6436358
Longitude (Example: -120.12345) -122.3043923
(WGS 84 Coordinate System)

Borehole diameter **6** inches Casing diameter **2** inches
Static water level **9** ft below top of casing Date _____
☐ Above-ground completion with bollards ■ Flush monument
↳ Stick-up of top of well casing _____ ft above ground surface
Start Date April 19 2022 Completed Date April 21 2022

Construction Design



Well Data

Concrete Surface Seal Depth	0-3
Blank Casing (dia x dep)	2" 0-10
Material	PVC
Backfill	3-8
Type	Bentonite Chips
Seal	
Material	
Gravel Pack	8-25
Material	Sand 12x20
Screen (dia x dep)	2" 10-25
Slot Size	.010
Material	PVC
Well Depth	25
Backfill	
Material	
Total Hole Depth	25

Driller's Log

0	-	24	FT

Brown Sand, Gravel

24	-	25	FT

Black Sand, some Gravel Silt

____ - ____ FT

Received
Department of Ecology
August 25, 2023
Water Resources Program
NWRO

Cascade Drilling 110.22.1034


WA DEPARTMENT OF ECOLOGY
UNIQUE WELL#
BNV 406
DO NOT REMOVE TAG

DEPARTMENT OF ECOLOGY
State of Washington

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:

☐ Construction
■ Decommission ⇨ Original NOI No. RE 22804

Ecology Well ID Tag No. BNV - 409

Site Well Name MW--9-22

Consulting Firm Graham

Was a variance approved for this well/boring? ☐ Yes ■ No

If yes, what was the variance for? _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) Meron Okbay

Driller/Engineer/Trainee Signature _____

License No. 3260

Company Name In Situ Engineering

If trainee box is checked, sponsor's license number: _____

Sponsor's signature _____

Notice of Intent No. AE81670

Type of Well:

■ Resource Protection Well ☐ Injection Point
☐ Remediation Well ☐ Grounding Well
☐ Geotechnical Soil Boring ☐ Ground Source Heat Pump
☐ Environmental Boring ☐ Other _____

↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner WSDOT

Well Street Address 2625 E Montlake Place East

City Seattle County King

Tax Parcel No. _____

Location (see instructions): WWM ☐ or EWM ■

NE ¼-¼ NW ¼, Section 21 Town 25N Range 4E

Latitude (Example: 47.12345) 47.6436368

Longitude (Example: -120.12345) -122.303920

(WGS 84 Coordinate System)

Borehole diameter 6 inches Casing diameter 2 inches

Static water level N/A ft below top of casing Date _____

☐ Above-ground completion with bollards ■ Flush monument

↳ Stick-up of top of well casing 0 ft above ground surface

Start Date 3/04/82024 Completed Date 3/04/2024

Construction Design

-Decommissioning of resource protection wells installed for SR-520 project, completed on 4-19-2022.

-See Attached for Construction design.
> Gravel Pack 8.0 - 25 ft
> Bentonite Chips backfill 3 - 8 ft
> Concrete Surface Seal 0 - 3 ft

Well Data

- Well monument damaged, no seal found, PVC exposed to surface.

- 2" PVC casing, Well ID tag - NOT found

- Total measured depth 18 ft.

- Monument diameter = None

- Well chipped from bottom of casing to top of casing using 3/8" bentonite chips.

Chip used: ~ 37 bs

Driller's Log

-No monument, filled with bentonite chips flush with existing ground surface.

18 ft measured from surface

The Department of Ecology does not warranty the data and or information on this well report.

DEPARTMENT OF ECOLOGY
State of Washington

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:
- [x] Construction
- [ ] Decommission ⇨ Original NOI No. _____

Ecology Well ID Tag No. **BNV 409**

Site Well Name **MW9-22**

Consulting Firm **Shannon & Wilson**

Was a variance approved for this well/boring? ☐ Yes ☒ No

If yes, what was the variance for? _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

☒ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) Staloch, Joe

Driller/Engineer/Trainee Signature _____

License No. 2749

Company Name Cascade Drilling

If trainee box is checked, sponsor's license number: _____

Sponsor's signature _____

Notice of Intent No. **RE22804**

Type of Well:
- [x] Resource Protection Well
- [ ] Remediation Well
- [ ] Geotechnical Soil Boring
- [ ] Environmental Boring
- [ ] Injection Point
- [ ] Grounding Well
- [ ] Ground Source Heat Pump
- [ ] Other _____

↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner **WSDOT**

Well Street Address **2625 E Montlake Place East**

City **Seattle** County **King**

Tax Parcel No. **880590-1085**

Location (see instructions): WWM ☐ or EWM ☒

NE ¼-¼ **NW** ¼, Section **21** Town **25n** Range **4e**

Latitude (Example: 47.12345) 47.643568

Longitude (Example: -120.12345) -122.303920

(WGS 84 Coordinate System)

Borehole diameter **6** inches Casing diameter **2** inches

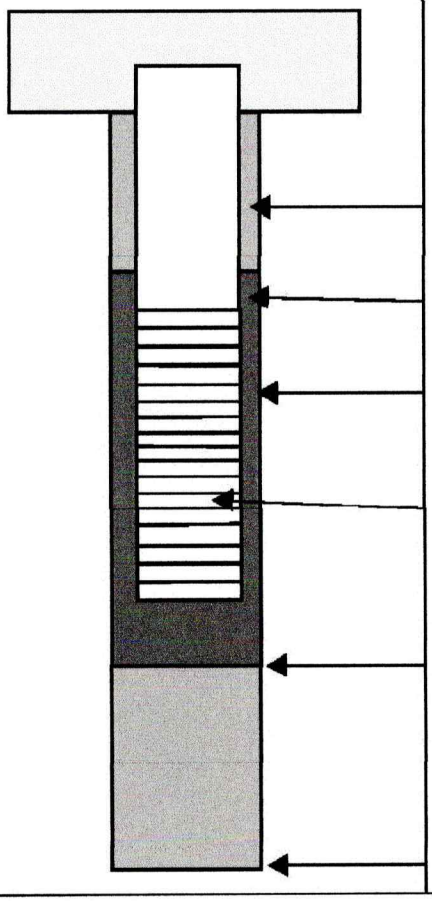
Static water level **9** ft below top of casing Date _____

☐ Above-ground completion with bollards ☒ Flush monument

↳ Stick-up of top of well casing _____ ft above ground surface

Start Date April 19 2022 Completed Date April 21 2022

Construction Design



Well Data

Concrete Surface Seal Depth	0-3
Blank Casing (dia x dep)	2" 0-10
Material	PVC
Backfill	3-8
Type	Bentonite Chips
Seal	
Material	
Gravel Pack	8 - 25
Material	Sand 12x20
Screen (dia x dep)	2" 10 - 25
Slot Size	.010
Material	PVC
Well Depth	25
Backfill	
Material	
Total Hole Depth	25

Driller's Log

0	-	24	FT

Brown Sand, Gravel

24	-	25	FT

Black Sand, some Gravel Silt

____ - ____ FT

Received
Department of Ecology
August 25, 2023
Water Resources Program
NWRO

Cascade Drilling 110.22.1034

Attachment 2

Contents:

Groundwater Sampling Field Forms (2 Sheets)

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

WATER SAMPLING LOG

JOB NO. 21-1-22242-112
PAGE 1 OF 1

OWNER / LOCATION: ~~Mont~~ former Montlake gas station
DATE: 02/19/24
WELL NO: MW-3-19 SAMPLE NO: MW-3-19-021924 ECOLOGY TAG NO: BLT987
DUPLICATE NO: MW-100-021924
WEATHER: Clear, 40's
MS / MSD? Yes ☐ No ☐
WELL SITE CONDITIONS / MP DEFINITION: North TOC
(MP is typically the north PVC rim)

SAMPLING DATA

TIME STARTED: 22:10
PID HEAD SPACE: — ppm
MP DISTANCE ABOVE / BELOW GROUND SURFACE: 5.4 ft.
TOTAL DEPTH OF WELL BELOW MP: 29.05 − 5.4 = 23.65 ft.
DTW BELOW MP: 22.13 − 5.4 = 16.73 ft.
WATER COLUMN IN WELL: 6.92 ft.
CASING DIAMETER: 2 in.
GALLONS PER FOOT: 0.16
GALLONS IN WELL: 1.107 ~ 1.12 (x3 = 3.33 gal)
TIME PURGING STARTED: 22:35

LNAPL THICKNESS: — ft. Sample ☐
DNAPL THICKNESS: — ft. Sample ☐

SAMPLE CONTAINERS

Number	Size	Type	Pres.

