LANDAU ASSOCIATES

July 15, 2021

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

Attn: Li Ma

Transmitted via email to: *lima461@ecy.wa.gov*

Re: Status Report No. 75, April through June 2021 Activity Period
Boeing Auburn Facility
WAD 041337130, RCRA Corrective Action Agreed Order No. 01HWTRNR-3345
Auburn, Washington
Project No. 0025164.180.501

Dear Mr. Ma:

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, Landau Associates, Inc. (LAI) is providing Status Report No. 75 on behalf of The Boeing Company (Boeing), which covers the 3-month activity period of April through June 2021.

References

1. April 8, 2021. Email: RE: Boeing Auburn FS/SFS Summary. From Li Ma, Washington State Department of Ecology (Ecology); to Sarah Fees, LAI.
2. April 12, 2021. Email: RE: Boeing Auburn FS/SFS Summary. From Debbie Taege, Boeing; to Li Ma, Ecology; and Sarah Fees, LAI.
3. April 13, 2021. Email: RE: Boeing Auburn FS/SFS Summary. From Li Ma, Ecology; to Christa Colouzis, Ecology; Debbie Taege, Boeing; and Sarah Fees, LAI.
4. April 14, 2021. Letter: Re: Response to Letter dated March 17, 2021 *Response to Ecology's February 1, 2021 Comments on the Draft Feasibility Study and Draft Supplemental feasibility Study Reports, Boeing Auburn Facility, Agreed Order No. 01HWTRNR-3345.* From Li Ma, Ecology; to Debbie Taege, Boeing.
5. April 15, 2021. Letter: Status Report No. 74, January through March 2021 Activity Period, Boeing Auburn Facility, WAD 041337130, RCRA Correction Action Agreed Order No. 01HWTRNR-3345, Auburn, Washington. From Sarah Fees, LAI; to Li Ma, Ecology.
6. April 19, 2021. Email: Boeing Fabrication Auburn Site – Status Report 74, January through March 2021 Activity Period. From Li Ma, Ecology; to Representatives of City of Algona, City of Auburn, City of Pacific, Ecology, and Boeing.

7. April 19, 2021. Email: Boeing Auburn FAQs. From Sarah Fees, LAI; to Li Ma, Christa Colouzis, and Janelle Anderson, Ecology.
8. April 21, 2021. Letter: Response to Ecology's April 14, 2021 Letter re Informal Issues and General Comments to the Draft Feasibility Study and Draft Supplemental Feasibility Study Reports, Boeing Auburn Facility, Agreed Order No. 01HWTRNR-3345. From Debbie Taege, Boeing; to Li Ma, Ecology.
9. April 29, 2021. Conference Call: Next steps and dCAP discussion. Attendees: Debbie Taege, Boeing; Li Ma, Ecology; and Sarah Fees, LAI.
10. May 21, 2021. Email: Phase 10 GWMP: AGW283 Channel Selection. From Sarah Fees, LAI; to Li Ma, Ecology.
11. May 24, 2021. Email: RE: Phase 10 GWMP: AGW283 Channel Selection. From Li Ma, Ecology; to Sarah Fees, LAI.
12. June 18, 2021. Letter: Conditional Point of Compliance Request, Boeing Auburn Facility, Agreed Order No. 01HWTRNR-3345. From Debbie Taege, Boeing; to Li Ma, Ecology.
13. June 24, 2021. Conference Call re: CPOC Request Discussion. Attendees: Debbie Taege, Boeing; Li Ma, Ecology; and Sarah Fees, LAI.

Work Conducted

General Site-wide Corrective Action Activities

On April 15, 2021, LAI submitted Status Report No. 74 regarding first quarter 2021 activities to Washington State Department of Ecology (Ecology) and other stakeholders[1] for their records (Reference #5). Ecology project manager, Li Ma, has continued to attend regularly scheduled monthly conference calls with technical and communication personnel from Ecology, Boeing, LAI, City of Auburn, and the City of Algona's environmental consultant, ICF International (ICF). The primary purpose of these calls is to provide a status update on the project schedule, reporting, and public outreach.

Groundwater Sampling

Phase 10 annual groundwater sampling took place from June 1 through June 15, 2021. 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 2021 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.

