LANDAU ASSOCIATES

July 16, 2018

Washington State Department of Ecology
Northwest Regional Office
3190 160th Ave SE
Bellevue, WA 98008-5452

Attn: Robin Harrover

Transmitted via email to: *rhar461@ecy.wa.gov*

Re: Status Report No. 63, April through June 2018 Activity Period
Boeing Auburn Facility
WAD 041337130, RCRA Corrective Action Agreed Order No. 01HWTRNR-3345
Auburn, Washington
Project No. 0025164.160.501

Dear Ms. Harrover:

The Resource Conservation and Recovery Act (RCRA) Corrective Action Agreed Order (Auburn Agreed Order) became effective on August 14, 2002. As required under Section VI.13 of the Auburn Agreed Order, The Boeing Company (Boeing) is providing Status Report No. 63, which covers the 3-month activity period of April through June 2018.

References

1. April 2, 2018. Ecology Listserv: Visit with Ecology April 5 at the Ribbon Cutting.
2. April 4, 2018. Email: For Cost Recovery Agreement. From Robin Harrover, Washington State Department of Ecology (Ecology), to Carl Bach, Boeing.
3. April 17, 2018. Letter: 2017 Feasibility Study Data Submittal, Additional Surface Water Sampling and Soil Pore Water Sampling, Boeing Auburn Facility, Auburn, Washington. From Sarah Fees and Jennifer Wynkoop, Landau Associates, Inc. (LAI), to Robin Harrover, Ecology.
4. April 18, 2018. Letter: Ecology Comment and Requests for Revisions to the RCRA Part B Application for a Dangerous Waste Management Permit, Corrective Action only. From Robin Harrover, Ecology, to Carl Bach, Boeing.
5. April 23, 2018. Letter: Status Report No. 62, January Through March 2018 Activity Period, Boeing Auburn Facility, WAD 041337130, RCRA Corrective Action Agreed Order No. 01HWTRNR-3345, Auburn, Washington. From Jennifer Wynkoop and Sarah Fees, LAI, to Robin Harrover, Ecology.
6. May 1, 2018. Email: FW: Ecology Request for Additional Information RE: King County Dewatering along Perimeter Rd. From Robin Harrover, Ecology, to Jennifer Wynkoop, LAI.
7. May 2, 2018. Email: RE: Ecology Request for Additional Information RE: King County Dewatering along Perimeter Rd. From Jennifer Wynkoop, LAI, to Robin Harrover, Ecology.

8. May 4, 2018. Email: Boeing Fabrication Auburn Site – Status Report 62, January – March Activity Period. From Robin Harrover, Ecology, to Representatives of City of Auburn, City of Algona, and City of Pacific.
9. May 9, 2018. Email: RE: RCRA Permit. From Robin Harrover, Ecology, to Sarah Fees, LAI.
10. May 9, 2018. Email: FW: KA 180509 CMO RH Kent/Auburn Geotechnical Deliverables. From Robin Harrover, Ecology, to Jennifer Wynkoop, LAI.
11. May 11, 2018. Ecology Listserv: Cookies and Questions – May 14, Algona City Hall.
12. May 16, 2018. Meeting at King County Sewer Conveyance Project, Auburn project office: King County sewer conveyance project dewatering activities. Attended by representatives from King County, Boeing, LAI, Kiewitt Corporation (Kiewitt), and HDR, Inc. (HDR).
13. May 17, 2018. Email: Boeing Auburn Groundwater Data. From Jennifer Wynkoop, LAI, to Trent Van Duyn, King County, and Dustin Lehman, Kiewitt. (Attachments: June 2017 groundwater plume maps, June and December 2017 groundwater analytical results.)
14. May 24, 2018. Meeting at Ecology NWRO: Feasibility Study (FS) Cleanup Technologies Screening Table. Attended by representatives of Ecology, Boeing, LAI, and Aspect.
15. May 25, 2018. Ecology Listserv: Find out about the Boeing Auburn Cleanup at the Algona Community Center, June 2018.
16. May 25, 2018. LAI Draft Report: Site-Wide Natural Attenuation Assessment Report, Boeing Auburn Facility, Auburn, Washington.
17. May 25, 2018. Email: Please Review Boeing Auburn Permit Mailer by June 1. From Thea Levkovitz, Ecology, to representatives of Boeing, LAI, City of Auburn, City of Algona, and Futurewise. (Attachment: Boeing Auburn Permit Mailer.)
18. May 31, 2018. Email: RE: Boeing Auburn Groundwater Data. From Brent Brey, Kiewit, to Jennifer Wynkoop, LAI. (Attachment: King County sewer work discharge data for April for the system on Perimeter Road.)
19. June 1, 2018. Email: RE: Please Review Boeing Auburn Permit Mailer by June 1. From Kamara Sams, Boeing, to Thea Levkovitz, Ecology. (Attachment: Boeing and LAI comments on the Boeing Auburn Permit mailer.)
20. June 2, 2018. Email: RE: Boeing Auburn Groundwater Data. From Brent Brey, Kiewit, to Jennifer Wynkoop, LAI. (Attachment: King County sewer work discharge data for May for the system on Perimeter Road.)
21. June 5, 2018. Email: June sampling event. From Robin Harrover, Ecology, to Jennifer Wynkoop, LAI.
22. June 5, 2018. Email: Sampling Audit. From Jennifer Wynkoop, LAI, to Samuel Iwenofu, Ecology. (Attachment: Boeing Auburn Sampling and Analysis Plan.)

Work Conducted

General Site-wide Corrective Action Activities

On April 23, 2018, LAI submitted Status Report No. 62 regarding first quarter 2018 activities to Ecology and other stakeholders[1] for their records (Reference #5). Ecology project manager, Robin Harrover, continued to attend regularly scheduled monthly[2] conference calls with Boeing, LAI, and the City of Algona's environmental consultant, ICF International (ICF). The primary purpose of these calls is to discuss technical aspects of the project scope and schedule, data results, and public outreach. Boeing and Ecology communication personnel also attend these calls.

Dangerous Waste Management Permit for Corrective Action

During the first quarter 2018, Ecology notified Boeing that the State of Washington's Dangerous Waste Management Permit for Corrective Action at the Boeing Auburn Facility expired on April 27, 2016. The US Environmental Protection Agency (EPA) requested that Ecology have a new permit in place by September 30, 2018. In order to comply with the EPA request, Ecology requested that Boeing submit a RCRA permit application to renew the dangerous waste management permit. Boeing submitted the draft RCRA Permit Application on March 30, 2018. Boeing received comments from Ecology on the draft application on April 18, 2018 (Reference #4). Ecology and LAI exchanged follow up communication regarding about the necessity of signatures on the draft application and ultimately determined that signatures were not necessary until the final application is submitted after the public comment period (Reference #9). Boeing plans to submit the final application in the third quarter 2018.

King County Kent-Auburn Sewer Conveyance System

King County is undertaking improvements to their Kent-Auburn sewer conveyance system. Portions of the sewer project are located within the Boeing Auburn Site and require substantial dewatering activities. In the second quarter of 2018, King County began work on a portion of the sewer conveyance system located along Perimeter Road. This section of the conveyance system is located over a portion of the groundwater plume. Boeing became aware of the work on Perimeter Road and the dewatering requirements in mid-April and informed Ecology during a regularly scheduled conference call on April 19, 2018. Boeing had limited information on the dewatering efforts at that time. Ecology followed up with a call to the sewer conveyance project hotline to request additional information from King County related to the dewatering activities. Ecology provided Boeing with some additional information from King County on May 1, 2018 (Reference #6). Boeing followed up with a request to Ecology for additional information about King County's construction plans, initial and current pumping rates, the status of dewatering wells, and a project schedule on May 2, 2018 (Reference #7). Ecology exchanged additional email communication with King County's design team

[1] A list of stakeholders that receive copies of the quarterly status reports are listed at the end of this document. Ecology also forwards quarterly status reports via email to representatives of the cities of Algona, Auburn, and Pacific (Reference #8).
[2] Conference calls occurred in April, May, and June.

and provided additional documents regarding the King County sewer work on May 9, 2018 (Reference #10). Boeing subsequently requested a meeting with King County and their design and construction team. On May 16, 2018, representatives from Boeing, LAI, King County, HDR, and Kiewitt held a meeting to discuss the specifics of the dewatering activities (Reference #12). Following this meeting, Boeing provided King County and Kiewitt with groundwater data, including June 2017 groundwater plume maps, and June and December 2017 groundwater analytical results (Reference #13). Kiewit provided Boeing with dewatering effluent discharge data for April (Reference #18) and May (Reference #20) on May 31 and June 2, 2018, respectively.

Groundwater Sampling

Phase 8 annual groundwater sampling took place from May 31 through June 12, 2018. The annual groundwater sampling data are provided in Attachment 1. The current monitoring well network is shown on Figure 1-1. A sampling matrix for the June 2018 annual sampling event is presented in Table 1-1. Analytical results for groundwater are presented in Tables 1-2 and 1-3.

As part of the Phase 8 groundwater sampling program, Boeing has been conducting sampling and analysis for total cyanide at seven on-site wells. As part of the June 2018 sampling event, Boeing also analyzed samples from six of the wells for available and free cyanide by methods ASTM D688-09 and ASTM D7237-10, respectively. While there are no regulatory criteria for free and available cyanide in Washington, the data will be used to evaluate remedial options for Area of Concern (AOC) A-09.

On June 5, 2018, Ecology requested a field audit of the June groundwater sampling event (Reference #21). LAI responded to the request later that day (Reference #22) and arranged for Ecology to meet LAI field staff the following day to observe activities during the June sampling event. On June 6, 2018, Samuel Iwenofu from Ecology observed regularly scheduled annual groundwater sampling activities and completed a field sampling audit. Boeing expects to receive a copy of the completed field sampling audit checklist from Ecology in the third quarter, 2018.

Algona Enhanced Natural Attenuation Pilot Test

The enhanced natural attenuation pilot test injection began on August 18, 2015 and was completed on September 4, 2015. Approximately 80,000 gallons of electron donor solution was injected into the shallow water-bearing zone. Boeing is performing post-injection sampling to monitor the effectiveness of the pilot test injection. Post-injection sampling was conducted quarterly through December 2017. As part of the update in the Phase 8 Groundwater Management Plan, quarterly sampling for the pilot test was discontinued. Ongoing pilot test monitoring is now conducted on a semiannual basis.

The June 2018 sampling event was the 10th sampling event following injection activities. A summary of results from the pilot test monitoring wells is provided in Attachment 2. The pilot test injection and monitoring well locations are presented on Figure 2-1. Pilot test data are summarized in Table 2-1.

Indications of post-injection enhanced bioremediation were observed at nine wells consisting of three regularly monitored injection wells (IW34, IW36, and IW37) and five downgradient monitoring wells (AGW240-5, AGW269, AGW270, AGW271, and AGW275). The primary indications of enhanced bioremediation consist of post-injection increases in total organic carbon (TOC) above baseline (<10 milligrams per liter [mg/L]), evidence of more reduced aquifer redox conditions, and changes in concentrations of trichloroethene (TCE), breakdown products, and/or end products. TOC concentrations continued to decrease from post-injection maximums but remained above baseline at the injection wells and at two downgradient monitoring wells (AGW270 and AGW271). TOC concentrations at the injection wells ranged from 9.8 mg/L to 32 mg/L. TOC concentrations at AGW270 and AGW271 were 12 mg/L to 13 mg/L respectively. TOC concentrations at other downgradient monitoring wells (AGW240-5, AGW269, and AGW275) have returned to baseline concentrations following earlier post-injection increases; however, highly reducing aquifer conditions persist and ethene/ethane continues to be the dominant molar fraction at all three of these locations.

Data from AGW244 has shown considerable variability in TOC concentrations (3.8 mg/L to 53.1 mg/L) and aquifer redox state over time. Initially, an increase in TOC concentration in June 2017 was suspected to be a result the pilot test injection. However, a second increase in TOC concentration in June 2018 suggests that increases in TOC are more likely due to natural variability. AGW244 has never had detections of target VOCs so secondary effects related to shifts in concentration and molar fractions of TCE and breakdown products have not been evaluated at this well.

Secondary effects of enhanced bioremediation have been observed at other wells post-injection. These secondary effects consist of increased methane concentrations and shifts in the concentrations of TCE, breakdown products, and/or end products without increases in TOC concentrations. These secondary indicators were observed at three downgradient monitoring wells AGW240-1, AGW273, and AGW274. Methanogenic conditions persist at these locations and ethene/ethane continues to be the dominant molar fraction.

Changes in vinyl chloride concentrations and detections of end products ethene and/or ethane have been observed at all 12 wells discussed above except AGW244 where volatile organic compounds (VOCs) have not been detected. Ethene and ethane, which indicate complete reductive dechlorination, were only detected at 3 of these 12 wells (AGW240-1, AGW240-5, and AGW274) during baseline sampling, and have now been detected at 11 out of the 12 wells (the exception being AGW244, which does not have detections of VOCs).

Feasibility Study Investigation

The feasibility study (FS) for the Site is ongoing. During the first quarter 2018, Boeing submitted an FS cleanup technologies screening table. The FS cleanup technologies screening table was discussed during a meeting attended by representatives of Ecology, Boeing, LAI, and Aspect on May 24, 2018 (Reference #14). Boeing expects to receive Ecology comments on the technologies screening table

and additional comments on the FS work plan and data submittals in the third quarter 2018. An update on FS activities and pending data submittals for specific AOCs are described below.

Building 17-06 (Area of Concern A-13)

Additional FS investigation activities were completed in Building 17-06 (AOC A-13) in December 2017 and included soil and groundwater sampling from four borings and installation of four groundwater monitoring wells (AGW279 through AGW282). Well development, initial sampling, survey of the newly installed wells in Building 17-06 (AGW279 through AGW282) occurred in the first quarter 2018. Results of the additional Building 17-06 investigation activities will be summarized in a data submittal for Ecology review in the third quarter 2018.

Cyanide Investigation (Area of Concern A-09)

During second quarter groundwater monitoring in June 2018, groundwater samples were collected from six monitoring wells for total cyanide and free cyanide analysis. These groundwater samples were collected using field-filtration techniques and both preserved and unpreserved samples were analyzed. Only the preserved sample results are included in the project database and these results are presented in Attachment 1. Comparison of preserved and unpreserved results will be provided to Ecology in a separate data submittal later in 2018.

Pore Water Investigation at Mill Creek (Area of Concern A-15)

During the fourth quarter 2017, pore water monitoring piezometers were installed at three locations in Mill Creek. A data submittal summarizing results of the pore water installation and sampling was provided to Ecology on April 17, 2018 (Reference #3).

Other Reporting

Boeing completed the draft Site-Wide Natural Attenuation Assessment Report, which was submitted to Ecology on May 25, 2018 (Reference #16).

Communications

Ecology and Boeing are working together to ensure that all stakeholders are aware of the progress of investigation and cleanup activities at the Boeing Auburn Site. The City of Algona continues to be notified of all fieldwork occurring in Algona. The City of Algona's consultant, ICF, continues to participate in project conference calls with Boeing and Ecology and continues to review Algona-related deliverables (e.g., work plans and reports). Boeing and Ecology also continue to update the City of Auburn on activities, as needed.

Ecology posted update notifications to their Listserv in the second quarter 2018. Updates included: Ecology staff present at the grand opening of the new Algona Community Center and City Hall on April 5 (Reference #1); Ecology staff present before the Algona City Council meeting on May 14 (Reference #11); and information about groundwater in Algona and Auburn on display at the Algona Community

Center, June 2018 (Reference #15). Ecology also provides stakeholders with updates on Ecology's schedule and opportunities to review Ecology presentation materials. Ecology requested comments from stakeholders on the Boeing Auburn RCRA permit mailer on May 25, 2018 (Reference #17). Boeing provided comments on the RCRA permit mailer on June 1 (Reference #19).

Building 17-06 Ongoing Monitoring

Boeing is monitoring for petroleum hydrocarbons in wells AGW128, AGW277, and AGW281 located in Building 17-06. During the second quarter, free-phase product was detected in well AGW128 in April, May, and June. Free-phase product has not been detected in any of the other wells in Building 17-06. A sorbent sock has been placed in well AGW128 to extract free-phase product and is replaced approximately monthly. Boeing will continue to replace the sorbent sock in well AGW128 as long as product is present in the sock and will check for product regularly.

Occurrence of Problems

It was discovered during a site visit that the passive diffusion bag (PDB) sampler from one of the wells along Perimeter Road (AGW150) had been removed and was lying next to the well. A new tether and PDB were installed in this well on May 15, 2018 and the well was sampled during regularly scheduled annual groundwater sampling on June 6, 2018.

Projected Work for Next Reporting Period July through September 2018

Activities projected for the next reporting period pertain to the FS reporting, Algona pilot test, other reporting, and ongoing monitoring of groundwater and surface water. Tasks during third quarter 2018 are expected to include:

- Ecology conducting a public comment period for the RCRA Permit from July 19 through September 4
- Submitting the final RCRA permit application to Ecology
- Finalizing the FS work plan
- Providing Ecology with a data submittal summarizing additional FS investigation results that occurred in fourth quarter 2017 and first quarter 2018 at Building 17-06
- Providing Boeing with the Algona Pilot Test TM (2nd year of monitoring update)
- Submitting a draft contaminant transport model report
- Beginning the preparation of the FS report
- Providing Ecology with updated concentration plume figures
- Conducting the quarterly groundwater sampling event in September 2018.

Other Significant Findings, Changes, and Contacts

Neal Hines is no longer with Ecology. On April 4, 2018, Ecology communicated to Boeing that Robin Harrover will be returning to both the project management and technical roles for the project (Reference #2).

If you have any questions regarding this status report, or need any other information, please do not hesitate to contact Boeing or LAI.

LANDAU ASSOCIATES, INC.

Jennifer Wynkoop
Principal Scientist

SEF/JWW/jrc
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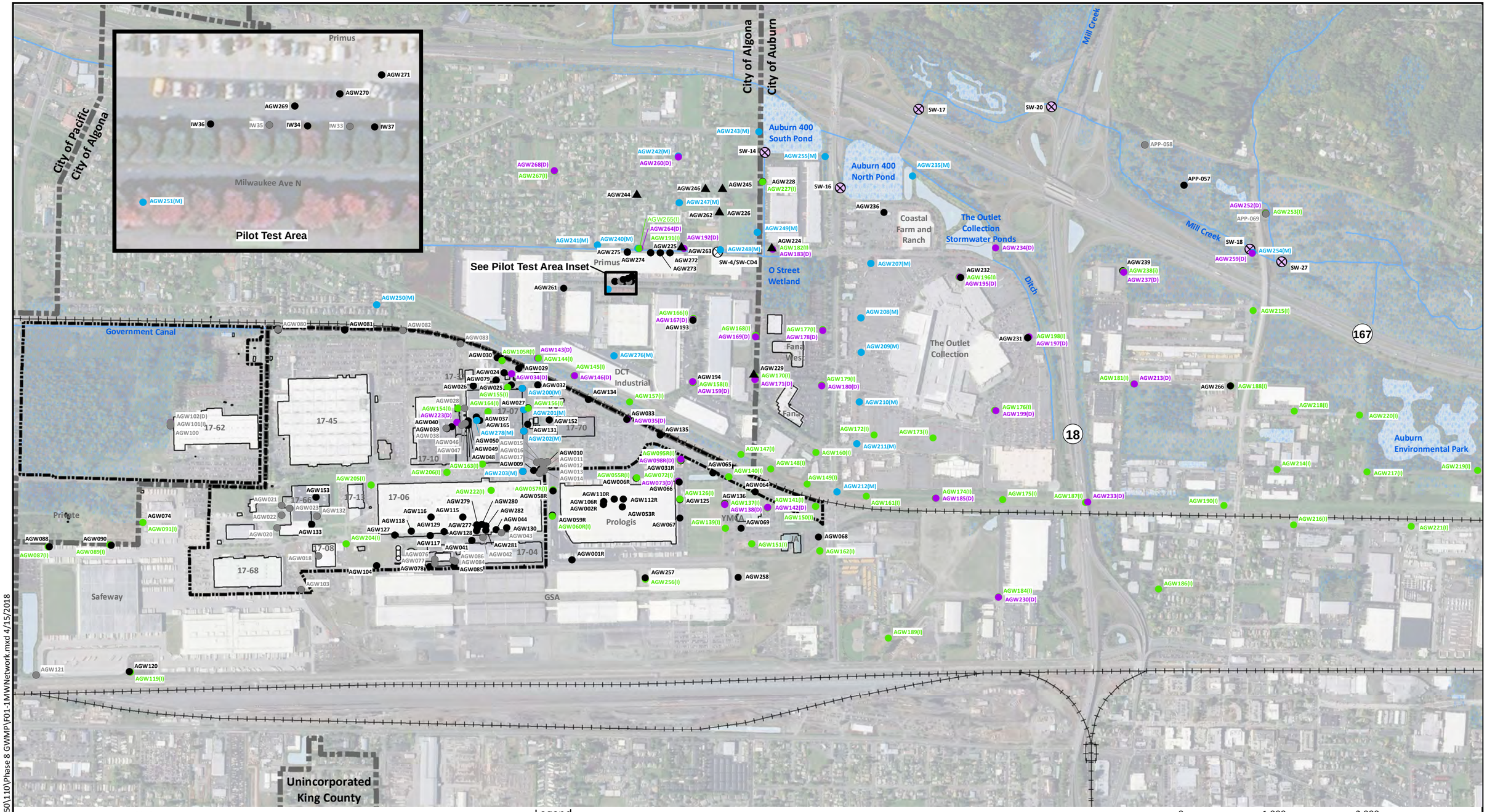
Attachments: Attachment 1: Groundwater Sampling Results
Attachment 2: Pilot Test Results
Laboratory Data Packages (only included in final hard copy on DVD)

Attachment 1

Groundwater Sampling Results



Notes

1. Groundwater wells are identified by the AGW prefix. The designations behind the identifications indicate the zone. If there is no designation, the well is screened in the shallow zone. (I) = intermediate zone, (D) = deep zone, (M) = multi-level well; screens in multiple groundwater zones.
2. Well designations beginning with APP are installed and owned by WSDOT.
3. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Legend

- ▲ Offsite Water Table Well
- ● Shallow Monitoring Well (2 to 30 ft bgs)
- (I) ● Intermediate Monitoring Well (40 to 60 ft bgs)
- (D) ● Deep Monitoring Well (80 to 100 ft bgs)
- (M) ● Multi-Level Well
- ● Wells Not Currently Sampled
- ⊗ Annual Surface Water Sample Location
- ⊗ Semiannual Surface Water Sampling Location
- Wetland Areas
- Water Bodies
- Waterways

N

0 1,000 2,000

Scale in Feet

Base Map Source: Geometrix 2003; Parcel Data Source: King County 2015; Aerial Photo Source: Esri World Imagery.

