TRANSMITTAL

Project No.: 160328

May 21, 2020

Attn:	Mr. Dale Myers Washington State Department of Ecology 3190 160th Avenue Southeast Bellevue, Washington 98008	**Re:**	SKS Shell Station Site LMI – West Seattle Holdings, LLC PPCD No. 13-2-27556-2 Facility ID #39196282 Cleanup ID #6015

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Qty	Description
1	Groundwater Monitoring Report, First Quarter 2021

Remarks: Electronic and hardcopy versions of this report are being submitted to the Washington State Department of Ecology by Aspect Consulting, LLC, on behalf of LMI – West Seattle Holdings, LLC, pursuant to PPCD No. 13-2-27556-2.

cc:	Elton Lee & Phil Carmody, GID William Joyce, JZP	**Sent by:**	Ali Cochrane, LG Senior Geologist, Aspect Consulting, LLC acochrane@aspectconsulting.com

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May 21, 2021

Elton Lee
LMI – West Seattle Holdings, LLC
125 High Street
High Street Tower, 24th Floor
Boston, Massachusetts 02110

Re: Groundwater Monitoring Report, SKS Shell Station Site, First Quarter 2021
LMI – West Seattle Holdings, LLC, PPCD No. 13-2-27556-2
Facility ID #39196282, Cleanup ID #6015
Project No. 160328

Dear Mr. Lee:

Aspect Consulting, LLC (Aspect) prepared this report to summarize the results of compliance groundwater monitoring in First Quarter 2021 for the SKS Shell Station Site (Site; Figure 1) located at 3901 Southwest Alaska Street in Seattle, Washington. Post-cleanup groundwater compliance sampling and reporting has been occurring since cleanup and redevelopment of the Site was completed in 2015, in accordance with Prospective Purchaser Consent Decree (PPCD) No. 13-2-27556-2 and Washington Administrative Code (WAC) Chapter 173-340. This report includes a brief background of the project, a description of the scope of work for the First Quarter 2021 monitoring event, and a summary of the results in comparison to results from prior compliance monitoring events. The location of the Site is shown on Figure 1.

Background

Use of the Site property as an auto repair facility and subsequently as multiple generations of gasoline refueling and service stations, from 1934 until 2013, resulted in soil and groundwater contamination with gasoline-, diesel-, and heavy oil-range total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX) at concentrations above Model Toxics Control Act (MTCA) Method A cleanup levels. The areas in which these contaminants have been found exceeding MTCA cleanup levels constitute the Site. The Site consists of portions of the property located at 3901 Southwest Alaska Street, as well as the Southwest Alaska Street and Fauntleroy Way Southwest rights-of-way (ROW) adjoining on the north and west, respectively (Figure 2).

Cleanup action activities included remedial excavation that was completed in 2015 concurrently with redevelopment and construction of the existing Whittaker building.[1] Excavation beyond the former SKS property boundary was not feasible, and localized areas of petroleum-contaminated soil remains beneath adjoining ROWs. Refer to the Cleanup Action Report for more detail on the

[1] The new building (known as The Whittaker) was completed in 2016 and extends across the northeast three quarters of the city block that fronts Fauntleroy Way Southwest, south of the Southwest Alaska Street intersection. The Whittaker apartment building complex includes both the former SKS Shell Station and Kennedy-Huling Brothers Sites.

location and depth of residual soil contamination.[2] Redevelopment was conducted in coordination with cleanup activities and redevelopment at the neighboring Kennedy-Huling Brothers Site (Voluntary Cleanup Program ID #NW2716, which received a property-specific No Further Action (NFA) determination from the Washington State Department of Ecology (Ecology) in March 2019. For more detail on the former SKS property history, extent of contamination, and remedial actions completed at the SKS Shell Station Site, refer to the Cleanup Action Plan[3] (CAP) and Cleanup Action Report[2] (CAR).

In January 2021, 8 weeks prior to the sampling event described in this report, a pilot study for *in situ* chemical oxidation (ISCO) injections was implemented to assess whether ISCO injections would reasonably address the remedial objectives for the Site in accordance with the Ecology-approved work plan.[4] The remedial objectives included evaluating:

- Injection area of influence
- Volume of injection solution efficacy
- Possibility of injection chemical short-circuiting to the Whittaker Building under-slab drainage system
- Possible interaction with the existing chemical vapor barrier

As part of the ISCO pilot study, tracer dyes were introduced to three wells in the Fauntleroy Way SW right-of-way (ROW) to evaluate the potential for short circuiting to the Whittaker building under-slab drainage system.

Results from the pilot study indicated that the well system is not suitable for injections, as short circuiting to the drainage system occurred during pilot injections and tracer dye was detected in the parking garage drainage collection sump. Detailed results from the pilot study are included in the report "Groundwater Treatment Injection Pilot Study Results and Updated Monitored Natural Attenuation Analysis," dated May 3, 2021.

Compliance Groundwater Monitoring

Post-cleanup compliance monitoring of groundwater began in March 2016 and is ongoing on a quarterly basis at the Site. The original compliance well network consisted of 15 wells (RW02 to RW05, MW101 to MW105, and MW108 to MW113) located in the Southwest Alaska Street ROW and sidewalk, the Fauntleroy Way Southwest ROW and sidewalk, and within a portion of the parking garage of the Whittaker building (Figure 2).

[2] SoundEarth Strategies, Inc. (SoundEarth), 2016, Cleanup Action Report, SKS Shell Property, 3901 Southwest Alaska Street, Seattle, Washington, October 20, 2016.

[3] SoundEarth Strategies, Inc. (SoundEarth), 2016, Cleanup Action Plan, SKS Shell Property, 3901 Southwest Alaska Street, Seattle, Washington, June 16, 2014.

[4] Aspect Consulting, LLC (Aspect), 2020, Preliminary Monitored Natural Attenuation Analysis and Groundwater Treatment Injections Pilot Study Work Plan, LMI – West Seattle Holdings, LLC, PPCD No. 13-2-27556-2, October 27, 2020.

As of First Quarter 2021, Ecology has approved[5] discontinued sampling at six (RW02, MW101, MW102, MW103, MW112, and MW113) of the original 15 compliance wells; approved biannual sampling at wells MW109, MW110, and MW111; and approved decommissioning of MW102 and MW103. Per agreement with Ecology, wells MW101, MW109, MW110, MW111, MW112, and MW113 continue to be accessed each quarter for water level measurements.

The existing compliance well network for the Site now consists of 6 wells for quarterly analytical sampling, 3 wells for biannual analytical sampling, and 12 wells for water level monitoring. To date, 21 consecutive quarters of groundwater monitoring have been completed. The following sections describe the field and analysis methods and the analytical results. Table 1 presents a summary of the status and well construction details of the original compliance groundwater monitoring wells for the Site.

Field and Analysis Methods

The First Quarter 2021 groundwater monitoring event was completed on March 8, 2021.

On March 8, 2021, groundwater levels were measured in 12 wells. Each water level measurement was recorded to the hundredth of a foot, relative to the top of the north side of the well casing. Groundwater elevations were calculated using the surveyed top of well casings. Depth to water measurements and water level elevations from the site-wide groundwater monitoring event are shown in Table 1 and on Figure 2.

Sampling was completed at six compliance groundwater monitoring wells (MW101, MW109, MW110, MW111, MW112, and MW113) located on the Site and in the surrounding ROWs. All six wells were sampled using standard low-flow methodology.[6] Field parameters were collected during groundwater sampling—including depth to water, flow rate, temperature, specific conductivity, dissolved oxygen, pH, oxidation reduction potential, and turbidity—and sampling occurred once all parameters had stabilized.[7] None of the well screens were fully submerged during sampling and the groundwater sample tubing intake was placed at the midpoint of the water column (consistent with past quarterly monitoring events).

Groundwater samples were collected in laboratory supplied bottle-ware, transported under standard chain of custody procedures, and submitted to Friedman and Bruya, Inc., of Seattle, Washington, for laboratory chemical analysis of the following:

[5] This footnote summarizes the approvals received by Ecology: RW02, MW101, and MW102 changes were approved by Dale Myers of Ecology via email to SoundEarth, January 6, 2020; MW112 and MW113 changes were approved by Dale Myers of Ecology via email on August 26, 2020; MW109, MW110, and MW111 changes were approved by Dale Myers of Ecology via email on January 27, 2021; and MW102 and MW103 changes were approved by Dale Myers of Ecology via email on January 11, 2021.

[6] United States Environmental Protection Agency (EPA), 1996, Low Flow (Minimal Drawdown) Ground-Water Sampling Procedures, April 1996.

[7] Stabilization consists of the following over no less than 9 minutes: less than 10 percent change in dissolved oxygen and turbidity; less than 3 percent change in specific conductance; less than 10-millivolt change in oxidation-reduction potential; and less than 0.1 change in pH.

- Gasoline-, diesel- and oil-range TPH using Northwest Methods NWTPH-Gx and NWTPH-Dx.
- BTEX using U.S. Environmental Protection Agency (EPA) Method 8021B.
- Wells MW104 and MW108 were purged dry before field parameters had stabilized. These two wells were purged and allowed to recharge a minimum of three times before sampling was completed. A field duplicate for all analytes was collected at RW04.

Observed Effects from Injections Pilot Study

As part of the ISCO injections pilot study, injections of potable water and fluorescent dye were completed at wells RW03, RW04, and RW05 from January 5-12, 2021. During sampling for the First Quarter 2021 monitoring event in March 2021, the wells where pilot study injections were completed (RW03, RW04, and RW05) still had visible residual concentrations of tracer dye in sampled water, as shown below:

Figure A: Residual dye in (from left to right) RW03, RW04, and RW05

Analytical Anomalies in Groundwater Samples

Chemical analytical testing results from groundwater samples obtained at pilot test injection wells RW03, RW04, and RW05 showed interference from the pilot study injection activities. Interference was exhibited by reported diesel-range TPH concentrations that were significantly higher than any previous post-cleanup concentrations. This unanticipated effect was most evident in the groundwater sample from RW05, where concentrations of diesel-range TPH have not exceeded MTCA Method A cleanup levels over the last 15 successive quarters of compliance groundwater monitoring.

Further indicating that this First Quarter 2021 sampling event was biased, the sample from RW05 had the highest reported concentration of TPH in the diesel range out of all samples collected during First Quarter 2021. Chromatogram review indicated TPH patterns that did not resemble those detected in previous samples. Chromatograms for groundwater samples obtained from RW03, RW04, and RW05 showed peaks interpreted by the laboratory to be a mixture of compounds.

Further, the nearest compliance well MW104 (not used for injections during the pilot study), which lies within 9 feet of RW05, did not contain abnormally high concentrations of diesel-range TPH, nor abnormalities in its chromatograms.

As described in greater detail below, based on our review of the available information and data, it is our professional opinion that the analytical data reported for RW03, RW04, and RW05 are not representative of the overall groundwater quality at the Site. As such, the data from RW03, RW04, and RW05 are considered unusable for compliance groundwater monitoring. The data are included in the analytical results in Appendix A, but have not been used for trend analysis or compliance purposes for the requirements of the PPCD because the data are not representative of Site groundwater.

Evaluation of Possible Causes

In order to evaluate the effects observed in the RW03, RW04, and RW05 groundwater samples from the First Quarter 2021 monitoring event, Aspect reviewed all materials and equipment used during the pilot test injections, and did not identify any clear cause of the effects, as described below:

- ***Re-analysis of groundwater samples***. To ensure that the cause of the anomalies was not related to laboratory processes, each of the three groundwater samples collected from RW03, RW04, and RW05 were re-analyzed for diesel- and heavy oil-range TPH. Analytical results were consistent with the first round of analysis, and the laboratory processes were eliminated as a possible cause.
- ***Review of field equipment, water source(s), and field methods.*** Field equipment, injection water, and field methods have been eliminated as possible sources of the effects observed.
    - Field equipment used in the wells was decontaminated using an Alconox rinse and deionized water wash, or was purchased new for the injection pilot study.
    - Injection water used was transported in a water truck used only for potable water supply, and was obtained from the City of Tacoma municipal water system.
    - The totes used to store the water on site are similarly used only for potable water storage.
    - Field staff did not introduce any equipment that had not been previously decontaminated, and the wells were shut and secured overnight.
- ***Chromatogram comparison against dye standard***. Aspect provided the laboratory with dye samples that were then analyzed using gas chromatography to produce a 'standard' chromatographic pattern for comparison against the chemical analytical results. The laboratory compared the chromatograms from wells RW03, RW04, and RW05 to chromatograms from laboratory prepared samples containing only the tracer dyes, and concluded that the interference was not caused from the presence of the tracer dyes.
- ***Assessment of well construction and use.*** Aspect reviewed the construction details and use history of the RW wells (including wells RW03, RW04, and RW05 that were used in the injections pilot study). This assessment entailed review of the well logs and installation

details, volumes of water and concentrations of Site COCs removed during dewatering, and descriptions of the dewatering system in the Cleanup Action Report, along with associated communication with Ecology in reference to the wells in question.

The RW wells were originally constructed as 4-inch-diameter dewatering wells. RW wells were used to remove contaminated groundwater from the mass excavation at a rate of up to 0.5 gallons per minute per well. During use as dewatering wells, contaminated groundwater was drawn through the RW well filter packs and well casings, which likely resulted in the entrainment of Site contaminants in the well filter packs and well casings. Over the course of use, the system removed approximately 4 gallons of gasoline as dissolved phase contaminated water and 0.18 gallons of benzene.[8] Following mass excavation, the dewatering pumps and equipment were removed from each well and, from that point forward, they were used for compliance groundwater monitoring, with the exception of RW01.

By eliminating all equipment and materials used during the pilot study as possible sources of the anomalous analytical results observed during the First Quarter 2021 groundwater monitoring event for RW03, RW04, and RW05, it is Aspect's opinion that these anomalous analytical results are the result of residual effects of the construction and historical use of RW03, RW04, and RW05 as dewatering wells. The introduction of significant volumes of water (1,100 gallons per well) into these wells as part of the pilot test likely mobilized hydrocarbons in the well filter pack, well casing, and groundwater within, and immediately surrounding, these wells. For this reason, the RW wells are not appropriate for compliance monitoring and should be decommissioned and replaced with an appropriately constructed groundwater monitoring well. Additional recommendations are summarized below in the Recommendations section of this report.

Groundwater Monitoring Results

Groundwater Elevations and Flow Direction

First Quarter 2021 groundwater elevations ranged from a low of 240.45 feet NAVD88[9] (MW108 and MW109) to a high of 241.91 feet (MW101; Table 1 and Figure 2). Groundwater elevations from the groundwater monitoring event were contoured to show generalized groundwater flow direction at the Site. As shown on Figure 2, groundwater flow across the Site area is generally toward the south and west with localized variability. The groundwater gradient in the vicinity of the three wells used for the injections pilot study in January 2021, between the west and east sides of Fauntleroy Way SW, is shallower than that measured in all previous compliance groundwater events; this is interpreted to represent residual mounding from the pilot study injections. Refer to the Findings section for a discussion of groundwater elevation and flow changes over the compliance monitoring period.

[8] SoundEarth Strategies, Inc. (SoundEarth), 2016, Cleanup Action Report, SKS Shell Property, 3901 Southwest Alaska Street, Seattle, Washington, October 20, 2016.

[9]All elevations are based on North American Vertical Datum 1988.

Analytical Results

Table A below presents a summary of the chemical analytical results for the First Quarter 2021 monitoring event.

Table A. Summary of Q1 2021 Groundwater Analytical Results

Sample Location	Benzene	Gasoline-Range TPH	Diesel-Range TPH	Heavy Oil-Range TPH
MW104	< 1 U	< 100 U	**89 X**	< 250 U
MW105	< 1 U	< 100 U	< 50 U	< 250 U
MW108	< 1 U	< 100 U	**200 X**	< 250 U
MTCA Method A Cleanup Level	5	1000/800[1]	500	500

Notes:
All concentrations are listed in ug/L (micrograms per liter)
Bold indicates a detected concentration; shading indicates a concentration that exceeds the MTCA Cleanup Level.
[1]Gasoline-range TPH is measured against a lower cleanup level when benzene is present.
U – the analyte indicated was not detected above the laboratory reporting limit.
X – chromatographic pattern did not match the standard used for quantification.