Two continuous multichannel tubing (CMT) channels were selected at the 7-channel multilevel well AGW283 for Phase 10 annual sampling, as outlined in the Ecology-approved Phase 10 Groundwater Monitoring Plan. Boeing requested Ecology's agreement on selection of channels 1 and 2 and

[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 #6).

conversion of semiannual sampling at the well to annual sampling on May 21, 2021 (Reference #10). Ecology approved the selected CMT channels for annual sampling on May 24, 2021 (Reference #11).

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.

The June 2021 groundwater sampling event was the sixteenth sampling event (almost 6 years) 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.[2]

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. Changes in vinyl chloride (VC) 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.

Monitoring data from second quarter 2021 indicates that conditions are stabilizing at the 11 wells that showed primary or secondary effects of enhanced bioremediation from injection activities. Concentrations of total chlorinated volatile organic compounds (sum of TCE, dichloroethene, and VC) appear to be stabilizing after a significant decrease from baseline concentrations at the 11 wells discussed above. There is no evidence of concentration rebound. Some wells show evidence of seasonal variability with higher concentrations generally detected during the June sampling event.

[2] Natural attenuation parameters could not be collected from AGW251-1 due to low water recovery at this channel.

Feasibility Study Reporting

The draft feasibility study (FS) report was submitted to Ecology in the fourth quarter 2019. The draft supplemental feasibility study (SFS) was submitted to Ecology in the fourth quarter 2020. In the first quarter 2021, Ecology provided formal comments on the draft FS and SFS reports. Boeing invoked informal dispute resolution on February 12, 2021. Ecology issued a decision on the informal dispute on April 14, 2021 (Reference #4). On April 21, 2021, Boeing sent a response letter to Ecology and agreed to move forward with the draft cleanup action plan after the FS public comment period (Reference #8).

During the first quarter 2021, Boeing and Ecology agreed that the FS and SFS documents would not be revised for the public comment period. Instead, a summary document giving an overview of final decisions for the FS and SFS would be prepared. Boeing submitted the draft FS/SFS summary document to Ecology on March 31, 2021. Boeing and Ecology worked together to finalize the FS/SFS summary document for public comment in April 2021 (Reference #1, #2, #3).

Cleanup Action Plan Reporting

Boeing and Ecology met on April 29, 2021 to discuss the draft cleanup action plan (dCAP) preparations and next steps for the Boeing Auburn Site (Site; Reference #9). Prior to the dCAP preparations, Boeing is requesting Ecology concurrence for an off-Property conditional point of compliance (CPOC) at the Site. On June 18, 2021, Boeing submitted a letter to Ecology detailing how the Site meets regulatory requirements for an off-Property CPOC (Reference #12). Boeing and Ecology discussed the request during a meeting on June 24, 2021 (Reference #13). Boeing expects to receive Ecology comments on the CPOC request and continue towards dCAP submittal in the third quarter 2021.

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 periodically.

Ecology continued preparation activities for the FS public comment period in the second quarter 2021. On April 19, 2021, Boeing provided Ecology with a list of frequently asked questions and answers that had been used for the project previously (Reference #7). The FS public comment period started on April 26, 2021 with a virtual public meeting and ended on June 18, 2021.

Building 17-06 Ongoing Monitoring

Boeing is conducting semiannual (June and September) monitoring for petroleum hydrocarbons in wells AGW128, AGW277, and AGW281, located in Building 17-06. Monitoring was completed on June

9, 2021 along with the annual groundwater sampling event. Free-phase product has been periodically detected in well AGW128; the thickness during the June 2021 monitoring event was 0.19 feet. 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. The sorbent sock is replaced semiannually during monitoring.

Occurrence of Problems

None to report.

Projected Work for Next Reporting Period July through September 2021

Activities projected for the next reporting period pertain to FS activities and ongoing groundwater monitoring. Tasks during third quarter 2021 are expected to include:

- Receipt of Ecology approval of the FS following completion of the FS public comment period
- Continued discussions with Ecology regarding an off-property conditional point of compliance
- Preparation of the draft cleanup action plan
- Preparation of annual data letters for stakeholders
- Dry season stormwater/surface water sampling
- Dry season liquid non-aqueous phase liquid monitoring in Building 17-06.

Other Significant Findings, Changes, and Contacts

None to report.

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.

