CSID No. 3512 Avista Service Center Garage Liner Repair and Groundwater Monitoring Report

Spokane Service Center Garage
1411 East Mission Avenue
Spokane, Washington

for
Avista Utilities

February 14, 2020

GeoEngineers
Earth Science + Technology

CSID No. 3512 Avista Service Center Garage Liner Repair and Groundwater Monitoring Report

Spokane Service Center Garage
1411 East Mission Avenue
Spokane, Washington

for
Avista Utilities

February 14, 2020

GeoEngineers

523 East Second Avenue
Spokane, Washington 99202
509.363.3125

CSID No. 3512 Avista Service Center Garage
Liner Repair and
Groundwater Monitoring Report

Spokane Service Center Garage
1411 East Mission Avenue
Spokane, Washington

File No. 2522-079-03

February 14, 2020

Prepared for:

Avista Corporation
1411 East Mission Avenue
Spokane, Washington 99252

Attention: Bryce Robbert

Prepared by:

GeoEngineers, Inc.
523 East Second Avenue
Spokane, Washington 99202
509.363.3125

Joshua M. Lee, EIT
Staff Environmental Engineer

Scott H. Lathen, PE
Senior Environmental Engineer

Bruce D. Williams
Senior Principal

JML:SHL:BDW:tjh

Table of Contents

1.0 INTRODUCTION

This report describes geosynthetic liner repair and groundwater monitoring conducted 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.

Field activities were conducted in general accordance with the proposal dated December 17, 2019 for Work Authorization No. 1, signed on December 20, 2019. The work was performed in accordance with the Environmental Services Contract No. R-42955 between Avista and GeoEngineers, dated December 18, 2019. The site (Cleanup site ID No. 3512) was entered into the Washington State Department of Ecology's (Ecology) Voluntary Cleanup Program (VCP) in 2019 (VCP site No. EA0343).

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 several groundwater monitoring events conducted between February 2018 and January 2020. The depth to groundwater beneath the former building is about 30 feet below ground surface (bgs).

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 vehicle service operations to a new facility located in the northern area of the campus. The Service Center Garage building was located adjacent to 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 excavation activities were conducted between August 31 and October 3, 2018 at the Service Center Garage building. Groundwater assessment activities that bracketed the soil assessment and remedial activities were conducted at the Service Center Garage on August 17, August 20, October 10 and November 20, 2018.

Contaminants of concern for the Service Center Garage site are diesel- and oil-range petroleum hydrocarbons (DRPH and ORPH) and polycyclic aromatic hydrocarbons (PAHs) in soil and groundwater. Groundwater was additionally tested for polychlorinated biphenyls (PCBs).

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 bgs.

ACF West installed a low-density polyethylene (LLDPE) liner cap in the excavation footprint to reduce the potential for remnant contamination to leach to groundwater and was constructed to divert stormwater infiltration into a drainage pipe (GeoEngineers 2019a). The south section of liner was placed at a 1 percent grade draining north from 6 feet 8½ feet bgs to the drainage pipe collection trench. The north section of liner was placed a 4 percent grade draining south to the drainage pipe collection trench. The drainage pipe conveys infiltrated water at a 1.25 percent grade to a manhole that is connected to Avista's stormwater system. The liner excavation was backfilled and compacted the excavation with imported select fill and bedding sand.

On July 26, 2019 Avista installed replacement monitoring wells MW-1A and MW-5B outside of the parking structure construction area to avoid damaging the new wells (GeoEngineers 2019b).

During recent construction of a new parking garage near the capped area, Avista's parking garage construction contractor (Bouten) damaged portions of the HDPE liner while excavating to install a water line and stormwater drainage pipes. The damage to the liner compromised the remedial action conducted in 2018 by damaging the barrier controlling infiltration to the contaminated soil. The liner damage was discovered by Avista on December 6, 2019. Bouten's excavation contractor (J7) placed visqueen over the damaged portion of the liner on December 10, 2019. Avista recognized that damage had occurred and contracted with GeoEngineers to coordinate the repair of the liner, document their findings and collect groundwater samples until the liner was repaired to document that contaminant migration had not occurred and impacted groundwater.

2.1. Site Conditions

In general, the site is paved with exposed soil areas located within Service Center Garage area. A newly constructed parking garage structure is located to the west. 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 are generally present.

3.0 SCOPE OF SERVICES

Our scope of services included coordination and documentation of geosynthetic liner repairs, groundwater monitoring of five site wells until liner repairs were completed, and reporting. Our services were completed in general accordance with our proposal dated December 17, 2019.

The specific scope of services included:

- Updated existing health and safety plan to govern GeoEngineers employees.
- Conducted three biweekly groundwater monitoring events.
- Submitted groundwater samples to Eurofins TestAmerica Laboratory for chemical analysis of DRPH and ORPH using Northwest Method NWTPH-Dx, PCBs using Environmental Protection Agency (EPA) Method

8082, PAHs and naphthalene 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. Submitted analytical data to Ecology's Environmental Information Management System (EIM) database.
- Prepared preliminary plans depicting the expected repairs to restore the integrity of the liner.
- Observed and documented SES to expose and assess the condition of the liner, and backfill the excavation following repairs.
- Observed and documented the condition of the damaged liner and the repair activities conducted by contractors [SES, BigSky Industrial (BigSky), CAD of Spokane (CAD) and ACF West].
- Observed and documented a survey of the repaired or modified areas of the liner. GeoEngineers prepared as-built figures depicting the updated liner configuration using Parametrix's survey data.
- Prepared this Avista Service Center Garage Liner Repair report documenting the liner repair/modification, updating the liner design drawings and summarizing the groundwater monitoring data.

4.0 LINER REPAIR

GeoEngineers visited the site on December 10, 2019 to observe the extent of damage to the liner. GeoEngineers again visited the site on December 11, 2019 with SES to determine the schedule for liner repairs. The proposed excavation location was marked in the field and a one-call utility locate was requested before equipment was mobilized to the site.

Detailed descriptions of the liner repair and groundwater sampling events are provided below.

4.1. Liner Repair Activities

SES mobilized to the site on January 6, 2020 to expose the liner for repairs. Figures 3 through 5 depict the former liner construction and configuration, the areas of the liner repairs, and final as-built diagrams of the completed and repaired liner in the north portion of the constructed liner area. Figures 7 through 16 provide photographs of the liner exposure and repair activities. The following activities were performed for liner repairs:

- Advanced Underground Utility Locating, LLC (AUUL) located utilities near the liner prior to excavation on January 6, 2020.
- SES excavated the area north of the liner drainage pipe using a track hoe, skid steer loader and hand tools. SES stockpiled the excavated soil on the on the ground surface above the undamaged portions of the liner. Damaged sections of liner were removed during excavation. SES exposed the liner area north of the drainage pipe; the drainage pipe did not appear to be damaged. Damage to the liner was observed north and west of the drainage pipe as shown in Figure 3. The area of liner requiring replacement was approximately 56 feet east to west (with slopes) by 42 feet north to south. SES documentation is found in Appendix D.
- BigSky cleared the liner seam area for access to weld the new liner section. BigSky used a vactor truck and pressurized water to expose the liner and remove approximately 2 cubic yards of soil from the liner

seam location. Soil removed by BigSky was fill material placed during the remedial excavation in 2018. Soil excavated by BigSky was disposed at Busy Bee Landfill and Wood Recycling Company in Spokane, Washington.

- SES graded the northern end of the excavation using the track hoe and hand tools.
- CAD mobilized to the site to place bedding sand within the excavation using a truck mounted conveyor belt system. CAD placed 30.26 tons of bedding sand from Central Pre-Mix in Spokane Valley, Washington. SES used hand tools to grade the bedding sand into an approximately 6-inch-thick lift to bed the new replacement liner.
- AFC West mobilized to the site on January 8 and 9, 2020 and performed the following liner repair activities. Photographs of AFC liner repairs are found in Figures 11 through 14.
    - Placed 180N Mirafi geotextile fabric over the bedding sand and under the exposed intact liner edge.
    - Placed 40-mil thick textured geosynthetic liner material on top of the geotextile fabric.
    - Band clamped and welded 40-mil geosynthetic boots at pipe penetrations around the newly installed utilities (hydrant valve, water line and stormwater pipe) within the excavation.
    - Welded the new section of liner to the original liner located north and west of the liner drain.
    - ACF West placed another layer of 180N Mirafi geotextile fabric over the repaired section of geosynthetic liner.
- Parametrix mobilized to the site on January 9, 2020 to survey the lateral extents of the new section of liner, the general topography of the new section of liner, the liner repair seam connecting the new liner section to the original liner, and pipe penetrations through the liner. Parametrix survey data is found in Appendix B.
- CAD returned to the site on January 9, 2020 to place 27.76 tons of bedding sand over the geotextile fabric.
- SES used hand tools to grade the bedding sand into an approximately 6-inch-thick lift over the geotextile fabric.
- SES placed a layer of orange plastic construction fencing on the bedding sand to act as an indicator layer for future excavation in the area.
- SES placed an approximately 8-inch lift of stockpiled soil overtop of the orange construction fence using the track hoe and skid steer loader.
- SES compacted the material using multiple passes of a vibratory, smooth-drum roller. The soil was compacted to a firm and unyielding state with no visible deflection. SES completed backfill and compaction of the excavation on January 9, 2020 and demobilized equipment from the site on January 10, 2020.

5.0 GROUNDWATER MONITORING

Groundwater monitoring was performed to document if the damage caused to the liner caused adverse impacts to groundwater beneath the site. Groundwater sampling events were conducted on December 20, 2019, and January 3 and 16, 2020. Liner repair activities were completed on January 9, 2020. IDW purge

water generated from groundwater sampling was contained in 5-gallon drums, labeled and stored at the Avista property pending disposal.

5.1.1. Monitoring Well Headspace Vapor

Monitoring well headspace vapors were measured using a photoionization detector (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 5.0 parts per million (ppm) for the monitoring wells, as shown in Summary of Groundwater Level Measurements, Table 1.

5.1.2. Groundwater Elevation

Static depth to groundwater was measured in the five site groundwater monitoring wells using an electronic water level indicator. During the three events, depth to groundwater ranged from 18.72 feet (MW-3) to 39.16 feet (MW-1A) below the top of well casing, and groundwater elevations ranged from about 1868.85 feet in MW-3 to 1867.80 feet in MW-1A relative to the Washington State Plane System, NAD83, North Zone. Groundwater elevations are shown in Table 1.

Based on groundwater elevations measured on January 3, 2020, 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 January 3, 2020, Figure 6. The estimated hydraulic groundwater gradient of the shallow aquifer beneath the site was about 0.001 feet per foot (about 5 feet per mile) for the three groundwater events.

5.1.3. Groundwater Sampling

Groundwater monitoring wells were purged and sampled using dedicated tubing, a peristaltic pump or a bladder 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. 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 contained in 5-gallon buckets with lids, labeled and transferred to Avista for disposal.

6.0 CHEMICAL ANALYTICAL RESULTS

6.1. Groundwater Chemical Analytical Results

Groundwater samples were collected from MW-1A, MW-2, MW-3, MW-4 and MW-5B on December 20, 2019, and January 3 and 16, 2020 and submitted to TestAmerica for chemical analysis. 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 and naphthalene 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, naphthalene and PCBs were either not detected or were detected at concentrations less than the respective MTCA Method A cleanup levels.

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

7.0 SUMMARY

In January 2020, Avista repaired a section of geosynthetic liner at the Avista Service Center Garage site located at 1411 East Mission Avenue in Spokane, Washington. These activities were performed to repair damages to the liner caused by installation of utilities (fire hydrant and valve, water line, stormwater pipe) by Avista's parking structure contractor. GeoEngineers also performed bi-weekly groundwater monitoring of site wells to document if the damage caused to the liner had resulted in adverse impacts to groundwater beneath the site.

The liner was excavated using a track hoe and soil was cleared from the liner using a vactor truck and pressurized water. The liner was repaired by placing a new section of liner in the excavation and welding the new section of liner to the portion of the liner that was intact. The new utilities within the excavation penetrated the liner and were booted through the liner during the repair. The repaired section of liner has a modification to the grade, but the footprint is the similar and the liner will guide infiltrated water to the drain pipe connected to Avista's stormwater system. In our opinion, the repaired liner is protective and should continue to prevent mobilization of contaminants located beneath the liner.

Depth to groundwater was measured at five monitoring wells on December 20, 2019, and January 3 and 16, 2020. 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 December 20, 2019, and January 3 and 16, 2020 events were submitted for chemical analysis of DRPH, ORPH, PCBs and PAHs. Results are tabulated in Table 3. DRPH, ORPH, PAHs and PCBs were either not detected or were detected at concentrations less than the respective MTCA Method A cleanup levels.

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, 2019a.

GeoEngineers, Inc. "CSID No. 3512 Monitoring Well Installation and July 31, 2019 Groundwater Monitoring Report." Prepared for Avista Corporation. September 13, 2019b.

GeoEngineers, Inc. "Draft Work Plan Geosynthetic Liner Repair and Groundwater Monitoring." Prepared for Avista Corporation. January 3, 2020.

Landau Associates, Inc. "Hydraulic Lift Excavations Spokane Service Center Garage," prepared for the Washington Water Power Company. November 6, 1995.

Memorandum from Sheila Pachernegg, P.E. Memorandum "Mission Garage – Hydraulic Lift Repairs," prepared for Avista Corporation. July 19, 1999.

Pacific Groundwater Group (Pacific), "Avista Injection Well 1, Construction, Testing, and Thermal Evaluation" prepared for Avista Corporation. January 2012.

Puls, R.W. and Barcelona, M.J., Low-flow (minimal drawdown) ground-water sampling procedures: EPA Ground Water Issue, April 1996, p.1-9.

Sheila Pachernegg P.E. "Hydraulic Lift Excavations Spokane Service Center Garage," prepared for Washington Water Power Licensing and Environmental Affairs. March 31, 1996.

Sheila Pachernegg, P.E. "Spokane Service Center Groundwater Monitoring," prepared for Washington Water Power. March 9, 1998.

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.

TABLES

GeoEngineers

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-1A	1,906.96	1871.96 to 1861.96	12/20/19	0.4	39.09	1,867.87	NA
			01/03/20	0.0	39.16	1,867.80	-0.07
			01/16/20	0.0	38.76	1,868.20	0.40
MW-2	1,897.60	1,872.57	12/20/19	0.1	29.55	1,868.05	NA
		to	01/03/20	0.0	29.60	1,868.00	-0.05
		1,862.57	01/16/20	1.1	29.21	1,868.39	0.39
MW-3	1,887.57	1,872.44	12/20/19	0.0	19.10	1,868.47	NA
		to	01/03/20	0.1	19.15	1,868.42	-0.05
		1,862.44	01/16/20	0.0	18.72	1,868.85	0.43
MW-4	1,888.10	1,873.10	12/20/19	0.0	19.74	1,868.36	NA
		to	01/03/20	0.0	19.79	1,868.31	-0.05
		1,863.10	01/16/20	0.2	19.38	1,868.72	0.41
MW-5B	1901.72	1868.97 to 1858.97	12/20/19	0.7	33.65	1,868.07	NA
			01/03/20	0.0	33.71	1,868.01	-0.06
			01/16/20	2.9	33.32	1,868.40	0.39

Notes:

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

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

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

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

[5]Well screen length is unknown.

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

[7]Spokane 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-1A	12/20/19	6.99	267.4	91.4	8.91	18.6	10.8
	01/03/20	10.93	76.5	78.9	8.88	3.0	9.1
	01/16/20	7.16	189.0	144.6	8.43	0.0	8.5
MW-2	12/20/19	7.33	240.8	99.9	7.51	4.9	10.8
	01/03/20	11.91	65.9	113.5	7.68	2.2	10.2
	01/16/20	7.32	197.0	113.4	7.53	2.2	10.4
MW-3	12/20/19	6.41	158.2	97.7	4.67	6.9	8.0
	01/03/20	11.53	44.3	107.0	4.99	2.2	7.2
	01/16/20	6.69	91.0	144.7	8.58	0.0	7.0
MW-4	12/20/19	6.73	240.4	96.8	5.67	6.7	10.0
	01/03/20	12.00	72.8	108.6	5.73	5.2	9.7
	01/16/20	6.81	185.0	130.8	6.10	0.3	9.1
MW-5B	12/20/19	7.42	248.8	64.0	8.52	31.2	10.4
	01/03/20	10.72	71.1	92.6	8.55	23.5	10.1
	01/16/20	7.64	197.0	117.5	8.41	38.2	11.1

Notes:

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

[2]MW-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 PAHs[1] - Groundwater

Avista - Spokane Service Center

Spokane, Washington

			Location ID	MW-1A					MW-2						MW-3					
			Sample ID	MW-1A:122019		MW-1A:010320		MW-1A:011620	MW-2:122019		MW-2:010320		MW-2:011620		MW-3:122019		MW-3:010320		MW-3:011620	
			Sample Date	12/20/2019		1/3/2020		1/16/2020	12/20/2019		1/3/2020		1/16/2020		12/20/2019		1/3/2020		1/16/2020	
Method	**Analyte**	**Cleanup Level[2]**	**Units**																	
NWTPH-DX[3]	Diesel-range hydrocarbons	0.5	mg/L	**0.13**[7]	J	**0.12**[7]	J	0.11[4]	U	0.11[4]	U	0.11[4]	U	0.11[4]		0.10[4]	U	0.11[4]	U	0.11[4]	U
	Lube Oil-range Hydrocarbons	0.5	mg/L	**0.18**[7]	J	0.12[4]	U	0.12[4]	U	0.12[4]	U	0.12[4]	U	0.12[4]		0.11[4]	U	0.12[4]	U	0.12[4]	U
PCB-Aroclors[5]	PCB-Aroclor 1016	0.1	µg/L	0.095	U	0.94	U	0.097	U	0.097	U	0.096	U	0.097	U	0.097	U	0.096	U	0.095	U
	PCB-Aroclor 1221		µg/L	0.095	U	0.94	U	0.097	U	0.097	U	0.096	U	0.097	U	0.097	U	0.096	U	0.095	U
	PCB-Aroclor 1232		µg/L	0.095	U	0.94	U	0.097	U	0.097	U	0.096	U	0.097	U	0.097	U	0.096	U	0.095	U
	PCB-Aroclor 1242		µg/L	0.095	U	0.94	U	0.097	U	0.097	U	0.096	U	0.097	U	0.097	U	0.096	U	0.095	U
	PCB-Aroclor 1248		µg/L	0.095	U	0.94	U	0.097	U	0.097	U	0.096	U	0.097	U	0.097	U	0.096	U	0.095	U
	PCB-Aroclor 1254		µg/L	0.095	U	0.94	U	0.097	U	0.097	U	0.096	U	0.097	U	0.097	U	0.096	U	0.095	U
	PCB-Aroclor 1260		µg/L	0.095	U	0.94	U	0.097	U	0.097	U	0.096	U	0.097	U	0.097	U	0.096	U	0.095	U
	PCB-Aroclor 1262		µg/L	0.095	U	0.94	U	0.097	U	0.097	U	0.096	U	0.097	U	0.097	U	0.096	U	0.095	U
	PCB-Aroclor 1268		µg/L	0.095	U	0.94	U	0.097	U	0.097	U	0.096	U	0.097	U	0.097	U	0.096	U	0.095	U
PAHs[6]	1-Methylnaphthalene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	2-Methylnaphthalene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Acenaphthene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Acenaphthylene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Anthracene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Benzo(a)anthracene	NE	µg/L	0.084	J	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Benzo(a)pyrene	0.1	µg/L	0.084	J	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Benzo(b)fluoranthene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Benzo(g,h,i)perylene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Benzo(k)fluoranthene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Chrysene	NE	µg/L	0.084	J	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Dibenzo(a,h)anthracene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Fluoranthene	NE	µg/L	0.084	J	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Fluorene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Indeno(1,2,3-c,d)pyrene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Naphthalene	160	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Phenanthrene	NE	µg/L	0.084	U	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Pyrene	NE	µg/L	0.084	J	0.090	U	0.085	U	0.088	U	0.087	U	0.088	U	0.086	U	0.088	U	0.086	U
	Total cPAH TEQ (ND=0.5RL)	0.1	µg/L	0.063	U	0.068	U	0.064	U	0.066	U	0.066	U	0.066	U	0.065	U	0.066	U	0.065	U

