LANDAU ASSOCIATES

July 15, 2019

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. 67, April through June 2019 Activity Period
Boeing Auburn Facility
WAD 041337130, RCRA Corrective Action Agreed Order No. 01HWTRNR-3345
Auburn, Washington
Project No. 0025164.170.501

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. 67, which covers the 3-month activity period of April through June 2019.

References

1. April 5, 2019. Email: Notification of Change of Project Manager for Auburn. From Carl Bach, Boeing, to Robin Harrover, Washington State Department of Ecology (Ecology).
2. April 5, 2019. Email: Robin will be out the week of April 5th. From Deborah Taege, Boeing, to Robin Harrover and Christa Colouzis, Ecology.
3. April 15, 2019. Letter: Status Report No. 66, 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, Landau Associates, Inc. (LAI), to Robin Harrover, Ecology.
4. April 16, 2019. Email: Auburn CULs Follow-Up. From Debbie Taege, Boeing, to Robin Harrover, Ecology.
5. April 24, 2019. Email: Boeing Fabrication Auburn Site – Status Report 66 Jan – Mar 2019 Activity Period. From Robin Harrover, Ecology, to representatives of City of Algona, City of Auburn, and City of Pacific.
6. April 24, 2019. Ecology Listserv. Have you visited Ecology's Boeing Auburn cleanup site lately?
7. April 25, 2019. Email: Re: Auburn CULs Follow-Up. From Robin Harrover, Ecology, to Debbie Taege, Boeing.

8. April 25, 2019. Letter: Ecology comment regarding the Letter Report: 2017/2018 Feasibility Study Data Submittal – Additional Work at Building 17-06, Boeing Auburn Facility; prepared for the Boeing Company by Landau Associates; February 8, 2019; FS #2018; CS #5049; EPA WAD041337130. From Robin Harrover, Ecology, to Debbie Taege, Boeing.
9. April 25, 2019. Letter: Ecology comment regarding the: Former Building 17-03 Additional Field Activities Data Submittal; Feasibility Study – Boeing Auburn Facility; prepared for the Boeing Company by Landau Associates; February 19, 2019; FS #2018; CS #5049; EPA WAD041337130. From Robin Harrover, Ecology, to Debbie Taege, Boeing.
10. April 25, 2019. Letter: Ecology Request for the Feasibility Study (FS) Report; and approval of the FS Work Plan; prepared for The Boeing Company by Landau Associates; October 23, 2018; FS #2018; CS #5049; EPA WAD041337130. From Robin Harrover, Ecology, to Debbie Taege, Boeing.
11. April 26, 2019. Email: Algona Family Fun Days, 2018 Summary. From Thea Levkovitz, Ecology, to Debbie Taege, Boeing.
12. April 26, 2019. Email: RE: Boeing Auburn – Phase 9 GWMP. From Robin Harrover, Ecology, to Deborah Taege, Boeing.
13. May 7, 2019. Technical Memorandum: Phase 9 Interim Groundwater Monitoring Program, Boeing Auburn Facility, Auburn, Washington. From Jennifer Wynkoop and Sarah Fees, LAI, to Robin Harrover, Ecology.
14. May 13, 2019. Email: Request for Natural Attenuation Assessment Report Extension. From Debbie Taege, Boeing, to Robin Harrover, Ecology.
15. May 15, 2019. Email: Boeing Response to Ecology Approval of FS Work Plan for Auburn. From Debbie Taege, Boeing, to Robin Harrover, Ecology.
16. May 15, 2019. Letter: 2018 Cyanide Investigation Data Submittal, Building 17-07 Area of Concern A-09, Boeing Auburn Facility, Auburn, Washington. From Sarah Fees and Jennifer Wynkoop, LAI, to Robin Harrover, Ecology.
17. May 16, 2019. Email: Re: Request for Natural Attenuation Assessment Report Extension. From Robin Harrover, Ecology, to Debbie Taege, Boeing.
18. May 16, 2019. Email: Boeing Response to Ecology's Comments on the Former Building 17-03 Additional Field Activities Data Submittal. From Debbie Taege, Boeing, to Robin Harrover, Ecology.
19. May 16, 2019. Email: Boeing Response to Ecology's Comments on the Feasibility Study Data Submittal – Additional Work at Building 17-06. From Debbie Taege, Boeing, to Robin Harrover, Ecology.
20. June 6, 2019. Email: Auburn MNA Report Extension Request. From Deborah Taege, Boeing, to Christa Colouzis and Robin Harrover, Ecology.
21. June 24, 2019. Ecology Listserv. Boeing Auburn cleanup – Summer Update.
22. June 28, 2019. Letter: Ecology's Cleanup Standards based on the Model Toxics Control Act specific to the Boeing Auburn Site; FS #2048; CS #5049; EPA WAD041337130. From Robin Harrover, Ecology, to Debbie Taege, Boeing.

Work Conducted

General Site-wide Corrective Action Activities

On April 15, 2019, LAI submitted Status Report No. 66 regarding first quarter 2019 activities to Ecology and other stakeholders[1] for their records (Reference #3). Ecology project manager, Robin Harrover, has continued to attend regularly scheduled monthly 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. In addition to the regular monthly calls, Boeing and Ecology also agreed to hold monthly technical calls starting in May to discuss additional project technical items. Two technical calls occurred during second quarter 2019 on May 30 and June 6. These technical calls are scheduled to continue on the first Thursday of each month, as needed.

Groundwater Sampling

Phase 9 semiannual groundwater sampling took place from May 28 through June 6, 2019. 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 2019 annual sampling event is presented in Table 1-1. A complete summary of groundwater analytical results is presented in Tables 1-2 and 1-3.

In the first quarter 2019, a draft of the Phase 9 Interim Groundwater Monitoring Program was sent to Ecology. Ecology provided comments and approval of the proposed Phase 9 program. Boeing requested clarification about Ecology's comments on the sampling schedule for wells in Building 17-06 before providing a finalized plan. On April 5, 2019, Ecology agreed to extend the due date for the finalized Phase 9 Interim Groundwater Monitoring Program from April 15 to one week after Ecology provided a determination on the sampling schedule for wells in Building 17-06 (Reference #2). On April 26, 2019, Ecology approved semiannual (June and December) sampling of wells in Building 17-06 (Reference #12). Boeing provided the finalized Phase 9 Interim Groundwater Monitoring Program to Ecology on May 7, 2019 (Reference #13).

Boeing has access agreements with a number of off-site property owners to conduct groundwater monitoring on their property. The access agreement for monitoring well AGW276 located at 840 Industry Drive was set to expire on June 30, 2019. Boeing negotiated an amendment to the access agreement allowing access to the well through June 30, 2024. The 840 Industry Drive property was previously owned by DCT Industrial but was recently sold to Prologis.

Natural Attenuation Reporting

The primary constituent of concern in groundwater at the Boeing Auburn site, trichloroethene (TCE), is being attenuated naturally through biologic and chemical processes occurring in the groundwater.

[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 #5).

Natural attenuation of TCE by reductive dechlorination is evidenced at the site by the presence of degradation breakdown products: cis-1,2-dichloroethene (cDCE), vinyl chloride (VC), and non-toxic end products ethene and ethane. Boeing has been preparing and finalizing a report to document the mechanisms and other evidence of natural attenuation (for example plume stability, decreasing contaminant concentration trends, and aquifer geochemistry which indicate reducing conditions) occurring at the site.

In May 2018, Boeing submitted a draft Site-Wide Natural Attenuation Assessment Report. Ecology provided comments on this report in the first quarter 2019. The comments required significant revisions to the report format and content. On May 13, 2019, Boeing requested an extension on the due date for this report (Reference #14). Ecology approved this request for an extension on May 16, 2019 (Reference #17). On June 6, 2019, Boeing requested an additional extension to incorporate additional edits to the report (Reference #20). Boeing is updating this report based on Ecology comments and plans to submit a revised report in the third quarter 2019.

Algona Enhanced Natural Attenuation Pilot Test

An enhanced natural attenuation pilot test was conducted in August and September 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. Ongoing pilot test monitoring is completed semiannually during the June and December groundwater sampling events. A draft technical memorandum summarizing results from the second year of pilot test monitoring was submitted to Ecology in the third quarter 2018. Boeing expects to receive Ecology comments on this technical memorandum in the third quarter 2019.

The June 2019 groundwater sampling event was the 12th 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.

Following injection, indications of enhanced bioremediation were observed at eight 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 (baseline TOC concentrations were less than 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. In addition, secondary effects of enhanced bioremediation were observed at three downgradient monitoring wells post-injection (AGW240-1, AGW273, and AGW274). 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.

Monitoring data from second quarter 2019 indicate TOC concentrations are below 10 mg/L at all but three (IW34, AGW270, and AGW271) of the eight wells with primary indications of enhanced bioremediation as discussed above. The other five wells have returned to baseline TOC concentrations following earlier post-injection increases; however, sulfate-reducing to methanogenic aquifer conditions persist.

Changes in vinyl chloride concentrations and detections of end products ethene and/or ethane have been observed at all 11 wells discussed above, with primary or secondary effects of enhanced bioremediation. Ethene/ethane, which indicate complete reductive dechlorination, are the predominant constituents at six of the 11 wells.

Feasibility Study Investigation and Reporting

Boeing is continuing work on the feasibility study (FS) and associated reporting. Boeing submitted the final FS work plan in the fourth quarter 2018. On April 25, 2019, Ecology approved the FS Work Plan, and provided Boeing with a request letter for submittal of the FS report (Reference #10). Boeing responded to Ecology's letter and request for inclusion of additional technologies in the feasibility study as well as modification of the FS submittal timeline on May 15, 2019 (Reference #15).

Determining final cleanup levels for the Boeing Auburn site is integral to completing the FS report. Boeing and Ecology have continued to discuss appropriate cleanup levels. Ecology provided a letter describing cleanup standards for TCE and vinyl chloride in groundwater in February 2019. Boeing sent a response to this letter in March 2019. On April 16, 2019, Boeing sent a follow-up email to Ecology's finalized letter which included questions related to the applicability of Water Quality Criteria at the Auburn site (Reference #4). Ecology provided an email response to Boeing on April 25, 2019 (Reference #7). On June 28, 2019 Ecology sent a letter to Boeing reiterating their position on the volatile organic compound (VOC) cleanup levels for groundwater and surface water and responding to Boeing's March 2019 letter (Reference #22). Boeing and Ecology continue to discuss the appropriate VOC cleanup levels for groundwater and the extent of applicability of VOC cleanup levels for surface water at the Auburn site.

On May 15, 2019, Boeing provided a data submittal of cyanide results associated with AOC A-09 to Ecology (Reference 16). Boeing made a request to conduct a hold time study for cyanide at well AGW278-1 due to ongoing matrix interference issues that appear to be associated with the sample preservative. During a special meeting on May 30, 2019, Ecology approved conducting the cyanide hold time study as part of the 2nd quarter groundwater monitoring event. Results of the cyanide hold time study will be reported to Ecology in a separate transmittal in 3rd Quarter 2019.

A data submittal summarizing additional work at Building 17-06 was submitted to Ecology in the first quarter 2019. Ecology provided comments on the Building 17-06 data submittal on April 25, 2019 (Reference #8), and Boeing responded to Ecology's comments on May 16, 2019 (Reference #19). Boeing agreed to install two additional wells at Ecology's requested locations in Building 17-06. Well

installation is expected to take place during Boeing's expected winter shut-down period in December 2019.

A data submittal summarizing field investigation activities completed at Former Building 17-03 was submitted to Ecology in the first quarter 2019. Ecology provided comments on the Former Building 17-03 data submittal on April 25, 2019 (Reference #9), and Boeing responded to Ecology's comments on May 16, 2019 (Reference #18). Boeing agreed to install two additional wells at Ecology's requested locations near Former Building 17-03. Well installation is expected to take place during the Boeing winter shut-down period in December 2019.

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 notifications to the Ecology listserv about the Boeing Auburn cleanup website and the status of groundwater cleanup (References #6 and #21). Ecology also provided Boeing with a copy of the Algona Days summary from August, 2018 (Reference #11).

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 May and June (0.06 and 0.02 feet, respectively), no product was detected in April. Free-phase product has not been detected in any of the other wells in Building 17-06. Boeing maintains a sorbent sock in AGW128 to remove the product, which is replaced approximately monthly.

Occurrence of Problems

None to report.

Projected Work for Next Reporting Period July through September 2019

Activities projected for the next reporting period pertain to the FS reporting, Algona pilot test, other reporting, and ongoing monitoring of surface water and pore water. Tasks during third quarter 2019 are expected to include:

- Finalizing the Algona Pilot Test Technical Memorandum (2nd year of monitoring update) once Ecology comments are received
- Providing a revised Site-Wide Natural Attenuation Report addressing Ecology comments
- Submittal of the draft FS report

- Continuing to monitor free-phase product in groundwater at Building 17-06
- Conducting semiannual surface water and pore water sampling
- Preparing and submitting updated site-wide plume figures and an update VI assessment for Algona
- Preparing and distributing annual stakeholder data letters
- Annual Environmental Information Management data submittal
- Submitting results of cyanide hold time study
- Beginning preparation of a work plan for new well installation at Building 17-06 and Former Building 17-03
- Beginning permit renewal process for wells in Auburn and Algona right-of-way.

Other Significant Findings, Changes, and Contacts

Boeing transitioned project managers during the second quarter 2019 (Reference #1). Carl Bach from Boeing transitioned project management responsibilities to Debbie Taege starting in April 2019. Additionally, Robin Harrover, Ecology, announced her intent to retire in the 4th Quarter of 2019 and Christa Colouzis is expected to take over as the Ecology project manager.

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.