Of the wells where injection-related interference was not detected, no contaminants of concern were detected at concentrations exceeding the MTCA Method A cleanup level (Figure 3). Complete compliance groundwater monitoring data for the wells sampled during this event are shown in Table 2, and chemical analytical results are summarized on Figure 3. Laboratory reports are included in Appendix A.

Findings

Groundwater Elevations and Flow Direction

First Quarter 2021 groundwater elevations ranged from 240.45 feet to 241.91 feet, with the lowest elevation measured at MW108 and MW109 located in the north and northwest end of the Whittaker building garage. The groundwater flow directions are variable, are generally to the south and to the west with components of flow to the southwest during the First Quarter 2021 event. This local variability in groundwater flow direction is attributed to dewatering effects of the footing drains and stormwater sump below the northeast corner of the Whittaker building (Figure 2).

The inferred groundwater flow direction at the Site for the First Quarter 2021 event and the measured seasonal variation in groundwater elevations are generally consistent with those recorded during previous sampling events occurring since construction of the Whittaker building in 2015 and 2016. The only variation detected during First Quarter 2021 monitoring was some continued mounding of groundwater levels in the injection wells RW03, RW04, and RW05 resulting in a shallower gradient across Fauntleroy Way SW than previously seen during compliance groundwater monitoring.

Groundwater flow direction at the Site prior to construction (in 2015) was generally to the northeast, consistent with topography of the neighborhood, based on groundwater elevations measured during four preconstruction monitoring events. Following construction of the Whittaker building and its footing drains and stormwater sump, generalized groundwater flow direction has reversed, and has been observed flowing generally to the south-southwest-southeast (radiating toward a subgrade sump that exists in the northeast corner of the Whittaker parking garage). Average seasonal Site-wide groundwater elevations also dropped relative to preconstruction levels since compliance groundwater monitoring began.

Groundwater Analytical Results

Site contaminants of concern were not detected above the MTCA Method A cleanup levels in the three wells that were not part of the injection program (MW104, MW105, and MW108). As discussed above, the results from the wells used in the injection pilot study (RW03, RW04, and RW05) are not reported here due to residual effects from the pilot study injections conducted in January 2021. The trends in wells MW104 and MW108 show an overall downward trend when evaluated collectively for the entire compliance monitoring well network and monitoring period. Trendlines fitted to benzene, gasoline-, and diesel-range TPH concentrations are shown on Figures 4 and 5, which include postconstruction time-series charts where contaminants of concern have been detected above MTCA Method A cleanup levels at any time during the past eight quarterly sampling events (MW104 and MW108).

Fluctuating concentrations of contaminants of concern in groundwater, including occasional intermittent rebounds, have been consistently observed over the compliance groundwater monitoring period, and appear to reflect seasonal variability and/or be affected by changes in groundwater elevations and small-scale flow direction changes, possibly due to dewatering effects in the immediate Site area. However, concentrations of contaminants exceeding the MTCA Method A cleanup levels have been observed exclusively in injection wells RW03 and RW04 since Second Quarter 2018. All standard compliance monitoring wells, including the nearest well to the injection wells, MW104, have remained below MTCA Method A cleanup levels since Second Quarter 2018, including during this most recent sampling event.

Data Validation

Aspect completed a Stage 2A data validation on the data reported from Friedman and Bruya, Inc., in accordance with EPA guidance[10] and Ecology's guidance. A data validation report is attached as Appendix B.

The samples collected from RW03, RW04, and RW05 were rejected due to interference from the injection dye. Although determined to be acceptable for use, the following should be noted when reviewing the remaining diesel-range TPH detections from the First Quarter 2021 sampling:

- The laboratory flagged all diesel-range TPH detections with an "X" to indicate that the sample chromatographic patterns did not resemble the fuel standard used for quantitation.

[10] United States Environmental Protection Agency, 2009, Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use, March 5, 2009.

Validated data were submitted to Ecology's Environmental Information Management System (EIM) prior to the submittal of this report.

Recommendations

Based on the observed effects of the injections pilot study and the evaluation of the possible causes of the effects outlined in this report, Aspect recommends decommissioning all five remaining dewatering wells at the Site (RW01 through RW05), installing a standard compliance groundwater monitoring well in the Fauntleroy Way ROW, and incorporating the new well into the compliance monitoring program for the next scheduled event following installation. This event will also include sampling at wells MW104, MW105, MW108, and MW109, MW110, and MW111. Further, Aspect recommends discontinuing quarterly or biannual sampling activities until the new Fauntleroy Way compliance well is installed.

If contaminants of concern exceed the MTCA Method A cleanup levels in any sample collected during the first sampling event following installation of the new Fauntleroy Way well, Aspect recommends proceeding with biannual sampling of all wells in the compliance well network, including monitoring geotechnical parameters for the monitored attenuation analysis. If contaminants of concern are below cleanup levels, Aspect recommends proceeding with quarterly sampling to pursue four consecutive quarters of compliance groundwater sampling for Site closure.

Limitations

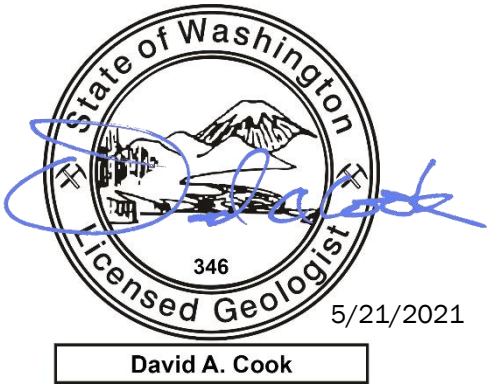
Work for this project was performed for the LMI – West Seattle Holdings, LLC (Client), and this letter was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This letter does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

Please refer to Appendix C titled "Report Limitations and Guidelines for Use" for additional information governing the use of this report.

Sincerely,

Aspect consulting, LLC



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Attachments:
Table 1 – Compliance Groundwater Monitoring Well Network
Table 2 – Summary of Compliance Groundwater Monitoring Results
Figure 1 – Site Location
Figure 2 – Compliance Well Network and Groundwater Elevation Contours
Figure 3 – Groundwater Analytical Results
Figure 4 – MW104 Postconstruction Data
Figure 5 – MW108 Postconstruction Data
Appendix A – Laboratory Analytical Reports
Appendix B – Data Validation Report
Appendix C – Report Limitations and Guidelines for Use

TABLES

Table 1. Compliance Groundwater Monitoring Well Network

Project 160328, SKS Shell Station Site, Seattle, Washington

Well Name[1]	Top of Casing Elevation (ft. NAVD88)	Well Diameter (in.)	Screen Length (ft.)	Total Depth (ft. bgs)	Screened Interval				Status	Last Accessed	First Quarter 2021 Water Levels[2]	
					Top Depth (ft. bgs)	Bottom Depth (ft. bgs)	Top Elevation (ft. NAVD88)	Bottom Elevation (ft. NAVD88)			Depth to Water (ft. BTOC)	Elevation (ft. NAVD88)
RW01	--	4	15	40	25	40	--	--	Blockage[3]	--	--	--
RW02	268.60	4	15	39.5	24.5 to	39.5	244.10 to	229.10	Existing	Jun-17	--	--
RW03	269.50	4	15	39.6	24.6 to	39.6	244.90 to	229.90	Existing	Mar-21	28.36	241.14
RW04	269.22	4	15	40	25 to	40	244.22 to	229.22	Existing	Mar-21	28.03	241.19
RW05	269.09	4	15	40.5	25.5 to	40.5	243.59 to	228.59	Existing	Mar-21	28.07	241.02
MW101	269.54	2	10	30	20 to	30	249.54 to	239.54	Existing	Mar-21	27.63	241.91
MW102	269.06	2	10	31.5	20 to	30	249.06 to	239.06	Decommissioned	Dec-20	--	--
MW103	269.55	2	10	31.5	20 to	30	249.55 to	239.55	Decommissioned	Dec-19	--	--
MW104	269.37	2	10	36.5	20 to	30	249.37 to	239.37	Existing	Mar-21	28.42	240.95
MW105	269.30	2	10	36.5	22 to	32	247.30 to	237.30	Existing	Mar-21	27.77	241.53
MW108	247.83	0.75	10	12.5	2.5 to	12.5	245.33 to	235.33	Existing	Mar-21	7.38	240.45
MW109	247.92	0.75	10	13	3 to	13	244.92 to	234.92	Existing	Mar-21	7.47	240.45
MW110	248.21	1	10	12	2 to	12	246.21 to	236.21	Existing	Mar-21	7.6	240.61
MW111	270.62	2	15	35	20 to	35	250.62 to	235.62	Existing	Mar-21	29.72	240.90
MW112	269.32	2	10	36	26 to	36	243.32 to	233.32	Existing	Mar-21	28.37	240.95
MW113	248.06	1	15	20	5 to	20	243.06 to	228.06	Existing	Mar-21	7.52	240.54

Notes

Wells in **bold** were sampled as part of the most recent sampling event. Ecology has approved discontinuation of groundwater sampling at wells RW02, MW101, MW102, MW103, MW112, and MW113. The sampling frequency at wells MW109, MW110, and MW111 has been reduced to include only quarters 2 and 4. Per Ecology's request, wells MW101, MW102, MW109, MW110, MW111, MW112, and MW113 are still included in the quarterly synoptic water level measurement.

[1]This table is not an all-inclusive list of all monitoring wells located historically on the Site. Only wells that have been used in post-construction compliance groundwater monitoring are shown. For full list of historical Site groundwater monitoring wells, see the Cleanup Action Report (SES, 2016).

[2]Synoptic water levels were measured on March 8, 2021.

[3]During an inspection in January 2021, well RW01 was observed to have a blockage in the well casing at a depth above the water table, presumed to be equipment used for dewatering purposes during the 2015-2016 remedial action. The equipment could not be removed. RW01 has not been used for compliance monitoring.

BTOC = below Top of Casing (North)

ft = feet

NAVD88 = North American Vertical Datum 1988

in = inches

bgs = below ground surface

-- = not measured

Table 2. Summary of Compliance Groundwater Monitoring Results

Project No. 160328, SKS Shell Station Site, Seattle, Washington

				BTEX				Total Petroleum Hydrocarbons (TPH)			TPH with Silica Gel	
			Analytes	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
			MTCA Method A Cleanup Level	5	1000	700	1000	1000 / 800	500	500	500	500
Sample Location[1]	Sample Date	Depth to Water (ft. BTOC)	Groundwater Elevation (ft. NAVD88)									
MW104	03/17/2016	26.41	242.94	**1.2**	**1.8**	**2.2**	**5.7**	**480**	**1200 X**	< 300 U	--	--
	06/24/2016	25.16	244.19	**2.5**	**2**	**3**	**9.5**	**940**	**3200**	< 250 U	--	--
	09/28/2016	25.55	243.80	**7.2**	< 1 U	**3.7**	**7.4**	**940**	**4000 X**	**340 X**	--	--
	12/23/2016	27.28	242.07	**2.1**	**2.1**	**17**	**27**	**2000**	**16000**	**380 X**	**180**	< 250 U
	03/17/2017	27.55	241.80	< 1 U	< 1 U	**8.5**	**10**	**1400**	**7900**	< 400 U	**290 X**	< 400 U
	06/15/2017	27.92	241.45	< 1 U	< 1 U	**4**	**3.1**	**700**	**3000**	< 300 U	**370**	< 250 U
	9/14/2017	28.21	241.16	< 1 U	< 1 U	**1.3**	< 3 U	**460**	**2200**	< 300 U	**230 X**	< 250 U
	12/12/2017	28.86	240.51	< 1 U	**1.1**	**1.3**	< 3 U	**340**	**780 X**	< 350 U	--	--
	3/22/2018	28.88	240.49	< 1 U	< 1 U	< 1 U	< 3 U	**220**	**590 X**	< 250 U	--	--
	06/21/2018	28.96	240.41	< 1 U	< 1 U	< 1 U	< 3 U	**130**	**720**	< 350 U	--	--
	09/17/2018	29.27	240.10	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**480**	< 350 U	--	--
	12/18/2018	29.02	240.35	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**390**	< 250 U	--	--
	03/14/2019	29.25	240.12	< 1 U	< 1 U	< 1 U	< 3 U	**170**	**690 X**	< 300 U	--	--
	06/06/2019	29.32	240.05	< 1 U	< 1 U	< 1 U	< 3 U	**210**	**750 X**	**290**	--	--
	09/12/19	Dry	--	Insufficient water for sampling								
	12/19/2019	29.01	240.36	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**310 X**	**300 X**	--	--
	04/22/2020	28.78	240.59	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**200 X**	< 250 U	--	--
	06/30/2020	29.50	239.87	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**210 X**	< 250 U	--	--
	9/22/2020	29.14	240.23	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**380 X**	< 300 U	--	--
	12/15/2020	29.16	240.21	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**140 X**	< 320 U	--	--
	3/8/2021	29.35	240.02	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**89 X**	< 250 U	--	--
MW105	06/13/2017	27.36	241.94	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	9/13/2017	27.96	241.34	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 60 U	< 300 U	--	--
	12/12/2017	28.41	240.89	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	3/22/2018	28.45	240.85	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 65 U	< 320 U	--	--
	06/21/2018	28.56	240.74	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	09/17/2018	28.96	240.34	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	12/18/2018	28.9	240.40	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	03/14/2019	28.66	240.64	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	06/06/2019	29.06	240.24	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**96 X**	< 250 U	--	--
	09/12/2019	29.37	239.93	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	12/18/2019	28.97	240.33	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	04/21/2020	28.25	241.05	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	06/29/2020	28.36	240.94	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	9/21/2020	28.77	240.53	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	12/14/2020	28.82	240.48	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 65 U	< 320 U	--	--
	3/8/2021	29.10	240.20	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--

Table 2. Summary of Compliance Groundwater Monitoring Results

Project No. 160328, SKS Shell Station Site, Seattle, Washington

				BTEX				Total Petroleum Hydrocarbons (TPH)			TPH with Silica Gel	
			Analytes	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
			MTCA Method A Cleanup Level	5	1000	700	1000	1000 / 800	500	500	500	500
Sample Location[1]	Sample Date	Depth to Water (ft. BTOC)	Groundwater Elevation (ft. NAVD88)									
MW108	03/17/2016	5.52	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**93 X**	< 300 U	--	--
	06/24/2016	3.33	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	09/28/2016	3.85	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 60 U	< 300 U	--	--
	12/23/2016	6.56	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**94 X**	< 350 U	< 70 U	< 350 U
	03/03/2017	6.64	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 80 U	< 400 U	< 80 U	< 400 U
	06/14/2017	7.06	240.77	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**140 X**	< 250 U	--	--
	9/14/2017	6.69	241.14	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**160 X**	< 250 U	--	--
	12/12/2017	7.7	240.13	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	03/23/2018	7.44	240.39	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**71 X**	< 250 U	--	--
	06/21/2018	7.75	240.08	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**150 X**	< 450 U	--	--
	09/17/2018	7.83	240.00	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**110**	< 480 U	--	--
	12/18/2018	7.98	239.85	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	03/14/2019	7.78	240.05	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**680 X**	< 350 U	--	--
	06/06/2019	7.87	239.96	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**590 X**	< 250 U	--	--
	09/12/2019	8.28	239.55	< 1 U	< 1 U	< 1 U	< 3 U	**100**	**1200 X**	< 320 U	--	--
	12/18/2019	7.88	239.95	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**280**	< 250 U	--	--
	04/22/2020	7.58	240.25	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**160 X**	< 250 U	--	--
	06/30/2020	11.00	236.83	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**120 X**	< 250 U	--	--
	9/22/2020	8.06	239.77	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**280 X**	< 300 U	--	--
	12/15/2020	8.13	239.70	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**350 X**	< 250 U	--	--
	3/8/2021	8.04	239.79	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**200 X**	< 250 U	--	--
MW109	03/17/2016	5.42	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**97 X**	< 250 U	--	--
	06/24/2016	3.35	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**160 X**	< 250 U	--	--
	09/28/2016	3.96	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**260 X**	< 250 U	--	--
	12/23/2016	6.59	--	< 1 U	< 1 U	< 1 U	< 3 U	**250**	**430 X**	< 250 U	< 50 U	< 250 U
	03/03/2017	6.7	--	< 1 U	< 1 U	**1.2**	< 3 U	**370**	**490 X**	< 250 U	**55 X**	< 250 U
	06/14/2017	6.87	241.05	< 1 U	< 1 U	< 1 U	< 3 U	**220**	**330**	< 250 U	--	--
	09/14/2017	6.84	241.08	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**140 X**	< 250 U	--	--
	12/12/2017	7.69	240.23	< 1 U	**1.1**	< 1 U	< 3 U	**150**	< 50 U	< 250 U	--	--
	03/23/2018	7.75	240.17	< 1 U	< 1 U	**1.3**	< 3 U	**190**	**110 X**	< 250 U	--	--
	06/21/2018	7.87	240.05	< 1 U	**1.2**	< 1 U	< 3 U	**190**	**200**	< 250 U	--	--
	09/17/2018	8.05	239.87	< 1 U	< 1 U	**1.8**	< 3 U	**150**	**110 X**	< 250 U	--	--
	12/18/2018	7.61	240.31	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**61 X**	< 250 U	--	--
	03/14/2019	7.94	239.98	< 1 U	< 1 U	< 1 U	< 3 U	**140**	< 60 U	< 300 U	--	--
	06/06/2019	8.1	239.82	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**140 X**	< 250 U	--	--
	09/12/2019	8.39	239.53	< 1 U	< 1 U	< 1 U	< 3 U	**110**	**110 X**	< 250 U	--	--
	12/18/2019	7.67	240.25	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	04/22/2020	7.84	240.08	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**100 X**	< 250 U	--	--
	06/30/2020	7.38	240.54	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	9/22/2020	7.89	240.03	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**70 X**	< 250 U	--	--
	12/15/2020	8.03	239.89	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**69 X**	< 260 U	--	--