			Location ID	MW-4						MW-5B					
			Sample ID	MW-4:122019		MW-4:010320		MW-4:011620		MW-5B:122019		MW-5B:010320		MW-5B:011620	
			Sample Date	12/20/2019		1/3/2020		1/16/2020		12/20/2019		1/3/2020		1/16/2020	
Method	**Analyte**	**Cleanup Level[2]**	**Units**												
NWTPH-DX[3]	Diesel-range hydrocarbons	0.5	mg/L	0.11[4]	U	0.10[4]	U	0.11[4]	U	0.10[4]	U	0.10[4]	U	0.11[4]	U
	Lube Oil-range Hydrocarbons	0.5	mg/L	0.12[4]	U	0.11[4]	U	0.12[4]	U	0.11[4]	U	0.11[4]	U	0.12[4]	U
PCB-Aroclors[5]	PCB-Aroclor 1016	0.1	µg/L	0.097	U	0.095	U	0.10	U	0.098	U	0.094	U	0.10	U
	PCB-Aroclor 1221		µg/L	0.097	U	0.095	U	0.10	U	0.098	U	0.094	U	0.10	U
	PCB-Aroclor 1232		µg/L	0.097	U	0.095	U	0.10	U	0.098	U	0.094	U	0.10	U
	PCB-Aroclor 1242		µg/L	0.097	U	0.095	U	0.10	U	0.098	U	0.094	U	0.10	U
	PCB-Aroclor 1248		µg/L	0.097	U	0.095	U	0.10	U	0.098	U	0.094	U	0.10	U
	PCB-Aroclor 1254		µg/L	0.097	U	0.095	U	0.10	U	0.098	U	0.094	U	0.10	U
	PCB-Aroclor 1260		µg/L	0.097	U	0.095	U	0.10	U	0.098	U	0.094	U	0.10	U
	PCB-Aroclor 1262		µg/L	0.097	U	0.095	U	0.10	U	0.098	U	0.094	U	0.10	U
	PCB-Aroclor 1268		µg/L	0.097	U	0.095	U	0.10	U	0.098	U	0.094	U	0.10	U
PAHs[6]	1-Methylnaphthalene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	2-Methylnaphthalene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Acenaphthene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Acenaphthylene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Anthracene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Benzo(a)anthracene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Benzo(a)pyrene	0.1	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Benzo(b)fluoranthene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Benzo(g,h,i)perylene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Benzo(k)fluoranthene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Chrysene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Dibenzo(a,h)anthracene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Fluoranthene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Fluorene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Indeno(1,2,3-c,d)pyrene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Naphthalene	160	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Phenanthrene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Pyrene	NE	µg/L	0.087	U	0.086	U	0.088	U	0.084	U	0.084	U	0.089	U
	Total cPAH TEQ (ND=0.5RL)	0.1	µg/L	0.066	U	0.065	U	0.066	U	0.063	U	0.063	U	0.067	U

Notes:

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

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

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

[4]Result is reported to the method detection limit (MDL).

[5]Polychlorinated biphenyls (PCBs) analyzed using Environmental Protection Agency (EPA) Method 8082A.

[6]Polycyclic aromatic hydrocarbons (PAHs) analyzed using EPA Method 8270D.

[7]Detection is J flagged as estimated result and reported to the MDL.

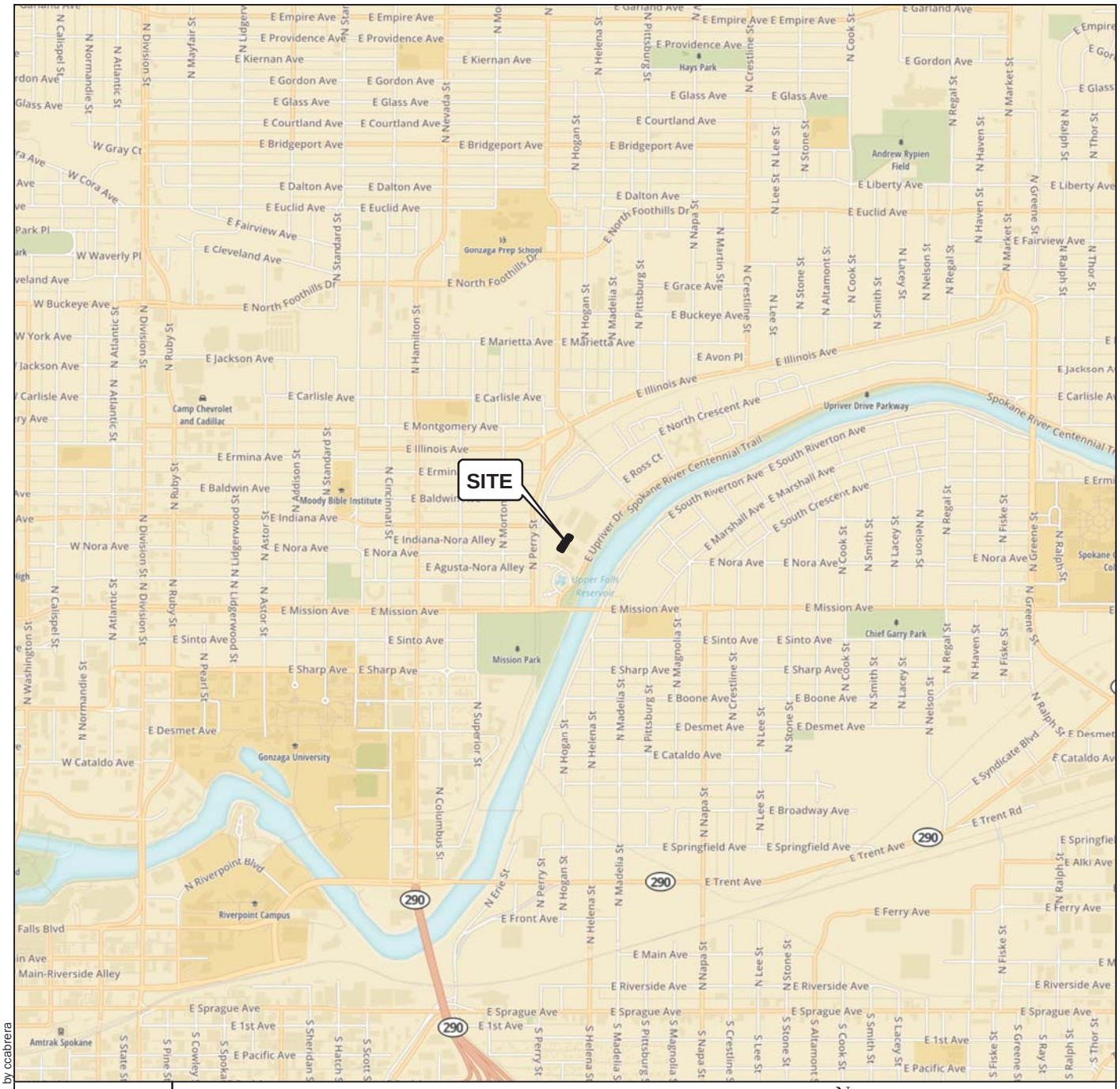
µg/L = micrograms per Liter; mg/L = milligrams per Liter; U = analyte was not detected at concentrations greater than the laboratory reporting limit; J = estimated result; "--" = not analyzed

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

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

FIGURES

GeoEngineers



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

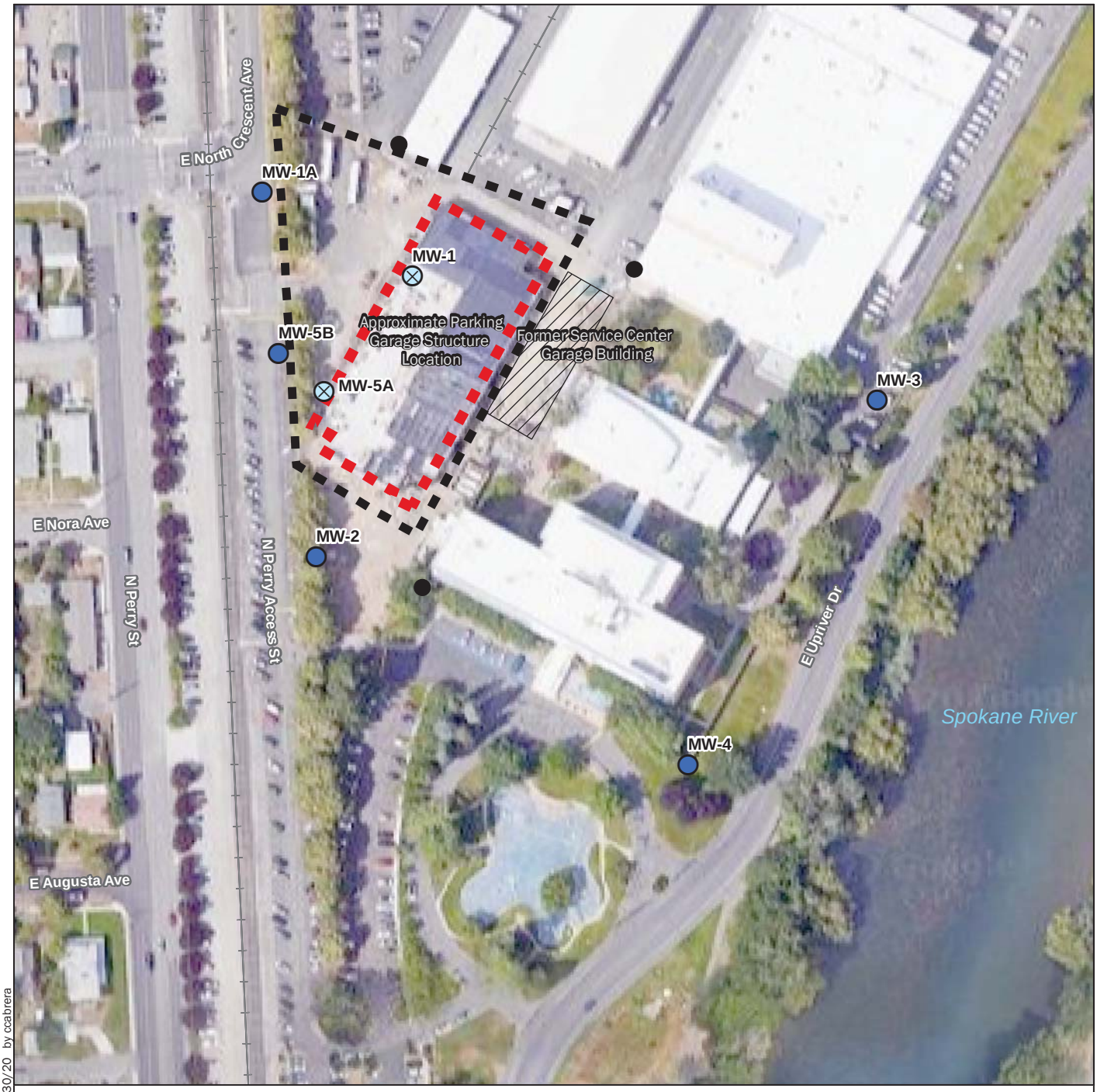
Vicinity Map

Avista – Service Center Garage
Liner Repair and Groundwater Monitoring Report
Spokane, Washington

GeoEngineers

Figure 1

P:\2\2522079\GIS\MXD\252207903_F01_VM.mxd Date Exported: 01/30/20 by ccabrera



Legend

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

N W E S

150 0 150

Feet

Site Plan

Avista – Service Center Garage
Liner Repair and Groundwater Monitoring Report
Spokane, Washington

GeoEngineers

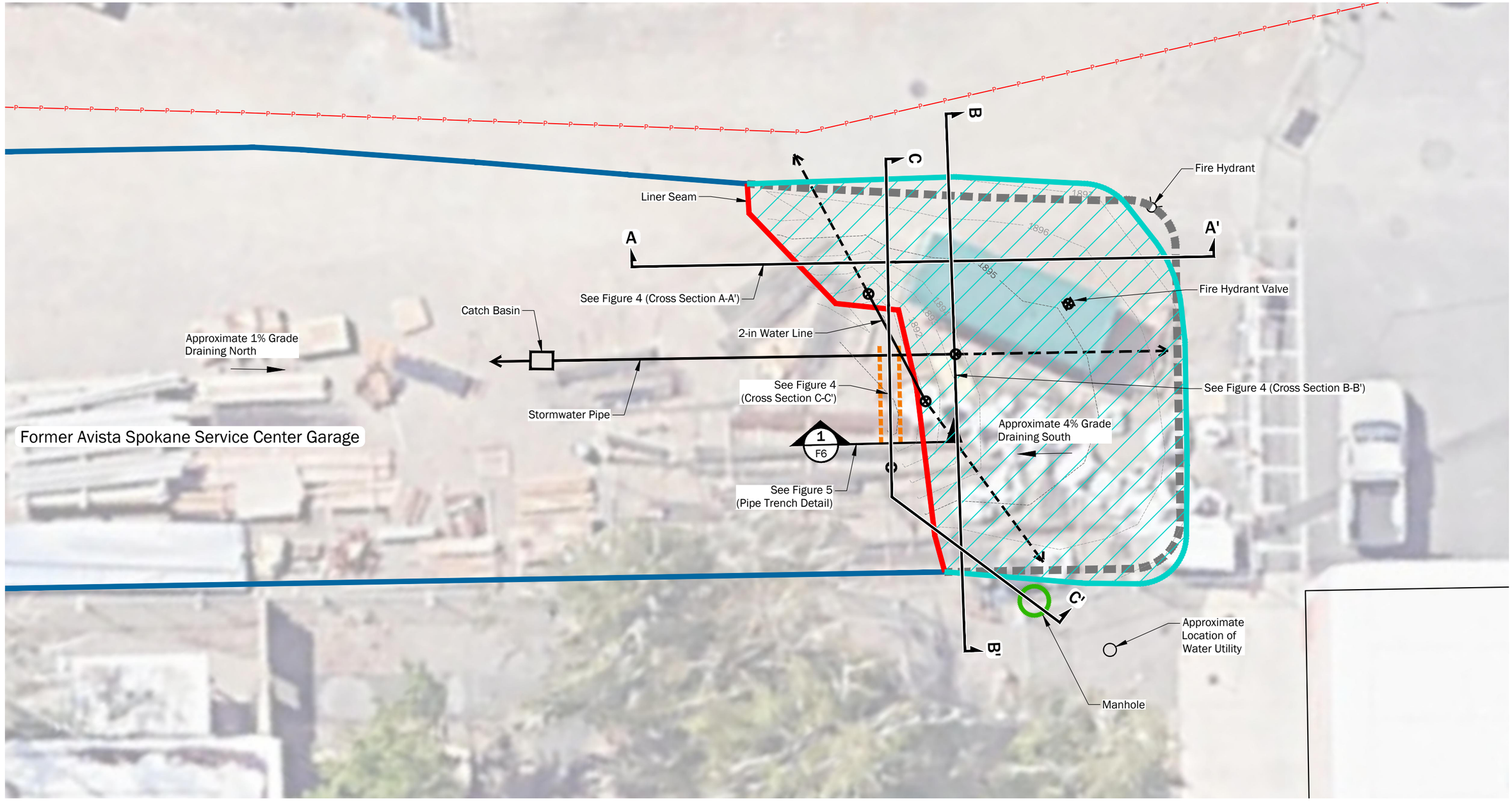
Figure 2

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: ESRI, Spokane County GIS. Image from Google Earth.
Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

P:\2\2522079\GIS\MXD\252207903_F02_SitePlan.mxd Date Exported: 01/30/20 by ccabrera



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: Aerial from Orthomosaic Aerial Photo dated October 2018.

Vertical Datum: NAVD 88.

Projection: NAD83 Washington State Planes, North Zone, US Foot.

