2022

Farrallon Consulting Internship

Faith Morse
Western Washington University

COLLEGE OF THE ENVIRONMENT

WESTERN WASHINGTON UNIVERSITY
MAKE WAVES.

Internship Title: Farallon Summer Internship 2022

Student Name: Faith Morse

Internship Dates: June 20th - August 26th 2022

STUDENT SIGNATURE 

DATE: 9/13/2022

FARALLON INTERNSHIP REPORT

The Toxicology program and SMOCS courses at Western introduced me to environmental consulting. Environmental consulting at its core addresses environmental issues to restrict and or reduce environmental impact. To further enhance my education and obtain real-world experience, it was my goal to find an environmental consulting internship this summer. As a result, I was fortunate to spend ten weeks working for Farallon Consulting.

Farallon

Farallon Consulting is an environmental consulting firm founded in 1998. It is a company that values culture, growth, and their Farallon way. With locations in Washington, Oregon, and California, they predominately work on small - to large-scale remedial investigations and cleanups. The Issaquah Washington office which I worked out of focuses primarily on projects in the Puget Sound and Central Washington areas. Their work includes the use of a variety of site investigation and cleanup technologies. Farallon has a mission to make a long-lasting difference for both its clients and the environment. They embrace their "Farallon way" through the quality of work performed and the style in which it is executed.

The Internship

I was hired to work as Farallon's 2022 summer environmental intern. Over the ten weeks, I gained valuable insight into the environmental consulting world and was able to apply my academic understanding of the science in the field. Most of my time at Farallon was spent working with field staff. – Geologists, Environmental Scientists, and Engineers. Before site visits, I was able to review project documents to understand the nature of the site and its known or potential contamination. In the field, my role as an intern was to assist the field staff throughout their site visit.

In some fields, like environmental consulting billable hours are tracked. These are hours that Farallon would directly bill to the client instead of taking on as a company cost. Based on the ratio of billable hours to overhead costs, a utilization rate can be calculated. At Farallon, most seasoned field staff are expected to have a utilization rate of eighty-five percent. Luckily for field staff, most hours in the field are billable. As an intern, it was expected that I have a utilization rate of zero, in other words, work zero billable hours. I took it as my challenge to have a utilization rate above zero in my time there.

Learning Objectives

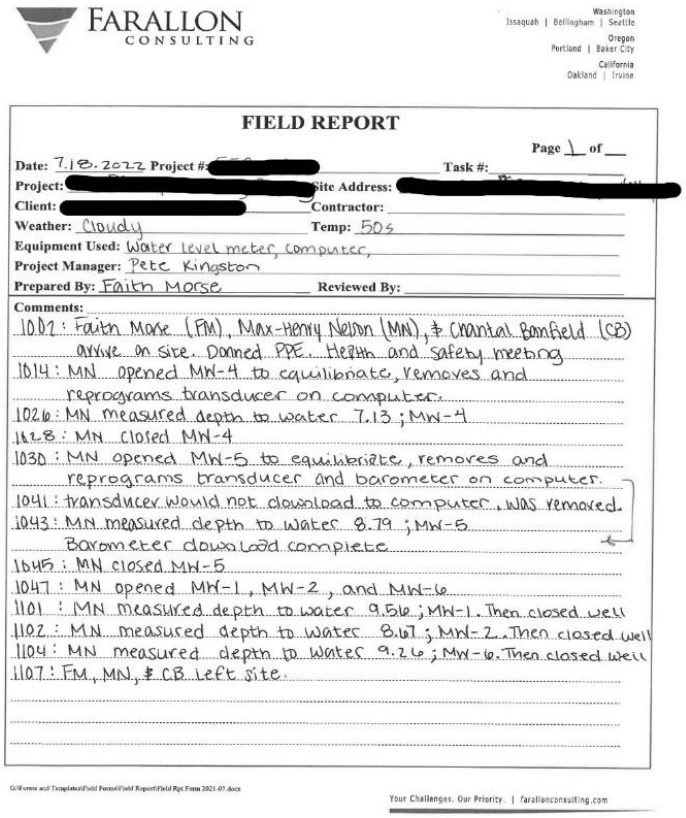
The main objective of this internship was to provide exposure to many facets of the environmental consulting business. Including but not limited to…

- Stormwater management and sampling as well as litigation support projects.
- OSHA HAZWOPER training, medical surveillance, health and safety training, in-house training for quality standards in fieldwork procedures, and site investigation cleanup projects.
- To obtain an understanding of Washington State cleanup regulations and other pertinent state and federal regulations.
- Learn field data collection procedures.
- Assist in conducting historic and regulatory research, data management support, compilation, and interpretation.

