

**CSID No. 3512 Avista Service Center Garage
Monitoring Well Installation and
July 31, 2019 Groundwater Monitoring Report**

Spokane Service Center Garage
1411 East Mission Avenue
Spokane, Washington

for
Avista Utilities

September 13, 2019



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**Spokane Service Center Garage
1411 East Mission Avenue
Spokane, Washington**

File No. 2522-079-02

September 13, 2019

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1.0 INTRODUCTION

This report describes monitoring well installations and groundwater monitoring near the former Spokane Service Center (Service Center Garage) building on the Avista Corporation (Avista) Spokane campus. The site is located at 1411 East Mission Avenue in Spokane, Washington, as shown in the Vicinity Map, Figure 1.

Activities conducted as part of monitoring well install and groundwater monitoring included:

- Installing two groundwater monitoring wells July 2019;
- Monitoring well survey for the site monitoring wells; and
- Conducting a quarterly groundwater monitoring event in July 2019.

This report includes a brief description of the site, a summary of our scope of services, a description of field activities, a summary of chemical analytical results, and our interpretations and recommendations. Assessment activities were conducted in general accordance with proposals dated May 13 and June 6, 2019 for Work Authorization No. 16, signed on May 22, 2019 and change order to Work Authorization No. 16, signed on July 1, 2019. The work was performed in accordance with mutually agreed-upon and negotiated terms in the Environmental Services Contract No. R-39593, dated January 27, 2014, and Amendment 2 to that contract (dated December 4, 2017) between Avista and GeoEngineers on a time-and-materials basis.

2.0 SITE DESCRIPTION AND BACKGROUND

The Service Center Garage building was located on the Avista Spokane campus which resides on a 19.62-acre parcel in Spokane, Washington. The site is shown in Site Plan, Figure 2.

The Spokane River is located approximately 400 feet east of the former Service Center Garage building. Groundwater flows from southeast to northwest, away from the Spokane River, based on recent groundwater monitoring events conducted between February and October 2018.

The Service Center Garage building was used from 1955 to July 2018 to service fleet vehicles. The Service Center Garage building contained sub-slab hydraulic lifts for servicing line trucks in Bay 1, Bay 2, Bay 5 and Bay 7. The high bay area contained portable hydraulic lifts that were not located beneath the floor slab.

Avista demolished the Service Center Garage building in August 2018 and moved to a new facility located in the northern area of the campus. The Service Center Garage building was located adjacent to and east of the Auditorium/Cafeteria building as shown in Figure 2. Several canopies were located west of the Service Center Garage building and were demolished after completing demolition of the Service Center Garage building to make way for a future parking structure.

Soil assessment and remedial activities were conducted between August 31 and October 3, 2018 at the Service Center Garage building. Groundwater assessment activities were conducted at the Service Center Garage on August 17, August 20, October 10 and November 20, 2018.

Spokane Environmental Solutions (SES) excavated and disposed approximately 3,792 tons of contaminated soil from the Service Center Garage building remedial excavation at Waste Management's Graham Road Facility near Medical Lake, Washington. Complete removal of contaminated soil could not be conducted without affecting the structural integrity of nearby buildings or utility infrastructure. Contaminated soil remained within the base of the remedial excavation at depths of about 15 to 24 feet below ground surface (bgs). A geosynthetic liner cap was placed in the excavation to divert stormwater infiltration into a drainage pipe trench; the drainage pipe trench is connected to Avista's stormwater system where Avista manages stormwater on-site. ACF West installed a geosynthetic linear low-density polyethylene (LLDPE) liner in the footprint of the remedial excavation. SES backfilled and compacted the excavation with imported select fill and bedding sand.

On April 15, 2019, Avista entered the Service Center Garage site into Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP). The Service Center Garage Building Remedial Action Report was submitted and reviewed by Ecology. Ecology requested two additional quarters of groundwater monitoring.

In response to Ecology's request, GeoEngineers attempted to conduct a groundwater monitoring event in May 2019. GeoEngineers could not find monitoring wells MW-1 and MW-5A, which were located near in the active construction area of a new parking structure. Avista selected locations for replacement wells outside of the parking structure construction area to avoid damaging the new wells.

3.0 SCOPE OF SERVICES

Our scope of services included installation of two replacement groundwater monitoring wells, retaining a licensed surveyor to conduct a monitoring well survey, and reporting. The scope also included well abandonment and correspondence with Ecology related to the groundwater monitoring program. This scope of services was completed in general accordance with GeoEngineers' proposal dated June 6, 2019.

Groundwater monitoring events will be conducted for two quarters as requested by Ecology. Specific scope items include:

- Updated existing health and safety plan to govern GeoEngineers employees.
- Conducted a groundwater monitoring event on July 31, 2019. Depth to groundwater was measured in the five wells and groundwater elevations and flow direction was calculated. Groundwater samples were collected from the five wells (MW-1A, MW-2, MW-3, MW-4 and MW-5B) using low-flow/low-stress sampling techniques. During well purging, water quality parameters (pH, specific conductivity, temperature, dissolved oxygen, oxidation-reduction potential and turbidity) were monitored and recorded. Groundwater samples were submitted to Eurofins TestAmerica (TestAmerica) in Spokane Valley, Washington for chemical analysis of diesel- and oil-range petroleum hydrocarbons (DRPH and ORPH, respectively) using Northwest Method NWTPH-Dx; polychlorinated biphenyls (PCBs) using Environmental Protection Agency (EPA) Method 8082; and polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270D SIM. Groundwater samples were tested on standard (2-week) turn-around time (TAT).
- Compiled and reviewed collected data and analytical results, and submitted analytical data to Ecology's Environmental Information Management (EIM) database.

- Attempted to locate MW-1 and MW-5A within construction area to decommission the wells per Washington State Regulations.
- Coordinated underground utility locating using the State of Washington Utility Notification and a private utility locate company.
- Coordinated Environmental West Exploration (Environmental West) to install two monitoring wells to depths of approximately 45 feet bgs using air-rotary drilling techniques.
- Observed and documented subsurface soil conditions using a qualified field geologist. Field screened soil for the potential presence of petroleum hydrocarbons by visual observation, water sheen testing and headspace vapor measurements using a photoionization detector (PID). The borings were logged via drill cuttings.
- Developed the installed monitoring wells using surging and purging methods. Monitoring well development was completed by Environmental West.
- Drummed and labeled investigation-derived waste (IDW) and delivered to Avista for disposal.
- Coordinated a monitoring well survey by Coffman Engineers (Coffman).
- Prepared this combined well installation and groundwater monitoring report for Avista.

4.0 FIELD ACTIVITIES

Proposed monitoring well locations were marked in the field and a one-call utility locate was requested before equipment was mobilized to the site. A private utility locator (Advanced Underground Utility Locating, LLC) was also contracted to locate site utilities near proposed drilling locations before drilling activities commenced. Able Cleanup Technologies (ACT) air-knifed the boring locations due to utilities in the boring locations. Soil borings, well construction and well development activities were conducted by Environmental West. Photographs of the well installations are depicted in Figures 4 and 5. Locations of the groundwater monitoring wells were established in the field using a hand-held iPad with global positioning system (GPS) software before drilling commenced. The horizontal accuracy of the hand-held unit is within about 10 feet. Former monitoring well locations, new well locations and site features are shown on Figure 2.

Groundwater monitoring wells were developed by Environmental West and then surveyed by a licensed professional surveyor, Coffman, on August 7 and August 26, 2019. Groundwater sampling of the site monitoring wells was conducted on July 31, 2019 by GeoEngineers. IDW was contained in 55-gallon drums, labeled and stored at the Avista property pending disposal.

Detailed descriptions of the soil borings, well installations and groundwater sampling event are provided below.

4.1. Monitoring Well Installation

Two groundwater monitoring wells (MW-1A and MW-5B) were installed at the site on July 26, 2019 using a Mobile B-90 air-rotary drill rig operated by Environmental West. Monitoring wells were installed by advancing a 6-inch-diameter casing with an air-rotary hammer. Approximate well locations are provided on Figure 2 and detailed well installation logs are provided in Appendix A.

MW-1A was air-knifed to 4.5 feet bgs and drilling advanced the boring to a total depth of 45 feet bgs. During drilling activities, water was encountered at approximately 41 feet and MW-1A was screened from about 35 to 45 feet bgs.

MW-5B was air-knifed to 6 feet bgs and drilling advanced the boring to a total depth of 45 feet bgs. During drilling activities, water was encountered at approximately 36 feet and MW-5B was screened from about 31 to 41 feet bgs.

Wells were packed with silica-sand 2 feet above the screen, sealed with bentonite chips to 2 feet bgs and then capped with a cement well monument for the remaining two feet. Wells were constructed of 2-inch-diameter, schedule 40 polyvinyl chloride (PVC) pipe. Wells were developed by Environmental West on July 29, 2019 using surge and purge methods. Soil cuttings and development water from the investigation were drummed, labeled and stored at the site for Avista to dispose.

Soil cuttings were field-screened to evaluate for petroleum hydrocarbons, using a PID and sheen pan. Field screening methods are further discussed in Appendix A. Due to the absence of petroleum evidence in field screening during drilling, soil samples were not collected for chemical analysis.

The site monitoring wells were surveyed by Coffman on August 7 and August 26, 2019. The north edge of the top of the PVC casings were surveyed for horizontal and vertical coordinates relative to North American Datum of 1988 (NAD83) Washington North Zone. GeoEngineers marked the north side of each well casing for future depth to groundwater measurements. Well survey information is provided in Appendix B.

4.2. Site Conditions

In general, the site is paved with exposed soil areas located within the parking garage construction area and within landscaped areas. Varying amounts of base gravels, silts, sands and gravels are present beneath the pavement, with the predominant soil types consisting of gravel to about 33 to 37 feet bgs. Below the gravels, sands with varying amounts of silt and gravel was generally present to the termination depth of the borings.

4.3. Groundwater Monitoring

In accordance with Ecology's requests, two groundwater monitoring events will be conducted in the third and fourth quarters of 2019. The first groundwater sampling event was conducted on July 31, 2019 after the wells had been developed to allow for potential well settlement. The following sections provide a description of the field activities conducted as part of the groundwater monitoring event.

4.3.1. Monitoring Well Headspace Vapor Monitoring

Monitoring well headspace vapors were measured using a PID. Headspace measurements were collected by inserting the PID probe into the well casing immediately after removing the well cap and recording the maximum observed concentration. Headspace vapor concentrations were less than 1.0 parts per million (ppm) for the monitoring wells, as shown in Summary of Groundwater Level Measurements, Table 1.

4.3.2. Groundwater Elevation Monitoring

Static depth to groundwater was measured in the five site groundwater monitoring wells using an electronic water level indicator. Depth to groundwater ranged from 20.88 feet (MW-3) to 40.92 feet (MW-1A) below

the top of well casing, as shown in Summary of Groundwater Level Measurements, Table 1. Groundwater elevations ranged from about 1887.57 feet in MW-3 to 1906.96 feet relative to the Washington State Plane System, NAD83, North Zone.

Based on groundwater elevations measured on July 31, 2019, groundwater flow in the shallow unconfined aquifer beneath the property generally was toward the west-northwest, as shown in Groundwater Elevation and Interpreted Flow Direction July 31, 2019, Figure 3. The estimated hydraulic groundwater gradient of the shallow aquifer beneath the site was about 0.001 feet per foot (about 5 feet per mile).

4.3.3. Groundwater Sampling

Groundwater monitoring wells were purged and sampled using dedicated tubing, a peristaltic pump and in general accordance with standard low-flow sampling methodology (EPA 2017). Groundwater quality parameters were usually measured at 3-minute intervals during well purging and samples were generally collected when water quality parameter stabilized in conformance with the criteria presented in Appendix A.

Laboratory prepared sample containers were filled, placed into a cooler on ice and submitted to the analytical laboratory for chemical analysis. A duplicate sample was collected from MW-1A. Groundwater chemical analytical results are discussed in “Section 5.1”. Groundwater field parameters are provided in Summary of Groundwater Quality Measurements, Table 2. Purge water generated during groundwater sampling was drummed, labeled and stored on the subject property for disposal by Avista.

5.0 CHEMICAL ANALYTICAL RESULTS

5.1. Groundwater Chemical Analytical Results

Groundwater samples were collected from MW-1A, MW-2, MW-3, MW-4 and MW-5B on July 31, 2019 and submitted to TestAmerica for chemical analysis the same day. Groundwater samples were kept in iced coolers between sampling and delivery to the analytical laboratory. Groundwater samples were submitted for the following chemical analyses:

- DRPH and ORPH using Northwest Method NWTPH-Dx;
- PCBs using EPA Method 8260C; and
- PAHs using EPA Method 8270D.

Chemical analytical results are summarized and compared to Model Toxics Control Act (MTCA) Method A cleanup levels in Summary of Chemical Analytical Results – Petroleum Hydrocarbons, PCBs and PAHs, Table 3 and below:

- DRPH, ORPH, PAHs and PCBs were not detected in groundwater samples at concentrations greater than laboratory reporting limits.

The data validation and laboratory chemical analytical reports are included in Appendix C.

6.0 WELL ABANDONMENT

The previous location of MW-1 was located within the footprint of the parking garage structure and was not found. Figure 4 displays the location of MW-1 within the parking garage structure. MW-1 was destroyed or damaged by the contractor during construction of the parking garage structure. The location of MW-5A also appeared near the parking structure footprint in the location of a footing. Drone photogrammetry was utilized to more precisely locate the monitoring well location. Drone photogrammetry (measurements from drone imagery) placed MW-5A inside of the parking garage structure which is depicted in Appendix D. On August 8, 2019 Avista and Able Cleanup Technologies visited the site to excavate near the parking garage footing for the remains of MW-5A, but a bank of new conduits was located in the area and the excavation was cancelled. Former monitoring wells MW-1 and MW-5A were destroyed or damaged by the contractor during construction of the parking garage structure.

7.0 SUMMARY

In July 2019, GeoEngineers advanced two borings to depths of about 45 feet bgs at the Avista Service Center Garage site located at 1411 East Mission Avenue in Spokane, Washington; the borings were completed as monitoring wells (MW-1A and MW-5B). These activities were performed to replace two destroyed monitoring wells (MW-1 and MW-5A) that were destroyed by ongoing construction activities for a parking garage facility at the site. Photographs of the approximate location of former MW-1 and installation of MW-1A and MW-5B are shown in Site Photographs, July 2019, Figures 4 and 5. Field screening of drill cuttings did not indicate petroleum contamination in the borings.

Depth to groundwater was measured at five monitoring wells on July 31, 2019. Data indicates a west-northwest groundwater flow, away from the Spokane River, in the shallow aquifer beneath the site. The average hydraulic gradient beneath the site was about 0.001 feet per foot.

Samples from the five monitoring wells from the July 31, 2019 event were submitted for chemical analysis of DRPH, ORPH, PCBs and PAHs. Results are tabulated in Table 3 and are summarized below:

- DRPH, ORPH, PAHs and PCBs were not detected in groundwater samples at concentrations greater than laboratory reporting limits.

8.0 LIMITATIONS

We have prepared this report for the exclusive use of Avista and their authorized agents.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty or other conditions, express or implied, should be understood.

Please refer to “Report Limitations and Guidelines for Use,” Appendix E, for additional information pertaining to use of this report.