Legend

- Geosynthetic Liner Footprint
- Old Geosynthetic Liner Footprint (Removed)
- Repaired Liner Footprint
- Approximate Location of Pipe Drain
- Liner Seam
- Sealed/Booted Liner Penetration
- Underground Power Line
- C — C' Cross Section Location

N, W, S, E

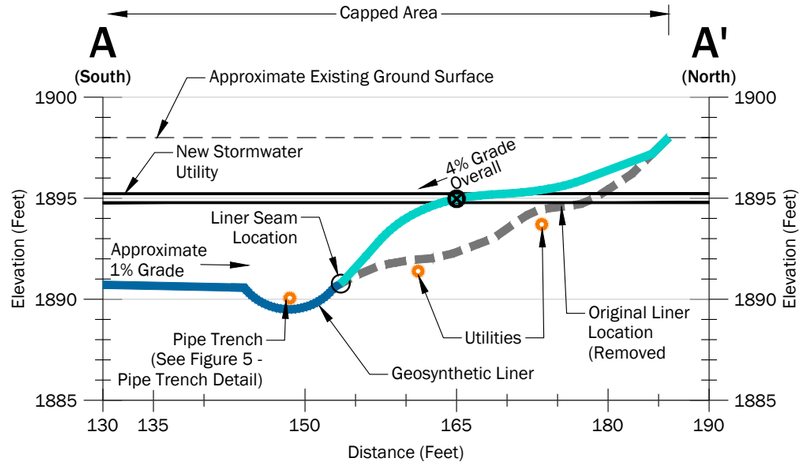
100 0 100
Feet

Site Plan - Geosynthetic Liner

Service Center Garage Liner Repair and Groundwater Monitoring Report
Spokane, Washington

GeoEngineers

Figure 3

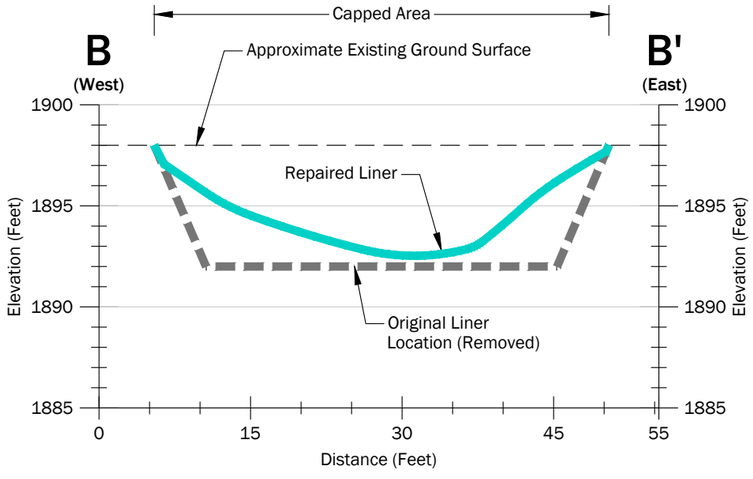


Legend

⊗ Sealed/Booted Liner Penetration

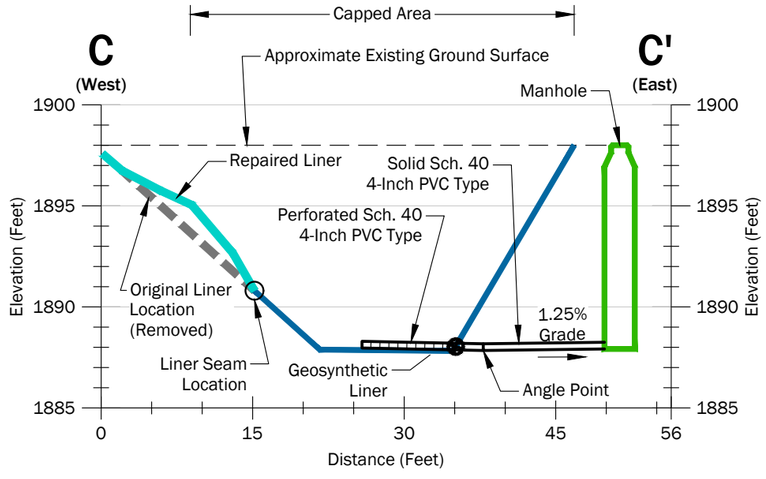
CROSS SECTION A-A' (A-A')

SCALE: F09



CROSS SECTION B-B' (B-B')

SCALE: F09



Legend

⊗ Sealed/Booted Liner Penetration

CROSS SECTION E-E' (C-C')

SCALE: F09

Notes:

1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. This figure is for informational purposes only. It is intended to assist in the identification of features discussed in a related document. Data were compiled from sources as listed in this figure. The data sources do not guarantee these data are accurate or complete. There may have been updates to the data since the publication of this figure. This figure is a copy of a master document. The hard copy is stored by GeoEngineers, Inc. and will serve as the official document of record.

Datum: NAVD 88, unless otherwise noted.

15 0 15
Horizontal Scale in Feet

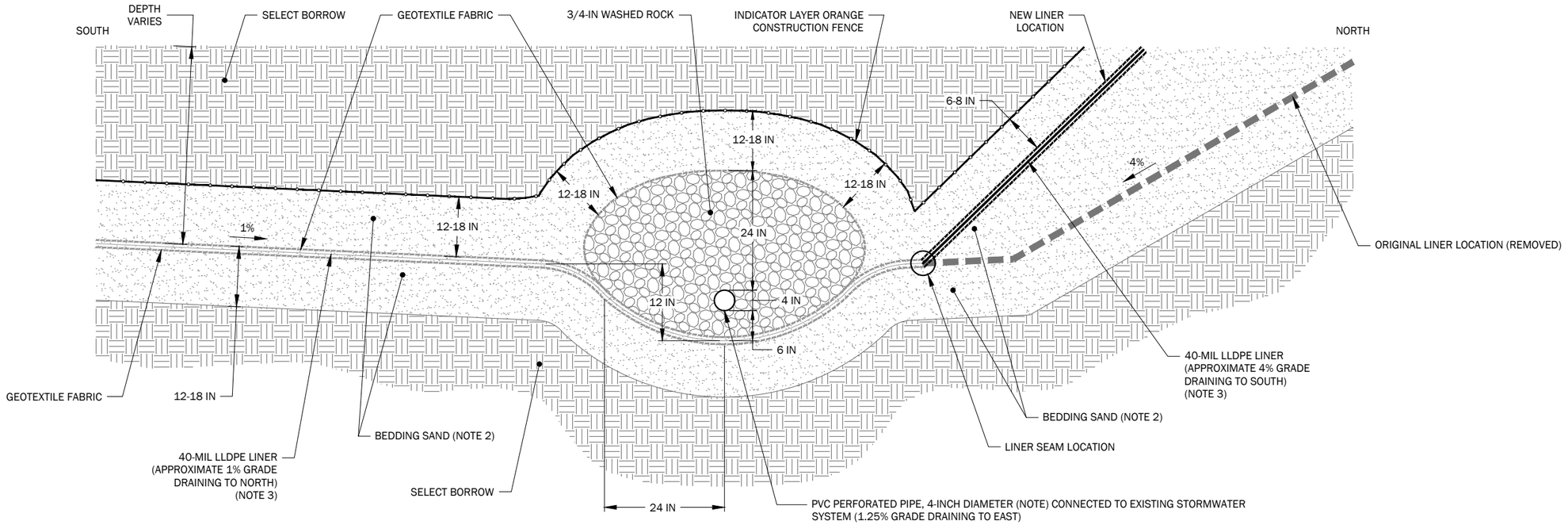
7.5 0 7.5
Vertical Scale in Feet
Vertical Exaggeration: 2X

Cross Sections A-A', B-B' and C-C'

Service Center Garage Liner Repair and Groundwater Monitoring Report
Spokane, Washington

GeoEngineers

Figure 4



NOTES:

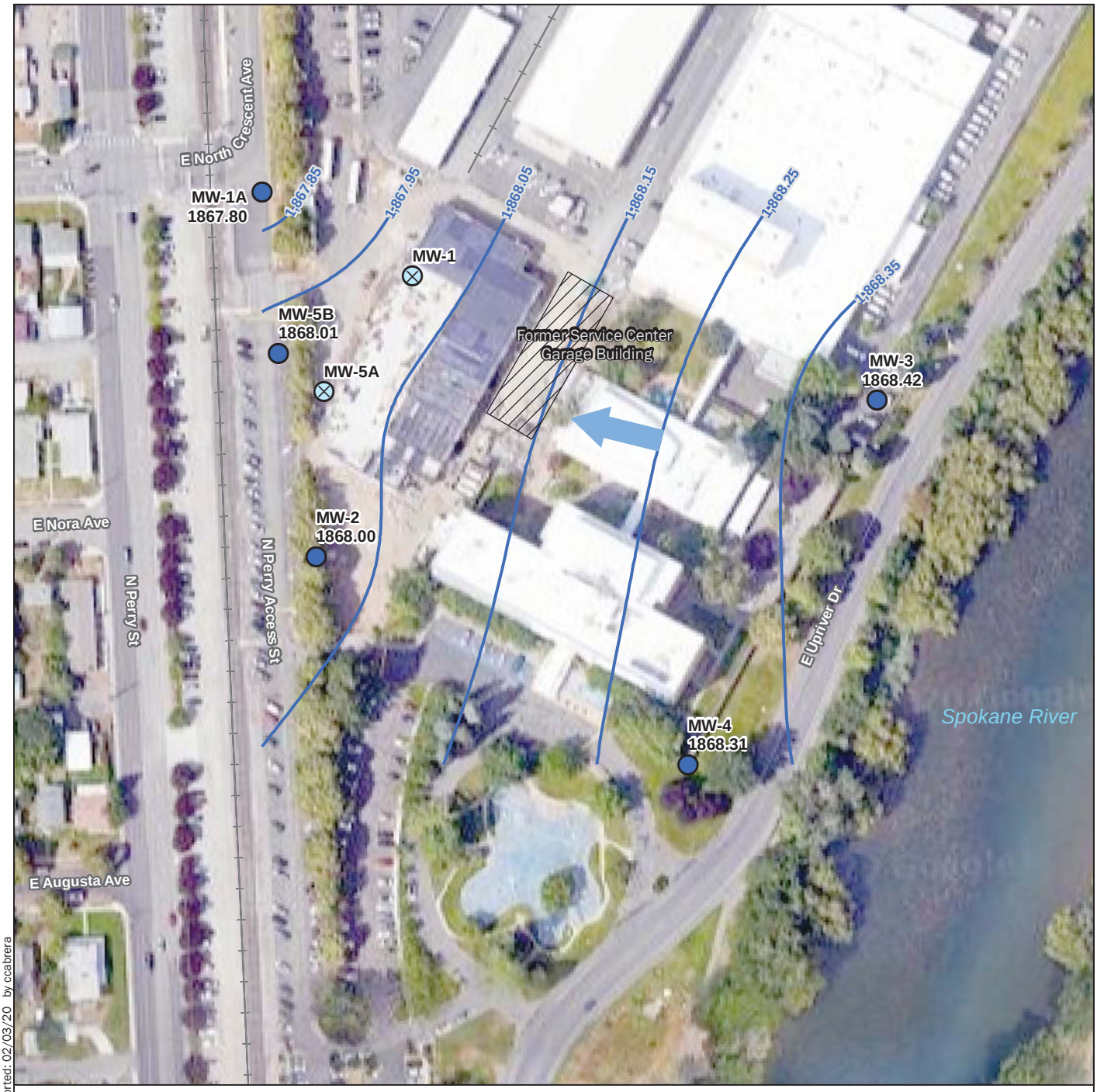
1. SOIL AND BACKFILL MATERIALS PLACED BENEATH THE GEOSYNTHETIC COVER WERE BE COMPACTED TO A FIRM AND UNYIELDING STATE WITH NO VISIBLE DEFLECTION.
2. BEDDING SAND CONSISTED OF MATERIAL MEETING WSDOT STANDARD SPECIFICATION 9-03.13.
3. 40-MIL LINEAR LOW-DENSITY POLYETHYLENE (LLDPE) LINER.
4. GEOTEXTILE FABRIC CONSISTED OF MIRAFI 180N.
5. IF LINER DRAIN DAMAGE IS OBSERVED, DRAIN WILL BE REPAIRED PER THIS PIPE TRENCH DETAIL.

PIPE TRENCH DETAIL 1
SCALE: NOT TO SCALE F10

Pipe Trench Detail

Service Center Garage Liner Repair and
Groundwater Monitoring Report
Spokane, Washington

GeoEngineers | **Figure 5**



Legend

- Well ID and Groundwater Elevation (feet)
- Former Monitoring Well
- Approximate 2018 Remedial Excavation Area
- Approximate Groundwater Elevation Contour (0.1 feet)

N W E S

150 0 150

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 January 03, 2020.
4. Groundwater elevation data for the December 20, 2019, January 3 and 16, 2020 sampling events are found in attached Table 1. Groundwater flow direction is similar for the three events

Data Source: ESRI, Spokane County GIS. Image from Google Earth.

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Groundwater Elevation and Interpreted Flow Direction, January 3, 2020

Avista – Service Center Garage
Groundwater Monitoring Report
Spokane, Washington

GeoEngineers

Figure 6

P:\2\2522079\GIS\MXD\252207903_F06_GWR_Jan032020.mxd Date Exported: 02/03/20 by ccabrera

Photograph 1. SES over excavates to expose damaged liner at the north end of the site, looking South.

Photograph 2. SES exposes damaged liner using pressurized water and a Hydroexcavator vacuum truck, looking West.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 7

2252-079-01 Date Exported: 10/16/2018

Photograph 3. SES exposes section of damaged liner, looking West.

Photograph 4. Exposed section of damaged liner, looking North.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 8

Photograph 5. Exposed section of damaged liner, looking East.

Photograph 6. SES places bedding sand for geosynthetic liner repair using two dump truck conveyor belt systems, looking North.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 9

2252-079-01 Date Exported: 10/16/2018

Photograph 7. SES prepares bedding sand for replacement liner section, looking Northwest.

Photograph 8. Bedding sand prepped for geosynthetic liner layout, looking Northeast.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 10

Photograph 9. ACF West places 40-mil thick LLDPE geosynthetic liner over bedding sand within the liner repair area, looking North.

Photograph 10. ACF West welds sections of replacement liner to the existing geosynthetic liner, looking North.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 11

Photograph 11. Welded liner boot around stormwater line, looking North.

Photograph 12. Welded liner boot around the east side of the protruding water line, looking East.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 12

Photograph 13. Welded liner boot around the west side of the protruding water line, looking West.

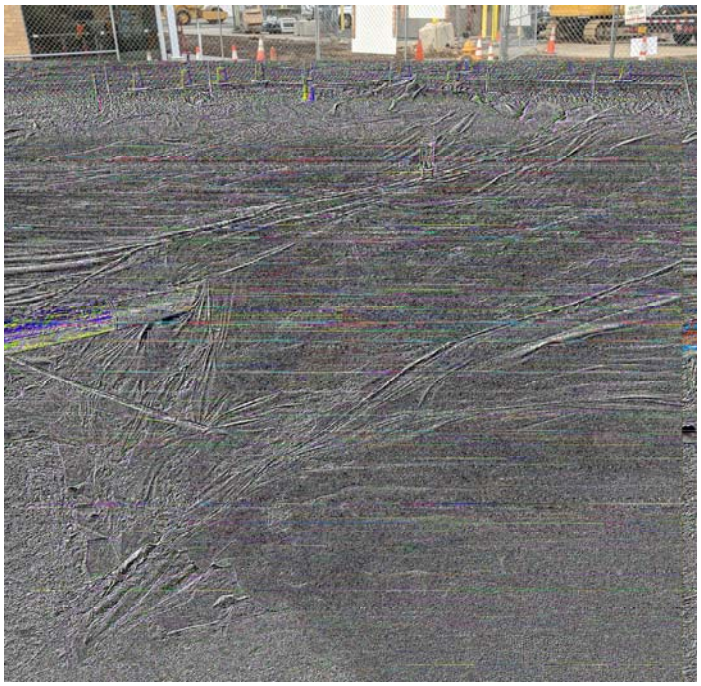
Photograph 14. Welded liner boot around the north water valve stub, looking North.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 13

Photograph 15. Welded liner patch near the eastern edge on the existing liner, looking East.

Photograph 16. ACF West finishes welding replacement liner section to existing liner, looking Northwest.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 14



Photograph 17. ACF West places geotextile fabric over welded liner, looking Northwest.

Photograph 18. SES places approximately 4-inches of bedding sand over geotextile fabric using a dump-truck conveyor belt system, looking Northwest.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 15

2252-079-01 Date Exported: 10/16/2018

Photograph 19. SES covers bedding sand with orange construction fencing, looking West.

Photograph 20. SES backfills over construction fencing with on-site excavation spoils, looking South.

Site Photographs January 2020	
Avista – Spokane Service Center Spokane, Washington	
GeoEngineers	Figure 16

APPENDICES

GeoEngineers

APPENDIX A
Field Methods

APPENDIX A
FIELD METHODS

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 or bladder 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.

Decontamination Procedures

The objective of the decontamination procedure was to minimize the potential for cross contamination between monitoring wells. 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 (purge water), was placed in 5-gallon buckets with lids. The drums were labeled with the monitoring well numbers, general contents and date. IDW generated on site was 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.

APPENDIX B
Parametrix Liner Repair As-built Survey

N

SCALE
10 0 5 10 20
(FEET)
1 INCH = 10 FEET

SERVICE BUILDING

PARKING GARAGE

EDGE OF LINER

WATER VALVE

WATER LINE PENETRATION POINT

UTILITY LINE PENETRATION POINT

LINER SEAM

UTILITY LINE PENETRATION POINT

TOP OF WATER PIPE

1897.62 WV

1897.27 BDR

1896.90 BDR

1896.52 SEAM B

1896.36 BDR

1897.81 BDR

1897.05 BDR

1895.90 GS

1895.53 GS

1895.22 GS

1895.07 GS

1893.84 BDR V

1895.15 GS

1895.47 GS

1895.45 GS

1894.78 GS

1894.53 GS

1894.98 GS

1896.76 BDR

1894.56 TOP

1894.01 TOP

1894.09 WA1

1893.97 TOP

1893.94 TOP

1895.31 TOP

1892.07 NOTE: TOPOFPIPE

1891.50 SEAM

1889.87 TOE OF SLOPE

1891.36 NOTE: TOPOFPIPE

1889.73 TOE

1889.53 TOE OF SLOPE

1889.59 TOE OF SLOPE

1896.32 SEAM

1896.91 BDR B

1897.48 BDR V

1891.45 SEAM

1896.55 TOP

1889.89 TOE OF SLOPE

1896.28 SEAM

1894.16 WA1 B

1897.09 WV

APPENDIX C
Laboratory Reports and Data Validation Report

GeoEngineers

523 East Second Avenue, Spokane, Washington 99202, Telephone: 509.363.3125 www.geoengineers.com

Data Validation Report

Project: Avista – Service Center Garage Liner Repairs and Groundwater Monitoring
December 2019 and January 2020 Groundwater Samples

GEI File No: 2522-079-03

Date: February 5, 2020

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 December 2019 and January 2020 sampling events, and the associated laboratory quality control (QC) samples. The samples were obtained from the Spokane Service Center Garage site 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) and the Quality Assurance Project Plan (QAPP), Appendix A of the Draft Work Plan, Geosynthetic Liner Repair and Groundwater Monitoring (GeoEngineers 2020), 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

VALIDATED SAMPLE DELIVERY GROUPS

This data validation included review of the sample delivery groups (SDGs) listed below in Table 1.

TABLE 1: SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

Laboratory SDG	Samples Validated
590-12497-1	MW-1A:122019, MW-2:122019, MW-3:122019, MW-4:122019, MW-5B:122019
590-12533-1	MW-1A:01032020, MW-2:01032020, MW-3:01032020, MW-4:01032020, MW-5B:01032020
590-12595-1	MW-1A:01162020, MW-2:01162020, MW-3:01162020, MW-4:01162020, MW-5B:01162020

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 coolers arrived at the laboratory within the appropriate temperatures of between 2 and 6 degrees Celsius, with the exceptions noted below.

SDG 590-12497-1: One sample cooler temperature recorded at the laboratory was 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.

SDG 590-12595-1: One sample cooler temperature recorded at the laboratory was -0.5 degrees Celsius. It was determined through professional judgment that since the samples were not frozen, this temperature should 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, with the following exception:

SDG 590-12497-1: (PCBs) The percent recovery for surrogate decachlorobiphenyl was greater than the control limits in Sample MW-3:122019. There were no positive results for the PCB target analytes in this sample; therefore, no qualifications were required.

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.