Sarah Fees

Sarah Fees, LG
Associate Geologist

KMG/SEF/kjg
[Y:\025\164\R\QUARTERLY PROGRESS RPTS\2021\2Q21\LAI_BOA_2Q2021 STATUS RPT NO. 75 LETTER RPT_DRAFT.DOCX

cc: Debbie Taege (email only)
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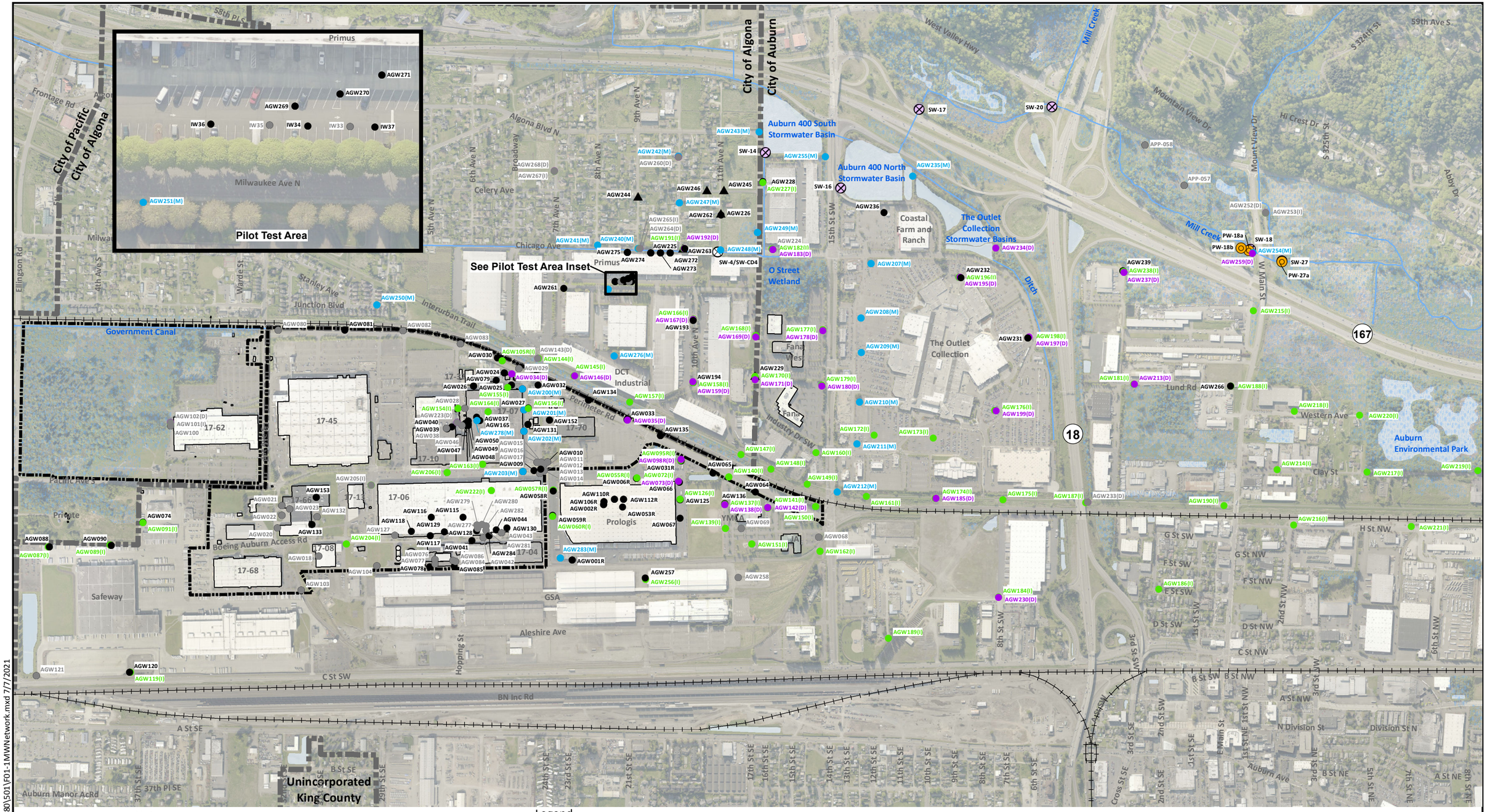
Christa Colouzis, Ecology (email only)
Janelle Anderson, Ecology (email only)

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 (Water Table to 35 ft bgs)
- (I) Intermediate Monitoring Well (35 to 75 ft bgs)
- (D) Deep Monitoring Well (75 to 100 ft bgs)
- (M) Multi-Level Well
- Wells Not Currently Sampled
- Annual Stormwater/Surface Water Sample Location
- Semiannual Stormwater/Surface Water Sampling Location
- Annual Pore Water Sample Location
- Wetland Areas
- Water Bodies
- Waterways

0 1,000 2,000

Scale in Feet

N

Data Source: King County GIS.