FIELD PARAMETERS

ORP 0.1

GALLONS REMOVED	TEMP. (C°)	~~Eh~~ (mV)	pH	COND. (µmhos / cm)	D.O. (mg / L)	TURBIDITY (NTU)	SALINITY (%)	TDS (g / L)	COLOR	TIME
Initial	13.8	89.2	8.14	1228	4.28	4.56	0.62	0.7995	Orange	22:35
0.6	13.7	32.8	9.17	1227	0.83	3.57	062	0.7995	Clear	22:40
0.9	13.8	29.3	9.29	1147	0.81	4.82	~~0.62~~ 0.57	0.7975	clear	22:45
1.2	13.8	29.0	9.36	1135	0.72	1.40	0.57	0.7410	Clear	22:50
1.4	13.9	25.8	9.48	1126	0.63	1.43	0.56	0.7280	Clear	22:55
1.6	13.9	24.4	9.57	1103	0.60	~0	0.55	0.7150	Clear	22:58
1.8	14.0	24.9	9.62	1066	0.60	~0	0.54	0.7085	Clear	23:01
2.0	14.1	20.9	9.70	1083	0.57	~0	0.54	0.7020	Clear	23:04
2.2	14.1	21.0	9.71	1008	0.58	~0	0.54	0.7115	Clear	23:07
After Sampling										

EVACUATION METHOD: Peri pump
PUMP INTAKE DEPTH (if applicable): ~ 19 ft
PURGE WATER DISPOSITION (e.g., drum #): drum on site
WATER QUALITY (e.g., sheen, odor): No visible odor
WATER QUALITY METER(S) USED; CALIBRATION DATE / TIME: YSI Pro plus Calibrated 02/19/24 @ 2150
SAMPLING METHOD: Low Flow EPA SAMPLE TIME: 23:25
SAMPLING PERSONNEL: MEH DUPLICATE "TIME": 23:55
REMARKS (e.g., recovery rate):

TIME COMPLETED: 23:59

WELL CASING VOLUMES

Gal / ft 1-1/4" = 0.077 2" = 0.16 3" = 0.37 4" = 0.65
1-1/2" = 0.10 2-1/2" = 0.24 3-1/2" = 0.50 6" = 1.46

Filename: J:\Support\library\FIELD AND LAB FORMS\AutoCAD_Water Sampling Log.dwg Date: 02-10-2011 Login: sac

GAL	Temp	ORP	PH	Cond	DO	Turb	SAL	TDS	Color	Time
2.4	14.0	46.9	9.55	1146	0.49	~0	0.57	0.747S	Clear	2310
2.6	14.0	40.0	9.40	1172	0.49	~0	0.59	0.760S	Clear	2313
2.8	14.0	40.3	9.45	1188	0.50	~0	0.59	0.773S	Clear	2316
3.0	14.0	39.0	9.50	1185	0.49	~0	0.59	0.773S	Clear	2319
3.2	14.0	40.4	9.50	1186	0.43	~0	0.59	0.77~~8~~S	Clear	2322
										~~2325~~

Parameters stabilized, started sampling @ 2325

Attachment 3

Contents:

Laboratory Report and Chain-of-Custody Form (14 Sheets)

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

March 1, 2024

Joseph Sawdey
Shannon & Wilson, Inc.
400 N 34th Street, Suite 100
Seattle, WA 98103

Re: Analytical Data for Project 21-1-22242-112
Laboratory Reference No. 2402-239

Dear Joseph:

Enclosed are the analytical results and associated quality control data for samples submitted on February 20, 2024.

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,

David Baumeister
Project Manager

Enclosures

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

Case Narrative

Samples were collected on February 19, 2024 and received by the laboratory on February 20, 2024. 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. However the soil results for the QA/QC samples are reported on a wet-weight basis.

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: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

GASOLINE RANGE ORGANICS
NWTPH-Gx

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3-19:021924**					
Laboratory ID:	02-239-01					
Gasoline	**3700**	1000	NWTPH-Gx	2-21-24	2-21-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*83*	*65-122*				
Client ID:	**MW-100:021924**					
Laboratory ID:	02-239-02					
Gasoline	**3700**	1000	NWTPH-Gx	2-21-24	2-21-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*81*	*65-122*				

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

GASOLINE RANGE ORGANICS
NWTPH-Gx
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0221W1					
Gasoline	**ND**	100	NWTPH-Gx	2-21-24	2-21-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Fluorobenzene	*82*	*65-122*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-252-01										
	ORIG	DUP									
Gasoline	**ND**	**ND**	NA	NA		NA		NA	NA	30	
Surrogate:											
Fluorobenzene						*87*	*80*	*65-122*			