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, with the following exceptions:

SDG 590-12533-1: (PAHs) The percent recoveries for benzo(a)anthracene and pyrene were greater than the control limits in the LCS/LCSD sample set extracted on 1/9/2020. There were no positive results for these target analytes in the associated field samples; therefore, no qualifications were required.

Additionally, in the same LCS/LCSD sample set, the percent recovery for benzo(b)fluoranthene was greater than the control limits in the LCSD; however, the percent recovery for this target analyte was within the control limits in the corresponding LCS. No action was required for this outlier.

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, with the exceptions noted above. Precision was acceptable, as demonstrated by the LCS/LCSD RPD values.

No analytical results were qualified. The data are acceptable for the intended use.

REFERENCES

GeoEngineers, Inc. 2018. "Work Plan, Groundwater Monitoring, Remedial Excavation and Geosynthetic Liner Installation," prepared for Avista Corporation. August 2, 2018.

GeoEngineers, Inc. 2020. "Draft Work Plan, Geosynthetic Liner Repair and Groundwater Monitoring," prepared for Avista Corporation. January 3, 2020.

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.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 590-12497-1
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:
1/27/2020 9:29:16 AM

Randee Arrington, Project Manager II
(509)924-9200
randee.arrington@testamericainc.com

Table of Contents

Case Narrative

Client: GeoEngineers Inc
Job ID: 590-12497-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-12497-1

Laboratory: Eurofins TestAmerica, Spokane

Narrative

Report Revision 01/27/2020
All data was evaluated down to the MDL in the initial report. Per the client's request data for all methods except NWTPH-Dx was reprocessed and results reported to reporting limit (RL).

Receipt
The samples were received on 12/23/2019 4:35 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 15.0º C.

Receipt Exceptions
The following samples were received at the laboratory outside the required temperature criteria: MW-1A:122019 (590-12497-1), MW-2:122019 (590-12497-2), MW-3:122019 (590-12497-3), MW-4:122019 (590-12497-4) and MW-5B:122019 (590-12497-5). 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 8082A: Surrogate recovery for the following sample was outside control limits: MW-3:122019 (590-12497-3). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis 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
Job ID: 590-12497-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
590-12497-1	MW-1A:122019	Water	12/20/19 11:20	12/23/19 16:35	
590-12497-2	MW-2:122019	Water	12/20/19 14:53	12/23/19 16:35	
590-12497-3	MW-3:122019	Water	12/20/19 12:30	12/23/19 16:35	
590-12497-4	MW-4:122019	Water	12/20/19 13:45	12/23/19 16:35	
590-12497-5	MW-5B:122019	Water	12/20/19 09:52	12/23/19 16:35	

Definitions/Glossary

Client: GeoEngineers Inc
Job ID: 590-12497-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Surrogate is outside control limits

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 ID: MW-1A:122019
Lab Sample ID: 590-12497-1

Date Collected: 12/20/19 11:20
Matrix: Water
Date Received: 12/23/19 16:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
2-Methylnaphthalene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
1-Methylnaphthalene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Acenaphthylene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Acenaphthene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Fluorene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Phenanthrene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Anthracene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Fluoranthene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Pyrene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Benzo[a]anthracene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Chrysene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Benzo[b]fluoranthene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Benzo[k]fluoranthene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Benzo[a]pyrene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Indeno[1,2,3-cd]pyrene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Dibenz(a,h)anthracene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1
Benzo[g,h,i]perylene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 17:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*88*		*44 - 121*	*12/26/19 15:57*	*12/26/19 17:45*	*1*
2-Fluorobiphenyl (Surr)	*81*		*44 - 120*	*12/26/19 15:57*	*12/26/19 17:45*	*1*
p-Terphenyl-d14	*80*		*51 - 121*	*12/26/19 15:57*	*12/26/19 17:45*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.095		ug/L		01/07/20 14:16	01/07/20 18:21	1
PCB-1221	ND		0.095		ug/L		01/07/20 14:16	01/07/20 18:21	1
PCB-1232	ND		0.095		ug/L		01/07/20 14:16	01/07/20 18:21	1
PCB-1242	ND		0.095		ug/L		01/07/20 14:16	01/07/20 18:21	1
PCB-1248	ND		0.095		ug/L		01/07/20 14:16	01/07/20 18:21	1
PCB-1254	ND		0.095		ug/L		01/07/20 14:16	01/07/20 18:21	1
PCB-1260	ND		0.095		ug/L		01/07/20 14:16	01/07/20 18:21	1
PCB-1268	ND		0.095		ug/L		01/07/20 14:16	01/07/20 18:21	1
PCB-1262	ND		0.095		ug/L		01/07/20 14:16	01/07/20 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*62*		*20 - 120*	*01/07/20 14:16*	*01/07/20 18:21*	*1*
DCB Decachlorobiphenyl (Surr)	*80*		*32 - 123*	*01/07/20 14:16*	*01/07/20 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)	**0.13**	**J**	0.24	0.11	mg/L		12/27/19 10:26	12/27/19 14:59	1
Residual Range Organics (RRO) (C25-C36)	**0.18**	**J**	0.40	0.12	mg/L		12/27/19 10:26	12/27/19 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*88*		*50 - 150*	*12/27/19 10:26*	*12/27/19 14:59*	*1*
n-Triacontane-d62	*99*		*50 - 150*	*12/27/19 10:26*	*12/27/19 14:59*	*1*

Client Sample ID: MW-2:122019
Date Collected: 12/20/19 14:53
Date Received: 12/23/19 16:35

Lab Sample ID: 590-12497-2
Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
2-Methylnaphthalene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
1-Methylnaphthalene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Acenaphthylene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Acenaphthene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Fluorene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Phenanthrene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Anthracene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Fluoranthene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Pyrene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Benzo[a]anthracene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Chrysene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Benzo[b]fluoranthene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Benzo[k]fluoranthene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Benzo[a]pyrene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Indeno[1,2,3-cd]pyrene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Dibenz(a,h)anthracene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1
Benzo[g,h,i]perylene	ND		0.088		ug/L		12/26/19 15:57	12/26/19 18:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*83*		*44 - 121*	*12/26/19 15:57*	*12/26/19 18:08*	*1*
2-Fluorobiphenyl (Surr)	*78*		*44 - 120*	*12/26/19 15:57*	*12/26/19 18:08*	*1*
p-Terphenyl-d14	*81*		*51 - 121*	*12/26/19 15:57*	*12/26/19 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		ug/L		01/07/20 14:16	01/07/20 18:42	1
PCB-1221	ND		0.097		ug/L		01/07/20 14:16	01/07/20 18:42	1
PCB-1232	ND		0.097		ug/L		01/07/20 14:16	01/07/20 18:42	1
PCB-1242	ND		0.097		ug/L		01/07/20 14:16	01/07/20 18:42	1
PCB-1248	ND		0.097		ug/L		01/07/20 14:16	01/07/20 18:42	1
PCB-1254	ND		0.097		ug/L		01/07/20 14:16	01/07/20 18:42	1
PCB-1260	ND		0.097		ug/L		01/07/20 14:16	01/07/20 18:42	1
PCB-1268	ND		0.097		ug/L		01/07/20 14:16	01/07/20 18:42	1
PCB-1262	ND		0.097		ug/L		01/07/20 14:16	01/07/20 18:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*20 - 120*	*01/07/20 14:16*	*01/07/20 18:42*	*1*
DCB Decachlorobiphenyl (Surr)	*82*		*32 - 123*	*01/07/20 14:16*	*01/07/20 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)	ND		0.23	0.11	mg/L		12/27/19 10:26	12/27/19 15:43	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	0.12	mg/L		12/27/19 10:26	12/27/19 15:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*87*		*50 - 150*	*12/27/19 10:26*	*12/27/19 15:43*	*1*
n-Triacontane-d62	*94*		*50 - 150*	*12/27/19 10:26*	*12/27/19 15:43*	*1*

Client: GeoEngineers Inc
Job ID: 590-12497-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Client Sample ID: MW-3:122019
Lab Sample ID: 590-12497-3
Date Collected: 12/20/19 12:30
Matrix: Water
Date Received: 12/23/19 16:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
2-Methylnaphthalene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
1-Methylnaphthalene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Acenaphthylene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Acenaphthene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Fluorene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Phenanthrene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Anthracene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Fluoranthene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Pyrene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Benzo[a]anthracene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Chrysene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Benzo[b]fluoranthene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Benzo[k]fluoranthene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Benzo[a]pyrene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Indeno[1,2,3-cd]pyrene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Dibenz(a,h)anthracene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1
Benzo[g,h,i]perylene	ND		0.086		ug/L		12/26/19 15:57	12/26/19 18:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*77*		*44 - 121*	*12/26/19 15:57*	*12/26/19 18:31*	*1*
2-Fluorobiphenyl (Surr)	*69*		*44 - 120*	*12/26/19 15:57*	*12/26/19 18:31*	*1*
p-Terphenyl-d14	*76*		*51 - 121*	*12/26/19 15:57*	*12/26/19 18:31*	*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		ug/L		01/07/20 14:16	01/07/20 19:03	1
PCB-1221	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:03	1
PCB-1232	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:03	1
PCB-1242	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:03	1
PCB-1248	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:03	1
PCB-1254	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:03	1
PCB-1260	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:03	1
PCB-1268	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:03	1
PCB-1262	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*65*		*20 - 120*	*01/07/20 14:16*	*01/07/20 19:03*	*1*
DCB Decachlorobiphenyl (Surr)	*138*	*X*	*32 - 123*	*01/07/20 14:16*	*01/07/20 19:03*	*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		12/27/19 10:26	12/27/19 16:04	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	0.11	mg/L		12/27/19 10:26	12/27/19 16:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*86*		*50 - 150*	*12/27/19 10:26*	*12/27/19 16:04*	*1*
n-Triacontane-d62	*92*		*50 - 150*	*12/27/19 10:26*	*12/27/19 16:04*	*1*

Client Sample ID: MW-4:122019
Lab Sample ID: 590-12497-4

Date Collected: 12/20/19 13:45
Matrix: Water
Date Received: 12/23/19 16:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
2-Methylnaphthalene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
1-Methylnaphthalene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Acenaphthylene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Acenaphthene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Fluorene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Phenanthrene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Anthracene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Fluoranthene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Pyrene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Benzo[a]anthracene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Chrysene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Benzo[b]fluoranthene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Benzo[k]fluoranthene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Benzo[a]pyrene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Indeno[1,2,3-cd]pyrene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Dibenz(a,h)anthracene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1
Benzo[g,h,i]perylene	ND		0.087		ug/L		12/26/19 15:57	12/26/19 18:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*86*		*44 - 121*	*12/26/19 15:57*	*12/26/19 18:54*	*1*
2-Fluorobiphenyl (Surr)	*77*		*44 - 120*	*12/26/19 15:57*	*12/26/19 18:54*	*1*
p-Terphenyl-d14	*80*		*51 - 121*	*12/26/19 15:57*	*12/26/19 18:54*	*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		ug/L		01/07/20 14:16	01/07/20 19:24	1
PCB-1221	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:24	1
PCB-1232	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:24	1
PCB-1242	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:24	1
PCB-1248	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:24	1
PCB-1254	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:24	1
PCB-1260	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:24	1
PCB-1268	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:24	1
PCB-1262	ND		0.097		ug/L		01/07/20 14:16	01/07/20 19:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*75*		*20 - 120*	*01/07/20 14:16*	*01/07/20 19:24*	*1*
DCB Decachlorobiphenyl (Surr)	*91*		*32 - 123*	*01/07/20 14:16*	*01/07/20 19:24*	*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		12/27/19 10:26	12/27/19 16:24	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39	0.12	mg/L		12/27/19 10:26	12/27/19 16:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*50 - 150*	*12/27/19 10:26*	*12/27/19 16:24*	*1*
n-Triacontane-d62	*91*		*50 - 150*	*12/27/19 10:26*	*12/27/19 16:24*	*1*

Client Sample ID: MW-5B:122019
Lab Sample ID: 590-12497-5

Date Collected: 12/20/19 09:52
Matrix: Water
Date Received: 12/23/19 16:35

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
2-Methylnaphthalene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
1-Methylnaphthalene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Acenaphthylene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Acenaphthene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Fluorene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Phenanthrene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Anthracene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Fluoranthene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Pyrene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Benzo[a]anthracene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Chrysene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Benzo[b]fluoranthene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Benzo[k]fluoranthene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Benzo[a]pyrene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Indeno[1,2,3-cd]pyrene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Dibenz(a,h)anthracene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1
Benzo[g,h,i]perylene	ND		0.084		ug/L		12/26/19 15:57	12/26/19 19:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*87*		*44 - 121*	*12/26/19 15:57*	*12/26/19 19:17*	*1*
2-Fluorobiphenyl (Surr)	*80*		*44 - 120*	*12/26/19 15:57*	*12/26/19 19:17*	*1*
p-Terphenyl-d14	*80*		*51 - 121*	*12/26/19 15:57*	*12/26/19 19:17*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.098		ug/L		01/07/20 14:16	01/07/20 19:45	1
PCB-1221	ND		0.098		ug/L		01/07/20 14:16	01/07/20 19:45	1
PCB-1232	ND		0.098		ug/L		01/07/20 14:16	01/07/20 19:45	1
PCB-1242	ND		0.098		ug/L		01/07/20 14:16	01/07/20 19:45	1
PCB-1248	ND		0.098		ug/L		01/07/20 14:16	01/07/20 19:45	1
PCB-1254	ND		0.098		ug/L		01/07/20 14:16	01/07/20 19:45	1
PCB-1260	ND		0.098		ug/L		01/07/20 14:16	01/07/20 19:45	1
PCB-1268	ND		0.098		ug/L		01/07/20 14:16	01/07/20 19:45	1
PCB-1262	ND		0.098		ug/L		01/07/20 14:16	01/07/20 19:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*71*		*20 - 120*	*01/07/20 14:16*	*01/07/20 19:45*	*1*
DCB Decachlorobiphenyl (Surr)	*87*		*32 - 123*	*01/07/20 14:16*	*01/07/20 19:45*	*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		12/27/19 10:26	12/27/19 16:45	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	0.11	mg/L		12/27/19 10:26	12/27/19 16:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*12/27/19 10:26*	*12/27/19 16:45*	*1*
n-Triacontane-d62	*91*		*50 - 150*	*12/27/19 10:26*	*12/27/19 16:45*	*1*

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

Lab Sample ID: MB 590-25814/1-A
Matrix: Water
Analysis Batch: 25812

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25814

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
2-Methylnaphthalene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
1-Methylnaphthalene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Acenaphthylene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Acenaphthene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Fluorene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Phenanthrene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Anthracene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Fluoranthene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Pyrene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Benzo[a]anthracene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Chrysene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Benzo[b]fluoranthene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Benzo[k]fluoranthene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Benzo[a]pyrene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Indeno[1,2,3-cd]pyrene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Dibenz(a,h)anthracene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1
Benzo[g,h,i]perylene	ND		0.090		ug/L		12/26/19 15:57	12/26/19 16:35	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*87*		*44 - 121*	*12/26/19 15:57*	*12/26/19 16:35*	*1*
2-Fluorobiphenyl (Surr)	*78*		*44 - 120*	*12/26/19 15:57*	*12/26/19 16:35*	*1*
p-Terphenyl-d14	*78*		*51 - 121*	*12/26/19 15:57*	*12/26/19 16:35*	*1*

Lab Sample ID: LCS 590-25814/2-A
Matrix: Water
Analysis Batch: 25812

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25814

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	1.60	1.43		ug/L		89	52 - 120
2-Methylnaphthalene	1.60	1.55		ug/L		97	44 - 120
1-Methylnaphthalene	1.60	1.42		ug/L		89	49 - 120
Acenaphthylene	1.60	1.62		ug/L		101	57 - 120
Acenaphthene	1.60	1.51		ug/L		94	54 - 120
Fluorene	1.60	1.56		ug/L		97	59 - 120
Phenanthrene	1.60	1.62		ug/L		101	66 - 120
Anthracene	1.60	1.65		ug/L		103	59 - 120
Fluoranthene	1.60	1.72		ug/L		107	64 - 120
Pyrene	1.60	1.83		ug/L		115	61 - 120
Benzo[a]anthracene	1.60	1.85		ug/L		116	68 - 120
Chrysene	1.60	1.71		ug/L		107	69 - 120
Benzo[b]fluoranthene	1.60	1.84		ug/L		115	63 - 120
Benzo[k]fluoranthene	1.60	1.53		ug/L		96	67 - 120
Benzo[a]pyrene	1.60	1.64		ug/L		102	70 - 120
Indeno[1,2,3-cd]pyrene	1.60	1.62		ug/L		101	66 - 120
Dibenz(a,h)anthracene	1.60	1.57		ug/L		98	65 - 120
Benzo[g,h,i]perylene	1.60	1.65		ug/L		103	65 - 120

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

Lab Sample ID: LCS 590-25814/2-A
Matrix: Water
Analysis Batch: 25812

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25814

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*93*		*44 - 121*
2-Fluorobiphenyl (Surr)	*84*		*44 - 120*
p-Terphenyl-d14	*81*		*51 - 121*

Lab Sample ID: LCSD 590-25814/3-A
Matrix: Water
Analysis Batch: 25812

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25814

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			1.60	1.27		ug/L		80	52 - 120	12	21
2-Methylnaphthalene			1.60	1.32		ug/L		82	44 - 120	16	27
1-Methylnaphthalene			1.60	1.32		ug/L		82	49 - 120	7	26
Acenaphthylene			1.60	1.55		ug/L		97	57 - 120	5	21
Acenaphthene			1.60	1.46		ug/L		91	54 - 120	3	22
Fluorene			1.60	1.50		ug/L		94	59 - 120	4	18
Phenanthrene			1.60	1.55		ug/L		97	66 - 120	4	16
Anthracene			1.60	1.58		ug/L		99	59 - 120	4	18
Fluoranthene			1.60	1.63		ug/L		102	64 - 120	5	13
Pyrene			1.60	1.75		ug/L		109	61 - 120	5	17
Benzo[a]anthracene			1.60	1.76		ug/L		110	68 - 120	5	12
Chrysene			1.60	1.62		ug/L		101	69 - 120	5	14
Benzo[b]fluoranthene			1.60	1.77		ug/L		111	63 - 120	4	22
Benzo[k]fluoranthene			1.60	1.41		ug/L		88	67 - 120	8	19
Benzo[a]pyrene			1.60	1.53		ug/L		96	70 - 120	7	13
Indeno[1,2,3-cd]pyrene			1.60	1.52		ug/L		95	66 - 120	7	24
Dibenz(a,h)anthracene			1.60	1.48		ug/L		92	65 - 120	6	24
Benzo[g,h,i]perylene			1.60	1.51		ug/L		94	65 - 120	9	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*85*		*44 - 121*
2-Fluorobiphenyl (Surr)	*79*		*44 - 120*
p-Terphenyl-d14	*76*		*51 - 121*

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

Lab Sample ID: MB 590-25889/1-A
Matrix: Water
Analysis Batch: 25877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1221	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1232	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1242	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1248	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1254	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1260	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1268	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1