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Boeing Auburn
Auburn, Washington

Current Monitoring Network

Figure 1-1

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Table 1-1
2Q2021 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	Free Cyanide by ASTM D7237 (b)
AGW001R	AGW001R-20210609	6/9/2021	PDN	21F0165	21F0165-05	X								
AGW002R	AGW002R-20210608	6/8/2021	N	21F0156	21F0156-11	X				X	X	X		
AGW006R	AGW006R-20210608	6/8/2021	PDN	21F0156	21F0156-08	X								
AGW009	AGW009-20210609	6/9/2021	PDN	21F0165	21F0165-06	X								
AGW010	AGW010-20210603	6/3/2021	N	21F0096	21F0096-04		X	X	X					
AGW010	AGW901-20210603	6/3/2021	FD	21F0096	21F0096-06		X	X	X					
AGW024	AGW024-20210602	6/2/2021	PDN	21F0074	21F0074-04	X								
AGW025	AGW025-20210610	6/10/2021	PDN	21F0215	21F0215-20	X								
AGW026	AGW026-20210610	6/10/2021	PDN	21F0215	21F0215-15	X								
AGW026	AGW900-20210610	6/10/2021	PDFD	21F0215	21F0215-16	X								
AGW027	AGW027-20210602	6/2/2021	PDN	21F0074	21F0074-09	X								
AGW030	AGW030-20210611	6/11/2021	PDN	21F0228	21F0228-19	X								
AGW030	AGW902-20210611	6/11/2021	PDFD	21F0228	21F0228-20	X								
AGW031R	AGW031R-20210611	6/11/2021	PDN	21F0228	21F0228-02	X								
AGW032	AGW032-20210602	6/2/2021	PDN	21F0074	21F0074-07	X								
AGW033	AGW033-20210611	6/11/2021	PDN	21F0228	21F0228-15	X								
AGW034	AGW034-20210602	6/2/2021	PDN	21F0074	21F0074-05	X								
AGW035	AGW035-20210611	6/11/2021	PDN	21F0228	21F0228-16	X								
AGW037	AGW037-20210610	6/10/2021	PDN	21F0215	21F0215-11	X								
AGW039	AGW039-20210610	6/10/2021	PDN	21F0215	21F0215-12	X								
AGW040	AGW040-20210610	6/10/2021	PDN	21F0215	21F0215-13	X								
AGW041	AGW041-20210603	6/3/2021	PDN	21F0084	21F0084-04	X								
AGW044	AGW044-20210603	6/3/2021	N	21F0084	21F0084-03				X					
AGW047	AGW047-NAOH-20210607	6/7/2021	N	A1F0279	A1F0279-03									X
AGW048	AGW048-20210607	6/7/2021	N	21F0139	21F0139-03								X	
AGW048	AGW048-NAOH-20210607	6/7/2021	N	A1F0279	A1F0279-02									X
AGW048	AGW903-20210607	6/7/2021	FD	21F0139	21F0139-04								X	
AGW048	AGW903-NAOH-20210607	6/7/2021	FD	A1F0279	A1F0279-04									X
AGW049	AGW049-20210607	6/7/2021	N	21F0139	21F0139-02								X	
AGW049	AGW049-NAOH-20210607	6/7/2021	N	A1F0279	A1F0279-01									X
AGW050	AGW050-20210607	6/7/2021	N	21F0139	21F0139-05								X	
AGW050	AGW050-NAOH-20210607	6/7/2021	N	A1F0279	A1F0279-05									X
AGW053R	AGW053R-20210608	6/8/2021	PDN	21F0156	21F0156-10	X								
AGW055R	AGW055R-20210608	6/8/2021	PDN	21F0156	21F0156-07	X								
AGW057R	AGW057R-20210609	6/9/2021	PDN	21F0165	21F0165-03	X								
AGW058R	AGW058R-20210609	6/9/2021	PDN	21F0165	21F0165-04	X								
AGW059R	AGW059R-20210608	6/8/2021	PDN	21F0156	21F0156-12	X								
AGW060R	AGW060R-20210608	6/8/2021	PDN	21F0156	21F0156-09	X								
AGW064	AGW064-20210611	6/11/2021	PDN	21F0228	21F0228-07	X								
AGW065	AGW065-20210611	6/11/2021	PDN	21F0228	21F0228-05	X								
AGW066	AGW066-20210608	6/8/2021	PDN	21F0156	21F0156-05	X								
AGW067	AGW067-20210608	6/8/2021	PDN	21F0156	21F0156-06	X								
AGW072	AGW072-20210608	6/8/2021	PDN	21F0156	21F0156-14	X								
AGW073	AGW073-20210608	6/8/2021	PDN	21F0156	21F0156-15	X								
AGW074	AGW074-20210604	6/4/2021	PDN	21F0099	21F0099-07	X								
AGW078	AGW078-20210603	6/3/2021	PDN	21F0084	21F0084-08	X								
AGW079	AGW079-20210602	6/2/2021	PDN	21F0074	21F0074-06	X								