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

VOLATILE ORGANICS EPA 8260D

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3-19:021924**					
Laboratory ID:	02-239-01					
Benzene	67	4.0	EPA 8260D	2-21-24	2-21-24	
Toluene	ND	20	EPA 8260D	2-21-24	2-21-24	
Ethylbenzene	8.5	4.0	EPA 8260D	2-21-24	2-21-24	
m,p-Xylene	10	8.0	EPA 8260D	2-21-24	2-21-24	
o-Xylene	ND	4.0	EPA 8260D	2-21-24	2-21-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*90*	*75-127*				
Toluene-d8	*98*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				
Client ID:	**MW-100:021924**					
Laboratory ID:	02-239-02					
Benzene	64	4.0	EPA 8260D	2-21-24	2-21-24	
Toluene	ND	20	EPA 8260D	2-21-24	2-21-24	
Ethylbenzene	6.5	4.0	EPA 8260D	2-21-24	2-21-24	
m,p-Xylene	10	8.0	EPA 8260D	2-21-24	2-21-24	
o-Xylene	ND	4.0	EPA 8260D	2-21-24	2-21-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*90*	*75-127*				
Toluene-d8	*98*	*80-127*				
4-Bromofluorobenzene	*100*	*78-125*				

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

VOLATILE ORGANICS EPA 8260D
QUALITY CONTROL

Matrix: Water
Units: ug/L

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0221W1					
Benzene	ND	0.20	EPA 8260D	2-21-24	2-21-24	
Toluene	ND	1.0	EPA 8260D	2-21-24	2-21-24	
Ethylbenzene	ND	0.20	EPA 8260D	2-21-24	2-21-24	
m,p-Xylene	ND	0.40	EPA 8260D	2-21-24	2-21-24	
o-Xylene	ND	0.20	EPA 8260D	2-21-24	2-21-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
Dibromofluoromethane	*93*	*75-127*				
Toluene-d8	*99*	*80-127*				
4-Bromofluorobenzene	*97*	*78-125*				

Analyte	Result		Spike Level		Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
SPIKE BLANKS										
Laboratory ID:	SB0221W1									
	SB	SBD	SB	SBD	SB	SBD				
Benzene	**10.0**	**10.4**	10.0	10.0	100	104	80-121	4	16	
Toluene	**10.4**	**10.9**	10.0	10.0	104	109	80-120	5	18	
Ethylbenzene	**10.8**	**11.2**	10.0	10.0	108	112	80-125	4	18	
m,p-Xylene	**21.4**	**22.4**	20.0	20.0	107	112	80-127	5	18	
o-Xylene	**10.5**	**11.1**	10.0	10.0	105	111	80-126	6	18	
Surrogate:										
Dibromofluoromethane					*93*	*96*	*75-127*			
Toluene-d8					*99*	*99*	*80-127*			
4-Bromofluorobenzene					*102*	*100*	*78-125*			

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3-19:021924**					
Laboratory ID:	02-239-01					
Diesel Range Organics	**1.3**	0.21	NWTPH-Dx	2-21-24	2-21-24	M
Lube Oil Range Organics	**0.29**	0.21	NWTPH-Dx	2-21-24	2-21-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*81*	*50-150*				
Client ID:	**MW-100:021924**					
Laboratory ID:	02-239-02					
Diesel Range Organics	**1.4**	0.20	NWTPH-Dx	2-21-24	2-22-24	M
Lube Oil Range Organics	**0.23**	0.20	NWTPH-Dx	2-21-24	2-22-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*75*	*50-150*				

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

DIESEL AND HEAVY OIL RANGE ORGANICS
NWTPH-Dx
QUALITY CONTROL

Matrix: Water
Units: mg/L (ppm)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0221W1					
Diesel Range Organics	**ND**	0.16	NWTPH-Dx	2-21-24	2-21-24	
Lube Oil Range Organics	**ND**	0.16	NWTPH-Dx	2-21-24	2-21-24	
Surrogate:	*Percent Recovery*	*Control Limits*				
o-Terphenyl	*69*	*50-150*				

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	SB0221W1										
	ORIG	DUP									
Diesel Fuel #2	**0.347**	**0.336**	NA	NA		NA		NA	3	40	
Surrogate:											
o-Terphenyl						*67*	*64*	*50-150*			

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

TOTAL ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3-19:021924**					
Laboratory ID:	02-239-01					
Arsenic	**21**	3.3	EPA 200.8	2-28-24	2-28-24	
Client ID:	**MW-100:021924**					
Laboratory ID:	02-239-02					
Arsenic	**23**	3.3	EPA 200.8	2-28-24	2-28-24	