Table 2. Summary of Compliance Groundwater Monitoring Results

Project No. 160328, SKS Shell Station Site, Seattle, Washington

				BTEX				Total Petroleum Hydrocarbons (TPH)			TPH with Silica Gel	
			Analytes	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
			MTCA Method A Cleanup Level	5	1000	700	1000	1000 / 800	500	500	500	500
Sample Location[1]	Sample Date	Depth to Water (ft. BTOC)	Groundwater Elevation (ft. NAVD88)									
MW110	03/17/2016	5.7	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	06/24/2016	3.56	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**100 X**	< 250 U	--	--
	09/28/2016	4.19	--	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**590 X**	**440**	--	--
	12/23/2016	6.96	--	**2.3**	< 1 U	**9.7**	**18**	**500**	**1200**	< 300 U	**68 X**	< 300 U
	03/03/2017	7.57	--	**2.1**	< 1 U	**9.3**	**4.7**	**570**	**1000 X**	< 250 U	**110 X**	< 250 U
	06/14/2017	7.78	240.43	< 1 U	< 1 U	**2**	< 3 U	**260**	**520**	< 250 U	--	--
	9/14/2017	7.44	240.77	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**150 X**	< 250 U	--	--
	12/12/2017	8.02	240.19	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**99 X**	< 250 U	--	--
	03/23/2018	8.05	240.16	--	--	--	--	--	**73 X**	< 250 U	--	--
	06/21/2018	8.15	240.06	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**96 X**	< 250 U	--	--
	09/17/2018	8.4	239.81	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	12/18/2018	7.98	240.23	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	03/14/2019	8.2	240.01	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**74 X**	< 300 U	--	--
	06/06/2019	8.3	239.91	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**91 X**	< 250 U	--	--
	09/12/2019	9.03	239.18	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**73 X**	< 180 U	--	--
	12/18/2019	7.68	240.53	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	04/22/2020	8.15	240.06	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**250 X**	< 250 U	--	--
	06/30/2020	7.52	240.69	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	9/22/2020	8.26	239.95	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	12/15/2020	8.35	239.86	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**51 X**	< 250 U	--	--
MW111	10/09/2018	30.51	240.11	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**55 X**	< 250 U	--	--
	12/18/2018	29.9	240.72	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	03/14/2019	30.15	240.47	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**83 X**	< 250 U	--	--
	06/06/2019	30.5	240.12	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**84 X**	< 250 U	--	--
	09/13/2019	30.72	239.9	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	12/18/2019	30.26	240.36	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**94 X**	< 280 U	--	--
	04/22/2020	30.11	240.51	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	06/30/2020	30.09	240.53	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	9/22/2020	30.32	240.3	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**54 X**	< 250 U	--	--
	12/15/2020	30.37	240.25	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**< 50 U**	< 250 U	--	--
MW112	03/14/2019	28.88	240.44	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**58 X**	< 250 U	--	--
	06/06/2019	29.15	240.17	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**59 X**	< 250 U	--	--
	09/12/2019	29.44	239.88	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	12/18/2019	28.65	240.67	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**58 X**	< 250 U	--	--
	04/21/2020	28.78	240.54	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	06/29/2020	28.63	240.69	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--

Table 2. Summary of Compliance Groundwater Monitoring Results

Project No. 160328, SKS Shell Station Site, Seattle, Washington

				BTEX				Total Petroleum Hydrocarbons (TPH)			TPH with Silica Gel	
			Analytes	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
			MTCA Method A Cleanup Level	5	1000	700	1000	1000 / 800	500	500	500	500
Sample Location[1]	Sample Date	Depth to Water (ft. BTOC)	Groundwater Elevation (ft. NAVD88)									
MW113	03/23/2018	7.68	240.38	--	--	--	--	--	**93 X**	< 250 U	--	--
	06/21/2018	7.81	240.25	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**71 X**	< 250 U	--	--
	09/17/2018	8.05	240.01	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	12/18/2018	7.58	240.48	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**100 X**	< 250 U	--	--
	03/14/2019	7.98	240.08	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**79 X**	< 250 U	--	--
	06/06/2019	8.13	239.93	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**89 X**	< 250 U	--	--
	09/12/2019	8.31	239.75	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**87 X**	< 250 U	--	--
	12/18/2019	8.04	240.02	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**80 X**	< 250 U	--	--
	04/21/2020	7.94	240.12	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	< 50 U	< 250 U	--	--
	06/30/2020	7.86	240.2	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**58 X**	< 250 U	--	--
RW03	03/17/2016	26.23	--	**41**	**6.9**	**51**	**260**	**2300**	**1400 X**	< 250 U	--	--
	06/24/2016	25.4	--	**27**	**4.4**	**27**	**59**	**1600**	**3600**	< 250 U	--	--
	09/28/2016	25.71	--	**6.7**	< 1 U	**20**	**45**	**1100**	**2400 X**	< 300 U	--	--
	12/23/2016	26.77	--	**470**	**16**	**380**	**750**	**9000**	**11000**	< 300 U	**720 X**	< 300 U
	03/02/2017	27.22	--	**150**	< 10 U	**220**	**190**	**4900**	**11000 X**	< 250 U	**880 X**	< 250 U
	06/14/2017	27.91	241.59	**7**	< 1 U	**32**	**11**	**1300**	**1500**	< 250 U	**320 X**	< 250 U
	09/14/2017	28.3	241.2	**2.8**	**1.3**	**15**	**4.5**	**560**	**690 X**	< 300 U	**140 X**	< 300 U
	12/12/2017	28.82	240.68	**8.8**	**17**	**39**	**170**	**2500**	**1000 X**	< 300 U	--	--
	03/23/2018	28.85	240.65	**3**	**5.2**	**29**	**140**	**2100**	**760 X**	< 250 U	--	--
	06/22/2018	28.94	240.56	< 1 U	**2.3**	**31**	**34**	**730**	**740 X**	< 250 U	--	--
	09/17/2018	29.28	240.22	< 1 U	< 1 U	**11**	**15**	**370**	**430**	< 250 U	--	--
	12/18/2018	29.05	240.45	**6.5**	**5**	**75**	**250**	**2800**	**1600**	< 250 U	--	--
	03/15/2019	29.05	240.45	**1.9**	**1.7**	**46**	**140**	**1700**	**730 X**	< 250 U	--	--
	06/07/2019	29.35	240.15	< 1 U	< 1 U	**14**	**4.3**	**410**	**680 X**	< 250 U	--	--
	09/13/2019	29.81	239.69	< 1 U	< 1 U	**1.4**	**3**	**270**	**360 X**	< 250 U	--	--
	12/19/2019	29.13	240.37	**2.4**	< 1 U	**36**	**100**	**2200**	**1400 X**	< 250 U	--	--
	04/22/2020	28.58	240.92	< 1 U	< 1 U	**77**	**78**	**1400**	**700 X**	< 250 U	--	--
	06/29/2020	28.46	241.04	**1.7**	**1.3**	**75**	**41**	**930**	**1200 X**	< 250 U	--	--
	9/21/2020	29.13	240.37	< 1 U	**1.2**	**30**	**4.3**	**800**	**780 X**	< 250 U	--	--
	12/14/2020	29.25	240.25	< 1 U	**1.5**	**36**	**11**	**680**	**560 X**	< 250 U	--	--
	3/8/2021[2]	28.48	241.02	--	--	--	--	--	--	--	--	--

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Project No. 160328, SKS Shell Station Site, Seattle, Washington

				BTEX				Total Petroleum Hydrocarbons (TPH)			TPH with Silica Gel	
			Analytes	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
			MTCA Method A Cleanup Level	5	1000	700	1000	1000 / 800	500	500	500	500
Sample Location[1]	Sample Date	Depth to Water (ft. BTOC)	Groundwater Elevation (ft. NAVD88)									
RW04	06/14/2017	27.62	241.6	**2.5**	< 1 U	**16**	< 3 U	**790**	**400**	< 250 U	--	--
	09/14/2017	27.93	241.29	**6.4**	< 1 U	**26**	**21**	**400**	**330 X**	< 250 U	--	--
	12/12/2017	28.55	240.67	**3**	**1.1**	**12**	**5.2**	**360**	**200 X**	< 300 U	--	--
	03/22/2018	28.57	240.65	**1.5**	< 1 U	**14**	< 3 U	**450**	**500 X**	< 250 U	--	--
	06/21/2018	28.6	240.62	< 1 U	**2.6**	**4.8**	**4.5**	**360**	**400 X**	< 250 U	--	--
	09/17/2018	29.08	240.14	< 1 U	< 1 U	**1.5**	< 3 U	**130**	**120**	< 250 U	--	--
	12/18/2018	28.74	240.48	< 1 U	< 1 U	**1.1**	< 3 U	**160**	**510**	< 250 U	--	--
	03/15/2019	28.76	240.46	< 1 U	< 1 U	**1.9**	< 3 U	**300**	**310 X**	< 250 U	--	--
	06/07/2019	29.05	240.17	< 1 U	< 1 U	< 1 U	< 3 U	**240**	**470 X**	< 250 U	--	--
	09/13/2019	29.44	239.78	< 1 U	< 1 U	< 1 U	< 3 U	**180**	**290 X**	< 250 U	--	--
	12/18/2019	28.86	240.36	< 1 U	< 1 U	< 1 U	< 3 U	**160**	**250 X**	< 250 U	--	--
	04/22/2020	28.34	240.88	**2.9**	**1.2**	**83**	**36**	**1400**	**700 X**	< 250 U	--	--
	06/29/2020	28.3	240.92	**1.5**	< 1 U	**34**	< 3 U	**900**	**730 X**	< 250 U	--	--
	9/21/2020	28.85	240.37	< 1 U	< 1 U	**4.9**	< 3 U	**420**	**340 X**	< 250 U	--	--
	12/14/2020	28.96	240.26	< 1 U	1.7	**3.2**	< 3 U	**420**	**750 X**	< 250 U	--	--
	3/8/2021[2]	28.21	241.01	--	--	--	--	--	--	--	--	--
RW05	06/14/2017	27.64	241.45	< 1 U	< 1 U	**4.4**	< 3 U	**400**	**470**	< 250 U	--	--
	09/14/2017	27.91	241.18	< 1 U	**1.2**	**1.5**	< 3 U	**280**	**300 X**	< 300 U	--	--
	12/12/2017	28.54	240.55	< 1 U	**1.3**	**1.5**	< 3 U	**230**	**170 X**	< 300 U	--	--
	03/22/2018	28.56	240.53	< 1 U	< 1 U	**1.4**	< 3 U	**180**	**140 X**	< 260 U	--	--
	06/21/2018	28.63	240.46	< 1 U	**1.4**	**1.4**	< 3 U	**140**	**180 X**	< 250 U	--	--
	09/17/2018	28.96	240.13	< 1 U	< 1 U	**2.1**	< 3 U	**140**	**140**	< 250 U	--	--
	12/18/2018	28.75	240.34	< 1 U	< 1 U	**1.4**	< 3 U	**110**	**160 X**	< 250 U	--	--
	03/14/2019	28.74	240.35	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**120 X**	< 250 U	--	--
	06/06/2019	29.00	240.09	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**99 X**	< 250 U	--	--
	09/12/2019	29.33	239.76	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**190 X**	< 250 U	--	--
	12/19/2019	28.75	240.34	< 1 U	< 1 U	< 1 U	< 3 U	< 100 U	**130 X**	< 250 U	--	--
	04/21/2020	28.43	240.66	< 1 U	< 1 U	< 1 U	< 3 U	**140**	**420 X**	< 250 U	--	--
	06/30/2020	28.48	240.61	< 1 U	< 1 U	**1.5**	< 3 U	**160**	**230 X**	< 250 U	--	--
	9/21/2020	28.80	240.29	< 1 U	< 1 U	< 1 U	< 3 U	**100**	**150 X**	< 250 U	--	--
	12/14/2020	28.90	240.19	< 1 U	< 1 U	1.3	< 3 U	**130**	**190 X**	< 250 U	--	--
	3/8/2021[2]	28.31	240.78	--	--	--	--	--	--	--	--	--

Table 2. Summary of Compliance Groundwater Monitoring Results

Project No. 160328, SKS Shell Station Site, Seattle, Washington

				BTEX				Total Petroleum Hydrocarbons (TPH)			TPH with Silica Gel	
			Analytes	Benzene	Toluene	Ethylbenzene	Total Xylenes	Gasoline-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics	Diesel-Range Organics	Motor Oil-Range Organics
			Unit	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
			MTCA Method A Cleanup Level	5	1000	700	1000	1000 / 800	500	500	500	500
Sample Location[1]	Sample Date	Depth to Water (ft. BTOC)	Groundwater Elevation (ft. NAVD88)									

Notes

Bold = indicates concentrations of the analyte detected above the reporting limits.

Purple shaded = indicates concentration of the analyte detected above the Model Toxics Control Act (MTCA) Method A Cleanup Level

[1]This table is not an all-inclusive list of all monitoring wells located at the Site historically. Only compliance monitoring wells that are currently being accessed for quarterly compliance groundwater sampling are included in this table. Further, Table 2 only presents data from the post-cleanup compliance monitoring events for each well shown. Refer to the Cleanup Action Report (SES, 2016) and the Fourth Quarter 2019 Compliance Groundwater Monitoring Report (SES, 2019) for a full list of all historical Site wells and groundwater analytical data from samples collected prior to the start of compliance monitoring.

[2] Samples showed residual impacts from January 2021 injections pilot study

U = indicates analyte not detected at or above reporting limit shown.

J = indicates that the reported or calculated concentration is an estimate.

X = chromatographic pattern does not match fuel standard used for quantitation.