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Boeing Auburn Auburn, Washington	**Current Monitoring Well Network**	Figure 1-1

G:\Projects\025\164\150\110\Phase 8 GWMP\F01-1MWNetwork.mxd 4/15/2018

Table 1-1
2Q2018 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample Identification	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample Identification	Select VOCs by SW-846 8260C (a)	BTEX by SW-846 8260C	TPH-G by NWTPH-Gx	TPH-D by NWTPH-Dx	MEE by RSK-175	TOC by SM 5310C	Sulfate by EPA 300.0	Diss. Metals by SW-846 6020A	Total Cyanide by ASTM D7511 (b)	Available Cyanide by ASTM D6888-09 (b)	Free Cyanide by ASTM D7237-10 (b)
AGW001R	AGW001R-20180606	6/6/2018	PDN	580-77846-1	580-77846-7	X										
AGW002R	AGW002R-20180604	6/4/2018	N	580-77784-1	580-77784-12	X				X	X	X				
AGW002R	AGW900-20180604	6/4/2018	FD	580-77784-1	580-77784-13	X				X	X	X				
AGW006R	AGW006R-20180606	6/6/2018	PDN	580-77846-1	580-77846-14	X										
AGW009	AGW009-20180608	6/8/2018	PDN	580-77938-1	580-77938-11	X										
AGW010	AGW010-20180531	5/31/2018	N	580-77738-1	580-77738-2	X	X	X	X							
AGW010	AGW901-20180531	5/31/2018	FD	580-77738-1	580-77738-3	X	X	X	X							
AGW024	AGW024-20180611	6/11/2018	PDN	580-77965-1	580-77965-12	X										
AGW025	AGW025-20180531	5/31/2018	PDN	580-77738-1	580-77738-11	X										
AGW026	AGW026-20180531	5/31/2018	PDN	580-77738-1	580-77738-12	X										
AGW027	AGW027-20180531	5/31/2018	PDN	580-77738-1	580-77738-8	X										
AGW029	AGW029-20180601	6/1/2018	PDN	580-77739-1	580-77739-21	X										
AGW030	AGW030-20180601	6/1/2018	PDN	580-77739-1	580-77739-23	X										
AGW031R	AGW031R-20180601	6/1/2018	PDN	580-77739-1	580-77739-17	X										
AGW032	AGW032-20180611	6/11/2018	PDN	580-77966-1	580-77966-18	X										
AGW033	AGW033-20180601	6/1/2018	PDN	580-77739-1	580-77739-15	X										
AGW034	AGW034-20180611	6/11/2018	PDN	580-77965-1	580-77965-13	X										
AGW035	AGW035-20180601	6/1/2018	PDN	580-77739-1	580-77739-16	X										
AGW037	AGW037-20180605	6/5/2018	N	580-77840-1	580-77840-2	X										
AGW037	AGW037-NAOH-20180605	6/5/2018	N	A8F0123	A8F0123-01RE1									X		
AGW039	AGW039-20180531	5/31/2018	N	580-77738-1	580-77738-4	X							X			
AGW039	AGW902-20180531	5/31/2018	FD	580-77738-1	580-77738-5	X							X			
AGW040	AGW040-20180531	5/31/2018	PDN	580-77738-1	580-77738-6	X										
AGW041	AGW041-20180608	6/8/2018	PDN	580-77940-1	580-77940-10	X										
AGW044	AGW044-20180608	6/8/2018	N	580-77940-1	580-77940-2	X			X							
AGW047	AGW047-NAOH-20180605	6/5/2018	N	A8F0123	A8F0123-03/RE2									X	X	X
AGW048	AGW048-20180605	6/5/2018	N	580-77840-1	580-77840-6								X			
AGW048	AGW048-NAOH-20180605	6/5/2018	N	A8F0123	A8F0123-05/RE2									X	X	X
AGW049	AGW049-20180605	6/5/2018	N	580-77840-1	580-77840-4								X			
AGW049	AGW049-NAOH-20180605	6/5/2018	N	A8F0123	A8F0123-07/RE1/RE2									X	X	X
AGW049	AGW903-20180605	6/5/2018	FD	580-77840-1	580-77840-5								X			
AGW049	AGW903-NAOH-20180605	6/5/2018	FD	A8F0123	A8F0123-14/RE1									X	X	X
AGW050	AGW050-20180605	6/5/2018	N	580-77840-1	580-77840-7								X			
AGW050	AGW050-NAOH-20180605	6/5/2018	N	A8F0123	A8F0123-09RE1									X	X	X
AGW053R	AGW053R-20180604	6/4/2018	PDN	580-77784-1	580-77784-9	X										
AGW055R	AGW055R-20180606	6/6/2018	PDN	580-77846-1	580-77846-13	X										
AGW057R	AGW057R-20180606	6/6/2018	PDN	580-77846-1	580-77846-8	X										
AGW058R	AGW058R-20180606	6/6/2018	PDN	580-77846-1	580-77846-9	X										
AGW059R	AGW059R-20180606	6/6/2018	PDN	580-77846-1	580-77846-11	X										
AGW060R	AGW060R-20180606	6/6/2018	PDN	580-77846-1	580-77846-12	X										
AGW064	AGW064-20180601	6/1/2018	PDN	580-77739-1	580-77739-4	X										
AGW065	AGW065-20180601	6/1/2018	PDN	580-77739-1	580-77739-12	X										
AGW065	AGW904-20180601	6/1/2018	PDFD	580-77739-1	580-77739-13	X										
AGW066	AGW066-20180604	6/4/2018	PDN	580-77784-1	580-77784-5	X										
AGW067	AGW067-20180604	6/4/2018	PDN	580-77784-1	580-77784-2	X										
AGW068	AGW068-20180605	6/5/2018	PDN	580-77842-1	580-77842-11	X										
AGW069	AGW069-20180601	6/1/2018	PDN	580-77739-1	580-77739-6	X										
AGW072	AGW072-20180604	6/4/2018	PDN	580-77784-1	580-77784-6	X										
AGW073	AGW073-20180604	6/4/2018	PDN	580-77784-1	580-77784-7	X										
AGW074	AGW074-20180611	6/11/2018	PDN	580-77965-1	580-77965-7	X										
AGW078	AGW078-20180608	6/8/2018	PDN	580-77940-1	580-77940-12	X										

Table 1-1
2Q2018 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample Identification	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample Identification	Select VOCs by SW-846 8260C (a)	BTEX by SW-846 8260C	TPH-G by NWTPH-Gx	TPH-D by NWTPH-Dx	MEE by RSK-175	TOC by SM 5310C	Sulfate by EPA 300.0	Diss. Metals by SW-846 6020A	Total Cyanide by ASTM D7511 (b)	Available Cyanide by ASTM D6888-09 (b)	Free Cyanide by ASTM D7237-10 (b)
AGW079	AGW079-20180611	6/11/2018	PDN	580-77965-1	580-77965-11	X										
AGW081	AGW081-20180611	6/11/2018	PDN	580-77965-1	580-77965-17	X										
AGW085	AGW085-20180608	6/8/2018	PDN	580-77940-1	580-77940-11	X										
AGW087	AGW087-20180611	6/11/2018	PDN	580-77965-1	580-77965-9	X										
AGW088	AGW088-20180611	6/11/2018	PDN	580-77966-1	580-77966-16	X										
AGW089	AGW089-20180611	6/11/2018	PDN	580-77966-1	580-77966-15	X										
AGW090	AGW090-20180611	6/11/2018	PDN	580-77965-1	580-77965-8	X										
AGW091	AGW091-20180611	6/11/2018	PDN	580-77966-1	580-77966-14	X										
AGW095R	AGW095R-20180601	6/1/2018	PDN	580-77739-1	580-77739-18	X										
AGW098R	AGW098R-20180601	6/1/2018	PDN	580-77739-1	580-77739-19	X										
AGW104	AGW104-20180612	6/12/2018	PDN	580-78002-1	580-78002-9	X										
AGW105R	AGW105R-20180601	6/1/2018	PDN	580-77739-1	580-77739-22	X										
AGW106R	AGW106R-20180604	6/4/2018	N	580-77784-1	580-77784-11	X				X	X	X				
AGW110R	AGW110R-20180604	6/4/2018	N	580-77784-1	580-77784-10	X				X	X	X				
AGW112R	AGW112R-20180604	6/4/2018	PDN	580-77784-1	580-77784-8	X										
AGW115	AGW115-20180608	6/8/2018	PDN	580-77940-1	580-77940-5	X										
AGW116	AGW116-20180608	6/8/2018	PDN	580-77940-1	580-77940-6	X										
AGW117	AGW117-20180608	6/8/2018	PDN	580-77940-1	580-77940-9	X										
AGW118	AGW118-20180608	6/8/2018	PDN	580-77940-1	580-77940-7	X										
AGW119	AGW119-20180611	6/11/2018	PDN	580-77966-1	580-77966-17	X										
AGW120	AGW120-20180611	6/11/2018	PDN	580-77965-1	580-77965-10	X										
AGW125	AGW125-20180604	6/4/2018	PDN	580-77784-1	580-77784-3	X										
AGW125	AGW905-20180604	6/4/2018	PDFD	580-77784-1	580-77784-4	X										
AGW126	AGW126-20180606	6/6/2018	N	580-77846-1	580-77846-10	X										
AGW127	AGW127-20180611	6/11/2018	PDN	580-77965-1	580-77965-14	X										
AGW128	AGW128-20180607	6/7/2018	N	580-77897-1	580-77897-7	X			X							
AGW128	AGW906-20180607	6/7/2018	FD	580-77897-1	580-77897-8	X			X							
AGW129	AGW129-20180608	6/8/2018	PDN	580-77940-1	580-77940-8	X										
AGW130	AGW130-20180608	6/8/2018	N	580-77940-1	580-77940-3	X			X							
AGW131	AGW131-20180608	6/8/2018	PDN	580-77938-1	580-77938-13	X										
AGW133	AGW133-20180612	6/12/2018	PDN	580-78002-1	580-78002-6	X										
AGW134	AGW134-20180601	6/1/2018	PDN	580-77739-1	580-77739-20	X										
AGW135	AGW135-20180601	6/1/2018	PDN	580-77739-1	580-77739-14	X										
AGW136	AGW136-20180601	6/1/2018	PDN	580-77739-1	580-77739-8	X										
AGW137	AGW137-20180601	6/1/2018	PDN	580-77739-1	580-77739-9	X										
AGW138	AGW138-20180601	6/1/2018	PDN	580-77739-1	580-77739-10	X										
AGW139	AGW139-20180601	6/1/2018	PDN	580-77739-1	580-77739-7	X										
AGW140	AGW140-20180601	6/1/2018	PDN	580-77739-1	580-77739-11	X										
AGW141	AGW141-20180601	6/1/2018	PDN	580-77739-1	580-77739-2	X										
AGW142	AGW142-20180601	6/1/2018	PDN	580-77739-1	580-77739-3	X										
AGW143	AGW143-20180604	6/4/2018	PDN	580-77785-1	580-77785-2	X										
AGW144	AGW144-20180604	6/4/2018	PDN	580-77785-1	580-77785-3	X										
AGW145	AGW145-20180604	6/4/2018	PDN	580-77785-1	580-77785-4	X										
AGW146	AGW146-20180604	6/4/2018	PDN	580-77785-1	580-77785-5	X										
AGW147	AGW147-20180604	6/4/2018	PDN	580-77785-1	580-77785-6	X										
AGW148	AGW148-20180604	6/4/2018	PDN	580-77785-1	580-77785-7	X										
AGW149	AGW149-20180604	6/4/2018	PDN	580-77785-1	580-77785-9	X										
AGW150	AGW150-20180606	6/6/2018	PDN	580-77846-1	580-77846-15	X										
AGW150	AGW907-20180606	6/6/2018	PDFD	580-77846-1	580-77846-16	X										
AGW151	AGW151-20180601	6/1/2018	PDN	580-77739-1	580-77739-5	X										
AGW152	AGW152-20180531	5/31/2018	PDN	580-77738-1	580-77738-7	X										

Table 1-1
2Q2018 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample Identification	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample Identification	Select VOCs by SW-846 8260C (a)	BTEX by SW-846 8260C	TPH-G by NWTPH-Gx	TPH-D by NWTPH-Dx	MEE by RSK-175	TOC by SM 5310C	Sulfate by EPA 300.0	Diss. Metals by SW-846 6020A	Total Cyanide by ASTM D7511 (b)	Available Cyanide by ASTM D6888-09 (b)	Free Cyanide by ASTM D7237-10 (b)
AGW153	AGW153-20180612	6/12/2018	PDN	580-78002-1	580-78002-5	X										
AGW154	AGW154-20180608	6/8/2018	PDN	580-77938-1	580-77938-15	X										
AGW155	AGW155-20180531	5/31/2018	PDN	580-77738-1	580-77738-10	X										
AGW156	AGW156-20180531	5/31/2018	PDN	580-77738-1	580-77738-9	X										
AGW157	AGW157-20180604	6/4/2018	PDN	580-77785-1	580-77785-12	X										
AGW158	AGW158-20180611	6/11/2018	PDN	580-77966-1	580-77966-8	X										
AGW159	AGW159-20180611	6/11/2018	PDN	580-77966-1	580-77966-7	X										
AGW160	AGW160-20180607	6/7/2018	PDN	580-77894-1	580-77894-3	X										
AGW161	AGW161-20180531	5/31/2018	PDN	580-77723-1	580-77723-18	X										
AGW162	AGW162-20180605	6/5/2018	PDN	580-77842-1	580-77842-10	X										
AGW163	AGW163-20180608	6/8/2018	PDN	580-77938-1	580-77938-12	X										
AGW164	AGW164-20180611	6/11/2018	PDN	580-77965-1	580-77965-6	X										
AGW165	AGW165-20180611	6/11/2018	PDN	580-77965-1	580-77965-5	X										
AGW166	AGW166-20180611	6/11/2018	PDN	580-77966-1	580-77966-4	X										
AGW167	AGW167-20180611	6/11/2018	PDN	580-77966-1	580-77966-5	X										
AGW168	AGW168-20180611	6/11/2018	PDN	580-77966-1	580-77966-2	X										
AGW169	AGW169-20180611	6/11/2018	PDN	580-77966-1	580-77966-3	X										
AGW170	AGW170-20180608	6/8/2018	PDN	580-77937-1	580-77937-6	X										
AGW171	AGW171-20180608	6/8/2018	PDN	580-77937-1	580-77937-7	X										
AGW172	AGW172-20180607	6/7/2018	PDN	580-77894-1	580-77894-11	X										
AGW173	AGW173-20180604	6/4/2018	PDN	580-77773-1	580-77773-15	X										
AGW174	AGW174-20180531	5/31/2018	PDN	580-77723-1	580-77723-17	X										
AGW175	AGW175-20180531	5/31/2018	N	580-77723-1	580-77723-15	X										
AGW176	AGW176-20180607	6/7/2018	PDN	580-77894-1	580-77894-5	X										
AGW177	AGW177-20180607	6/7/2018	PDN	580-77894-1	580-77894-9	X										
AGW178	AGW178-20180607	6/7/2018	PDN	580-77894-1	580-77894-10	X										
AGW179	AGW179-20180607	6/7/2018	PDN	580-77894-1	580-77894-16	X										
AGW180	AGW180-20180607	6/7/2018	PDN	580-77894-1	580-77894-12	X										
AGW181	AGW181-20180606	6/6/2018	PDN	580-77844-1	580-77844-3	X										
AGW182	AGW182-20180605	6/5/2018	PDN	580-77841-1	580-77841-11	X										
AGW183	AGW183-20180605	6/5/2018	PDN	580-77841-1	580-77841-12	X										
AGW184	AGW184-20180612	6/12/2018	PDN	580-78002-1	580-78002-4	X										
AGW185	AGW185-20180531	5/31/2018	PDN	580-77723-1	580-77723-16	X										
AGW186	AGW186-20180612	6/12/2018	PDN	580-78002-1	580-78002-2	X										
AGW187	AGW187-20180531	5/31/2018	PDN	580-77723-1	580-77723-14	X										
AGW188	AGW188-20180606	6/6/2018	N	580-77844-1	580-77844-6	X										
AGW189	AGW189-20180612	6/12/2018	PDN	580-78002-1	580-78002-8	X										
AGW190	AGW190-20180531	5/31/2018	PDN	580-77723-1	580-77723-12	X										
AGW191	AGW191-20180605	6/5/2018	PDN	580-77842-1	580-77842-7	X										
AGW192	AGW192-20180605	6/5/2018	PDN	580-77842-1	580-77842-8	X										
AGW193	AGW193-20180611	6/11/2018	PDN	580-77966-1	580-77966-6	X										
AGW194	AGW194-20180611	6/11/2018	PDN	580-77966-1	580-77966-9	X										
AGW195	AGW195-20180604	6/4/2018	PDN	580-77773-1	580-77773-13	X										
AGW196	AGW196-20180604	6/4/2018	PDN	580-77773-1	580-77773-14	X										
AGW197	AGW197-20180607	6/7/2018	PDN	580-77894-1	580-77894-6	X										
AGW198	AGW198-20180607	6/7/2018	PDN	580-77894-1	580-77894-7	X										
AGW199	AGW199-20180607	6/7/2018	PDN	580-77894-1	580-77894-4	X										
AGW200-2	AGW200-2-30-20180607	6/7/2018	N	580-77894-1	580-77894-13	X										
AGW200-5	AGW200-5-60-20180607	6/7/2018	N	580-77894-1	580-77894-14	X										
AGW200-6	AGW200-6-80-20180607	6/7/2018	N	580-77894-1	580-77894-15	X										
AGW201-2	AGW201-2-30-20180608	6/8/2018	N	580-77938-1	580-77938-2	X										