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Senior Geologist

Jennifer Wynkoop
Principal Scientist

KMG/SEF/JWW/kjg
[Y:\025\164\R\QUARTERLY PROGRESS RPTS\2019\2Q2019\2Q2019 STATUS RPT NO. 67 LETTER RPT_DRAFT.DOCX

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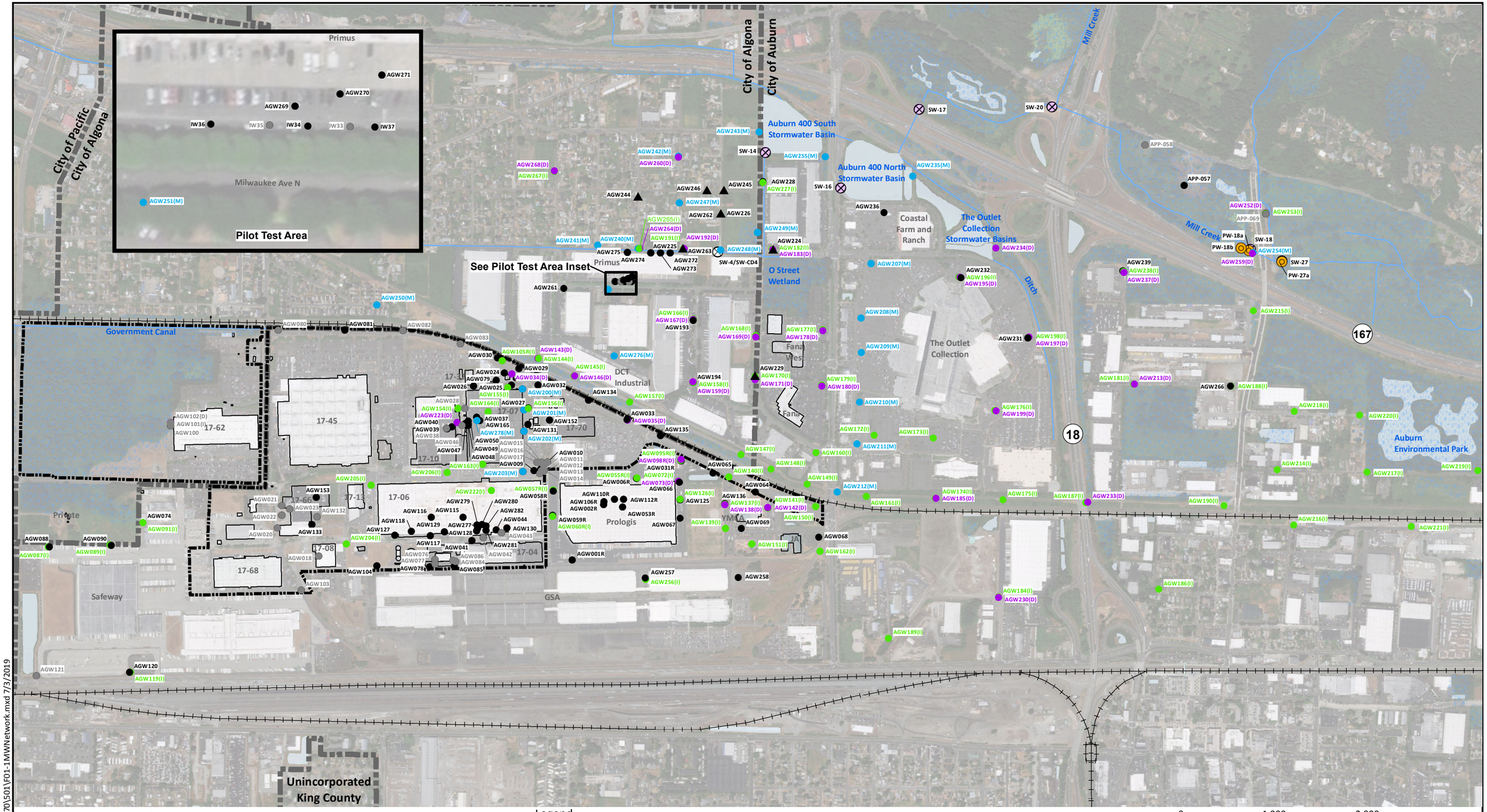
Steve Campbell, Prologis (email only)
Jason Berry, YMCA Auburn (email only)
Christa Colouzis, Ecology (email only)

Attachments: Attachment 1: Groundwater Sampling Results
Attachment 2: Pilot Test Results
Attachment 3: 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
- Annual Pore Water Sample 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

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Table 1-1
2Q2019 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample ID	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample ID	Select VOCs by SW-846 8260C SIM (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)
AGW001R	AGW001R-20190606	6/6/2019	PDN	19F0127	19F0127-03	X								
AGW002R	AGW002R-20190606	6/6/2019	N	19F0127	19F0127-10	X				X	X	X		
AGW002R	AGW900-20190606	6/6/2019	FD	19F0127	19F0127-11	X				X	X	X		
AGW006R	AGW006R-20190606	6/6/2019	PDN	19F0127	19F0127-07	X								
AGW009	AGW009-20190530	5/30/2019	PDN	19F0001	19F0001-07	X								
AGW010	AGW010-20190530	5/30/2019	N	19E0447	19E0447-02	X	X	X	X					
AGW010	AGW901-20190530	5/30/2019	FD	19E0447	19E0447-03	X	X	X	X					
AGW024	AGW024-20190604	6/4/2019	PDN	19F0061	19F0061-12	X								
AGW025	AGW025-20190530	5/30/2019	PDN	19F0001	19F0001-04	X								
AGW026	AGW026-20190603	6/3/2019	PDN	19F0063	19F0063-07	X								
AGW027	AGW027-20190604	6/4/2019	PDN	19F0061	19F0061-15	X								
AGW029	AGW029-20190529	5/29/2019	PDN	19E0416	19E0416-22	X								
AGW030	AGW030-20190529	5/29/2019	PDN	19E0416	19E0416-23	X								
AGW031R	AGW031R-20190605	6/5/2019	PDN	19F0094	19F0094-13	X								
AGW032	AGW032-20190604	6/4/2019	PDN	19F0061	19F0061-17	X								
AGW033	AGW033-20190529	5/29/2019	PDN	19E0416	19E0416-19	X								
AGW034	AGW034-20190604	6/4/2019	PDN	19F0061	19F0061-13	X								
AGW035	AGW035-20190529	5/29/2019	PDN	19E0416	19E0416-20	X								
AGW037	AGW037-20190604	6/4/2019	PDN	19F0080	19F0080-05	X								
AGW039	AGW039-20190604	6/4/2019	N	19F0080	19F0080-09	X							X	
AGW040	AGW040-20190604	6/4/2019	PDN	19F0080	19F0080-08	X								
AGW041	AGW041-20190529	5/29/2019	PDN	19E0416	19E0416-16	X								
AGW044	AGW044-20190530	5/30/2019	N	19F0001	19F0001-08	X			X					
AGW047	AGW047-NAOH-20190603	6/3/2019	N	A9F0055	A9F0055-01									X
AGW048	AGW048-20190603	6/3/2019	N	19F0063	19F0063-04								X	
AGW048	AGW048-NAOH-20190603	6/3/2019	N	A9F0055	A9F0055-03									X
AGW049	AGW049-20190603	6/3/2019	N	19F0063	19F0063-02								X	
AGW049	AGW049-NAOH-20190603	6/3/2019	N	A9F0055	A9F0055-05									X
AGW049	AGW902-20190603	6/3/2019	FD	19F0063	19F0063-03								X	
AGW049	AGW902-NAOH-20190603	6/3/2019	FD	A9F0055	A9F0055-09									X
AGW050	AGW050-20190603	6/3/2019	N	19F0063	19F0063-05								X	
AGW050	AGW050-NAOH-20190603	6/3/2019	N	A9F0055	A9F0055-07									X
AGW053R	AGW053R-20190606	6/6/2019	PDN	19F0127	19F0127-12	X								
AGW055R	AGW055R-20190606	6/6/2019	PDN	19F0126	19F0126-06	X								
AGW057R	AGW057R-20190606	6/6/2019	PDN	19F0127	19F0127-05	X								
AGW058R	AGW058R-20190606	6/6/2019	PDN	19F0127	19F0127-04	X								
AGW059R	AGW059R-20190606	6/6/2019	PDN	19F0126	19F0126-08	X								
AGW060R	AGW060R-20190606	6/6/2019	PDN	19F0126	19F0126-07	X								
AGW064	AGW064-20190605	6/5/2019	PDN	19F0094	19F0094-05	X								
AGW065	AGW065-20190605	6/5/2019	PDN	19F0094	19F0094-15	X								
AGW065	AGW903-20190605	6/5/2019	PDFD	19F0094	19F0094-16	X								
AGW066	AGW066-20190606	6/6/2019	PDN	19F0126	19F0126-04	X								
AGW067	AGW067-20190606	6/6/2019	PDN	19F0127	19F0127-02	X								
AGW068	AGW068-20190603	6/3/2019	PDN	19F0074	19F0074-08	X								
AGW069	AGW069-20190605	6/5/2019	PDN	19F0094	19F0094-07	X								

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2Q2019 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample ID	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample ID	Select VOCs by SW-846 8260C SIM (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)
AGW072	AGW072-20190606	6/6/2019	PDN	19F0127	19F0127-06	X								
AGW073	AGW073-20190606	6/6/2019	PDN	19F0126	19F0126-05	X								
AGW074	AGW074-20190529	5/29/2019	PDN	19E0416	19E0416-04	X								
AGW078	AGW078-20190529	5/29/2019	PDN	19E0416	19E0416-14	X								
AGW079	AGW079-20190604	6/4/2019	PDN	19F0061	19F0061-10	X								
AGW081	AGW081-20190529	5/29/2019	PDN	19E0416	19E0416-25	X								
AGW085	AGW085-20190529	5/29/2019	PDN	19E0416	19E0416-13	X								
AGW087	AGW087-20190529	5/29/2019	PDN	19E0416	19E0416-08	X								
AGW088	AGW088-20190529	5/29/2019	PDN	19E0416	19E0416-09	X								
AGW089	AGW089-20190529	5/29/2019	PDN	19E0416	19E0416-06	X								
AGW090	AGW090-20190529	5/29/2019	PDN	19E0416	19E0416-07	X								
AGW091	AGW091-20190529	5/29/2019	PDN	19E0416	19E0416-05	X								
AGW095R	AGW095R-20190605	6/5/2019	PDN	19F0094	19F0094-17	X								
AGW098R	AGW098R-20190605	6/5/2019	PDN	19F0094	19F0094-14	X								
AGW104	AGW104-20190529	5/29/2019	PDN	19E0416	19E0416-15	X								
AGW105R	AGW105R-20190529	5/29/2019	PDN	19E0416	19E0416-24	X								
AGW106R	AGW106R-20190606	6/6/2019	N	19F0126	19F0126-09	X				X	X	X		
AGW110R	AGW110R-20190606	6/6/2019	N	19F0127	19F0127-09	X				X	X	X		
AGW112R	AGW112R-20190606	6/6/2019	PDN	19F0127	19F0127-08	X								
AGW115	AGW115-20190604	6/4/2019	PDN	19F0080	19F0080-11	X								
AGW116	AGW116-20190604	6/4/2019	PDN	19F0080	19F0080-12	X								
AGW117	AGW117-20190529	5/29/2019	PDN	19E0416	19E0416-17	X								
AGW118	AGW118-20190604	6/4/2019	PDN	19F0080	19F0080-13	X								
AGW119	AGW119-20190529	5/29/2019	PDN	19E0416	19E0416-02	X								
AGW120	AGW120-20190529	5/29/2019	PDN	19E0416	19E0416-03	X								
AGW125	AGW125-20190606	6/6/2019	PDN	19F0126	19F0126-02	X								
AGW125	AGW904-20190606	6/6/2019	PDFD	19F0126	19F0126-03	X								
AGW126	AGW126-20190606	6/6/2019	N	19F0126	19F0126-01	X								
AGW127	AGW127-20190529	5/29/2019	PDN	19E0416	19E0416-27	X								
AGW128	AGW128-20190531	5/31/2019	N	19F0003	19F0003-05	X			X					
AGW129	AGW129-20190604	6/4/2019	PDN	19F0080	19F0080-14	X								
AGW130	AGW130-20190530	5/30/2019	N	19F0001	19F0001-09	X			X					
AGW131	AGW131-20190604	6/4/2019	PDN	19F0061	19F0061-14	X								
AGW133	AGW133-20190529	5/29/2019	PDN	19E0416	19E0416-10	X								
AGW134	AGW134-20190529	5/29/2019	PDN	19E0416	19E0416-21	X								
AGW135	AGW135-20190529	5/29/2019	PDN	19E0416	19E0416-18	X								
AGW136	AGW136-20190605	6/5/2019	PDN	19F0094	19F0094-09	X								
AGW137	AGW137-20190605	6/5/2019	PDN	19F0094	19F0094-10	X								
AGW138	AGW138-20190605	6/5/2019	PDN	19F0094	19F0094-11	X								
AGW139	AGW139-20190605	6/5/2019	PDN	19F0094	19F0094-08	X								
AGW140	AGW140-20190605	6/5/2019	PDN	19F0094	19F0094-12	X								
AGW141	AGW141-20190530	5/30/2019	PDN	19F0001	19F0001-06	X								
AGW142	AGW142-20190530	5/30/2019	PDN	19F0001	19F0001-05	X								
AGW143	AGW143-20190531	5/31/2019	PDN	19F0005	19F0005-11	X								
AGW144	AGW144-20190531	5/31/2019	PDN	19F0005	19F0005-10	X								