Table 1-1
2Q2021 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	Free Cyanide by ASTM D7237 (b)
AGW081	AGW081-20210610	6/10/2021	PDN	21F0215	21F0215-17	X								
AGW085	AGW085-20210603	6/3/2021	PDN	21F0084	21F0084-05	X								
AGW087	AGW087-20210604	6/4/2021	PDN	21F0098	21F0098-07	X								
AGW088	AGW088-20210604	6/4/2021	PDN	21F0098	21F0098-06	X								
AGW089	AGW089-20210604	6/4/2021	PDN	21F0098	21F0098-05	X								
AGW090	AGW090-20210604	6/4/2021	PDN	21F0098	21F0098-04	X								
AGW091	AGW091-20210604	6/4/2021	PDN	21F0099	21F0099-08	X								
AGW095R	AGW095R-20210611	6/11/2021	PDN	21F0228	21F0228-03	X								
AGW098R	AGW098R-20210611	6/11/2021	PDN	21F0228	21F0228-04	X								
AGW105R	AGW105R-20210611	6/11/2021	PDN	21F0228	21F0228-18	X								
AGW106R	AGW106R-20210608	6/8/2021	N	21F0156	21F0156-16	X				X	X	X		
AGW110R	AGW110R-20210608	6/8/2021	N	21F0156	21F0156-19	X				X	X	X		
AGW112R	AGW112R-20210608	6/8/2021	PDN	21F0156	21F0156-17	X								
AGW115	AGW115-20210609	6/9/2021	PDN	21F0165	21F0165-16	X								
AGW116	AGW116-20210609	6/9/2021	PDN	21F0165	21F0165-13	X								
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AGW120	AGW120-20210610	6/10/2021	PDN	21F0215	21F0215-18	X								
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AGW128	AGW128-20210609	6/9/2021	N	21F0165	21F0165-15				X					
AGW129	AGW129-20210609	6/9/2021	PDN	21F0165	21F0165-14	X								
AGW130	AGW130-20210603	6/3/2021	N	21F0096	21F0096-03				X					
AGW131	AGW131-20210602	6/2/2021	PDN	21F0074	21F0074-08	X								
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AGW134	AGW134-20210611	6/11/2021	PDN	21F0228	21F0228-17	X								
AGW135	AGW135-20210611	6/11/2021	PDN	21F0228	21F0228-10	X								
AGW136	AGW136-20210604	6/4/2021	PDN	21F0099	21F0099-10	X								
AGW137	AGW137-20210604	6/4/2021	PDN	21F0099	21F0099-11	X								
AGW138	AGW138-20210604	6/4/2021	PDN	21F0099	21F0099-12	X								
AGW139	AGW139-20210604	6/4/2021	PDN	21F0099	21F0099-09	X								
AGW140	AGW140-20210611	6/11/2021	PDN	21F0228	21F0228-06	X								
AGW141	AGW141-20210610	6/10/2021	PDN	21F0218	21F0218-07	X								
AGW142	AGW142-20210610	6/10/2021	PDN	21F0218	21F0218-08	X								
AGW144	AGW144-20210601	6/1/2021	PDN	21F0031	21F0031-09	X								
AGW145	AGW145-20210601	6/1/2021	PDN	21F0031	21F0031-10	X								
AGW146	AGW146-20210601	6/1/2021	PDN	21F0031	21F0031-11	X								
AGW147	AGW147-20210601	6/1/2021	PDN	21F0031	21F0031-13	X								
AGW148	AGW148-20210604	6/4/2021	PDN	21F0097	21F0097-10	X								
AGW149	AGW149-20210604	6/4/2021	PDN	21F0097	21F0097-11	X								
AGW150	AGW150-20210603	6/3/2021	PDN	21F0083	21F0083-09	X								
AGW150	AGW906-20210603	6/3/2021	PDFD	21F0083	21F0083-08	X								
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AGW152	AGW152-20210609	6/9/2021	PDN	21F0165	21F0165-01	X								
AGW153	AGW153-20210610	6/10/2021	PDN	21F0215	21F0215-02	X								