Table 1-1
2Q2018 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample Identification	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample Identification	Select VOCs by SW-846 8260C (a)	BTEX by SW-846 8260C	TPH-G by NWTPH-Gx	TPH-D by NWTPH-Dx	MEE by RSK-175	TOC by SM 5310C	Sulfate by EPA 300.0	Diss. Metals by SW-846 6020A	Total Cyanide by ASTM D7511 (b)	Available Cyanide by ASTM D6888-09 (b)	Free Cyanide by ASTM D7237-10 (b)
AGW201-5	AGW201-5-60-20180608	6/8/2018	N	580-77938-1	580-77938-3	X										
AGW201-6	AGW201-6-80-20180608	6/8/2018	N	580-77938-1	580-77938-4	X										
AGW202-2	AGW202-2-30-20180608	6/8/2018	N	580-77938-1	580-77938-5	X										
AGW202-4	AGW202-4-51-20180608	6/8/2018	N	580-77938-1	580-77938-6	X										
AGW202-6	AGW202-6-81-20180608	6/8/2018	N	580-77938-1	580-77938-7	X										
AGW203-2	AGW203-2-30-20180608	6/8/2018	N	580-77938-1	580-77938-8	X										
AGW203-4	AGW203-4-49-20180608	6/8/2018	N	580-77938-1	580-77938-9	X										
AGW203-6	AGW203-6-80-20180608	6/8/2018	N	580-77938-1	580-77938-10	X										
AGW204	AGW204-20180612	6/12/2018	PDN	580-78002-1	580-78002-7	X										
AGW205	AGW205-20180611	6/11/2018	PDN	580-77965-1	580-77965-16	X										
AGW206	AGW206-20180611	6/11/2018	PDN	580-77965-1	580-77965-15	X										
AGW207-2	AGW207-2-30-20180605	6/5/2018	N	580-77841-1	580-77841-5	X										
AGW207-4	AGW207-4-49-20180605	6/5/2018	N	580-77841-1	580-77841-6	X										
AGW207-7	AGW207-7-80-20180605	6/5/2018	N	580-77841-1	580-77841-7	X										
AGW208-2	AGW208-2-29-20180605	6/5/2018	N	580-77841-1	580-77841-1	X										
AGW208-4	AGW208-4-49-20180605	6/5/2018	N	580-77841-1	580-77841-3	X										
AGW208-6	AGW208-6-80-20180605	6/5/2018	N	580-77841-1	580-77841-4	X										
AGW209-2	AGW209-2-30-20180604	6/4/2018	N	580-77773-1	580-77773-9	X										
AGW209-5	AGW209-5-60-20180604	6/4/2018	N	580-77773-1	580-77773-10	X										
AGW209-6	AGW209-6-80-20180604	6/4/2018	N	580-77773-1	580-77773-11	X										
AGW210-2	AGW210-2-30-20180604	6/4/2018	N	580-77773-1	580-77773-6	X										
AGW210-5	AGW210-5-60-20180604	6/4/2018	N	580-77773-1	580-77773-7	X										
AGW210-6	AGW210-6-80-20180604	6/4/2018	N	580-77773-1	580-77773-8	X										
AGW211-2	AGW211-2-30-20180604	6/4/2018	N	580-77773-1	580-77773-2	X										
AGW211-2	AGW908-20180604	6/4/2018	FD	580-77773-1	580-77773-3	X										
AGW211-5	AGW211-5-60-20180604	6/4/2018	N	580-77773-1	580-77773-4	X										
AGW211-6	AGW211-6-80-20180604	6/4/2018	N	580-77773-1	580-77773-5	X										
AGW212-2	AGW212-2-30-20180601	6/1/2018	N	580-77740-1	580-77740-9	X										
AGW212-5	AGW212-5-60-20180601	6/1/2018	N	580-77740-1	580-77740-10	X										
AGW212-7	AGW212-7-100-20180601	6/1/2018	N	580-77740-1	580-77740-11	X										
AGW213	AGW213-20180606	6/6/2018	PDN	580-77844-1	580-77844-4	X										
AGW214	AGW214-20180606	6/6/2018	N	580-77844-1	580-77844-9	X										
AGW215	AGW215-20180606	6/6/2018	N	580-77844-1	580-77844-7	X										
AGW215	AGW909-20180606	6/6/2018	FD	580-77844-1	580-77844-8	X										
AGW216	AGW216-20180611	6/11/2018	N	580-77965-1	580-77965-18	X										
AGW217	AGW217-20180531	5/31/2018	N	580-77723-1	580-77723-3	X										
AGW218	AGW218-20180606	6/6/2018	N	580-77844-1	580-77844-2	X										
AGW219	AGW219-20180531	5/31/2018	PDN	580-77723-1	580-77723-2	X										
AGW220	AGW220-20180604	6/4/2018	N	580-77785-1	580-77785-8	X										
AGW221	AGW221-20180607	6/7/2018	N	580-77894-1	580-77894-2	X										
AGW222	AGW222-20180608	6/8/2018	PDN	580-77940-1	580-77940-4	X										
AGW223	AGW223-20180608	6/8/2018	PDN	580-77938-1	580-77938-14	X										
AGW224	AGW224-20180605	6/5/2018	PDN	580-77841-1	580-77841-13	X										
AGW225	AGW225-20180605	6/5/2018	N	580-77842-1	580-77842-6	X				X	X	X				
AGW226	AGW226-20180611	6/11/2018	N	580-77967-1	580-77967-4	X				X	X	X				
AGW227	AGW227-20180605	6/5/2018	PDN	580-77841-1	580-77841-10	X										
AGW228	AGW228-20180605	6/5/2018	N	580-77841-1	580-77841-9	X										
AGW229	AGW229-20180608	6/8/2018	PDN	580-77937-1	580-77937-5	X										
AGW230	AGW230-20180612	6/12/2018	PDN	580-78002-1	580-78002-3	X										
AGW231	AGW231-20180607	6/7/2018	PDN	580-77894-1	580-77894-8	X										
AGW232	AGW232-20180604	6/4/2018	PDN	580-77773-1	580-77773-12	X										

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Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample Identification	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample Identification	Select VOCs by SW-846 8260C (a)	BTEX by SW-846 8260C	TPH-G by NWTPH-Gx	TPH-D by NWTPH-Dx	MEE by RSK-175	TOC by SM 5310C	Sulfate by EPA 300.0	Diss. Metals by SW-846 6020A	Total Cyanide by ASTM D7511 (b)	Available Cyanide by ASTM D6888-09 (b)	Free Cyanide by ASTM D7237-10 (b)
AGW233	AGW233-20180531	5/31/2018	PDN	580-77723-1	580-77723-13	X										
AGW234	AGW234-20180601	6/1/2018	PDN	580-77740-1	580-77740-5	X										
AGW235-2	AGW235-2-19-20180601	6/1/2018	N	580-77740-1	580-77740-2	X										
AGW235-4	AGW235-4-39-20180601	6/1/2018	N	580-77740-1	580-77740-3	X										
AGW235-7	AGW235-7-71-20180601	6/1/2018	N	580-77740-1	580-77740-4	X										
AGW236	AGW236-20180605	6/5/2018	N	580-77841-1	580-77841-8	X										
AGW237	AGW237-20180606	6/6/2018	PDN	580-77846-1	580-77846-4	X										
AGW238	AGW238-20180606	6/6/2018	PDN	580-77846-1	580-77846-3	X										
AGW239	AGW239-20180606	6/6/2018	N	580-77846-1	580-77846-2	X										
AGW240-1	AGW240-1-7-20180605	6/5/2018	N	580-77842-1	580-77842-1	X				X	X	X				
AGW240-5	AGW240-5-28-20180605	6/5/2018	N	580-77842-1	580-77842-2	X				X	X	X				
AGW240-5	AGW910-20180605	6/5/2018	FD	580-77842-1	580-77842-3	X				X	X	X				
AGW241-1	AGW241-1-6-20180604	6/4/2018	N	580-77785-1	580-77785-13	X										
AGW241-5	AGW241-5-27-20180604	6/4/2018	N	580-77785-1	580-77785-14	X										
AGW242-1	AGW242-1-6-20180607	6/7/2018	N	580-77896-1	580-77896-5	X										
AGW242-2	AGW242-2-16-20180607	6/7/2018	N	580-77896-1	580-77896-6	X										
AGW242-5	AGW242-5-60-20180607	6/7/2018	N	580-77896-1	580-77896-7	X										
AGW243-1	AGW243-1-6-20180612	6/12/2018	N	580-78001-1	580-78001-1	X										
AGW243-3	AGW243-3-25-20180612	6/12/2018	N	580-78001-1	580-78001-2	X										
AGW243-5	AGW243-5-50-20180612	6/12/2018	N	580-78001-1	580-78001-3	X										
AGW244	AGW244-20180607	6/7/2018	N	580-77896-1	580-77896-4	X				X	X	X				
AGW245	AGW245-20180611	6/11/2018	PDN	580-77966-1	580-77966-12	X										
AGW246	AGW246-20180611	6/11/2018	PDN	580-77966-1	580-77966-13	X										
AGW247-1	AGW247-1-6-20180611	6/11/2018	N	580-77967-1	580-77967-2	X				X	X	X				
AGW247-5	AGW247-5-27-20180611	6/11/2018	N	580-77967-1	580-77967-3	X				X	X	X				
AGW248-1	AGW248-1-5-20180604	6/4/2018	N	580-77785-1	580-77785-10	X										
AGW248-5	AGW248-5-26-20180604	6/4/2018	N	580-77785-1	580-77785-11	X										
AGW249-1	AGW249-1-8-20180612	6/12/2018	N	580-78001-1	580-78001-4	X										
AGW249-5	AGW249-5-29-20180612	6/12/2018	N	580-78001-1	580-78001-5	X										
AGW250-1	AGW250-1-9-20180608	6/8/2018	N	580-77941-1	580-77941-2	X										
AGW250-2	AGW250-2-26-20180608	6/8/2018	N	580-77941-1	580-77941-3	X										
AGW250-3	AGW250-3-41-20180608	6/8/2018	N	580-77941-1	580-77941-4	X										
AGW250-3	AGW911-20180608	6/8/2018	FD	580-77941-1	580-77941-5	X										
AGW250-6	AGW250-6-81-20180608	6/8/2018	N	580-77941-1	580-77941-6	X										
AGW251-1	AGW251-1-8-20180608	6/8/2018	N	580-77941-1	580-77941-7	X				X	X	X				
AGW251-2	AGW251-2-25-20180608	6/8/2018	N	580-77941-1	580-77941-8	X				X	X	X				
AGW251-3	AGW251-3-40-20180608	6/8/2018	N	580-77941-1	580-77941-9	X				X	X	X				
AGW251-6	AGW251-6-76-20180611	6/11/2018	N	580-77967-1	580-77967-1	X										
AGW252	AGW252-20180531	5/31/2018	PDN	580-77723-1	580-77723-4	X										
AGW253	AGW253-20180531	5/31/2018	PDN	580-77723-1	580-77723-5	X										
AGW254-1	AGW254-1-6-20180531	5/31/2018	N	580-77723-1	580-77723-9	X										
AGW254-2	AGW254-2-20-20180531	5/31/2018	N	580-77723-1	580-77723-10	X										
AGW254-5	AGW254-5-50-20180531	5/31/2018	N	580-77723-1	580-77723-11	X										
AGW255-1	AGW255-1-13-20180601	6/1/2018	N	580-77740-1	580-77740-6	X										
AGW255-3	AGW255-3-30-20180601	6/1/2018	N	580-77740-1	580-77740-7	X										
AGW255-5	AGW255-5-55-20180601	6/1/2018	N	580-77740-1	580-77740-8	X										
AGW256	AGW256-20180608	6/8/2018	PDN	580-77937-1	580-77937-4	X										
AGW257	AGW257-20180608	6/8/2018	PDN	580-77937-1	580-77937-3	X										
AGW258	AGW258-20180608	6/8/2018	PDN	580-77937-1	580-77937-2	X										
AGW259	AGW259-20180531	5/31/2018	PDN	580-77723-1	580-77723-7	X										
AGW259	AGW912-20180531	5/31/2018	PDFD	580-77723-1	580-77723-8	X										

Table 1-1
2Q2018 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample Identification	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample Identification	Select VOCs by SW-846 8260C (a)	BTEX by SW-846 8260C	TPH-G by NWTPH-Gx	TPH-D by NWTPH-Dx	MEE by RSK-175	TOC by SM 5310C	Sulfate by EPA 300.0	Diss. Metals by SW-846 6020A	Total Cyanide by ASTM D7511 (b)	Available Cyanide by ASTM D6888-09 (b)	Free Cyanide by ASTM D7237-10 (b)
AGW260	AGW260-20180607	6/7/2018	PDN	580-77896-1	580-77896-8	X										
AGW261	AGW261-20180611	6/11/2018	PDN	580-77966-1	580-77966-10	X										
AGW262	AGW262-20180611	6/11/2018	PDN	580-77966-1	580-77966-11	X										
AGW263	AGW263-20180605	6/5/2018	PDN	580-77842-1	580-77842-9	X										
AGW264	AGW264-20180605	6/5/2018	PDN	580-77842-1	580-77842-4	X										
AGW265	AGW265-20180605	6/5/2018	PDN	580-77842-1	580-77842-5	X										
AGW266	AGW266-20180606	6/6/2018	PDN	580-77844-1	580-77844-5	X										
AGW267	AGW267-20180606	6/6/2018	PDN	580-77846-1	580-77846-6	X										
AGW268	AGW268-20180606	6/6/2018	PDN	580-77846-1	580-77846-5	X										
AGW269	AGW269-20180531	5/31/2018	N	580-77703-1	580-77703-2	X				X	X	X				
AGW270	AGW270-20180531	5/31/2018	N	580-77703-1	580-77703-1	X				X	X	X				
AGW271	AGW271-20180601	6/1/2018	N	580-77741-1	580-77741-1	X				X	X	X				
AGW272	AGW272-20180601	6/1/2018	N	580-77741-1	580-77741-5	X				X	X	X				
AGW273	AGW273-20180601	6/1/2018	N	580-77741-1	580-77741-4	X				X	X	X				
AGW274	AGW274-20180601	6/1/2018	N	580-77741-1	580-77741-3	X				X	X	X				
AGW275	AGW275-20180601	6/1/2018	N	580-77741-1	580-77741-2	X				X	X	X				
AGW276-2	AGW276-2-25-20180607	6/7/2018	N	580-77896-1	580-77896-1	X										
AGW276-5	AGW276-5-60-20180607	6/7/2018	N	580-77896-1	580-77896-2	X										
AGW276-6	AGW276-6-80-20180607	6/7/2018	N	580-77896-1	580-77896-3	X										
AGW277	AGW277-20180607	6/7/2018	N	580-77897-1	580-77897-6				X							
AGW278-1	AGW278-1-17-20180605	6/5/2018	N	580-77840-1	580-77840-3	X										
AGW278-1	AGW278-1-17-NAOH-20180605	6/5/2018	N	A8F0123	A8F0123-11/RE2									X	X	X
AGW278-2	AGW278-2-25-20180611	6/11/2018	N	580-77965-1	580-77965-2	X										
AGW278-4	AGW278-4-45-20180611	6/11/2018	N	580-77965-1	580-77965-3	X										
AGW278-6	AGW278-6-80-20180611	6/11/2018	N	580-77965-1	580-77965-4	X										
AGW279	AGW279-20180607	6/7/2018	N	580-77897-1	580-77897-5				X							
AGW280	AGW280-20180607	6/7/2018	N	580-77897-1	580-77897-4				X							
AGW281	AGW281-20180607	6/7/2018	N	580-77897-1	580-77897-3				X							
AGW282	AGW282-20180607	6/7/2018	N	580-77897-1	580-77897-2				X							
APP-057	APP-057-20180531	5/31/2018	N	580-77723-1	580-77723-6	X										
IW34	IW34-20180518	5/31/2018	N	580-77703-1	580-77703-3	X				X	X	X				
IW34	AGW913-20180531	5/31/2018	FD	580-77703-1	580-77703-4	X				X	X	X				
IW36	IW36-20180531	5/31/2018	N	580-77703-1	580-77703-5	X				X	X	X				
IW37	IW37-20180531	5/31/2018	N	580-77703-1	580-77703-6	X				X	X	X				

Notes:

(a) Select VOCs consist of 1,1-dichloroethene, cis-1,2-dichloroethene, tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride.

(b) Samples were analyzed for cyanide by Apex Laboratories; all other analytical methods were performed by TestAmerica.

Abbreviations/Acronyms:

BTEX = benzene, toluene, ethylbenzene, and xylenes
EPA = US Environmental Protection Agency
FD = field duplicate
MEE = methane, ethane, ethene
N = primary sample
PDN = passive diffusion primary sample
PDFD = passive diffusion field duplicate
SDG = sample delivery group
TOC = total organic compound
NWTPH = Northwest Total Petroleum Hydrocarbon
VOC = volatile organic compound

Table 1-2
2Q2018 Groundwater Analytical Results
Volatile Organic Compounds, General Chemistry, and Dissolved Gases
Boeing Auburn Facility
Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C (µg/L)						General Chemistry by EPA 300.0, SM5310C (mg/L)		Dissolved Gases by RSK-175 (µg/L)		
					1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Sulfate	Total Organic Carbon	Ethane	Ethene	Methane
AGW001R	Shallow	580-77846-1	6/6/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**1.1**	0.020 U	--	--	--	--	--
AGW002R	Shallow	580-77784-1	6/4/2018	N	0.20 U	**0.26**	0.20 U	0.20 U	0.20 U	0.020 U	**1.8**	**2.7**	0.57 U	0.40 U	**3600**
AGW002R	Shallow	580-77784-1	6/4/2018	FD	0.20 U	**0.26**	0.20 U	0.20 U	0.20 U	0.020 U	**2.2**	**2.8**	0.57 U	0.40 U	**3100**
AGW006R	Shallow	580-77846-1	6/6/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW009	Shallow-WT	580-77938-1	6/8/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.23**	0.020 U	--	--	--	--	--
AGW010	Shallow-WT	580-77738-1	5/31/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW010	Shallow-WT	580-77738-1	5/31/2018	FD	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW024	Shallow	580-77965-1	6/11/2018	PDN	0.20 U	**0.98**	0.20 U	0.20 U	0.20 U	**0.85**	--	--	--	--	--
AGW025	Shallow	580-77738-1	5/31/2018	PDN	0.20 U	**2.4**	0.20 U	**0.25**	0.20 U	**1.8**	--	--	--	--	--
AGW026	Shallow	580-77738-1	5/31/2018	PDN	0.20 U	**0.58**	0.20 U	0.20 U	**0.60**	0.020 U	--	--	--	--	--
AGW027	Shallow-WT	580-77738-1	5/31/2018	PDN	0.20 U	**0.36**	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW029	Shallow	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW030	Shallow	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW031R	Shallow	580-77739-1	6/1/2018	PDN	0.20 U	**1.8**	0.20 U	0.20 U	**0.93**	0.020 U	--	--	--	--	--
AGW032	Shallow-WT	580-77966-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW033	Shallow-WT	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW034	Deep	580-77965-1	6/11/2018	PDN	0.20 U	**0.54**	0.20 U	0.20 U	**1.4**	0.020 U	--	--	--	--	--
AGW035	Deep	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**1.8**	0.020 U	--	--	--	--	--
AGW037	Shallow-WT	580-77840-1	6/5/2018	N	0.20 U	**1.1**	0.20 U	0.20 U	**1.5**	**0.17**	--	--	--	--	--
AGW039	Shallow-WT	580-77738-1	5/31/2018	N	0.20 U	**1.0**	0.20 U	0.20 U	**0.41**	0.020 U	--	--	--	--	--
AGW039	Shallow-WT	580-77738-1	5/31/2018	FD	0.20 U	**1.0**	0.20 U	0.20 U	**0.43**	0.020 U	--	--	--	--	--
AGW040	Shallow-WT	580-77738-1	5/31/2018	PDN	0.20 U	**0.51**	0.20 U	0.20 U	**0.65**	0.020 U	--	--	--	--	--
AGW041	Shallow-WT	580-77940-1	6/8/2018	PDN	0.20 U	0.20 U	**0.20**	0.20 U	**0.23**	0.020 U	--	--	--	--	--
AGW044	Shallow-WT	580-77940-1	6/8/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW053R	Shallow-WT	580-77784-1	6/4/2018	PDN	0.20 U	**0.24**	**0.20**	0.20 U	**0.77**	0.020 U	--	--	--	--	--
AGW055R	Intermediate	580-77846-1	6/6/2018	PDN	0.20 U	**1.1**	0.20 U	0.20 U	**0.34**	0.020 U	--	--	--	--	--
AGW057R	Intermediate	580-77846-1	6/6/2018	PDN	0.20 U	0.20 U	**0.44**	0.20 U	**0.93**	0.020 U	--	--	--	--	--
AGW058R	Shallow-WT	580-77846-1	6/6/2018	PDN	0.20 U	0.20 U	**0.30**	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW059R	Shallow-WT	580-77846-1	6/6/2018	PDN	0.20 U	0.20 U	**0.27**	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW060R	Intermediate	580-77846-1	6/6/2018	PDN	0.20 U	**2.1**	0.20 U	0.20 U	**0.69**	0.020 U	--	--	--	--	--
AGW064	Shallow-WT	580-77739-1	6/1/2018	PDN	0.20 U	**0.62**	0.20 U	0.20 U	**2.1**	0.020 U	--	--	--	--	--
AGW065	Shallow-WT	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW065	Shallow-WT	580-77739-1	6/1/2018	PDFD	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW066	Shallow-WT	580-77784-1	6/4/2018	PDN	0.20 U	**3.1**	0.20 U	0.20 U	**3.7**	0.020 U	--	--	--	--	--
AGW067	Shallow-WT	580-77784-1	6/4/2018	PDN	0.20 U	**1.7**	0.20 U	0.20 U	**3.4**	0.020 U	--	--	--	--	--
AGW068	Shallow-WT	580-77842-1	6/5/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW069	Shallow-WT	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW072	Intermediate	580-77784-1	6/4/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.90**	0.020 U	--	--	--	--	--
AGW073	Deep	580-77784-1	6/4/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW074	Shallow-WT	580-77965-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--