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

TOTAL ARSENIC
EPA 200.8
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0228WM1					
Arsenic	**ND**	3.3	EPA 200.8	2-28-24	2-28-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-056-01										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	02-056-01										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**213**	**223**	222	222	ND	**96**	**101**	75-125	5	20	

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

DISSOLVED ARSENIC
EPA 200.8

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
Client ID:	**MW-3-19:021924**					
Laboratory ID:	02-239-01					
Arsenic	**15**	3.0	EPA 200.8		2-29-24	
Client ID:	**MW-100:021924**					
Laboratory ID:	02-239-02					
Arsenic	**21**	3.0	EPA 200.8		2-29-24	

Date of Report: March 1, 2024
Samples Submitted: February 20, 2024
Laboratory Reference: 2402-239
Project: 21-1-22242-112

DISSOLVED ARSENIC
EPA 200.8
QUALITY CONTROL

Matrix: Water
Units: ug/L (ppb)

Analyte	Result	PQL	Method	Date Prepared	Date Analyzed	Flags
METHOD BLANK						
Laboratory ID:	MB0208F1					
Arsenic	**ND**	3.0	EPA 200.8	2-8-24	2-29-24	

Analyte	Result		Spike Level		Source Result	Percent Recovery		Recovery Limits	RPD	RPD Limit	Flags
DUPLICATE											
Laboratory ID:	02-112-01										
	ORIG	DUP									
Arsenic	**ND**	**ND**	NA	NA		NA		NA	NA	20	
MATRIX SPIKES											
Laboratory ID:	02-112-01										
	MS	MSD	MS	MSD		MS	MSD				
Arsenic	**76.4**	**76.0**	80.0	80.0	ND	**96**	**95**	75-125	1	20	

OnSite Environmental Inc.

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.

X2 - Sample extract treated with a 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.

Y1 - Negative effects of the matrix from this sample on the instrument caused values for this analyte in the bracketing continuing calibration verification standard (CCVs) to be outside of 20% acceptance criteria. Because of this, quantitation limits and sample concentrations should be considered estimates.

Z -

ND - Not Detected at PQL
PQL - Practical Quantitation Limit
RPD - Relative Percent Difference

Chain of Custody

OnSite Environmental Inc.
Analytical Laboratory Testing Services
14648 NE 95th Street • Redmond, WA 98052
Phone: (425) 883-3881 • www.onsite-env.com

Company: Shannon & Wilson, Inc.
Project Number: 21-1-22242-112
Project Name: Former Montlake Gas Station
Project Manager: Joseph Sawdey
Sampled by: MEH

Turnaround Request (in working days)
(Check One)
☐ Same Day ☐ 1 Day
☐ 2 Days ☐ 3 Days
☒ Standard (7 Days)
☐ _____ (other)

Laboratory Number: 02-239

Lab ID	Sample Identification	Date Sampled	Time Sampled	Matrix	Number of Containers	NWTPH-HCID	NWTPH-Gx/BTEX (8021☐ 8260☒)	NWTPH-Gx	NWTPH-Dx (SG Clean-up ☐)	Volatiles 8260	Halogenated Volatiles 8260	EDB EPA 8011 (Waters Only)	Semivolatiles 8270/SIM (with low-level PAHs)	PAHs 8270/SIM (low-level)	PCBs 8082	Organochlorine Pesticides 8081	Organophosphorus Pesticides 8270/SIM	Chlorinated Acid Herbicides 8151	Total RCRA Metals	Total MTCA Metals	TCLP Metals	HEM (oil and grease) 1664	Total and dissolved Arsenic	200.8			% Moisture
1	MW-3-19:021924	02/19/24	2325	GW	9		X		X														X				
2	MW-100:021924	02/19/24	2355	GW	9		X		X														X				
3	TB-1-021924	02/19/24		W	3		(X)																				

	Signature	Company	Date	Time
Relinquished		Shannon & Wilson, Inc	02/20/24	1040
Received		OSE	2/20/24	1040
Relinquished				
Received				
Relinquished				
Received				
Reviewed/Date		Reviewed/Date		

Comments/Special Instructions
(X) - one preserved plastic bottle was field filtered and labeled as such for each sample.
(X) - Hold for Analysis

Data Package: Standard ☐ Level III ☐ Level IV ☐
Chromatograms with final report ☐ Electronic Data Deliverables (EDDs) ☑