Table 1-1
2Q2019 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample ID	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample ID	Select VOCs by SW-846 8260C SIM (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)
AGW145	AGW145-20190531	5/31/2019	PDN	19F0005	19F0005-09	X								
AGW146	AGW146-20190531	5/31/2019	PDN	19F0005	19F0005-08	X								
AGW147	AGW147-20190531	5/31/2019	PDN	19F0005	19F0005-06	X								
AGW148	AGW148-20190531	5/31/2019	PDN	19F0005	19F0005-05	X								
AGW149	AGW149-20190531	5/31/2019	PDN	19F0005	19F0005-12	X								
AGW150	AGW150-20190528	5/28/2019	PDN	19E0406	19E0406-08	X								
AGW150	AGW905-20190528	5/28/2019	PDFD	19E0406	19E0406-09	X								
AGW151	AGW151-20190605	6/5/2019	PDN	19F0094	19F0094-06	X								
AGW152	AGW152-20190530	5/30/2019	PDN	19F0001	19F0001-02	X								
AGW153	AGW153-20190529	5/29/2019	PDN	19E0416	19E0416-11	X								
AGW154	AGW154-20190603	6/3/2019	PDN	19F0028	19F0028-22	X								
AGW155	AGW155-20190530	5/30/2019	PDN	19F0001	19F0001-03	X								
AGW156	AGW156-20190604	6/4/2019	PDN	19F0061	19F0061-16	X								
AGW157	AGW157-20190531	5/31/2019	PDN	19F0005	19F0005-07	X								
AGW158	AGW158-20190603	6/3/2019	PDN	19F0028	19F0028-13	X								
AGW159	AGW159-20190603	6/3/2019	PDN	19F0028	19F0028-14	X								
AGW160	AGW160-20190604	6/4/2019	PDN	19F0061	19F0061-09	X								
AGW161	AGW161-20190528	5/28/2019	PDN	19E0407	19E0407-05	X								
AGW162	AGW162-20190603	6/3/2019	PDN	19F0074	19F0074-09	X								
AGW163	AGW163-20190604	6/4/2019	PDN	19F0061	19F0061-18	X								
AGW164	AGW164-20190604	6/4/2019	PDN	19F0080	19F0080-07	X								
AGW165	AGW165-20190604	6/4/2019	PDN	19F0080	19F0080-06	X								
AGW166	AGW166-20190603	6/3/2019	PDN	19F0028	19F0028-15	X								
AGW167	AGW167-20190603	6/3/2019	PDN	19F0028	19F0028-16	X								
AGW168	AGW168-20190603	6/3/2019	PDN	19F0028	19F0028-11	X								
AGW169	AGW169-20190603	6/3/2019	PDN	19F0028	19F0028-10	X								
AGW170	AGW170-20190603	6/3/2019	PDN	19F0028	19F0028-08	X								
AGW171	AGW171-20190603	6/3/2019	PDN	19F0028	19F0028-07	X								
AGW172	AGW172-20190531	5/31/2019	PDN	19F0004	19F0004-11	X								
AGW173	AGW173-20190531	5/31/2019	PDN	19F0004	19F0004-10	X								
AGW174	AGW174-20190528	5/28/2019	PDN	19E0407	19E0407-04	X								
AGW175	AGW175-20190528	5/28/2019	N	19E0407	19E0407-03	X								
AGW176	AGW176-20190531	5/31/2019	PDN	19F0004	19F0004-05	X								
AGW177	AGW177-20190603	6/3/2019	PDN	19F0028	19F0028-04	X								
AGW178	AGW178-20190603	6/3/2019	PDN	19F0028	19F0028-05	X								
AGW179	AGW179-20190531	5/31/2019	PDN	19F0004	19F0004-12	X								
AGW180	AGW180-20190603	6/3/2019	PDN	19F0028	19F0028-06	X								
AGW181	AGW181-20190604	6/4/2019	PDN	19F0062	19F0062-08	X								
AGW182	AGW182-20190603	6/3/2019	PDN	19F0028	19F0028-01	X								
AGW183	AGW183-20190603	6/3/2019	PDN	19F0028	19F0028-02	X								
AGW184	AGW184-20190603	6/3/2019	PDN	19F0074	19F0074-07	X								
AGW185	AGW185-20190528	5/28/2019	PDN	19E0406	19E0406-03	X								
AGW186	AGW186-20190603	6/3/2019	PDN	19F0028	19F0028-20	X								
AGW187	AGW187-20190528	5/28/2019	PDN	19E0407	19E0407-02	X								
AGW188	AGW188-20190604	6/4/2019	N	19F0062	19F0062-04	X								

Table 1-1
2Q2019 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample ID	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample ID	Select VOCs by SW-846 8260C SIM (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)
AGW189	AGW189-20190603	6/3/2019	PDN	19F0028	19F0028-21	X								
AGW190	AGW190-20190604	6/4/2019	PDN	19F0061	19F0061-02	X								
AGW191	AGW191-20190531	5/31/2019	PDN	19F0005	19F0005-14	X								
AGW192	AGW192-20190531	5/31/2019	PDN	19F0005	19F0005-15	X								
AGW193	AGW193-20190603	6/3/2019	PDN	19F0028	19F0028-17	X								
AGW194	AGW194-20190603	6/3/2019	PDN	19F0028	19F0028-12	X								
AGW195	AGW195-20190530	5/30/2019	PDN	19E0448	19E0448-11	X								
AGW196	AGW196-20190530	5/30/2019	PDN	19E0448	19E0448-10	X								
AGW197	AGW197-20190531	5/31/2019	PDN	19F0004	19F0004-07	X								
AGW198	AGW198-20190531	5/31/2019	PDN	19F0004	19F0004-08	X								
AGW199	AGW199-20190531	5/31/2019	PDN	19F0004	19F0004-06	X								
AGW200-2	AGW200-2-30-20190605	6/5/2019	N	19F0096	19F0096-01	X								
AGW200-2	AGW906-20190605	6/5/2019	FD	19F0096	19F0096-02	X								
AGW200-5	AGW200-5-60-20190605	6/5/2019	N	19F0096	19F0096-03	X								
AGW200-6	AGW200-6-80-20190605	6/5/2019	N	19F0096	19F0096-04	X								
AGW201-2	AGW201-2-30-20190605	6/5/2019	N	19F0096	19F0096-05	X								
AGW201-5	AGW201-5-60-20190605	6/5/2019	N	19F0096	19F0096-06	X								
AGW201-6	AGW201-6-80-20190605	6/5/2019	N	19F0096	19F0096-07	X								
AGW202-2	AGW202-2-30-20190605	6/5/2019	N	19F0093	19F0093-10	X								
AGW202-4	AGW202-4-51-20190605	6/5/2019	N	19F0093	19F0093-11	X								
AGW202-6	AGW202-6-81-20190605	6/5/2019	N	19F0093	19F0093-12	X								
AGW203-2	AGW203-2-30-20190605	6/5/2019	N	19F0093	19F0093-06	X								
AGW203-2	AGW907-20190605	6/5/2019	FD	19F0093	19F0093-07	X								
AGW203-4	AGW203-4-49-20190605	6/5/2019	N	19F0093	19F0093-08	X								
AGW203-6	AGW203-6-80-20190605	6/5/2019	N	19F0093	19F0093-09	X								
AGW204	AGW204-20190529	5/29/2019	PDN	19E0416	19E0416-12	X								
AGW205	AGW205-20190529	5/29/2019	PDN	19E0416	19E0416-26	X								
AGW206	AGW206-20190604	6/4/2019	PDN	19F0061	19F0061-19	X								
AGW207-2	AGW207-2-30-20190530	5/30/2019	N	19E0448	19E0448-07	X								
AGW207-4	AGW207-4-49-20190530	5/30/2019	N	19E0448	19E0448-09	X								
AGW207-7	AGW207-7-80-20190530	5/30/2019	N	19E0448	19E0448-08	X								
AGW208-2	AGW208-2-29-20190530	5/30/2019	N	19E0448	19E0448-06	X								
AGW208-4	AGW208-4-49-20190530	5/30/2019	N	19E0448	19E0448-05	X								
AGW208-6	AGW208-6-80-20190530	5/30/2019	N	19E0448	19E0448-04	X								
AGW209-2	AGW209-2-30-20190530	5/30/2019	N	19E0448	19E0448-03	X								
AGW209-5	AGW209-5-60-20190530	5/30/2019	N	19E0448	19E0448-02	X								
AGW209-6	AGW209-6-80-20190529	5/29/2019	N	19E0414	19E0414-09	X								
AGW210-2	AGW210-2-30-20190529	5/29/2019	N	19E0414	19E0414-08	X								
AGW210-5	AGW210-5-60-20190529	5/29/2019	N	19E0414	19E0414-06	X								
AGW210-6	AGW210-6-80-20190529	5/29/2019	N	19E0414	19E0414-07	X								
AGW211-2	AGW211-2-30-20190529	5/29/2019	N	19E0414	19E0414-02	X								
AGW211-2	AGW908-20190529	5/29/2019	FD	19E0414	19E0414-03	X								
AGW211-5	AGW211-5-60-20190529	5/29/2019	N	19E0414	19E0414-04	X								
AGW211-6	AGW211-6-80-20190529	5/29/2019	N	19E0414	19E0414-05	X								
AGW212-2	AGW212-2-30-20190603	6/3/2019	N	19F0074	19F0074-12	X								

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2Q2019 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample ID	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample ID	Select VOCs by SW-846 8260C SIM (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)
AGW212-5	AGW212-5-60-20190603	6/3/2019	N	19F0074	19F0074-13	X								
AGW212-7	AGW212-7-100-20190604	6/3/2019	N	19F0074	19F0074-14	X								
AGW213	AGW213-20190604	6/4/2019	PDN	19F0062	19F0062-07	X								
AGW214	AGW214-20190531	5/31/2019	N	19F0004	19F0004-02	X								
AGW215	AGW215-20190604	6/4/2019	N	19F0062	19F0062-09	X								
AGW215	AGW909-20190604	6/4/2019	FD	19F0062	19F0062-11	X								
AGW216	AGW216-20190604	6/4/2019	N	19F0062	19F0062-10	X								
AGW217	AGW217-20190531	5/31/2019	N	19F0003	19F0003-03	X								
AGW218	AGW218-20190604	6/4/2019	N	19F0062	19F0062-06	X								
AGW219	AGW219-20190531	5/31/2019	PDN	19F0003	19F0003-02	X								
AGW220	AGW220-20190531	5/31/2019	N	19F0003	19F0003-04	X								
AGW221	AGW221-20190531	5/31/2019	N	19F0004	19F0004-03	X								
AGW222	AGW222-20190604	6/4/2019	PDN	19F0080	19F0080-15	X								
AGW223	AGW223-20190604	6/4/2019	PDN	19F0061	19F0061-11	X								
AGW224	AGW224-20190603	6/3/2019	PDN	19F0028	19F0028-03	X								
AGW225	AGW225-20190531	5/31/2019	N	19F0005	19F0005-13	X				X	X	X		
AGW226	AGW226-20190605	6/5/2019	N	19F0095	19F0095-08	X				X	X	X		
AGW227	AGW227-20190604	6/4/2019	PDN	19F0061	19F0061-07	X								
AGW228	AGW228-20190604	6/4/2019	N	19F0061	19F0061-08	X								
AGW228	AGW910-20190604	6/4/2019	FD	19F0061	19F0061-06	X								
AGW229	AGW229-20190603	6/3/2019	PDN	19F0028	19F0028-09	X								
AGW230	AGW230-20190603	6/3/2019	PDN	19F0074	19F0074-06	X								
AGW231	AGW231-20190531	5/31/2019	PDN	19F0004	19F0004-09	X								
AGW232	AGW232-20190530	5/30/2019	PDN	19E0448	19E0448-12	X								
AGW233	AGW233-20190528	5/28/2019	PDN	19E0406	19E0406-02	X								
AGW234	AGW234-20190603	6/3/2019	PDN	19F0074	19F0074-04	X								
AGW235-2	AGW235-2-19-20190603	6/3/2019	N	19F0074	19F0074-01	X								
AGW235-4	AGW235-4-39-20190603	6/3/2019	N	19F0074	19F0074-02	X								
AGW235-7	AGW235-7-71-20190603	6/3/2019	N	19F0074	19F0074-03	X								
AGW236	AGW236-20190531	5/31/2019	N	19F0004	19F0004-04	X								
AGW237	AGW237-20190604	6/4/2019	PDN	19F0062	19F0062-03	X								
AGW238	AGW238-20190604	6/4/2019	PDN	19F0062	19F0062-02	X								
AGW239	AGW239-20190604	6/4/2019	N	19F0062	19F0062-01	X								
AGW240-1	AGW240-1-7-20190605	6/5/2019	N	19F0095	19F0095-03	X				X	X	X		
AGW240-5	AGW240-5-28-20190605	6/5/2019	N	19F0095	19F0095-04	X				X	X	X		
AGW240-5	AGW911-20190605	6/5/2019	FD	19F0095	19F0095-02	X				X	X	X		
AGW241-1	AGW241-1-6-20190528	5/28/2019	N	19E0408	19E0408-05	X								
AGW241-5	AGW241-5-27-20190528	5/28/2019	N	19E0408	19E0408-06	X								
AGW242-1	AGW242-1-6-20190528	5/28/2019	N	19E0408	19E0408-09	X								
AGW242-2	AGW242-2-16-20190528	5/28/2019	N	19E0408	19E0408-10	X								
AGW242-5	AGW242-5-60-20190528	5/28/2019	N	19E0408	19E0408-11	X								
AGW243-1	AGW243-1-6-20190529	5/29/2019	N	19E0412	19E0412-02	X								
AGW243-3	AGW243-3-25-20190529	5/29/2019	N	19E0412	19E0412-03	X								
AGW243-5	AGW243-5-50-20190529	5/29/2019	N	19E0412	19E0412-04	X								
AGW244	AGW244-20190605	6/5/2019	N	19F0095	19F0095-07	X				X	X	X		