Table 1-2
2Q2018 Groundwater Analytical Results
Volatile Organic Compounds, General Chemistry, and Dissolved Gases
Boeing Auburn Facility
Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C (µg/L)						General Chemistry by EPA 300.0, SM5310C (mg/L)		Dissolved Gases by RSK-175 (µg/L)		
					1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Sulfate	Total Organic Carbon	Ethane	Ethene	Methane
AGW078	Shallow-WT	580-77940-1	6/8/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW079	Shallow-WT	580-77965-1	6/11/2018	PDN	0.20 U	**0.31**	0.20 U	0.20 U	0.20 U	**0.88**	--	--	--	--	--
AGW081	Shallow-WT	580-77965-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW085	Shallow-WT	580-77940-1	6/8/2018	PDN	0.20 U	0.20 U	**0.29**	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW087	Intermediate	580-77965-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW088	Shallow	580-77966-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW089	Intermediate	580-77966-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW090	Shallow	580-77965-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW091	Intermediate	580-77966-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW095R	Intermediate	580-77739-1	6/1/2018	PDN	0.20 U	**0.25**	0.20 U	0.20 U	**1.2**	0.020 U	--	--	--	--	--
AGW098R	Deep	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.38**	0.020 U	--	--	--	--	--
AGW104	Shallow	580-78002-1	6/12/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW105R	Intermediate	580-77739-1	6/1/2018	PDN	0.20 U	**0.32**	0.20 U	0.20 U	**1.4**	**0.12**	--	--	--	--	--
AGW106R	Shallow	580-77784-1	6/4/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	**16**	1.0 U	0.57 U	0.40 U	**260**
AGW110R	Shallow	580-77784-1	6/4/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.11**	**1.2**	**3.1**	0.57 U	0.40 U	**4000**
AGW112R	Shallow	580-77784-1	6/4/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.65**	0.020 U	--	--	--	--	--
AGW115	Shallow-WT	580-77940-1	6/8/2018	PDN	0.20 U	**1.7**	0.20 U	0.20 U	0.20 U	**0.51**	--	--	--	--	--
AGW116	Shallow-WT	580-77940-1	6/8/2018	PDN	0.20 U	0.20 U	**0.30**	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW117	Shallow-WT	580-77940-1	6/8/2018	PDN	0.20 U	0.20 U	**0.43**	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW118	Shallow-WT	580-77940-1	6/8/2018	PDN	0.20 U	0.20 U	**0.52**	0.20 U	**0.24**	0.020 U	--	--	--	--	--
AGW119	Intermediate	580-77966-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW120	Shallow	580-77965-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW125	Shallow	580-77784-1	6/4/2018	PDN	0.20 U	**1.1**	0.20 U	0.20 U	**5.5**	0.020 U	--	--	--	--	--
AGW125	Shallow	580-77784-1	6/4/2018	PDFD	0.20 U	**1.1**	0.20 U	0.20 U	**5.5**	0.020 U	--	--	--	--	--
AGW126	Intermediate	580-77846-1	6/6/2018	N	**0.24**	**5.0**	0.20 U	**0.22**	**6.7**	0.020 U	--	--	--	--	--
AGW127	Shallow-WT	580-77965-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW128	Shallow-WT	580-77897-1	6/7/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW128	Shallow-WT	580-77897-1	6/7/2018	FD	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW129	Shallow-WT	580-77940-1	6/8/2018	PDN	0.20 U	0.20 U	**0.41**	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW130	Shallow-WT	580-77940-1	6/8/2018	N	0.20 U	0.20 U	**0.21**	0.20 U	**0.23**	0.020 U	--	--	--	--	--
AGW131	Shallow	580-77938-1	6/8/2018	PDN	0.20 U	**0.95**	0.20 U	0.20 U	0.20 U	**1.3**	--	--	--	--	--
AGW133	Shallow	580-78002-1	6/12/2018	PDN	0.20 U	0.20 U	**0.34**	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW134	Shallow	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.17**	--	--	--	--	--
AGW135	Shallow	580-77739-1	6/1/2018	PDN	0.20 U	**0.28**	0.20 U	0.20 U	**0.72**	0.020 U	--	--	--	--	--
AGW136	Shallow	580-77739-1	6/1/2018	PDN	0.20 U	**0.83**	0.20 U	0.20 U	**1.7**	0.020 U	--	--	--	--	--
AGW137	Intermediate	580-77739-1	6/1/2018	PDN	0.20 U	**0.37**	0.20 U	0.20 U	**2.9**	0.020 U	--	--	--	--	--
AGW138	Deep	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.52**	0.020 U	--	--	--	--	--
AGW139	Intermediate	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**1.9**	0.020 U	--	--	--	--	--
AGW140	Intermediate	580-77739-1	6/1/2018	PDN	0.20 U	**0.78**	0.20 U	0.20 U	**3.1**	0.020 U	--	--	--	--	--

Table 1-2
2Q2018 Groundwater Analytical Results
Volatile Organic Compounds, General Chemistry, and Dissolved Gases
Boeing Auburn Facility
Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C (µg/L)						General Chemistry by EPA 300.0, SM5310C (mg/L)		Dissolved Gases by RSK-175 (µg/L)		
					1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Sulfate	Total Organic Carbon	Ethane	Ethene	Methane
AGW141	Intermediate	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**1.7**	0.020 U	--	--	--	--	--
AGW142	Deep	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW143	Deep	580-77785-1	6/4/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW144	Intermediate	580-77785-1	6/4/2018	PDN	0.20 U	**2.0**	0.20 U	**0.35**	**0.65**	**0.31**	--	--	--	--	--
AGW145	Intermediate	580-77785-1	6/4/2018	PDN	0.20 U	**11**	0.20 U	**1.4**	**6.2**	**1.9**	--	--	--	--	--
AGW146	Deep	580-77785-1	6/4/2018	PDN	0.20 U	**1.3**	0.20 U	0.20 U	**3.6**	**0.085**	--	--	--	--	--
AGW147	Intermediate	580-77785-1	6/4/2018	PDN	0.20 U	**2.0**	0.20 U	0.20 U	0.20 U	**0.023**	--	--	--	--	--
AGW148	Intermediate	580-77785-1	6/4/2018	PDN	0.20 U	**0.42**	0.20 U	0.20 U	**1.9**	0.020 U	--	--	--	--	--
AGW149	Intermediate	580-77785-1	6/4/2018	PDN	0.20 U	**0.26**	0.20 U	0.20 U	**2.7**	0.020 U	--	--	--	--	--
AGW150	Intermediate	580-77846-1	6/6/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.79**	0.020 U	--	--	--	--	--
AGW150	Intermediate	580-77846-1	6/6/2018	PDFD	0.20 U	0.20 U	0.20 U	0.20 U	**0.77**	0.020 U	--	--	--	--	--
AGW151	Intermediate	580-77739-1	6/1/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.31**	0.020 U	--	--	--	--	--
AGW152	Shallow	580-77738-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**2.1**	--	--	--	--	--
AGW153	Shallow	580-78002-1	6/12/2018	PDN	0.20 U	0.20 U	**0.23**	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW154	Intermediate	580-77938-1	6/8/2018	PDN	0.20 U	**0.36**	0.20 U	0.20 U	**0.32**	0.020 U	--	--	--	--	--
AGW155	Intermediate	580-77738-1	5/31/2018	PDN	0.20 U	**2.1**	0.20 U	**0.29**	0.20 U	**4.8**	--	--	--	--	--
AGW156	Intermediate	580-77738-1	5/31/2018	PDN	0.20 U	**5.5**	0.20 U	**0.43**	**0.51**	**1.2**	--	--	--	--	--
AGW157	Intermediate	580-77785-1	6/4/2018	PDN	0.20 U	**2.1**	0.20 U	0.20 U	**2.4**	**0.22**	--	--	--	--	--
AGW158	Intermediate	580-77966-1	6/11/2018	PDN	0.20 U	**0.52**	**0.24**	0.20 U	**1.7**	0.020 U	--	--	--	--	--
AGW159	Deep	580-77966-1	6/11/2018	PDN	0.20 U	**0.62**	0.20 U	0.20 U	**3.1**	0.020 U	--	--	--	--	--
AGW160	Intermediate	580-77894-1	6/7/2018	PDN	0.20 U	**0.25**	0.20 U	0.20 U	**2.2**	0.020 U	--	--	--	--	--
AGW161	Intermediate	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.99**	0.020 U	--	--	--	--	--
AGW162	Intermediate	580-77842-1	6/5/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.46**	0.020 U	--	--	--	--	--
AGW163	Intermediate	580-77938-1	6/8/2018	PDN	0.20 U	**1.3**	0.20 U	0.20 U	**3.6**	0.020 U	--	--	--	--	--
AGW164	Intermediate	580-77965-1	6/11/2018	PDN	0.20 U	**0.21**	0.20 U	0.20 U	**1.1**	0.020 U	--	--	--	--	--
AGW165	Shallow	580-77965-1	6/11/2018	PDN	0.20 U	**1.8**	0.20 U	0.20 U	**2.1**	**0.40**	--	--	--	--	--
AGW166	Intermediate	580-77966-1	6/11/2018	PDN	0.20 U	**1.6**	0.20 U	0.20 U	0.20 U	**0.30**	--	--	--	--	--
AGW167	Deep	580-77966-1	6/11/2018	PDN	0.20 U	**2.1**	0.20 U	**0.28**	**5.1**	**0.11**	--	--	--	--	--
AGW168	Intermediate	580-77966-1	6/11/2018	PDN	0.20 U	**1.4**	0.20 U	0.20 U	**4.6**	0.020 U	--	--	--	--	--
AGW169	Deep	580-77966-1	6/11/2018	PDN	0.20 U	**1.1**	0.20 U	0.20 U	**5.0**	0.020 U	--	--	--	--	--
AGW170	Intermediate	580-77937-1	6/8/2018	PDN	0.20 U	**0.29**	0.20 U	0.20 U	**1.6**	0.020 U	--	--	--	--	--
AGW171	Deep	580-77937-1	6/8/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.81**	0.020 U	--	--	--	--	--
AGW172	Intermediate	580-77894-1	6/7/2018	PDN	0.20 U	**0.28**	0.20 U	0.20 U	**4.0**	0.020 U	--	--	--	--	--
AGW173	Intermediate	580-77773-1	6/4/2018	PDN	0.20 U	**0.77**	0.20 U	0.20 U	**3.1**	0.020 U	--	--	--	--	--
AGW174	Intermediate	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**1.2**	0.020 U	--	--	--	--	--
AGW175	Intermediate	580-77723-1	5/31/2018	N	0.20 U	**0.27**	0.20 U	0.20 U	**1.8**	0.020 U	--	--	--	--	--

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2Q2018 Groundwater Analytical Results
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Boeing Auburn Facility
Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C (µg/L)						General Chemistry by EPA 300.0, SM5310C (mg/L)		Dissolved Gases by RSK-175 (µg/L)		
					1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Sulfate	Total Organic Carbon	Ethane	Ethene	Methane
AGW176	Intermediate	580-77894-1	6/7/2018	PDN	0.20 U	**0.25**	0.20 U	0.20 U	**2.6**	0.020 U	--	--	--	--	--
AGW177	Intermediate	580-77894-1	6/7/2018	PDN	0.20 U	**1.1**	0.20 U	0.20 U	**3.9**	0.020 U	--	--	--	--	--
AGW178	Deep	580-77894-1	6/7/2018	PDN	0.20 U	**0.40**	0.20 U	0.20 U	**3.7**	0.020 U	--	--	--	--	--
AGW179	Intermediate	580-77894-1	6/7/2018	PDN	0.20 U	**5.5**	0.20 U	0.20 U	0.20 U	**0.095**	--	--	--	--	--
AGW180	Deep	580-77894-1	6/7/2018	PDN	0.20 U	**0.22**	0.20 U	0.20 U	**2.5**	0.020 U	--	--	--	--	--
AGW181	Intermediate	580-77844-1	6/6/2018	PDN	0.20 U	**0.98**	0.20 U	0.20 U	**4.0**	0.020 U	--	--	--	--	--
AGW182	Intermediate	580-77841-1	6/5/2018	PDN	0.20 U	**2.2**	0.20 U	**0.24**	**1.4**	**0.18**	--	--	--	--	--
AGW183	Deep	580-77841-1	6/5/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW184	Intermediate	580-78002-1	6/12/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.31**	0.020 U	--	--	--	--	--
AGW185	Deep	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**1.8**	0.020 U	--	--	--	--	--
AGW186	Intermediate	580-78002-1	6/12/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.47**	0.020 U	--	--	--	--	--
AGW187	Intermediate	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**1.2**	0.020 U	--	--	--	--	--
AGW188	Intermediate	580-77844-1	6/6/2018	N	0.20 U	**0.45**	0.20 U	0.20 U	**3.6**	0.020 U	--	--	--	--	--
AGW189	Intermediate	580-78002-1	6/12/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.81**	0.020 U	--	--	--	--	--
AGW190	Intermediate	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.95**	0.020 U	--	--	--	--	--
AGW191	Intermediate	580-77842-1	6/5/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW192	Deep	580-77842-1	6/5/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW193	Shallow	580-77966-1	6/11/2018	PDN	0.20 U	**1.5**	0.20 U	0.20 U	**2.7**	**0.12**	--	--	--	--	--
AGW194	Shallow	580-77966-1	6/11/2018	PDN	0.20 U	**0.70**	0.20 U	0.20 U	**1.3**	0.020 U	--	--	--	--	--
AGW195	Deep	580-77773-1	6/4/2018	PDN	0.20 U	**0.67**	0.20 U	0.20 U	**6.2**	0.020 U	--	--	--	--	--
AGW196	Intermediate	580-77773-1	6/4/2018	PDN	**0.22**	**3.5**	0.20 U	0.20 U	0.20 U	**2.5**	--	--	--	--	--
AGW197	Deep	580-77894-1	6/7/2018	PDN	0.20 U	**0.64**	0.20 U	0.20 U	**9.6**	0.020 U	--	--	--	--	--
AGW198	Intermediate	580-77894-1	6/7/2018	PDN	0.20 U	**0.52**	0.20 U	0.20 U	**6.5**	0.020 U	--	--	--	--	--
AGW199	Deep	580-77894-1	6/7/2018	PDN	0.20 U	**1.8**	0.20 U	0.20 U	**4.7**	0.020 U	--	--	--	--	--
AGW200-2	Shallow	580-77894-1	6/7/2018	N	0.20 U	**2.2**	0.20 U	**0.26**	**0.29**	**1.5**	--	--	--	--	--
AGW200-5	Intermediate	580-77894-1	6/7/2018	N	0.20 U	**4.7**	0.20 U	**0.39**	**1.4**	**1.1**	--	--	--	--	--
AGW200-6	Deep	580-77894-1	6/7/2018	N	0.20 U	**4.4**	0.20 U	**0.42**	**0.62**	**1.0**	--	--	--	--	--
AGW201-2	Shallow	580-77938-1	6/8/2018	N	0.20 U	**2.3**	0.20 U	0.20 U	**0.44**	**1.2**	--	--	--	--	--
AGW201-5	Intermediate	580-77938-1	6/8/2018	N	0.20 U	**2.1**	0.20 U	**0.22**	**3.8**	**0.32**	--	--	--	--	--
AGW201-6	Deep	580-77938-1	6/8/2018	N	0.20 U	**4.0**	0.20 U	**0.42**	**6.4**	**0.36**	--	--	--	--	--
AGW202-2	Shallow	580-77938-1	6/8/2018	N	0.20 U	**1.1**	0.20 U	0.20 U	**1.2**	**0.15**	--	--	--	--	--
AGW202-4	Intermediate	580-77938-1	6/8/2018	N	0.20 U	**0.92**	0.20 U	0.20 U	**1.8**	**0.25**	--	--	--	--	--
AGW202-6	Deep	580-77938-1	6/8/2018	N	0.20 U	**0.21**	0.20 U	0.20 U	**0.82**	0.020 U	--	--	--	--	--
AGW203-2	Shallow	580-77938-1	6/8/2018	N	0.20 U	0.20 U	**0.30**	0.20 U	**0.52**	0.020 U	--	--	--	--	--
AGW203-4	Intermediate	580-77938-1	6/8/2018	N	0.20 U	0.20 U	**0.32**	0.20 U	**2.5**	0.020 U	--	--	--	--	--
AGW203-6	Deep	580-77938-1	6/8/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--

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Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C (µg/L)						General Chemistry by EPA 300.0, SM5310C (mg/L)		Dissolved Gases by RSK-175 (µg/L)		
					1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Sulfate	Total Organic Carbon	Ethane	Ethene	Methane
AGW204	Intermediate	580-78002-1	6/12/2018	PDN	0.20 U	0.20 U	**0.23**	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW205	Intermediate	580-77965-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW206	Intermediate	580-77965-1	6/11/2018	PDN	0.20 U	0.20 U	**0.34**	0.20 U	**0.23**	0.020 U	--	--	--	--	--
AGW207-2	Shallow	580-77841-1	6/5/2018	N	0.20 U	**3.6**	0.20 U	0.20 U	**4.8**	**0.11**	--	--	--	--	--
AGW207-4	Intermediate	580-77841-1	6/5/2018	N	0.20 U	**1.5**	0.20 U	0.20 U	**4.8**	**0.13**	--	--	--	--	--
AGW207-7	Deep	580-77841-1	6/5/2018	N	0.20 U	**0.53**	0.20 U	0.20 U	**4.4**	**0.029**	--	--	--	--	--
AGW208-2	Shallow	580-77841-1	6/5/2018	N	0.20 U	**3.7**	0.20 U	0.20 U	**1.8**	**1.5**	--	--	--	--	--
AGW208-4	Intermediate	580-77841-1	6/5/2018	N	0.20 U	**1.2**	0.20 U	0.20 U	**2.6**	0.020 U	--	--	--	--	--
AGW208-6	Deep	580-77841-1	6/5/2018	N	0.20 U	**0.69**	0.20 U	0.20 U	**3.8**	0.020 U	--	--	--	--	--
AGW209-2	Shallow	580-77773-1	6/4/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**1.3**	--	--	--	--	--
AGW209-5	Intermediate	580-77773-1	6/4/2018	N	**0.22**	**1.3**	0.20 U	0.20 U	**1.8**	**1.1**	--	--	--	--	--
AGW209-6	Deep	580-77773-1	6/4/2018	N	0.20 U	**0.64**	0.20 U	0.20 U	**4.0**	0.020 U	--	--	--	--	--
AGW210-2	Shallow	580-77773-1	6/4/2018	N	0.20 U	**0.23**	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW210-5	Intermediate	580-77773-1	6/4/2018	N	0.20 U	**0.70**	0.20 U	0.20 U	**1.8**	0.020 U	--	--	--	--	--
AGW210-6	Deep	580-77773-1	6/4/2018	N	0.20 U	**0.24**	0.20 U	0.20 U	**3.3**	0.020 U	--	--	--	--	--
AGW211-2	Shallow	580-77773-1	6/4/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW211-2	Shallow	580-77773-1	6/4/2018	FD	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW211-5	Intermediate	580-77773-1	6/4/2018	N	0.20 U	**1.0**	0.20 U	0.20 U	**2.3**	0.020 U	--	--	--	--	--
AGW211-6	Deep	580-77773-1	6/4/2018	N	0.20 U	**0.49**	0.20 U	0.20 U	**1.7**	0.020 U	--	--	--	--	--
AGW212-2	Shallow	580-77740-1	6/1/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW212-5	Intermediate	580-77740-1	6/1/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	**0.86**	0.020 U	--	--	--	--	--
AGW212-7	Deep	580-77740-1	6/1/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	**3.5**	0.020 U	--	--	--	--	--
AGW213	Deep	580-77844-1	6/6/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW214	Intermediate	580-77844-1	6/6/2018	N	0.20 U	**0.29**	0.20 U	0.20 U	**2.1**	0.020 U	--	--	--	--	--
AGW215	Intermediate	580-77844-1	6/6/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW215	Intermediate	580-77844-1	6/6/2018	FD	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW216	Intermediate	580-77965-1	6/11/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	**0.80**	0.020 U	--	--	--	--	--
AGW217	Intermediate	580-77723-1	5/31/2018	N	0.20 U	**0.24**	0.20 U	0.20 U	**1.4**	0.020 U	--	--	--	--	--
AGW218	Intermediate	580-77844-1	6/6/2018	N	0.20 U	**0.40**	0.20 U	0.20 U	**2.8**	0.020 U	--	--	--	--	--
AGW219	Intermediate	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW220	Intermediate	580-77785-1	6/4/2018	N	0.20 U	**0.25**	0.20 UJ	0.20 U	**0.32**	0.020 U	--	--	--	--	--
AGW221	Intermediate	580-77894-1	6/7/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW222	Intermediate	580-77940-1	6/8/2018	PDN	0.20 U	0.20 U	**0.45**	0.20 U	**0.47**	0.020 U	--	--	--	--	--
AGW223	Deep	580-77938-1	6/8/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW224	Shallow-WT	580-77841-1	6/5/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW225	Shallow	580-77842-1	6/5/2018	N	0.20 U	**3.2**	0.20 U	**0.32**	**1.8**	**0.34**	**5.1**	**4.4**	0.57 U	0.40 U	**330**