9.0 REFERENCES

- GeoEngineers, Inc. "Draft Work Plan Groundwater Monitoring, Remedial Excavation and Geosynthetic L Liner Installation," prepared for Avista Corporation. August 2, 2018.
- GeoEngineers, Inc. "CSID No. 3512 Revised Avista Service Center Garage Remedial Action," prepared for Avista Corporation. August 9, 2019.
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- Pacific Groundwater Group (Pacific), "Avista Injection Well 1, Construction, Testing, and Thermal Evaluation" prepared for Avista Corporation. January 2012.
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- Strata, A Professional Services Corporation. "Phase 1 Geotechnical Engineering Evaluation," prepared for Avista Corporation. September 8, 2017.
- U.S. Environmental Protection Agency (EPA), Region 1, Low stress (low-flow) purging and sampling procedure for the collection of ground water samples from monitoring wells. EQASOP-GW4, Revision No. 4, September 19, 2017.
- Washington State Department of Ecology, 2007. Model Toxics Control Act (MTCA) Cleanup Regulations, Washington Administrative Code, Chapter 173-340. November 2007.

Table 1
Summary of Groundwater Level Measurements
 Avista - Spokane Service Center
 Spokane, Washington

Well Number	Top of Casing Elevation ¹ (feet)	Screen Elevation ¹ (feet)	Date Measured	Monitoring Well Headspace ² (ppm)	Depth to Groundwater ³ (feet)	Groundwater Elevation ¹ (feet)	Change in Groundwater Elevation ⁴ (feet)
MW-1 (Destroyed)	1,898.94	1,873.94 to 1,863.94	02/02/18	0.0	27.39	1,871.55	NA
			03/14/18	0.1	28.20	1,870.74	-0.81
			04/23/18	0.0	24.26	1,874.68	3.94
			05/15/18	0.3	22.63	1,876.31	1.63
			06/06/18	0.0	26.72	1,872.22	-4.09
			06/21/18	0.0	28.79	1,870.15	-2.07
			07/11/18	0.0	30.42	1,868.52	-1.63
			07/20/18	0.4	31.16	1,867.78	-0.74
			07/27/18	0.0	31.76	1,867.18	-0.60
			08/03/18	0.0	32.28	1,866.66	-0.52
			08/10/18	0.1	32.50	1,866.44	-0.22
			08/17/18	5.3	32.41	1,866.53	0.09
			09/06/18	0.2	37.16	1861.78 ⁵	0.00
10/10/18	0.1	31.83	1,867.11	5.33			
11/20/18	0.0	30.88	1,868.06	0.95			
MW-1A	1,906.96	1871.96 to 1861.96	07/31/19	0.0	40.92	1,866.04	NA
MW-2	1,897.60	1,872.57 to 1,862.57	02/02/18	0.0	26.08	1,871.52	NA
			03/14/18	0.0	26.92	1,870.68	-0.84
			04/23/18	0.0	22.99	1,874.61	3.93
			05/15/18	0.1	21.36	1,876.24	1.63
			06/06/18	0.0	25.41	1,872.19	-4.05
			06/21/18	0.0	27.45	1,870.15	-2.04
			07/11/18	0.0	29.03	1,868.57	-1.58
			07/20/18	0.0	29.74	1,867.86	-0.71
			07/27/18	0.0	30.30	1,867.30	-0.56
			08/03/18	0.0	30.81	1,866.79	-0.51
			08/10/18	0.0	31.02	1,866.58	-0.21
			08/17/18	0.3	31.25	1,866.35	-0.23
			09/06/18	0.0	32.78	1,864.82	-1.76
			10/10/18	0.0	30.41	1,867.19	2.37
07/31/19	0.0	31.25	1,866.35	-0.84			
MW-3	1,887.57	1,872.44 to 1,862.44	02/02/18	0.0	15.41	1,872.16	NA
			03/14/18	0.1	16.31	1,871.26	-0.90
			04/23/18	0.0	12.23	1,875.34	4.08
			05/15/18	0.0	10.54	1,877.03	1.69
			06/06/18	0.0	14.85	1,872.72	-4.31
			06/21/18	0.0	16.98	1,870.59	-2.13
			07/11/18	0.0	18.61	1,868.96	-1.63
			07/20/18	0.0	19.34	1,868.23	-0.73
07/27/18	0.0	19.91	1,867.66	-0.57			

Well Number	Top of Casing Elevation ¹ (feet)	Screen Elevation ¹ (feet)	Date Measured	Monitoring Well Headspace ² (ppm)	Depth to Groundwater ³ (feet)	Groundwater Elevation ¹ (feet)	Change in Groundwater Elevation ⁴ (feet)
MW-3 (Continued)			08/03/18	0.0	20.40	1,867.17	-0.49
			08/10/18	0.0	20.63	1,866.94	-0.23
			08/17/18	0.0	20.84	1,866.73	-0.21
			09/06/18	0.0	21.00	1,866.57	-0.37
			10/10/18	0.0	19.96	1,867.61	1.04
			07/31/19	0.0	20.88	1,866.69	-0.92
MW-4	1,888.10	1,873.10 to 1,863.10	02/02/18	0.0	16.16	1,871.94	NA
			03/14/18	0.0	17.05	1,871.05	-0.89
			04/23/18	0.0	13.02	1,875.08	4.03
			05/15/18	0.0	11.35	1,876.75	1.67
			06/06/18	0.0	15.55	1,872.55	-4.20
			06/21/18	0.0	17.63	1,870.47	-2.08
			07/11/18	0.0	19.22	1,868.88	-1.59
			07/20/18	0.0	19.92	1,868.18	-0.70
			07/27/18	0.0	20.47	1,867.63	-0.55
			08/03/18	0.0	20.93	1,867.17	-0.46
			08/10/18	0.0	21.17	1,866.93	-0.24
			08/17/18	0.0	21.38	1,866.72	-0.21
			09/06/18	0.0	21.55	1,866.55	-0.38
			10/10/18	0.0	20.50	1,867.60	1.05
07/31/19	0.0	21.41	1,866.69	-0.91			
MW-5A (Destroyed)	1898.88	50 foot well ⁵	02/02/18	0.0	27.39	1,871.49	NA
			03/14/18	0.2	28.21	1,870.67	-0.82
			04/23/18	0.0	24.29	1,874.59	3.92
			05/15/18	0.7	22.68	1,876.20	1.61
			06/06/18	0.3	26.71	1,872.17	-4.03
			06/21/18	0.3	28.77	1,870.11	-2.06
			07/11/18	0.8	30.37	1,868.51	-1.60
			07/20/18	0.5	31.09	1,867.79	-0.72
			07/27/18	0.0	31.66	1,867.22	-0.57
			08/03/18	0.0	32.17	1,866.71	-0.51
			08/10/18	0.4	32.40	1,866.48	-0.23
			08/17/18	1.2	32.63	1,866.25	-0.23
			09/06/18	0.3	32.78	1,866.10	-0.38
			10/10/18	0.5	31.76	1,867.12	1.02
MW-5B	1901.72	1868.97 to 1858.97	07/31/19	0.0	35.41	1,866.31	NA
Spokane River ⁷			02/02/18	NA	10.60	NM	NA
			03/14/18	NA	20.78	NM	10.18
			04/23/18	NA	14.75	NM	-6.03
			05/15/18	NA	16.80	NM	2.05
			06/06/18	NA	9.95	NM	-6.85
			06/21/18	NA	7.77	NM	-2.18
			07/11/18	NA	6.07	NM	-1.70
			07/20/18	NA	5.80	NM	-0.27
			07/27/18	NA	5.47	NM	-0.33

Well Number	Top of Casing Elevation ¹ (feet)	Screen Elevation ¹ (feet)	Date Measured	Monitoring Well Headspace ² (ppm)	Depth to Groundwater ³ (feet)	Groundwater Elevation ¹ (feet)	Change in Groundwater Elevation ⁴ (feet)
Spokane River ⁷ (Continued)			08/03/18	NA	5.38	NM	-0.09
			08/10/18	NA	5.32	NM	-0.06
			09/06/18	NA	5.33	NM	0.01
			10/10/18	NA	5.97	NM	0.64
			07/31/19	NA	5.31	NM	-0.66

Notes:

¹Elevations are referenced to the National Geodetic Vertical Datum of 1929 (NGVD29).

²Well headspace measurements were obtained using a photoionization detector immediately upon removal of the well's compression cap.

³Depth to water measurements obtained from the north side of the top of PVC well casing.

⁴Represents change in groundwater elevation from previous event, as measured in monitoring wells.

⁵Well screen length is unknown.

⁶Groundwater elevation is lower than the screened interval and might not represent actual groundwater elevation.

⁷Spokane River Stage provided by United States Geological Survey (USGS) gauge at Greene Street. Measured in feet.

NA = Not Applicable; NM = Not Measured

Table 2
Summary of Groundwater Quality Measurements
Avista - Spokane Service Center
Spokane, Washington

Well Number	Date Measured	pH (pH units)	Specific Conductivity (µS/cm)	Redox Potential (mv)	Dissolved Oxygen (mg/L)	Turbidity ¹ (NTU)	Temperature (degrees C)
MW-1 ² (Destroyed)	08/17/18	7.20	538.0	-29.1	3.28	194.4	23.5
	10/10/18	7.14	259.8	32.5	7.79	6.2	13.4
	11/20/18	7.27	228.8	68.8	7.85	3.6	11.8
MW-1A	07/31/19	7.17	178.1	117.7	10.93	35.4	10.9
MW-2	08/17/18	7.61	286.5	127.4	8.84	5.7	15.1
	10/10/18	7.53	276.5	82.9	8.16	4.0	12.5
	07/31/19	7.37	224.7	52.2	8.70	4.1	13.7
MW-3	08/17/18	6.81	227.2	157.1	3.04	6.6	18.4
	10/10/18	6.78	219.4	122.2	3.68	4.6	13.0
	07/31/19	6.39	187.4	56.4	2.71	4.7	18.0
MW-4	08/17/18	6.63	207.6	168.1	1.63	5.6	19.5
	10/10/18	6.55	220.7	13.5	2.59	8.2	13.5
	07/31/19	6.32	208.3	53.8	2.70	4.0	15.1
MW-5A (Destroyed)	08/17/18	7.68	259.6	115.2	7.64	62.4	14.8
	10/10/18	7.80	274.9	102.2	7.89	95.2	13.4
MW-5B	07/31/19	7.49	225.3	131.4	7.94	85.3	12.4

Notes:

¹Turbidity is not a natural attenuation parameter but was measured in the field to evaluate groundwater stabilization

²MW-1 went dry before sampling on 8/17/18. The water quality parameters reflect measurements taken immediately prior to the water level dropping below the level of the pump.

µS/cm = micro-Siemens per centimeter; mV = millivolts; mg/L = milligrams per liter;

NTU = nephelometric turbidity unit; C = Celsius

Table 3
Summary of Chemical Analytical Results - Petroleum Hydrocarbons, PCBs and PAHs¹ - Groundwater
 Avista - Spokane Service Center
 Spokane, Washington

Location ID				MW-1					MW-1A				MW-2				MW-3											
Sample ID				MW-1:082018 ²	MW-1:101018	DUP:101018 ³	DUP:101018 ⁴	MW-1:112018 ⁵	MW-1A:073119	DUP:073119	MW-2:081718	MW-2:101018	MW-2:073119	MW-3:081718	MW-3:101018	MW-3:073119	MW-3:081718	MW-3:101018	MW-3:073119									
Sample Date				8/20/2018	10/10/2018	10/10/2018	10/10/2018	11/20/2018	7/31/2019	7/31/2019	8/17/2018	10/10/2018	7/31/2019	8/17/2018	10/10/2018	7/31/2019	8/17/2018	10/10/2018	7/31/2019									
Method	Analyte	Cleanup Level ⁶	Units																									
NWTPH-DX ⁷	Diesel-range hydrocarbons	0.5	mg/L	0.39	U	0.11¹¹	J	0.22	U	0.10 ⁸	U	--	0.11 ⁸	U	0.11 ⁸	U	0.10 ⁸	U	0.11 ⁸	U	0.10 ⁸	U	0.23	U				
	Lube Oil-range Hydrocarbons	0.5	mg/L	0.66	U	0.11 ⁸	U	0.37	U	0.11 ⁸	U	--	0.12 ⁸	U	0.11 ⁸	U	0.11 ⁸	U	0.12 ⁸	U	0.11 ⁸	U	0.12 ⁸	U				
PCB-Aroclors ⁹	PCB-Aroclor 1016	0.1	µg/L	0.32	U	0.10	U	0.10	U	0.10	U	--	0.099	U	0.099	U	0.10	U	0.10	U	0.097	U	0.10	U	0.096	U		
	PCB-Aroclor 1221		µg/L	0.32	U	0.10	U	0.10	U	0.10	U	--	0.099	U	0.099	U	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.096	U
	PCB-Aroclor 1232		µg/L	0.32	U	0.10	U	0.10	U	0.10	U	--	0.099	U	0.099	U	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.096	U
	PCB-Aroclor 1242		µg/L	0.32	U	0.10	U	0.10	U	0.10	U	--	0.099	U	0.099	U	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.096	U
	PCB-Aroclor 1248		µg/L	0.32	U	0.10	U	0.10	U	0.10	U	--	0.099	U	0.099	U	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.096	U
	PCB-Aroclor 1254		µg/L	0.32	U	0.10	U	0.10	U	0.10	U	--	0.099	U	0.099	U	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.096	U
	PCB-Aroclor 1260		µg/L	0.32	U	0.10	U	0.10	U	0.10	U	--	0.099	U	0.099	U	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.096	U
	PCB-Aroclor 1262		µg/L	0.32	U	0.10	U	0.10	U	0.10	U	--	0.099	U	0.099	U	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.096	U
PCB-Aroclor 1268	µg/L	0.32	U	0.10	U	0.10	U	0.10	U	--	0.099	U	0.099	U	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.096	U		
PAHs ¹⁰	1-Methylnaphthalene	NE	µg/L	--	0.091	U	0.090	U	0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	2-Methylnaphthalene	NE	µg/L	--	0.091	U	0.090	U	0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Acenaphthene	NE	µg/L	--	0.091	U	0.090	U	0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Acenaphthylene	NE	µg/L	--	0.091	U	0.090	U	0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Anthracene	NE	µg/L	--	0.091	U	0.090	U	0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Benzo(a)anthracene	NE	µg/L	--	0.091	U	0.38		0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Benzo(a)pyrene	0.1	µg/L	--	0.091	U	0.40		0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Benzo(b)fluoranthene	NE	µg/L	--	0.091	U	0.72		0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Benzo(g,h,i)perylene	NE	µg/L	--	0.091	U	0.24		0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Benzo(k)fluoranthene	NE	µg/L	--	0.091	U	0.090	U	0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Chrysene	NE	µg/L	--	0.091	U	0.51		0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Dibenzo(a,h)anthracene	NE	µg/L	--	0.091	U	0.090	U	0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Fluoranthene	NE	µg/L	--	0.091	U	0.65		0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Fluorene	NE	µg/L	--	0.091	U	0.090	U	0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Indeno(1,2,3-c,d)pyrene	NE	µg/L	--	0.091	U	0.23		0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Naphthalene	160	µg/L	--	0.091	U	0.090	U	0.090	UJ	0.093	U	0.089	U	0.089	U	0.11		0.091	U	0.086	U	0.11		0.091	U	0.087	U
	Phenanthrene	NE	µg/L	--	0.091	U	0.25		0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
	Pyrene	NE	µg/L	--	0.091	U	0.50		0.090	UJ	0.093	U	0.089	U	0.089	U	0.090	U	0.091	U	0.086	U	0.090	U	0.091	U	0.087	U
Total cPAH TEQ (ND=0.5RL)	0.1	µg/L	--		0.0687	U	0.55		0.068	UJ	0.070	U	0.067	U	0.067	U	0.068	U	0.0687	U	0.065	U	0.068	U	0.0687	U	0.066	U