Table 1-1
2Q2021 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	Free Cyanide by ASTM D7237 (b)
AGW154	AGW154-20210610	6/10/2021	PDN	21F0215	21F0215-14	X								
AGW155	AGW155-20210609	6/9/2021	PDN	21F0165	21F0165-18	X								
AGW156	AGW156-20210602	6/2/2021	PDN	21F0074	21F0074-10	X								
AGW157	AGW157-20210601	6/1/2021	PDN	21F0031	21F0031-12	X								
AGW158	AGW158-20210604	6/4/2021	PDN	21F0098	21F0098-03	X								
AGW159	AGW159-20210604	6/4/2021	PDN	21F0099	21F0099-04	X								
AGW160	AGW160-20210601	6/1/2021	PDN	21F0032	21F0032-06	X								
AGW161	AGW161-20210601	6/1/2021	PDN	21F0031	21F0031-08	X								
AGW162	AGW162-20210610	6/10/2021	PDN	21F0218	21F0218-06	X								
AGW163	AGW163-20210610	6/10/2021	PDN	21F0215	21F0215-21	X								
AGW164	AGW164-20210610	6/10/2021	PDN	21F0215	21F0215-06	X								
AGW165	AGW165-20210610	6/10/2021	PDN	21F0215	21F0215-07	X								
AGW166	AGW166-20210610	6/10/2021	PDN	21F0220	21F0220-21	X								
AGW167	AGW167-20210610	6/10/2021	PDN	21F0220	21F0220-20	X								
AGW168	AGW168-20210610	6/10/2021	PDN	21F0218	21F0218-01	X								
AGW169	AGW169-20210610	6/10/2021	PDN	21F0218	21F0218-02	X								
AGW170	AGW170-20210610	6/10/2021	PDN	21F0218	21F0218-04	X								
AGW171	AGW171-20210610	6/10/2021	PDN	21F0218	21F0218-05	X								
AGW172	AGW172-20210601	6/1/2021	PDN	21F0032	21F0032-07	X								
AGW173	AGW173-20210601	6/1/2021	PDN	21F0032	21F0032-08	X								
AGW174	AGW174-20210601	6/1/2021	PDN	21F0031	21F0031-06	X								
AGW175	AGW175-20210601	6/1/2021	N	21F0031	21F0031-05	X								
AGW176	AGW176-20210601	6/1/2021	PDN	21F0032	21F0032-09	X								
AGW177	AGW177-20210601	6/1/2021	PDN	21F0032	21F0032-02	X								
AGW178	AGW178-20210601	6/1/2021	PDN	21F0032	21F0032-03	X								
AGW179	AGW179-20210601	6/1/2021	PDN	21F0032	21F0032-04	X								
AGW180	AGW180-20210601	6/1/2021	PDN	21F0032	21F0032-05	X								
AGW181	AGW181-20210610	6/10/2021	PDN	21F0220	21F0220-03	X								
AGW182	AGW182-20210610	6/10/2021	PDN	21F0220	21F0220-08	X								
AGW183	AGW183-20210610	6/10/2021	PDN	21F0220	21F0220-09	X								
AGW184	AGW184-20210604	6/4/2021	PDN	21F0097	21F0097-13	X								
AGW185	AGW185-20210601	6/1/2021	PDN	21F0031	21F0031-07	X								
AGW186	AGW186-20210610	6/10/2021	PDN	21F0220	21F0220-06	X								
AGW187	AGW187-20210601	6/1/2021	PDN	21F0031	21F0031-04	X								
AGW188	AGW188-20210609	6/9/2021	N	21F0180	21F0180-12	X								
AGW188	AGW907-20210609	6/9/2021	FD	21F0180	21F0180-13	X								
AGW189	AGW189-20210610	6/10/2021	PDN	21F0220	21F0220-17	X								
AGW190	AGW190-20210601	6/1/2021	PDN	21F0031	21F0031-02	X								
AGW190	AGW908-20210601	6/1/2021	PDFD	21F0031	21F0031-03	X								
AGW191	AGW191-20210604	6/4/2021	PDN	21F0097	21F0097-04	X								
AGW192	AGW192-20210604	6/4/2021	PDN	21F0097	21F0097-05	X								
AGW193	AGW193-20210610	6/10/2021	PDN	21F0220	21F0220-19	X								
AGW194	AGW194-20210604	6/4/2021	PDN	21F0099	21F0099-03	X								
AGW195	AGW195-20210601	6/1/2021	PDN	21F0032	21F0032-15	X								
AGW196	AGW196-20210601	6/1/2021	PDN	21F0032	21F0032-14	X								
AGW197	AGW197-20210601	6/1/2021	PDN	21F0032	21F0032-13	X								
AGW198	AGW198-20210601	6/1/2021	PDN	21F0032	21F0032-12	X								