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Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C (µg/L)						General Chemistry by EPA 300.0, SM5310C (mg/L)		Dissolved Gases by RSK-175 (µg/L)		
					1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Sulfate	Total Organic Carbon	Ethane	Ethene	Methane
AGW226	Shallow	580-77967-1	6/11/2018	N	0.20 U	**3.5**	0.20 U	**0.23**	**1.5**	**0.49**	**7.6**	**2.5**	0.57 U	0.40 U	**960**
AGW227	Intermediate	580-77841-1	6/5/2018	PDN	0.20 U	**2.5**	0.20 U	**0.35**	**1.6**	**0.22**	--	--	--	--	--
AGW228	Shallow	580-77841-1	6/5/2018	N	0.20 U	**2.5**	0.20 U	**0.34**	**2.6**	**0.21**	--	--	--	--	--
AGW229	Shallow-WT	580-77937-1	6/8/2018	PDN	0.20 U	**2.5**	0.20 U	0.20 U	**1.6**	0.020 U	--	--	--	--	--
AGW230	Deep	580-78002-1	6/12/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.83**	0.020 U	--	--	--	--	--
AGW231	Shallow	580-77894-1	6/7/2018	PDN	0.20 U	**1.1**	0.20 U	0.20 U	**0.30**	**1.8**	--	--	--	--	--
AGW232	Shallow	580-77773-1	6/4/2018	PDN	0.20 U	**2.5**	0.20 U	0.20 U	0.20 U	**4.3**	--	--	--	--	--
AGW233	Deep	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW234	Deep	580-77740-1	6/1/2018	PDN	**0.28**	**1.5**	0.20 U	0.20 U	**7.0**	**0.13**	--	--	--	--	--
AGW235-2	Shallow	580-77740-1	6/1/2018	N	0.20 U	**1.6**	0.20 U	**0.29**	0.20 U	**3.4**	--	--	--	--	--
AGW235-4	Intermediate	580-77740-1	6/1/2018	N	**0.23**	**10**	0.20 U	0.20 U	**2.3**	**0.14**	--	--	--	--	--
AGW235-7	Deep	580-77740-1	6/1/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW236	Shallow	580-77841-1	6/5/2018	N	0.20 U	**4.9**	0.20 U	0.20 U	**1.5**	**0.20**	--	--	--	--	--
AGW237	Deep	580-77846-1	6/6/2018	PDN	**0.58**	**0.89**	0.20 U	0.20 U	**1.6**	**0.036**	--	--	--	--	--
AGW238	Intermediate	580-77846-1	6/6/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW239	Shallow	580-77846-1	6/6/2018	N	0.20 U	**0.72**	0.20 U	0.20 U	0.20 U	**0.28**	--	--	--	--	--
AGW240-1	Shallow-WT	580-77842-1	6/5/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	1.2 U	**8.1**	**3.6**	0.40 U	**11000**
AGW240-5	Shallow	580-77842-1	6/5/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 UJ	1.2 U	**5.3**	**5.1**	0.40 U	**9200**
AGW240-5	Shallow	580-77842-1	6/5/2018	FD	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.068 J**	1.2 U	**5.3**	**4.6**	0.40 U	**7600**
AGW241-1	Shallow-WT	580-77785-1	6/4/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW241-5	Shallow	580-77785-1	6/4/2018	N	0.20 U	**0.60**	0.20 U	0.20 U	0.20 U	**0.027**	--	--	--	--	--
AGW242-1	Shallow-WT	580-77896-1	6/7/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.22**	--	--	--	--	--
AGW242-2	Shallow	580-77896-1	6/7/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW242-5	Intermediate	580-77896-1	6/7/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW243-1	Shallow-WT	580-78001-1	6/12/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW243-3	Shallow	580-78001-1	6/12/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW243-5	Intermediate	580-78001-1	6/12/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW244	Shallow-WT	580-77896-1	6/7/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	**6.6**	**26**	0.57 U	0.40 U	**1000**
AGW245	Shallow-WT	580-77966-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW246	Shallow-WT	580-77966-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW247-1	Shallow-WT	580-77967-1	6/11/2018	N	0.20 U	0.20 U	0.20 U	**0.39**	0.20 U	**3.1**	1.2 U	**8.6**	**1.1**	**1.0**	**4500**
AGW247-5	Shallow	580-77967-1	6/11/2018	N	0.20 U	**0.48**	0.20 U	**0.30**	0.20 U	**1.1**	1.2 U	**5.9**	**2.9**	**0.87 J**	**2400**
AGW248-1	Shallow-WT	580-77785-1	6/4/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW248-5	Shallow	580-77785-1	6/4/2018	N	0.20 U	**1.4**	0.20 U	0.20 U	**3.4**	**0.10**	--	--	--	--	--
AGW249-1	Shallow-WT	580-78001-1	6/12/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**2.3**	--	--	--	--	--
AGW249-5	Shallow	580-78001-1	6/12/2018	N	0.20 U	**1.7**	0.20 U	0.20 U	**5.0**	**0.095**	--	--	--	--	--

Table 1-2
2Q2018 Groundwater Analytical Results
Volatile Organic Compounds, General Chemistry, and Dissolved Gases
Boeing Auburn Facility
Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C (µg/L)						General Chemistry by EPA 300.0, SM5310C (mg/L)		Dissolved Gases by RSK-175 (µg/L)		
					1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Sulfate	Total Organic Carbon	Ethane	Ethene	Methane
AGW250-1	Shallow-WT	580-77941-1	6/8/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW250-2	Shallow	580-77941-1	6/8/2018	N	0.20 U	**0.23**	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW250-3	Intermediate	580-77941-1	6/8/2018	N	0.20 U	**0.65**	0.20 U	0.20 U	**0.41**	**0.047 J**	--	--	--	--	--
AGW250-3	Intermediate	580-77941-1	6/8/2018	FD	0.20 U	**0.66**	0.20 U	0.20 U	**0.41**	**0.023 J**	--	--	--	--	--
AGW250-6	Deep	580-77941-1	6/8/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW251-1	Shallow-WT	580-77941-1	6/8/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.34**	**110**	**15**	**0.97 J**	0.40 U	**220**
AGW251-2	Shallow	580-77941-1	6/8/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**1.1**	1.2 U	**9.1**	**2.3**	**2.5**	**2200**
AGW251-3	Intermediate	580-77941-1	6/8/2018	N	0.20 U	**0.26**	0.20 U	0.20 U	0.20 U	**4.3**	1.2 U	**8.7**	**1.1 J**	**1.8**	**2500**
AGW251-6	Deep	580-77967-1	6/11/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.30**	--	--	--	--	--
AGW252	Deep	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW253	Intermediate	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW254-1	Shallow-WT	580-77723-1	5/31/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW254-2	Shallow	580-77723-1	5/31/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW254-5	Intermediate	580-77723-1	5/31/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW255-1	Shallow-WT	580-77740-1	6/1/2018	N	0.20 U	**2.5**	0.20 U	**0.22**	**0.55**	**0.23**	--	--	--	--	--
AGW255-3	Shallow	580-77740-1	6/1/2018	N	0.20 U	**1.2**	0.20 U	0.20 U	0.20 U	**0.19**	--	--	--	--	--
AGW255-5	Intermediate	580-77740-1	6/1/2018	N	0.20 U	**0.87**	0.20 U	0.20 U	0.20 U	**0.18**	--	--	--	--	--
AGW256	Intermediate	580-77937-1	6/8/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	**0.63**	0.020 U	--	--	--	--	--
AGW257	Shallow	580-77937-1	6/8/2018	PDN	0.20 U	0.20 U	**0.40**	0.20 U	**0.21**	0.020 U	--	--	--	--	--
AGW258	Shallow	580-77937-1	6/8/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW259	Deep	580-77723-1	5/31/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW259	Deep	580-77723-1	5/31/2018	PDFD	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW260	Deep	580-77896-1	6/7/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW261	Shallow	580-77966-1	6/11/2018	PDN	0.20 U	**1.9**	0.20 U	**0.32**	**2.1**	**0.23**	--	--	--	--	--
AGW262	Shallow-WT	580-77966-1	6/11/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.54**	--	--	--	--	--
AGW263	Shallow-WT	580-77842-1	6/5/2018	PDN	0.20 U	**4.5**	0.20 U	**0.41**	**1.2**	**0.37**	--	--	--	--	--
AGW264	Deep	580-77842-1	6/5/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW265	Intermediate	580-77842-1	6/5/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW266	Shallow	580-77844-1	6/6/2018	PDN	0.20 U	**0.42**	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW267	Intermediate	580-77846-1	6/6/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW268	Deep	580-77846-1	6/6/2018	PDN	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
AGW269	Shallow	580-77703-1	5/31/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.89**	1.2 U	**8.5**	**3.7 J**	0.40 UJ	**12000 J**
AGW270	Shallow	580-77703-1	5/31/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**4.1**	1.2 U	**12**	**3.7 J**	1.2 UJ	**19000 J**
AGW271	Shallow	580-77741-1	6/1/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	**0.57**	1.2 U	**13**	**3.4**	0.40 U	**14000**
AGW272	Shallow	580-77741-1	6/1/2018	N	0.20 U	**3.7**	0.20 U	**0.51**	**0.32**	**1.3**	**2.7**	**4.8**	0.57 U	**0.88 J**	**410**
AGW273	Shallow	580-77741-1	6/1/2018	N	0.20 U	**1.4**	0.20 U	**0.30**	0.20 U	**3.3**	1.2 U	**6.3**	**1.2**	**1.5**	**1100**

Table 1-2
2Q2018 Groundwater Analytical Results
Volatile Organic Compounds, General Chemistry, and Dissolved Gases
Boeing Auburn Facility
Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C (µg/L)						General Chemistry by EPA 300.0, SM5310C (mg/L)		Dissolved Gases by RSK-175 (µg/L)		
					1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Sulfate	Total Organic Carbon	Ethane	Ethene	Methane
AGW274	Shallow	580-77741-1	6/1/2018	N	0.20 U	**0.82**	0.20 U	**0.20**	0.20 U	**3.2**	1.2 U	**7.1**	**1.5**	**1.5**	**870**
AGW275	Shallow	580-77741-1	6/1/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	1.2 U	**8.7**	**4.1**	0.40 U	**8100**
AGW276-2	Shallow	580-77896-1	6/7/2018	N	0.20 U	**1.2**	0.20 U	0.20 U	**0.24**	**0.81**	--	--	--	--	--
AGW276-5	Intermediate	580-77896-1	6/7/2018	N	0.20 U	**4.6**	0.20 U	**0.44**	0.20 U	**2.9**	--	--	--	--	--
AGW276-6	Deep	580-77896-1	6/7/2018	N	0.20 U	**1.9**	0.20 U	0.20 U	**2.2**	**0.12**	--	--	--	--	--
AGW278-1	Shallow-WT	580-77840-1	6/5/2018	N	0.20 U	**1.2**	0.20 U	0.20 U	**0.66**	**0.51**	--	--	--	--	--
AGW278-2	Shallow	580-77965-1	6/11/2018	N	0.20 U	**1.3**	0.20 U	0.20 U	**0.67**	0.020 U	--	--	--	--	--
AGW278-4	Intermediate	580-77965-1	6/11/2018	N	0.20 U	**1.1**	0.20 U	0.20 U	0.20 U	**2.5**	--	--	--	--	--
AGW278-6	Deep	580-77965-1	6/11/2018	N	0.20 U	**0.41**	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
APP-057	Shallow	580-77723-1	5/31/2018	N	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.020 U	--	--	--	--	--
IW34	Shallow	580-77703-1	5/31/2018	FD	0.20 U	**0.37**	0.20 U	0.20 U	0.20 U	**2.7**	1.2 U	**31**	1.7 UJ	1.2 UJ	**28000 J**
IW34	Shallow	580-77703-1	5/31/2018	N	0.20 U	**0.34**	0.20 U	0.20 U	0.20 U	**2.6**	1.2 U	**32**	**2.9 J**	1.2 UJ	**24000 J**
IW36	Shallow	580-77703-1	5/31/2018	N	0.20 U	**0.22**	0.20 U	0.23	0.20 U	**3.3**	1.2 U	**9.8**	**2.2 J**	**1.2 J**	**1900 J**
IW37	Shallow	580-77703-1	5/31/2018	N	0.20 U	**0.22**	0.20 U	0.20 U	0.20 U	**0.98**	1.2 U	**20**	**3.3 J**	1.2 UJ	**21000 J**

Notes:

Bold text indicates detected analyte.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.

UJ = The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Abbreviations/Acronyms:

FD = field duplicate

µg/L = micrograms per liter

mg/L = milligrams per liter

N = primary sample

SDG = sample delivery group

WT = water table

Table 1-3
2Q2018 Groundwater Analytical Results
BTEX, Petroleum Hydrocarbons, Dissolved Metals, and Cyanide
Boeing Auburn Facility
Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	BTEX by SW-846 8260C (µg/L)					Petroleum Hydrocarbons by NWTPH-Gx/Dx (mg/L)			Dissolved Metals by SW-846 6020A (mg/L)				Cyanide by ASTM D6888-09, D7237-10, D7511-12 (mg/L) (a)		
					Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Gasoline Range Organics (C7-C12)	Diesel Range Organics (C12-C24)	Oil Range Organics (C24-C40)	Arsenic	Cadmium	Copper	Nickel	Available Cyanide	Free Cyanide	Total Cyanide
AGW010	Shallow-WT	580-77738-1	5/31/2018	N	**0.85**	**1.4**	**190**	**37**	**7.1**	**2.0 J**	**0.33**	0.35 U	--	--	--	--	--	--	--
AGW010	Shallow-WT	580-77738-1	5/31/2018	FD	**0.80**	**1.4**	**190**	**37**	**7.2**	**1.8**	**0.35**	0.35 U	--	--	--	--	--	--	--
AGW037	Shallow-WT	580-77840-1 A8F0123	6/5/2018	N	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.00500 U
AGW039	Shallow-WT	580-77738-1	5/31/2018	N	--	--	--	--	--	--	--	--	**0.0095**	--	--	--	--	--	--
AGW039	Shallow-WT	580-77738-1	5/31/2018	FD	--	--	--	--	--	--	--	--	**0.0096**	--	--	--	--	--	--
AGW044	Shallow-WT	580-77940-1	6/8/2018	N	--	--	--	--	--	--	**1.3**	0.35 U	--	--	--	--	--	--	--
AGW047	Shallow	A8F0123	6/5/2018	N	--	--	--	--	--	--	--	--	--	--	--	--	0.00200 U	0.00500 U	**0.0626**
AGW048	Shallow	580-77840-1 A8F0123	6/5/2018	N	--	--	--	--	--	--	--	--	--	**0.0038**	--	**0.0013 J**	0.00200 U	0.00500 U	**0.0503**
AGW049	Shallow	580-77840-1 A8F0123	6/5/2018	N	--	--	--	--	--	--	--	--	--	**0.0040**	**0.18**	**0.014 J**	0.00200 U	0.00500 U	**0.0153 J**
AGW049	Shallow	580-77840-1 A8F0123	6/5/2018	FD	--	--	--	--	--	--	--	--	--	**0.0038**	**0.19**	**0.014 J**	0.00200 U	0.00500 U	**0.0148 J**
AGW050	Shallow	580-77840-1 A8F0123	6/5/2018	N	--	--	--	--	--	--	--	--	--	**0.024**	--	**0.062**	**0.0248 J**	**0.0109 J**	**4.67**
AGW128	Shallow-WT	580-77897-1	6/7/2018	N	--	--	--	--	--	--	**1.5 J**	**1.9 J**	--	--	--	--	--	--	--
AGW128	Shallow-WT	580-77897-1	6/7/2018	FD	--	--	--	--	--	--	**1.2 J**	**1.2 J**	--	--	--	--	--	--	--
AGW130	Shallow-WT	580-77940-1	6/8/2018	N	--	--	--	--	--	--	0.11 U	0.35 U	--	--	--	--	--	--	--
AGW277	Shallow-WT	580-77897-1	6/7/2018	N	--	--	--	--	--	--	**0.23**	0.35 U	--	--	--	--	--	--	--
AGW278-1	Shallow-WT	580-77840-1 A8F0123	6/5/2018	N	--	--	--	--	--	--	--	--	--	--	--	--	0.00200 U	**0.169 J**	**0.0393 J**
AGW279	Shallow-WT	580-77897-1	6/7/2018	N	--	--	--	--	--	--	0.11 U	0.35 U	--	--	--	--	--	--	--
AGW280	Shallow-WT	580-77897-1	6/7/2018	N	--	--	--	--	--	--	0.11 U	0.35 U	--	--	--	--	--	--	--
AGW281	Shallow-WT	580-77897-1	6/7/2018	N	--	--	--	--	--	--	**0.19**	0.35 U	--	--	--	--	--	--	--
AGW282	Shallow-WT	580-77897-1	6/7/2018	N	--	--	--	--	--	--	**0.49**	0.35 U	--	--	--	--	--	--	--

Notes:

(a) Samples analyzed for cyanide were collected, filtered with a 0.1 µm filter and preserved with sodium hydroxide (NaOH).

Bold text indicates detected analyte.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.