E = result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

ft = feet

BTOC = below top of casing (north)

NAVD88 = North American Vertical Datum 1988

ug/L = micrograms per liter

FIGURES

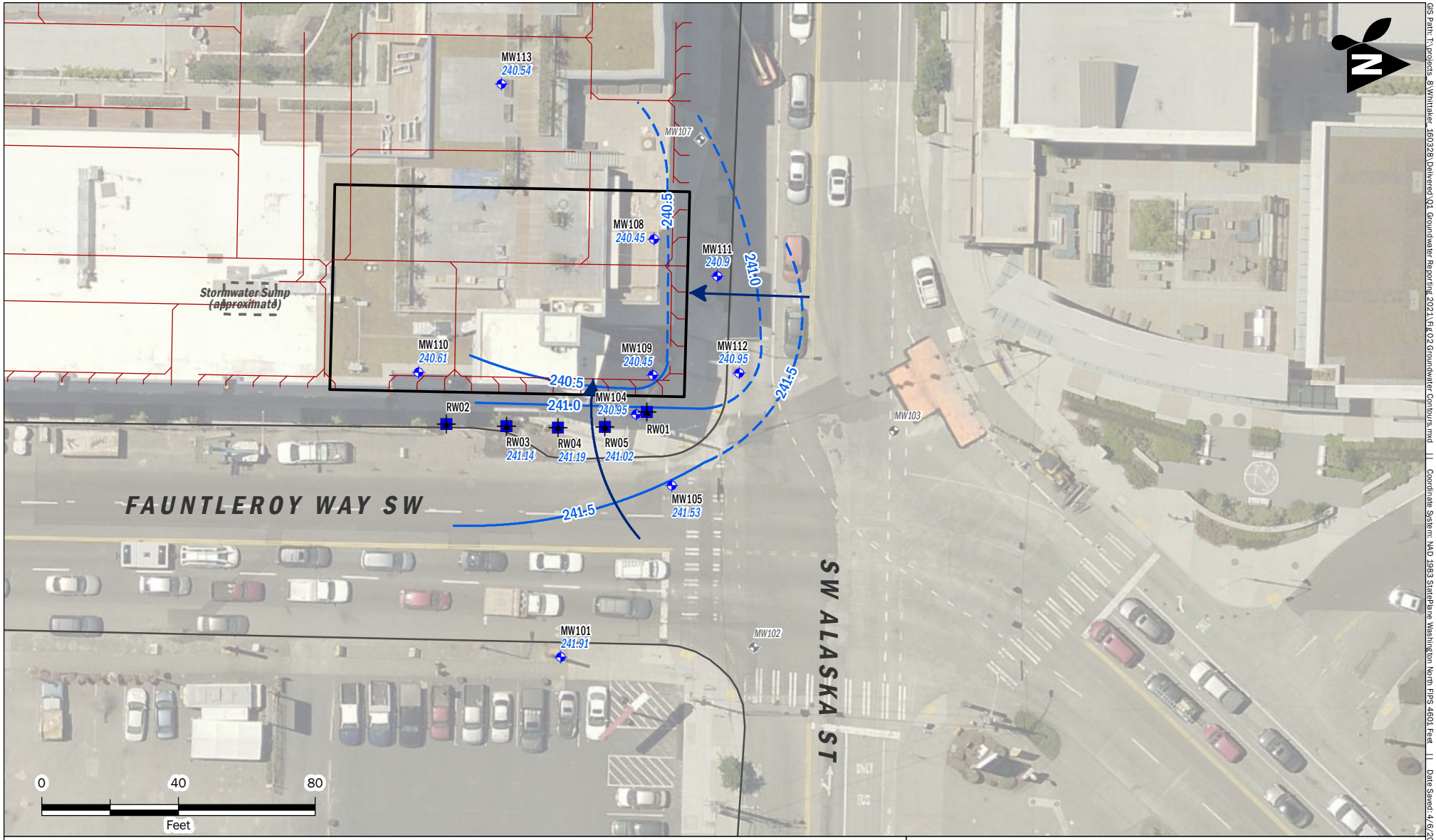
Site Location

Q1 2021 Groundwater Monitoring Report
SKS Shell Station Site
3901 Southwest Alaska Street
Seattle, Washington

Aspect Consulting	APR-2021	BY: SBM / KB	FIGURE NO. 1
	PROJECT NO. 160328-008	REVISED BY: KB / RAP	

Basemap Layer Credits || Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

GIS Path: T:\projects_8\Whittaker_160328\Delivered\Q1 Groundwater Reporting 2021\Fig01 Vicinity Map.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 4/6/2021 || User: smortensen || Print Date: 4/6/2021



Exploration Name
MW113 239.8
Groundwater Elevation (ft)

- Monitoring Well
- Existing Remediation Well
- Decommissioned Monitoring Well
- Sewer Manhole
- Sanitary Sewer
- Footing Drain
- Sidewalk Edge
- Groundwater Flow Direction
- Groundwater Elevation Contour (dashed where inferred)
- SKS Shell Property
- King County Parcel (2020)

Note:
- All features shown are approximate
- Only select prior borings are shown, refer to the Cleanup Action Report for additional historical boring locations

Compliance Well Network and Groundwater Elevation Contours

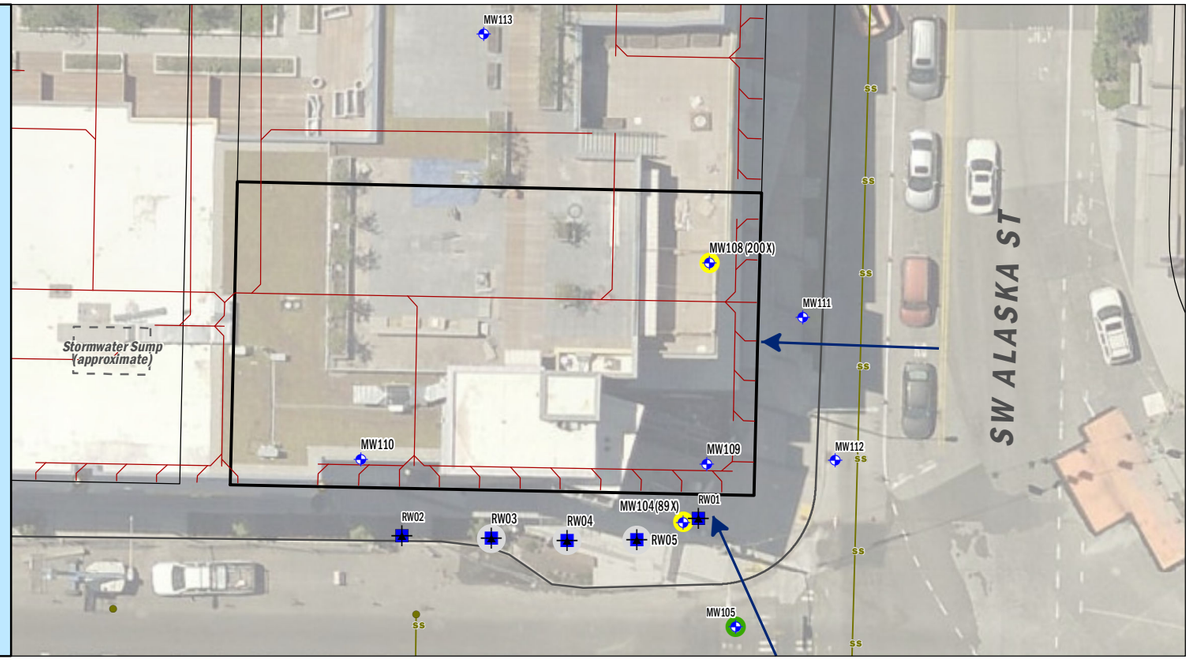
Q1 2021 Groundwater Monitoring Report
SKS Shell Station Site
3901 Southwest Alaska Street
Seattle, Washington

Aspect Consulting	APR-2021	BY: SBM / KB	FIGURE NO. 2
	PROJECT NO. 160328-008	REVISED BY: ---	

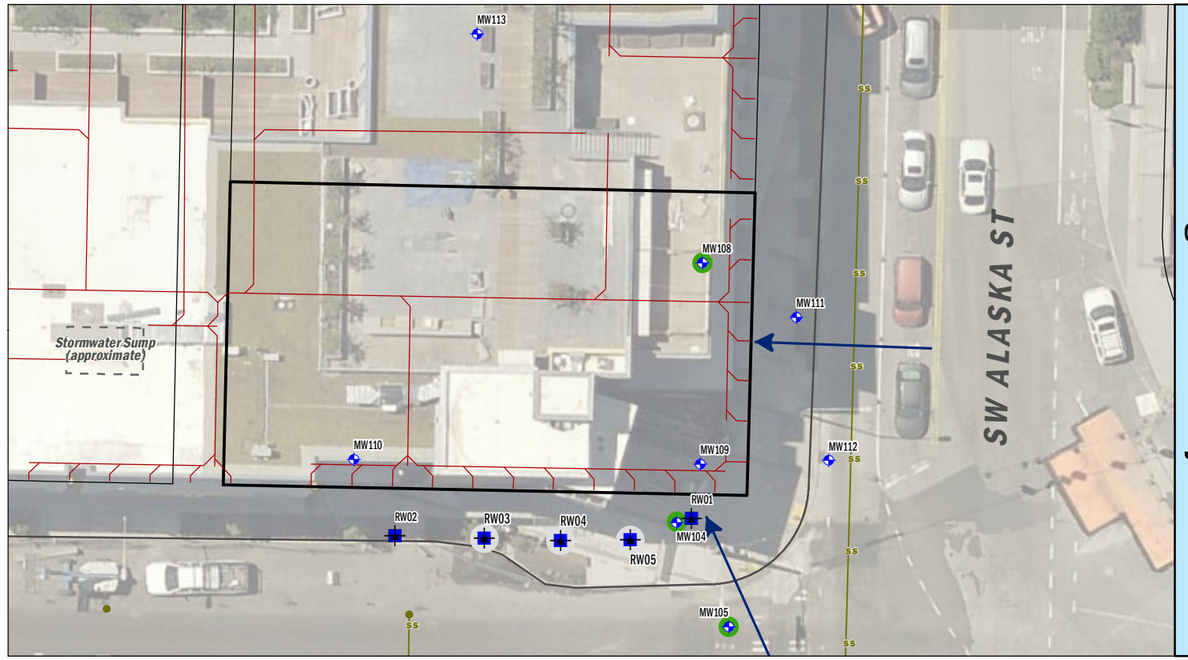
Basemap Layer Credits || King County

GIS Path: T:\projects_8\Whittaker_160328\Delivered\Q1 Groundwater Reporting 2021\Fig02 Groundwater Contours.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 4/6/2021 || User: smortensen || Print Date: 4/6/2021

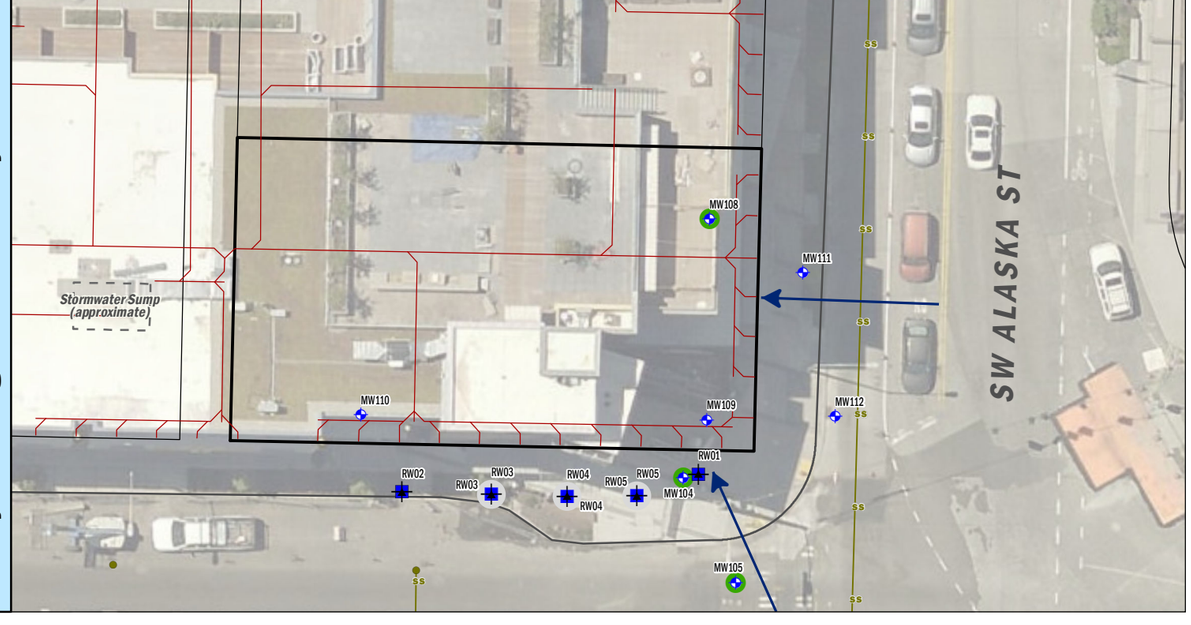
Diesel-Range Petroleum Hydrocarbons



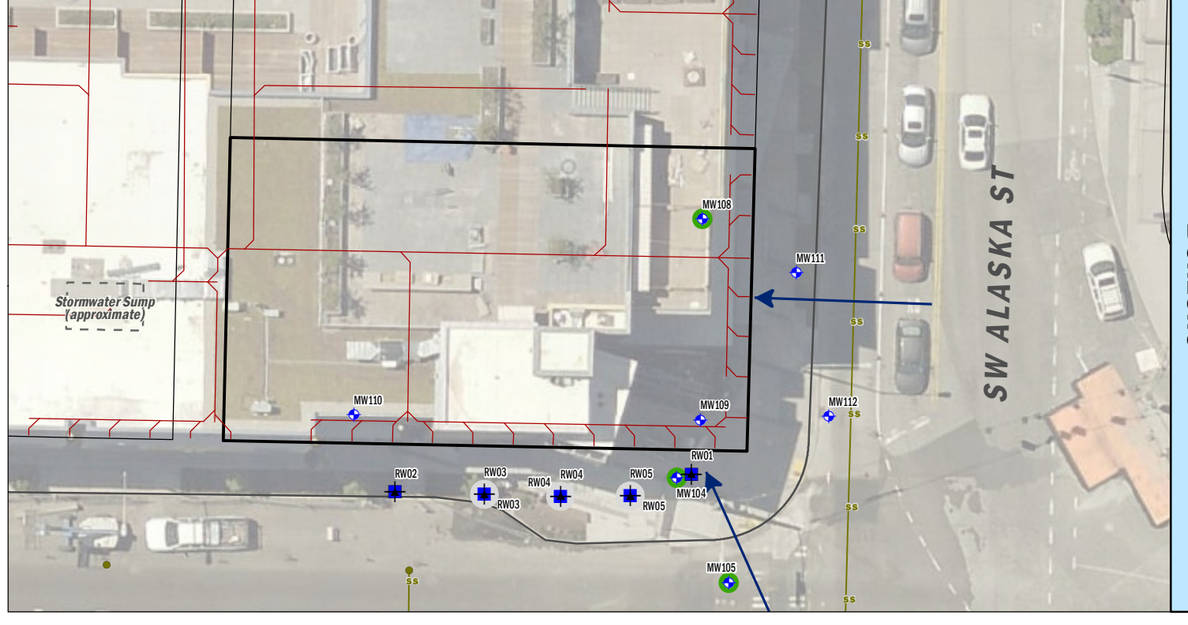
Gasoline-Range Petroleum Hydrocarbons



Heavy Oil-Range Petroleum Hydrocarbons



Benzene



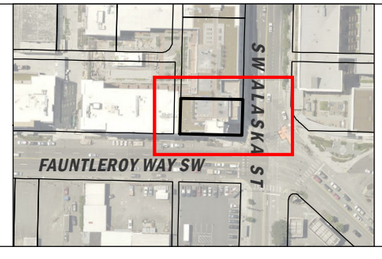
Analytical Results

- Contaminant indicated was detected at a concentration greater than the MTCA Method A cleanup level.
- Contaminant indicated was detected at concentrations less than the MTCA Method A cleanup level.
- Contaminant indicated was not detected.