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Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample ID	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample ID	Select VOCs by SW-846 8260C SIM (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)
AGW245	AGW245-20190529	5/29/2019	PDN	19E0412	19E0412-10	X								
AGW246	AGW246-20190530	5/30/2019	PDN	19F0002	19F0002-09	X								
AGW247-1	AGW247-1-6-20190528	5/28/2019	N	19E0408	19E0408-07	X				X	X	X		
AGW247-5	AGW247-5-27-20190528	5/28/2019	N	19E0408	19E0408-08	X				X	X	X		
AGW248-1	AGW248-1-5-20190605	6/5/2019	N	19F0095	19F0095-05	X								
AGW248-5	AGW248-5-26-20190605	6/5/2019	N	19F0095	19F0095-06	X								
AGW249-1	AGW249-1-8-20190604	6/4/2019	N	19F0061	19F0061-04	X								
AGW249-5	AGW249-5-29-20190604	6/4/2019	N	19F0061	19F0061-05	X								
AGW250-1	AGW250-1-9-20190605	6/5/2019	N	19F0093	19F0093-01	X								
AGW250-2	AGW250-2-26-20190605	6/5/2019	N	19F0093	19F0093-02	X								
AGW250-3	AGW250-3-41-20190605	6/5/2019	N	19F0093	19F0093-03	X								
AGW250-3	AGW912-20190605	6/5/2019	FD	19F0093	19F0093-04	X								
AGW250-6	AGW250-6-81-20190605	6/5/2019	N	19F0093	19F0093-05	X								
AGW251-1	AGW251-1-8-20190529	5/29/2019	N	19E0412	19E0412-05	X				X	X	X		
AGW251-2	AGW251-2-25-20190529	5/29/2019	N	19E0412	19E0412-06	X				X	X	X		
AGW251-3	AGW251-3-40-20190529	5/29/2019	N	19E0412	19E0412-07	X				X	X	X		
AGW251-6	AGW251-6-76-20190529	5/29/2019	N	19E0412	19E0412-08	X								
AGW252	AGW252-20190528	5/28/2019	PDN	19E0407	19E0407-11	X								
AGW253	AGW253-20190528	5/28/2019	PDN	19E0406	19E0406-07	X								
AGW254-1	AGW254-1-6-20190528	5/28/2019	N	19E0407	19E0407-08	X								
AGW254-2	AGW254-2-20-20190528	5/28/2019	N	19E0406	19E0406-05	X								
AGW254-5	AGW254-5-50-20190528	5/28/2019	N	19E0407	19E0407-09	X								
AGW254-5	AGW913-20190528	5/28/2019	FD	19E0407	19E0407-10	X								
AGW255-1	AGW255-1-13-20190528	5/28/2019	N	19E0407	19E0407-06	X								
AGW255-3	AGW255-3-30-20190528	5/28/2019	N	19E0406	19E0406-04	X								
AGW255-5	AGW255-5-55-20190528	5/28/2019	N	19E0407	19E0407-07	X								
AGW256	AGW256-20190605	6/5/2019	PDN	19F0094	19F0094-04	X								
AGW257	AGW257-20190605	6/5/2019	PDN	19F0094	19F0094-03	X								
AGW258	AGW258-20190605	6/5/2019	PDN	19F0094	19F0094-02	X								
AGW259	AGW259-20190528	5/28/2019	PDN	19E0406	19E0406-06	X								
AGW260	AGW260-20190528	5/28/2019	PDN	19E0408	19E0408-12	X								
AGW261	AGW261-20190529	5/29/2019	PDN	19E0412	19E0412-09	X								
AGW262	AGW262-20190604	6/4/2019	PDN	19F0061	19F0061-03	X								
AGW263	AGW263-20190531	5/31/2019	PDN	19F0005	19F0005-16	X								
AGW264	AGW264-20190603	6/3/2019	PDN	19F0074	19F0074-11	X								
AGW265	AGW265-20190603	6/3/2019	PDN	19F0074	19F0074-10	X								
AGW266	AGW266-20190604	6/4/2019	PDN	19F0062	19F0062-05	X								
AGW267	AGW267-20190603	6/3/2019	PDN	19F0028	19F0028-19	X								
AGW268	AGW268-20190603	6/3/2019	PDN	19F0028	19F0028-18	X								
AGW269	AGW269-20190530	5/30/2019	N	19F0002	19F0002-03	X				X	X	X		
AGW270	AGW270-20190530	5/30/2019	N	19F0002	19F0002-07	X				X	X	X		
AGW271	AGW271-20190530	5/30/2019	N	19F0002	19F0002-02	X				X	X	X		
AGW272	AGW272-20190530	5/30/2019	N	19F0002	19F0002-08	X				X	X	X		
AGW273	AGW273-20190531	5/31/2019	N	19F0005	19F0005-02	X				X	X	X		
AGW274	AGW274-20190531	5/31/2019	N	19F0005	19F0005-03	X				X	X	X		

Table 1-1
2Q2019 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location	Field Sample ID	Sample Date	Sample Type	Laboratory SDG	Laboratory Sample ID	Select VOCs by SW-846 8260C SIM (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)
AGW275	AGW275-20190531	5/31/2019	N	19F0005	19F0005-04	X				X	X	X		
AGW276-2	AGW276-2-25-20190528	5/28/2019	N	19E0408	19E0408-02	X								
AGW276-5	AGW276-5-60-20190528	5/28/2019	N	19E0408	19E0408-03	X								
AGW276-6	AGW276-6-80-20190528	5/28/2019	N	19E0408	19E0408-04	X								
AGW277	AGW277-20190531	5/31/2019	N	19F0003	19F0003-06				X					
AGW278-1	AGW278-1-17-20190603	6/3/2019	N	19F0063	19F0063-06	X								X
AGW278-2	AGW278-2-25-20190604	6/4/2019	N	19F0080	19F0080-02	X								
AGW278-4	AGW278-4-45-20190604	6/4/2019	N	19F0080	19F0080-03	X								
AGW278-6	AGW278-6-80-20190604	6/4/2019	N	19F0080	19F0080-04	X								
AGW281	AGW281-20190531	5/31/2019	N	19F0003	19F0003-08				X					
AGW282	AGW282-20190531	5/31/2019	N	19F0003	19F0003-07				X					
APP-057	APP-057-20190603	6/3/2019	N	19F0074	19F0074-05	X								
IW34	IW34-20190530	5/30/2019	N	19F0002	19F0002-05	X				X	X	X		
IW36	IW36-20190530	5/30/2019	N	19F0002	19F0002-04	X				X	X	X		
IW37	IW37-20190530	5/30/2019	N	19F0002	19F0002-06	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:

ASTM = ASTM International
BTEX = benzene, toluene, ethylbenzene, xylenes
Diss. = dissolved
EPA = US Environmental Protection Agency
FD = field duplicate
ID = identification
N = primary sample
NWTPH = Northwest Total Petroleum Hydrocarbon
PD = passive diffusion
SDG = sample delivery group
SIM = selected ion monitoring
TOC = total organic carbon
VOC = volatile organic compound
X = analysis completed

Table 1-2
2Q2019 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 SIM (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	19F0127	6/6/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.65**	0.0200 U	--	--	--	--	--
AGW002R	Shallow	19F0127	6/6/2019	N	0.200 U	**0.240**	0.200 U	0.200 U	0.200 U	**0.0504**	**5.05**	**2.26**	0.39 U	0.24 U	**3,720**
AGW002R	Shallow	19F0127	6/6/2019	FD	0.200 U	**0.248**	0.200 U	0.200 U	0.200 U	**0.0508**	**4.75**	**2.25**	0.39 U	0.24 U	**3,860**
AGW006R	Shallow	19F0127	6/6/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW009	Shallow-WT	19F0001	5/30/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW010	Shallow-WT	19E0447	5/30/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 UJ	--	--	--	--	--
AGW010	Shallow-WT	19E0447	5/30/2019	FD	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW024	Shallow	19F0061	6/4/2019	PDN	0.200 U	**1.37**	0.200 U	0.200 U	0.200 U	**0.727**	--	--	--	--	--
AGW025	Shallow	19F0001	5/30/2019	PDN	0.200 U	**2.98**	0.200 U	**0.324**	0.200 U	**1.62**	--	--	--	--	--
AGW026	Shallow	19F0063	6/3/2019	PDN	0.200 U	**0.397**	0.200 U	0.200 U	**0.442**	0.0200 U	--	--	--	--	--
AGW027	Shallow-WT	19F0061	6/4/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0272**	--	--	--	--	--
AGW029	Shallow	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW030	Shallow	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW031R	Shallow	19F0094	6/5/2019	PDN	0.200 U	**0.268**	0.200 U	0.200 U	**0.560**	0.0200 U	--	--	--	--	--
AGW032	Shallow-WT	19F0061	6/4/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0201**	--	--	--	--	--
AGW033	Shallow-WT	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW034	Deep	19F0061	6/4/2019	PDN	0.200 U	**0.270**	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW035	Deep	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.65**	0.0200 U	--	--	--	--	--
AGW037	Shallow-WT	19F0080	6/4/2019	PDN	0.200 U	**1.26**	0.200 U	0.200 U	**2.06**	**0.160**	--	--	--	--	--
AGW039	Shallow-WT	19F0080	6/4/2019	N	0.200 U	**1.11**	0.200 U	0.200 U	**0.349**	**0.0286**	--	--	--	--	--
AGW040	Shallow-WT	19F0080	6/4/2019	PDN	0.200 U	**0.521**	0.200 U	0.200 U	**0.687**	**0.0249**	--	--	--	--	--
AGW041	Shallow-WT	19E0416	5/29/2019	PDN	0.200 U	0.200 U	**0.238**	0.200 U	**0.234**	0.0200 U	--	--	--	--	--
AGW044	Shallow-WT	19F0001	5/30/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW053R	Shallow-WT	19F0127	6/6/2019	PDN	0.200 U	**0.594**	0.200 U	0.200 U	**1.16**	**0.0331**	--	--	--	--	--
AGW055R	Intermediate	19F0126	6/6/2019	PDN	0.200 U	**1.20**	0.200 U	0.200 U	**0.377**	**0.116**	--	--	--	--	--
AGW057R	Intermediate	19F0127	6/6/2019	PDN	0.200 U	0.200 U	**0.469**	0.200 U	**0.830**	0.0200 U	--	--	--	--	--
AGW058R	Shallow-WT	19F0127	6/6/2019	PDN	0.200 U	0.200 U	**0.350**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW059R	Shallow-WT	19F0126	6/6/2019	PDN	0.200 U	0.200 U	**0.327**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW060R	Intermediate	19F0126	6/6/2019	PDN	0.200 U	**2.15**	0.200 U	0.200 U	**0.671**	**0.0533**	--	--	--	--	--
AGW064	Shallow-WT	19F0094	6/5/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.220**	0.0200 U	--	--	--	--	--
AGW065	Shallow-WT	19F0094	6/5/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW065	Shallow-WT	19F0094	6/5/2019	PDFD	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW066	Shallow-WT	19F0126	6/6/2019	PDN	0.200 U	**3.19**	0.200 U	0.200 U	**3.25**	0.0200 U	--	--	--	--	--
AGW067	Shallow-WT	19F0127	6/6/2019	PDN	0.200 U	**2.43**	0.200 U	0.200 U	**3.65**	0.0200 U	--	--	--	--	--
AGW068	Shallow-WT	19F0074	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW069	Shallow-WT	19F0094	6/5/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW072	Intermediate	19F0127	6/6/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.981**	0.0200 U	--	--	--	--	--
AGW073	Deep	19F0126	6/6/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--

Table 1-2
2Q2019 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 SIM (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
AGW074	Shallow-WT	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW078	Shallow-WT	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW079	Shallow-WT	19F0061	6/4/2019	PDN	0.200 U	**0.230**	0.200 U	0.200 U	0.200 U	**0.574**	--	--	--	--	--
AGW081	Shallow-WT	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW085	Shallow-WT	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW087	Intermediate	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW088	Shallow	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW089	Intermediate	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW090	Shallow	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW091	Intermediate	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW095R	Intermediate	19F0094	6/5/2019	PDN	0.200 U	**0.307**	0.200 U	0.200 U	**1.14**	0.0200 U	--	--	--	--	--
AGW098R	Deep	19F0094	6/5/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.347**	0.0200 U	--	--	--	--	--
AGW104	Shallow	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW105R	Intermediate	19E0416	5/29/2019	PDN	0.200 U	**0.426**	0.200 U	0.200 U	**0.652**	**0.311**	--	--	--	--	--
AGW106R	Shallow	19F0126	6/6/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	**21.2 J**	**0.51**	0.39 U	0.24 U	**24.8**
AGW110R	Shallow	19F0127	6/6/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.112**	**4.08**	**2.30**	**0.55 J**	0.24 U	**4,590**
AGW112R	Shallow	19F0127	6/6/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.968**	0.0200 U	--	--	--	--	--
AGW115	Shallow-WT	19F0080	6/4/2019	PDN	0.200 U	**1.85**	0.200 U	0.200 U	0.200 U	**1.07**	--	--	--	--	--
AGW116	Shallow-WT	19F0080	6/4/2019	PDN	0.200 U	0.200 U	**0.315**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW117	Shallow-WT	19E0416	5/29/2019	PDN	0.200 U	0.200 U	**0.396**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW118	Shallow-WT	19F0080	6/4/2019	PDN	0.200 U	0.200 U	**0.563**	0.200 U	**0.238**	0.0200 U	--	--	--	--	--
AGW119	Intermediate	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW120	Shallow	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW125	Shallow	19F0126	6/6/2019	PDN	0.200 U	**1.93**	0.200 U	0.200 U	**6.44**	**0.0307**	--	--	--	--	--
AGW125	Shallow	19F0126	6/6/2019	PDFD	0.200 U	**1.88**	0.200 U	0.200 U	**6.26**	**0.0296**	--	--	--	--	--
AGW126	Intermediate	19F0126	6/6/2019	N	**0.251**	**4.87 J**	0.200 U	0.200 U	**7.22**	**0.0500**	--	--	--	--	--
AGW127	Shallow-WT	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW128	Shallow-WT	19F0003	5/31/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW129	Shallow-WT	19F0080	6/4/2019	PDN	0.200 U	0.200 U	**0.445**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW130	Shallow-WT	19F0001	5/30/2019	N	0.200 U	0.200 U	**0.229**	0.200 U	**0.253**	0.0200 U	--	--	--	--	--
AGW131	Shallow	19F0061	6/4/2019	PDN	0.200 U	**0.659**	0.200 U	0.200 U	0.200 U	**0.978**	--	--	--	--	--
AGW133	Shallow	19E0416	5/29/2019	PDN	0.200 U	0.200 U	**0.262**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW134	Shallow	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0784**	--	--	--	--	--
AGW135	Shallow	19E0416	5/29/2019	PDN	0.200 U	**0.295**	0.200 U	0.200 U	**0.776**	0.0200 U	--	--	--	--	--
AGW136	Shallow	19F0094	6/5/2019	PDN	0.200 U	**0.748**	0.200 U	0.200 U	**1.50**	0.0200 U	--	--	--	--	--
AGW137	Intermediate	19F0094	6/5/2019	PDN	0.200 U	**1.09**	0.200 U	0.200 U	**2.98**	0.0200 U	--	--	--	--	--
AGW138	Deep	19F0094	6/5/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.439**	0.0200 U	--	--	--	--	--
AGW139	Intermediate	19F0094	6/5/2019	PDN	0.200 U	**0.217**	0.200 U	0.200 U	**2.47**	0.0200 U	--	--	--	--	--