Abbreviations/Acronyms:

ASTM = ASTM International
FD = field duplicate
µg/L = micrograms per liter
mg/L = milligrams per liter
µm = micrometer (micron)
N = primary sample
SDG = sample delivery group
WT = water table

Attachment 2

Pilot Test Results

Legend

- One-Time Surface Water Sampling Location
- Offsite Water Table Well
- Shallow Monitoring Well
- Shallow Observation Well (not part of ongoing monitoring)
- Shallow Injection Well
- Shallow Injection Well (not part of ongoing monitoring)
- Waterways

Notes

1. SW-CD13 was sampled in September 2017 for total organic carbon analysis.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 120 240

Scale in Feet

Base map source: Geometrix 2003; Aerial Photo Source: Esri World Imagery; Parcel Data Source: King County GIS 2016

N

LANDAU ASSOCIATES

Boeing Auburn Auburn, Washington	**Pilot Test Well Locations**	Figure 2-1

G:\Projects\025\164\140\601\Quarterly Report\F2-1PilotTestWellLocations.mxd 10/12/2017

Table 2-1
Data Summary
Algona Bioremediation Pilot Test
Boeing Auburn Facility

Well	Aquifer Zone	Date	Elapsed Time from Injection (days)	Volatile Organic Compounds									Aquifer Redox Conditions								Donor Indicators		Total cVOC (nmol/L)	Molar Fraction				
				PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	tDCE (µg/L)	11DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Nitrate (mg/L)	Iron II (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)	pH		PCE	TCE	Total DCE	VC	Ethene+ Ethane
AGW225	WT	12/1/2014	-277	<0.2	2.3	5.7	0.6	<0.2	0.5	<1.0	<1.0	<1.0	1.20	-76.8	<0.10	2.6	4.8	<0.16	290	Fe/S	3.7	6.55	90	0.00	0.19	0.72	0.09	0.00
		8/14/2015	-21	<0.2	1.9	5.1	0.5	<0.2	0.49	<1.0	<1.0	<1.0	1.39	213.3	--	6.4	4.1	<0.16	360	Fe/S	4.2	6.48	80	0.00	0.18	0.72	0.10	0.00
		12/8/2015	95	<0.2	2.1	4.8	0.5	<0.2	0.5	<1.0	<1.0	<1.0	2.0	-54.7	<0.10	4.0	4.2	<0.16	170	Fe/S	3.8	6.93	79	0.00	0.20	0.70	0.10	0.00
		3/2/2016	180	<0.2	1.9	4.6	0.4	<0.2	0.54	<1.0	<1.0	<1.0	0.73	-14	--	2.5	3.3	<0.16	420	Fe/S	4.3	6.34	75	0.00	0.19	0.69	0.12	0.00
		6/23/2016	293	<0.2	2.3	4.4	0.5	<0.2	0.5	<1.0	<1.0	<1.0	3.40	271	--	2.0	4.9	<0.10	330	Fe/S	3.6	6.00	76	0.00	0.23	0.66	0.11	0.00
		9/8/2016	370	<0.2	2.0	4.4	0.5	<0.2	0.46	<1.0	<1.0	<1.0	0.48	-6.0	--	2.5	5.7	<0.10	340	Fe/S	4.3	6.32	73	0.00	0.21	0.69	0.10	0.00
		12/2/2016	455	<0.2	2.4	4.8	0.5	<0.2	0.44	<1.0	<1.0	--	0.96	4.5	--	5.0	4.7	--	280	Fe/S	3.4	6.78	80	0.00	0.23	0.68	0.09	0.00
		3/10/2017	553	<0.2	2.2	4.3	0.4	<0.2	0.6	<1.0	<1.0	--	0.26	71.5	--	2.0	3.4	--	320	Fe/S	4.9	6.72	75	0.00	0.22	0.65	0.13	0.00
		6/7/2017	642	<0.2	2.5	4.5	0.5	<0.2	0.40	<1.0	<1.0	--	0.53	62.6	--	2.0	4.9	--	280	Fe/S	3.8	6.45	77	0.00	0.25	0.67	0.08	0.00
		9/7/2017	734	<0.20	2.1	4.3	0.49	<0.20	0.33	<0.40	<0.57	--	0.46	-31.3	--	3.5	5.0	--	430	Fe/S	4.2	6.34	71	0.00	0.23	0.70	0.07	0.00
		11/28/2017	816	<0.20	1.9	3.7	0.36	<0.20	0.39	<0.40	<0.57	--	2.85	-85.1	--	4.0	5.4	--	390	Fe/S	4.1	6.33	63	0.00	0.23	0.67	0.10	0.00
		6/5/2018	1006	<0.20	1.8	3.2	0.32	<0.20	0.34	<0.40	<0.57	--	0.74	108.8	--	3	5.1	--	330	Fe/S	4.4	6.50	55	0.00	0.25	0.65	0.10	0.00
AGW226	WT	8/14/2015	-21	<0.2	4.1	3.1	0.3	<0.2	0.56	<1.0	<1.0	<1.0	0.55	-12.2	--	2.0	8.0	<0.16	970	S/M	2.6	6.17	75	0.00	0.41	0.47	0.12	0.00
		12/2/2015	89	<0.2	0.5	1.8	<0.2	<0.2	0.4	<1.0	<1.0	<1.0	7.29	-26.1	<0.10	2.0	7.8	<0.16	1000	S/M	5.5	5.07	29	0.00	0.13	0.65	0.22	0.00
		3/3/2016	181	<0.2	3.6	3.1	0.3	<0.2	0.54	<1.0	<1.0	<1.0	0.54	-28.45	--	2.5	6.5	<0.16	1300	S/M	2.4	6.36	71	0.00	0.39	0.49	0.12	0.00
		6/21/2016	291	<0.2	1	4.8	0.3	<0.2	0.7	<1.0	<1.0	<1.0	0.44	177	--	2.0	7.4	<0.10	1200	S/M	2.7	5.91	71	0.00	0.11	0.74	0.16	0.00
		9/8/2016	370	<0.2	1.1	3.8	0.3	<0.2	0.90	<1.0	<1.0	<1.0	0.70	82.5	--	0.0	17.6	<0.10	1100	S/M	4.2	6.22	65	0.00	0.13	0.65	0.22	0.00
		12/7/2016	460	<0.2	2.6	4.0	0.3	<0.2	0.73	<1.0	<1.0	--	1.67	45.1	--	3.0	7.6	--	920	S/M	2.4	6.63	76	0.00	0.26	0.58	0.15	0.00
		3/7/2017	550	<0.2	3.6	3.5	0.3	<0.2	0.60	<0.1	<0.1	--	0.48	-31.2	--	4.0	6.7	--	1000	S/M	2.5	6.63	76	0.00	0.36	0.51	0.13	0.00
		6/6/2017	641	<0.2	3.9	3.4	0.3	<0.2	0.5	<1.0	<1.0	--	0.46	75.9	--	3.0	7.5	--	970	S/M	2.3	6.26	76	0.00	0.39	0.50	0.11	0.00
		9/5/2017	732	<0.20	3.6	3.6	0.31	<0.20	0.36	<0.40	<0.57	--	0.68	-37.7	--	3.0	7.4	--	1400	S/M	2.6	6.47	73	0.00	0.37	0.55	0.08	0.00
		11/29/2017	817	<0.20	1.8	1.4	<0.20	<0.20	0.35	<0.40	<0.57	--	2.33	-65.7	--	4.5	19	--	870	S/M	4.4	6.24	34	0.00	0.41	0.43	0.17	0.00
		6/11/2018	1012	<0.20	1.5	3.5	0.23	<0.20	0.49	<0.40	<0.57	--	0.61	105.2		3.0	7.6	--	960	S/M	2.5	6.69	58	0.00	0.20	0.67	0.14	0.00
AGW240-1	WT	12/1/2014	-277	<0.020	<0.2	<0.2	0.3	<0.2	0.3	<1.0	3.5	<1.0	1.32	-169.5	<0.10	2.7	<1.0	<0.16	3200	M	8.6	6.62	8	0.00	0.00	0.02	0.04	0.94
		8/14/2015	-21	<0.020	<0.2	<0.2	0.2	<0.2	0.049	<1.0	2.5	<1.0	0.54	-67.3	--	1.8	<1.0	<0.16	2900	M	8.1	6.45	3	0.00	0.00	0.02	0.01	0.97
		12/7/2015	94	<0.020	<0.2	<0.2	<0.2	<0.2	0.3	<1.0	3.1	<1.0	1.89	-83.3	<0.10	2.5	<1.0	<0.16	2800	M	7.5	4.51	5	0.00	0.00	0.00	0.04	0.96
		3/3/2016	181	<0.2	<0.2	<0.2	<0.2	<0.2	1	<1.0	3.2	<1.0	0.73	-13.23	--	5.0	<1.0	<0.16	2900	M	7.9	6.60	16	0.00	0.00	0.00	0.13	0.87
		6/15/2016	285	<0.2	<0.2	<0.2	<0.2	<0.2	0.11	<1.0	3.4	<1.0	1.9	-42.5	--	1.5	<1.0	<0.10	5700	M	7.5	6.44	2	0.00	0.00	0.00	0.02	0.98
		9/8/2016	370	<0.2	<0.2	<0.2	<0.2	<0.2	0.091	<1.0	4.2	<1.0	0.60	-45.4	--	4.5	<1.0	<0.10	8900	M	7.7	6.44	1	0.00	0.00	0.00	0.01	0.99
		11/30/2016	453	<0.2	<0.2	<0.2	<0.2	<0.2	0.13	<1.0	2.5	--	0.64	-22.4	--	7.0	<1.0	--	14000	M	7.3	6.84	2	0.00	0.00	0.00	0.02	0.98
		3/10/2017	553	<0.2	<0.2	<0.2	<0.2	<0.2	0.13	<1.0	6.2	--	0.50	83.4	--	1.5	<1.0	--	19000	M	8.9	6.45	2	0.00	0.00	0.00	0.01	0.99
		6/6/2017	641	<0.2	<0.2	<0.2	<0.2	<0.2	0.049	<1.0	1.1	--	12.31	15.9	--	2.0	<1.0	--	1200	M	7.1	6.75	1	0.00	0.00	0.00	0.02	0.98
		9/5/2017	732	<0.20	<0.20	<0.20	<0.20	<0.20	0.068	<0.40	5.6	--	0.58	-77.6	--	3.4	<1.2	--	11000	M	7.9	6.52	1	0.00	0.00	0.00	0.01	0.99
		11/27/2017	815	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	<0.57	--	6.57	-63.4	--	1.5 (c)	<1.2	--	1000	M	7.8	6.61	0	0.00	0.00	0.00	0.00	0.00
		6/5/2018	1005	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	3.6	--	0.77	108.1	--	4	<1.2	--	11000	M	8.1	6.50	0	0.00	0.00	0.00	0.00	1.00

Table 2-1
Data Summary
Algona Bioremediation Pilot Test
Boeing Auburn Facility

Well	Aquifer Zone	Date	Elapsed Time from Injection (days)	Volatile Organic Compounds									Aquifer Redox Conditions								Donor Indicators		Total cVOC (nmol/L)	Molar Fraction				
				PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	tDCE (µg/L)	11DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Nitrate (mg/L)	Iron II (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)	pH		PCE	TCE	Total DCE	VC	Ethene+ Ethane
AGW240-5	SZ	12/1/2014	-277	<0.020	<0.2	4.9	0.7	<0.2	6.6	<1.0	1.0	<1.0	0.51	-116.1	<0.10	2.8	<1.0	<0.16	2200	M	6.6	6.67	163	0.00	0.00	0.29	0.54	0.17
		8/14/2015	-21	<0.020	<0.2	3.3	0.4	<0.2	5.6	1.2	<1.0	<1.0	0.77	-41.7	--	2.8	<1.0	<0.16	2000	M	5.4	6.19	128	0.00	0.00	0.22	0.53	0.25
		12/7/2015	94	<0.020	<0.2	1.8	0.3	<0.2	4.3	1.3	1.3	<1.0	0.81	-86.8	<0.10	6.0	<1.0	<0.16	2200	M	6.5	4.01	90	0.00	0.00	0.12	0.38	0.50
		3/3/2016	181	<0.2	<0.2	1.7	0.3	<0.2	3.1	<1.0	<1.0	<1.0	0.55	-19.15	--	6.0	<1.0	<0.16	1700	M	6.9	6.67	70	0.00	0.00	0.29	0.71	0.00
		6/15/2016	285	<0.2	<0.2	0.3	0.3	<0.2	2.5	2	2.3	<1.0	0.33	-40.8	--	3.0	<1.0	<0.10	8100	M	20.2	6.4	46	0.00	0.00	0.03	0.21	0.76
		9/8/2016	370	<0.2	<0.2	<0.2	0.2	<0.2	0.20	<1.0	3.7	<1.0	0.36	-48.8	--	4.0	<1.0	<0.10	31000	M	5.7	6.46	5	0.00	0.00	0.02	0.02	0.96
		11/30/2016	453	<0.2	<0.2	<0.2	0.2	<0.2	0.10	<1.0	3.7	--	0.51	-34.4	--	8.0	<1.0	--	28000	M	6.2	6.92	4	0.00	0.00	0.02	0.01	0.97
		3/10/2017	553	<0.2	<0.2	<0.2	<0.2	<0.2	0.066	<1.0	9.2	--	0.24	58.7	--	4.0	<1.0	--	22000	M	5.8	6.65	1	0.00	0.00	0.00	0.00	1.00
		6/6/2017	641	<0.2	<0.2	<0.2	<0.2	<0.2	0.074	<1.0	7.6	--	0.73	63.8	--	3.0	<1.0	--	9500	M	4.8	6.41	1	0.00	0.00	0.00	0.00	1.00
		9/5/2017	732	<0.20	<0.20	<0.20	<0.20	<0.20	0.062	<0.80	4.5	--	0.71	-54.7	--	2.4	<1.2	--	20000	M	5.9	6.57	1	0.00	0.00	0.00	0.01	0.99
		11/27/2017	815	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	4.6	--	1.60	-67.3	--	2.5 (c)	<1.2	--	19000	M	7.0	6.51	0	0.00	0.00	0.00	0.00	1.00
		6/5/2018	1005	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	5.1	--	0.42	104.1	--	4.5	<1.2	--	9200	M	5.3	6.60	0	0.00	0.00	0.00	0.00	1.00
AGW244	WT	12/1/2016	454	<0.2	<0.2	<0.2	<0.2	<0.2	<0.020	<1.0	<1.0	--	0.96	20.1	--	0.0	13.2	--	54	N	3.8	6.97	0	0.00	0.00	0.00	0.00	0.00
		3/10/2017	553	<0.2	<0.2	<0.2	<0.2	<0.2	<0.020	<1.0	<1.0	--	6.3	88	--	0.5	15.2	--	<3.0	Fe	5.4	6.57	0	0.00	0.00	0.00	0.00	0.00
		6/5/2017	640	<0.2	<0.2	<0.2	<0.2	<0.2	<0.020	<1.0	<1.0	--	0.62	41.2	<0.10	2.0	3.8	--	4600	S/M	53.1	6.26	0	0.00	0.00	0.00	0.00	0.00
		9/5/2017	732	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	<0.57	--	0.59	-28.8	--	3.8	5.4	--	360	Fe/S	9.3	6.37	0	0.00	0.00	0.00	0.00	0.00
		11/27/2017	815	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	<0.57	--	5.15	36.2	--	1.0	14	--	0.30	Fe	4.7	6.53	0	0.00	0.00	0.00	0.00	0.00
		6/7/2018	1008	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	<0.57	--	0.58	113.4	--	1.5	6.6	--	1000	S/M	26	6.46	0	0.00	0.00	0.00	0.00	0.00
AGW247-1	WT	12/2/2014	-276	<0.020	<0.2	0.8	<0.2	<0.2	0.17	<1.0	1.0	<1.0	0.64	-76.1	<0.10	2.5	6.3	<0.16	3600	S/M	57.4	6.19	11	0.00	0.00	0.19	0.06	0.75
		8/14/2015	-21	<0.020	<0.2	3.4	0.4	<0.2	2.5	<1.0	<1.0	<1.0	0.49	-61.4	--	3.4	<1.0	<0.16	5200	M	9.6	6.36	79	0.00	0.00	0.49	0.51	0.00
		12/2/2015	89	<0.020	<0.2	1.5	0.3	<0.2	2.1	<1.0	<1.0	<1.0	4.32	-101.2	<0.10	5.5	1.1	<0.16	6900	M	13.2	5.41	52	0.00	0.00	0.36	0.64	0.00
		3/2/2016	180	<0.2	<0.2	0.9	0.4	<0.2	4	<1.0	<1.0	<1.0	0.44	-32.23	--	6.0	<1.0	<0.16	7100	M	9.4	6.54	77	0.00	0.00	0.17	0.83	0.00
		6/15/2016	285	<0.2	<0.2	<0.2	0.5	<0.2	4.9	<1.0	<1.0	<1.0	0.43	-49.5	--	2.5	<1.0	<0.10	6100	M	9.7	6.38	84	0.00	0.00	0.06	0.94	0.00
		9/8/2016	370	<0.2	<0.2	<0.2	0.4	<0.2	4.7	<1.0	<1.0	<1.0	0.62	-48.6	--	2.5	1.3	<0.10	4200	M	11.1	6.32	79	0.00	0.00	0.05	0.95	0.00
		12/1/2016	454	<0.2	<0.2	<0.2	0.3	<0.2	4.0	<1.0	<1.0	--	0.74	-8.5	--	5.0	<1.0	--	4200	M	13.2	6.65	67	0.00	0.00	0.05	0.95	0.00
		3/7/2017	550	<0.2	<0.2	<0.2	0.4	<0.2	5.1	<1.0	<1.0	--	0.61	-47.3	--	4.5	<1.0	--	6500	M	10.2	6.53	86	0.00	0.00	0.05	0.95	0.00
		6/5/2017	640	<0.2	<0.2	<0.2	0.5	<0.2	4.8	<1.0	<1.0	--	0.79	0.9	--	2.0	<1.0	--	6700	M	9.2	6.49	82	0.00	0.00	0.06	0.94	0.00
		9/6/2017	733	<0.20	<0.20	<0.20	0.52	<0.20	6.5	<0.40	<0.57	--	0.52	-113.8	--	2.8	<1.2	--	6200	M	9.8	6.39	109	0.00	0.00	0.05	0.95	0.00
		11/28/2017	816	<0.20	<0.20	<0.20	0.23	<0.20	2.6	<0.40	<0.57	--	2.66	-74.2	--	3.5	2.7	--	4500	S/M	14	6.19	44	0.00	0.00	0.05	0.95	0.00
		6/11/2018	1012	<0.20	<0.20	<0.20	0.39	<0.20	3.1	1.0	1.1	--	0.66	108.7	--	4.50	<1.2	--	4500	M	8.6	6.55	54	0.00	0.00	0.03	0.39	0.57