Table 1-1
2Q2021 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	Free Cyanide by ASTM D7237 (b)
AGW199	AGW199-20210601	6/1/2021	PDN	21F0032	21F0032-10	X								
AGW200-2	AGW200-2-30-20210609	6/9/2021	N	21F0165	21F0165-09	X								
AGW200-5	AGW200-5-60-20210609	6/9/2021	N	21F0165	21F0165-10	X								
AGW200-6	AGW200-6-80-20210609	6/9/2021	N	21F0165	21F0165-11	X								
AGW201-2	AGW201-2-30-20210610	6/10/2021	N	21F0215	21F0215-03	X								
AGW201-5	AGW201-5-60-20210610	6/10/2021	N	21F0215	21F0215-04	X								
AGW201-6	AGW201-6-80-20210610	6/10/2021	N	21F0215	21F0215-05	X								
AGW202-2	AGW202-2-30-20210611	6/11/2021	N	21F0228	21F0228-09	X								
AGW202-4	AGW202-4-51-20210611	6/11/2021	N	21F0228	21F0228-08	X								
AGW202-6	AGW202-6-81-20210611	6/11/2021	N	21F0228	21F0228-21	X								
AGW203-2	AGW203-2-30-20210611	6/11/2021	N	21F0228	21F0228-11	X								
AGW203-4	AGW203-4-49-20210611	6/11/2021	N	21F0228	21F0228-12	X								
AGW203-4	AGW909-20210611	6/11/2021	FD	21F0228	21F0228-13	X								
AGW203-6	AGW203-6-80-20210611	6/11/2021	N	21F0228	21F0228-14	X								
AGW204	AGW204-20210603	6/3/2021	PDN	21F0084	21F0084-06	X								
AGW206	AGW206-20210609	6/9/2021	PDN	21F0165	21F0165-07	X								
AGW207-2	AGW207-2-30-20210608	6/8/2021	N	21F0155	21F0155-04	X								
AGW207-4	AGW207-4-49-20210608	6/8/2021	N	21F0155	21F0155-05	X								
AGW207-7	AGW207-7-80-20210608	6/8/2021	N	21F0155	21F0155-06	X								
AGW208-2	AGW208-2-29-20210608	6/8/2021	N	21F0155	21F0155-07	X								
AGW208-4	AGW208-4-49-20210608	6/8/2021	N	21F0155	21F0155-08	X								
AGW208-6	AGW208-6-80-20210608	6/8/2021	N	21F0155	21F0155-09	X								
AGW209-2	AGW209-2-30-20210608	6/8/2021	N	21F0155	21F0155-10	X								
AGW209-5	AGW209-5-60-20210608	6/8/2021	N	21F0155	21F0155-11	X								
AGW209-6	AGW209-6-80-20210608	6/8/2021	N	21F0155	21F0155-12	X								
AGW210-2	AGW210-2-30-20210608	6/8/2021	N	21F0155	21F0155-13	X								
AGW210-5	AGW210-5-60-20210608	6/8/2021	N	21F0155	21F0155-15	X								
AGW210-6	AGW210-6-80-20210608	6/8/2021	N	21F0155	21F0155-14	X								
AGW211-5	AGW211-5-60-20210608	6/8/2021	N	21F0155	21F0155-17	X								
AGW211-6	AGW211-6-80-20210608	6/8/2021	N	21F0155	21F0155-16	X								
AGW212-5	AGW212-5-30-20210602	6/2/2021	N	21F0066	21F0066-04	X								
AGW212-5	AGW910-20210602	6/2/2021	FD	21F0066	21F0066-02	X								
AGW212-7	AGW212-7-100-20210603	6/3/2021	N	21F0083	21F0083-06	X								
AGW213	AGW213-20210610	6/10/2021	PDN	21F0220	21F0220-02	X								
AGW214	AGW214-20210609	6/9/2021	N	21F0180	21F0180-07	X								
AGW215	AGW215-20210609	6/9/2021	N	21F0180	21F0180-04	X								
AGW216	AGW216-20210603	6/3/2021	N	21F0083	21F0083-03	X								
AGW217	AGW217-20210603	6/3/2021	N	21F0083	21F0083-04	X								
AGW218	AGW218-20210609	6/9/2021	N	21F0180	21F0180-05	X								
AGW219	AGW219-20210602	6/2/2021	PDN	21F0066	21F0066-03	X								
AGW220	AGW220-20210603	6/3/2021	N	21F0083	21F0083-05	X								
AGW221	AGW221-20210603	6/3/2021	N	21F0083	21F0083-02	X								
AGW222	AGW222-20210609	6/9/2021	PDN	21F0165	21F0165-17	X								
AGW225	AGW225-20210604	6/4/2021	N	21F0097	21F0097-07	X				X	X	X		
AGW226	AGW226-20210610	6/10/2021	N	21F0220	21F0220-12	X				X	X	X		
AGW227	AGW227-20210610	6/10/2021	PDN	21F0220	21F0220-15	X								
AGW228	AGW228-20210610	6/10/2021	N	21F0220	21F0220-16	X								