Method	Analyte	Cleanup Level ⁶	Units	Location ID		MW-4			MW-5A			MW-5B			
				Sample ID	Sample Date	MW-4:081718	MW-4:101018	MW-4:073119	MW-5A:081718	MW-5A:101018	MW-5B:073119				
						8/17/2018	10/10/2018	7/31/2019	8/17/2018	10/10/2018	7/31/2019				
NWTPH-DX ⁷	Diesel-range hydrocarbons	0.5	mg/L	0.10 ⁸	U	0.10 ⁸	U	0.11 ⁸	U	0.11 ⁸	U	0.10 ⁸	U	0.24	U
	Lube Oil-range Hydrocarbons	0.5	mg/L	0.11 ⁸	U	0.11 ⁸	U	0.12 ⁸	U	0.12 ⁸	U	0.11 ⁸	U	0.12 ⁸	U
PCB-Aroclors ⁹	PCB-Aroclor 1016	0.1	µg/L	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.094	U
	PCB-Aroclor 1221		µg/L	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.094	U
	PCB-Aroclor 1232		µg/L	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.094	U
	PCB-Aroclor 1242		µg/L	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.094	U
	PCB-Aroclor 1248		µg/L	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.094	U
	PCB-Aroclor 1254		µg/L	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.094	U
	PCB-Aroclor 1260		µg/L	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.094	U
	PCB-Aroclor 1262		µg/L	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.094	U
PCB-Aroclor 1268	µg/L	0.10	U	0.10	U	0.097	U	0.10	U	0.10	U	0.094	U		
PAHs ¹⁰	1-Methylnaphthalene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	2-Methylnaphthalene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Acenaphthene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Acenaphthylene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Anthracene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Benzo(a)anthracene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Benzo(a)pyrene	0.1	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Benzo(b)fluoranthene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Benzo(g,h,i)perylene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Benzo(k)fluoranthene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Chrysene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Dibenzo(a,h)anthracene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Fluoranthene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Fluorene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Indeno(1,2,3-c,d)pyrene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Naphthalene	160	µg/L	0.17		0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
	Phenanthrene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U
Pyrene	NE	µg/L	0.090	U	0.091	U	0.088	U	0.090	U	0.090	U	0.087	U	
Total cPAH TEQ (ND=0.5RL)	0.1	µg/L	0.068	U	0.0687	U	0.066	U	0.068	U	0.068	U	0.066	U	

Notes:

¹Laboratory testing provided by TestAmerica Laboratories, Inc. in Spokane Valley, Washington.

²MW-1:082018 sample was not tested for PAHs due to poor well recovery; the well went dry while pumping on 8/17/2018 and 8/20/2018.

³DUP:101018 sample is from a preliminary laboratory report. The sample was obtained from a silty well and the laboratory analyst did not find issues with the result. MW-1 was redeveloped and resampled and tested for PAHs on 11/20/2018.

⁴DUP:101018 sample was re-run out of hold-time due to the preliminary laboratory result.

⁵MW-1:112018 sample was obtained and tested for PAHs after well redevelopment to remove silt from the well.

⁶Cleanup level refers to Model Toxics Control Act (MTCA) Method A Cleanup Level for Unrestricted Land Use

⁷Diesel- and Oil-range Petroleum Hydrocarbons (DRPH and ORPH) analyzed using Northwest Method NWTPH-Dx.

⁸Result is reported to the method detection limit (MDL).

⁹Polychlorinated biphenyls (PCBs) analyzed using Environmental Protection Agency (EPA) Method 8082A.

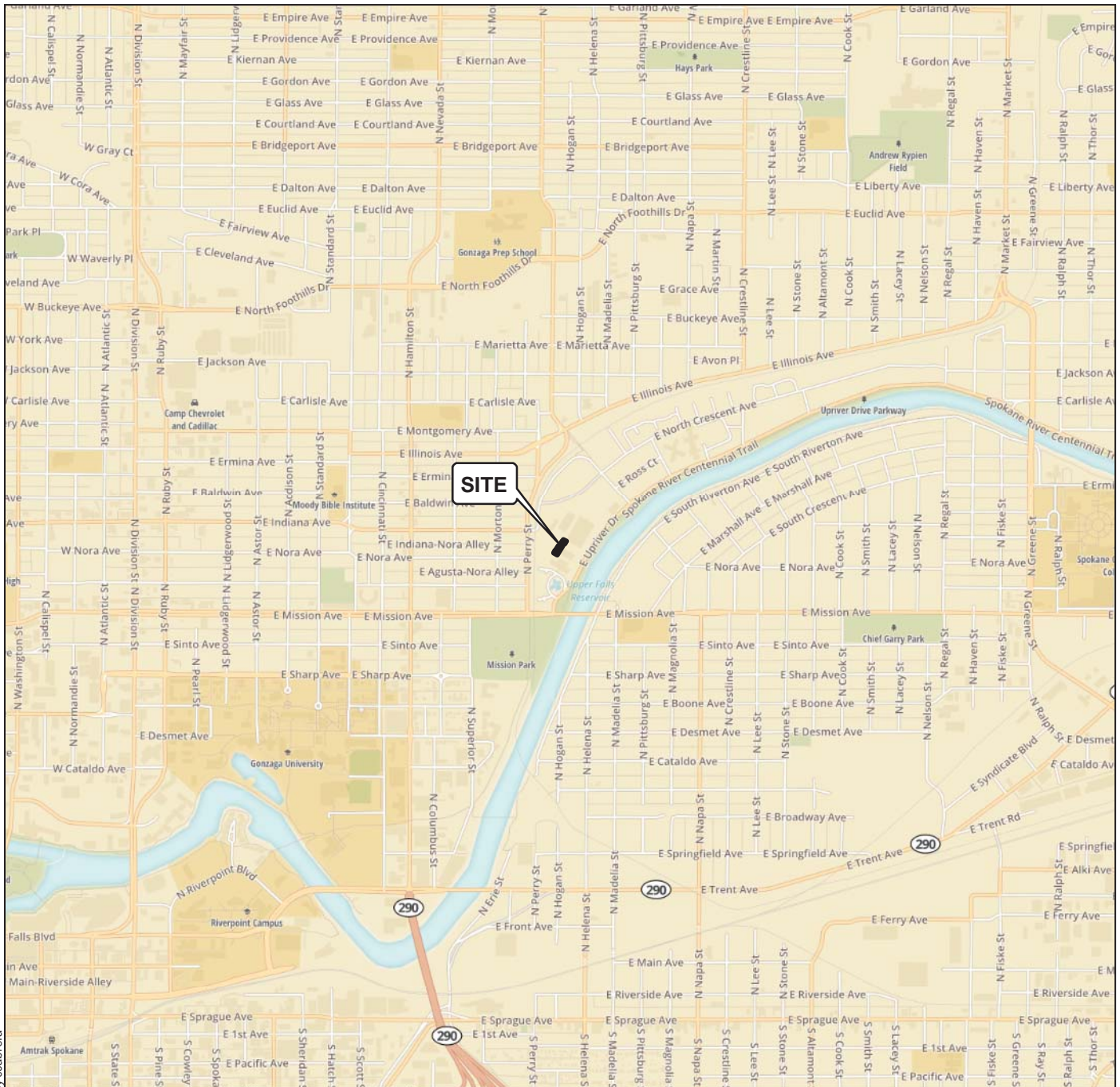
¹⁰Polycyclic aromatic hydrocarbons (PAHs) analyzed using EPA Method 8270D.

¹¹Detection is J flagged as estimated result and reported to the MDL.

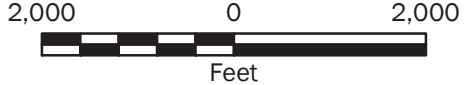
µg/L = micrograms per Liter; mg/L = milligrams per Liter; U = analyte was not detected at concentrations greater than the laboratory reporting limit; J = estimated result; "-" = not analyzed

Bold = indicates the analyte was detected above the laboratory reporting limit.

Bold Red = indicates the analyte was detected above the respective cleanup level.



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Vicinity Map

Avista - Service Center Garage
 Monitoring Well Installs and Groundwater Monitoring Report
 Spokane, Washington



Figure 1

- Notes:**
1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

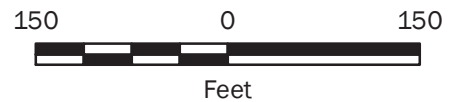
Data Source: Mapbox Open Street Map, 2016
 Projection: NAD 1983 UTM Zone 11N



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Legend

- Well ID and Approximate Location
- X Former Monitoring Well
- Approximate 2018 Remedial Excavation Area
- Approximate Parking Garage Structure Location
- Construction Area



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Groundwater contours generated using Surfer 14 from elevations taken on July 31, 2019.

Data Source: ESRI, Spokane County GIS

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

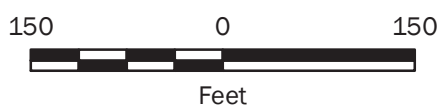
Site Plan	
Avista - Service Center Garage Monitoring Well Installs and Groundwater Monitoring Report Spokane, Washington	
	Figure 2



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Legend

- Well ID and Groundwater Elevation (feet)
- ⊗ Former Monitoring Well
- Approximate 2018 Remedial Excavation Area
- Approximate Parking
- Garage Structure Location
- Construction Area
- Approximate Groundwater Elevation Contour (0.1 feet)



Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. Groundwater contours generated using Surfer 14 from elevations taken on July 31, 2019.

Data Source: ESRI, Spokane County GIS
 Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Groundwater Elevation and Interpreted Flow Direction, July 31, 2019	
Avista - Service Center Garage Monitoring Well Installs and Groundwater Monitoring Report Spokane, Washington	
GEOENGINEERS	Figure 3



Approximate location of destroyed monitoring well MW-1 within parking garage structure.



Environmental West Exploration Drilling installing MW-5B using air rotary drilling.

**Site Photographs
July 2019**

Avista – Service Center Garage
Spokane, Washington



Figure 4



Able Cleanup Technologies air knifing monitoring well MW-1A. (view looking north)



Environmental West Exploration drilling monitoring well MW-1A using air rotary drilling. (view looking east)

**Site Photographs
July 2019**

Avista – Service Center Garage
Spokane, Washington



Figure 5

APPENDIX A
Field Methods and Monitoring Well Logs

APPENDIX A FIELD METHODS AND MONITORING WELL LOGS

General Soil Sampling Procedures

Samples were obtained from drill cuttings using disposable nitrile gloves which were discarded after each use.

Field Screening of Soil Samples

A GeoEngineers representative performed field screening of soil samples obtained from drill cuttings during drilling activities. Field screening results are used as a general guideline to delineate depths with possible petroleum-related contamination. The screening methods used include: (1) visual screening; (2) water sheen screening; and (3) headspace vapor screening using a MiniRae photoionization detector (PID) calibrated to isobutylene.

Visual screening consists of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons such as motor oil, or when hydrocarbon concentrations are high. Water sheen screening is a more sensitive method that has been effective in evaluating whether contaminant concentrations are less than regulatory cleanup guidelines.

Water sheen screening involves placing soil in water and observing the water surface for signs of sheen. Sheen screening might detect both volatile and nonvolatile petroleum hydrocarbons. Sheen classifications are as follows:

No Sheen	No visible sheen on water surface.
Slight Sheen	Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil might produce a slight sheen.
Moderate Sheen	Light to heavy sheen; might have some color/iridescence; spread is irregular to flowing, might be rapid; few remaining areas of no sheen on water surface.
Heavy Sheen	Heavy sheen with color/iridescence; spread is rapid; entire water surface might be covered with sheen.

Headspace vapor screening involved placing a soil sample in a plastic sample bag. Air was captured in the bag and the bag was shaken to expose the soil to the air trapped in the bag. The probe of the PID was then inserted into the bag to measure volatile organic compounds (VOCs) in the air within the bag. In this application, the PID measured concentration of organic vapors ionizable by a 10.6 electron volt (eV) lamp in the range between 1.0 and 2,000 parts per million (ppm), with a resolution of +/- 2 ppm.

Field screening results are site-specific. The effectiveness of field screening results will vary with temperature, moisture content, organic content, soil type and type and age of contaminant. The presence or absence of a sheen or headspace vapors does not necessarily indicate the presence or absence of petroleum hydrocarbons.

Monitoring Well Construction, Development and Surveying

The groundwater monitoring wells were constructed in general accordance with Chapter 173-160, Section 400 of the *Washington Administrative Code* (WAC), titled “Washington State Resource Protection Well Construction Standards.” Monitoring well records were submitted in accordance with Washington State monitoring well construction standards. Monitoring well installations were observed and documented by a GeoEngineers field representative.

The groundwater monitoring wells were installed using air-rotary drilling equipment and were constructed of 2-inch-diameter, Schedule 40 PVC casing and 0.01-inch slot width well screens. Well screen depths were based on groundwater conditions observed in the field such that the water table intercepted the approximate middle of the well screen.

Each well was constructed with a bentonite seal and a flush-mount surface monument. A lockable cap was installed in the top of the PVC well casing. A concrete surface seal was placed around the monument at the ground surface to divert surface water away from the well location. Each well was developed using surging and pumping; wells were surged and then pumped until the development water was visually clear and free of fines.

The monitoring well was developed to remove water introduced into the well during drilling (if any), stabilize the filter pack and formation materials surrounding the well screen, and restore the hydraulic connection between the well screen and the surrounding soil. The depth to water in the monitoring well was measured prior to development. The total depth of the well was measured and recorded. The groundwater monitoring wells were developed by pumping and surging methods after construction. Development of the well continued until the water was as free of sediment as practicable, with respect to the composition of the subsurface materials within the screened interval. The removal rate and amount of groundwater removed was recorded during the well development procedures. Development purge water was collected and stored on site.

The locations of the groundwater monitoring wells were established in the field using a hand-held iPad with GPS software and subsequently surveyed by a licensed surveyor.

Depth to Groundwater

Depth to groundwater measurements from the new wells were collected and recorded in the field notebook after the water level stabilized after well development. Depth to groundwater relative to the marked north side of the monitoring well casing rims was measured to the nearest 0.01 foot using an electronic water level indicator and recorded in the field notebook. Groundwater elevation was calculated by subtracting the depth-to-water measurement from the surveyed casing rim elevation. The electronic water level indicator was decontaminated with Liquinox® solution wash and a distilled water rinse prior to use in each well.