Table 2-1
Data Summary
Algona Bioremediation Pilot Test
Boeing Auburn Facility

Well	Aquifer Zone	Date	Elapsed Time from Injection (days)	Volatile Organic Compounds									Aquifer Redox Conditions								Donor Indicators		Total cVOC (nmol/L)	Molar Fraction				
				PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	tDCE (µg/L)	11DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Nitrate (mg/L)	Iron II (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)	pH		PCE	TCE	Total DCE	VC	Ethene+ Ethane
AGW247-5	SZ	12/2/2014	-276	<0.020	<0.2	6.6	0.7	<0.2	1.7	<1.0	1.7	<1.0	0.22	-136	<0.10	5.0	<1.0	<0.16	4000	M	21.3	6.89	103	0.00	0.00	0.47	0.17	0.36
		8/14/2015	-21	<0.020	<0.2	4.7	0.8	<0.2	3.0	<1.0	<1.0	<1.0	0.54	-90.3	--	2.4	1.1	<0.16	3400	M	6.2	6.45	105	0.00	0.00	0.54	0.46	0.00
		12/2/2015	89	<0.020	<0.2	2.9	0.7	<0.2	4.0	<1.0	<1.0	<1.0	4.76	-97.4	<0.10	4.5	<1.0	<0.16	2100	M	6.7	5.29	101	0.00	0.00	0.37	0.63	0.00
		3/3/2016	181	<0.2	<0.2	2.2	0.7	<0.2	4.5	<1.0	<1.0	<1.0	0.51	-63.1	--	6.5	<1.0	<0.16	2000	M	5.7	6.78	102	0.00	0.00	0.29	0.71	0.00
		6/15/2016	285	<0.2	<0.2	1.8	0.8	<0.2	4.4	<1.0	<1.0	<1.0	0.34	-72.1	--	2.0	<1.0	<0.10	2300	M	5.4	6.45	97	0.00	0.00	0.28	0.72	0.00
		9/8/2016	370	<0.2	<0.2	1.3	0.6	<0.2	3.9	<1.0	<1.0	<1.0	0.34	-77.9	--	3.5	1.6	<0.10	1300	M	6.7	6.54	82	0.00	0.00	0.24	0.76	0.00
		12/1/2016	454	<0.2	<0.2	1.6	0.7	<0.2	4.0	<1.0	<1.0	--	0.65	-69.2	--	4.0	<1.0	--	1400	M	5.7	7.12	88	0.00	0.00	0.27	0.73	0.00
		3/7/2017	550	<0.2	<0.2	0.7	0.5	<0.2	3.9	<1.0	1.5	--	0.59	-89.3	--	3.0	<1.0	--	1400	M	5.5	6.77	75	0.00	0.00	0.10	0.50	0.40
		6/5/2017	640	<0.2	<0.2	1.2	0.5	<0.2	2.6	<1.0	2.1	--	0.45	-13.1	--	2.0	<1.0	--	1600	M	5.4	6.71	59	0.00	0.00	0.14	0.32	0.54
		9/6/2017	733	<0.20	<0.20	1.1	0.43	<0.20	2.7	<0.40	1.7	--	0.51	-118.1	--	1.6	<1.2	--	2200	M	5.9	6.64	59	0.00	0.00	0.14	0.37	0.49
		11/29/2017	817	<0.20	<0.20	1.2	0.44	<0.20	2.0	<0.40	1.7	--	2.15	-103.9	--	4.2 (b)	<1.2	--	1600	M	6.5	6.39	49	0.00	0.00	0.16	0.30	0.54
		6/11/2018	1012	<0.20	<0.20	0.48	0.3	<0.20	1.1	0.87	2.9	--	0.99	113.9	--	3.50	<1.2	--	2400	M	5.9	6.67	26	0.00	0.00	0.05	0.11	0.83
AGW251-1	WT	12/2/2014	-276	<0.020	<0.2	<0.2	<0.2	<0.2	1.8	2.2	5.8	<1.0	0.83	-73.1	<0.10	3.4	37.2	<0.16	16000	S/M	27.3	6.65	29	0.00	0.00	0.00	0.10	0.90
		8/14/2015	-21	<0.020	<0.2	<0.2	<0.2	<0.2	0.62	<1.0	<1.0	<1.0	4.51	208.8	--	6.8	1.3	<0.16	140	Fe/S	16.9	6.63	10	0.00	0.00	0.00	1.00	0.00
		12/3/2015	90	<0.020	<0.2	<0.2	<0.2	<0.2	0.23	<1.0	<1.0	<1.0	12.0	-60.5	0.81	1.0	280	<0.16	440	Fe	8.9	6.08	4	0.00	0.00	0.00	1.00	0.00
		3/3/2016	181	<0.2	<0.2	<0.2	<0.2	<0.2	0.15	<1.0	<1.0	<1.0	0.85	41.55	--	1.0	117	<0.16	560	Fe/S	33.8	6.18	2	0.00	0.00	0.00	1.00	0.00
		6/20/2016	290	<0.2	<0.2	<0.2	<0.2	<0.2	1.1	<1.0	<1.0	<1.0	0.83	124.4	--	2.0	20.7	<2.0	1800	S/M	11	6.33	18	0.00	0.00	0.00	1.00	0.00
		9/6/2016	368	<0.2	<0.2	<0.2	<0.2	<0.2	1.6	1.3	<1.0	<1.0	2.19	-78.2	--	4.5	4.3	<0.10	1100	S/M	13.1	6.58	26	0.00	0.00	0.00	0.36	0.64
		12/2/2016	455	<0.2	<0.2	<0.2	<0.2	<0.2	0.037	<1.0	<1.0	--	1.71	27.9	--	1.0	281	--	59	Fe	11.5	6.74	1	0.00	0.00	0.00	1.00	0.00
		3/7/2017	550	<0.2	<0.2	<0.2	<0.2	<0.2	0.050	<1.0	<1.0	--	0.78	-27.7	--	2.0	203	--	130	Fe	23.3	6.56	1	0.00	0.00	0.00	1.00	0.00
		6/7/2017	642	<0.2	<0.2	<0.2	<0.2	<0.2	1.0	<1.0	<1.0	--	5.88	61.6	--	2.0	69.7	--	410	Fe	11.5	6.52	16	0.00	0.00	0.00	1.00	0.00
		9/6/2017	733	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	<0.57	--	5.13	-48.2	--	1.6	28	--	120	Fe	11	6.61	0	0.00	0.00	0.00	0.00	0.00
		12/1/2017	819	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	<0.57	--	4.20	-59.2	--	5.5	210	--	54	Fe	13	6.56	0	0.00	0.00	0.00	0.00	0.00
		6/8/2018	1009	<0.20	<0.20	<0.20	<0.20	<0.20	0.34	<0.40	0.97	--	1.44	115.8	--	5	110	--	220	Fe	15	6.50	5	0.00	0.00	0.00	0.14	0.86
AGW251-2	SZ	12/2/2014	-276	<0.020	<0.2	2.0	0.2	<0.2	4.7	3.2	5.9	<1.0	0.49	-141.9	<0.10	4.0	1.1	<0.16	8500	M	11.2	6.92	98	0.00	0.00	0.06	0.18	0.76
		8/14/2015	-21	<0.020	<0.2	<0.2	<0.2	<0.2	5.7	2.2	1.6	<1.0	0.94	210.6	--	5.2	2.1	<0.16	4800	M	7.1	6.71	91	0.00	0.00	0.00	0.41	0.59
		12/3/2015	90	<0.020	<0.2	<0.2	<0.2	<0.2	3.9	1.8	1.1	<1.0	13.38	-109.1	<0.10	6.0	1.2	<0.16	3900	M	6.8	6.06	62	0.00	0.00	0.00	0.38	0.62
		3/3/2016	181	<0.2	<0.2	<0.2	<0.2	<0.2	4.9	1.9	1.1	<1.0	0.56	-99.13	--	1.5	1.9	<0.16	2900	M	7.2	6.75	78	0.00	0.00	0.00	0.43	0.57
		6/20/2016	290	<0.2	<0.2	<0.2	<0.2	<0.2	2.7	2.7	1.1	<1.0	0.56	48.8	--	2.0	<1.0	<2.0	3700	M	8.1	6.46	43	0.00	0.00	0.00	0.25	0.75
		9/8/2016	370	<0.2	<0.2	<0.2	<0.2	<0.2	1.8	2.6	1.3	<1.0	0.73	-81.8	--	2.0	<1.0	<0.10	3300	M	8.1	6.67	29	0.00	0.00	0.00	0.17	0.83
		12/2/2016	455	<0.2	<0.2	<0.2	<0.2	<0.2	2.3	2.1	<1.0	--	1.09	-56.9	--	5.0	<1.0	--	2800	M	6.8	7.08	37	0.00	0.00	0.00	0.33	0.67
		3/7/2017	550	<0.2	<0.2	<0.2	<0.2	<0.2	3.2	1.9	1.4	--	0.69	-80	--	5.5	<1.0	--	2500	M	7.3	6.81	51	0.00	0.00	0.00	0.31	0.69
		6/7/2017	642	<0.2	<0.2	<0.2	<0.2	<0.2	2.3	2.3	2.6	--	0.54	17.0	--	2.0	<1.0	--	3200	M	8.6	6.73	37	0.00	0.00	0.00	0.18	0.82
		9/6/2017	733	<0.20	<0.20	<0.20	<0.20	<0.20	1.6	2.4	1.7	--	0.55	-116.5	--	2.2	<1.2	--	3500	M	9.0	6.67	26	0.00	0.00	0.00	0.15	0.85
		12/1/2017	819	<0.20	<0.20	<0.20	<0.20	<0.20	1.4	2.0	1.8	--	2.66	-95.4	--	4.5	<1.2	--	2900	M	8.1	6.62	22	0.00	0.00	0.00	0.15	0.85
		6/8/2018	1009	<0.20	<0.20	<0.20	<0.20	<0.20	1.1	2.5	2.3	--	0.99	102.4	--	4.5	<1.2	--	2200	M	9.1	6.65	18	0.00	0.00	0.00	0.10	0.90

Table 2-1
Data Summary
Algona Bioremediation Pilot Test
Boeing Auburn Facility

Well	Aquifer Zone	Date	Elapsed Time from Injection (days)	Volatile Organic Compounds									Aquifer Redox Conditions								Donor Indicators		Total cVOC (nmol/L)	Molar Fraction				
				PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	tDCE (µg/L)	11DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Nitrate (mg/L)	Iron II (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)	pH		PCE	TCE	Total DCE	VC	Ethene+ Ethane
AGW251-3	IZ	12/2/2014	-276	<0.020	<0.2	5.9	0.5	<0.2	4.3	<1.0	1.2	<1.0	1.09	-112.2	<0.10	3.1	<1.0	<0.16	2500	M	7.6	6.67	135	0.00	0.00	0.38	0.39	0.23
		8/14/2015	-21	<0.020	<0.2	3.0	0.2	<0.2	5.0	<1.0	<1.0	<1.0	1.51	209.7	--	5.8	<1.0	<0.16	2200	M	6.3	6.39	113	0.00	0.00	0.29	0.71	0.00
		12/3/2015	90	<0.020	<0.2	3.0	<0.2	<0.2	5.0	<1.0	<1.0	<1.0	10.63	-93.7	<0.10	6.0	<1.0	<0.16	2100	M	6.1	5.73	111	0.00	0.00	0.28	0.72	0.00
		3/3/2016	181	<0.2	<0.2	1.2	<0.2	<0.2	7.8	<1.0	<1.0	<1.0	0.59	-50.43	--	2.0	<1.0	<0.16	2600	M	7.3	6.42	137	0.00	0.00	0.09	0.91	0.00
		6/20/2016	290	<0.2	<0.2	1.2	<0.2	<0.2	6.1	<1.0	<1.0	<1.0	0.45	78.3	--	2.0	<1.0	<2.0	2600	M	8.1	6.26	110	0.00	0.00	0.11	0.89	0.00
		9/8/2016	370	<0.2	<0.2	0.9	<0.2	<0.2	5.1	<1.0	<1.0	<1.0	0.68	-38.6	--	3.5	<1.0	<0.10	2100	M	6.7	6.43	91	0.00	0.00	0.10	0.90	0.00
		12/2/2016	455	<0.2	<0.2	1.2	<0.2	<0.2	6.8	<1.0	<1.0	--	1.05	-21.2	--	5.0	<1.0	--	2000	M	6.1	6.85	121	0.00	0.00	0.10	0.90	0.00
		3/7/2017	550	<0.2	<0.2	0.7	<0.2	<0.2	8.4	<1.0	<1.0	--	0.75	-50.8	--	5.0	<1.0	--	2100	M	7.2	6.64	142	0.00	0.00	0.05	0.95	0.00
		6/7/2017	642	<0.2	<0.2	0.6	<0.2	<0.2	6.6	<1.0	1.9	--	0.45	32.7	--	1.5	<1.0	--	2900	M	8.8	6.52	112	0.00	0.00	0.04	0.60	0.36
		9/6/2017	733	<0.20	<0.20	1.0	<0.20	<0.20	6.6	0.80	<0.57	--	0.47	-85.8	--	2.0	<1.2	--	2900	M	7.6	6.55	116	0.00	0.00	0.07	0.73	0.20
		12/5/2017	823	<0.20	<0.20	1.1	<0.20	<0.20	6.5	0.70	<0.57	--	2.93	-81.7	--	4.0	<1.2	--	3100	M	7.2	6.68	115	0.00	0.00	0.08	0.74	0.18
		6/8/2018	1009	<0.20	<0.20	0.26	<0.20	<0.20	4.3	1.8	1.1	--	0.99	106.7	--	4.5	<1.2	--	2500	M	8.7	6.54	71	0.00	0.00	0.02	0.40	0.58
AGW269	SZ	8/14/2015	-21	<0.020	<0.2	6.7	0.7	<0.2	3.2	<1.0	<1.0	<1.0	0.52	-95.9	--	1.0	1.9	<0.16	1300	M	9.1	6.66	128	0.00	0.00	0.60	0.40	0.00
		12/7/2015	94	<0.020	0.2	7.4	1.2	<0.2	5.1	<1.0	1.7	<1.0	0.36	-49.0	<0.10	4.0	<1.0	<0.16	26000	M	122	6.37	172	0.00	0.01	0.39	0.36	0.25
		3/2/2016	180	<0.2	<0.2	6.5	1	<0.2	5.2	<1.0	2	<1.0	0.27	-43.8	--	2.0	<1.0	<0.16	15000	M	8.5	6.35	161	0.00	0.00	0.34	0.37	0.29
		6/16/2016	286	<0.2	<0.2	1.9	0.6	<0.2	8.7	<1.0	<2.3	<1.0	0.36	-28.1	--	2.0	<1.0	<0.10	24000	M	8.2	6.20	165	0.00	0.00	0.16	0.84	0.00
		9/7/2016	369	<0.2	<0.2	0.6	0.3	<0.2	6.4	1.3	<1.0	<1.0	0.49	-21.7	--	4.0	<1.0	<0.10	29000	M	9.9	6.09	112	0.00	0.00	0.06	0.65	0.29
		11/29/2016	452	<0.2	<0.2	0.3	0.3	<0.2	4.9	1.1	5.9	--	0.67	-7.5	--	7.0	<1.0	--	35000	M	9.6	6.59	85	0.00	0.00	0.02	0.24	0.74
		3/6/2017	549	<0.2	<0.2	0.3	0.2	<0.2	5.4	<1.0	4.6	--	0.59	-39.9	--	2.0	<1.0	--	23000	M	8.9	6.44	92	0.00	0.00	0.02	0.35	0.63
		6/1/2017	636	<0.2	<0.2	< 0.2	0.2	<0.2	2.3	1.5	11	--	0.50	2.7	--	3.5	<1.0	--	18000	M	8.8	6.51	39	0.00	0.00	0.00	0.08	0.92
		9/5/2017	732	<0.20	<0.20	<0.20	<0.20	<0.20	1.0	<0.80	2.3	--	1.16	-44.9	--	3.0	<1.2	--	28000	M	8.5	6.42	16	0.00	0.00	0.00	0.17	0.83
		11/29/2017	817	<0.20	<0.20	<0.20	<0.20	<0.20	0.97	<1.2	2.4	--	0.26	-31.8	--	2.6	<1.2	--	34000	M	8.5	6.35	16	0.00	0.00	0.00	0.16	0.84
		5/31/2018	1000	<0.20	<0.20	<0.20	<0.20	<0.20	0.89	<0.40	3.7	--	1.14	103.5	--	4	<1.2	--	12000	M	8.5	6.47	14	0.00	0.00	0.00	0.10	0.90
AGW270	SZ	8/13/2015	-22	<0.020	<0.2	7.3	1.0	<0.2	2.2	<1.0	<1.0	<1.0	1.58	199.4	--	5.8	<1.0	<0.16	750	M	7.2	6.57	121	0.00	0.00	0.71	0.29	0.00
		12/7/2015	94	<0.020	1.7	10	1.7	<0.2	1.3	1.5	2.0	<1.0	0.30	-11.0	<0.10	2.5	<1.0	<0.16	23000	M	682	5.62	154	0.00	0.05	0.44	0.08	0.44
		3/2/2016	180	<0.2	0.7	8.8	1	<0.2	1.7	<1.0	2.8	<1.0	0.30	-38.6	--	6.5	<1.0	<0.16	22000	M	75.2	6.25	134	0.00	0.02	0.45	0.12	0.41
		6/16/2016	286	<0.2	0.3	6	0.8	<0.2	2	<1.0	<2.0	<1.0	0.60	-52.4	--	2.0	<1.0	<0.10	25000	M	46.7	6.05	104	0.00	0.02	0.67	0.31	0.00
		9/7/2016	369	<0.2	<0.2	3.3	0.5	<0.2	2.9	1.0	<1.0	<1.0	0.49	-47.9	--	3.0	1.1	<0.10	22000	M	39.1	5.96	86	0.00	0.00	0.32	0.38	0.29
		11/28/2016	451	<0.2	<0.2	2.2	0.4	<0.2	3.2	1.4	<1.0	--	0.47	-26.2	--	5.0	<1.0	--	30000	M	38.7	6.68	78	0.00	0.00	0.21	0.40	0.39
		3/6/2017	549	<0.2	<0.2	1.3	0.3	<0.2	6.4	1.1	<1.0	--	0.46	-49.1	--	2.5	<1.0	--	29000	M	29.6	6.19	119	0.00	0.00	0.10	0.65	0.25
		6/2/2017	637	<0.2	<0.2	0.6	0.3	<0.2	6.1	2.1	<1.0	--	0.68	1.6	--	4.0	<1.0	--	23000	M	20.3	6.18	107	0.00	0.00	0.05	0.54	0.41
		9/7/2017	734	<0.20	<0.20	0.34	0.22	<0.20	6.3	<1.2	<1.7	--	0.66	-55.8	--	3.5	<1.2	--	30000	M	18	6.11	107	0.00	0.00	0.05	0.95	0.00
		11/28/2017	816	<0.20	<0.20	0.23	<0.20	<0.20	3.0	<1.2	<1.7	--	0.28	-10.6	--	3.6	<1.2	--	23000	M	17	6.03	50	0.00	0.00	0.05	0.95	0.00
		5/31/2018	1000	<0.20	<0.20	<0.20	<0.20	<0.20	4.1	<1.2	3.7	--	6.84	113.8	--	3.5	<1.2	--	19000	M	12	6.25	66	0.00	0.00	0.00	0.35	0.65

Table 2-1
Data Summary
Algona Bioremediation Pilot Test
Boeing Auburn Facility

Well	Aquifer Zone	Date	Elapsed Time from Injection (days)	Volatile Organic Compounds									Aquifer Redox Conditions								Donor Indicators		Total cVOC (nmol/L)	Molar Fraction				
				PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	tDCE (µg/L)	11DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Nitrate (mg/L)	Iron II (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)	pH		PCE	TCE	Total DCE	VC	Ethene+ Ethane
AGW271	SZ	8/13/2015	-22	<0.020	<0.2	6.5	0.7	<0.2	4.6	<1.0	<1.0	<1.0	1.32	204.0	--	6.2	<1.0	<0.16	2300	M	6.8	6.67	148	0.00	0.00	0.50	0.50	0.00
		12/7/2015	94	<0.020	1.2	15	1.8	<0.2	5.9	1.2	1.9	<1.0	0.33	22.2	<0.10	7.0	<1.0	<0.16	19000	M	971	5.55	277	0.00	0.02	0.45	0.25	0.28
		3/2/2016	180	<0.2	1.8	15	2.4	<0.2	2.8	1.5	3	<1.0	0.37	25.8	--	6.0	<10.0	<0.16	28000	M	1080	5.41	238	0.00	0.04	0.46	0.11	0.39
		6/16/2016	286	<0.2	0.3	6.9	0.7	<0.2	2	<1.0	<2.6	<1.0	0.58	-35.8	--	3.0	<1.0	<0.10	29000	M	48.6	6.02	113	0.00	0.02	0.70	0.28	0.00
		9/7/2016	369	<0.2	<0.2	4.4	0.5	<0.2	1.1	<1.0	<1.0	<1.0	0.43	-39.5	--	2.5	<1.0	<0.10	28000	M	16.9	5.97	68	0.00	0.00	0.74	0.26	0.00
		11/29/2016	452	<0.2	<0.2	2.5	0.5	<0.2	3.9	<1.0	<1.0	--	0.72	-25.5	--	8.0	<1.0	--	36000	M	14.0	6.51	93	0.00	0.00	0.33	0.67	0.00
		3/7/2017	550	<0.2	<0.2	0.6	<0.2	<0.2	3.3	<1.0	6.3	--	0.76	-54.6	--	3.0	<1.0	--	34000	M	15.0	6.39	59	0.00	0.00	0.02	0.20	0.78
		6/2/2017	637	<0.2	<0.2	0.3	<0.2	<0.2	1.7	<1.0	<1.0	--	0.56	1.6	--	2.5	<1.0	--	30000	M	14.1	6.30	30	0.00	0.00	0.10	0.90	0.00
		9/5/2017	732	<0.20	<0.20	<0.20	<0.20	<0.20	0.63	<1.2	<1.7	--	1.96	-60.1	--	3.0	<1.2	--	33000	M	13	6.32	10	0.00	0.00	0.00	1.00	0.00
		11/28/2017	816	<0.20	<0.20	<0.20	<0.20	<0.20	0.29	<1.2	<1.7	--	0.22	-43.6	--	3.8	<1.2	--	27000	M	14	6.34	5	0.00	0.00	0.00	1.00	0.00
		6/1/2018	1001	<0.20	<0.20	<0.20	<0.20	<0.20	0.57	<0.40	3.4	--	0.89	125.6	--	3.5	<1.2	--	14000	M	13	6.37	9	0.00	0.00	0.00	0.07	0.93
AGW272	SZ	8/13/2015	-22	<0.020	0.2	7.3	0.6	<0.2	0.66	<1.0	<1.0	<1.0	0.49	-55.2	--	1.8	1.5	<0.16	400	Fe/S	5.4	6.37	94	0.00	0.02	0.87	0.11	0.00
		12/7/2015	94	<0.020	0.2	6.4	0.7	<0.2	1.8	<1.0	<1.0	<1.0	1.36	-85.3	<0.10	4.0	<1.0	<0.16	940	M	3.5	5.33	104	0.00	0.01	0.71	0.28	0.00
		3/2/2016	180	<0.2	0.3	5.4	0.5	<0.2	1.2	<1.0	<1.0	<1.0	0.91	-71.43	--	1.0	1.1	<0.16	460	Fe/S	4.1	6.53	82	0.00	0.03	0.74	0.23	0.00
		6/17/2016	287	<0.2	0.3	4.9	0.6	<0.2	2	<1.0	<1.0	<1.0	0.76	-29.8	--	2.5	1.4	<0.10	450	Fe/S	4.1	6.43	91	0.00	0.03	0.62	0.35	0.00
		9/7/2016	369	<0.2	0.3	3.9	0.6	<0.2	2.3	<1.0	<1.0	<1.0	0.42	-37.5	--	3.0	1.6	<0.10	360	Fe/S	4.9	6.30	86	0.00	0.03	0.54	0.43	0.00
		11/28/2016	451	<0.2	0.4	6.0	0.7	<0.2	1.3	<1.0	<1.0	--	1.22	-19.0	--	5.0	<1.0	--	700	M	4.0	7.12	93	0.00	0.03	0.74	0.22	0.00
		3/6/2017	549	<0.2	0.4	5.5	0.6	<0.2	1.3	<1.0	<1.0	--	0.33	23.9	--	2.5	<1.0	--	500	M	4.3	6.64	87	0.00	0.04	0.73	0.24	0.00
		6/1/2017	636	<0.2	0.4	4.9	0.7	<0.2	1.4	<1.0	<1.0	--	0.89	0.2	--	2.0	1.7	--	440	Fe/S	4.3	6.57	83	0.00	0.04	0.69	0.27	0.00
		9/5/2017	732	<0.20	<0.20	3.5	0.65	<0.20	1.6	0.60	<0.57	--	3.19	-72.3	--	3.5	1.3	--	680	S/M	4.6	6.51	68	0.00	0.00	0.48	0.29	0.24
		11/28/2017	816	<0.20	0.29	4.6	0.52	<0.20	1.4	<0.40	<0.57	--	0.26	-43.6	--	1.8	<1.2	--	930	M	4.3	6.63	77	0.00	0.03	0.68	0.29	0.00
		6/1/2018	1002	<0.20	0.32	3.7	0.51	<0.20	1.3	0.88	<0.57	--	0.99	123.6	--	5	2.7	--	410	Fe/S	4.8	6.58	67	0.00	0.02	0.44	0.21	0.32
AGW273	SZ	8/13/2015	-22	<0.020	<0.2	6.3	0.7	<0.2	4.2	<1.0	<1.0	<1.0	1.61	193.0	--	4.6	<1.0	<0.16	880	M	6.1	6.38	139	0.00	0.00	0.52	0.48	0.00
		12/7/2015	94	<0.020	<0.2	3.4	0.6	<0.2	6.0	<1.0	<1.0	<1.0	1.52	-99.3	<0.10	6.0	<1.0	<0.16	1500	M	6.0	4.77	137	0.00	0.00	0.30	0.70	0.00
		3/2/2016	180	<0.2	<0.2	3.5	0.5	<0.2	3.9	<1.0	<1.0	<1.0	0.51	-54.3	--	1.2	<1.0	<0.16	1300	M	6.1	6.48	104	0.00	0.00	0.40	0.60	0.00
		6/17/2016	287	<0.2	<0.2	2.9	5	<0.2	3.9	<1.0	<1.0	<1.0	0.71	24.1	--	2.0	<1.0	<0.10	1300	M	5.5	6.16	144	0.00	0.00	0.57	0.43	0.00
		9/7/2016	369	<0.2	<0.2	2.6	0.5	<0.2	4.2	<1.0	<1.0	<1.0	0.77	-30.9	--	4.0	<1.0	<0.10	900	M	6.7	6.21	99	0.00	0.00	0.32	0.68	0.00
		11/29/2016	452	<0.2	<0.2	2.4	0.5	<0.2	4.8	1.3	1.2	--	1.33	-26.6	--	6.0	<1.0	--	3600	M	6.4	6.81	107	0.00	0.00	0.16	0.40	0.45
		3/6/2017	549	<0.2	<0.2	2.6	0.4	<0.2	5	<1.0	<1.0	--	0.21	-10.9	--	4.5	<1.0	--	1200	M	6.4	6.58	111	0.00	0.00	0.28	0.72	0.00
		6/1/2017	636	<0.2	<0.2	2.5	0.5	<0.2	3.9	<1.0	<1.0	--	0.61	2.2	--	3.0	<1.0	--	1200	M	6.0	6.57	93	0.00	0.00	0.33	0.67	0.00
		9/5/2017	732	<0.20	<0.20	1.6	0.33	<0.20	4.0	0.95	<0.57	--	0.72	-64.9	--	2.2	<1.2	--	1300	M	6.0	6.50	84	0.00	0.00	0.17	0.54	0.29
		11/28/2017	816	<0.20	<0.20	0.84	0.29	<0.20	4.1	1.3	1.5	--	0.23	-39.2	--	2.8	<1.2	--	3300	M	6.3	6.56	77	0.00	0.00	0.07	0.38	0.55
		6/1/2018	1002	<0.20	<0.20	1.4	0.3	<0.20	3.3	1.5	1.2	--	0.53	120.5	--	4	<1.2	--	1100	M	6.3	6.53	70	0.00	0.00	0.11	0.32	0.57