Activities

<u>Field Report</u>

During each site visit, field staff are required to log field activity on an official Farallon Field Report document. The first thing field staff do besides donning PPE when on site is begin the field report. This is critical to ensure that all parties are informed of on-site activities as well as to protect Farallon and the client during any potential legal proceedings. These forms are also used for reference by field staff visiting the site to understand what has happened in the past and what to expect. For example, field reports are great to reference when well sampling to understand the characteristics of each well and possible problems.



FARALLON CONSULTING

Washington
Issaquah | Bellingham | Seattle
Oregon
Portland | Baker City
California
Oakland | Irvine

FIELD REPORT

Page 1 of __

Date: 7.18.2022 Project #: [redacted] Task #:

Project: [redacted] Site Address: [redacted]

Client: [redacted] Contractor:

Weather: Cloudy Temp: 50s

Equipment Used: Water level meter, computer,

Project Manager: Pete Kingston

Prepared By: Faith Morse Reviewed By:

Comments:

1002 : Faith Morse (FM), Max-Henry Nelson (MN), & Crantal Bonfield (CB) arrive on site. Donned PPE. Health and safety meeting

1014 : MN opened MW-4 to equilibrate, removes and reprograms transducer on computer.

1026 : MN measured depth to water 7.13 ; MW-4

1028 : MN closed MW-4

1030 : MN opened MW-5 to equilibriate, removes and reprograms transducer and barometer on computer.

1041 : transducer would not download to computer, was removed.

1043 : MN measured depth to water 8.79 ; MW-5

Barometer download complete

1045 : MN closed MW-5

1047 : MN opened MW-1, MW-2, and MW-6

1101 : MN measured depth to water 9.56 ; MW-1. Then closed well

1102 : MN measured depth to water 8.67 ; MW-2. Then closed well

1104 : MN measured depth to water 9.26 ; MW-6. Then closed well

1107 : FM, MN, & CB left site.

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This is an example of one of the Field Reports I completed during a site visit. This form was sent to the project manager and saved in the project folder for future reference.

Groundwater Sampling

Groundwater sampling is very common at Farallon and in turn something that I was able to experience frequently. Farallon commonly practices two types of groundwater sampling, this is with a peristaltic pump or a bladder pump. Both types of pumps are positive displacement pumps which are placed below the water table inside a monitoring well. Though both pumps function differently, each successfully draws water from the well for sampling. At each site, the chemicals sampled for vary.

The YSI is a piece of equipment that is used alongside each of the pumps. It is a water quality monitoring meter. When used, water passes through the YSI cell before discarding into a bucket. As the water passes through the cell, the YSI continually monitors for temperature, pH, specific conductance, oxidation-reduction potential, and dissolved oxygen. Every three minutes starting when water begins discharging, these parameters are recorded on one of Farallon's formal groundwater sampling documents until the readings show that the well has stabilized.

The peristaltic pump works via a rotary motion. This motion draws water from the well by peristalsis, hence the name. Peristaltic pumps are typically used for collecting water samples twenty-five feet BGS and above. The bladder pump works using hydrostatic pressure to draw water from the well. Bladder pumps can be used in significantly deeper wells but require a more complicated setup.

GWS Example

Many of the groundwater sampling locations I found myself at were dry cleaning sites. There, contaminates such as perchloroethylene (PCE) and trichloroethylene (TCE) are frequently tested for due to the known toxicity of chemicals used in dry cleaning activities. In one particular case, monitoring wells could be found within the dry-cleaning building and in the surrounding parking lot. Wells were present throughout the parking lot to determine how the contamination may be spreading. Samples are taken by field staff and sent to the lab for processing. The results are then received by Farallon, and further action needed for the project is determined.

Drilling

Three common types of drilling are performed at Farallon. These are sonic, direct push, and hollow stem auger all of which I was able to observe during this internship. During drilling projects, it is required that field staff complete a log of boring. A log of boring is used to record the lithology of the soil, the sample intervals, and other specific details pertaining to the drilling technique. Frequently, used along with the log of boring is the ASTM soil classification system – used when determining soil classification.