Table 1-2
2Q2019 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 SIM (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
AGW140	Intermediate	19F0094	6/5/2019	PDN	0.200 U	**1.23**	0.200 U	0.200 U	**2.75**	**0.0370**	--	--	--	--	--
AGW141	Intermediate	19F0001	5/30/2019	PDN	0.200 U	**0.236**	0.200 U	0.200 U	**1.59**	0.0200 U	--	--	--	--	--
AGW142	Deep	19F0001	5/30/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW143	Deep	19F0005	5/31/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW144	Intermediate	19F0005	5/31/2019	PDN	0.200 U	**2.02**	0.200 U	**0.420**	**0.992**	**0.285**	--	--	--	--	--
AGW145	Intermediate	19F0005	5/31/2019	PDN	0.200 U	**7.62**	0.200 U	**1.07**	**9.64**	**0.802**	--	--	--	--	--
AGW146	Deep	19F0005	5/31/2019	PDN	0.200 U	**1.70**	0.200 U	**0.219**	**3.54**	**0.105**	--	--	--	--	--
AGW147	Intermediate	19F0005	5/31/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW148	Intermediate	19F0005	5/31/2019	PDN	0.200 U	**0.919**	0.200 U	0.200 U	**2.46**	0.0200 U	--	--	--	--	--
AGW149	Intermediate	19F0005	5/31/2019	PDN	0.200 U	**0.322**	0.200 U	0.200 U	**2.62**	0.0200 U	--	--	--	--	--
AGW150	Intermediate	19E0406	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.752**	0.0200 U	--	--	--	--	--
AGW150	Intermediate	19E0406	5/28/2019	PDFD	0.200 U	0.200 U	0.200 U	0.200 U	**0.746**	0.0200 U	--	--	--	--	--
AGW151	Intermediate	19F0094	6/5/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.284**	0.0200 U	--	--	--	--	--
AGW152	Shallow	19F0001	5/30/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**1.66**	--	--	--	--	--
AGW153	Shallow	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW154	Intermediate	19F0028	6/3/2019	PDN	0.200 U	**0.322**	0.200 U	0.200 U	**0.304**	**0.0219**	--	--	--	--	--
AGW155	Intermediate	19F0001	5/30/2019	PDN	0.200 U	**1.96**	0.200 U	**0.316**	0.200 U	**3.46**	--	--	--	--	--
AGW156	Intermediate	19F0061	6/4/2019	PDN	0.200 U	**4.63**	0.200 U	**0.336**	**0.692**	**0.859**	--	--	--	--	--
AGW157	Intermediate	19F0005	5/31/2019	PDN	0.200 U	**2.49**	0.200 U	0.200 U	**1.22**	**0.175**	--	--	--	--	--
AGW158	Intermediate	19F0028	6/3/2019	PDN	0.200 U	**0.442**	**0.207**	0.200 U	**1.64**	**0.0257**	--	--	--	--	--
AGW159	Deep	19F0028	6/3/2019	PDN	0.200 U	**0.584**	0.200 U	0.200 U	**3.10**	**0.0459**	--	--	--	--	--
AGW160	Intermediate	19F0061	6/4/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**2.11**	0.0200 U	--	--	--	--	--
AGW161	Intermediate	19E0407	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.825**	0.0200 U	--	--	--	--	--
AGW162	Intermediate	19F0074	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.383**	0.0200 U	--	--	--	--	--
AGW163	Intermediate	19F0061	6/4/2019	PDN	0.200 U	**1.17**	0.200 U	0.200 U	**3.22**	**0.0229**	--	--	--	--	--
AGW164	Intermediate	19F0080	6/4/2019	PDN	0.200 U	**0.216**	0.200 U	0.200 U	**0.949**	0.0200 U	--	--	--	--	--
AGW165	Shallow	19F0080	6/4/2019	PDN	0.200 U	**1.17**	0.200 U	0.200 U	**1.84**	**0.161**	--	--	--	--	--
AGW166	Intermediate	19F0028	6/3/2019	PDN	0.200 U	**1.03**	0.200 U	0.200 U	0.200 U	**0.307**	--	--	--	--	--
AGW167	Deep	19F0028	6/3/2019	PDN	0.200 U	**1.77**	0.200 U	0.200 U	**4.53**	**0.103**	--	--	--	--	--
AGW168	Intermediate	19F0028	6/3/2019	PDN	0.200 U	**1.51**	0.200 U	0.200 U	**4.28**	**0.0373**	--	--	--	--	--
AGW169	Deep	19F0028	6/3/2019	PDN	0.200 U	**1.43**	0.200 U	0.200 U	**4.98**	**0.0339**	--	--	--	--	--
AGW170	Intermediate	19F0028	6/3/2019	PDN	0.200 U	**0.331**	0.200 U	0.200 U	**1.89**	0.0200 U	--	--	--	--	--
AGW171	Deep	19F0028	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.19**	0.0200 U	--	--	--	--	--
AGW172	Intermediate	19F0004	5/31/2019	PDN	0.200 U	**0.275**	0.200 U	0.200 U	**3.59**	0.0200 U	--	--	--	--	--
AGW173	Intermediate	19F0004	5/31/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW174	Intermediate	19E0407	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.04**	0.0200 U	--	--	--	--	--
AGW175	Intermediate	19E0407	5/28/2019	N	0.200 U	**0.284**	0.200 U	0.200 U	**1.50**	0.0200 U	--	--	--	--	--
AGW176	Intermediate	19F0004	5/31/2019	PDN	0.200 U	**0.243**	0.200 U	0.200 U	**2.43**	0.0200 U	--	--	--	--	--

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Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C SIM (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
AGW177	Intermediate	19F0028	6/3/2019	PDN	0.200 U	**0.940**	0.200 U	0.200 U	**3.42**	0.0200 U	--	--	--	--	--
AGW178	Deep	19F0028	6/3/2019	PDN	0.200 U	**0.452**	0.200 U	0.200 U	**3.58**	0.0200 U	--	--	--	--	--
AGW179	Intermediate	19F0004	5/31/2019	PDN	0.200 U	**4.93**	0.200 U	0.200 U	0.200 U	**0.147**	--	--	--	--	--
AGW180	Deep	19F0028	6/3/2019	PDN	0.200 U	**0.460**	0.200 U	0.200 U	**2.76**	0.0200 U	--	--	--	--	--
AGW181	Intermediate	19F0062	6/4/2019	PDN	0.200 U	**0.923**	0.200 U	0.200 U	**3.45**	**0.0217**	--	--	--	--	--
AGW182	Intermediate	19F0028	6/3/2019	PDN	0.200 U	**2.68**	0.200 U	**0.304**	**1.48**	**0.195**	--	--	--	--	--
AGW183	Deep	19F0028	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW184	Intermediate	19F0074	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.254**	0.0200 U	--	--	--	--	--
AGW185	Deep	19E0406	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.79**	0.0200 U	--	--	--	--	--
AGW186	Intermediate	19F0028	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.505**	0.0200 U	--	--	--	--	--
AGW187	Intermediate	19E0407	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.32**	0.0200 U	--	--	--	--	--
AGW188	Intermediate	19F0062	6/4/2019	N	0.200 U	**0.384**	0.200 U	0.200 U	**3.07**	0.0200 U	--	--	--	--	--
AGW189	Intermediate	19F0028	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.536**	0.0200 U	--	--	--	--	--
AGW190	Intermediate	19F0061	6/4/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.871**	0.0200 U	--	--	--	--	--
AGW191	Off-Intermediate	19F0005	5/31/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW192	Off-Deep	19F0005	5/31/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW193	Shallow	19F0028	6/3/2019	PDN	0.200 U	**1.42**	0.200 U	0.200 U	**2.47**	**0.191**	--	--	--	--	--
AGW194	Shallow	19F0028	6/3/2019	PDN	0.200 U	**0.525**	0.200 U	0.200 U	**1.34**	0.0200 U	--	--	--	--	--
AGW195	Deep	19E0448	5/30/2019	PDN	0.200 U	**0.627**	0.200 U	0.200 U	**5.82**	0.0200 U	--	--	--	--	--
AGW196	Intermediate	19E0448	5/30/2019	PDN	0.200 U	**3.40**	0.200 U	0.200 U	0.200 U	**2.69**	--	--	--	--	--
AGW197	Deep	19F0004	5/31/2019	PDN	0.200 U	**0.921**	0.200 U	0.200 U	**7.75**	0.0200 U	--	--	--	--	--
AGW198	Intermediate	19F0004	5/31/2019	PDN	0.200 U	**0.428**	0.200 U	0.200 U	**5.84**	0.0200 U	--	--	--	--	--
AGW199	Deep	19F0004	5/31/2019	PDN	0.200 U	**1.25**	0.200 U	0.200 U	**6.39**	0.0200 U	--	--	--	--	--
AGW200-2	Shallow	19F0096	6/5/2019	N	0.200 U	**1.63**	0.200 U	**0.236**	0.200 U	**1.94**	--	--	--	--	--
AGW200-2	Shallow	19F0096	6/5/2019	FD	0.200 U	**1.63**	0.200 U	**0.232**	0.200 U	**1.95**	--	--	--	--	--
AGW200-5	Intermediate	19F0096	6/5/2019	N	0.200 U	**4.47**	0.200 U	**0.399**	**1.15**	**0.918**	--	--	--	--	--
AGW200-6	Deep	19F0096	6/5/2019	N	0.200 U	**5.66**	0.200 U	**0.524**	**0.792**	**0.800**	--	--	--	--	--
AGW201-2	Shallow	19F0096	6/5/2019	N	0.200 U	**2.52**	0.200 U	0.200 U	**0.313**	**1.54**	--	--	--	--	--
AGW201-5	Intermediate	19F0096	6/5/2019	N	0.200 U	**3.41**	0.200 U	**0.297**	**3.27**	**0.668**	--	--	--	--	--
AGW201-6	Deep	19F0096	6/5/2019	N	0.200 U	**3.51**	0.200 U	**0.334**	**5.53**	**0.361**	--	--	--	--	--
AGW202-2	Shallow	19F0093	6/5/2019	N	0.200 U	**1.81**	0.200 U	0.200 U	**1.20**	**0.375**	--	--	--	--	--
AGW202-4	Intermediate	19F0093	6/5/2019	N	0.200 U	**1.02**	0.200 U	0.200 U	**1.98**	**0.269**	--	--	--	--	--
AGW202-6	Deep	19F0093	6/5/2019	N	0.200 U	**0.293**	0.200 U	0.200 U	**0.783**	**0.0278**	--	--	--	--	--
AGW203-2	Shallow	19F0093	6/5/2019	N	0.200 U	0.200 U	**0.339**	0.200 U	**0.698**	0.0200 U	--	--	--	--	--
AGW203-2	Shallow	19F0093	6/5/2019	FD	0.200 U	0.200 U	**0.334**	0.200 U	**0.707**	0.0200 U	--	--	--	--	--
AGW203-4	Intermediate	19F0093	6/5/2019	N	0.200 U	0.200 U	**0.322**	0.200 U	**2.22**	0.0200 U	--	--	--	--	--
AGW203-6	Deep	19F0093	6/5/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW204	Intermediate	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--