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

Lab Sample ID: MB 590-25889/1-A
Matrix: Water
Analysis Batch: 25877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1262	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*71*		*20 - 120*	*01/07/20 14:16*	*01/07/20 17:18*	*1*
DCB Decachlorobiphenyl (Surr)	*85*		*32 - 123*	*01/07/20 14:16*	*01/07/20 17:18*	*1*

Lab Sample ID: LCS 590-25889/2-A
Matrix: Water
Analysis Batch: 25877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25889

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			1.60	1.37		ug/L		86	51 - 120		
PCB-1260			1.60	1.34		ug/L		84	42 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*54*		*20 - 120*
DCB Decachlorobiphenyl (Surr)	*88*		*32 - 123*

Lab Sample ID: LCSD 590-25889/3-A
Matrix: Water
Analysis Batch: 25877

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25889

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			1.60	1.48		ug/L		92	51 - 120	7	26
PCB-1260			1.60	1.38		ug/L		86	42 - 120	3	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*54*		*20 - 120*
DCB Decachlorobiphenyl (Surr)	*91*		*32 - 123*

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

Lab Sample ID: MB 590-25822/1-A
Matrix: Water
Analysis Batch: 25823

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25822

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24	0.11	mg/L		12/27/19 10:26	12/27/19 11:47	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40	0.12	mg/L		12/27/19 10:26	12/27/19 11:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*12/27/19 10:26*	*12/27/19 11:47*	*1*
n-Triacontane-d62	*87*		*50 - 150*	*12/27/19 10:26*	*12/27/19 11:47*	*1*

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

Lab Sample ID: LCS 590-25822/2-A
Matrix: Water
Analysis Batch: 25823

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25822

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics (DRO) (C10-C25)			1.60	1.48		mg/L		93	50 - 150		
Residual Range Organics (RRO) (C25-C36)			1.60	1.60		mg/L		100	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*91*		*50 - 150*
n-Triacontane-d62	*93*		*50 - 150*

Lab Sample ID: LCSD 590-25822/3-A
Matrix: Water
Analysis Batch: 25823

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25822

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)			1.60	1.47		mg/L		92	50 - 150	1	25
Residual Range Organics (RRO) (C25-C36)			1.60	1.63		mg/L		102	50 - 150	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*91*		*50 - 150*
n-Triacontane-d62	*95*		*50 - 150*

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-12497-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Client Sample ID: MW-1A:122019
Lab Sample ID: 590-12497-1
Date Collected: 12/20/19 11:20
Matrix: Water
Date Received: 12/23/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			268.8 mL	2 mL	25814	12/26/19 15:57	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			25812	12/26/19 17:45	NMI	TAL SPK
Total/NA	Prep	3510C			264 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 18:21	NMI	TAL SPK
Total/NA	Prep	3510C			249.4 mL	2 mL	25822	12/27/19 10:26	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25823	12/27/19 14:59	NMI	TAL SPK

Client Sample ID: MW-2:122019
Lab Sample ID: 590-12497-2
Date Collected: 12/20/19 14:53
Matrix: Water
Date Received: 12/23/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			256.2 mL	2 mL	25814	12/26/19 15:57	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			25812	12/26/19 18:08	NMI	TAL SPK
Total/NA	Prep	3510C			256.7 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 18:42	NMI	TAL SPK
Total/NA	Prep	3510C			260.8 mL	2 mL	25822	12/27/19 10:26	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25823	12/27/19 15:43	NMI	TAL SPK

Client Sample ID: MW-3:122019
Lab Sample ID: 590-12497-3
Date Collected: 12/20/19 12:30
Matrix: Water
Date Received: 12/23/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			262.4 mL	2 mL	25814	12/26/19 15:57	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			25812	12/26/19 18:31	NMI	TAL SPK
Total/NA	Prep	3510C			257.8 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 19:03	NMI	TAL SPK
Total/NA	Prep	3510C			262 mL	2 mL	25822	12/27/19 10:26	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25823	12/27/19 16:04	NMI	TAL SPK

Client Sample ID: MW-4:122019
Lab Sample ID: 590-12497-4
Date Collected: 12/20/19 13:45
Matrix: Water
Date Received: 12/23/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			257.4 mL	2 mL	25814	12/26/19 15:57	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			25812	12/26/19 18:54	NMI	TAL SPK
Total/NA	Prep	3510C			257 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 19:24	NMI	TAL SPK
Total/NA	Prep	3510C			255.5 mL	2 mL	25822	12/27/19 10:26	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25823	12/27/19 16:24	NMI	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-12497-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Client Sample ID: MW-5B:122019
Lab Sample ID: 590-12497-5

Date Collected: 12/20/19 09:52
Matrix: Water
Date Received: 12/23/19 16:35

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			266.6 mL	2 mL	25814	12/26/19 15:57	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			25812	12/26/19 19:17	NMI	TAL SPK
Total/NA	Prep	3510C			255.8 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 19:45	NMI	TAL SPK
Total/NA	Prep	3510C			266.6 mL	2 mL	25822	12/27/19 10:26	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25823	12/27/19 16:45	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
Job ID: 590-12497-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Laboratory: Eurofins TestAmerica, Spokane

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C569	01-06-21

Method Summary

Client: GeoEngineers Inc
Job ID: 590-12497-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

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

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

Eurofins TestAmerica, Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: Justin Orr	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-5264-1646.1
Client Contact: Josh Lee	Phone: (406) 890-1310	E-Mail: randee.arrington@testamericainc.com		Page: Page 1 of 1
Company: GeoEngineers Inc				Job #:

Address: 523 East Second Ave	Due Date Requested:	Analysis Requested	Preservation Codes:
City: Spokane	TAT Requested (days):		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: WA, 99202			
Phone: 406-239-7810(Tel)	PO #: Purchase Order not required		Other:
Email: jmlee@geoengineers.com	WO #:		
Project Name: Avista-Spokane Service Ctr/2522-079-02	Project #: 59001557		
Site:	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM - Polycyclic Aromatic Hydrocarbons	8082A - PCBs - Standard List	NWTPH_Dx - DRO and RRO	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	A		
MW-1A:122019	12/20/19	1120	G	Water			X	X	X	4	
MW-2: 122019		1453		Water							
MW-3: 122019		1230		Water							
MW-4. 122019		1345		Water							
MW-5B: 122019		0952		Water							
				Water							
				Water							
				Water							
				Water							
				Water							
				Water							

590-12497 Chain of Custody

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify)	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	12-20-19/1635	GEI	Jeremy Pavla	12/20/19 16 35	TAspokane
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-12497-1

Login Number: 12497
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.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 590-12533-1
Client Project/Site: Avista-Spokane Service Ctr/2522-079-02

For:
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Attn: Josh Lee

Authorized for release by:
1/21/2020 1:45:36 PM

Randee Arrington, Project Manager II
(509)924-9200
randee.arrington@testamericainc.com

Table of Contents

Case Narrative

Client: GeoEngineers Inc
Job ID: 590-12533-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Job ID: 590-12533-1

Laboratory: Eurofins TestAmerica, Spokane

Narrative

Receipt
The samples were received on 1/6/2020 8:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3º C.

GC/MS Semi VOA
Method 8270D SIM: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 590-25917 and analytical batch 590-25968 recovered outside control limits for several analytes. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270D SIM: The continuing calibration verification (CCV) associated with batch 590-25968 recovered above the upper control limit for Pyrene. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: MW-1A:01032020 (590-12533-1), MW-2:01032020 (590-12533-2), MW-3:01032020 (590-12533-3), MW-4:01032020 (590-12533-4), MW-5B:01032020 (590-12533-5) and (CCVIS 590-25968/3).

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

GC Semi VOA
Method NWTPH-Dx: Surrogate recovery for the oil range in the CCV's for the following samples were outside the upper control limit: MW-1A:01032020 (590-12533-1), MW-2:01032020 (590-12533-2), MW-3:01032020 (590-12533-3), MW-4:01032020 (590-12533-4), MW-5B:01032020 (590-12533-5), (CCV 590-25941/20), (CCV 590-25941/30), (CCV 590-25941/9), (LCS 590-25947/2-A), (LCSD 590-25947/3-A) and (MB 590-25947/1-A). The samples did not contain any target Residual Range Organics (RRO) (C25-C36) analytes; therefore, re-extraction and/or re-analysis 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
Job ID: 590-12533-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
590-12533-1	MW-1A:01032020	Water	01/03/20 09:28	01/06/20 08:30	
590-12533-2	MW-2:01032020	Water	01/03/20 13:45	01/06/20 08:30	
590-12533-3	MW-3:01032020	Water	01/03/20 11:55	01/06/20 08:30	
590-12533-4	MW-4:01032020	Water	01/03/20 12:55	01/06/20 08:30	
590-12533-5	MW-5B:01032020	Water	01/03/20 11:00	01/06/20 08:30	

Definitions/Glossary

Client: GeoEngineers Inc
Job ID: 590-12533-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.

GC Semi VOA

Qualifier	Qualifier Description
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 ID: MW-1A:01032020
Lab Sample ID: 590-12533-1

Date Collected: 01/03/20 09:28
Matrix: Water
Date Received: 01/06/20 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
2-Methylnaphthalene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
1-Methylnaphthalene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Acenaphthylene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Acenaphthene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Fluorene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Phenanthrene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Anthracene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Fluoranthene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Pyrene	ND	*	0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Benzo[a]anthracene	ND	*	0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Chrysene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Benzo[b]fluoranthene	ND	*	0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Benzo[k]fluoranthene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Benzo[a]pyrene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Indeno[1,2,3-cd]pyrene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Dibenz(a,h)anthracene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1
Benzo[g,h,i]perylene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 19:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*102*		*44 - 121*	*01/09/20 13:20*	*01/16/20 19:05*	*1*
2-Fluorobiphenyl (Surr)	*86*		*44 - 120*	*01/09/20 13:20*	*01/16/20 19:05*	*1*
p-Terphenyl-d14	*89*		*51 - 121*	*01/09/20 13:20*	*01/16/20 19:05*	*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		ug/L		01/07/20 14:16	01/07/20 20:06	1
PCB-1221	ND		0.094		ug/L		01/07/20 14:16	01/07/20 20:06	1
PCB-1232	ND		0.094		ug/L		01/07/20 14:16	01/07/20 20:06	1
PCB-1242	ND		0.094		ug/L		01/07/20 14:16	01/07/20 20:06	1
PCB-1248	ND		0.094		ug/L		01/07/20 14:16	01/07/20 20:06	1
PCB-1254	ND		0.094		ug/L		01/07/20 14:16	01/07/20 20:06	1
PCB-1260	ND		0.094		ug/L		01/07/20 14:16	01/07/20 20:06	1
PCB-1268	ND		0.094		ug/L		01/07/20 14:16	01/07/20 20:06	1
PCB-1262	ND		0.094		ug/L		01/07/20 14:16	01/07/20 20:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*68*		*20 - 120*	*01/07/20 14:16*	*01/07/20 20:06*	*1*
DCB Decachlorobiphenyl (Surr)	*91*		*32 - 123*	*01/07/20 14:16*	*01/07/20 20:06*	*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**	0.23	0.11	mg/L		01/13/20 14:28	01/13/20 20:30	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39	0.12	mg/L		01/13/20 14:28	01/13/20 20:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*96*		*50 - 150*	*01/13/20 14:28*	*01/13/20 20:30*	*1*
n-Triacontane-d62	*106*		*50 - 150*	*01/13/20 14:28*	*01/13/20 20:30*	*1*

Client: GeoEngineers Inc
Job ID: 590-12533-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Client Sample ID: MW-2:01032020
Lab Sample ID: 590-12533-2
Date Collected: 01/03/20 13:45
Matrix: Water
Date Received: 01/06/20 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
2-Methylnaphthalene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
1-Methylnaphthalene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Acenaphthylene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Acenaphthene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Fluorene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Phenanthrene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Anthracene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Fluoranthene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Pyrene	ND	*	0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Benzo[a]anthracene	ND	*	0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Chrysene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Benzo[b]fluoranthene	ND	*	0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Benzo[k]fluoranthene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Benzo[a]pyrene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Indeno[1,2,3-cd]pyrene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Dibenz(a,h)anthracene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1
Benzo[g,h,i]perylene	ND		0.087		ug/L		01/09/20 13:20	01/16/20 19:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*97*		*44 - 121*	*01/09/20 13:20*	*01/16/20 19:28*	*1*
2-Fluorobiphenyl (Surr)	*83*		*44 - 120*	*01/09/20 13:20*	*01/16/20 19:28*	*1*
p-Terphenyl-d14	*100*		*51 - 121*	*01/09/20 13:20*	*01/16/20 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		0.096		ug/L		01/07/20 14:16	01/07/20 20:27	1
PCB-1221	ND		0.096		ug/L		01/07/20 14:16	01/07/20 20:27	1
PCB-1232	ND		0.096		ug/L		01/07/20 14:16	01/07/20 20:27	1
PCB-1242	ND		0.096		ug/L		01/07/20 14:16	01/07/20 20:27	1
PCB-1248	ND		0.096		ug/L		01/07/20 14:16	01/07/20 20:27	1
PCB-1254	ND		0.096		ug/L		01/07/20 14:16	01/07/20 20:27	1
PCB-1260	ND		0.096		ug/L		01/07/20 14:16	01/07/20 20:27	1
PCB-1268	ND		0.096		ug/L		01/07/20 14:16	01/07/20 20:27	1
PCB-1262	ND		0.096		ug/L		01/07/20 14:16	01/07/20 20:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*71*		*20 - 120*	*01/07/20 14:16*	*01/07/20 20:27*	*1*
DCB Decachlorobiphenyl (Surr)	*83*		*32 - 123*	*01/07/20 14:16*	*01/07/20 20:27*	*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		01/13/20 14:28	01/13/20 20:52	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39	0.12	mg/L		01/13/20 14:28	01/13/20 20:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*95*		*50 - 150*	*01/13/20 14:28*	*01/13/20 20:52*	*1*
n-Triacontane-d62	*105*		*50 - 150*	*01/13/20 14:28*	*01/13/20 20:52*	*1*

Client Sample ID: MW-3:01032020
Lab Sample ID: 590-12533-3

Date Collected: 01/03/20 11:55
Matrix: Water

Date Received: 01/06/20 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
2-Methylnaphthalene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
1-Methylnaphthalene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Acenaphthylene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Acenaphthene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Fluorene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Phenanthrene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Anthracene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Fluoranthene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Pyrene	ND	*	0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Benzo[a]anthracene	ND	*	0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Chrysene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Benzo[b]fluoranthene	ND	*	0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Benzo[k]fluoranthene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Benzo[a]pyrene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Indeno[1,2,3-cd]pyrene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Dibenz(a,h)anthracene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1
Benzo[g,h,i]perylene	ND		0.088		ug/L		01/09/20 13:20	01/16/20 19:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*90*		*44 - 121*	*01/09/20 13:20*	*01/16/20 19:51*	*1*
2-Fluorobiphenyl (Surr)	*73*		*44 - 120*	*01/09/20 13:20*	*01/16/20 19:51*	*1*
p-Terphenyl-d14	*83*		*51 - 121*	*01/09/20 13:20*	*01/16/20 19:51*	*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		ug/L		01/07/20 14:16	01/07/20 21:10	1
PCB-1221	ND		0.096		ug/L		01/07/20 14:16	01/07/20 21:10	1
PCB-1232	ND		0.096		ug/L		01/07/20 14:16	01/07/20 21:10	1
PCB-1242	ND		0.096		ug/L		01/07/20 14:16	01/07/20 21:10	1
PCB-1248	ND		0.096		ug/L		01/07/20 14:16	01/07/20 21:10	1
PCB-1254	ND		0.096		ug/L		01/07/20 14:16	01/07/20 21:10	1
PCB-1260	ND		0.096		ug/L		01/07/20 14:16	01/07/20 21:10	1
PCB-1268	ND		0.096		ug/L		01/07/20 14:16	01/07/20 21:10	1
PCB-1262	ND		0.096		ug/L		01/07/20 14:16	01/07/20 21:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*70*		*20 - 120*	*01/07/20 14:16*	*01/07/20 21:10*	*1*
DCB Decachlorobiphenyl (Surr)	*86*		*32 - 123*	*01/07/20 14:16*	*01/07/20 21:10*	*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		01/13/20 14:28	01/13/20 21:34	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39	0.12	mg/L		01/13/20 14:28	01/13/20 21:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*103*		*50 - 150*	*01/13/20 14:28*	*01/13/20 21:34*	*1*
n-Triacontane-d62	*112*		*50 - 150*	*01/13/20 14:28*	*01/13/20 21:34*	*1*

Client Sample ID: MW-4:01032020
Lab Sample ID: 590-12533-4

Date Collected: 01/03/20 12:55
Matrix: Water
Date Received: 01/06/20 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
2-Methylnaphthalene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
1-Methylnaphthalene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Acenaphthylene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Acenaphthene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Fluorene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Phenanthrene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Anthracene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Fluoranthene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Pyrene	ND	*	0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Benzo[a]anthracene	ND	*	0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Chrysene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Benzo[b]fluoranthene	ND	*	0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Benzo[k]fluoranthene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Benzo[a]pyrene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Indeno[1,2,3-cd]pyrene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Dibenz(a,h)anthracene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1
Benzo[g,h,i]perylene	ND		0.086		ug/L		01/09/20 13:20	01/16/20 20:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*88*		*44 - 121*	*01/09/20 13:20*	*01/16/20 20:14*	*1*
2-Fluorobiphenyl (Surr)	*70*		*44 - 120*	*01/09/20 13:20*	*01/16/20 20:14*	*1*
p-Terphenyl-d14	*90*		*51 - 121*	*01/09/20 13:20*	*01/16/20 20:14*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.095		ug/L		01/07/20 14:16	01/07/20 21:30	1
PCB-1221	ND		0.095		ug/L		01/07/20 14:16	01/07/20 21:30	1
PCB-1232	ND		0.095		ug/L		01/07/20 14:16	01/07/20 21:30	1
PCB-1242	ND		0.095		ug/L		01/07/20 14:16	01/07/20 21:30	1
PCB-1248	ND		0.095		ug/L		01/07/20 14:16	01/07/20 21:30	1
PCB-1254	ND		0.095		ug/L		01/07/20 14:16	01/07/20 21:30	1
PCB-1260	ND		0.095		ug/L		01/07/20 14:16	01/07/20 21:30	1
PCB-1268	ND		0.095		ug/L		01/07/20 14:16	01/07/20 21:30	1
PCB-1262	ND		0.095		ug/L		01/07/20 14:16	01/07/20 21:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*20 - 120*	*01/07/20 14:16*	*01/07/20 21:30*	*1*
DCB Decachlorobiphenyl (Surr)	*91*		*32 - 123*	*01/07/20 14:16*	*01/07/20 21:30*	*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		01/13/20 14:28	01/13/20 21:56	1
Residual Range Organics (RRO) (C25-C36)	ND		0.38	0.11	mg/L		01/13/20 14:28	01/13/20 21:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*103*		*50 - 150*	*01/13/20 14:28*	*01/13/20 21:56*	*1*
n-Triacontane-d62	*112*		*50 - 150*	*01/13/20 14:28*	*01/13/20 21:56*	*1*