Below is an example of the ASTM system and a simple log of boring I completed during a site visit. The log of boring is then turned digitized via logplot.

UNIFIED SOIL CLASSIFICATION SYSTEM - ASTM D2488

MAJOR DIVISION			GROUP SYMBOL	LETTER SYMBOL	GROUP NAME
COARSE GRAINED SOILS CONTAINS MORE THAN 50% FINES	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVEL WITH < 5% FINES		GW	Well-graded GRAVEL
				GP	Poorly graded GRAVEL
		GRAVEL WITH BETWEEN 5% AND 15% FINES		GW-GM	Well-graded GRAVEL with silt
				GW-GC	Well-graded GRAVEL with clay
				GP-GM	Poorly graded GRAVEL with silt
				GP-GC	Poorly graded GRAVEL with clay
		GRAVEL WITH ≥ 15% FINES		GM	Silty GRAVEL
				GC	Clayey GRAVEL
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	SAND WITH < 5% FINES		SW	Well-graded SAND
				SP	Poorly graded SAND
		SAND WITH BETWEEN 5% AND 15% FINES		SW-SM	Well-graded SAND with silt
				SW-SC	Well-graded SAND with clay
				SP-SM	Poorly graded SAND with silt
				SP-SC	Poorly graded SAND with clay
		SAND WITH ≥ 15% FINES		SM	Silty SAND
				SC	Clayey SAND
FINE GRAINED SOILS CONTAINS MORE THAN 50% FINES	SILT AND CLAY	LIQUID LIMIT LESS THAN 50		ML	Inorganic SILT with low plasticity
				CL	Lean inorganic CLAY with low plasticity
				OL	Organic SILT with low plasticity
		LIQUID LIMIT GREATER THAN 50		MH	Elastic inorganic SILT with moderate to high plasticity
				CH	Fat inorganic CLAY with moderate to high plasticity
				OH	Organic SILT or CLAY with moderate to high plasticity
HIGHLY ORGANIC SOILS				PT	PEAT soils with high organic contents

NOTES:

1) Sample descriptions are based on visual field and laboratory observations using classification methods of ASTM D2488. Where laboratory data are available, classifications are in accordance with ASTM D2487.
2) Solid lines between soil descriptions indicate change in interpreted geologic unit. Dashed lines indicate stratigraphic change within the unit.
3) Fines are material passing the U.S. Std. #200 Sieve.

FARALLON CONSULTING

Log of Boring: FMW-03 Page 1 of 2

Client:
Project: [redacted]
Location: Redmond Overlake
Farallon PN:
Logged By:

Date/Time Started: 7/28/22
Date/Time Completed:
Equipment:
Drilling Company:
Drilling Foreman:
Drilling Method:
Sampler Type:
Drive Hammer (lbs.):
Depth of Water ATD (feet bgs): 15.0
Total Boring Depth (feet bgs):
Total Well Depth (feet bgs):

Depth (feet bgs)	Sample Interval	Lithologic Description	USCS	USGS Graphic	% Recovery	Blow Counts 6"/6"/6"	PID (ppm*)	Sample ID	Sample Analyzed	Boring/Well Construction Details
0		Removed to 5ft bgs for utilities clearing								
5		Grey-Brown, organic, dry Silty Sand (80% sand, 20% silt)	SM		90			FMW-03-5.0 @ 1420		
10		Grey-some brown, dry Silty Sand (80% Sand, 20% Silt)	SM		100	6 10 18		FMW-03-10.0 @ 1420		
15		@ moist, brown Poorly Graded SAND with Silt some gravel (85% Sand, 10% Gravel, 5% silt)	SP SM		100	6 14 18		FMW-03-15.0 @ 1425		
20										

Well Construction Information

Monument Type:
Casing Diameter (inches):
Screen Slot Size (inches):
Screened Interval (ft bgs):
Filter Pack:
Surface Seal:
Annular Seal:
Ground Surface Elevation (ft):
Top of Casing Elevation (ft):
Boring Abandonment:
Surveyed Location: X: Y:

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with any of the three techniques, it is Farallon's standard to remove the first five feet of soil using a vac truck to ensure that possible water lines or electrical cables are not disrupted. If they are encountered the well or boring is moved to the nearest possible position. During some projects, the location of the well may have exact coordinates. More frequently, the general location is noted, and at the discretion of the field staff, the location is finalized.