Sample ID → RW03 (780X) ← Maximum Detected Concentration of Contaminant (ug/L)

- Monitoring Well
- Injection Pilot Test Well*
- Remediation Well
- Sewer Manhole
- Sanitary Sewer
- Footing Drain
- Sidewalk Edge
- SKS Shell Property
- King County Parcel (2020)
- Groundwater Flow Direction

Note:
**Samples showed residual impacts from January 2021 injections pilot study*



0 30 Feet

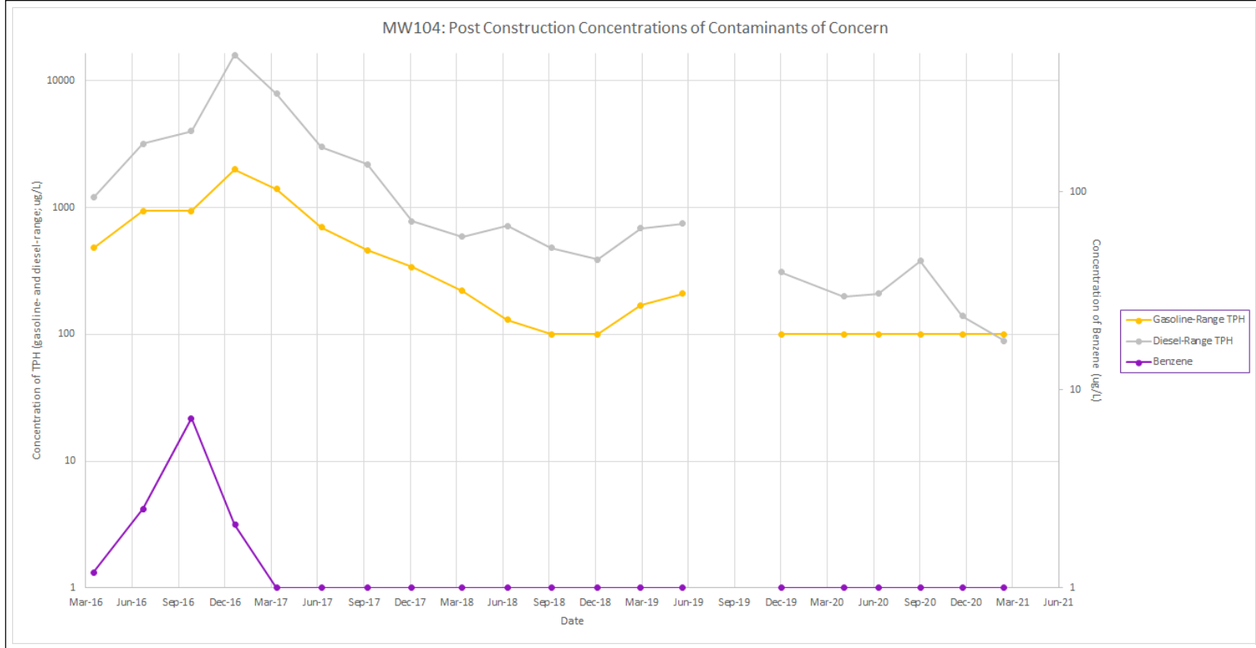
Groundwater Analytical Results

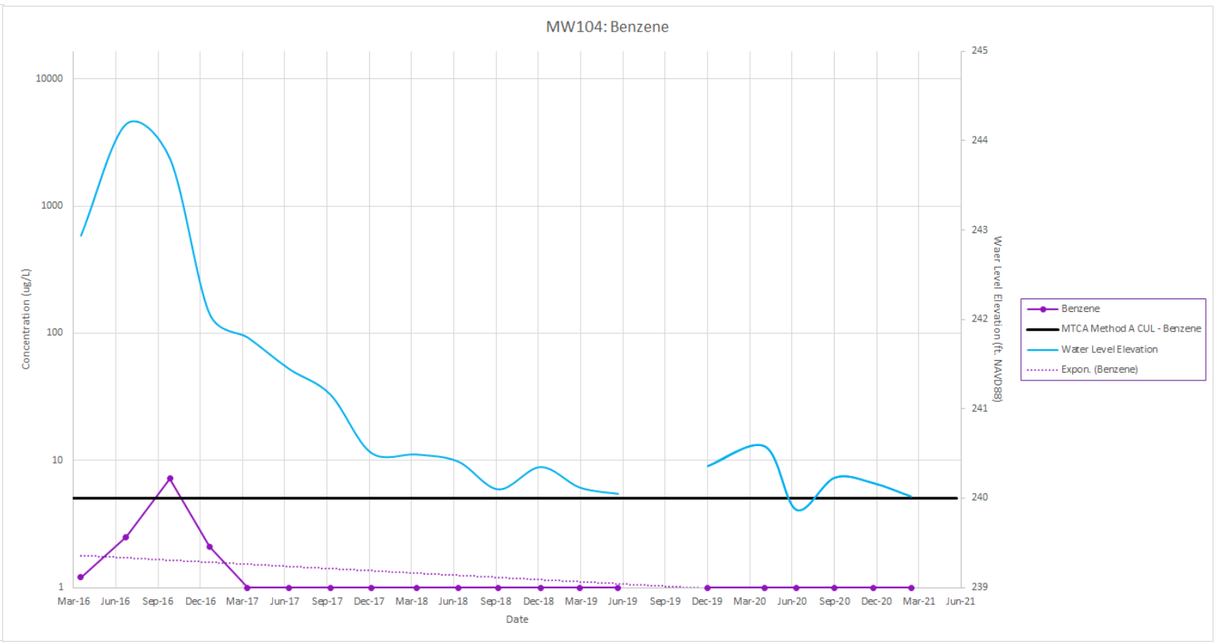
Q1 2021 Groundwater Monitoring Report
SKS Shell Station Site
3901 Southwest Alaska Street
Seattle, Washington

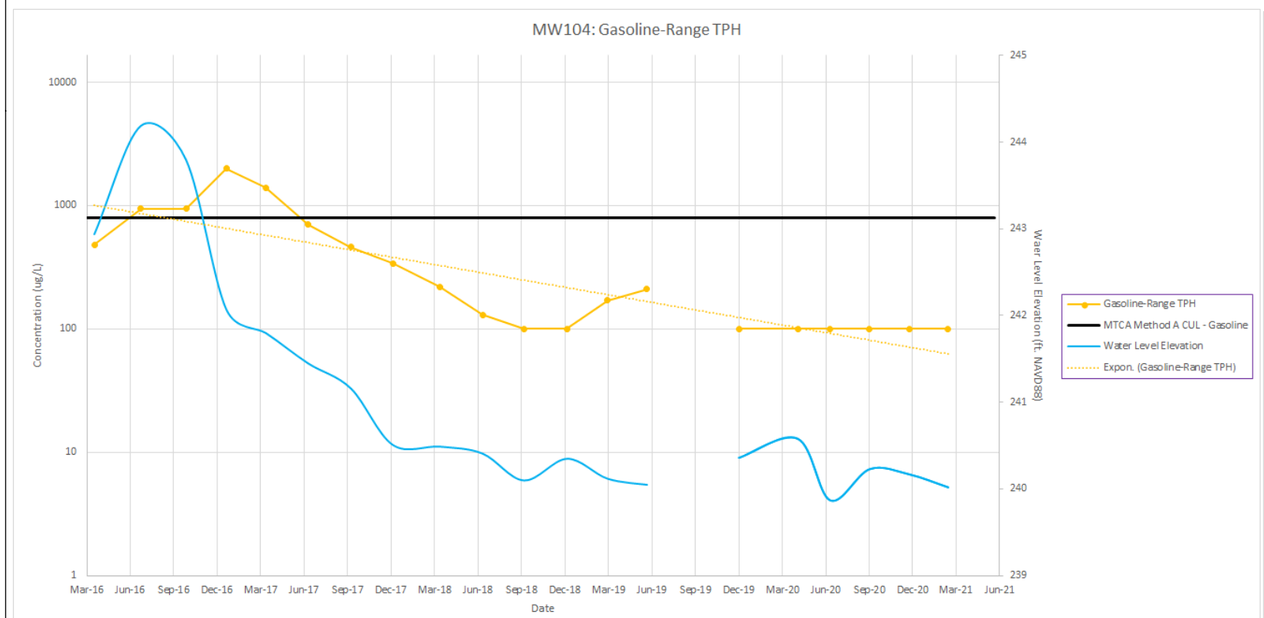
Aspect Consulting	APR-2021	BY: SBM / KB	FIGURE NO. 3
	PROJECT NO. 160328-008	REVISED BY: AY / RAP	

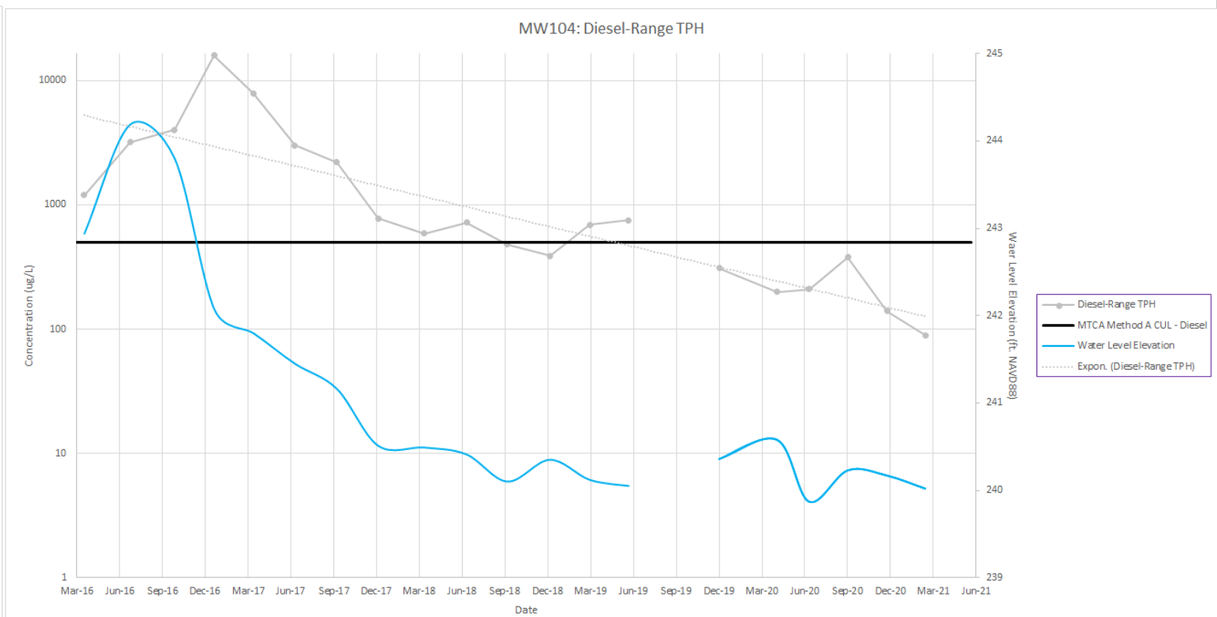
Basemap Layer Credits || Pictometry, King County

GIS Path: T:\projects_8\Whittaker_160328\Deliverables\Q1 Groundwater Reporting 2021\Fig 03 Groundwater Analytical Results 2.mxd || Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet || Date Saved: 4/23/2021 || User: smortensen || Print Date: 4/23/2021







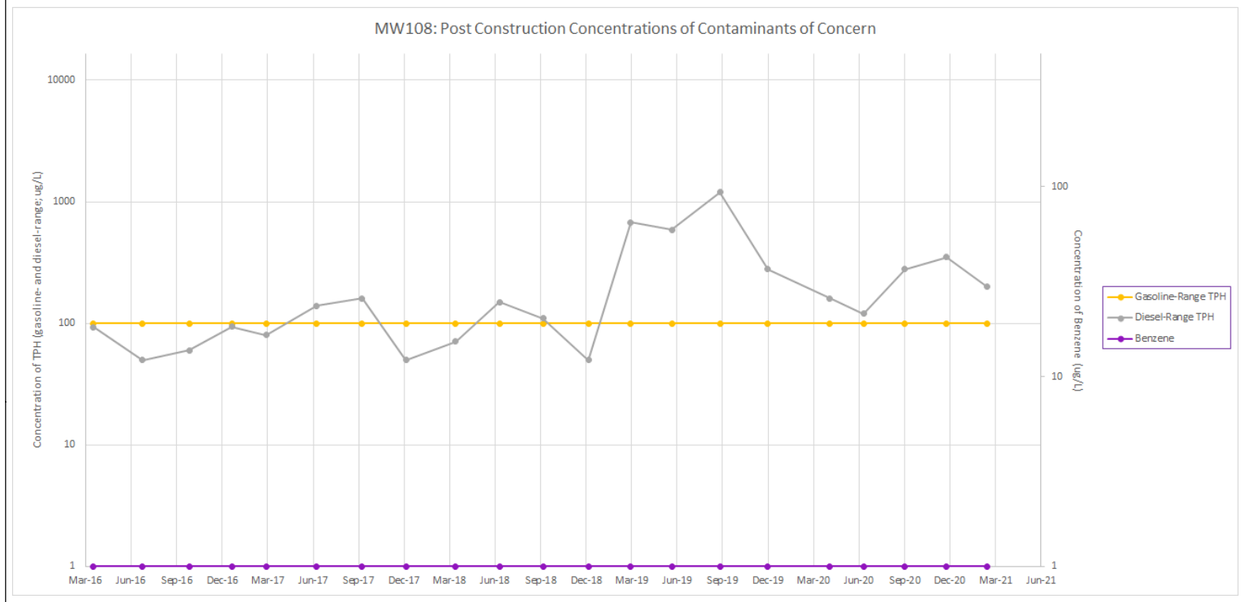


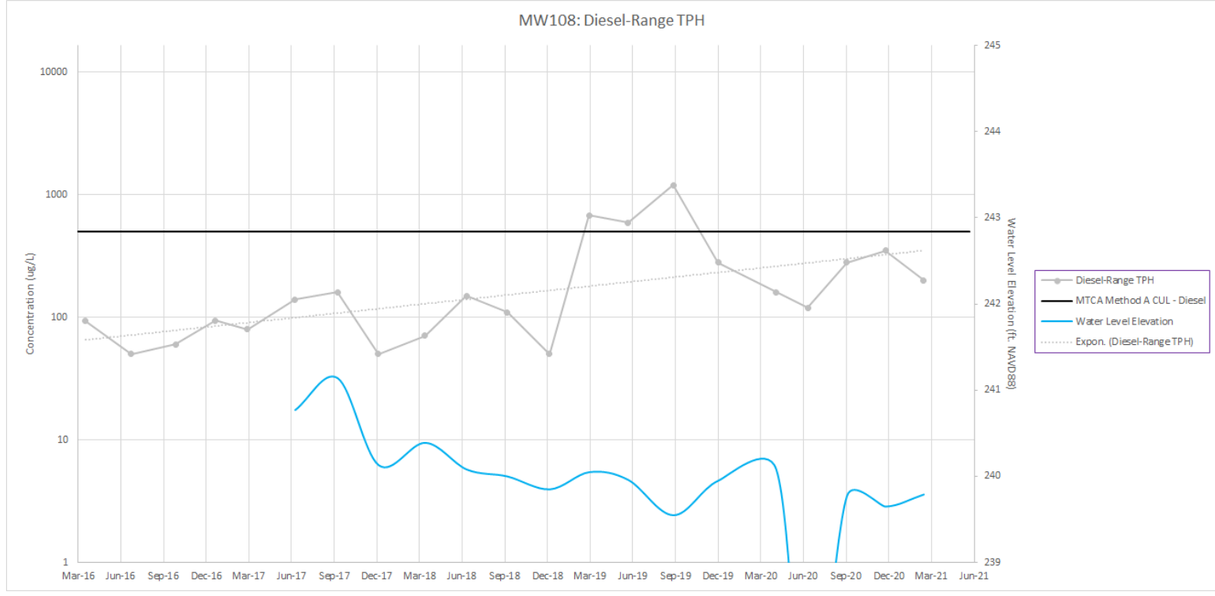
Notes:
-Laboratory reporting limit for benzene is 1 ug/L
-Laboratory reporting limit for gasoline-range TPH is 100 ug/L
-Laboratory reporting limit for diesel-range TPH is 50 ug/L

MW104 Postconstruction Data

Q1 2021 Groundwater Monitoring Report
SKS Shell Station Site
Seattle, Washington

Aspect Consulting	MAR-2021	BY: KB	FIGURE NO. 4
	PROJECT NO. 160328	REVISED BY: ---	





Notes:

-Benzene and gasoline-range TPH have not been detected above the laboratory reporting limit during compliance monitoring at MW108

--Laboratory reporting limit for diesel-range TPH is 50 ug/L

MW108 Postconstruction Data

Q1 2021 Groundwater Monitoring Report
SKS Shell Station Site
Seattle, Washington

Aspect Consulting	MAR-2021	BY: KB	FIGURE NO. 5
	PROJECT NO. 160328	REVISED BY: ---	

APPENDIX A

Laboratory Analytical Reports

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.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

April 6, 2021

Kristin Beck, Project Manager
Aspect Consulting, LLC
350 Madison Ave. N.
Bainbridge Island, WA 98110-1810

Dear Ms Beck:

Included are the results from the testing of material submitted on March 8, 2021 from the Whittaker SKS Shell 160328, F&BI 103146 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. 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: Aspect Data
ASP0406R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 8, 2021 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Whittaker SKS Shell 160328, F&BI 103146 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC	Color of Water
103146 -01	RW03-030821	Pink
103146 -02	RW04-030821	Yellow
103146 -03	RW05-030821	Light Orange
103146 -04	MW 100-030821	Yellow
103146 -05	MW 104-030821	Clear
103146 -06	MW 108-030821	Clear
103146 -07	MW 105-030821	Clear

All quality control requirements were acceptable.