Table 2-1
Data Summary
Algona Bioremediation Pilot Test
Boeing Auburn Facility

Well	Aquifer Zone	Date	Elapsed Time from Injection (days)	Volatile Organic Compounds									Aquifer Redox Conditions								Donor Indicators		Total cVOC (nmol/L)	Molar Fraction				
				PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	tDCE (µg/L)	11DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Nitrate (mg/L)	Iron II (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)	pH		PCE	TCE	Total DCE	VC	Ethene+ Ethane
AGW274	SZ	8/13/2015	-22	<0.020	<0.2	<0.2	<0.2	<0.2	4.0	2.3	<1.0	<1.0	0.54	-36.6	--	3.6	<1.0	<0.16	1900	M	7.5	6.29	64	0.00	0.00	0.00	0.44	0.56
		12/7/2015	94	<0.020	<0.2	<0.2	<0.2	<0.2	1.9	1.3	2.2	<1.0	2.07	-95.0	<0.10	4.0	<1.0	<0.16	2700	M	8.1	4.83	30	0.00	0.00	0.00	0.20	0.80
		3/2/2016	180	<0.2	<0.2	2	0.4	<0.2	5.5	<1.0	<1.0	<1.0	0.43	-48.9	--	2.0	<1.0	<0.16	920	M	7	6.45	113	0.00	0.00	0.22	0.78	0.00
		6/17/2016	287	<0.2	<0.2	0.6	0.3	<0.2	4.6	1.5	<1.0	<1.0	0.47	-5.1	--	2.0	<1.0	<0.10	920	M	5.8	6.22	83	0.00	0.00	0.07	0.54	0.39
		9/8/2016	370	<0.2	<0.2	<0.2	<0.2	<0.2	1.1	1.6	3.6	<1.0	1.05	-33.1	--	2.8	<1.0	<0.10	9600	M	7	6.31	18	0.00	0.00	0.00	0.09	0.91
		11/29/2016	452	<0.2	<0.2	<0.2	<0.2	<0.2	0.7	1.6	4.6	--	0.83	-23.7	--	5.5	<1.0	--	13000	M	8.2	6.77	11	0.00	0.00	0.00	0.05	0.95
		3/6/2017	549	<0.2	<0.2	0.6	<0.2	<0.2	4.4	1.1	1.0	--	0.25	-27.3	--	1.5	<1.0	--	1500	M	7.6	6.54	77	0.00	0.00	0.04	0.47	0.49
		6/1/2017	636	<0.2	<0.2	1.9	0.4	<0.2	4.5	<1.0	<1.0	--	0.58	6.1	--	2.0	<1.0	--	700	M	6.7	6.54	96	0.00	0.00	0.25	0.75	0.00
		9/5/2017	732	<0.20	<0.20	<0.20	<0.20	<0.20	0.43	0.79	4.4	--	2.22	-55.9	--	4.3	<1.2	--	5300	M	6.9	6.47	7	0.00	0.00	0.00	0.04	0.96
		11/28/2017	816	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	<0.40	4.6	--	0.46	-41.3	--	3.8	<1.2	--	12000	M	7.8	6.56	3	0.00	0.00	0.00	0.02	0.98
		6/1/2018	1002	<0.20	<0.20	0.82	0.2	<0.20	3.2	1.5	1.5	--	0.55	117.5	--	4	<1.2	--	870	M	7.1	6.52	62	0.00	0.00	0.06	0.31	0.63
AGW275	SZ	8/13/2015	-22	<0.020	<0.2	2.3	0.3	<0.2	7.7	<1.0	<1.0	<1.0	0.64	-47.6	--	3.0	1.0	<0.16	2000	M	7.6	6.33	150	0.00	0.00	0.18	0.82	0.00
		12/7/2015	94	<0.020	<0.2	2.5	0.3	<0.2	7.7	<1.0	<1.0	<1.0	1.02	-100.3	<0.10	4.5	<1.0	<0.16	2100	M	6.9	4.69	152	0.00	0.00	0.19	0.81	0.00
		3/2/2016	180	<0.2	<0.2	0.6	<0.2	<0.2	7.7	2.2	1.6	<1.0	0.35	-48.5	--	2.2	<1.0	<0.16	14000	M	79.7	6.39	129	0.00	0.00	0.02	0.47	0.50
		6/17/2016	287	<0.2	<0.2	<0.2	<0.2	<0.2	0.16	2.8	4.5	<1.0	0.44	0.07	--	3.5	<1.0	<0.10	26000	M	7.9	6.35	3	0.00	0.00	0.00	0.01	0.99
		9/8/2016	370	<0.2	<0.2	<0.2	<0.2	<0.2	0.061	<1.0	5.8	<1.0	0.46	-45.3	--	2.0	<1.0	<0.10	16000	M	8.3	6.43	1	0.00	0.00	0.00	0.01	0.99
		11/29/2016	452	<0.2	<0.2	<0.2	0.2	<0.2	0.055	<1.0	6.5	--	0.60	-30.4	--	7.0	<1.0	--	16000	M	4.1	6.81	3	0.00	0.00	0.01	0.00	0.99
		3/6/2017	549	<0.2	<0.2	<0.2	<0.2	<0.2	0.057	<1.0	5.1	--	0.20	-44.9	--	2.0	<1.0	--	14000	M	8.5	6.53	1	0.00	0.00	0.00	0.01	0.99
		6/1/2017	636	<0.2	<0.2	<0.2	<0.2	<0.2	0.053	<1.0	9.6	--	0.52	0.3	--	1.0	<1.0	--	17000	M	8.1	6.51	1	0.00	0.00	0.00	0.00	1.00
		9/5/2017	732	<0.20	<0.20	<0.20	<0.20	<0.20	0.047	<0.40	4.1	--	0.67	-58.5	--	1.8	<1.2	--	9500	M	7.8	6.54	1	0.00	0.00	0.00	0.01	0.99
		11/29/2017	817	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	4.7	--	0.27	-47.5	--	3.8	<1.2	--	7300	M	8.0	6.48	0	0.00	0.00	0.00	0.00	1.00
		6/1/2018	1001	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	4.1	--	0.7	120	--	3	<1.2	--	8100	M	8.7	6.49	0	0.00	0.00	0.00	0.00	1.00
IW33	SZ	8/13/2015	-22	<0.020	<0.2	6.6	0.8	<0.2	3.0	<1.0	<1.0	<1.0	1.86	-17.1	--	2.6	<1.0	<0.16	940	M	7.4	6.13	124	0.00	0.00	0.61	0.39	0.00
		11/28/2016	451	--	--	--	--	--	--	--	--	--	9.27	38.3	--	--	--	--	--	--	205	8.14	--	--	--	--	--	--
IW34	SZ	8/17/2015	-18	<0.020	0.2	7.6	0.8	<0.2	4.9	<1.0	<1.0	<1.0	0.57	-60.2	--	4.0	<1.0	<0.16	1900	M	6.9	6.25	167	0.00	0.01	0.52	0.47	0.00
		12/7/2015	94	<0.10	1.6	8.5	1.2	<0.2	1.1	2.9	1.7	<1.0	1.79	-24.7	<1.0	9.5	22.5	<0.16	7900	S/M	6010	2.21	130	0.00	0.04	0.35	0.06	0.55
		3/2/2016	180	<0.2	5.3	16	2.5	<0.2	1.1	3	2.7	<1.0	0.39	44.1	--	7.0	<10.0	<0.16	15000	M	6450	4.63	249	0.00	0.09	0.43	0.04	0.44
		6/16/2016	286	<0.2	5.4	16	2.2	<0.2	0.9	3.8	2.2	<1.0	1.07	116	--	3.0	1.9	0.16	23000	M	3840	4.60	243	0.00	0.09	0.42	0.03	0.46
		9/7/2016	369	<0.2	1.9	7.4	0.8	<0.2	0.34	1.5	<1.0	<1.0	0.46	-85.3	--	6.0	1.1	0.14	17000	M	377	5.82	104	0.00	0.09	0.54	0.03	0.34
		11/28/2016	451	<2.0	<2.0	6.1	<2.0	<2.0	0.31	<1.0	<1.0	--	0.50	-69.7	--	7.0	<1.0	--	24000	M	259	6.69	68	0.00	0.00	0.93	0.07	0.00
		3/6/2017	549	<0.040 (a)	0.16 (a)	3.6	<2.0	<0.040 (a)	1.2	1.1	<1.0	--	0.89	-38.9	--	4.5	<1.0	--	24000	M	88	5.90	58	0.00	0.01	0.38	0.20	0.41
		6/1/2017	636	<0.2	<0.2	1.7	0.4	<0.2	2.2	2.4	< 1.0	--	0.53	28.3	--	1.0	<1.0	--	30000	M	36.6	5.81	58	0.00	0.01	0.15	0.25	0.60
		9/5/2017	732	<0.20	<0.20	1.0	<0.20	<0.20	2.0	<1.2	<1.7	--	1.26	-16.3	--	4.5	<1.2	--	27000	M	37	5.79	42	0.00	0.00	0.24	0.76	0.00
		11/28/2017	816	<0.20	<0.20	0.85	<0.20	<0.20	1.1	<1.2	<1.7	--	0.45	8.1	--	3.0	<1.2	--	27000	M	46	5.79	26	0.00	0.00	0.33	0.67	0.00
		5/31/2018	1000	<0.20	<0.20	0.34	<0.20	<0.20	2.6	<1.2	2.9	--	1.35	121.9	--	5.0	<1.2	--	24000	M	32	6.01	45	0.00	0.00	0.02	0.29	0.68

Table 2-1
Data Summary
Algona Bioremediation Pilot Test
Boeing Auburn Facility

Well	Aquifer Zone	Date	Elapsed Time from Injection (days)	Volatile Organic Compounds									Aquifer Redox Conditions								Donor Indicators		Total cVOC (nmol/L)	Molar Fraction				
				PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	tDCE (µg/L)	11DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Nitrate (mg/L)	Iron II (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)	pH		PCE	TCE	Total DCE	VC	Ethene+ Ethane
IW35	SZ	8/17/2015	-18	<0.020	<0.2	3.3	0.5	<0.2	3.7	<1.0	<1.0	<1.0	0.77	-22.8	--	2.0	1.0	<0.16	1800	M	7.2	6.21	98	0.00	0.00	0.40	0.60	0.00
		11/28/2016	451	--	--	--	--	--	--	--	--	--	0.76	0.7	--	--	--	--	--	--	16.3	6.80	--	--	--	--	--	--
IW36	SZ	8/17/2015	-18	<0.020	0.2	3.3	0.7	<0.2	6.0	<1.0	<1.0	<1.0	0.58	-29.5	--	2.8	<1.0	<0.16	1700	M	7.6	6.29	139	0.00	0.01	0.30	0.69	0.00
		12/7/2015	94	<0.020	<1.0	1.6	<1.0	<1.0	3.8	<1.0	1.4	<1.0	1.77	-100.2	<0.10	6.0	<1.0	<0.16	17000	M	63.7	4.36	77	0.00	0.00	0.13	0.49	0.38
		3/2/2016	180	<0.2	<0.2	1.5	0.4	<0.2	5.7	<1.0	2	<1.0	0.32	-47.58	--	1.5	<1.0	<0.16	14000	M	17.9	6.31	111	0.00	0.00	0.11	0.51	0.38
		6/16/2016	286	<0.2	<0.2	1.5	0.4	<0.2	4.5	<1.0	1.9	<1.0	0.36	-7.85	--	1.0	<1.0	<0.10	11000	M	11.4	6.06	92	0.00	0.00	0.13	0.47	0.41
		9/7/2016	369	<0.2	<0.2	1.7	0.4	<0.2	4.3	<1.0	1.8	<1.0	0.35	-27.8	--	4.5	<1.0	<0.10	6600	M	11.2	6.25	90	0.00	0.00	0.14	0.46	0.40
		11/28/2016	451	<0.2	<0.2	1.7	0.4	<0.2	4.8	<1.0	1.2	--	0.87	-8.2	--	6.0	<1.0	--	2900	M	10.1	6.97	98	0.00	0.00	0.16	0.56	0.29
		3/6/2017	549	<0.2	<0.2	1.3	0.4	<0.2	6.1	<1.0	<1.0	--	0.71	-38.9	--	1.5	<1.0	--	2500	M	10.8	6.45	115	0.00	0.00	0.15	0.85	0.00
		6/1/2017	636	<0.2	<0.2	1.3	0.4	<0.2	5.5	<1.0	2.0	--	0.36	5.9	--	1.5	<1.0	--	2800	M	10.3	6.50	106	0.00	0.00	0.10	0.51	0.39
		9/5/2017	732	<0.20	<0.20	0.36	0.23	<0.20	5.0	<0.40	1.7	--	0.69	-54.3	--	2.4	<1.2	--	2600	M	9.2	6.51	86	0.00	0.00	0.04	0.56	0.40
		11/29/2017	817	<0.20	<0.20	0.26	0.21	<0.20	4.9	0.41	1.3	--	0.34	-29.3	--	1.8	<1.2	--	2400	M	9.2	6.27	83	0.00	0.00	0.03	0.56	0.41
		5/31/2018	1001	<0.20	<0.20	0.22	0.23	<0.20	3.3	1.2	2.2	--	0.65	106.2	--	4	<1.2	--	1900	M	9.8	6.47	57	0.00	0.00	0.03	0.30	0.67
IW37	SZ	8/13/2015	-22	<0.020	<0.2	5.3	0.5	<0.2	4.9	<1.0	<1.0	<1.0	0.56	-45.0	--	2.0	<1.0	<0.16	1800	M	6.6	6.29	138	0.00	0.00	0.43	0.57	0.00
		12/7/2015	94	0.16	1.3	13	2.0	<0.2	1.5	5.8	3.1	<1.0	1.40	-24.2	<1.0	9.0	6.6	<0.16	3800	M	4780	2.45	190	0.00	0.02	0.31	0.05	0.62
		3/2/2016	180	<0.2	0.8	7.7	1.0	<0.2	1.2	1.8	2.2	<1.0	0.47	35.1	--	5.0	<10.0	<0.16	23000	M	2480	5.00	115	0.00	0.02	0.36	0.08	0.54
		6/17/2016	287	<0.2	0.3	6	0.3	<0.2	0.4	<1.0	1.6	<1.0	0.91	-81.5	--	2.5	<1.0	<0.10	20000	M	1130	5.99	74	0.00	0.02	0.51	0.05	0.42
		9/7/2016	369	<0.2	<0.2	2.7	<0.2	<0.2	0.14	<1.0	<1.0	<1.0	0.91	-123.4	--	5.0	1.3	<0.10	17000	M	337	6.08	30	0.00	0.00	0.93	0.07	0.00
		11/28/2016	451	<0.2	<0.2	2.7	<0.2	<0.2	0.062	<1.0	<1.0	--	0.67	-106.8	--	7.0	<1.0	--	25000	M	356	6.99	29	0.00	0.00	0.97	0.03	0.00
		3/7/2017	550	<0.2	<0.2	2.5	<0.2	<0.2	0.17	<1.0	<1.0	--	0.74	-104.3	--	2.0	<1.0	--	27000	M	180	6.28	29	0.00	0.00	0.90	0.10	0.00
		6/1/2017	636	<0.2	<0.2	1.8	<0.2	<0.2	0.38	2.6	< 1.0	--	0.66	-49.3	--	4.5	<1.0	--	31000	M	87.6	6.30	25	0.00	0.00	0.16	0.05	0.79
		9/5/2017	732	<0.20	<0.20	0.80	<0.20	<0.20	1.3	<1.2	<1.7	--	0.88	-71.9	--	3.0	<1.2	--	31000	M	59	6.13	29	0.00	0.00	0.28	0.72	0.00
		11/28/2017	816	<0.20	<0.20	0.53	<0.20	<0.20	0.91	<1.2	<1.7	--	0.19	-40.3	--	3.6	<1.2	--	42000	M	48	6.07	20	0.00	0.00	0.27	0.73	0.00
		5/31/2018	1001	<0.20	<0.20	0.22	<0.20	<0.20	0.98	<1.2	3.3	--	0.52	83.9	--	4.0	<1.2	--	21000	M	20	6.30	18	0.00	0.00	0.02	0.12	0.86

Notes:

Blue shading indicates the compound with highest molar fraction per event

Total DCE is the sum of cDCE, tDCE, and 11DCE

Acetylene was monitored from August 2015 through December 2016. There were no detections of this constituent; therefore, sampling was discontinued and it has been removed from this table.

Electron donor injection performed August 18 through September 4, 2015

(a) Results presented are from analysis by Method 8260C SIM. Samples were reanalyzed by Method 8260C SIM in order to meet data quality objectives due to elevated reporting limits (2.0 µg/L) in the Method 8260C run.

(b) Iron was measured on 12/14/2017.

(c) Iron was measured on November 28, 2017.

Abbreviations/Acronyms:

-- = not applicable/not analyzed
11DCE = 1,1-dichloroethene
cDCE = cis-1,2-dichlorethene
Conc = concentration
cVOC = chlorinated volatile organic compounds
DO = dissolved oxygen
Fe = Iron-reducing
IZ = Intermediate Zone
M = Methanogenic
µg/L = micrograms per liter
µmol/L = micromoles per liter
mg/L = micrograms per liter
mV = millivolt
ORP = oxygen-reduction potential
PCE = tetrachloroethene
S = Sulfate-reducing
SZ = Shallow Zone
tDCE = trans-1,2-dichloroethene
TCE = trichloroethene
VC = vinyl chloride
WT = Water Table Zone