Client Sample ID: MW-5B:01032020
Lab Sample ID: 590-12533-5

Date Collected: 01/03/20 11:00
Matrix: Water
Date Received: 01/06/20 08:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
2-Methylnaphthalene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
1-Methylnaphthalene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Acenaphthylene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Acenaphthene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Fluorene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Phenanthrene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Anthracene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Fluoranthene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Pyrene	ND	*	0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Benzo[a]anthracene	ND	*	0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Chrysene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Benzo[b]fluoranthene	ND	*	0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Benzo[k]fluoranthene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Benzo[a]pyrene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Indeno[1,2,3-cd]pyrene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Dibenz(a,h)anthracene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1
Benzo[g,h,i]perylene	ND		0.084		ug/L		01/09/20 13:20	01/16/20 20:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*98*		*44 - 121*	*01/09/20 13:20*	*01/16/20 20:37*	*1*
2-Fluorobiphenyl (Surr)	*91*		*44 - 120*	*01/09/20 13:20*	*01/16/20 20:37*	*1*
p-Terphenyl-d14	*86*		*51 - 121*	*01/09/20 13:20*	*01/16/20 20:37*	*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		ug/L		01/07/20 14:16	01/07/20 21:51	1
PCB-1221	ND		0.094		ug/L		01/07/20 14:16	01/07/20 21:51	1
PCB-1232	ND		0.094		ug/L		01/07/20 14:16	01/07/20 21:51	1
PCB-1242	ND		0.094		ug/L		01/07/20 14:16	01/07/20 21:51	1
PCB-1248	ND		0.094		ug/L		01/07/20 14:16	01/07/20 21:51	1
PCB-1254	ND		0.094		ug/L		01/07/20 14:16	01/07/20 21:51	1
PCB-1260	ND		0.094		ug/L		01/07/20 14:16	01/07/20 21:51	1
PCB-1268	ND		0.094		ug/L		01/07/20 14:16	01/07/20 21:51	1
PCB-1262	ND		0.094		ug/L		01/07/20 14:16	01/07/20 21:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*72*		*20 - 120*	*01/07/20 14:16*	*01/07/20 21:51*	*1*
DCB Decachlorobiphenyl (Surr)	*92*		*32 - 123*	*01/07/20 14:16*	*01/07/20 21:51*	*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		0.22	0.10	mg/L		01/13/20 14:28	01/13/20 22:17	1
Residual Range Organics (RRO) (C25-C36)	ND		0.37	0.11	mg/L		01/13/20 14:28	01/13/20 22:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*106*		*50 - 150*	*01/13/20 14:28*	*01/13/20 22:17*	*1*
n-Triacontane-d62	*114*		*50 - 150*	*01/13/20 14:28*	*01/13/20 22:17*	*1*

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

Lab Sample ID: MB 590-25917/1-A
Matrix: Water
Analysis Batch: 25968

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25917

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
2-Methylnaphthalene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
1-Methylnaphthalene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Acenaphthylene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Acenaphthene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Fluorene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Phenanthrene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Anthracene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Fluoranthene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Pyrene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Benzo[a]anthracene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Chrysene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Benzo[b]fluoranthene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Benzo[k]fluoranthene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Benzo[a]pyrene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Indeno[1,2,3-cd]pyrene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Dibenz(a,h)anthracene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1
Benzo[g,h,i]perylene	ND		0.090		ug/L		01/09/20 13:20	01/16/20 17:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*92*		*44 - 121*	*01/09/20 13:20*	*01/16/20 17:32*	*1*
2-Fluorobiphenyl (Surr)	*77*		*44 - 120*	*01/09/20 13:20*	*01/16/20 17:32*	*1*
p-Terphenyl-d14	*80*		*51 - 121*	*01/09/20 13:20*	*01/16/20 17:32*	*1*

Lab Sample ID: LCS 590-25917/2-A
Matrix: Water
Analysis Batch: 25968

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25917

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	1.60	1.28		ug/L		80	52 - 120
2-Methylnaphthalene	1.60	1.35		ug/L		84	44 - 120
1-Methylnaphthalene	1.60	1.32		ug/L		82	49 - 120
Acenaphthylene	1.60	1.59		ug/L		99	57 - 120
Acenaphthene	1.60	1.48		ug/L		92	54 - 120
Fluorene	1.60	1.59		ug/L		99	59 - 120
Phenanthrene	1.60	1.69		ug/L		106	66 - 120
Anthracene	1.60	1.72		ug/L		108	59 - 120
Fluoranthene	1.60	1.84		ug/L		115	64 - 120
Pyrene	1.60	1.94	*	ug/L		121	61 - 120
Benzo[a]anthracene	1.60	1.94	*	ug/L		122	68 - 120
Chrysene	1.60	1.82		ug/L		114	69 - 120
Benzo[b]fluoranthene	1.60	1.88		ug/L		117	63 - 120
Benzo[k]fluoranthene	1.60	1.73		ug/L		108	67 - 120
Benzo[a]pyrene	1.60	1.75		ug/L		109	70 - 120
Indeno[1,2,3-cd]pyrene	1.60	1.75		ug/L		109	66 - 120
Dibenz(a,h)anthracene	1.60	1.72		ug/L		107	65 - 120
Benzo[g,h,i]perylene	1.60	1.75		ug/L		109	65 - 120

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

Lab Sample ID: LCS 590-25917/2-A
Matrix: Water
Analysis Batch: 25968

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25917

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Nitrobenzene-d5	*91*		*44 - 121*
2-Fluorobiphenyl (Surr)	*78*		*44 - 120*
p-Terphenyl-d14	*87*		*51 - 121*

Lab Sample ID: LCSD 590-25917/3-A
Matrix: Water
Analysis Batch: 25968

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25917

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			1.60	1.27		ug/L		80	52 - 120	1	21
2-Methylnaphthalene			1.60	1.31		ug/L		82	44 - 120	3	27
1-Methylnaphthalene			1.60	1.31		ug/L		82	49 - 120	0	26
Acenaphthylene			1.60	1.64		ug/L		102	57 - 120	3	21
Acenaphthene			1.60	1.47		ug/L		92	54 - 120	1	22
Fluorene			1.60	1.60		ug/L		100	59 - 120	1	18
Phenanthrene			1.60	1.68		ug/L		105	66 - 120	1	16
Anthracene			1.60	1.72		ug/L		108	59 - 120	0	18
Fluoranthene			1.60	1.85		ug/L		116	64 - 120	1	13
Pyrene			1.60	2.01	*	ug/L		126	61 - 120	4	17
Benzo[a]anthracene			1.60	2.03	*	ug/L		127	68 - 120	4	12
Chrysene			1.60	1.91		ug/L		120	69 - 120	5	14
Benzo[b]fluoranthene			1.60	2.01	*	ug/L		125	63 - 120	7	22
Benzo[k]fluoranthene			1.60	1.79		ug/L		112	67 - 120	3	19
Benzo[a]pyrene			1.60	1.83		ug/L		114	70 - 120	4	13
Indeno[1,2,3-cd]pyrene			1.60	1.84		ug/L		115	66 - 120	5	24
Dibenz(a,h)anthracene			1.60	1.77		ug/L		111	65 - 120	3	24
Benzo[g,h,i]perylene			1.60	1.83		ug/L		114	65 - 120	5	25

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Nitrobenzene-d5	*93*		*44 - 121*
2-Fluorobiphenyl (Surr)	*69*		*44 - 120*
p-Terphenyl-d14	*90*		*51 - 121*

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

Lab Sample ID: MB 590-25889/1-A
Matrix: Water
Analysis Batch: 25877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1221	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1232	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1242	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1248	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1254	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1260	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1
PCB-1268	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1

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

Lab Sample ID: MB 590-25889/1-A
Matrix: Water
Analysis Batch: 25877

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25889

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1262	ND		0.10		ug/L		01/07/20 14:16	01/07/20 17:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*71*		*20 - 120*	*01/07/20 14:16*	*01/07/20 17:18*	*1*
DCB Decachlorobiphenyl (Surr)	*85*		*32 - 123*	*01/07/20 14:16*	*01/07/20 17:18*	*1*

Lab Sample ID: LCS 590-25889/2-A
Matrix: Water
Analysis Batch: 25877

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25889

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			1.60	1.37		ug/L		86	51 - 120		
PCB-1260			1.60	1.34		ug/L		84	42 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*54*		*20 - 120*
DCB Decachlorobiphenyl (Surr)	*88*		*32 - 123*

Lab Sample ID: LCSD 590-25889/3-A
Matrix: Water
Analysis Batch: 25877

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25889

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			1.60	1.48		ug/L		92	51 - 120	7	26
PCB-1260			1.60	1.38		ug/L		86	42 - 120	3	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*54*		*20 - 120*
DCB Decachlorobiphenyl (Surr)	*91*		*32 - 123*

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

Lab Sample ID: MB 590-25947/1-A
Matrix: Water
Analysis Batch: 25941

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 25947

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24	0.11	mg/L		01/13/20 14:28	01/13/20 17:39	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40	0.12	mg/L		01/13/20 14:28	01/13/20 17:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*97*		*50 - 150*	*01/13/20 14:28*	*01/13/20 17:39*	*1*
n-Triacontane-d62	*104*		*50 - 150*	*01/13/20 14:28*	*01/13/20 17:39*	*1*

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

Lab Sample ID: LCS 590-25947/2-A
Matrix: Water
Analysis Batch: 25941

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 25947

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics (DRO) (C10-C25)			1.60	1.64		mg/L		102	50 - 150		
Residual Range Organics (RRO) (C25-C36)			1.60	1.73		mg/L		108	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*104*		*50 - 150*
n-Triacontane-d62	*108*		*50 - 150*

Lab Sample ID: LCSD 590-25947/3-A
Matrix: Water
Analysis Batch: 25941

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 25947

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)			1.60	1.67		mg/L		104	50 - 150	2	25
Residual Range Organics (RRO) (C25-C36)			1.60	1.77		mg/L		111	50 - 150	3	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*107*		*50 - 150*
n-Triacontane-d62	*112*		*50 - 150*

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-12533-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Client Sample ID: MW-1A:01032020
Lab Sample ID: 590-12533-1
Date Collected: 01/03/20 09:28
Matrix: Water
Date Received: 01/06/20 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			248.9 mL	2 mL	25917	01/09/20 13:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			25968	01/16/20 19:05	NMI	TAL SPK
Total/NA	Prep	3510C			267.2 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 20:06	NMI	TAL SPK
Total/NA	Prep	3510C			259.2 mL	2 mL	25947	01/13/20 14:28	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25941	01/13/20 20:30	NMI	TAL SPK

Client Sample ID: MW-2:01032020
Lab Sample ID: 590-12533-2
Date Collected: 01/03/20 13:45
Matrix: Water
Date Received: 01/06/20 08:30

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 mL	2 mL	25917	01/09/20 13:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			25968	01/16/20 19:28	NMI	TAL SPK
Total/NA	Prep	3510C			259.8 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 20:27	NMI	TAL SPK
Total/NA	Prep	3510C			257.5 mL	2 mL	25947	01/13/20 14:28	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25941	01/13/20 20:52	NMI	TAL SPK

Client Sample ID: MW-3:01032020
Lab Sample ID: 590-12533-3
Date Collected: 01/03/20 11:55
Matrix: Water
Date Received: 01/06/20 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			257.1 mL	2 mL	25917	01/09/20 13:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			25968	01/16/20 19:51	NMI	TAL SPK
Total/NA	Prep	3510C			260.7 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 21:10	NMI	TAL SPK
Total/NA	Prep	3510C			257.3 mL	2 mL	25947	01/13/20 14:28	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25941	01/13/20 21:34	NMI	TAL SPK

Client Sample ID: MW-4:01032020
Lab Sample ID: 590-12533-4
Date Collected: 01/03/20 12:55
Matrix: Water
Date Received: 01/06/20 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			260.4 mL	2 mL	25917	01/09/20 13:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			25968	01/16/20 20:14	NMI	TAL SPK
Total/NA	Prep	3510C			262.2 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 21:30	NMI	TAL SPK
Total/NA	Prep	3510C			262.8 mL	2 mL	25947	01/13/20 14:28	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25941	01/13/20 21:56	NMI	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-12533-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Client Sample ID: MW-5B:01032020
Lab Sample ID: 590-12533-5

Date Collected: 01/03/20 11:00
Matrix: Water
Date Received: 01/06/20 08:30

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			268 mL	2 mL	25917	01/09/20 13:20	AMB	TAL SPK
Total/NA	Analysis	8270D SIM		1			25968	01/16/20 20:37	NMI	TAL SPK
Total/NA	Prep	3510C			266.8 mL	2 mL	25889	01/07/20 14:16	NMI	TAL SPK
Total/NA	Analysis	8082A		1			25877	01/07/20 21:51	NMI	TAL SPK
Total/NA	Prep	3510C			268.9 mL	2 mL	25947	01/13/20 14:28	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			25941	01/13/20 22:17	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
Job ID: 590-12533-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

Laboratory: Eurofins TestAmerica, Spokane

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

Authority	Program	Identification Number	Expiration Date
Washington	State Program	C569	01-06-21

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
8270D SIM	3510C	Water	1-Methylnaphthalene
8270D SIM	3510C	Water	2-Methylnaphthalene
8270D SIM	3510C	Water	Acenaphthene
8270D SIM	3510C	Water	Acenaphthylene
8270D SIM	3510C	Water	Anthracene
8270D SIM	3510C	Water	Benzo[a]anthracene
8270D SIM	3510C	Water	Benzo[a]pyrene
8270D SIM	3510C	Water	Benzo[b]fluoranthene
8270D SIM	3510C	Water	Benzo[g,h,i]perylene
8270D SIM	3510C	Water	Benzo[k]fluoranthene
8270D SIM	3510C	Water	Chrysene
8270D SIM	3510C	Water	Dibenz(a,h)anthracene
8270D SIM	3510C	Water	Fluoranthene
8270D SIM	3510C	Water	Fluorene
8270D SIM	3510C	Water	Indeno[1,2,3-cd]pyrene
8270D SIM	3510C	Water	Naphthalene
8270D SIM	3510C	Water	Phenanthrene
8270D SIM	3510C	Water	Pyrene
NWTPH-Dx	3510C	Water	Residual Range Organics (RRO) (C25-C36)

Method Summary

Client: GeoEngineers Inc
Job ID: 590-12533-1
Project/Site: Avista-Spokane Service Ctr/2522-079-02

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

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

Eurofins TestAmerica, Spokane
11922 East 1st Ave
Spokane, WA 99206
Phone: 509-924-9200 Fax: 509-924-9290

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: Justin Orr	Lab PM: Arrington, Randee E	Carrier Tracking No(s):	COC No: 590-5264-1646.2
Client Contact: Josh Lee	Phone: (406) 890-1310	E-Mail: randee.arrington@testamericainc.com		Page: Page ~~2of2~~ 1 of 1
Company: GeoEngineers Inc				Job #:
Address: 523 East Second Ave	Due Date Requested: STD			
City: Spokane	TAT Requested (days): STD			
State, Zip: WA, 99202				
Phone: 406-239-7810(Tel)	PO #: Purchase Order not required			
Email: jmlee@geoengineers.com	WO #:			
Project Name: Avista-Spokane Service Ctr/2522-079-02	Project #: 59001557			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8270D_SIM - Polycyclic Aromatic Hydrocarbons	8082A - PCBs - Standard List	NWTPH_Dx - DRO and RRO	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	N	A		
MW-1A: 01032020	1/3/2020	0928		Water			X	X	X	4	
MW-2: 01032020		1345		Water			X	X	X	4	
MW-3: 01032020		1155		Water			X	X	X	4	
MW-4: 01032020		1255		W			X	X	X	4	
MW-5B: 01032020		1100		W			X	X	X	4	

590-12533 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		1-3-2020/1445	GEI	Josh Lee	1/6/2020 0830	GEI
2	Josh Lee	1-6-2020 0830	GEI	Maria Otero	1/6/2020 1430	TASPO
3						

Custody Seals Intact: Δ Yes Δ No

Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 2.3°C

Ver: 01/16/2019

1/21/2020

Page 19 of 20

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-12533-1

Login Number: 12533
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.	True	
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.

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

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

Laboratory Job ID: 590-12595-1
Client Project/Site: Avista-Spokane Service Ctr/2522-079-03

For:
GeoEngineers Inc
523 East Second Ave
Spokane, Washington 99202

Attn: Josh Lee

Authorized for release by:
1/31/2020 1:42:20 PM

Randee Arrington, Project Manager II
(509)924-9200
randee.arrington@testamericainc.com

Table of Contents

Case Narrative

Client: GeoEngineers Inc
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

Job ID: 590-12595-1

Laboratory: Eurofins TestAmerica, Spokane

Narrative

Receipt
The samples were received on 1/17/2020 8:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was -0.5º C.