Date of Report: 04/06/21
Date Received: 03/08/21
Project: Whittaker SKS Shell 160328, F&BI 103146
Date Extracted: 03/09/21
Date Analyzed: 03/10/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
RW03-030821 103146-01	1.3	8.5	100	210	3,500	87
RW04-030821 103146-02	<1	<1	18	16	1,100	76
RW05-030821 103146-03	<1	<1	2.3	8.1	780	72
MW 100-030821 103146-04	<1	1.1	19	16	1,100	77
MW 104-030821 103146-05	<1	<1	<1	<3	<100	72
MW 108-030821 103146-06	<1	<1	<1	<3	<100	70
MW 105-030821 103146-07	<1	<1	<1	<3	<100	70
Method Blank 01-365 MB	<1	<1	<1	<3	<100	72

Date of Report: 04/06/21
Date Received: 03/08/21
Project: Whittaker SKS Shell 160328, F&BI 103146
Date Extracted: 03/09/21
Date Analyzed: 03/09/21

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)
RW03-030821 103146-01	5,500 x	<250	81
RW04-030821 103146-02	13,000 x	270 x	105
RW05-030821 103146-03	19,000 x	410 x	95
MW 100-030821 103146-04	16,000 x	380 x	127
MW 104-030821 103146-05	89 x	<250	84
MW 108-030821 103146-06	200 x	<250	79
MW 105-030821 103146-07	<50	<250	83
Method Blank 01-547 MB	<50	<250	88

Date of Report: 04/06/21
Date Received: 03/08/21
Project: Whittaker SKS Shell 160328, F&BI 103146
Date Extracted: 03/09/21
Date Analyzed: 04/02/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx
Sample Extracts Passed Through a Silica Gel Column Prior to Analysis
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)
RW05-030821 103146-03	540 x	<250	83
Method Blank 01-547 MB	<50	<250	95

Date of Report: 04/06/21
Date Received: 03/08/21
Project: Whittaker SKS Shell 160328, F&BI 103146

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 103123-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<1	<1	nm
Toluene	ug/L (ppb)	<1	<1	nm
Ethylbenzene	ug/L (ppb)	<1	<1	nm
Xylenes	ug/L (ppb)	<3	<3	nm
Gasoline	ug/L (ppb)	<100	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	100	65-118
Toluene	ug/L (ppb)	50	94	72-122
Ethylbenzene	ug/L (ppb)	50	92	73-126
Xylenes	ug/L (ppb)	150	90	74-118
Gasoline	ug/L (ppb)	1,000	104	69-134

Date of Report: 04/06/21
Date Received: 03/08/21
Project: Whittaker SKS Shell 160328, F&BI 103146

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	88	96	63-142	9

Date of Report: 04/06/21
Date Received: 03/08/21
Project: Whittaker SKS Shell 160328, F&BI 103146

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 Silica Gel

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	104	104	61-133	0

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 analyte 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 due to sample matrix effects.

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.

SAMPLE CHAIN OF CUSTODY

103/46

ME 03-08-21

VW5 / E04

Page # 1 of

Report To Kristin Beck

Company Aspect Consulting

Address 710 2nd Ave, Ste 550

City, State, ZIP Seattle, WA 98104

Phone (206) 838-5838 Email kbeck@aspectconsulting.com

SAMPLERS (*signature*) Rachel

PROJECT NAME: Whittaker SKS Shell

PO #: 160328

REMARKS: X-per KB 3/9/21 ME

Project specific RLs? - Yes / (No)

INVOICE TO: AP

TURNAROUND TIME
- (X) Standard turnaround
- ☐ RUSH
- Rush charges authorized by:

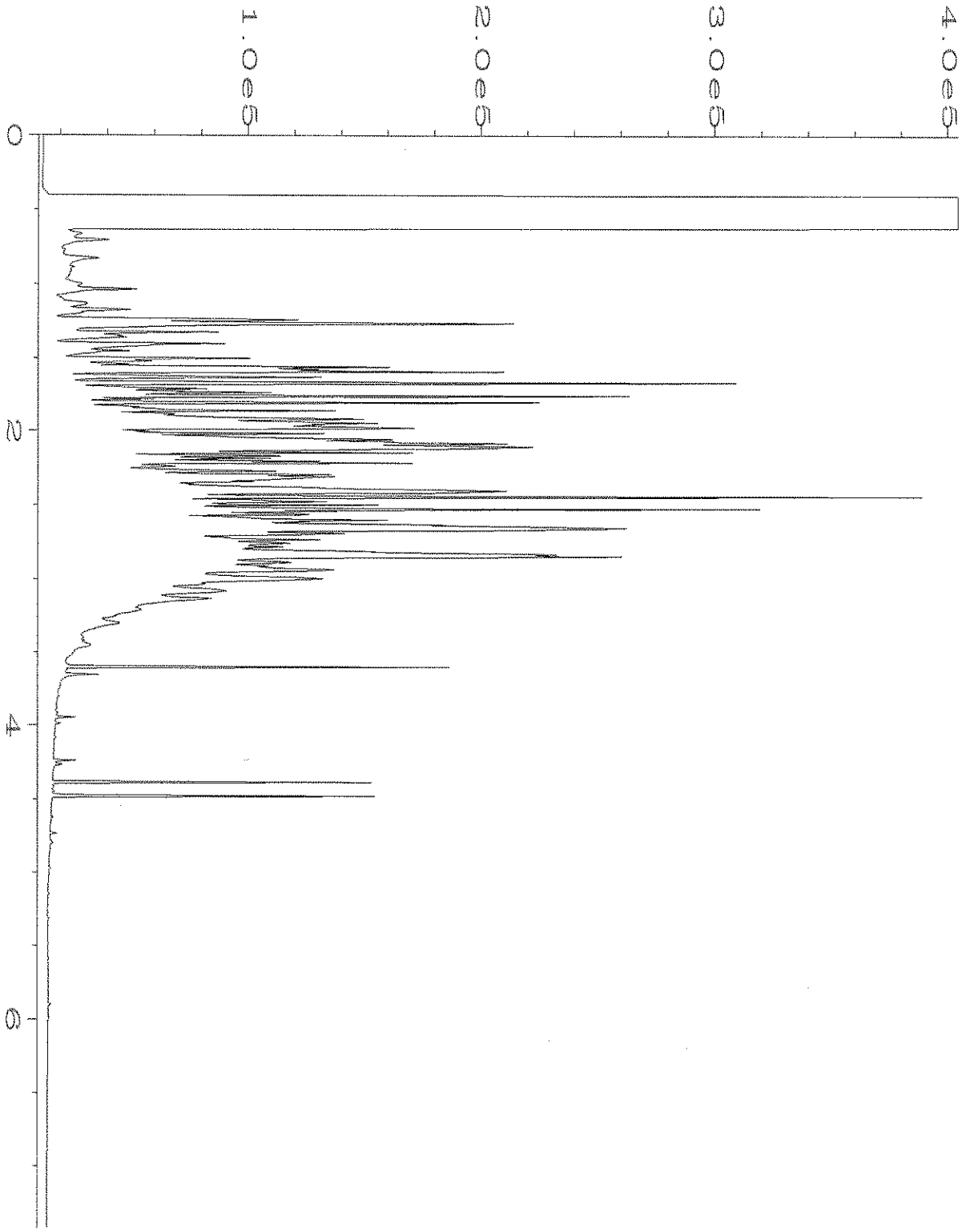
SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082	HOLD	Dy w/sc			Notes
RW03-030821	01 (A→)	3/8/21	1705	W	4	X	X	X						(X)			(X) per KB
RW04-030821	02		1610			X	X	X									4/2/21 ME
RW05-030821	03		1530			X	X	X						(X)			
MW100-030821	04		1620			X	X	X									
MW104-030821	05		1500			X	X	X									
MW108-030821	06		1320			X	X	X									
MW105-030821	07 (↓)	(↓)	1040	(↓)	(↓)	X	X	X									

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Rachel	Rachel Cornwell	Aspect	3/8/21	1825
Received by:	JOE MOHAMMED	FEDEX	3/8/21	1825
Relinquished by:				
Received by:				

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

Samples received at 3 °C



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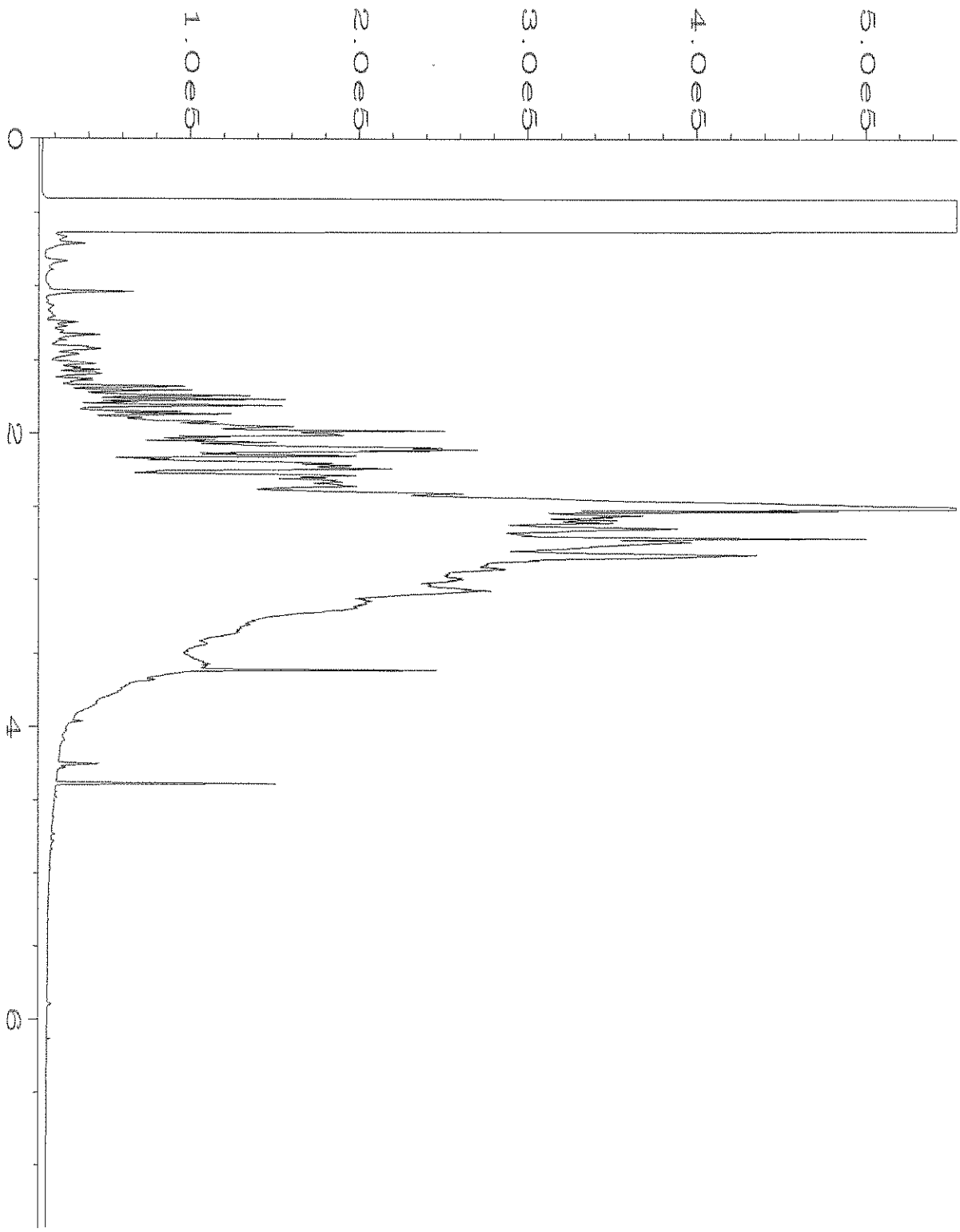

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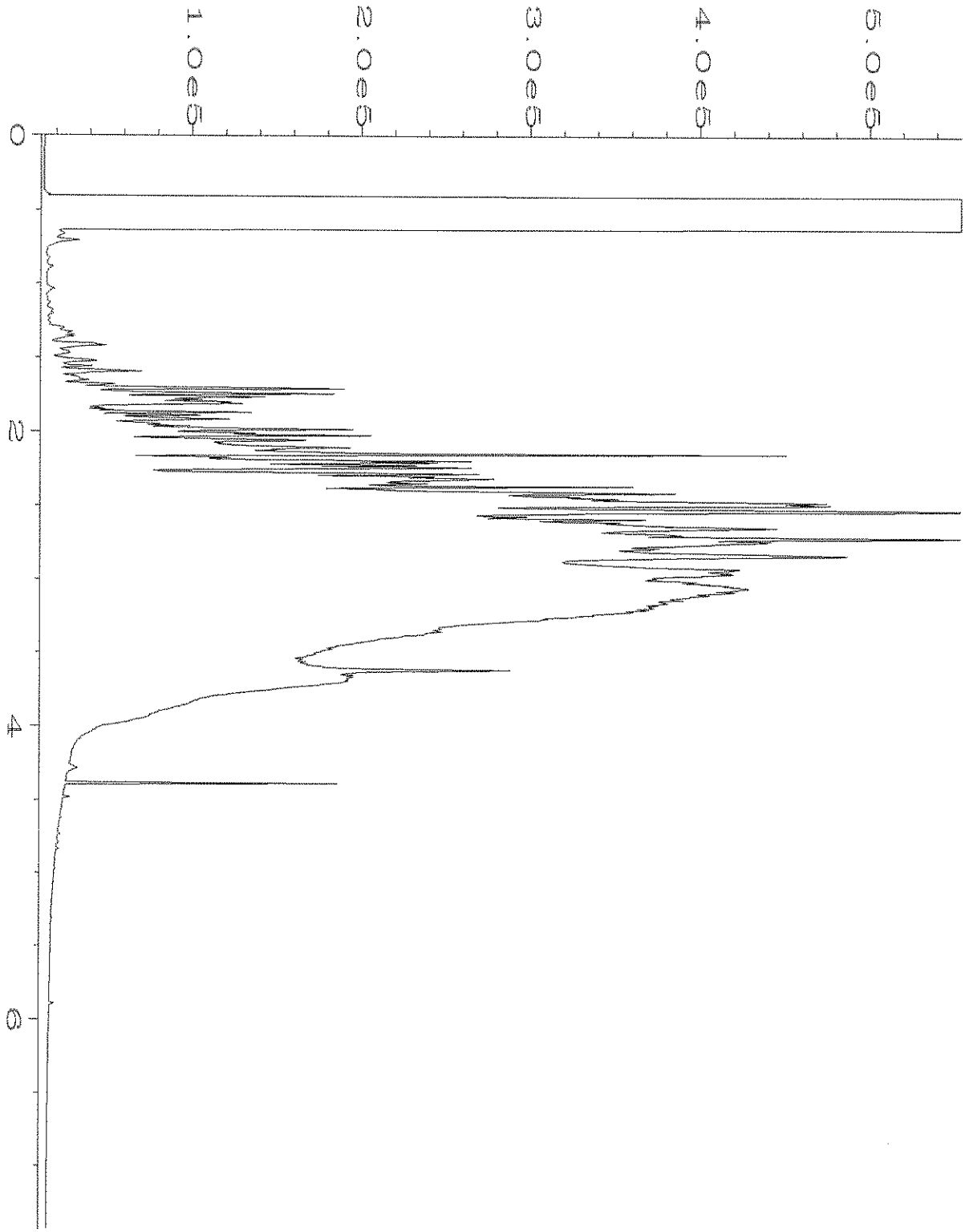