Direct Push (DP) is the style of drilling I had the most time with during this internship. Direct push is an efficient drilling method in Washington because much of the subsurface is compatible with the drilling technique. To develop a standard well or boring, a piece of tubing two inches in diameter is placed inside the DP machine and used to collect samples at five-foot intervals. Just as it sounds, a track-mounted DP machine uses force to push directly into the ground. This produces a limited amount of waste while still providing enough soil for sampling.

Though there are standard procedures when drilling, each project goes differently. Sometimes, the drills break down and you're left at a standstill. Drilling projects require speed, accuracy, and sometimes patience. I worked on projects that went smoothly and finished on time but also experienced dysfunctional drills and vac trucks. Though not operating the equipment, it is the responsibility of field staff to ensure that the drilling occurs in the right spot and that the correct steps are taken.

DP Example

I visited a site that was at one point and landfill and then a gas station. It is extremely fascinating to visit an unassuming site with such a strong history of contamination. At this site, we were testing for the presence of petroleum products. Some sample cores brought to us had a strong petroleum like odor you had to be cautious of, five feet above, there was no indication of the presence of petroleum. It was one of my favorite sites to visit because of the easily observed difference in possible contamination throughout the site.

Below is a photo I took of a core taken via DP at approximately fifteen feet.

Overall

Overall, I enjoyed spending time at Farallon this summer. Having the ability to observe different projects, types of sampling and remediation techniques allowed me to learn more about environmental consulting. Real-world application to my studies is extremely important to me and I am very glad to have succeeded in achieving that this summer.

In SMOCS one and two I learned the basics of Washington state regulations and proceedings when it comes to environmental regulations. Having access to Farallon's documentation was a great way to connect my experiences in class to my experience at Farallon.

Activity Sheet

In my intern activity sheet, you can see that I received 23 billable hours and had a utilization rate of 8%. Given that the expectation was zero, I am happy to have received those hours. Throughout the internship, in detail, I tracked the equipment I was using, the skills learned, and details regarding each site. See below.