Groundwater Sampling

Following depth to groundwater measurements, groundwater samples were collected from the installed groundwater monitoring wells consistent with the EPA’s low-flow groundwater sampling procedures (EPA 2017 and Puls and Barcelona 1996). Dedicated polyethylene tubing and a portable peristaltic pump were used for groundwater purging and sampling. During purging activities, water quality parameters, including pH, temperature, conductivity, dissolved oxygen and turbidity were measured using a multi-

parameter meter equipped with a flow-through cell. Groundwater samples were collected after (1) water quality parameters stabilized; or (2) a maximum purge time of 30 minutes was achieved. During purging and sampling, drawdown was not allowed to exceed 0.3 feet and the purge rate did not exceed 400 milliliters per minute. Water quality parameter stabilization criteria included the following:

- Turbidity: ± 10 percent for values greater than 5 nephelometric turbidity units (ntu);
- Conductivity: ± 3 percent;
- pH: ± 0.1 unit;
- Temperature: ± 3 percent; and
- Dissolved oxygen: ± 10 percent.

Field water quality measurements and depth-to-water measurements were recorded on a Well Purging-Field Water Quality Measurement Form. The groundwater samples were transferred in the field to laboratory-prepared sample containers and kept cool during transport to the testing laboratory. Chain-of-custody (COC) procedures were observed from the time of sample collection to delivery to the testing laboratory consistent with the Quality Assurance Project Plan.

Location Control

The locations of the borings and groundwater monitoring wells were established in the field using a hand-held iPad with GPS software. The horizontal accuracy of the hand-held unit is within about 10 feet. Upon completion, horizontal and vertical locations of the groundwater monitoring wells were surveyed by Coffman Engineers, a licensed professional surveyor, and referenced to the North American Vertical Datum of 1988 (NAVD88).

Decontamination Procedures

The objective of the decontamination procedure was to minimize the potential for cross contamination between exploration locations and between individual samples within a specific exploration. A designated decontamination area was established for decontamination of drilling equipment and reusable sampling equipment. Drilling equipment was cleaned using pressure washing equipment.

Sampling or measurement equipment was decontaminated in accordance with the following procedures before each sampling attempt or measurement:

- Brush equipment with a wire brush, if necessary, to remove large particulate matter.
- Rinse with potable tap water.
- Wash with non-phosphate detergent solution (Liquinox® and potable tap water).
- Rinse with potable tap water.
- Rinse with distilled water.

Handling of Investigation-Derived Waste

IDW (drill cuttings and development and purge water), was placed in U.S. Department of Transportation (DOT) approved 55-gallon drums. The drums were labeled with the exploration number, general contents and date. IDW generated on site was placed in drums and given to Avista for disposal.

Disposable items, such as sample tubing, gloves and paper towels, etc., were placed in plastic bags after use and deposited in trash receptacles for disposal.

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
			GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS <small>(LITTLE OR NO FINES)</small>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SM	SILTY SANDS, SAND - SILT MIXTURES
	SAND AND SANDY SOILS	CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		SW	WELL-GRADED SANDS, GRAVELLY SANDS
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SP	POORLY-GRADED SANDS, GRAVELLY SAND
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
		LIQUID LIMIT LESS THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		LIQUID LIMIT LESS THAN 50		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS
		LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY
		LIQUID LIMIT GREATER THAN 50		OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

	2.4-inch I.D. split barrel
	Standard Penetration Test (SPT)
	Shelby tube
	Piston
	Direct-Push
	Bulk or grab
	Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS		TYPICAL DESCRIPTIONS
GRAPH	LETTER	
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact



Measured groundwater level in exploration, well, or piezometer



Measured free product in well or piezometer

Graphic Log Contact



Distinct contact between soil strata



Approximate contact between soil strata

Material Description Contact



Contact between geologic units



Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point lead test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
VS	Vane shear

Sheen Classification

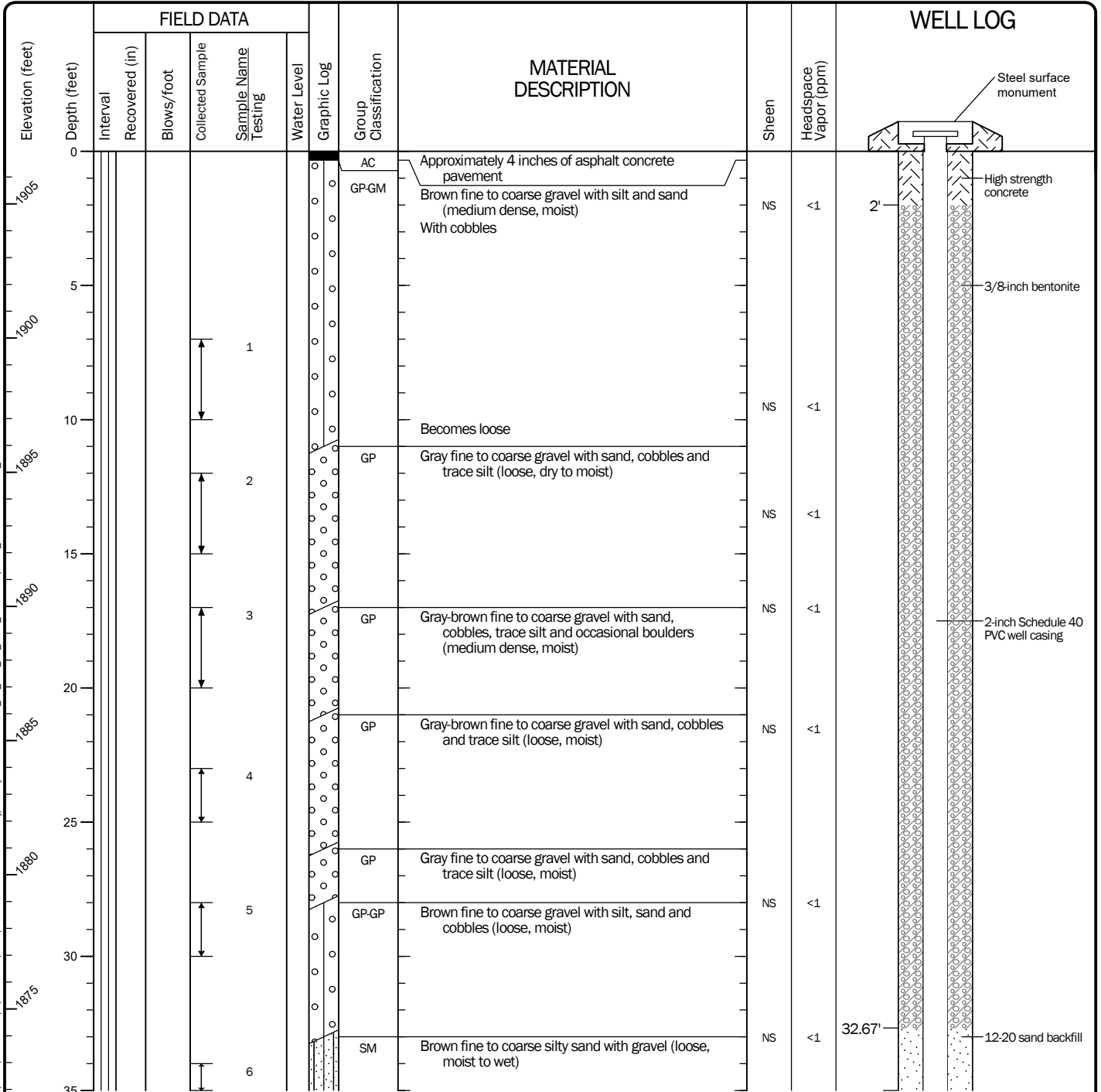
NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

Key to Exploration Logs



Figure A-1

Start Drilled	7/24/2019	End	7/26/2019	Total Depth (ft)	45	Logged By	BKH	Checked By	JML	Driller	Environmental West Exploration, Inc.	Drilling Method	Air-Rotary
Hammer Data	N/A			Drilling Equipment	Mobile B-90			A 2 (in) well was installed on 7/26/2019 to a depth of 45 (ft).					
Surface Elevation (ft)	1906.96			Top of Casing Elevation (ft)				Groundwater Date Measured	7/26/2019		Depth to Water (ft)	41.15	
Vertical Datum	NAVD88			Horizontal Datum	WA State Plane North NAD83 (feet)			Elevation (ft)					
Latitude	47.67463												
Longitude	-117.38987												
Notes:													



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

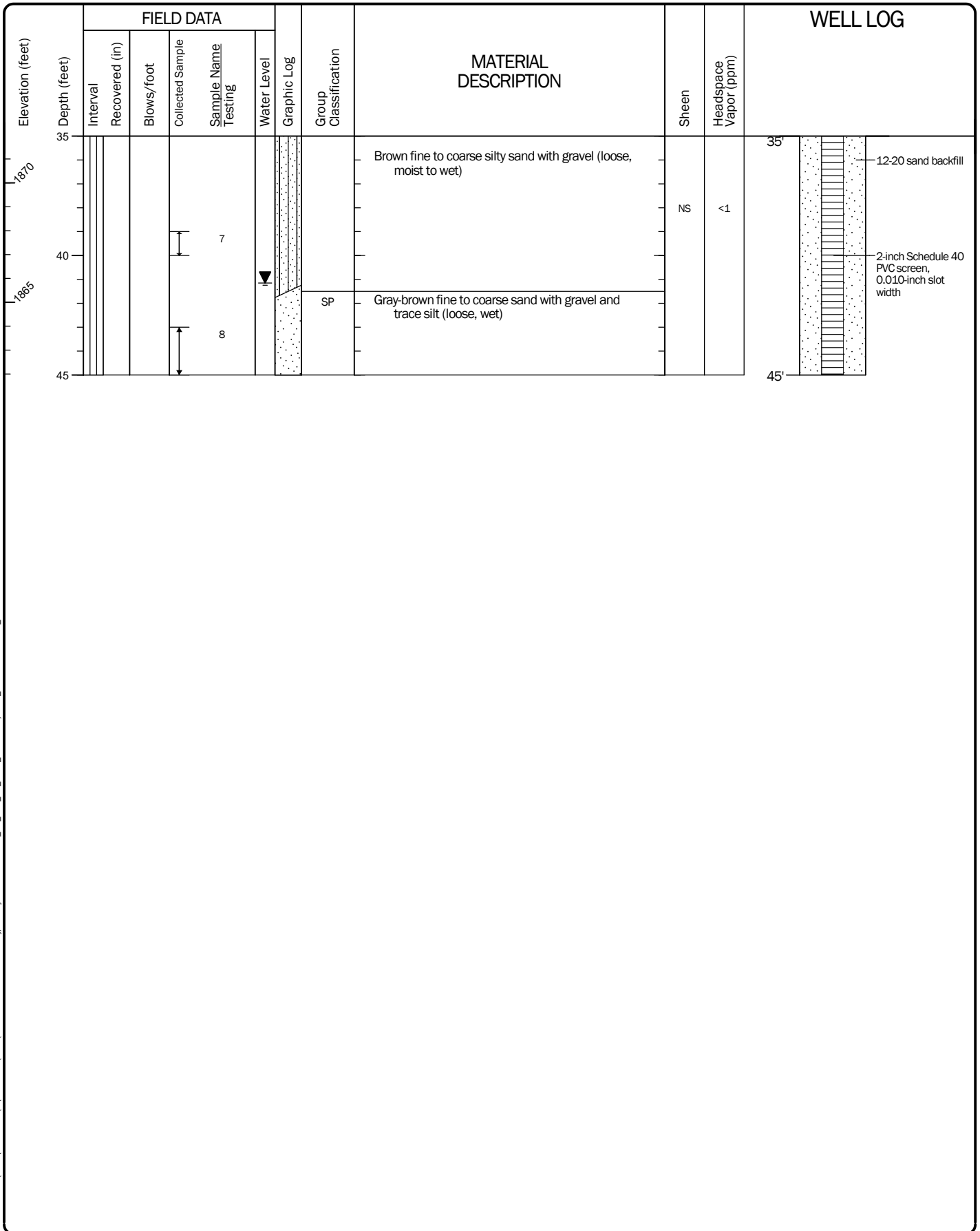
Log of Monitoring Well MW-1A



Project: Avista Service Center Garage
Project Location: Spokane, Washington
Project Number: 2522-079-02

Date: 8/30/19 Path: \\GEOENGINEERS.COM\W\AN\PROJECTS\2522079\GINT\252207902.GPJ DBLibrary\Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEIB_ENVIRONMENTAL_WELL

Date: 8/30/19 Path: \\GEOENGINEERS.COM\WAN\PROJECTS\2522079\GINT\252207902.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEB_ENVIRONMENTAL_WELL



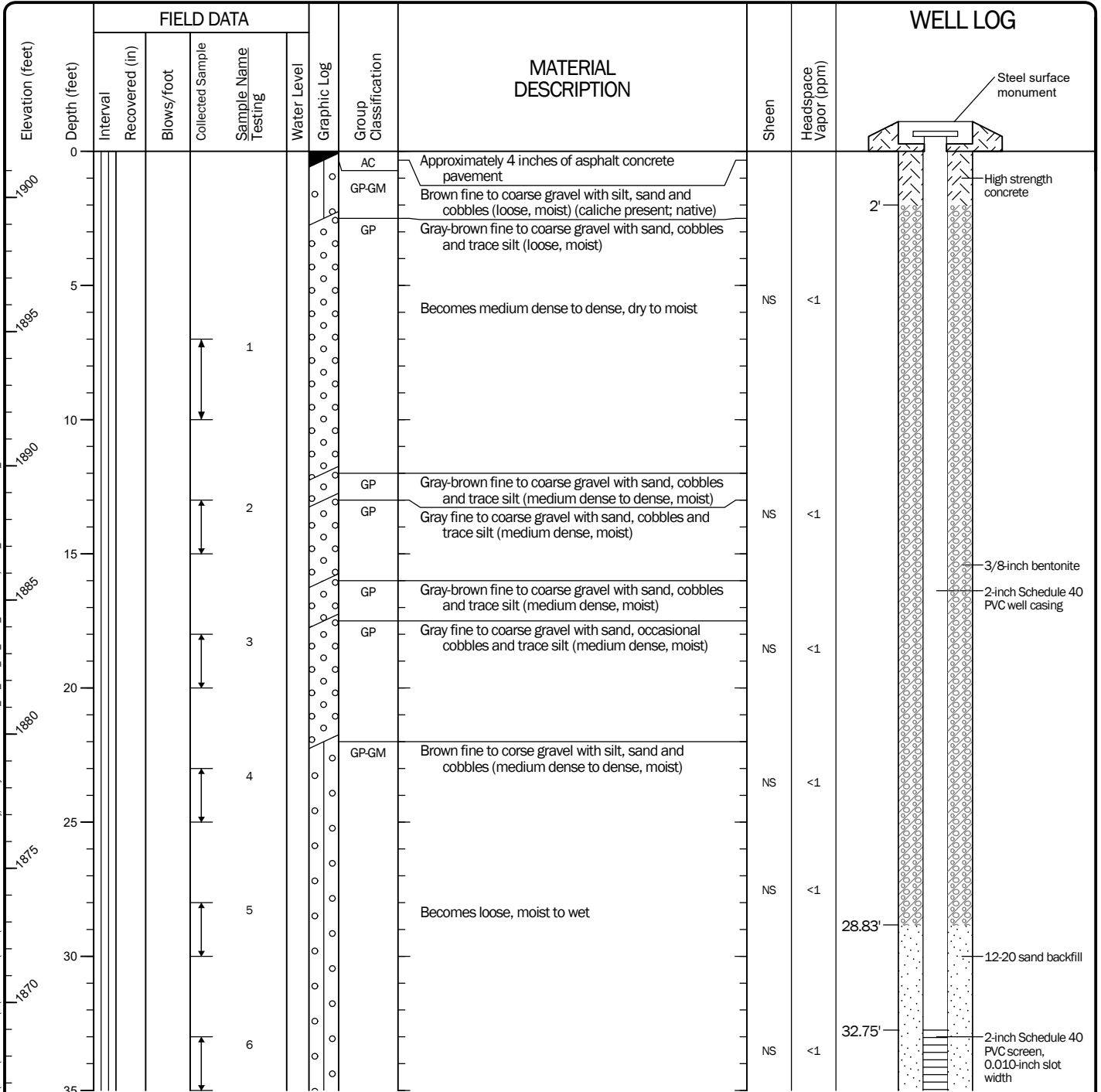
Log of Monitoring Well MW-1A (continued)