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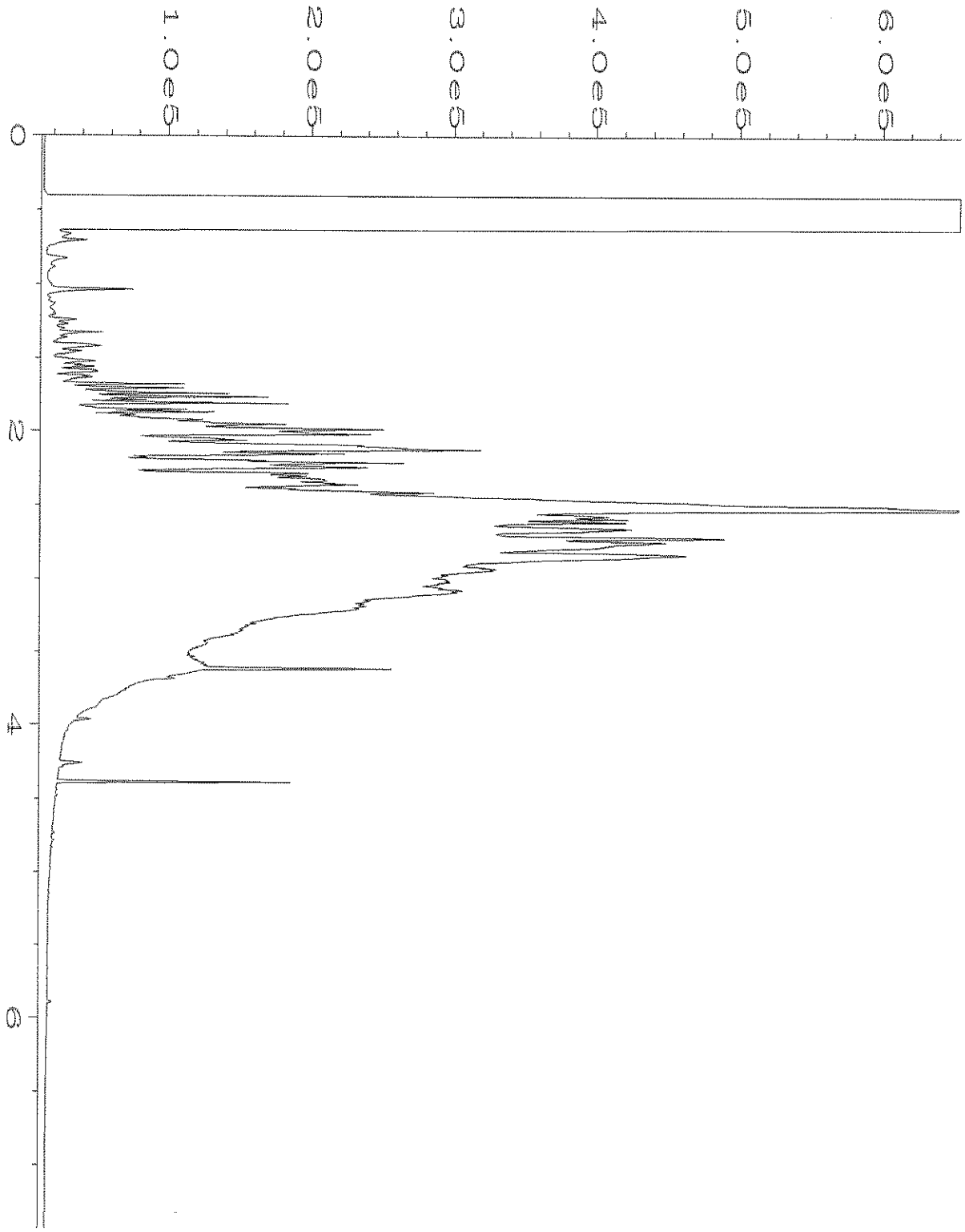

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Report Created on: 10 Mar 21 09:39 AM

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Injection Number : 1
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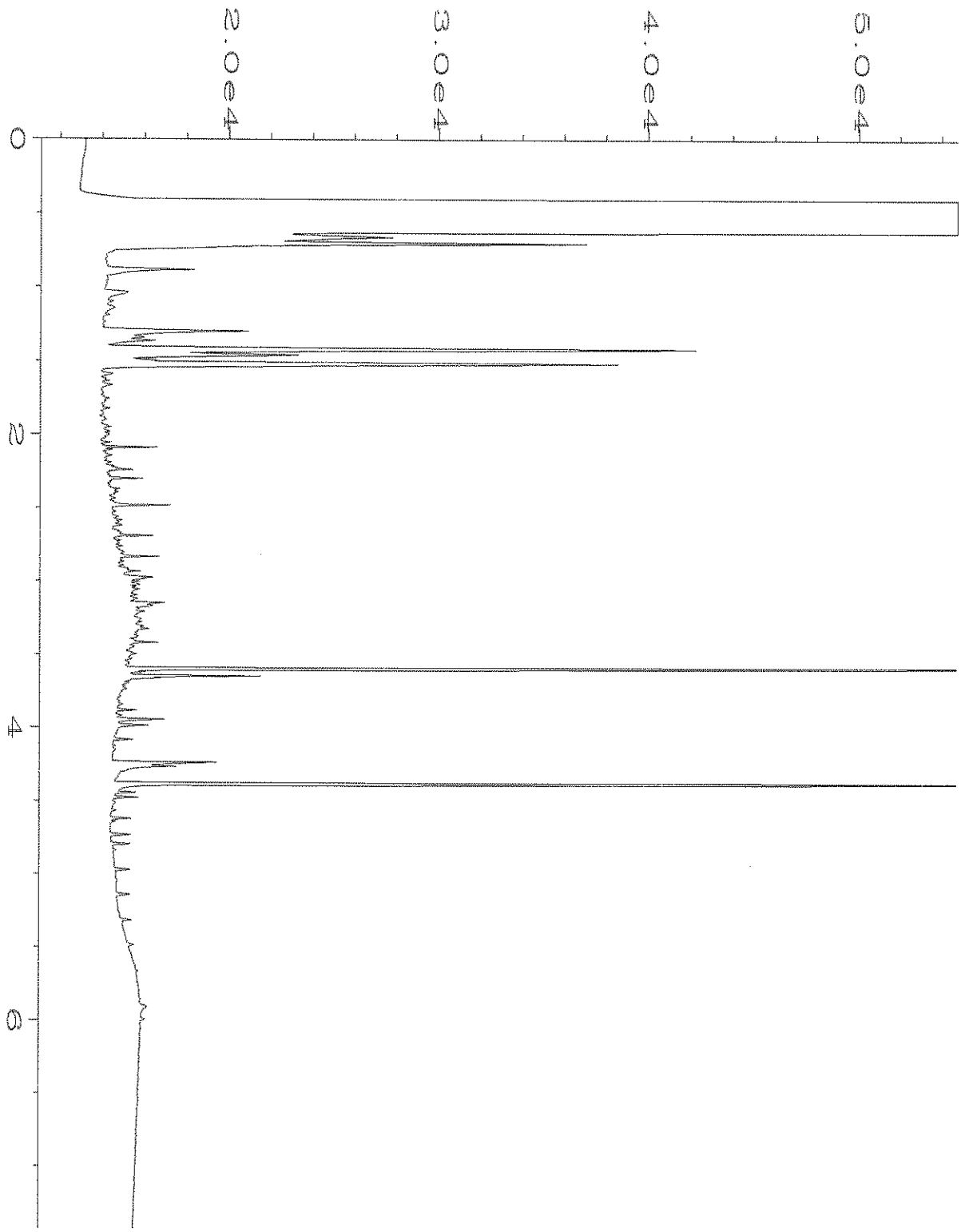

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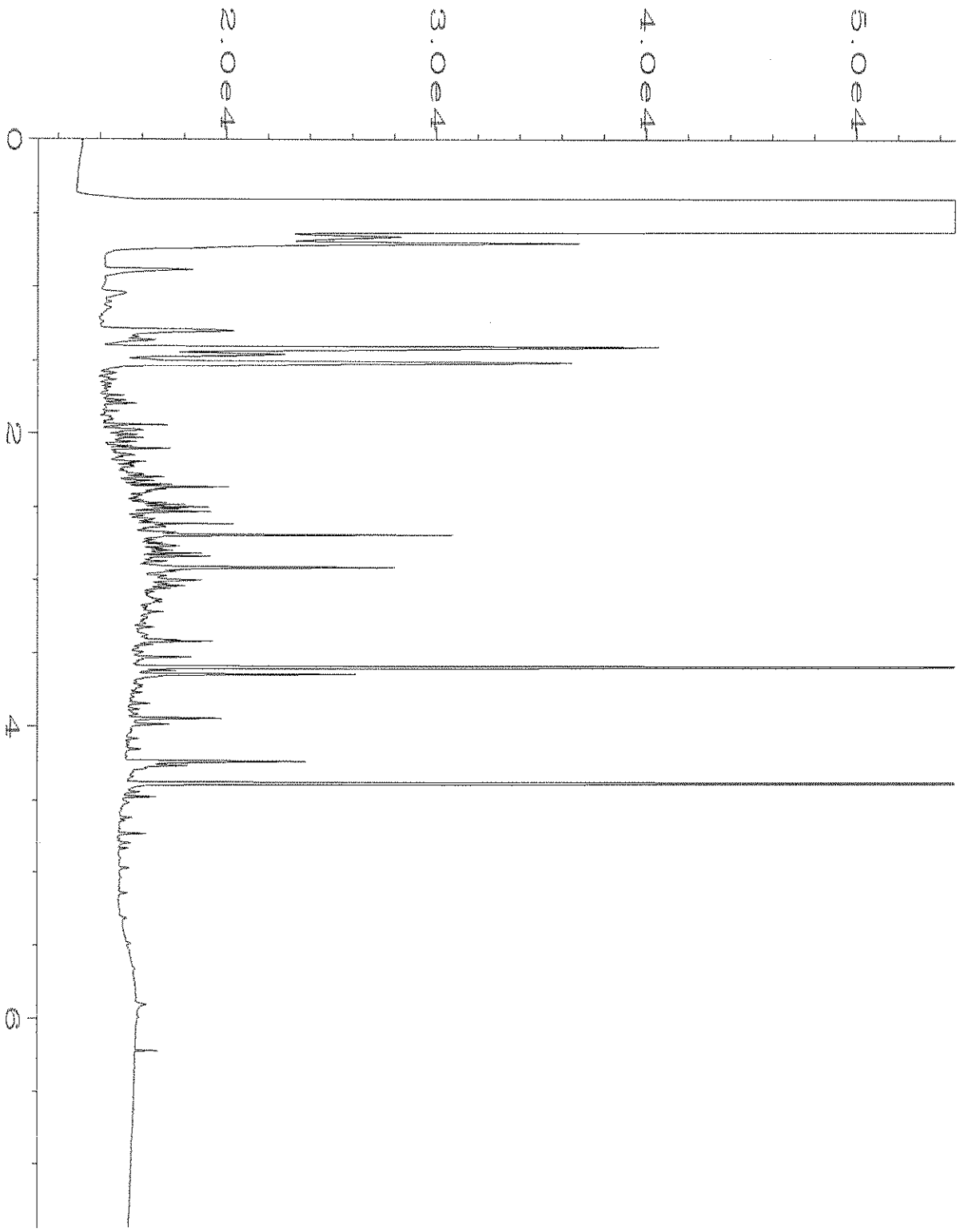

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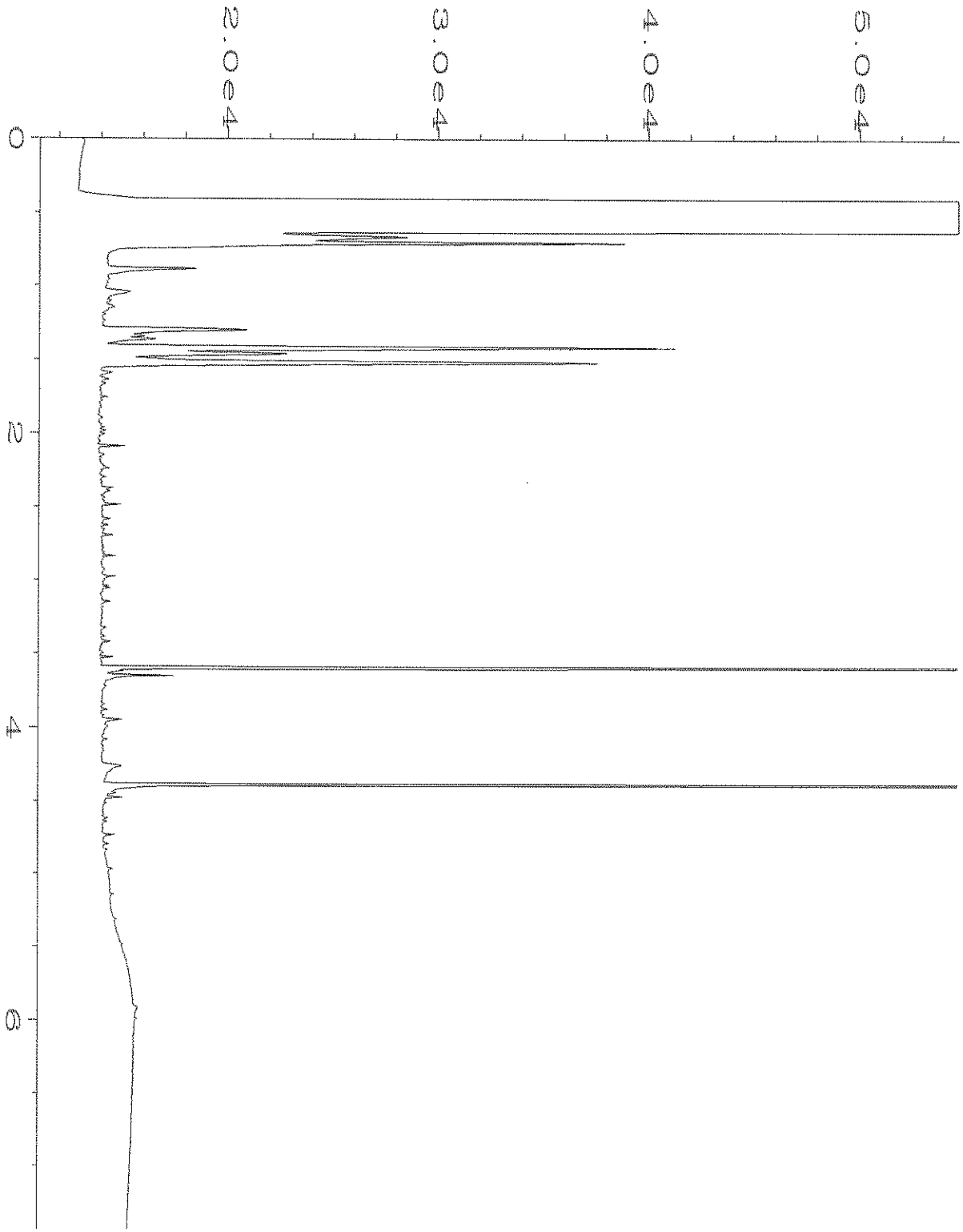