Activity Sheet
Faith Morse, Intern
Farallon Consulting - Summer 2022

Date	Location	Project	Hours		Type of Activity	Equipment Used	Skills Learned/Used	Worked with	Notes/Comments
			Daily Total	Billable					
Example									
Wednesday, 3/31/16	*Bremerton*	*1245-004*	*13.1*	*3.0*	*Sonic Drilling*	*Sonic Drill Rig, Soil Sampling, PID*	*Soil sampling from sonic rig bags, rock identification, working in the rain*	*Ryan*	***Field:*** *On site in Bremerton at 7:30 am, former quarry right next to a former landfill. Trying to determine if landfill contamination has seeped onto quarry site. Goal is to drill a number of borings and also install 4 monitoring wells to help characterize the land for sale. Had a lot of trouble with drilling - very little soil, hit rock almost immediately, slow going and very hot rock. Difficult to tell what is soil and what is rock flour. Soil samples every 10 feet, and called the drilling early on several holes because we were going through solid rock. Couriered samples from Bremerton to the lab in Redmond.*
Week 1									
6.20.2022	Issaquah	999-930	6.0	0	Orientation	N/A	N/A	Jill, Chantal, Stuart	Orientation meetings
6.21.2022	Issaquah	999-940	3.9	0.0	HAZWOPER	N/A	N/A		HAZWOPER
6.21.2022	Issaquah	999-930	1.9	0.0	Orientation	N/A	N/A	Javan, Melody, Emerald	Various orientation meetings.
6.22.2022	Issaquah	999-940	8.3	0.0	HAZWOPER	N/A	N/A	N/A	HAZWOPER
6.23.2022	Issaquah	999-930	0.6	0.0	Orientation	N/A	N/A	Emerald	Group meeting with Emerald.
6.23.2022	Issaquah	999-940	2.7	0.0	Medical Monitoring	N/A	N/A	N/A	Exam done, no bloodwork taken.
6.23.2022	Issaquah	999-940	4.7	0.0	HAZWOPER	N/A	N/A	N/A	HAZWOPER
6.24.2022	Issaquah	999-940	0.8	0.0	HAZWOPER	N/A	N/A	N/A	HAZWOPER
6.24.2022	Issaquah	999-930	6.5	0.0	Orientation	N/A	N/A	Chantal Banfield	Orientation surveys, Talent Learning. Review of next week's field SOPs and general site information. I joined Chantal at Bellevue College for Phase 1 EPA archive review.
		Weekly Hours:	35.4	0.0					
Week 2									
6.27.2022	Issaquah	999-940	1.5	0.0	Medical Monitoring	N/A	N/A	N/A	blood testing.
6.28.2022	Bellingham	1493-002	12.8	0.0	MW sampling	N/A	peristaltic pump	Greg Peters and Max-Henry Nelson	8 MWs were sampled using a peristaltic pump at site 1493-002 which was previously a dry cleaning facility in a shopping center. At each MW, the water quality parameters monitored and recorded on site were temperature, pH, specific conductance, oxidation-reduction potential, and dissolved oxygen. Samples were collected to monitor the potential presence of PCE, TCE, and HVOCs via laboratory analysis - Remediation via injections had previously occurred on site.
6.29.2022	Kent	1353-068	9.0	0.0	SSI soil sampling	PID, glassware	soil sampling from DP dr	Courtney Van Stolk	On site 1352-068, 16 borings were sampled. 5 of which were further developed into groundwater monitoring wells for future sampling. The borings and wells were developed using direct push drilling which soil samples were taken from and PID measurements were recorded on site. This site once housed a petroleum distribution center and has since removed 10 underground storage tanks in which gasoline, diesel, heating oil, and motor oil were stored. The purpose of the drilling was to sample and analyze for benzene contaminated soil as well as for TPH, ORO,GRO, VOCs, Naphthalene, and Metals.
6.30.2022			8.5	0.0					
7.1.2022			6.1	0.0					
7.1.2022	Issaquah	999-940	2.0	0.0	review	N/A	N/A	N/A	Scope of Work, and picked up/dropped off materials from this week and for next.
		Weekly Hours:	39.9	0.0					
Week 3									