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

GC Semi VOA
No analytical or quality issues were noted, other than those described 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
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
590-12595-1	MW-1A:01162020	Water	01/16/20 12:00	01/17/20 08:20	
590-12595-2	MW-2:01162020	Water	01/16/20 14:40	01/17/20 08:20	
590-12595-3	MW-3:01162020	Water	01/16/20 12:58	01/17/20 08:20	
590-12595-4	MW-4:01162020	Water	01/16/20 13:45	01/17/20 08:20	
590-12595-5	MW-5B:01162020	Water	01/16/20 15:35	01/17/20 08:20	

Definitions/Glossary

Client: GeoEngineers Inc
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

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 ID: MW-1A:01162020
Lab Sample ID: 590-12595-1

Date Collected: 01/16/20 12:00
Matrix: Water
Date Received: 01/17/20 08:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
2-Methylnaphthalene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
1-Methylnaphthalene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Acenaphthylene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Acenaphthene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Fluorene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Phenanthrene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Anthracene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Fluoranthene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Pyrene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Benzo[a]anthracene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Chrysene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Benzo[b]fluoranthene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Benzo[k]fluoranthene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Benzo[a]pyrene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Indeno[1,2,3-cd]pyrene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Dibenz(a,h)anthracene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1
Benzo[g,h,i]perylene	ND		0.085		ug/L		01/22/20 13:47	01/22/20 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*78*		*44 - 121*	*01/22/20 13:47*	*01/22/20 15:45*	*1*
2-Fluorobiphenyl (Surr)	*77*		*44 - 120*	*01/22/20 13:47*	*01/22/20 15:45*	*1*
p-Terphenyl-d14	*75*		*51 - 121*	*01/22/20 13:47*	*01/22/20 15:45*	*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		ug/L		01/28/20 11:59	01/28/20 18:18	1
PCB-1221	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:18	1
PCB-1232	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:18	1
PCB-1242	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:18	1
PCB-1248	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:18	1
PCB-1254	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:18	1
PCB-1260	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:18	1
PCB-1268	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:18	1
PCB-1262	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*68*		*20 - 120*	*01/28/20 11:59*	*01/28/20 18:18*	*1*
DCB Decachlorobiphenyl (Surr)	*72*		*32 - 123*	*01/28/20 11:59*	*01/28/20 18:18*	*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		0.25	0.11	mg/L		01/22/20 12:48	01/22/20 14:51	1
Residual Range Organics (RRO) (C25-C36)	ND		0.41	0.12	mg/L		01/22/20 12:48	01/22/20 14:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*01/22/20 12:48*	*01/22/20 14:51*	*1*
n-Triacontane-d62	*89*		*50 - 150*	*01/22/20 12:48*	*01/22/20 14:51*	*1*

Client: GeoEngineers Inc
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

Client Sample ID: MW-2:01162020
Lab Sample ID: 590-12595-2
Date Collected: 01/16/20 14:40
Matrix: Water
Date Received: 01/17/20 08:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
2-Methylnaphthalene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
1-Methylnaphthalene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Acenaphthylene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Acenaphthene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Fluorene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Phenanthrene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Anthracene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Fluoranthene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Pyrene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Benzo[a]anthracene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Chrysene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Benzo[b]fluoranthene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Benzo[k]fluoranthene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Benzo[a]pyrene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Indeno[1,2,3-cd]pyrene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Dibenz(a,h)anthracene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1
Benzo[g,h,i]perylene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*74*		*44 - 121*	*01/22/20 13:47*	*01/22/20 16:08*	*1*
2-Fluorobiphenyl (Surr)	*72*		*44 - 120*	*01/22/20 13:47*	*01/22/20 16:08*	*1*
p-Terphenyl-d14	*77*		*51 - 121*	*01/22/20 13:47*	*01/22/20 16:08*	*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		ug/L		01/28/20 11:59	01/28/20 18:39	1
PCB-1221	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:39	1
PCB-1232	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:39	1
PCB-1242	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:39	1
PCB-1248	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:39	1
PCB-1254	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:39	1
PCB-1260	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:39	1
PCB-1268	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:39	1
PCB-1262	ND		0.097		ug/L		01/28/20 11:59	01/28/20 18:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*75*		*20 - 120*	*01/28/20 11:59*	*01/28/20 18:39*	*1*
DCB Decachlorobiphenyl (Surr)	*78*		*32 - 123*	*01/28/20 11:59*	*01/28/20 18:39*	*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		01/22/20 12:48	01/22/20 15:14	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40	0.12	mg/L		01/22/20 12:48	01/22/20 15:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*01/22/20 12:48*	*01/22/20 15:14*	*1*
n-Triacontane-d62	*91*		*50 - 150*	*01/22/20 12:48*	*01/22/20 15:14*	*1*

Client: GeoEngineers Inc
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

Client Sample ID: MW-3:01162020
Lab Sample ID: 590-12595-3
Date Collected: 01/16/20 12:58
Matrix: Water
Date Received: 01/17/20 08:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
2-Methylnaphthalene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
1-Methylnaphthalene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Acenaphthylene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Acenaphthene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Fluorene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Phenanthrene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Anthracene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Fluoranthene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Pyrene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Benzo[a]anthracene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Chrysene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Benzo[b]fluoranthene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Benzo[k]fluoranthene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Benzo[a]pyrene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Indeno[1,2,3-cd]pyrene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Dibenz(a,h)anthracene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1
Benzo[g,h,i]perylene	ND		0.086		ug/L		01/22/20 13:47	01/22/20 16:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*78*		*44 - 121*	*01/22/20 13:47*	*01/22/20 16:31*	*1*
2-Fluorobiphenyl (Surr)	*73*		*44 - 120*	*01/22/20 13:47*	*01/22/20 16:31*	*1*
p-Terphenyl-d14	*76*		*51 - 121*	*01/22/20 13:47*	*01/22/20 16:31*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.095		ug/L		01/28/20 11:59	01/28/20 19:00	1
PCB-1221	ND		0.095		ug/L		01/28/20 11:59	01/28/20 19:00	1
PCB-1232	ND		0.095		ug/L		01/28/20 11:59	01/28/20 19:00	1
PCB-1242	ND		0.095		ug/L		01/28/20 11:59	01/28/20 19:00	1
PCB-1248	ND		0.095		ug/L		01/28/20 11:59	01/28/20 19:00	1
PCB-1254	ND		0.095		ug/L		01/28/20 11:59	01/28/20 19:00	1
PCB-1260	ND		0.095		ug/L		01/28/20 11:59	01/28/20 19:00	1
PCB-1268	ND		0.095		ug/L		01/28/20 11:59	01/28/20 19:00	1
PCB-1262	ND		0.095		ug/L		01/28/20 11:59	01/28/20 19:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*66*		*20 - 120*	*01/28/20 11:59*	*01/28/20 19:00*	*1*
DCB Decachlorobiphenyl (Surr)	*75*		*32 - 123*	*01/28/20 11:59*	*01/28/20 19:00*	*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	0.11	mg/L		01/22/20 12:48	01/22/20 15:37	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39	0.12	mg/L		01/22/20 12:48	01/22/20 15:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*82*		*50 - 150*	*01/22/20 12:48*	*01/22/20 15:37*	*1*
n-Triacontane-d62	*89*		*50 - 150*	*01/22/20 12:48*	*01/22/20 15:37*	*1*

Client: GeoEngineers Inc
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

Client Sample ID: MW-4:01162020
Lab Sample ID: 590-12595-4
Date Collected: 01/16/20 13:45
Matrix: Water
Date Received: 01/17/20 08:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
2-Methylnaphthalene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
1-Methylnaphthalene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Acenaphthylene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Acenaphthene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Fluorene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Phenanthrene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Anthracene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Fluoranthene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Pyrene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Benzo[a]anthracene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Chrysene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Benzo[b]fluoranthene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Benzo[k]fluoranthene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Benzo[a]pyrene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Indeno[1,2,3-cd]pyrene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Dibenz(a,h)anthracene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1
Benzo[g,h,i]perylene	ND		0.088		ug/L		01/22/20 13:47	01/22/20 16:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*91*		*44 - 121*	*01/22/20 13:47*	*01/22/20 16:54*	*1*
2-Fluorobiphenyl (Surr)	*82*		*44 - 120*	*01/22/20 13:47*	*01/22/20 16:54*	*1*
p-Terphenyl-d14	*86*		*51 - 121*	*01/22/20 13:47*	*01/22/20 16:54*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:21	1
PCB-1221	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:21	1
PCB-1232	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:21	1
PCB-1242	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:21	1
PCB-1248	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:21	1
PCB-1254	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:21	1
PCB-1260	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:21	1
PCB-1268	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:21	1
PCB-1262	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*72*		*20 - 120*	*01/28/20 11:59*	*01/28/20 19:21*	*1*
DCB Decachlorobiphenyl (Surr)	*82*		*32 - 123*	*01/28/20 11:59*	*01/28/20 19:21*	*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		0.24	0.11	mg/L		01/22/20 12:48	01/22/20 16:00	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40	0.12	mg/L		01/22/20 12:48	01/22/20 16:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*01/22/20 12:48*	*01/22/20 16:00*	*1*
n-Triacontane-d62	*92*		*50 - 150*	*01/22/20 12:48*	*01/22/20 16:00*	*1*

Client: GeoEngineers Inc
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

Client Sample ID: MW-5B:01162020
Lab Sample ID: 590-12595-5
Date Collected: 01/16/20 15:35
Matrix: Water
Date Received: 01/17/20 08:20

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
2-Methylnaphthalene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
1-Methylnaphthalene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Acenaphthylene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Acenaphthene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Fluorene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Phenanthrene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Anthracene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Fluoranthene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Pyrene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Benzo[a]anthracene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Chrysene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Benzo[b]fluoranthene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Benzo[k]fluoranthene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Benzo[a]pyrene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Indeno[1,2,3-cd]pyrene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Dibenz(a,h)anthracene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1
Benzo[g,h,i]perylene	ND		0.089		ug/L		01/22/20 13:47	01/22/20 17:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*74*		*44 - 121*	*01/22/20 13:47*	*01/22/20 17:17*	*1*
2-Fluorobiphenyl (Surr)	*75*		*44 - 120*	*01/22/20 13:47*	*01/22/20 17:17*	*1*
p-Terphenyl-d14	*78*		*51 - 121*	*01/22/20 13:47*	*01/22/20 17:17*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:42	1
PCB-1221	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:42	1
PCB-1232	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:42	1
PCB-1242	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:42	1
PCB-1248	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:42	1
PCB-1254	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:42	1
PCB-1260	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:42	1
PCB-1268	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:42	1
PCB-1262	ND		0.10		ug/L		01/28/20 11:59	01/28/20 19:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*69*		*20 - 120*	*01/28/20 11:59*	*01/28/20 19:42*	*1*
DCB Decachlorobiphenyl (Surr)	*77*		*32 - 123*	*01/28/20 11:59*	*01/28/20 19:42*	*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)	ND		0.24	0.11	mg/L		01/22/20 12:48	01/22/20 16:23	1
Residual Range Organics (RRO) (C25-C36)	ND		0.39	0.12	mg/L		01/22/20 12:48	01/22/20 16:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*80*		*50 - 150*	*01/22/20 12:48*	*01/22/20 16:23*	*1*
n-Triacontane-d62	*88*		*50 - 150*	*01/22/20 12:48*	*01/22/20 16:23*	*1*

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

Lab Sample ID: MB 590-26080/1-A
Matrix: Water
Analysis Batch: 26083

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26080

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
2-Methylnaphthalene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
1-Methylnaphthalene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Acenaphthylene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Acenaphthene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Fluorene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Phenanthrene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Anthracene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Fluoranthene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Pyrene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Benzo[a]anthracene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Chrysene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Benzo[b]fluoranthene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Benzo[k]fluoranthene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Benzo[a]pyrene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Indeno[1,2,3-cd]pyrene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Dibenz(a,h)anthracene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1
Benzo[g,h,i]perylene	ND		0.090		ug/L		01/22/20 13:47	01/22/20 14:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5	*86*		*44 - 121*	*01/22/20 13:47*	*01/22/20 14:36*	*1*
2-Fluorobiphenyl (Surr)	*80*		*44 - 120*	*01/22/20 13:47*	*01/22/20 14:36*	*1*
p-Terphenyl-d14	*87*		*51 - 121*	*01/22/20 13:47*	*01/22/20 14:36*	*1*

Lab Sample ID: LCS 590-26080/2-A
Matrix: Water
Analysis Batch: 26083

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 26080

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	1.60	1.26		ug/L		79	52 - 120
2-Methylnaphthalene	1.60	1.29		ug/L		80	44 - 120
1-Methylnaphthalene	1.60	1.28		ug/L		80	49 - 120
Acenaphthylene	1.60	1.43		ug/L		89	57 - 120
Acenaphthene	1.60	1.39		ug/L		87	54 - 120
Fluorene	1.60	1.47		ug/L		92	59 - 120
Phenanthrene	1.60	1.52		ug/L		95	66 - 120
Anthracene	1.60	1.52		ug/L		95	59 - 120
Fluoranthene	1.60	1.57		ug/L		98	64 - 120
Pyrene	1.60	1.67		ug/L		104	61 - 120
Benzo[a]anthracene	1.60	1.62		ug/L		102	68 - 120
Chrysene	1.60	1.65		ug/L		103	69 - 120
Benzo[b]fluoranthene	1.60	1.72		ug/L		108	63 - 120
Benzo[k]fluoranthene	1.60	1.45		ug/L		91	67 - 120
Benzo[a]pyrene	1.60	1.49		ug/L		93	70 - 120
Indeno[1,2,3-cd]pyrene	1.60	1.53		ug/L		95	66 - 120
Dibenz(a,h)anthracene	1.60	1.49		ug/L		93	65 - 120
Benzo[g,h,i]perylene	1.60	1.51		ug/L		94	65 - 120

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

Lab Sample ID: LCS 590-26080/2-A
Matrix: Water
Analysis Batch: 26083

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 26080

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5	*85*		*44 - 121*
2-Fluorobiphenyl (Surr)	*79*		*44 - 120*
p-Terphenyl-d14	*83*		*51 - 121*

Lab Sample ID: LCSD 590-26080/3-A
Matrix: Water
Analysis Batch: 26083

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 26080

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			1.60	1.26		ug/L		79	52 - 120	0	21
2-Methylnaphthalene			1.60	1.29		ug/L		80	44 - 120	0	27
1-Methylnaphthalene			1.60	1.38		ug/L		86	49 - 120	8	26
Acenaphthylene			1.60	1.46		ug/L		91	57 - 120	2	21
Acenaphthene			1.60	1.40		ug/L		88	54 - 120	1	22
Fluorene			1.60	1.47		ug/L		92	59 - 120	0	18
Phenanthrene			1.60	1.45		ug/L		91	66 - 120	5	16
Anthracene			1.60	1.45		ug/L		91	59 - 120	5	18
Fluoranthene			1.60	1.48		ug/L		93	64 - 120	6	13
Pyrene			1.60	1.61		ug/L		100	61 - 120	4	17
Benzo[a]anthracene			1.60	1.60		ug/L		100	68 - 120	2	12
Chrysene			1.60	1.65		ug/L		103	69 - 120	0	14
Benzo[b]fluoranthene			1.60	1.71		ug/L		107	63 - 120	1	22
Benzo[k]fluoranthene			1.60	1.43		ug/L		90	67 - 120	1	19
Benzo[a]pyrene			1.60	1.48		ug/L		92	70 - 120	1	13
Indeno[1,2,3-cd]pyrene			1.60	1.49		ug/L		93	66 - 120	2	24
Dibenz(a,h)anthracene			1.60	1.47		ug/L		92	65 - 120	1	24
Benzo[g,h,i]perylene			1.60	1.50		ug/L		94	65 - 120	0	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5	*84*		*44 - 121*
2-Fluorobiphenyl (Surr)	*78*		*44 - 120*
p-Terphenyl-d14	*82*		*51 - 121*

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

Lab Sample ID: MB 590-26130/1-A
Matrix: Water
Analysis Batch: 26131

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26130

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	ND		0.10		ug/L		01/28/20 11:58	01/28/20 17:15	1
PCB-1221	ND		0.10		ug/L		01/28/20 11:58	01/28/20 17:15	1
PCB-1232	ND		0.10		ug/L		01/28/20 11:58	01/28/20 17:15	1
PCB-1242	ND		0.10		ug/L		01/28/20 11:58	01/28/20 17:15	1
PCB-1248	ND		0.10		ug/L		01/28/20 11:58	01/28/20 17:15	1
PCB-1254	ND		0.10		ug/L		01/28/20 11:58	01/28/20 17:15	1
PCB-1260	ND		0.10		ug/L		01/28/20 11:58	01/28/20 17:15	1
PCB-1268	ND		0.10		ug/L		01/28/20 11:58	01/28/20 17:15	1

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

Lab Sample ID: MB 590-26130/1-A
Matrix: Water
Analysis Batch: 26131

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26130

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1262	ND		0.10		ug/L		01/28/20 11:58	01/28/20 17:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*59*		*20 - 120*	*01/28/20 11:58*	*01/28/20 17:15*	*1*
DCB Decachlorobiphenyl (Surr)	*89*		*32 - 123*	*01/28/20 11:58*	*01/28/20 17:15*	*1*

Lab Sample ID: LCS 590-26130/2-A
Matrix: Water
Analysis Batch: 26131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 26130

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			1.60	1.42		ug/L		89	51 - 120		
PCB-1260			1.60	1.27		ug/L		80	42 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*64*		*20 - 120*
DCB Decachlorobiphenyl (Surr)	*87*		*32 - 123*

Lab Sample ID: LCSD 590-26130/3-A
Matrix: Water
Analysis Batch: 26131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 26130

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016			1.60	1.59		ug/L		99	51 - 120	11	26
PCB-1260			1.60	1.30		ug/L		81	42 - 120	2	21

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*60*		*20 - 120*
DCB Decachlorobiphenyl (Surr)	*88*		*32 - 123*

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

Lab Sample ID: MB 590-26078/1-A
Matrix: Water
Analysis Batch: 26063

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 26078

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO) (C10-C25)	ND		0.24	0.11	mg/L		01/22/20 12:48	01/22/20 13:41	1
Residual Range Organics (RRO) (C25-C36)	ND		0.40	0.12	mg/L		01/22/20 12:48	01/22/20 13:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*84*		*50 - 150*	*01/22/20 12:48*	*01/22/20 13:41*	*1*
n-Triacontane-d62	*95*		*50 - 150*	*01/22/20 12:48*	*01/22/20 13:41*	*1*

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

Lab Sample ID: LCS 590-26078/2-A
Matrix: Water
Analysis Batch: 26063

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 26078

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics (DRO) (C10-C25)			1.60	1.31		mg/L		82	50 - 150		
Residual Range Organics (RRO) (C25-C36)			1.60	1.64		mg/L		102	50 - 150		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
o-Terphenyl	*94*		*50 - 150*
n-Triacontane-d62	*95*		*50 - 150*

Lab Sample ID: LCSD 590-26078/3-A
Matrix: Water
Analysis Batch: 26063

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 26078

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO) (C10-C25)			1.60	1.32		mg/L		82	50 - 150	0	25
Residual Range Organics (RRO) (C25-C36)			1.60	1.61		mg/L		101	50 - 150	2	25

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
o-Terphenyl	*92*		*50 - 150*
n-Triacontane-d62	*93*		*50 - 150*

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

Client Sample ID: MW-1A:01162020
Lab Sample ID: 590-12595-1
Date Collected: 01/16/20 12:00
Matrix: Water
Date Received: 01/17/20 08:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			264.2 mL	2 mL	26080	01/22/20 13:47	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			26083	01/22/20 15:45	NMI	TAL SPK
Total/NA	Prep	3510C			258.3 mL	2 mL	26130	01/28/20 11:59	AMB	TAL SPK
Total/NA	Analysis	8082A		1			26131	01/28/20 18:18	NMI	TAL SPK
Total/NA	Prep	3510C			242 mL	2 mL	26078	01/22/20 12:48	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			26063	01/22/20 14:51	NMI	TAL SPK

Client Sample ID: MW-2:01162020
Lab Sample ID: 590-12595-2
Date Collected: 01/16/20 14:40
Matrix: Water
Date Received: 01/17/20 08:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			255.8 mL	2 mL	26080	01/22/20 13:47	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			26083	01/22/20 16:08	NMI	TAL SPK
Total/NA	Prep	3510C			258.8 mL	2 mL	26130	01/28/20 11:59	AMB	TAL SPK
Total/NA	Analysis	8082A		1			26131	01/28/20 18:39	NMI	TAL SPK
Total/NA	Prep	3510C			250.9 mL	2 mL	26078	01/22/20 12:48	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			26063	01/22/20 15:14	NMI	TAL SPK