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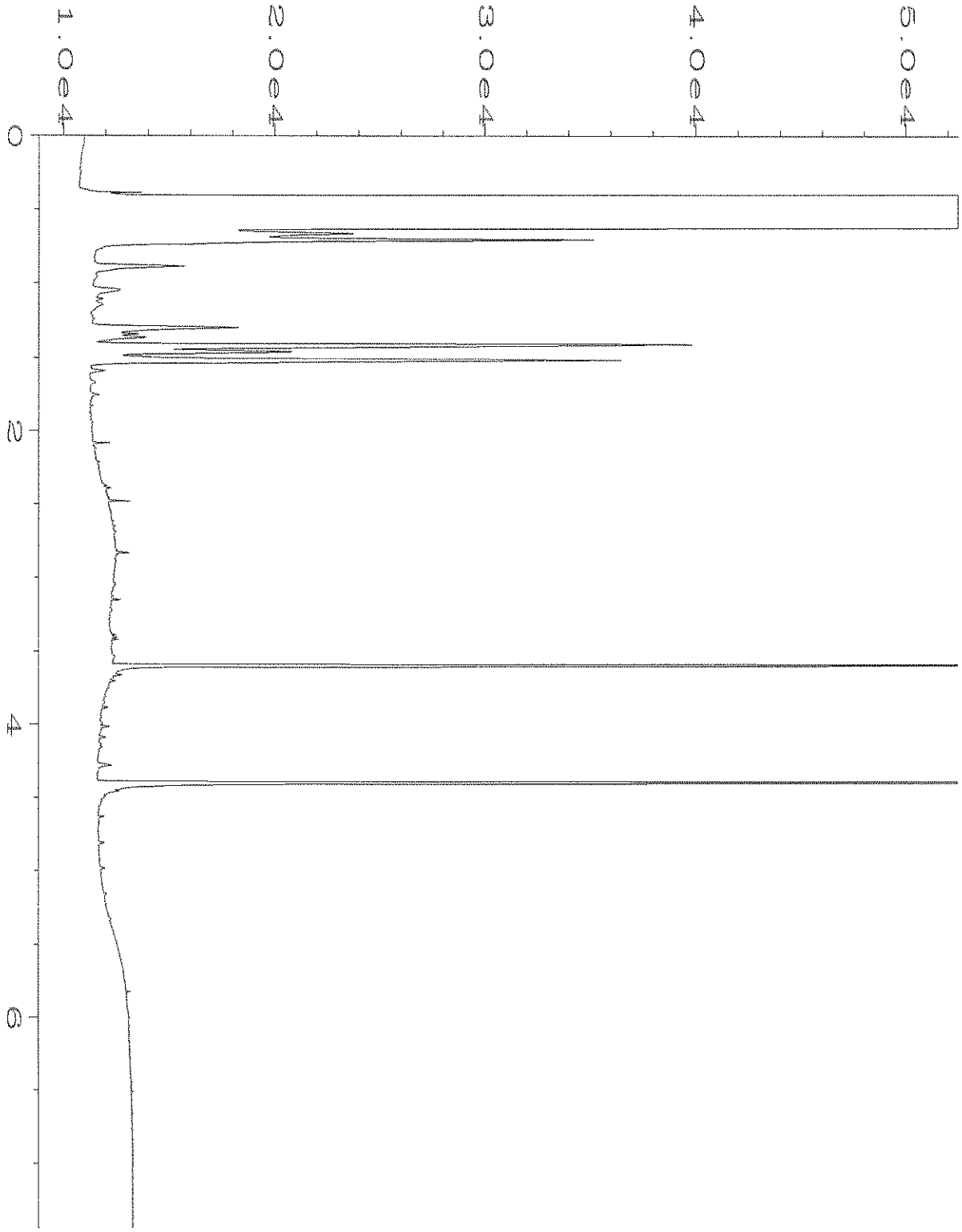

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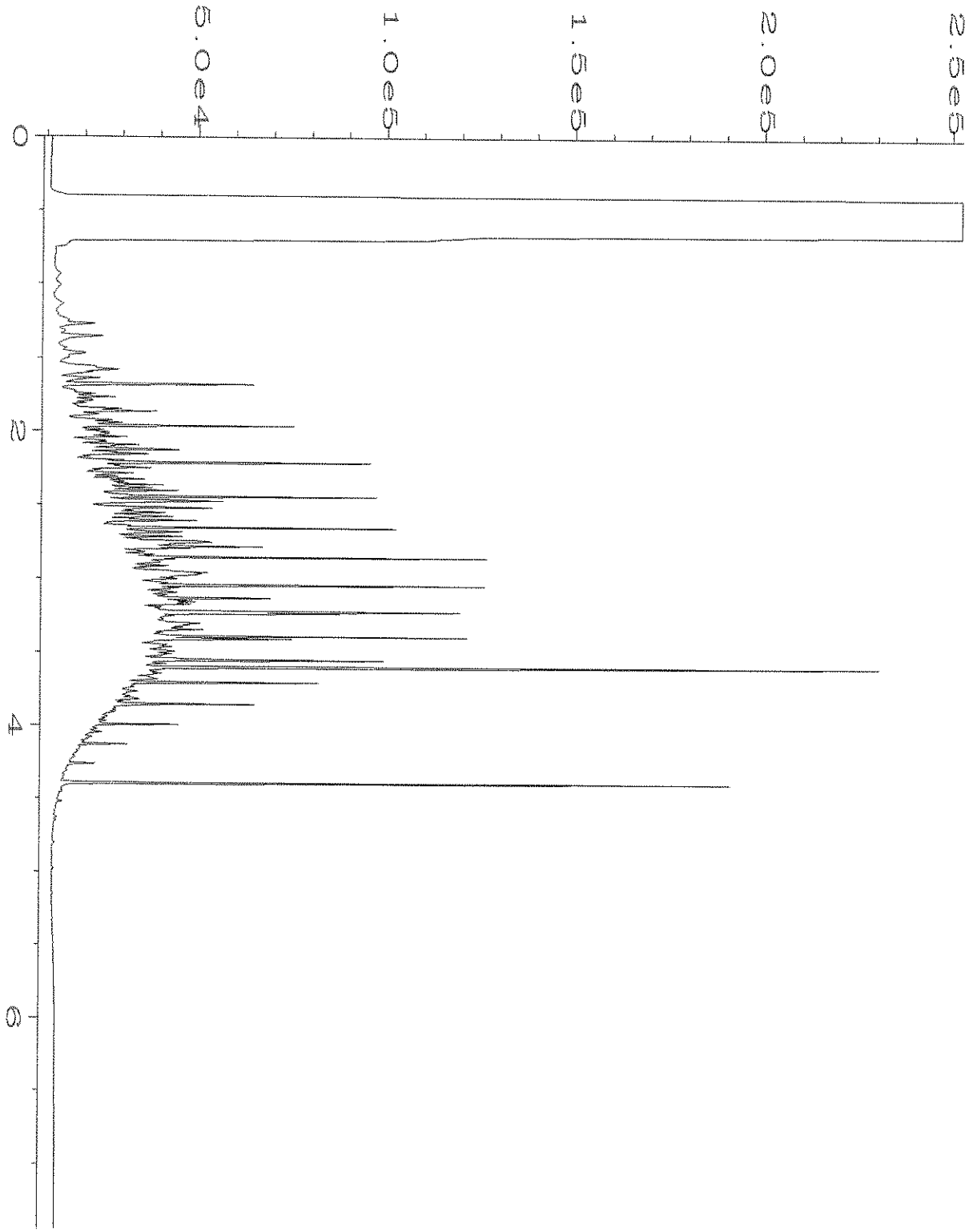

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Sample Name	: 500 Dx 61-146D	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 09 Mar 21 05:52 AM	Instrument Method	: DX.MTH
Report Created on	: 10 Mar 21 09:36 AM	Analysis Method	: DEFAULT.MTH

APPENDIX B

Data Validation Report

DATA VALIDATION REPORT

Whittaker Groundwater Sampling
March 2021
SDGs 103146

Prepared by:

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Seattle, WA 98104

Project No. 160328 • May 2021

Contents

1 Introduction

This report summarizes the findings of the United States Environmental Protection Agency (USEPA) Stage 2A data validation performed on analytical data for groundwater samples collected in March 2021 for the Whittaker Environmental Review Quarterly Groundwater Monitoring. This data quality review is divided into sections by sample delivery group (SDG). A complete list of samples and analyses for each SDG is provided in the Sample Index at the beginning of each section.

Samples were sent to Friedman & Bruya in Seattle, Washington for analysis of various parameters. The analytical methods are summarized in Table 1 below:

Table 1. Analytical Methods

Analysis	Method	Lab	Validation Level
BTEX	SW8021B	Friedman & Bruya	2A
Gasoline	NWTPH-Gx	Friedman & Bruya	2A
Diesel and Motor Oil	NWTPH-Dx	Friedman & Bruya	2A

Data assigned a J/UJ qualifier (estimated) may be used for site evaluation purposes but the reasons for qualification should be considered when interpreting sample concentrations. Values without qualification meet all data measurement quality objectives and are suitable for use.

Data qualifier definitions and a summary table of the qualified data are included in the Qualified Data Summary at the end of this report. Data qualifiers have been incorporated into the project chemistry database to reflect the validation in this report.

2 Data Validation Findings for SDG 103146

Samples in this SDG, and the chemical analyses performed on them, are tabulated below. The sections below describe the results of the data quality review for this SDG by analyte group (analysis).

Table 2. Sample Index

Sample Name	Sample Date	SW8021B	NWTPH-Gx	NWTPH-Dx	NWTPH-DxSG
RW03-030821	3/8/21	X	X	X	
RW04-030821	3/8/21	X	X	X	
RW05-030821	3/8/21	X	X	X	X
MW100-030821	3/8/21	X	X	X	
MW104-030821	3/8/21	X	X	X	
MW108-030821	3/8/21	X	X	X	
MW105-030821	3/8/21	X	X	X	

2.1 Sample Receipt and Preservation

All samples were received in good condition and in the correct containers and no qualification was necessary. Note that MW100-030821 is a field duplicate of RW04-030821.

2.2 BTEX and Gasoline (SW 8021B and NWTPH-Gx)

2.2.1 Holding Times

Samples were analyzed within the requisite holding time. No qualification or action was needed.

2.2.2 Method Blanks

Target analytes were not detected at or above the reporting levels in the method blank. No qualification or action was needed.

2.2.3 Laboratory Control Samples

All LCS %R were within the laboratory specified control limits. No qualification or action was needed.

2.2.4 Surrogates

All surrogate %R values were within laboratory specified control limits. No qualification or action was needed.

2.2.5 Field Duplicate

All FD RPD were within the 35% control limit. No qualification or action was needed.

2.2.6 Overall Assessment

Accuracy was acceptable based on the LCS %R. Precision was acceptable based on the FD RPD. The data are of known quality and are acceptable for use as qualified.

2.3 Diesel and Motor Oil (NWTPH-Dx and NWTPH-DxSG)

2.3.1 Holding Times

Samples were analyzed within the requisite holding time. No qualification or action was needed.

2.3.2 Method Blanks

Target analytes were not detected at or above the reporting levels in the method blank. No qualification or action was needed.

2.3.3 Laboratory Control Samples and Duplicates

All LCS/LCSD %R and RPD were within the laboratory specified control limits. No qualification or action was needed.

2.3.4 Surrogates

All surrogate %R values were within laboratory specified control limits. No qualification or action was needed.

2.3.5 Field Duplicate

All FD RPD were within the 35% control limit. No qualification or action was needed.

2.3.6 Laboratory Flags

The laboratory flagged all diesel and motor oil detections with an "x" to indicate that the sample chromatographic patterns did not resemble the fuel standard used for quantitation. The results were qualified accordingly (X).

2.3.7 Overall Assessment

Accuracy was acceptable based on the LCS/LCSD %R. Precision was acceptable based on the LCSD and FD RPD values. The diesel and motor oil detections in the RW samples are vastly inconsistent with previous rounds of data collection and are not truly representative of natural site conditions due to interference from the injection dye, the presence of which is evident in the abnormal color of the samples. The results have been rejected (R). All other data are of known quality and are acceptable for use as qualified.

3 Qualified Data Summary

Qualified sample results are listed below. Results just flagged non-detect (U) by lab with no further qualification necessary are not listed.

Table 4. Qualified Data Summary

Sample ID	Method	Analyte	Qualifier	Reason
MW104-030821	NWTPH-DX	Diesel Range Organics	X	Chrom pattern did not match fuel standard
MW108-030821	NWTPH-DX	Diesel Range Organics	X	Chrom pattern did not match fuel standard
RW03-030821	NWTPH-DX	Diesel Range Organics	R	Interference from injection dye, chrom pattern did not match fuel standard
RW04-030821	NWTPH-DX	Diesel Range Organics	R	Interference from injection dye, chrom pattern did not match fuel standard
RW04-030821	NWTPH-DX	Motor Oil Range Organics	R	Interference from injection dye, chrom pattern did not match fuel standard
RW05-030821	NWTPH-DX	Diesel Range Organics	R	Interference from injection dye, chrom pattern did not match fuel standard
RW05-030821	NWTPH-DX	Motor Oil Range Organics	R	Interference from injection dye, chrom pattern did not match fuel standard
RW05-030821	NWTPH-DXSG	Diesel Range Organics	X	Chrom pattern did not match fuel standard

Table 5. Data Qualifier Definitions

Data Qualifier	Definition
J	The analyte was detected above the reported quantitation limit, and the reported concentration was an estimated value.
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
U	The analyte was analyzed for but was considered not detected at the reporting limit or reported value.
UJ	The analyte was analyzed for, and the associated quantitation limit was an estimated value.
X	The analyte chromatographic pattern did not match that of the fuel standard used for quantitation.

4 Acronyms and Definitions

%D – Percent Difference
%R – Percent Recovery
ASTM – American Standard Test Method
COC – Chain of Custody
EB – Equipment Blank
EPA – Environmental Protection Agency
FB – Field Blank
FD – Field Duplicate
HCID – Hydrocarbon Identification
LCS – Laboratory Control Sample
LCSD – Laboratory Control Sample Duplicate
LD – Laboratory Duplicate
MB – Method Blank
MDL – Method Detection Limit
MS – Matrix Spike
MSD – Matrix Spike Duplicate
NWTPH – Northwest Total Petroleum Hydrocarbon
PCB – Polychlorinated Biphenyl
PFAS – Polyfluoroalkyl Substances
PPCP – Pharmaceuticals and Personal Care Products
QAPP – Quality Assurance Project Plan
QC – Quality Control
RL – Reporting Limit
RPD – Relative Percent Difference
SDG – Sample Delivery Group
SM – Standard Methods
SVOC – Semi-Volatile Organic Compound
SW – Solid Waste
TB – Trip Blank
TCLP – Toxicity Characteristic Leaching Procedure
TPH – Total Petroleum Hydrocarbon
VOC – Volatile Organic Compound

APPENDIX C

Report Limitations and Guidelines for Use

REPORT LIMITATIONS AND USE GUIDELINES

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the Client. No other party may rely on this report or the product of our services without the express written consent of Aspect Consulting, LLC (Aspect). This limitation is to provide our firm with reasonable protection against liability claims by third parties with whom there would otherwise be no contractual conditions or limitations and guidelines governing their use of the report. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and recognized standards of professionals in the same locality and involving similar conditions.

Services for Specific Purposes, Persons and Projects

Aspect has performed the services in general accordance with the scope and limitations of our Agreement. This report has been prepared for the exclusive use of the Client and their authorized third parties, approved in writing by Aspect. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

This report is not, and should not, be construed as a warranty or guarantee regarding the presence or absence of hazardous substances or petroleum products that may affect the subject property. The report is not intended to make any representation concerning title or ownership to the subject property. If real property records were reviewed, they were reviewed for the sole purpose of determining the subject property's historical uses. All findings, conclusions, and recommendations stated in this report are based on the data and information provided to Aspect, current use of the subject property, and observations and conditions that existed on the date and time of the report.

Aspect structures its services to meet the specific needs of our clients. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and subject property. This report should not be applied for any purpose or project except the purpose described in the Agreement.

This Report Is Project-Specific

Aspect considered a number of unique, project-specific factors when establishing the Scope of Work for this project and report. You should not rely on this report if it was:

- Not prepared for you
- Not prepared for the specific purpose identified in the Agreement
- Not prepared for the specific real property assessed
- Completed before important changes occurred concerning the subject property, project or governmental regulatory actions

If changes are made to the project or subject property after the date of this report, Aspect should be retained to assess the impact of the changes with respect to the conclusions contained in the report.

Geoscience Interpretations

The geoscience practices (geotechnical engineering, geology, and environmental science) require interpretation of spatial information that can make them less exact than other engineering and natural science disciplines. It is important to recognize this limitation in evaluating the content of the report. If you are unclear how these "Report Limitations and Use Guidelines" apply to your project or site, you should contact Aspect.

Discipline-Specific Reports Are Not Interchangeable

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually address any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding the subject property.

Environmental Regulations Are Not Static

Some hazardous substances or petroleum products may be present near the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or petroleum products or do not otherwise present potential liability. Changes may occur in the standards for appropriate inquiry or regulatory definitions of hazardous substance and petroleum products; therefore, this report has a limited useful life.

Property Conditions Change Over Time

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, Phase I ESA reports are applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope failure or groundwater fluctuations. If more than six months have passed since issuance of our report, or if any of the described events may have occurred following the issuance of the report, you should contact Aspect so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Historical Information Provided by Others

Aspect has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data does not provide definitive information with regard to all past uses, operations or incidents affecting the subject property or adjacent properties. Aspect makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others.