Project: Avista Service Center Garage
 Project Location: Spokane, Washington
 Project Number: 2522-079-02

Figure A-2
 Sheet 2 of 2

Start Drilled 7/26/2019	End 7/26/2019	Total Depth (ft)	42.75	Logged By Checked By	BKH JML	Driller	Environmental West Exploration, Inc.	Drilling Method	Air-Rotary
Hammer Data		N/A		Drilling Equipment		Mobile B-90		A 2 (in) well was installed on 7/26/2019 to a depth of 42.75 (ft).	
Surface Elevation (ft)		1901.72		Top of Casing Elevation (ft)		Groundwater		Date Measured	
Vertical Datum		NAVD88		Horizontal Datum		WA State Plane North NAD83 (feet)		7/26/2019	
Latitude		47.67428		Depth to Water (ft)		Elevation (ft)		36.10	
Longitude		-117.38979							
Notes:									



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

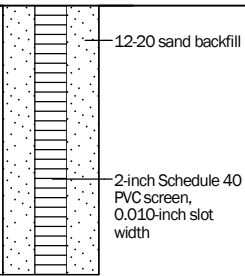
Log of Monitoring Well MW-5B



Project: Avista Service Center Garage
Project Location: Spokane, Washington
Project Number: 2522-079-02

Date: 8/30/19 Path: \\GEOENGINEERS.COM\W\AN\PROJECTS\2\2522079\GINT\252207902.GPJ D:\Library\Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEIB_ENVIRONMENTAL_WELL

Date: 8/30/19 Path: \\GEOENGINEERS.COM\WAN\PROJECTS\2\2522079\GINT\252207902.GPJ DBLibrary/Library\GEOENGINEERS_DF_STD_US_JUNE_2017.GLB\GEIB_ENVIRONMENTAL_WELL

Elevation (feet)	FIELD DATA						MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	WELL LOG
	Depth (feet)	Interval Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level				
1965	35					Water Level				 <p>12-20 sand backfill</p> <p>2-inch Schedule 40 PVC screen, 0.010-inch slot width</p>
1960	40			7		SP-SM		NS	<1	
	42.75'									

Log of Monitoring Well MW-5B (continued)



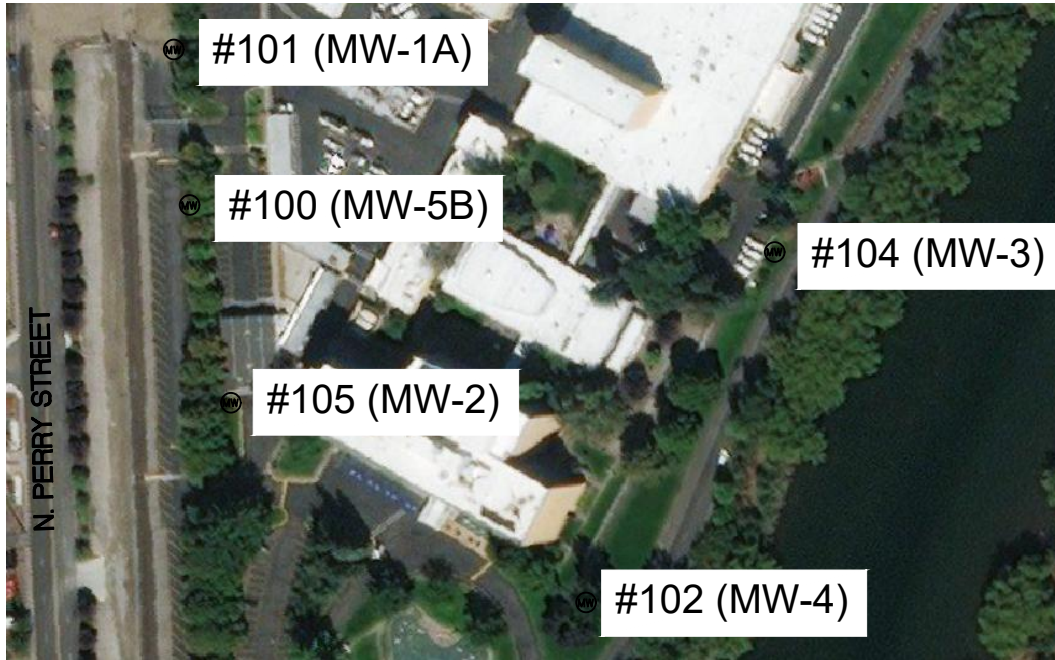
Project: Avista Service Center Garage
 Project Location: Spokane, Washington
 Project Number: 2522-079-02

APPENDIX B
Well Survey Report

WASHINGTON STATE DEPARTMENT OF ECOLOGY
 AVISTA MONITORING WELLS SURVEY
 SPOKANE, WASHINGTON



SCALE: 1"=200'



POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	264905.69	2488511.35	1901.72	MON WELL
101	265067.59	2488494.68	1906.96	MON WELL
102	264491.90	2488924.04	1888.10	MON WELL
104	264856.99	2489120.26	1887.57	MON WELL
105	264699.98	2488554.31	1897.60	MON WELL

HORIZONTAL DATUM

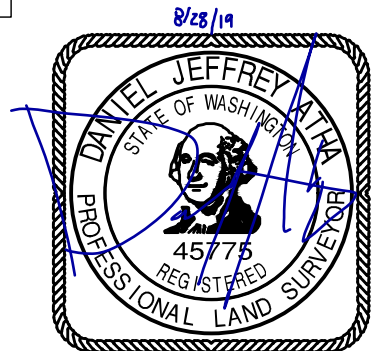
SURVEY IS BASED ON WASHINGTON STATE PLANE SYSTEM, NAD83, NORTH ZONE, U.S. FOOT. GRID COORDINATES SHOWN IN TABLE.

ELEVATION DATUM

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). GEOID 12B

NOTES

1. FIELD SURVEY COMPLETED AUGUST 7, 2019. UPDATED AUGUST 26, 2019
2. ELEVATIONS TAKEN ON THE NORTH SIDE OF MONITORING WELL CASING.



10 N. Post Street Suite 500
 Spokane, Washington 99201
 509 328 2994 Fax 509 328 2999

project	AVISTA WELL SURVEY	by	JEA	sheet no.	
location	1411 E. MISSION AVE., SPOKANE, WA	date	8/28/19		1 OF 1
client	GEO ENGINEERS	checked	DJA	job no.	
	(WASHINGTON STATE DEPARTMENT OF ECOLOGY)	date	8/28/19		190037

APPENDIX C
Laboratory Reports and Data Validation Report

Project:	Avista – Service Center Report Finalization and Groundwater Monitoring July 2019 Water Samples
GEI File No:	02522-079-02
Date:	August 22, 2019

This report documents the results of a United States Environmental Protection Agency (EPA)-defined Stage 2A data validation (EPA Document 540-R-08-005; EPA 2009) of analytical data from the analyses of water samples collected as part of the July 2019 sampling event, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Spokane Service Center building on the Avista Corporation Spokane campus located at 1411 East Mission Avenue in Spokane, Washington.

OBJECTIVE AND QUALITY CONTROL ELEMENTS

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the EPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review (EPA 2017) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

In accordance with the Quality Assurance Project Plan (QAPP), Appendix A of the Work Plan, Groundwater Monitoring, Remedial Excavation and Geosynthetic Liner Installation (GeoEngineers 2018), the data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Field Duplicates

VALIDATED SAMPLE DELIVERY GROUPS

This data validation included review of the sample delivery group (SDG) listed below in Table B-1.

TABLE B-1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory SDG	Samples Validated
590-11513-1	MW-1A:073119, DUP:073119, MW-2:073119, MW-3:073119, MW-4:073119, MW-5B:073119

CHEMICAL ANALYSIS PERFORMED

Eurofins TestAmerica Laboratories, Inc. (TestAmerica), located in Spokane, Washington, performed laboratory analyses on the samples using the following methods:

- Petroleum Hydrocarbons (NWTPH-Dx) by Method NWTPH-Dx;
- Polycyclic Aromatic Hydrocarbons (PAHs) by Method SW8270D-SIM; and
- Polychlorinated Biphenyls (PCBs) by Method SW8082A.

DATA VALIDATION SUMMARY

The results for each of the QC elements are summarized below.

Data Package Completeness

TestAmerica provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

Chain-of-Custody Documentation

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory.

Holding Times and Sample Preservation

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis. The sample cooler arrived at the laboratory outside the appropriate temperatures of between 2 and 6 degrees Celsius at 15.0 degrees Celsius. It was determined through professional judgment that since the samples were received on ice at the laboratory the same day they were collected and the cooling process had begun, this temperature should likely not affect the sample analytical results.

Surrogate Recoveries

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added

to the samples, standards and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries are calculated following analysis. The surrogate percent recoveries for field samples were within the laboratory control limits.

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For each sample batch, method blanks for the applicable methods were analyzed at the required frequency. None of the analytes of interest were detected in the method blanks, with the exception noted below.

SDG 590-11513-1: (NWTPH-Dx) There was a positive result for diesel-range hydrocarbons detected above the method detection limit, but below the reporting limit in the method blank extracted on 8/6/2019. The positive results for this target analyte were qualified as non-detected (U) in Samples MW-3:073119 and MW-5B:073119. There were no positive results for this target analyte in Samples MW-1A:073119, DUP:073119, MW-2:073119 and MW-4:073119; therefore, no qualifications were required.

Matrix Spikes/Matrix Spike Duplicates

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated.

A laboratory control sample/laboratory control sample duplicate (LCS/LCSD) sample set was performed in lieu of a MS/MSD analysis.

Laboratory Control Samples/Laboratory Control Sample Duplicates

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for all analyses and the percent recovery and RPD values were within the proper control limits.

Field Duplicates (FDs)

In order to assess precision, field duplicate samples were collected and analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. If one or more of the sample analytes has a concentration less than five times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limit for water samples is 20 percent.

SDG 590-11513-1: One field duplicate sample pair, MW-1A:073119 and DUP:073119, was submitted with this SDG. The precision criteria for all target analytes were met for this sample pair.

OVERALL ASSESSMENT

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate and LCS/LCSD percent recovery values. Precision was acceptable, as demonstrated by the LCS/LCSD and field duplicate RPD values.

The data are acceptable for the intended use, with the following qualifications listed below in Table B-2.

TABLE B-2. SUMMARY OF QUALIFIED SAMPLES

Sample ID	Analyte	Qualifier	Reason
MW-3:073119	Diesel-range hydrocarbons	U	Method Blank Contamination
MW-5B:073119	Diesel-range hydrocarbons	U	Method Blank Contamination

REFERENCES

GeoEngineers, Inc. 2018. "Work Plan, Groundwater Monitoring, Remedial Excavation and Geosynthetic Liner Installation," prepared for Avista Corporation. GEI File No. 2522-079-01. August 2, 2018.

U.S. Environmental Protection Agency (EPA). 2009. "Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use," EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (EPA). 2017. "Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review," EPA-540-R-2017-002. January 2017.

ANALYTICAL REPORT

Eurofins TestAmerica, Spokane
11922 East 1st Ave
Spokane, WA 99206
Tel: (509)924-9200


Laboratory Job ID: 590-11513-1

Client Project/Site: Avista-Spokane Service Ctr/2522-079-02
Revision: 1

For:

GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Attn: Josh Lee



Authorized for release by:
8/14/2019 3:50:10 PM

Kristine Allen, Manager of Project Management
(253)248-4970

kristine.allen@testamericainc.com

Designee for

Randee Arrington, Project Manager II
(509)924-9200

randee.arrington@testamericainc.com

LINKS

Review your project
results through
TotalAccess

Have a Question?



Visit us at:
www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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QC Sample Results	12
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Method Summary	19
Chain of Custody	20
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Case Narrative

Client: GeoEngineers Inc
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Job ID: 590-11513-1

Laboratory: Eurofins TestAmerica, Spokane

Narrative

Receipt

The samples were received on 7/31/2019 3:51 PM; the samples arrived in good condition. The temperature of the cooler at receipt was 15.0° C.

Receipt Exceptions

The following samples were received at the laboratory outside the required temperature criteria: MW-1A:073119 (590-11513-1), MW-2:073119 (590-11513-2), MW-3:073119 (590-11513-3), MW-4:073119 (590-11513-4), MW-5B:073119 (590-11513-5) and DUP:073119 (590-11513-6). The samples are considered acceptable since they were collected and submitted to the laboratory on the same day and there is evidence that the chilling process has begun.

GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

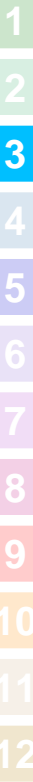
GC Semi VOA

Method NWTPH-Dx: The method blank for preparation batch 590-23427 and analytical batch 590-23421 contained Diesel Range Organics (DRO) (C10-C25) above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



Sample Summary

Client: GeoEngineers Inc
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
590-11513-1	MW-1A:073119	Water	07/31/19 09:53	07/31/19 15:51	
590-11513-2	MW-2:073119	Water	07/31/19 11:48	07/31/19 15:51	
590-11513-3	MW-3:073119	Water	07/31/19 13:52	07/31/19 15:51	
590-11513-4	MW-4:073119	Water	07/31/19 12:50	07/31/19 15:51	
590-11513-5	MW-5B:073119	Water	07/31/19 08:35	07/31/19 15:51	
590-11513-6	DUP:073119	Water	07/31/19 08:00	07/31/19 15:51	

1

2

3

4

5

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7

8

9

10

11

12

Definitions/Glossary

Client: GeoEngineers Inc
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Client Sample ID: MW-1A:073119

Lab Sample ID: 590-11513-1

Date Collected: 07/31/19 09:53

Matrix: Water

Date Received: 07/31/19 15:51

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.089	0.052	ug/L		08/01/19 16:20	08/02/19 17:42	1
2-Methylnaphthalene	ND		0.089	0.044	ug/L		08/01/19 16:20	08/02/19 17:42	1
1-Methylnaphthalene	ND		0.089	0.023	ug/L		08/01/19 16:20	08/02/19 17:42	1
Acenaphthylene	ND		0.089	0.016	ug/L		08/01/19 16:20	08/02/19 17:42	1
Acenaphthene	ND		0.089	0.022	ug/L		08/01/19 16:20	08/02/19 17:42	1
Fluorene	ND		0.089	0.016	ug/L		08/01/19 16:20	08/02/19 17:42	1
Phenanthrene	ND		0.089	0.055	ug/L		08/01/19 16:20	08/02/19 17:42	1
Anthracene	ND		0.089	0.025	ug/L		08/01/19 16:20	08/02/19 17:42	1
Fluoranthene	ND		0.089	0.017	ug/L		08/01/19 16:20	08/02/19 17:42	1
Pyrene	ND		0.089	0.026	ug/L		08/01/19 16:20	08/02/19 17:42	1
Benzo[a]anthracene	ND		0.089	0.012	ug/L		08/01/19 16:20	08/02/19 17:42	1
Chrysene	ND		0.089	0.0099	ug/L		08/01/19 16:20	08/02/19 17:42	1
Benzo[b]fluoranthene	ND		0.089	0.011	ug/L		08/01/19 16:20	08/02/19 17:42	1
Benzo[k]fluoranthene	ND		0.089	0.015	ug/L		08/01/19 16:20	08/02/19 17:42	1
Benzo[a]pyrene	ND		0.089	0.012	ug/L		08/01/19 16:20	08/02/19 17:42	1
Indeno[1,2,3-cd]pyrene	ND		0.089	0.022	ug/L		08/01/19 16:20	08/02/19 17:42	1
Dibenz(a,h)anthracene	ND		0.089	0.013	ug/L		08/01/19 16:20	08/02/19 17:42	1
Benzo[g,h,i]perylene	ND		0.089	0.021	ug/L		08/01/19 16:20	08/02/19 17:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	94		36 - 126	08/01/19 16:20	08/02/19 17:42	1
2-Fluorobiphenyl (Surr)	72		44 - 120	08/01/19 16:20	08/02/19 17:42	1
p-Terphenyl-d14	83		51 - 121	08/01/19 16:20	08/02/19 17:42	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.099	0.061	ug/L		08/02/19 08:30	08/12/19 15:39	1
PCB-1221	ND		0.099	0.061	ug/L		08/02/19 08:30	08/12/19 15:39	1
PCB-1232	ND		0.099	0.061	ug/L		08/02/19 08:30	08/12/19 15:39	1
PCB-1242	ND		0.099	0.061	ug/L		08/02/19 08:30	08/12/19 15:39	1
PCB-1248	ND		0.099	0.061	ug/L		08/02/19 08:30	08/12/19 15:39	1
PCB-1254	ND		0.099	0.061	ug/L		08/02/19 08:30	08/12/19 15:39	1
PCB-1260	ND		0.099	0.043	ug/L		08/02/19 08:30	08/12/19 15:39	1
PCB-1268	ND		0.099	0.061	ug/L		08/02/19 08:30	08/12/19 15:39	1
PCB-1262	ND		0.099	0.061	ug/L		08/02/19 08:30	08/12/19 15:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	64		20 - 126	08/02/19 08:30	08/12/19 15:39	1
DCB Decachlorobiphenyl (Surr)	105		23 - 138	08/02/19 08:30	08/12/19 15:39	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24	0.11	mg/L		08/06/19 11:18	08/06/19 19:16	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40	0.12	mg/L		08/06/19 11:18	08/06/19 19:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	98		50 - 150	08/06/19 11:18	08/06/19 19:16	1
n-Triacontane-d62	91		50 - 150	08/06/19 11:18	08/06/19 19:16	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Client Sample ID: MW-2:073119

Lab Sample ID: 590-11513-2

Date Collected: 07/31/19 11:48

Matrix: Water

Date Received: 07/31/19 15:51

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.086	0.051	ug/L		08/01/19 16:20	08/02/19 18:08	1
2-Methylnaphthalene	ND		0.086	0.042	ug/L		08/01/19 16:20	08/02/19 18:08	1
1-Methylnaphthalene	ND		0.086	0.022	ug/L		08/01/19 16:20	08/02/19 18:08	1
Acenaphthylene	ND		0.086	0.015	ug/L		08/01/19 16:20	08/02/19 18:08	1
Acenaphthene	ND		0.086	0.021	ug/L		08/01/19 16:20	08/02/19 18:08	1
Fluorene	ND		0.086	0.015	ug/L		08/01/19 16:20	08/02/19 18:08	1
Phenanthrene	ND		0.086	0.054	ug/L		08/01/19 16:20	08/02/19 18:08	1
Anthracene	ND		0.086	0.024	ug/L		08/01/19 16:20	08/02/19 18:08	1
Fluoranthene	ND		0.086	0.016	ug/L		08/01/19 16:20	08/02/19 18:08	1
Pyrene	ND		0.086	0.025	ug/L		08/01/19 16:20	08/02/19 18:08	1
Benzo[a]anthracene	ND		0.086	0.012	ug/L		08/01/19 16:20	08/02/19 18:08	1
Chrysene	ND		0.086	0.0096	ug/L		08/01/19 16:20	08/02/19 18:08	1
Benzo[b]fluoranthene	ND		0.086	0.011	ug/L		08/01/19 16:20	08/02/19 18:08	1
Benzo[k]fluoranthene	ND		0.086	0.014	ug/L		08/01/19 16:20	08/02/19 18:08	1
Benzo[a]pyrene	ND		0.086	0.012	ug/L		08/01/19 16:20	08/02/19 18:08	1
Indeno[1,2,3-cd]pyrene	ND		0.086	0.021	ug/L		08/01/19 16:20	08/02/19 18:08	1
Dibenz(a,h)anthracene	ND		0.086	0.012	ug/L		08/01/19 16:20	08/02/19 18:08	1
Benzo[g,h,i]perylene	ND		0.086	0.020	ug/L		08/01/19 16:20	08/02/19 18:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	73		36 - 126	08/01/19 16:20	08/02/19 18:08	1
2-Fluorobiphenyl (Surr)	61		44 - 120	08/01/19 16:20	08/02/19 18:08	1
p-Terphenyl-d14	67		51 - 121	08/01/19 16:20	08/02/19 18:08	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.097	0.061	ug/L		08/02/19 08:30	08/12/19 16:00	1
PCB-1221	ND		0.097	0.061	ug/L		08/02/19 08:30	08/12/19 16:00	1
PCB-1232	ND		0.097	0.061	ug/L		08/02/19 08:30	08/12/19 16:00	1
PCB-1242	ND		0.097	0.061	ug/L		08/02/19 08:30	08/12/19 16:00	1
PCB-1248	ND		0.097	0.061	ug/L		08/02/19 08:30	08/12/19 16:00	1
PCB-1254	ND		0.097	0.061	ug/L		08/02/19 08:30	08/12/19 16:00	1
PCB-1260	ND		0.097	0.042	ug/L		08/02/19 08:30	08/12/19 16:00	1
PCB-1268	ND		0.097	0.061	ug/L		08/02/19 08:30	08/12/19 16:00	1
PCB-1262	ND		0.097	0.061	ug/L		08/02/19 08:30	08/12/19 16:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	67		20 - 126	08/02/19 08:30	08/12/19 16:00	1
DCB Decachlorobiphenyl (Surr)	106		23 - 138	08/02/19 08:30	08/12/19 16:00	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.23	0.10	mg/L		08/06/19 11:18	08/06/19 19:36	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	0.11	mg/L		08/06/19 11:18	08/06/19 19:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	91		50 - 150	08/06/19 11:18	08/06/19 19:36	1
n-Triacontane-d62	83		50 - 150	08/06/19 11:18	08/06/19 19:36	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Client Sample ID: MW-3:073119

Lab Sample ID: 590-11513-3

Date Collected: 07/31/19 13:52

Matrix: Water

Date Received: 07/31/19 15:51

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.087	0.051	ug/L		08/01/19 16:20	08/02/19 18:35	1
2-Methylnaphthalene	ND		0.087	0.043	ug/L		08/01/19 16:20	08/02/19 18:35	1
1-Methylnaphthalene	ND		0.087	0.022	ug/L		08/01/19 16:20	08/02/19 18:35	1
Acenaphthylene	ND		0.087	0.016	ug/L		08/01/19 16:20	08/02/19 18:35	1
Acenaphthene	ND		0.087	0.021	ug/L		08/01/19 16:20	08/02/19 18:35	1
Fluorene	ND		0.087	0.016	ug/L		08/01/19 16:20	08/02/19 18:35	1
Phenanthrene	ND		0.087	0.054	ug/L		08/01/19 16:20	08/02/19 18:35	1
Anthracene	ND		0.087	0.024	ug/L		08/01/19 16:20	08/02/19 18:35	1
Fluoranthene	ND		0.087	0.016	ug/L		08/01/19 16:20	08/02/19 18:35	1
Pyrene	ND		0.087	0.025	ug/L		08/01/19 16:20	08/02/19 18:35	1
Benzo[a]anthracene	ND		0.087	0.012	ug/L		08/01/19 16:20	08/02/19 18:35	1
Chrysene	ND		0.087	0.0097	ug/L		08/01/19 16:20	08/02/19 18:35	1
Benzo[b]fluoranthene	ND		0.087	0.011	ug/L		08/01/19 16:20	08/02/19 18:35	1
Benzo[k]fluoranthene	ND		0.087	0.015	ug/L		08/01/19 16:20	08/02/19 18:35	1
Benzo[a]pyrene	ND		0.087	0.012	ug/L		08/01/19 16:20	08/02/19 18:35	1
Indeno[1,2,3-cd]pyrene	ND		0.087	0.021	ug/L		08/01/19 16:20	08/02/19 18:35	1
Dibenz(a,h)anthracene	ND		0.087	0.013	ug/L		08/01/19 16:20	08/02/19 18:35	1
Benzo[g,h,i]perylene	ND		0.087	0.020	ug/L		08/01/19 16:20	08/02/19 18:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	77		36 - 126	08/01/19 16:20	08/02/19 18:35	1
2-Fluorobiphenyl (Surr)	65		44 - 120	08/01/19 16:20	08/02/19 18:35	1
p-Terphenyl-d14	77		51 - 121	08/01/19 16:20	08/02/19 18:35	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.096	0.060	ug/L		08/02/19 08:30	08/12/19 16:20	1
PCB-1221	ND		0.096	0.060	ug/L		08/02/19 08:30	08/12/19 16:20	1
PCB-1232	ND		0.096	0.060	ug/L		08/02/19 08:30	08/12/19 16:20	1
PCB-1242	ND		0.096	0.060	ug/L		08/02/19 08:30	08/12/19 16:20	1
PCB-1248	ND		0.096	0.060	ug/L		08/02/19 08:30	08/12/19 16:20	1
PCB-1254	ND		0.096	0.060	ug/L		08/02/19 08:30	08/12/19 16:20	1
PCB-1260	ND		0.096	0.042	ug/L		08/02/19 08:30	08/12/19 16:20	1
PCB-1268	ND		0.096	0.060	ug/L		08/02/19 08:30	08/12/19 16:20	1
PCB-1262	ND		0.096	0.060	ug/L		08/02/19 08:30	08/12/19 16:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	72		20 - 126	08/02/19 08:30	08/12/19 16:20	1
DCB Decachlorobiphenyl (Surr)	104		23 - 138	08/02/19 08:30	08/12/19 16:20	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.11	J B	0.23	0.11	mg/L		08/06/19 11:18	08/06/19 19:56	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39	0.12	mg/L		08/06/19 11:18	08/06/19 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	101		50 - 150	08/06/19 11:18	08/06/19 19:56	1
n-Triacontane-d62	91		50 - 150	08/06/19 11:18	08/06/19 19:56	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Client Sample ID: MW-4:073119

Lab Sample ID: 590-11513-4

Date Collected: 07/31/19 12:50

Matrix: Water

Date Received: 07/31/19 15:51

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.088	0.052	ug/L		08/01/19 16:20	08/02/19 19:02	1
2-Methylnaphthalene	ND		0.088	0.043	ug/L		08/01/19 16:20	08/02/19 19:02	1
1-Methylnaphthalene	ND		0.088	0.023	ug/L		08/01/19 16:20	08/02/19 19:02	1
Acenaphthylene	ND		0.088	0.016	ug/L		08/01/19 16:20	08/02/19 19:02	1
Acenaphthene	ND		0.088	0.022	ug/L		08/01/19 16:20	08/02/19 19:02	1
Fluorene	ND		0.088	0.016	ug/L		08/01/19 16:20	08/02/19 19:02	1
Phenanthrene	ND		0.088	0.055	ug/L		08/01/19 16:20	08/02/19 19:02	1
Anthracene	ND		0.088	0.025	ug/L		08/01/19 16:20	08/02/19 19:02	1
Fluoranthene	ND		0.088	0.017	ug/L		08/01/19 16:20	08/02/19 19:02	1
Pyrene	ND		0.088	0.025	ug/L		08/01/19 16:20	08/02/19 19:02	1
Benzo[a]anthracene	ND		0.088	0.012	ug/L		08/01/19 16:20	08/02/19 19:02	1
Chrysene	ND		0.088	0.0098	ug/L		08/01/19 16:20	08/02/19 19:02	1
Benzo[b]fluoranthene	ND		0.088	0.011	ug/L		08/01/19 16:20	08/02/19 19:02	1
Benzo[k]fluoranthene	ND		0.088	0.015	ug/L		08/01/19 16:20	08/02/19 19:02	1
Benzo[a]pyrene	ND		0.088	0.012	ug/L		08/01/19 16:20	08/02/19 19:02	1
Indeno[1,2,3-cd]pyrene	ND		0.088	0.022	ug/L		08/01/19 16:20	08/02/19 19:02	1
Dibenz(a,h)anthracene	ND		0.088	0.013	ug/L		08/01/19 16:20	08/02/19 19:02	1
Benzo[g,h,i]perylene	ND		0.088	0.021	ug/L		08/01/19 16:20	08/02/19 19:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	73		36 - 126	08/01/19 16:20	08/02/19 19:02	1
2-Fluorobiphenyl (Surr)	59		44 - 120	08/01/19 16:20	08/02/19 19:02	1
p-Terphenyl-d14	74		51 - 121	08/01/19 16:20	08/02/19 19:02	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.097	0.060	ug/L		08/02/19 08:30	08/02/19 18:21	1
PCB-1221	ND		0.097	0.060	ug/L		08/02/19 08:30	08/02/19 18:21	1
PCB-1232	ND		0.097	0.060	ug/L		08/02/19 08:30	08/02/19 18:21	1
PCB-1242	ND		0.097	0.060	ug/L		08/02/19 08:30	08/02/19 18:21	1
PCB-1248	ND		0.097	0.060	ug/L		08/02/19 08:30	08/02/19 18:21	1
PCB-1254	ND		0.097	0.060	ug/L		08/02/19 08:30	08/02/19 18:21	1
PCB-1260	ND		0.097	0.042	ug/L		08/02/19 08:30	08/02/19 18:21	1
PCB-1268	ND		0.097	0.060	ug/L		08/02/19 08:30	08/02/19 18:21	1
PCB-1262	ND		0.097	0.060	ug/L		08/02/19 08:30	08/02/19 18:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	61		20 - 126	08/02/19 08:30	08/02/19 18:21	1
DCB Decachlorobiphenyl (Surr)	90		23 - 138	08/02/19 08:30	08/02/19 18:21	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.23	0.11	mg/L		08/06/19 11:18	08/06/19 20:16	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	0.12	mg/L		08/06/19 11:18	08/06/19 20:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	82		50 - 150	08/06/19 11:18	08/06/19 20:16	1
n-Triacontane-d62	85		50 - 150	08/06/19 11:18	08/06/19 20:16	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Client Sample ID: MW-5B:073119