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Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C SIM (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
AGW205	Intermediate	19E0416	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW206	Intermediate	19F0061	6/4/2019	PDN	0.200 U	0.200 U	**0.434**	0.200 U	**1.21**	0.0200 U	--	--	--	--	--
AGW207-2	Shallow	19E0448	5/30/2019	N	0.200 U	**3.71**	0.200 U	0.200 U	**4.03**	**0.0854**	--	--	--	--	--
AGW207-4	Intermediate	19E0448	5/30/2019	N	0.200 U	**1.28**	0.200 U	0.200 U	**4.21**	**0.0950**	--	--	--	--	--
AGW207-7	Deep	19E0448	5/30/2019	N	0.200 U	**0.429**	0.200 U	0.200 U	**4.02**	0.0200 U	--	--	--	--	--
AGW208-2	Shallow	19E0448	5/30/2019	N	0.200 U	**3.02**	0.200 U	0.200 U	**1.61**	**0.554**	--	--	--	--	--
AGW208-4	Intermediate	19E0448	5/30/2019	N	0.200 U	**1.24**	0.200 U	0.200 U	**1.82**	0.0200 U	--	--	--	--	--
AGW208-6	Deep	19E0448	5/30/2019	N	0.200 U	**0.402**	0.200 U	0.200 U	**3.73**	0.0200 U	--	--	--	--	--
AGW209-2	Shallow	19E0448	5/30/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**1.14**	--	--	--	--	--
AGW209-5	Intermediate	19E0448	5/30/2019	N	0.200 U	**1.11**	0.200 U	0.200 U	**1.51**	**1.10**	--	--	--	--	--
AGW209-6	Deep	19E0414	5/29/2019	N	0.200 U	**0.622**	0.200 U	0.200 U	**3.37**	0.0200 U	--	--	--	--	--
AGW210-2	Shallow	19E0414	5/29/2019	N	0.200 U	**0.327**	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW210-5	Intermediate	19E0414	5/29/2019	N	0.200 U	**1.29**	0.200 U	0.200 U	**1.24**	**0.0453**	--	--	--	--	--
AGW210-6	Deep	19E0414	5/29/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	**3.05**	0.0200 U	--	--	--	--	--
AGW211-2	Shallow	19E0414	5/29/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW211-2	Shallow	19E0414	5/29/2019	FD	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW211-5	Intermediate	19E0414	5/29/2019	N	0.200 U	**1.15**	0.200 U	0.200 U	**2.38**	0.0200 U	--	--	--	--	--
AGW211-6	Deep	19E0414	5/29/2019	N	0.200 U	**0.967**	0.200 U	0.200 U	**1.04**	0.0200 U	--	--	--	--	--
AGW212-2	Shallow	19F0074	6/3/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW212-5	Intermediate	19F0074	6/3/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	**0.976**	0.0200 U	--	--	--	--	--
AGW212-7	Deep	19F0074	6/3/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	**2.92**	0.0200 U	--	--	--	--	--
AGW213	Deep	19F0062	6/4/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW214	Intermediate	19F0004	5/31/2019	N	0.200 U	**0.276**	0.200 U	0.200 U	**1.75**	0.0200 U	--	--	--	--	--
AGW215	Intermediate	19F0062	6/4/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW215	Intermediate	19F0062	6/4/2019	FD	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW216	Intermediate	19F0062	6/4/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	**0.633**	0.0200 U	--	--	--	--	--
AGW217	Intermediate	19F0003	5/31/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	**1.24**	0.0200 U	--	--	--	--	--
AGW218	Intermediate	19F0062	6/4/2019	N	0.200 U	**0.259**	0.200 U	0.200 U	**2.21**	0.0200 U	--	--	--	--	--
AGW219	Intermediate	19F0003	5/31/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW220	Intermediate	19F0003	5/31/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	**0.265**	0.0200 U	--	--	--	--	--
AGW221	Intermediate	19F0004	5/31/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW222	Intermediate	19F0080	6/4/2019	PDN	0.200 U	0.200 U	**0.495**	0.200 U	**0.281**	0.0200 U	--	--	--	--	--
AGW223	Deep	19F0061	6/4/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW224	Shallow-WT	19F0028	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW225	Off-Shallow	19F0005	5/31/2019	N	0.200 U	**4.01**	0.200 U	**0.401**	**2.00**	**0.435**	**3.22**	**4.52**	0.39 U	0.24 U	**476**
AGW226	Off-Shallow	19F0095	6/5/2019	N	0.200 U	**4.14**	0.200 U	**0.248**	**1.18**	**0.561**	**5.78**	**2.35**	0.39 U	0.24 U	**1,480**
AGW227	Intermediate	19F0061	6/4/2019	PDN	0.200 U	**2.27**	0.200 U	**0.236**	**1.41**	**0.150**	--	--	--	--	--
AGW228	Shallow	19F0061	6/4/2019	N	0.200 U	**2.16**	0.200 U	**0.238**	**2.43**	**0.161**	--	--	--	--	--

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Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260C SIM (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
AGW228	Shallow	19F0061	6/4/2019	FD	0.200 U	**2.09**	0.200 U	**0.226**	**2.34**	**0.132**	--	--	--	--	--
AGW229	Shallow-WT	19F0028	6/3/2019	PDN	0.200 U	**1.76**	0.200 U	0.200 U	**1.28**	**0.0347**	--	--	--	--	--
AGW230	Deep	19F0074	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.721**	0.0200 U	--	--	--	--	--
AGW231	Shallow	19F0004	5/31/2019	PDN	0.200 U	**0.927**	0.200 U	0.200 U	0.200 U	**1.52**	--	--	--	--	--
AGW232	Shallow	19E0448	5/30/2019	PDN	0.200 U	**1.42**	0.200 U	0.200 U	0.200 U	**4.99**	--	--	--	--	--
AGW233	Deep	19E0406	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW234	Deep	19F0074	6/3/2019	PDN	**0.219**	**1.40**	0.200 U	0.200 U	**6.17**	**0.119**	--	--	--	--	--
AGW235-2	Shallow	19F0074	6/3/2019	N	0.200 U	**1.12**	0.200 U	**0.205**	0.200 U	**3.15**	--	--	--	--	--
AGW235-4	Intermediate	19F0074	6/3/2019	N	0.200 U	**8.33**	0.200 U	0.200 U	**1.54**	**0.103**	--	--	--	--	--
AGW235-7	Deep	19F0074	6/3/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW236	Shallow	19F0004	5/31/2019	N	0.200 U	**3.96**	0.200 U	0.200 U	**0.366**	**0.0863**	--	--	--	--	--
AGW237	Deep	19F0062	6/4/2019	PDN	**0.569**	**0.805**	0.200 U	0.200 U	**1.96**	0.0200 U	--	--	--	--	--
AGW238	Intermediate	19F0062	6/4/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW239	Shallow	19F0062	6/4/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0970**	--	--	--	--	--
AGW240-1	Off-Shallow-WT	19F0095	6/5/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0624**	**0.127**	**8.07**	**2.68**	0.24 U	**9,690**
AGW240-5	Off-Shallow	19F0095	6/5/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0475**	**0.134**	**5.75**	**2.86**	0.24 U	**11,900**
AGW240-5	Off-Shallow	19F0095	6/5/2019	FD	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0496**	**0.140**	**5.68**	**2.81**	0.24 U	**12,500**
AGW241-1	Shallow-WT	19E0408	5/28/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW241-5	Shallow	19E0408	5/28/2019	N	0.200 U	**0.529**	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW242-1	Shallow-WT	19E0408	5/28/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.226**	--	--	--	--	--
AGW242-2	Shallow	19E0408	5/28/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW242-5	Intermediate	19E0408	5/28/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW243-1	Shallow-WT	19E0412	5/29/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0317**	--	--	--	--	--
AGW243-3	Shallow	19E0412	5/29/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW243-5	Intermediate	19E0412	5/29/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW244	Shallow-WT	19F0095	6/5/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	**6.55**	**15.11**	0.39 U	0.24 U	**605**
AGW245	Shallow-WT	19E0412	5/29/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW246	Shallow-WT	19F0002	5/30/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW247-1	Off-Shallow-WT	19E0408	5/28/2019	N	0.200 U	0.200 U	0.200 U	**0.318**	0.200 U	**1.77**	**0.212**	**8.28**	0.39 U	0.24 U	**7,310**
AGW247-5	Off-Shallow	19E0408	5/28/2019	N	0.200 U	**0.824**	0.200 U	**0.273**	0.200 U	**1.06**	**0.157**	**5.23**	0.39 U	0.24 U	**3,520**
AGW248-1	Shallow-WT	19F0095	6/5/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW248-5	Shallow	19F0095	6/5/2019	N	0.200 U	**1.67**	0.200 U	0.200 U	**3.29**	**0.131**	--	--	--	--	--
AGW249-1	Shallow-WT	19F0061	6/4/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**1.13**	--	--	--	--	--
AGW249-5	Shallow	19F0061	6/4/2019	N	0.200 U	**1.46**	0.200 U	0.200 U	**4.44**	0.0200 U	--	--	--	--	--
AGW250-1	Shallow-WT	19F0093	6/5/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW250-2	Shallow	19F0093	6/5/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0267**	--	--	--	--	--
AGW250-3	Intermediate	19F0093	6/5/2019	N	0.200 U	**0.609**	0.200 U	0.200 U	**0.425**	**0.0372**	--	--	--	--	--
AGW250-3	Intermediate	19F0093	6/5/2019	FD	0.200 U	**0.598**	0.200 U	0.200 U	**0.423**	**0.0378**	--	--	--	--	--

Table 1-2
2Q2019 Groundwater Analytical Results
Volatile Organic Compounds, General Chemistry, and Dissolved Gases
Boeing Auburn Facility
Auburn, Washington

					Select VOCs by SW-846 8260C SIM (µg/L)						General Chemistry by EPA 300.0, SM5310C (mg/L)		Dissolved Gases by RSK-175 (µg/L)		
Sample Location	**Zone**	**Laboratory SDG**	**Sample Date**	**Sample Type**	1,1-Dichloroethene	cis-1,2-Dichloroethene	Tetrachloroethene	trans-1,2-Dichloroethene	Trichloroethene	Vinyl Chloride	Sulfate	Total Organic Carbon	Ethane	Ethene	Methane
AGW250-6	Deep	19F0093	6/5/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW251-1	Off-Shallow-WT	19E0412	5/29/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0575**	**152**	**8.19**	0.39 U	0.24 U	**21.8**
AGW251-2	Off-Shallow	19E0412	5/29/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.724**	**0.521**	**7.00**	0.39 U	0.24 U	**3,030**
AGW251-3	Off-Intermediate	19E0412	5/29/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**4.39**	**0.190**	**6.80**	0.39 U	0.24 U	**3,000**
AGW251-6	Deep	19E0412	5/29/2019	N	0.200 U	**0.242**	0.200 U	0.200 U	0.200 U	**0.182**	--	--	--	--	--
AGW252	Deep	19E0407	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW253	Intermediate	19E0406	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW254-1	Shallow-WT	19E0407	5/28/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW254-2	Shallow	19E0406	5/28/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW254-5	Intermediate	19E0407	5/28/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW254-5	Intermediate	19E0407	5/28/2019	FD	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW255-1	Shallow-WT	19E0407	5/28/2019	N	0.200 U	**2.25**	0.200 U	0.200 U	**0.482**	**0.197**	--	--	--	--	--
AGW255-3	Shallow	19E0406	5/28/2019	N	0.200 U	**1.15**	0.200 U	0.200 U	0.200 U	**0.138**	--	--	--	--	--
AGW255-5	Intermediate	19E0407	5/28/2019	N	0.200 U	**0.806**	0.200 U	0.200 U	0.200 U	**0.143**	--	--	--	--	--
AGW256	Intermediate	19F0094	6/5/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.778**	0.0200 U	--	--	--	--	--
AGW257	Shallow	19F0094	6/5/2019	PDN	0.200 U	0.200 U	**0.427**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW258	Shallow	19F0094	6/5/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW259	Deep	19E0406	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW260	Deep	19E0408	5/28/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW261	Shallow	19E0412	5/29/2019	PDN	0.200 U	**1.54**	0.200 U	**0.227**	**1.93**	**0.158**	--	--	--	--	--
AGW262	Off-Shallow-WT	19F0061	6/4/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0951**	--	--	--	--	--
AGW263	Off-Shallow-WT	19F0005	5/31/2019	PDN	0.200 U	**2.98**	0.200 U	0.200 U	**0.745**	**0.0562**	--	--	--	--	--
AGW264	Deep	19F0074	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW265	Intermediate	19F0074	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW266	Shallow	19F0062	6/4/2019	PDN	0.200 U	**0.394**	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW267	Intermediate	19F0028	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW268	Deep	19F0028	6/3/2019	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW269	Off-Shallow	19F0002	5/30/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.718**	**0.115**	**7.65**	**1.77**	0.24 U	**5,710**
AGW270	Off-Shallow	19F0002	5/30/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**3.36**	**0.147**	**10.35**	**1.32**	0.37 U	**16,900**
AGW271	Off-Shallow	19F0002	5/30/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.467**	**0.158**	**13.71**	**2.23**	0.24 U	**12,100**
AGW272	Off-Shallow	19F0002	5/30/2019	N	0.200 U	**3.22**	0.200 U	**0.507**	**0.323**	**1.50**	**0.410**	**4.10**	0.39 U	0.30 U	**841**
AGW273	Off-Shallow	19F0005	5/31/2019	N	0.200 U	**0.870**	0.200 U	**0.267**	0.200 U	**3.18**	**0.129**	**6.09**	**0.83 J**	**1.17**	**1,880**
AGW274	Off-Shallow	19F0005	5/31/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**1.82**	**0.152**	**6.59**	**1.47**	**0.57 J**	**1,910**
AGW275	Off-Shallow	19F0005	5/31/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0260**	**0.317**	**7.55**	**2.65**	0.24 U	**4,390**
AGW276-2	Off-Shallow	19E0408	5/28/2019	N	0.200 U	**1.12**	0.200 U	0.200 U	0.200 U	**0.733**	--	--	--	--	--
AGW276-5	Off-Intermediate	19E0408	5/28/2019	N	0.200 U	**5.10**	0.200 U	**0.461**	0.200 U	**2.06**	--	--	--	--	--
AGW276-6	Off-Deep	19E0408	5/28/2019	N	0.200 U	**1.87**	0.200 U	0.200 U	**2.66**	**0.0773**	--	--	--	--	--
AGW278-1	Shallow-WT	19F0063	6/3/2019	N	0.200 U	**0.939 J**	0.200 U	0.200 U	**0.538**	**0.349 J**	--	--	--	--	--

Table 1-2
2Q2019 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 SIM (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
AGW278-2	Shallow	19F0080	6/4/2019	N	0.200 U	**1.94**	0.200 U	0.200 U	**0.365**	**0.354**	--	--	--	--	--
AGW278-4	Intermediate	19F0080	6/4/2019	N	0.200 U	**0.829**	0.200 U	0.200 U	0.200 U	**2.58**	--	--	--	--	--
AGW278-6	Deep	19F0080	6/4/2019	N	0.200 U	**0.250**	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
APP-057	Shallow	19F0074	6/3/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
IW34	Shallow	19F0002	5/30/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**3.90**	**0.158**	**12.63**	0.61 U	0.27 U	**24,800**
IW36	Shallow	19F0002	5/30/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**2.92**	**0.114**	**8.57**	**1.16 J**	0.36 U	**1,830**
IW37	Shallow	19F0002	5/30/2019	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.466**	**0.132**	**9.93**	**1.65**	0.24 U	**12,200**