7.5.2022	Silverdale	2669-001 & 1281-002	12.8	0.0	GW Sampling	Peristaltic pump, YSI	ground water sampling technique.	Braeden	Both sites 2669-001 & 1281-002 were previous dry-cleaning/laundry mat locations. Using a YSI, water quality parameters were monitored and recorded on site were temperature, pH, specific conductance, oxidation-reduction potential, and dissolved oxygen. Using a peristaltic pump, samples were taken from monitoring wells for future analysis of PCE. Site 1281-002 was additionally sampled for nitrate, sulfate, dissolved gases methane, ethane, and ethene, ferrous, total iron, and total organic compound.
7.6.2022	Seattle	397-064	8.4	0.0	GW Sampling	bladder pump, YSI	Bladder pumping technique	Courtney Van Stolk	At site 297-064 in Seattle, 12 FMWs were sampled using the bladder pump. YSI, water quality parameters were monitored and recorded on site were temperature, pH, specific conductance, oxidation-reduction potential, and dissolved oxygen. The demolished commercial building previously contained 3 USTs of gasoline. With the bladder pump, samples were taken to be analyzed for TPH as gasoline range organics (GRO), DRO, ORO, and VOCs.
7.7.2022			8.3	0.0					
7.8.2022			6.5	0.0					
7.7.2022	Issaquah	999-930	2.0	0.0	meetings	N/A	N/A	N/A	Attended briefings for next week's projects and had 1 to 1 with Emerald.
7.8.2022	Issaquah	1269-003 & 0397-064	0.7	0.7	sample delivery	N/A	N/A	N/A	sample delivery
7.8.2022	Issaquah	999-900	0.5	0.5	Equip delivery	N/A	N/A	N/A	equipment delivery
		Weekly Hours:	39.2	1.2					
Week 4									
7.11.2022	Redmond	2207-003	4.3	0.0	Sub slab soil gas sampling	shroud, summa canister, lung box, and purge pump	soil gas sampling	Braeden Lukkari	The previous dry-cleaning site 2207-003 at Overlake Square in Redmond was sampled for PCE and TCE. The samples were obtained via the three installed sub slab vapor pins on site using soil-gas sampling techniques.
7.12.2022	Issaquah	495-001	1.7	0	HASP update	N/A	writing a HASP	Greg Peters	For site 495-001 I developed an updated HASP. Using the previous 2020 HASP and the 2022 HASP outline to develop the updated version.
7.12.2022	Issaquah	office	4.1	0.0	Office	N/A	Groundwater sampling problem solving.	N/A	Updated intern activity sheet with additional information. Reviewed parameter stabilization and watched Groundwater Parameters recording presented by Courtney on 7/11 as well as low-flow ground water sampling presented by Courtney on 4/14 . Kickoff meeting with Glen and
7.13.2022	Redmond	1146-001	2.7	0.0	Sub slab soil gas sampling	shroud, summa canister, lung box, and purge pump	soil gas sampling	Glenn McKenney	The previous dry-cleaning site 1146-001 was sampled for PCE and TCE. The sample was obtained via one sub slab vapor pin on site using soil-gas sampling. techniques.
7.14.2022	Tacoma	1134-001	9.0	0.0	Excavation Observation	PID	Procedures regarding excavations and soil sampling at excavation sites.	Emi Smith	
7.15.2022			7.5	0.0					Previously on site 1134-001 petroleum has leaked from underground storage tanks. On site, the excavation was observed and samples were taken each day. In some instances soil appeared to be "clean" of petroleum like odor with low PID readings, in other cases a petroleum like odor was present and large PID readings were observed.
		Weekly Hours:	29.3	0.0					
Week 5									
7.18.2022	Issaquah	999-930	3.9	0.0	Office	N/A	N/A	N/A	Reviewed deliverables for future site visits, watched webinars, and updated intern activity sheet.
7.18.2022	Maple Valley	552-022	2.1	0.0	Transducer download	WL, transducer	Transducer Download	Chantal Banfield & Max Nelson	Undeveloped site in maple Valley with some transducers in the wells for monitoring. Transducer data was downloaded and depth to water was measured at other wells. This site is currently an open field.
7.19.2022	Issaquah	999-930	4.7	1	cross section	N/A	cross section. well elevation	Chantal Banfield	learned how to draw a cross section.
7.19.2022	Redmond	1198-007	0.0	1.8	Well decom	Water level meter	Well decomm	N/A	Today I went to site 1198-007 by myself to decommission a well. Once on site I recorded depth to water as well as depth to bottom of well. Then the contractor filled well with Bentonite chips and the well was officially decommissioned.