Lab Sample ID: 590-11513-5

Date Collected: 07/31/19 08:35

Matrix: Water

Date Received: 07/31/19 15:51

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.087	0.051	ug/L		08/01/19 16:20	08/02/19 19:28	1
2-Methylnaphthalene	ND		0.087	0.042	ug/L		08/01/19 16:20	08/02/19 19:28	1
1-Methylnaphthalene	ND		0.087	0.022	ug/L		08/01/19 16:20	08/02/19 19:28	1
Acenaphthylene	ND		0.087	0.015	ug/L		08/01/19 16:20	08/02/19 19:28	1
Acenaphthene	ND		0.087	0.021	ug/L		08/01/19 16:20	08/02/19 19:28	1
Fluorene	ND		0.087	0.015	ug/L		08/01/19 16:20	08/02/19 19:28	1
Phenanthrene	ND		0.087	0.054	ug/L		08/01/19 16:20	08/02/19 19:28	1
Anthracene	ND		0.087	0.024	ug/L		08/01/19 16:20	08/02/19 19:28	1
Fluoranthene	ND		0.087	0.016	ug/L		08/01/19 16:20	08/02/19 19:28	1
Pyrene	ND		0.087	0.025	ug/L		08/01/19 16:20	08/02/19 19:28	1
Benzo[a]anthracene	ND		0.087	0.012	ug/L		08/01/19 16:20	08/02/19 19:28	1
Chrysene	ND		0.087	0.0096	ug/L		08/01/19 16:20	08/02/19 19:28	1
Benzo[b]fluoranthene	ND		0.087	0.011	ug/L		08/01/19 16:20	08/02/19 19:28	1
Benzo[k]fluoranthene	ND		0.087	0.014	ug/L		08/01/19 16:20	08/02/19 19:28	1
Benzo[a]pyrene	ND		0.087	0.012	ug/L		08/01/19 16:20	08/02/19 19:28	1
Indeno[1,2,3-cd]pyrene	ND		0.087	0.021	ug/L		08/01/19 16:20	08/02/19 19:28	1
Dibenz(a,h)anthracene	ND		0.087	0.013	ug/L		08/01/19 16:20	08/02/19 19:28	1
Benzo[g,h,i]perylene	ND		0.087	0.020	ug/L		08/01/19 16:20	08/02/19 19:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	77		36 - 126	08/01/19 16:20	08/02/19 19:28	1
2-Fluorobiphenyl (Surr)	61		44 - 120	08/01/19 16:20	08/02/19 19:28	1
p-Terphenyl-d14	67		51 - 121	08/01/19 16:20	08/02/19 19:28	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.094	0.058	ug/L		08/02/19 08:30	08/02/19 18:42	1
PCB-1221	ND		0.094	0.058	ug/L		08/02/19 08:30	08/02/19 18:42	1
PCB-1232	ND		0.094	0.058	ug/L		08/02/19 08:30	08/02/19 18:42	1
PCB-1242	ND		0.094	0.058	ug/L		08/02/19 08:30	08/02/19 18:42	1
PCB-1248	ND		0.094	0.058	ug/L		08/02/19 08:30	08/02/19 18:42	1
PCB-1254	ND		0.094	0.058	ug/L		08/02/19 08:30	08/02/19 18:42	1
PCB-1260	ND		0.094	0.041	ug/L		08/02/19 08:30	08/02/19 18:42	1
PCB-1268	ND		0.094	0.058	ug/L		08/02/19 08:30	08/02/19 18:42	1
PCB-1262	ND		0.094	0.058	ug/L		08/02/19 08:30	08/02/19 18:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	78		20 - 126	08/02/19 08:30	08/02/19 18:42	1
DCB Decachlorobiphenyl (Surr)	95		23 - 138	08/02/19 08:30	08/02/19 18:42	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.12	J B	0.24	0.11	mg/L		08/06/19 11:18	08/06/19 20:36	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39	0.12	mg/L		08/06/19 11:18	08/06/19 20:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	96		50 - 150	08/06/19 11:18	08/06/19 20:36	1
n-Triacontane-d62	90		50 - 150	08/06/19 11:18	08/06/19 20:36	1

Eurofins TestAmerica, Spokane

Client Sample Results

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Client Sample ID: DUP:073119

Lab Sample ID: 590-11513-6

Date Collected: 07/31/19 08:00

Matrix: Water

Date Received: 07/31/19 15:51

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.089	0.052	ug/L		08/01/19 16:20	08/02/19 19:55	1
2-Methylnaphthalene	ND		0.089	0.043	ug/L		08/01/19 16:20	08/02/19 19:55	1
1-Methylnaphthalene	ND		0.089	0.023	ug/L		08/01/19 16:20	08/02/19 19:55	1
Acenaphthylene	ND		0.089	0.016	ug/L		08/01/19 16:20	08/02/19 19:55	1
Acenaphthene	ND		0.089	0.022	ug/L		08/01/19 16:20	08/02/19 19:55	1
Fluorene	ND		0.089	0.016	ug/L		08/01/19 16:20	08/02/19 19:55	1
Phenanthrene	ND		0.089	0.055	ug/L		08/01/19 16:20	08/02/19 19:55	1
Anthracene	ND		0.089	0.025	ug/L		08/01/19 16:20	08/02/19 19:55	1
Fluoranthene	ND		0.089	0.017	ug/L		08/01/19 16:20	08/02/19 19:55	1
Pyrene	ND		0.089	0.026	ug/L		08/01/19 16:20	08/02/19 19:55	1
Benzo[a]anthracene	ND		0.089	0.012	ug/L		08/01/19 16:20	08/02/19 19:55	1
Chrysene	ND		0.089	0.0099	ug/L		08/01/19 16:20	08/02/19 19:55	1
Benzo[b]fluoranthene	ND		0.089	0.011	ug/L		08/01/19 16:20	08/02/19 19:55	1
Benzo[k]fluoranthene	ND		0.089	0.015	ug/L		08/01/19 16:20	08/02/19 19:55	1
Benzo[a]pyrene	ND		0.089	0.012	ug/L		08/01/19 16:20	08/02/19 19:55	1
Indeno[1,2,3-cd]pyrene	ND		0.089	0.022	ug/L		08/01/19 16:20	08/02/19 19:55	1
Dibenz(a,h)anthracene	ND		0.089	0.013	ug/L		08/01/19 16:20	08/02/19 19:55	1
Benzo[g,h,i]perylene	ND		0.089	0.021	ug/L		08/01/19 16:20	08/02/19 19:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Nitrobenzene-d5	79		36 - 126	08/01/19 16:20	08/02/19 19:55	1
2-Fluorobiphenyl (Surr)	64		44 - 120	08/01/19 16:20	08/02/19 19:55	1
p-Terphenyl-d14	71		51 - 121	08/01/19 16:20	08/02/19 19:55	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.099	0.062	ug/L		08/02/19 08:30	08/02/19 19:02	1
PCB-1221	ND		0.099	0.062	ug/L		08/02/19 08:30	08/02/19 19:02	1
PCB-1232	ND		0.099	0.062	ug/L		08/02/19 08:30	08/02/19 19:02	1
PCB-1242	ND		0.099	0.062	ug/L		08/02/19 08:30	08/02/19 19:02	1
PCB-1248	ND		0.099	0.062	ug/L		08/02/19 08:30	08/02/19 19:02	1
PCB-1254	ND		0.099	0.062	ug/L		08/02/19 08:30	08/02/19 19:02	1
PCB-1260	ND		0.099	0.043	ug/L		08/02/19 08:30	08/02/19 19:02	1
PCB-1268	ND		0.099	0.062	ug/L		08/02/19 08:30	08/02/19 19:02	1
PCB-1262	ND		0.099	0.062	ug/L		08/02/19 08:30	08/02/19 19:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	86		20 - 126	08/02/19 08:30	08/02/19 19:02	1
DCB Decachlorobiphenyl (Surr)	95		23 - 138	08/02/19 08:30	08/02/19 19:02	1

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.23	0.11	mg/L		08/06/19 11:18	08/06/19 20:56	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	0.11	mg/L		08/06/19 11:18	08/06/19 20:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	102		50 - 150	08/06/19 11:18	08/06/19 20:56	1
n-Triacontane-d62	90		50 - 150	08/06/19 11:18	08/06/19 20:56	1

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM)

Lab Sample ID: MB 590-23360/1-A
Matrix: Water
Analysis Batch: 23372

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 23360

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Naphthalene	ND		0.090	0.053	ug/L		08/01/19 16:20	08/02/19 14:35	1
2-Methylnaphthalene	ND		0.090	0.044	ug/L		08/01/19 16:20	08/02/19 14:35	1
1-Methylnaphthalene	ND		0.090	0.023	ug/L		08/01/19 16:20	08/02/19 14:35	1
Acenaphthylene	ND		0.090	0.016	ug/L		08/01/19 16:20	08/02/19 14:35	1
Acenaphthene	ND		0.090	0.022	ug/L		08/01/19 16:20	08/02/19 14:35	1
Fluorene	ND		0.090	0.016	ug/L		08/01/19 16:20	08/02/19 14:35	1
Phenanthrene	ND		0.090	0.056	ug/L		08/01/19 16:20	08/02/19 14:35	1
Anthracene	ND		0.090	0.025	ug/L		08/01/19 16:20	08/02/19 14:35	1
Fluoranthene	ND		0.090	0.017	ug/L		08/01/19 16:20	08/02/19 14:35	1
Pyrene	ND		0.090	0.026	ug/L		08/01/19 16:20	08/02/19 14:35	1
Benzo[a]anthracene	ND		0.090	0.012	ug/L		08/01/19 16:20	08/02/19 14:35	1
Chrysene	ND		0.090	0.010	ug/L		08/01/19 16:20	08/02/19 14:35	1
Benzo[b]fluoranthene	ND		0.090	0.011	ug/L		08/01/19 16:20	08/02/19 14:35	1
Benzo[k]fluoranthene	ND		0.090	0.015	ug/L		08/01/19 16:20	08/02/19 14:35	1
Benzo[a]pyrene	ND		0.090	0.012	ug/L		08/01/19 16:20	08/02/19 14:35	1
Indeno[1,2,3-cd]pyrene	ND		0.090	0.022	ug/L		08/01/19 16:20	08/02/19 14:35	1
Dibenz(a,h)anthracene	ND		0.090	0.013	ug/L		08/01/19 16:20	08/02/19 14:35	1
Benzo[g,h,i]perylene	ND		0.090	0.021	ug/L		08/01/19 16:20	08/02/19 14:35	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
Nitrobenzene-d5	89		36 - 126	08/01/19 16:20	08/02/19 14:35	1
2-Fluorobiphenyl (Surr)	68		44 - 120	08/01/19 16:20	08/02/19 14:35	1
p-Terphenyl-d14	79		51 - 121	08/01/19 16:20	08/02/19 14:35	1

Lab Sample ID: LCS 590-23360/2-A
Matrix: Water
Analysis Batch: 23372

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 23360

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Naphthalene	1.60	1.10		ug/L		69	52 - 120
2-Methylnaphthalene	1.60	1.11		ug/L		69	44 - 120
1-Methylnaphthalene	1.60	1.11		ug/L		69	49 - 120
Acenaphthylene	1.60	1.21		ug/L		75	57 - 120
Acenaphthene	1.60	1.19		ug/L		75	54 - 120
Fluorene	1.60	1.31		ug/L		82	59 - 120
Phenanthrene	1.60	1.31		ug/L		82	57 - 120
Anthracene	1.60	1.46		ug/L		91	66 - 120
Fluoranthene	1.60	1.47		ug/L		92	64 - 120
Pyrene	1.60	1.31		ug/L		82	52 - 120
Benzo[a]anthracene	1.60	1.36		ug/L		85	68 - 120
Chrysene	1.60	1.41		ug/L		88	69 - 120
Benzo[b]fluoranthene	1.60	1.28		ug/L		80	63 - 120
Benzo[k]fluoranthene	1.60	1.43		ug/L		89	67 - 120
Benzo[a]pyrene	1.60	1.43		ug/L		89	70 - 120
Indeno[1,2,3-cd]pyrene	1.60	1.33		ug/L		83	58 - 120
Dibenz(a,h)anthracene	1.60	1.32		ug/L		82	58 - 120
Benzo[g,h,i]perylene	1.60	1.33		ug/L		83	56 - 120

QC Sample Results

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Method: 8270D SIM - Semivolatile Organic Compounds (GC/MS SIM) (Continued)

Lab Sample ID: LCS 590-23360/2-A

Matrix: Water

Analysis Batch: 23372

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 23360

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
Nitrobenzene-d5	95		36 - 126
2-Fluorobiphenyl (Surr)	74		44 - 120
p-Terphenyl-d14	79		51 - 121

Lab Sample ID: LCSD 590-23360/3-A

Matrix: Water

Analysis Batch: 23372

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23360

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.		RPD	Limit
							Limits	RPD		
Naphthalene	1.60	1.15		ug/L		72	52 - 120	4	30	
2-Methylnaphthalene	1.60	1.13		ug/L		70	44 - 120	2	35	
1-Methylnaphthalene	1.60	1.13		ug/L		71	49 - 120	2	35	
Acenaphthylene	1.60	1.25		ug/L		78	57 - 120	4	30	
Acenaphthene	1.60	1.14		ug/L		71	54 - 120	4	30	
Fluorene	1.60	1.34		ug/L		84	59 - 120	2	30	
Phenanthrene	1.60	1.33		ug/L		83	57 - 120	1	30	
Anthracene	1.60	1.47		ug/L		92	66 - 120	1	30	
Fluoranthene	1.60	1.48		ug/L		93	64 - 120	1	30	
Pyrene	1.60	1.29		ug/L		81	52 - 120	1	30	
Benzo[a]anthracene	1.60	1.43		ug/L		90	68 - 120	6	30	
Chrysene	1.60	1.46		ug/L		92	69 - 120	4	24	
Benzo[b]fluoranthene	1.60	1.28		ug/L		80	63 - 120	0	30	
Benzo[k]fluoranthene	1.60	1.47		ug/L		92	67 - 120	3	30	
Benzo[a]pyrene	1.60	1.45		ug/L		91	70 - 120	2	30	
Indeno[1,2,3-cd]pyrene	1.60	1.34		ug/L		84	58 - 120	1	30	
Dibenz(a,h)anthracene	1.60	1.35		ug/L		84	58 - 120	2	30	
Benzo[g,h,i]perylene	1.60	1.34		ug/L		84	56 - 120	0	35	

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
Nitrobenzene-d5	101		36 - 126
2-Fluorobiphenyl (Surr)	76		44 - 120
p-Terphenyl-d14	81		51 - 121

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 590-23358/1-A

Matrix: Water

Analysis Batch: 23523

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23358

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
PCB-1016	ND		0.10	0.062	ug/L		08/02/19 08:30	08/12/19 14:38	1
PCB-1221	ND		0.10	0.062	ug/L		08/02/19 08:30	08/12/19 14:38	1
PCB-1232	ND		0.10	0.062	ug/L		08/02/19 08:30	08/12/19 14:38	1
PCB-1242	ND		0.10	0.062	ug/L		08/02/19 08:30	08/12/19 14:38	1
PCB-1248	ND		0.10	0.062	ug/L		08/02/19 08:30	08/12/19 14:38	1
PCB-1254	ND		0.10	0.062	ug/L		08/02/19 08:30	08/12/19 14:38	1
PCB-1260	ND		0.10	0.043	ug/L		08/02/19 08:30	08/12/19 14:38	1
PCB-1268	ND		0.10	0.062	ug/L		08/02/19 08:30	08/12/19 14:38	1