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:

-- = not analyzed
EPA = US Environmental Protection Agency
FD = field duplicate
µg/L = micrograms per liter
mg/L = milligrams per liter
N = primary sample
PD = passive diffusion
SDG = sample delivery group
SIM = selected ion monitoring
VOC = volatile organic compound
WT = water table

Table 1-3
2Q2019 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 D7511-12 (a) (mg/L)
					Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Total Xylenes	Gasoline Range Organics (C7-C12)	Diesel Range Organics (C12-C24)	Oil Range Organics (C24-C40)	Arsenic	Cadmium	Copper	Nickel	Cyanide
AGW010	Shallow-WT	19E0447	5/30/2019	N	**1.58**	**1.98**	**387**	**48.6**	**6.88**	**55.4**	**9.75 J**	**0.346**	0.200 U	--	--	--	--	--
AGW010	Shallow-WT	19E0447	5/30/2019	FD	**1.43**	**1.93**	**422**	**42.6**	**6.21**	**48.8**	**7.91 J**	**0.264**	0.200 U	--	--	--	--	--
AGW039	Shallow-WT	19F0080	6/4/2019	N	--	--	--	--	--	--	--	--	--	**0.00824**	--	--	--	--
AGW044	Shallow-WT	19F0001	5/30/2019	N	--	--	--	--	--	--	--	0.100 U	0.200 U	--	--	--	--	--
AGW047	Shallow	A9F0055	6/3/2019	N	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.0646**
AGW048	Shallow	19F0063/A9F0055	6/3/2019	N	--	--	--	--	--	--	--	--	--	--	**0.00365**	--	**0.00132**	**0.0476**
AGW049	Shallow	19F0063/A9F0055	6/3/2019	N	--	--	--	--	--	--	--	--	--	--	**0.00934**	**0.187**	**0.0241**	**0.0139**
AGW049	Shallow	19F0063/A9F0055	6/3/2019	FD	--	--	--	--	--	--	--	--	--	--	**0.00899**	**0.19**	**0.0230**	**0.0140**
AGW050	Shallow	19F0063/A9F0055	6/3/2019	N	--	--	--	--	--	--	--	--	--	--	**0.00965**	--	**0.00969**	**0.385**
AGW128	Shallow-WT	19F0003	5/31/2019	N	--	--	--	--	--	--	--	**0.742**	**5.16**	--	--	--	--	--
AGW130	Shallow-WT	19F0001	5/30/2019	N	--	--	--	--	--	--	--	0.100 U	0.200 U	--	--	--	--	--
AGW277	Shallow-WT	19F0003	5/31/2019	N	--	--	--	--	--	--	--	0.100 U	0.200 U	--	--	--	--	--
AGW278-1	Shallow-WT	A9F0053	6/3/2019	N	--	--	--	--	--	--	--	--	--	--	--	--	--	**0.00834**
AGW281	Shallow-WT	19F0003	5/31/2019	N	--	--	--	--	--	--	--	0.100 U	**0.370**	--	--	--	--	--
AGW282	Shallow-WT	19F0003	5/31/2019	N	--	--	--	--	--	--	--	0.100 U	0.200 U	--	--	--	--	--

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.

Abbreviations/Acronyms:

-- = not analyzed
ASTM = ASTM International
BTEX = benzene, toluene, ethylbenzene, xylenes
FD = field duplicate
µg/L = micrograms per liter
mg/L = milligrams per liter
N = primary sample
NWTPH = Northwest Total Petroleum Hydrocarbon
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

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LANDAU ASSOCIATES

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

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Table 2-1
Data Summary
Algona Enhanced Natural Attenuation 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)	DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)		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	1.20	-76.8	2.6	4.8	290	Fe/S	3.7	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	1.39	**	6.4	4.1	360	Fe/S	4.2	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	2.0	-54.7	4.0	4.2	170	Fe/S	3.8	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	0.73	-14	2.5	3.3	420	Fe/S	4.3	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	3.40	271	2.0	4.9	330	Fe/S	3.6	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	0.48	-6.0	2.5	5.7	340	Fe/S	4.3	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	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	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	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	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	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	55	0.00	0.25	0.65	0.10	0.00
		12/7/2018	1190	<0.200	2.17	3.44	0.337	<0.200	0.316	<0.24	<0.39	0.5	-38.6	5.00	5.16	390	Fe/S	3.46	61	0.00	0.27	0.64	0.08	0.00
		5/31/2019	1366	<0.200	2.00	4.01	0.401	<0.200	0.435	<0.24	<0.39	0.58	166.8	1.50	3.22	476	Fe/S	4.52	68	0.00	0.22	0.67	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	0.55	-12.2	2.0	8	970	S/M	2.6	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	7.29	-26.1	2.0	7.8	1000	S/M	5.5	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	0.54	-28.45	2.5	6.5	1300	S/M	2.4	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	0.44	177	2.0	7.4	1200	S/M	2.7	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	0.70	82.5	0.0	17.6	1100	S/M	4.2	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	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	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	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	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	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	58	0.00	0.20	0.67	0.14	0.00
		12/3/2018	1186	<0.200	<0.200	0.284	<0.200	<0.200	0.295	<0.24	<0.39	0.96	175.0	1.00	70.2	613	S/M	13.89	8	0.00	0.00	0.38	0.62	0.00
		6/5/2019	1371	<0.200	1.18	4.14	0.248	<0.200	0.561	<0.24	<0.39	0.36	-8.4	2.60	5.78	1480	S/M	2.35	63	0.00	0.14	0.72	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	1.32	-169.5	2.7	<1.0	3200	M	8.6	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	0.54	-67.3	1.8	<1.0	2900	M	8.1	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	1.89	-83.3	2.5	<1.0	2800	M	7.5	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	0.73	-13.23	5.0	<1.0	2900	M	7.9	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	1.9	-42.5	1.5	<1.0	5700	M	7.5	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	0.60	-45.4	4.5	<1.0	8900	M	7.7	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	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	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	**	15.9	2.0	<1.0	1200	M	7.1	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	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	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	0	0.00	0.00	0.00	0.00	1.00
		12/7/2018	1190	<0.200	<0.200	<0.200	<0.200	<0.200	0.0531	<0.24	<0.39	0.59	-61.6	6.50	0.211	11700	M	7.36	1	0.00	0.00	0.00	1.00	0.00
		6/5/2019	1370	<0.200	<0.200	<0.200	<0.200	<0.200	0.0624	<0.24	2.68	1.32	-19.3	4.20	0.127	9690	M	8.07	1	0.00	0.00	0.00	1.00	0.00

Table 2-1
Data Summary
Algona Enhanced Natural Attenuation 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)	DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)		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	0.51	-116.1	2.8	<1.0	2200	M	6.6	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	0.77	-41.7	2.8	<1.0	2000	M	5.4	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	0.81	-86.8	6.0	<1.0	2200	M	6.5	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	0.55	-19.15	6.0	<1.0	1700	M	6.9	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	0.33	-40.8	3.0	<1.0	8100	M	20.2	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	0.36	-48.8	4.0	<1.0	31000	M	5.7	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	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	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	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	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	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	0	0.00	0.00	0.00	0.00	1.00
		12/7/2018	1190	<0.200	<0.200	<0.200	<0.200	<0.200	0.0237	<0.24	<0.39	0.38	-60.8	6.50	<0.100	12300	M	6.89	0.4	0.00	0.00	0.00	1.00	0.00
		6/5/2019	1370	<0.200	<0.200	<0.200	<0.200	<0.200	0.0475	<0.24	2.86	0.39	-80.4	6.00	0.134	11900	M	5.75	0.8	0.00	0.00	0.00	1.00	0.00
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	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	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	2.0	3.8	4600	S/M	53.1	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	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	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	0	0.00	0.00	0.00	0.00	0.00
		12/3/2018	1186	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	<0.24	<0.39	2.85	146.7	1.00	10.8	<0.65	N/Fe	4.54	0	0.00	0.00	0.00	0.00	0.00
		6/5/2019	1371	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	<0.24	<0.39	0.5	13.0	2.00	6.55	605	S/M	15.11	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	0.64	-76.1	2.5	6.3	3600	S/M	57.4	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	0.49	-61.4	3.4	<1.0	5200	M	9.6	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	4.32	-101.2	5.5	1.1	6900	M	13.2	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	0.44	-32.23	6.0	<1.0	7100	M	9.4	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	0.43	-49.5	2.5	<1.0	6100	M	9.7	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	0.62	-48.6	2.5	1.3	4200	M	11.1	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	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	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	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	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	44	0.00	0.00	0.05	0.95	0.00
		3/13/2018	921	<0.20	<0.20	<0.20	0.41	<0.20	5.8	--	--	1.53	156.7	--	--	--	--	--	97	0.00	0.00	0.04	0.96	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	54	0.00	0.00	0.03	0.39	0.57
		9/4/2018	1096	<0.20	<0.20	<0.20	0.44	<0.20	3.4	--	--	1.04	103.6	--	--	--	--	--	59	0.00	0.00	0.08	0.92	0.00
		12/3/2018	1186	<0.200	<0.200	<0.200	<0.200	<0.200	0.369	<0.24	<0.39	1.25	-11.8	4.00	8.69	2360	S/M	16.85	6	0.00	0.00	0.00	1.00	0.00
		5/28/2019	1363	<0.200	<0.200	<0.200	0.318	<0.200	1.77	<0.24	<0.39	0.55	-40.4	4.50	0.212	7310	M	8.28	32	0.00	0.00	0.10	0.90	0.00

Table 2-1
Data Summary
Algona Enhanced Natural Attenuation 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)	DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)		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	0.22	-136	5.0	<1.0	4000	M	21.3	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	0.54	-90.3	2.4	1.1	3400	M	6.2	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	4.76	-97.4	4.5	<1.0	2100	M	6.7	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	0.51	-63.1	6.5	<1.0	2000	M	5.7	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	0.34	-72.1	2.0	<1.0	2300	M	5.4	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	0.34	-77.9	3.5	1.6	1300	M	6.7	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	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	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	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	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	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	26	0.00	0.00	0.05	0.11	0.83
		12/3/2018	1186	<0.200	<0.200	0.999	0.422	<0.200	1.72	<0.24	<0.39	0.60	-44.9	6.00	<0.100	3120	M	5.42	42	0.00	0.00	0.35	0.65	0.00
		5/28/2019	1363	<0.200	<0.200	0.824	0.273	<0.200	1.06	<0.24	<0.39	0.42	-61.1	2.00	0.157	3520	M	5.23	28	0.00	0.00	0.40	0.60	0.00
AGW251-1	WT	12/2/2014	-276	<0.020	<0.2	<0.2	<0.2	<0.2	1.8	2.2	5.8	0.83	-73.1	3.4	37.2	16000	S/M	27.3	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	4.51	**	6.8	1.3	140	Fe/S	16.9	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	**	-60.5	1.0	280	440	Fe	8.9	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	0.85	41.55	1.0	117	560	Fe/S	33.8	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	0.83	124.4	2.0	20.7	1800	S/M	11	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	2.19	-78.2	4.5	4.3	1100	S/M	13.1	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	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	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	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	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	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	5	0.00	0.00	0.00	0.14	0.86
		12/13/2018	1196	<0.200	<0.200	<0.200	<0.200	<0.200	0.105	<0.24	<0.39	5.19	109.0	0.5	128	201	Fe	8.31	2	0.00	0.00	0.00	1.00	0.00
		5/29/2019	1363	<0.200	<0.200	<0.200	<0.200	<0.200	0.0575	<0.24	<0.39	9.72	20.0	3.5	152	21.8	Fe	8.19	1	0.00	0.00	0.00	1.00	0.00
AGW251-2	SZ	12/2/2014	-276	<0.020	<0.2	2	0.2	<0.2	4.7	3.2	5.9	0.49	-141.9	4.0	1.1	8500	M	11.2	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	0.94	**	5.2	2.1	4800	M	7.1	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	**	-109.1	6.0	1.2	3900	M	6.8	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	0.56	-99.13	1.5	1.9	2900	M	7.2	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	0.56	48.8	2.0	<1.0	3700	M	8.1	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	0.73	-81.8	2.0	<1.0	3300	M	8.1	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	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	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	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	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	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	18	0.00	0.00	0.00	0.10	0.90
		12/13/2018	1196	<0.200	<0.200	<0.200	<0.200	<0.200	0.714	0.78	1.53	0.57	-29.7	3.4	0.127	2120	M	6.46	11	0.00	0.00	0.00	0.13	0.87
		5/29/2019	1363	<0.200	<0.200	<0.200	<0.200	<0.200	0.724	<0.24	<0.39	0.63	-72.6	3.5	0.521	3030	M	7.00	12	0.00	0.00	0.00	1.00	0.00