Client Sample ID: MW-3:01162020
Lab Sample ID: 590-12595-3
Date Collected: 01/16/20 12:58
Matrix: Water
Date Received: 01/17/20 08:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			261.1 mL	2 mL	26080	01/22/20 13:47	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			26083	01/22/20 16:31	NMI	TAL SPK
Total/NA	Prep	3510C			263.2 mL	2 mL	26130	01/28/20 11:59	AMB	TAL SPK
Total/NA	Analysis	8082A		1			26131	01/28/20 19:00	NMI	TAL SPK
Total/NA	Prep	3510C			257.1 mL	2 mL	26078	01/22/20 12:48	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			26063	01/22/20 15:37	NMI	TAL SPK

Client Sample ID: MW-4:01162020
Lab Sample ID: 590-12595-4
Date Collected: 01/16/20 13:45
Matrix: Water
Date Received: 01/17/20 08:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			255.5 mL	2 mL	26080	01/22/20 13:47	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			26083	01/22/20 16:54	NMI	TAL SPK
Total/NA	Prep	3510C			247.2 mL	2 mL	26130	01/28/20 11:59	AMB	TAL SPK
Total/NA	Analysis	8082A		1			26131	01/28/20 19:21	NMI	TAL SPK
Total/NA	Prep	3510C			248.9 mL	2 mL	26078	01/22/20 12:48	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			26063	01/22/20 16:00	NMI	TAL SPK

Lab Chronicle

Client: GeoEngineers Inc
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

Client Sample ID: MW-5B:01162020
Lab Sample ID: 590-12595-5

Date Collected: 01/16/20 15:35
Matrix: Water
Date Received: 01/17/20 08:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			253.9 mL	2 mL	26080	01/22/20 13:47	NMI	TAL SPK
Total/NA	Analysis	8270D SIM		1			26083	01/22/20 17:17	NMI	TAL SPK
Total/NA	Prep	3510C			242.6 mL	2 mL	26130	01/28/20 11:59	AMB	TAL SPK
Total/NA	Analysis	8082A		1			26131	01/28/20 19:42	NMI	TAL SPK
Total/NA	Prep	3510C			254.2 mL	2 mL	26078	01/22/20 12:48	NMI	TAL SPK
Total/NA	Analysis	NWTPH-Dx		1			26063	01/22/20 16:23	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
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

Laboratory: Eurofins TestAmerica, Spokane

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C569	01-06-21

Method Summary

Client: GeoEngineers Inc
Job ID: 590-12595-1
Project/Site: Avista-Spokane Service Ctr/2522-079-03

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

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

11922 E. First Ave., Spokane WA 99206-5302 509-924-9200 FAX 924-9290
9405 SW Nimbus Ave., Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #:

CLIENT: Geo Engineers

REPORT TO: Josh Lee
ADDRESS: 523 E 2nd Ave
Spokane WA 99202
PHONE: (406) 239-7810 FAX:

INVOICE TO: Same

P.O. NUMBER: N/A

PROJECT NAME: Avista Spokane Service Ctr/ 2522-079-03
PROJECT NUMBER: 590001557
SAMPLED BY:

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: (10) STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: (5) STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME		PRESERVATIVE	REQUESTED ANALYSES: NWTPH-Dx *1	8082A	8270D PAHs	MATRIX (W, S, O)	# OF CONT.	LOCATION/ COMMENTS	TA WO ID
1	MW-1A:01162020	01-16-2020	1200		X	X	X	W	4		
2	MW-2:01162020	"	1440		X	X	X	W	4		
3	MW-3:01162020	"	1258		X	X	X	W	4		
4	MW-4:01162020	"	1345		X	X	X	W	4		
5	MW-5B:01162020	"	1535		X	X	X	W	4		
6											
7											
8											
9											
10											

590-12595 Chain of Custody

RELEASED BY: Justin Orr — DATE: 01/16/2020 — TIME: 1715 — RECEIVED BY: Bryce Hanson — FIRM: GEI — DATE: 1/16/20 — TIME: 1715

RELEASED BY: Bryce Hanson — FIRM: GEI — DATE: 1/17/20 — TIME: 0820 — RECEIVED BY: Sheila Knott — FIRM: TA SPK — DATE: 1/17/20 — TIME: 820

ADDITIONAL REMARKS: 1. DRO+RRO report to MDL
2. Standard list PCBs

TEMP: -0.5 PAGE OF

TAL-1000 (0714)

Login Sample Receipt Checklist

Client: GeoEngineers Inc

Job Number: 590-12595-1

Login Number: 12595
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.	True	
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?	N/A	Not present
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
Spokane Environmental Solutions Documentation

INVOICE

PLEASE REMIT CHECK PAYMENT TO:
Spokane Environmental Solutions, LLC
PO BOX 540
Colbert, WA 99005

Spokane Environmental Solutions, LLC
First Interstate Bank
ABA# 092901683
A/C# 41010422

Spokane Environmental Solutions, LLC
3810 East Boone Avenue, Suite 101
Spokane, Washington 99202
Phone (509) 688-5376

Invoice Date: January 16, 2020

Invoice #: **0100-023-01**
SES Job #: 0100-023
Customer PO #: 2522--079-03

Customer: GeoEngineers, Inc.
523 East Second Avenue
Spokane, WA 99202

Contact: Joshua M Lee
Phone: (509) 363-3125
Fax: (509) 353-3126
Terms: **PER MSA**

Job Description: Avista Service Center Garage Liner Excavation for Repairs

Job Location: 1411 East Mission Avenue, Spokane, WA

Job Date (s): 12/30/09 - 01-15-19

QUANTITY	DESCRIPTION	UOM	UNIT PRICE	EXTENDED PRICE
1	**Labor & Equipment**	Lot	$ 8,990.00	$ 8,990.00
1	**Equipment**	Lot	$ -	$ -
1	**Materials**	Lot	$ 435.00	$ 435.00
1	**Outside Services**	Lot	$ 8,316.00	$ 8,316.00
				$ 17,741.00
			SALES TAX 8.9%	$1,578.95
			TOTAL INVOICE	**$19,319.95**

Currency: USD

THANK YOU FOR YOUR BUSINESS

Jeff Heeter

Phone **(509) 688-5376**

FED ID #: 82-1501120
WA CCB #SPOKAES832LR
ID CCB #RCE-46695

A 1.5% per month finance charge will be assessed for all past due invoices.

JOB NUMBER:	0100-023	JOB TYPE:	Services	DATES;	Jan 1 - Jan 15	CUSTOMER:	GeoEngineers, Inc.	PROJECT MANAGER:	Jeff Heeter

LABOR CHARGES

Name	Position	Hourly Rates			12/30/19			01/02/20			01/06/20			01/07/20			01/08/20			01/09/20			01/15/20			Subtotal Hours			Weekly Total
		Rate 1	Rate 2	Rate 3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	Rate 1	Rate 2	Rate 3	
Heeter, Jeffrey M	PM	$110.00	$110.00	$110.00	1.0			2.0			8.0			8.0			8.0			8.0						35.0	0.0	0.0	$3,850.00
Ishihara, Flavio	SU	$90.00	$90.00	$90.00							8.5			4.0			8.0			9.0						29.5	0.0	0.0	$2,655.00
Smith, Chris	SU	$90.00	$90.00	$90.00							8.5			8.0			5.0			5.0						26.5	0.0	0.0	$2,385.00
Holm. Suzanne	AS	$50.00	$75.00	$100.00																			2.0			2.0	0.0	0.0	$100.00
		$0.00	$0.00	$0.00																						0.0	0.0	0.0	$0.00
Per diem per person - Food		$50.00																									0.0		$0.00
Per diem per person - Lodging		$100.00																									0.0		$0.00

Weekly Total Labor Charges: $8,990.00

EQUIPMENT CHARGES

Equipment Description	Billing Code	Comment	Rate	Unit	12/30/19 Quantity	01/02/20 Quantity	01/06/20 Quantity	01/07/20 Quantity	01/08/20 Quantity	01/09/20 Quantity	01/15/20 Quantity	Subtotal Quantity	Weekly Total
0			$0.00	0								0	$0.00
0			$0.00	0								0	$0.00
0			$0.00	0								0	$0.00

Weekly Total Equipment Charges: $0.00

MATERIAL CHARGES

Material Description	Billing Code	Comment	Rate	Unit	12/30/19 Quantity	01/02/20 Quantity	01/06/20 Quantity	01/07/20 Quantity	01/08/20 Quantity	01/09/20 Quantity	01/15/20 Quantity	Subtotal Quantity	Weekly Total
Protective Gear, Level D Change	m431		$20.00	Each			3					3	$60.00
Construction Fencing (Visible liner) 4' x 100'	m105		$75.00	Roll						5		5	$375.00
0			$0.00	0								0	$0.00

Weekly Total Material Charges: $435.00

OUTSIDE SERVICES - Cost Plus 20%

Service Description	Vendor Name	12/30/19 Cost	01/02/20 Cost	01/06/20 Cost	01/07/20 Cost	01/08/20 Cost	01/09/20 Cost	01/15/20 Cost	Subtotal Cost	20%	Weekly Total
Sand & Delivery	CAD of Spokane						$1,975.82		$1,975.82	395.16	$2,370.98
subcontracted vac truck	Big Sky Industrial						$1,131.25		$1,131.25	226.25	$1,357.50
excavator and skidsteer rental, pickup and delivery	Western States Cat						$3,296.40		$3,296.40	659.28	$3,955.68
Roller rental, pickup and delivery	Western States Cat						$526.53		$526.53	105.31	$631.84

Weekly Total Outside Services: $8,316.00

TRANSPORTATION & DISPOSAL - Per Bid

Service Description	Vendor Name	12/30/19 Bid	01/02/20 Bid	01/06/20 Bid	01/07/20 Bid	01/08/20 Bid	01/09/20 Bid	01/15/20 Bid	Weekly Total
									$0.00
									$0.00
									$0.00

Weekly Total Transportation & Disposal Charges: $0.00

Weekly Total Charges: $17,741.00

Project Manager's Approval: _____

WWSS ASSOCIATES, INC
BIG SKY INDUSTRIAL
9711 W EUCLID ROAD
SPOKANE, WA 99224
509-624-4949

Invoice Number: 200104
PO number: JEFF
Terms: Net 30

Invoice Date: 1/7/2020
Due Date: 2/6/2020

Customer ID: 1592

Bill To:
SPOKANE ENVIRONMENTAL SOLUTIONS, LLC
SUZANNE@SPOKANEENVIRONMENTAL.COM
SPOKANE, WA 99202

Ship To:
SPOKANE ENVIRONMENTAL SOLUTIONS, LLC
3810 EAST BOONE AVE, SUITE 101
SPOKANE, WA 99202

Item ID	Description	Qty	UOM	Price	Amount
SEWER JET	VACUUM AVISTA LINER	4	hour	115.00	460.00
SUPPORT EQUIPMENT		1	lot	100.00	100.00
LABOR		7.5	hour	37.50	281.25
MATERIALS		1	lot	290.00	290.00

Total	**1,131.25**
Payments	**0.00**
Balance due	**1,131.25**

Big Sky Industrial

SERVICE REPORT

BILLING INFORMATION
9711 W Euclid
Spokane, WA
99224
509-624-4949
509-624-0099 Fax
bigsky@bigsky.pro

NAME: Spokane Environment

DATE: 1-7-2020

%:

P.O. # Jeff

STREET

DEPT.#

CITY STATE ZIP

SEQUENCE # 1350 96

JOB DESCRIPTION: Vac off Aviata Linner

MOBILIZATION		AMOUNT
	MOVE IN	
	EQUIPMENT START ___ AM/PM	
	EQUIPMENT FINISH ___ AM/PM	-
	___ HRS/MILEAGE@ ___	
-	HRS/MILEAGE@ -	-
	MOVE OUT	
	EQUIPMENT START ___ AM/PM	
	EQUIPMENT FINISH ___ AM/PM	-
	___ HRS/MILEAGE@ ___	
-	HRS/MILEAGE@ -	-

EQUIPMENT		AMOUNT
	#8800	
	EQUIPMENT START 1030	
	EQUIPMENT FINISH 1430	
4.00	HRS/@ 115.00	460.00
	#8900	
	EQUIPMENT START 10.30	
	EQUIPMENT FINISH 1400	
1.00	HRS/@ 100.00	100.00
-	HRS/@ -	-
	HRS/@	
	EQUIPMENT START	
	EQUIPMENT FINISH	
-	HRS/@ -	-

PER DIEM		AMOUNT
	MEN/@ -	-

OTHER		AMOUNT
	100' 6" ADS @ 2.50	250.00
	2yd Easy Bee @ 20.00	40.00
	@ -	-
	@ -	-
	@ -	-
	@ -	-
	@ -	-
	@ -	-
	@ -	-
	@ -	-
	@ -	-
	SUB TOTAL	290.00

LABOR	CREW	HOURS	REG	OT
	Gabe	1030-1400	3.50	-
	Richard	1030-1430	4.00	-
			-	-
			-	-
			-	-
			-	-
			-	-
			-	-
			-	-
			-	-
7.50	REG/HRS@	37.50		281.25
-	OT/HRS@	-		-
-	REG/HRS@	-		-
-	OT/HRS@	-		-
	TOTAL ➡			1,131.25

LEAD MAN SIGNATURE R Thomas

CUSTOMER SIGNATURE

ESTIMATE

The undersigned, hereinafter referred to as Customer, agrees to pay for the specified services, & in the event payment is enforced, BSI shall be entitled to all collection costs & attorney fees.

Check In: Date Time Signature

Check Out: Date Time Signature

CAD of Spokane, Inc.

P.O. Box 550
Newman Lake, WA 99025

Invoice

DATE	INVOICE NO.
1/10/2020	37683

BILL TO
Spokane Environmental Solutions 3810 E Boone, Ste101 Spokane, WA 99202

P.O. NO.	TERMS	DUE DATE	Job
	Net 15th	2/15/2020	

ITEM	DESCRIPTION	QTY	RATE	SERVICED	AMOUNT
Hours-CAD	Avista Main Office	3.5	120.00	1/8/2020	420.00T
Fine Sand - 1	Sand in tons	30.26	17.00		514.42T
Temp Fuel Surcharge Pe...	Temp fuel surcharge per load	2	12.00		24.00T
Hours-CAD	Avista Main Office	3	120.00	1/9/2020	360.00T
Fine Sand - 1	Sand in tons	27.76	17.00		471.92T
Temp Fuel Surcharge Pe...	Temp fuel surcharge per load	2	12.00		24.00T

JOB # 0100-023
EQUIP #
ACCT CODE Sub
APPROVED _____ DATE _____
ENTERED _____ DATE _____

Thank you for choosing CAD of Spokane!

Subtotal	$1,814.34
Sales Tax (8.9%)	$161.48
Total	$1,975.82

A Late Charge of 1 1/2% per month, which is an ANNUAL PERCENTAGE RATE of 18% or $2.00 whichever is greater, will be chargeed on all PAST DUE ACCOUNTS. If you or your company is referred to collections, you or your company will be liable for ANY and ALL colection cost, and ANY and ALL court and attorney fees.

Phone #	Fax #	E-mail
509-924-8868	509-924-1021	cadofspokaneinc@ptera.net

Western States CAT THE Rental STORE

Spokane
4625 E Trent Ave Spokane, WA 99212
509.536.1520

INVOICE

NO.: IN001197463
AGREEMENT NO: RC000120230

INVOICE AMOUNT: $526.53
INVOICE DATE: 1/14/2020
INVOICE DUE DATE: 2/13/2020
CUSTOMER: 0015184
CUSTOMER PO:
CONTRACT START: 1/9/2020
START DATE: 1/9/2020
END DATE: 1/10/2020

Spokane Environmental Solutions, LLC
3810 E Boone Ave
Suite #101
Spokane, WA 99202-4561

JOBSITE:
1411 E MISSION AVISTA CORP OFFICE
1411 E Mission Ave
Spokane, WA 99252-2600

JOBSITE CONTACT:

PHONE: 509-279-5559
ORDERED BY: Jeff Heeter
WRITTEN BY: David M Creamer

QTY	DESCRIPTION	AMOUNT
1	ID NO: E0036197 SERIAL NO: M4C00230 Hours out: 2142.9 Hours in: 2145.2 CS44 Vibratory Single Drum Smooth	$350.00

MISCELLANEOUS ITEMS		AMOUNT
1	Environmental Fee	$3.50
1	CRS Truck Delivery	$65.00
1	CRS Truck Pickup	$65.00

SALES TAX:	**$43.03**
INVOICE AMOUNT:	**$526.53**

PLEASE REMIT PAYMENT TO:

WESTERN STATES EQUIPMENT CO.
PO BOX 3805
Seattle, WA 98124-3805

Western States CAT THE Rental STORE

Spokane
4625 E Trent Ave Spokane, WA 99212
509.536.1520

INVOICE

NO.: IN001197558
AGREEMENT NO: RC000119916

INVOICE AMOUNT: $3,296.40
INVOICE DATE: 1/14/2020
INVOICE DUE DATE: 2/13/2020
CUSTOMER: 0015184
CUSTOMER PO:
CONTRACT START: 1/6/2020
START DATE: 1/6/2020
END DATE: 1/10/2020

Spokane Environmental Solutions, LLC
3810 E Boone Ave
Suite #101
Spokane, WA 99202-4561

JOBSITE:
1411 E MISSION AVISTA CORP OFFICE
1411 E Mission Ave
Spokane, WA 99252-2600

JOBSITE CONTACT:

PHONE: 509-279-5559
ORDERED BY: Jeff Heeter
WRITTEN BY: David M Creamer

QTY	DESCRIPTION	AMOUNT
1	ID NO: E0047822 SERIAL NO: FTL23299 Hours out: 410.1 Hours in: 423.5 259D Multi Terrain Loader	$1,100.00
1	ID NO: E0032214 SERIAL NO: A4181BK20041 72" GP BKT .57CYD SSL	$0.00
1	ID NO: E0029061 SERIAL NO: KC900869 Hours out: 1326 Hours in: 1335 307E2 Track Excavator	$1,600.00
1	ID NO: E0026023 SERIAL NO: B0677020 47" GD BKT .34YD3 304-306	$0.00
1	ID NO: E0049763 SERIAL NO: A418BBK22497 36" HD BKT .51CYD 307-308 D/E	$0.00

MISCELLANEOUS ITEMS		AMOUNT
21	Diesel Per Gallon	$105.00
2	Environmental Fee	$27.00
1	CRS Truck Delivery	$65.00
1	CRS Truck Pickup	$65.00
13	Diesel Per Gallon	$65.00

SALES TAX: **$269.40**
INVOICE AMOUNT: **$3,296.40**

PLEASE REMIT PAYMENT TO:

WESTERN STATES EQUIPMENT CO.
PO BOX 3805
Seattle, WA 98124-3805

APPENDIX E
Report Limitations and Guidelines for Use

APPENDIX E
REPORT LIMITATIONS AND GUIDELINES FOR USE[1]

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 liner repair and groundwater monitoring report for the Avista – Service Center Garage site in Spokane, Washington in general accordance with the proposal dated December 17, 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.

GeoEngineers