7.20.2022	Seattle	408-002	7.8	0.0	field work	Gem 2000	Operation and maintenance	Braeden Lukkari	Owned by King County this is a previous landfill site which now contains a functioning Sub slab depressurization system. On site we took readings from the system to ensure the SSD system was within appropriate ranges.
7.21.2022	Seattle	397-064	7.9	0.0	field work	Slug, water level meter, level logger	slug testing	Angie, Max, & John	I learned how to perform a slug test on 397-064 site which was previously a dry cleaner. I have visited this site previously.
7.22.2022	Issaquah	999-930	2.8	0.0	office	N/A	Logplot	N/A	Updated intern activity sheet, GW elevation, and introduction to LogPlot
		Weekly Hours:	26.4	2.8					
Week 6									
7.25.2022	Chehalis	301-002	0.0	12.0	GWS	Peristaltic pump, YSI	N/A	Courtney Van Stolk and Angie Osman	Quarterly ground water monitoring in Chehalis. Groundwater samples collected from wells. The frequent monitoring is required due to previous storage tank leakage on site and potentially present LNAPL.
7.26.2022	Seattle	2719-001	7.7	0.0	O&M	Monometer	Operation and maintenance	Braeden Lukkari	We visited the air sparge system and soil vapor extraction remediation system on Spokane street. On this site, concentrations of HVOCs are present. The remediation systems will assist in the reduction of the HVOCs and limit the offsite migration.
7.27.2022	Seattle	397-055	9.7	0.0	GWS	Bladder Pump, YSI	Bladder pump	Max Nelson & John Kim	Five wells were sampled for analysis using the bladder pump and YSI. This site has been monitored for contaminated materials such as petroleum hydrocarbons as diesel-range organics and as oil-range organics, carcinogenic polycyclic aromantic hydrocarbons, and the chlorinated volatile organic compound tetrachloroethene because of fill materials.
7.28.2022	Redmond	2207-003	10.6	0.0	SSI	PID	soil sampling, soil gas sampling	Glenn McKenney	An SSD occurred around the surrounding parking lot of what was previously a dry cleaning site.
		Weekly Hours:	28.0	12.0					
Week 7									
8.01.2022	Redmond	2207-003	0.0	5.2	GWS	Peristaltic pump, YSI	GWS	Courtney Van Stolk	Sampled three wells at the Redmond Overlake site in parking lots surrounding the prior dry cleaning site.
8.02.2022	Issaquah	Office	7.0	0.0	Office	N/A	N/A	N/A	Reviewed deliverables for future site visits, watched webinars, experimented with logplot, and updated intern activity sheet.
8.03.2022	Issaquah	2207-003	8.5	0.0	SSDS Install	monometer	dp and vacuum reading	Braeden Lukkari	Sub slab depressurization system (SSDS) start up at previous dry cleaning site. The soil in Overlake square was sampled for PCE and TCE.
8.05.2022	Issaquah	PSRA review	5.0	0.0	Archive review	N/A	archive review	Angie Osman	Puget sound archive review for project 2909-001
		Weekly Hours:	20.5	5.2					
Week 8									
8.08.2022	Seattle	397-100	7.0	0.0	GW Gauging	WL	Ground water gauging	Greg Peters	In Seattle, surrounding many sites water levels at monitoring wells were recorded. Transducer data was downloaded from wells which contained them.
8.09.2022	Issaquah	1754-006	3.8	2.0	Well Install	hand auger	hand augering	Courtney Van Stolk	Performed 7 hand augers with John and Michael at Eastside Fire and Rescue. Samples were taken from auger at 2.5 ft for PFOAs contamination.
8.10.2022			8.5	0		PID			Well Installation was performed in Issaquah, they were then developed for future GWS analysis. No soil samples were taken, boring logs were developed. These locations surrounded a site which is known to have PFOAs contamination, wells installed to understand movement of contamination.
8.11.2022			8.0	0.0			Sonic drilling		
		Weekly Hours:	27.3	2.0					
Week 9									
8.15.2022	Issaquah	1754-006	7.6	0.0	Sonic Drilling	PID	Review of sonic drilling	Greg Peters	Sonic drilling observed at Eastside fire and rescue like last week. Additionally I observed well development at Issaquah Valley Elementary school.
8.16.2022	Seattle	1198-012	8.5	0.0	DP drilling	PID	Review of DP drilling	Courtney Van Stolk	Well installation at current Safeway, previous gasoline service stations and landfill. Petroleum hydrocarbons have been found in soil within portions of site.
8.17.2022			8.3	0.0					
8.18.2022			8.4	0.0					
8.19.2022			7.2	0.0					

		Weekly Hours:	40.0	0.0					
Week 10									
8.22.2022	Seattle	1026-003	9.0	0.0	conveyance cleaning	N/A	Storm water compliance observation	Emi Smith	With Emi on site 1026-003 I observed the cleaning of conveyance lines and stormwater drains. At ConGlobal, Farallon works to ensure spill prevention compliance and appropriate stormwater management.
8.23.2022	Seattle	1026-003	7.3	0.0	SW cleaning				
8.24.2022	Seattle	1198-012	10.1	0.0	AS Pilot test				
8.25.2022	Seattle	1198-012	9.1	0.0	SVE Pilot test	air compressor, flow meter, DO meter, air flow meters	Pilot test	Braeden Lukkari	On this site in U village which was once part of a landfill and gas station AS and SVE pilot tests were conducted. AS - air sparge, SVE - Soil Vapor Extraction. These tests were done to determine the appropriate steps to take when implementing a remedial technology. An SVE has to potential to accelerate the remediation of petroleum hydrocarbons. The pilot test verifies that the SVE technology is appropriate. AS combined with SVE has the potential to accelerate remediation of VOCs, the pilot test verifies that As is the appropriate technology.
8.26.2022	Issaquah	N/A		0.0	office		N/A	N/A	Ended internship, turned in equipment and had internship review
		Weekly Hours:	35.5	0.0					
		Total Hours:	286.0	23.2					
		Utilization		8.11%					