Table 2-1
Data Summary
Algona Enhanced Natural Attenuation 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)	DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)		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	1.09	-112.2	3.1	<1.0	2500	M	7.6	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	1.51	**	5.8	<1.0	2200	M	6.3	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	**	-93.7	6.0	<1.0	2100	M	6.1	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	0.59	-50.43	2.0	<1.0	2600	M	7.3	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	0.45	78.3	2.0	<1.0	2600	M	8.1	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	0.68	-38.6	3.5	<1.0	2100	M	6.7	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	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	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	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	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	115	0.00	0.00	0.08	0.74	0.18
		3/13/2018	921	<0.20	<0.20	0.26	<0.20	<0.20	7.8	--	--	1.18	153.8	--	--	--	--	--	127	0.00	0.00	0.02	0.98	0.00
		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	71	0.00	0.00	0.02	0.40	0.58
		9/4/2018	1096	<0.20	<0.20	0.21	<0.20	<0.20	4.5	--	--	1.30	103.0	--	--	--	--	--	74	0.00	0.00	0.03	0.97	0.00
		12/13/2018	1196	<0.200	<0.200	<0.200	<0.200	<0.200	4.99	0.84	0.70	0.36	-41.8	1.8	0.332	2260	M	6.33	80	0.00	0.00	0.00	0.60	0.40
		5/29/2019	1364	<0.200	<0.200	<0.200	<0.200	<0.200	4.39	<0.24	<0.39	0.50	-32.9	4.5	0.190	3000	M	6.80	70	0.00	0.00	0.00	1.00	0.00
AGW269	SZ	8/14/2015	-21	<0.020	<0.2	6.7	0.7	<0.2	3.2	<1.0	<1.0	0.52	-95.9	1.0	1.9	1300	M	9.1	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	0.36	-49.0	4.0	<1.0	26000	M	122	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	0.27	-43.8	2.0	<1.0	15000	M	8.5	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	0.36	-28.1	2.0	<1.0	24000	M	8.2	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	0.49	-21.7	4.0	<1.0	29000	M	9.9	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	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	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	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	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	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	14	0.00	0.00	0.00	0.10	0.90
		12/4/2018	1187	<0.200	<0.200	<0.200	<0.200	<0.200	0.159	<0.24	<0.39	0.67	-11.3	5.00	<0.100	22000	M	7.53	3	0.00	0.00	0.00	1.00	0.00
		5/30/2019	1365	<0.200	<0.200	<0.200	<0.200	<0.200	0.718	<0.24	1.77	0.53	-20.1	6.00	0.115	5710	M	7.65	11	0.00	0.00	0.00	0.16	0.84
AGW270	SZ	8/13/2015	-22	<0.020	<0.2	7.3	1	<0.2	2.2	<1.0	<1.0	1.58	**	5.8	<1.0	750	M	7.2	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	0.30	-11.0	2.5	<1.0	23000	M	682	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	0.30	-38.6	6.5	<1.0	22000	M	75.2	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	0.60	-52.4	2.0	<1.0	25000	M	46.7	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	0.49	-47.9	3.0	1.1	22000	M	39.1	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	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	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	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	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	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	66	0.00	0.00	0.00	0.35	0.65
		12/4/2018	1187	<0.200	<0.200	<0.200	<0.200	<0.200	1.26	<0.24	<0.39	0.85	-5.3	2.00	<0.100	18200	M	10.96	20	0.00	0.00	0.00	1.00	0.00
		5/30/2019	1365	<0.200	<0.200	<0.200	<0.200	<0.200	3.36	<0.37	1.32	0.33	-29.6	2.50	0.147	16900	M	10.35	54	0.00	0.00	0.00	0.55	0.45

Table 2-1
Data Summary
Algona Enhanced Natural Attenuation 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)	DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)		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	1.32	**	6.2	<1.0	2300	M	6.8	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	0.33	22.2	7.0	<1.0	19000	M	971	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	0.37	25.8	6.0	<10.0	28000	M	1080	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	0.58	-35.8	3.0	<1.0	29000	M	48.6	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	0.43	-39.5	2.5	<1.0	28000	M	16.9	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	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	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	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	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	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	9	0.00	0.00	0.00	0.07	0.93
		12/4/2018	1187	<0.200	<0.200	<0.200	<0.200	<0.200	0.214	<0.24	<0.39	0.76	-8.0	4.00	<0.100	17600	M	10.39	3	0.00	0.00	0.00	1.00	0.00
		5/30/2019	1364	<0.200	<0.200	<0.200	<0.200	<0.200	0.467	<0.24	2.23	0.47	-70.0	4.50	0.158	12100	M	13.71	7	0.00	0.00	0.00	0.09	0.91
AGW272	SZ	8/13/2015	-22	<0.020	0.2	7.3	0.6	<0.2	0.66	<1.0	<1.0	0.49	-55.2	1.8	1.5	400	Fe/S	5.4	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	1.36	-85.3	4.0	<1.0	940	M	3.5	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	0.91	-71.43	1.0	1.1	460	Fe/S	4.1	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	0.76	-29.8	2.5	1.4	450	Fe/S	4.1	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	0.42	-37.5	3.0	1.6	360	Fe/S	4.9	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	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	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	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	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	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	67	0.00	0.02	0.44	0.21	0.32
		12/4/2018	1187	<0.200	0.261	4.66	0.5	<0.200	1.76	<0.24	<0.39	0.47	-25.7	6.00	<0.100	1080	M	3.51	83	0.00	0.02	0.64	0.34	0.00
		5/30/2019	1365	<0.200	0.323	3.22	0.507	<0.200	1.5	<0.30	<0.39	2.09	-20.9	4.00	0.410	841	M	4.10	65	0.00	0.04	0.59	0.37	0.00
AGW273	SZ	8/13/2015	-22	<0.020	<0.2	6.3	0.7	<0.2	4.2	<1.0	<1.0	1.61	**	4.6	<1.0	880	M	6.1	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	1.52	-99.3	6.0	<1.0	1500	M	6.0	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	0.51	-54.3	1.2	<1.0	1300	M	6.1	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	0.71	24.1	2.0	<1.0	1300	M	5.5	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	0.77	-30.9	4.0	<1.0	900	M	6.7	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	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	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	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	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	77	0.00	0.00	0.07	0.38	0.55
		3/13/2018	921	<0.20	<0.20	1.7	0.37	<0.20	4.1	--	--	1.37	148.0	--	--	--	--	--	87	0.00	0.00	0.25	0.75	0.00
		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	70	0.00	0.00	0.11	0.32	0.57
		9/4/2018	1096	<0.20	<0.20	1.1	0.32	<0.20	3.3	--	--	1.29	101.8	--	--	--	--	--	67	0.00	0.00	0.22	0.78	0.00
		12/5/2018	1188	<0.200	<0.200	0.501	0.219	<0.200	3.09	<0.24	<0.39	0.47	-62.1	6.00	<0.100	3130	M	5.56	57	0.00	0.00	0.13	0.87	0.00
		5/31/2019	1365	<0.200	<0.200	0.870	0.267	<0.200	3.18	1.17	0.83	0.59	61.0	5.50	0.129	1880	M	6.09	63	0.00	0.00	0.09	0.39	0.53

Table 2-1
Data Summary
Algona Enhanced Natural Attenuation 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)	DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)		PCE	TCE	Total DCE	VC	Ethene+ Ethane
AGW274	SZ	8/13/2015	-22	<0.020	<0.2	<0.2	<0.2	<0.2	4	2.3	<1.0	0.54	-36.6	3.6	<1.0	1900	M	7.5	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	2.07	-95.0	4.0	<1.0	2700	M	8.1	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	0.43	-48.9	2.0	<1.0	920	M	7	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	0.47	-5.1	2.0	<1.0	920	M	5.8	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	1.05	-33.1	2.8	<1.0	9600	M	7	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	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	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	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	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	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	62	0.00	0.00	0.06	0.31	0.63
		12/5/2018	1188	<0.200	<0.200	<0.200	<0.200	<0.200	0.116	<0.24	<0.39	0.55	-63.3	6.50	<0.100	7640	M	7.11	2	0.00	0.00	0.00	1.00	0.00
		5/31/2019	1365	<0.200	<0.200	<0.200	<0.200	<0.200	1.82	0.57	1.47	0.51	85.1	5.00	0.152	1910	M	6.59	29	0.00	0.00	0.00	0.30	0.70
AGW275	SZ	8/13/2015	-22	<0.020	<0.2	2.3	0.3	<0.2	7.7	<1.0	<1.0	0.64	-47.6	3.0	1	2000	M	7.6	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	1.02	-100.3	4.5	<1.0	2100	M	6.9	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	0.35	-48.5	2.2	<1.0	14000	M	79.7	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	0.44	0.07	3.5	<1.0	26000	M	7.9	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	0.46	-45.3	2.0	<1.0	16000	M	8.3	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	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	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	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	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	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	0	0.00	0.00	0.00	0.00	1.00
		12/5/2018	1188	<0.200	<0.200	<0.200	<0.200	<0.200	0.0295	<0.24	<0.39	0.45	-65.4	6.00	<0.100	2830	M	6.06	0	0.00	0.00	0.00	1.00	0.00
		5/31/2019	1365	<0.200	<0.200	<0.200	<0.200	<0.200	0.0260	<0.24	2.65	0.39	93.5	5.50	0.317	4390	M	7.55	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	<1.0	<1.0	1.86	-17.1	2.6	<1.0	940	M	7.4	124	0.00	0.00	0.61	0.39	0.00
		11/28/2016	451	--	--	--	--	--	--	--	--	**	38.3	--	--	--	--	205	--	--	--	--	--	--
IW34	SZ	8/17/2015	-18	<0.020	0.2	7.6	0.8	<0.2	4.9	<1.0	<1.0	0.57	-60.2	4.0	<1.0	1900	M	6.9	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	1.79	-24.7	9.5	22.5	7900	S/M	6010	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	0.39	44.1	7.0	<10.0	15000	M	6450	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	1.07	116	3.0	1.9	23000	M	3840	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	0.46	-85.3	6.0	1.1	17000	M	377	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	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	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	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	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	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	45	0.00	0.00	0.02	0.29	0.68
		12/4/2018	1187	<0.200	<0.200	0.272	<0.200	<0.200	0.67	<0.24	<0.39	0.52	-2.7	4.00	<0.100	23300	M	46.99	14	0.00	0.00	0.21	0.79	0.00
		5/30/2019	1364	<0.200	<0.200	<0.200	<0.200	<0.200	3.90	<0.27	<0.61	0.51	-4.2	4.50	0.158	24800	M	12.63	62	0.00	0.00	0.00	1.00	0.00
IW35	SZ	8/17/2015	-18	<0.020	<0.2	3.3	0.5	<0.2	3.7	<1.0	<1.0	0.77	-22.8	2.0	1	1800	M	7.2	98	0.00	0.00	0.40	0.60	0.00
		11/28/2016	451	--	--	--	--	--	--	--	--	0.76	0.7	--	--	--	--	16.3	--	--	--	--	--	--

Table 2-1
Data Summary
Algona Enhanced Natural Attenuation 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)	DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)		PCE	TCE	Total DCE	VC	Ethene+ Ethane
IW36	SZ	8/17/2015	-18	<0.020	0.2	3.3	0.7	<0.2	6	<1.0	<1.0	0.58	-29.5	2.8	<1.0	1700	M	7.6	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	1.77	-100.2	6.0	<1.0	17000	M	63.7	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	0.32	-47.58	1.5	<1.0	14000	M	17.9	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	0.36	-7.85	1.0	<1.0	11000	M	11.4	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	0.35	-27.8	4.5	<1.0	6600	M	11.2	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	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	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	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	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	83	0.00	0.00	0.03	0.56	0.41
		3/13/2018	921	<0.20	<0.20	0.39	0.30	<0.20	6.2	--	--	1.20	155.5	--	--	--	--	--	106	0.00	0.00	0.07	0.93	0.00
		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	57	0.00	0.00	0.03	0.30	0.67
		9/4/2018	1096	<0.20	<0.20	<0.20	<0.20	<0.20	2.0	--	--	5.85	109.6	--	--	--	--	--	32	0.00	0.00	0.00	1.00	0.00
		12/4/2018	1187	<0.200	<0.200	<0.200	<0.200	<0.200	2.65	<0.24	<0.39	0.51	-8.7	5.50	<0.100	2410	M	8.24	42	0.00	0.00	0.00	1.00	0.00
		5/30/2019	1364	<0.200	<0.200	<0.200	<0.200	<0.200	2.92	<0.36	1.16	0.43	-13.3	3.50	0.114	1830	M	8.57	47	0.00	0.00	0.00	0.55	0.45
IW37	SZ	8/13/2015	-22	<0.020	<0.2	5.3	0.5	<0.2	4.9	<1.0	<1.0	0.56	-45	2.0	<1.0	1800	M	6.6	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	1.40	-24.2	9.0	6.6	3800	M	4780	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	0.47	35.1	5.0	<10.0	23000	M	2480	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	0.91	-81.5	2.5	<1.0	20000	M	1130	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	0.91	-123.4	5.0	1.3	17000	M	337	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	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	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	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	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	20	0.00	0.00	0.27	0.73	0.00
		3/13/2018	921	<0.20	<0.20	0.36	<0.20	<0.20	1.3	--	--	1.27	157.1	--	--	--	--	--	25	0.00	0.00	0.15	0.85	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	18	0.00	0.00	0.02	0.12	0.86
		9/4/2018	1096	<0.20	<0.20	<0.20	<0.20	<0.20	0.42	--	--	1.04	108.6	--	--	--	--	--	7	0.00	0.00	0.00	1.00	0.00
		12/5/2018	1188	<0.200	<0.200	<0.200	<0.200	<0.200	0.309	<0.24	<0.39	0.42	-70.1	6.50	<0.100	23900	M	18.89	5	0.00	0.00	0.00	1.00	0.00
		5/30/2019	1365	<0.200	<0.200	<0.200	<0.200	<0.200	0.466	<0.24	1.65	0.44	-38.2	5.50	0.132	12200	M	9.93	7	0.00	0.00	0.00	0.12	0.88

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.

Methane, Ethene, and Ethane values are reported to the method detection limit and non-detect values are presented as less than the method detection limit.

The number of significant figures and reporting limits have varied throughout the analysis period due to changes in laboratory reporting.

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/instrument error
** = Instrument Error
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
nmol/L = nanomole per liter
ORP = oxygen-reduction potential
PCE = tetrachloroethene
S = Sulfate-reducing
SZ = Shallow Zone
tDCE = trans-1,2-dichloroethene
TCE = trichloroethene
TOC = total organic compound
VC = vinyl chloride
WT = Water Table Zone

ATTACHMENT 3

Laboratory Data Packages
(only included in final hard copy on DVD)