Eurofins TestAmerica, Spokane

QC Sample Results

Client: GeoEngineers Inc
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: MB 590-23358/1-A

Matrix: Water

Analysis Batch: 23523

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23358

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1262	ND		0.10	0.062	ug/L		08/02/19 08:30	08/12/19 14:38	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	59		20 - 126				08/02/19 08:30	08/12/19 14:38	1
DCB Decachlorobiphenyl (Surr)	98		23 - 138				08/02/19 08:30	08/12/19 14:38	1

Lab Sample ID: LCS 590-23358/2-A

Matrix: Water

Analysis Batch: 23523

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 23358

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
PCB-1016	1.60	1.22		ug/L		76	51 - 120
PCB-1260	1.60	1.15		ug/L		72	42 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
Tetrachloro-m-xylene	46		20 - 126				
DCB Decachlorobiphenyl (Surr)	104		23 - 138				

Lab Sample ID: LCSD 590-23358/3-A

Matrix: Water

Analysis Batch: 23523

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 23358

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
PCB-1016	1.60	1.34		ug/L		83	51 - 120	6	20
PCB-1260	1.60	1.30		ug/L		81	42 - 120	13	28
Surrogate	%Recovery	LCSD Qualifier	Limits						
Tetrachloro-m-xylene	62		20 - 126						
DCB Decachlorobiphenyl (Surr)	109		23 - 138						

Method: NWTPH-Dx - Northwest - Semi-Volatile Petroleum Products (GC)

Lab Sample ID: MB 590-23427/1-A

Matrix: Water

Analysis Batch: 23421

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 23427

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	0.131	J	0.24	0.11	mg/L		08/06/19 11:18	08/06/19 18:15	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40	0.12	mg/L		08/06/19 11:18	08/06/19 18:15	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	102		50 - 150				08/06/19 11:18	08/06/19 18:15	1
n-Triacontane-d62	99		50 - 150				08/06/19 11:18	08/06/19 18:15	1

Eurofins TestAmerica, Spokane

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Client Sample ID: MW-1A:073119

Lab Sample ID: 590-11513-1

Date Collected: 07/31/19 09:53

Matrix: Water

Date Received: 07/31/19 15:51

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			252.8 mL	2 mL	23360	08/01/19 16:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			23372	08/02/19 17:42	NMI	TAL SPK
Total/NA	Prep	3510C			252.7 mL	2 mL	23358	08/02/19 08:30	AMB	TAL SPK
Total/NA	Analysis	8082A		1			23523	08/12/19 15:39	NMI	TAL SPK
Total/NA	Prep	3510C			250.6 mL	2 mL	23427	08/06/19 11:18	AMB	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			23421	08/06/19 19:16	NMI	TAL SPK

Client Sample ID: MW-2:073119

Lab Sample ID: 590-11513-2

Date Collected: 07/31/19 11:48

Matrix: Water

Date Received: 07/31/19 15:51

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			260.7 mL	2 mL	23360	08/01/19 16:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			23372	08/02/19 18:08	NMI	TAL SPK
Total/NA	Prep	3510C			256.6 mL	2 mL	23358	08/02/19 08:30	AMB	TAL SPK
Total/NA	Analysis	8082A		1			23523	08/12/19 16:00	NMI	TAL SPK
Total/NA	Prep	3510C			262.5 mL	2 mL	23427	08/06/19 11:18	AMB	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			23421	08/06/19 19:36	NMI	TAL SPK

Client Sample ID: MW-3:073119

Lab Sample ID: 590-11513-3

Date Collected: 07/31/19 13:52

Matrix: Water

Date Received: 07/31/19 15:51

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			257.8 mL	2 mL	23360	08/01/19 16:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			23372	08/02/19 18:35	NMI	TAL SPK
Total/NA	Prep	3510C			259.9 mL	2 mL	23358	08/02/19 08:30	AMB	TAL SPK
Total/NA	Analysis	8082A		1			23523	08/12/19 16:20	NMI	TAL SPK
Total/NA	Prep	3510C			257.7 mL	2 mL	23427	08/06/19 11:18	AMB	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			23421	08/06/19 19:56	NMI	TAL SPK

Client Sample ID: MW-4:073119

Lab Sample ID: 590-11513-4

Date Collected: 07/31/19 12:50

Matrix: Water

Date Received: 07/31/19 15:51

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			255 mL	2 mL	23360	08/01/19 16:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			23372	08/02/19 19:02	NMI	TAL SPK
Total/NA	Prep	3510C			258.5 mL	2 mL	23358	08/02/19 08:30	AMB	TAL SPK
Total/NA	Analysis	8082A		1			23365	08/02/19 18:21	NMI	TAL SPK
Total/NA	Prep	3510C			259.8 mL	2 mL	23427	08/06/19 11:18	AMB	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			23421	08/06/19 20:16	NMI	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
 Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Client Sample ID: MW-5B:073119

Lab Sample ID: 590-11513-5

Date Collected: 07/31/19 08:35

Matrix: Water

Date Received: 07/31/19 15:51

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			259.6 mL	2 mL	23360	08/01/19 16:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			23372	08/02/19 19:28	NMI	TAL SPK
Total/NA	Prep	3510C			265.4 mL	2 mL	23358	08/02/19 08:30	AMB	TAL SPK
Total/NA	Analysis	8082A		1			23365	08/02/19 18:42	NMI	TAL SPK
Total/NA	Prep	3510C			255.1 mL	2 mL	23427	08/06/19 11:18	AMB	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			23421	08/06/19 20:36	NMI	TAL SPK

Client Sample ID: DUP:073119

Lab Sample ID: 590-11513-6

Date Collected: 07/31/19 08:00

Matrix: Water

Date Received: 07/31/19 15:51

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			253.2 mL	2 mL	23360	08/01/19 16:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			23372	08/02/19 19:55	NMI	TAL SPK
Total/NA	Prep	3510C			251.6 mL	2 mL	23358	08/02/19 08:30	AMB	TAL SPK
Total/NA	Analysis	8082A		1			23365	08/02/19 19:02	NMI	TAL SPK
Total/NA	Prep	3510C			261.1 mL	2 mL	23427	08/06/19 11:18	AMB	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			23421	08/06/19 20:56	NMI	TAL SPK

Laboratory References:

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200

Accreditation/Certification Summary

Client: GeoEngineers Inc
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Laboratory: Eurofins TestAmerica, Spokane

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Washington	State Program	10	C569	01-06-20

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8082A	3510C	Water	PCB-1262
8082A	3510C	Water	PCB-1268

Method Summary

Client: GeoEngineers Inc
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-11513-1

Method	Method Description	Protocol	Laboratory
8270D SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	TAL SPK
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL SPK
NWTPH-Dx	Northwest - Semi-Volatile Petroleum Products (GC)	NWTPH	TAL SPK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL SPK
3665A	Sulfuric Acid/Permanganate Cleanup	SW846	TAL SPK

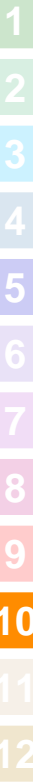
Protocol References:

NWTPH = Northwest Total Petroleum Hydrocarbon

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SPK = Eurofins TestAmerica, Spokane, 11922 East 1st Ave, Spokane, WA 99206, TEL (509)924-9200



Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-11513-1

Login Number: 11513

List Number: 1

Creator: O'Toole, Maria C

List Source: Eurofins TestAmerica, Spokane

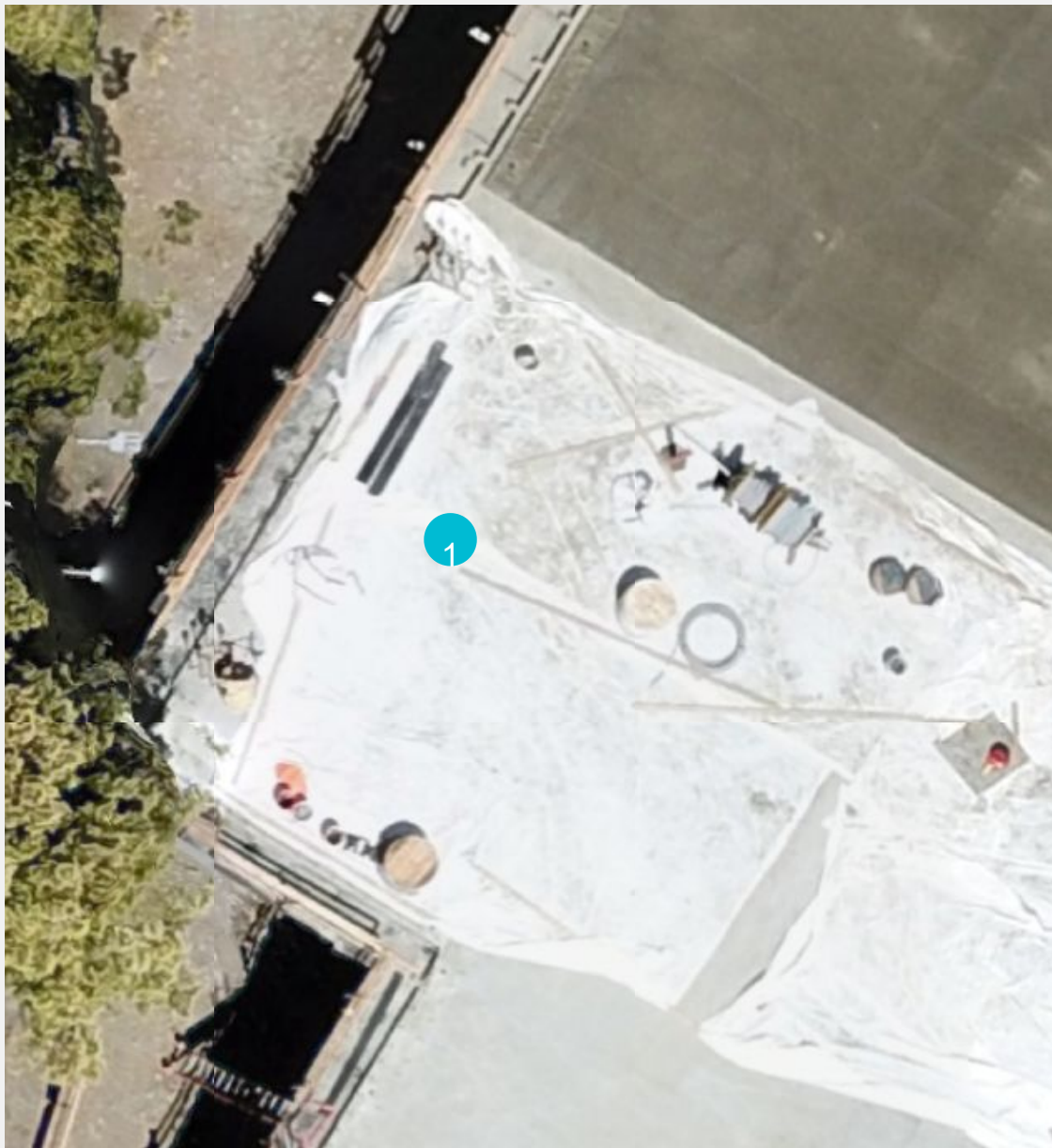
Question	Answer	Comment
Radioactivity wasn't checked or is <=/ background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	N/A	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

APPENDIX D
Avista Drone Photogrammetry (MW-5A Location)


Annotation Report

Corp 4-1-19

Map imagery captured on July 1, 2019



Location

Label	Title	Elevation	Coordinates
1 	MW5a Well Location	25 ft	47.67402, -117.38955

APPENDIX E
Report Limitations and Guidelines for Use

APPENDIX E

REPORT LIMITATIONS AND GUIDELINES FOR USE¹

This appendix provides information to help you manage your risks with respect to the use of this report.

Environmental Services Are Performed for Specific Purposes, Persons and Projects

GeoEngineers has performed this monitoring well installation and monitoring report for the Avista – Service Center Garage site in Spokane, Washington in general accordance with the proposal dated May 13 and June 6, 2019. This report has been prepared for the exclusive use of Avista. This report is not intended for use by others and the information contained herein is not applicable to other properties.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment (ESA) study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and property. No one except Avista should rely on this environmental report without first conferring with GeoEngineers. Use of this report is not recommended for any purpose or project except the one originally contemplated.

This Environmental Report is Based on a Unique Set of Project-Specific Factors

This report has been prepared for the Avista – Service Center Garage site in Spokane, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, it is important not to rely on this report if it was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

If important changes are made to the project or property after the date of this report, we recommend that GeoEngineers be given the opportunity to review our interpretations and recommendations. Based on that review, we can provide written modifications or confirmation, as appropriate.

Reliance Conditions for Third Parties

Our report was prepared for the exclusive use of Avista. No other party may rely on the product of our services unless we agree to such reliance in advance and in writing. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions. Within the limitations of scope, schedule and budget, our services

¹ Developed based on material provided by ASFE, Professional Firms Practicing in the Geosciences; www.asfe.org.

have been executed in accordance with our Agreement with Avista and generally accepted environmental practices in this area at the time this report was prepared.

Environmental Regulations Are Always Evolving

Some substances may be present in the vicinity of 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 do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substances, change or if more stringent environmental standards are developed in the future.

Uncertainty May Remain Even After This Phase II ESA is Completed

Performance of a Phase II ESA is intended to reduce uncertainty regarding the potential for contamination in connection with a property, but no ESA can wholly eliminate that uncertainty. Our interpretation of subsurface conditions in this study is based on field observations and chemical analytical data from widely spaced sampling locations. It is always possible that contamination exists in areas that were not explored, sampled or analyzed.

Subsurface Conditions Can Change

This environmental 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, by man-made events such as construction on or adjacent to the subject property, by new releases of hazardous substances, or by natural events such as floods, earthquakes, slope instability or groundwater fluctuations. Please contact GeoEngineers before applying this report for its intended purpose so that GeoEngineers may evaluate whether changed conditions affect the continued applicability of the report.

Soil and Groundwater End Use

The cleanup levels referenced in this report are site- and situation-specific. The cleanup levels may not be applicable for other properties or for other on-site uses of the affected soil and/or groundwater. Note that hazardous substances may be present in some of the on-site soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject property or reuse of the affected soil or groundwater on-site to evaluate the potential for associated environmental liabilities. We are unable to assume responsibility for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject property to another location or its reuse on-site in instances that we did not know or could not control.

Most Environmental Findings Are Professional Opinions

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the subject property. Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an informed opinion about subsurface conditions throughout the property. Actual subsurface conditions may differ,

sometimes significantly, from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.

Do Not Redraw the Exploration Logs

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable, but separating logs from the report can create a risk of misinterpretation.

Read These Provisions Closely

It is important to recognize that the geoscience practices (geotechnical engineering, geology and environmental science) are less exact than other engineering and natural science disciplines. Without this understanding, there may be expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory “limitations” provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you need to know more about how these “Report Limitations and Guidelines for Use” apply to your project or property.

Biological Pollutants

GeoEngineers’ Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants, and no conclusions or inferences should be drawn regarding Biological Pollutants as they may relate to this project. The term “Biological Pollutants” includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

A Client that desires these specialized services is advised to obtain them from a consultant who offers services in this specialized field.