Table 1-1
2Q2021 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	Free Cyanide by ASTM D7237 (b)
AGW229	AGW229-20210610	6/10/2021	PDN	21F0218	21F0218-03	X								
AGW230	AGW230-20210604	6/4/2021	PDN	21F0097	21F0097-12	X								
AGW231	AGW231-20210601	6/1/2021	PDN	21F0032	21F0032-11	X								
AGW232	AGW232-20210610	6/10/2021	PDN	21F0220	21F0220-07	X								
AGW234	AGW234-20210615	6/15/2021	PDN	21F0246	21F0246-02	X								
AGW235-2	AGW235-2-19-20210614	6/14/2021	N	21F0235	21F0235-04	X								
AGW235-2	AGW905-20210614	6/14/2021	FD	21F0235	21F0235-05	X								
AGW235-4	AGW235-4-39-20210614	6/14/2021	N	21F0235	21F0235-03	X								
AGW235-7	AGW235-7-71-20210614	6/14/2021	N	21F0235	21F0235-02	X								
AGW236	AGW236-20210608	6/8/2021	N	21F0155	21F0155-18	X								
AGW237	AGW237-20210610	6/10/2021	PDN	21F0220	21F0220-04	X								
AGW238	AGW238-20210610	6/10/2021	PDN	21F0220	21F0220-05	X								
AGW239	AGW239-20210609	6/9/2021	N	21F0180	21F0180-08	X								
AGW239	AGW911-20210609	6/9/2021	FD	21F0180	21F0180-09	X								
AGW240-1	AGW240-1-7-20210604	6/4/2021	N	21F0097	21F0097-02	X				X	X	X		
AGW240-5	AGW240-5-28-20210604	6/4/2021	N	21F0097	21F0097-03	X				X	X	X		
AGW241-1	AGW241-1-6-20210609	6/9/2021	N	21F0180	21F0180-02	X								
AGW241-5	AGW241-5-27-20210609	6/9/2021	N	21F0180	21F0180-03	X								
AGW242-1	AGW242-1-6-20210609	6/9/2021	N	21F0180	21F0180-14	X								
AGW242-2	AGW242-2-16-20210609	6/9/2021	N	21F0180	21F0180-15	X								
AGW243-1	AGW243-1-6-20210609	6/9/2021	N	21F0180	21F0180-16	X								
AGW243-3	AGW243-3-25-20210609	6/9/2021	N	21F0180	21F0180-17	X								
AGW244	AGW244-20210609	6/9/2021	N	21F0180	21F0180-06	X				X	X	X		
AGW245	AGW245-20210610	6/10/2021	PDN	21F0220	21F0220-10	X								
AGW246	AGW246-20210610	6/10/2021	PDN	21F0220	21F0220-11	X								
AGW247-1	AGW247-1-6-20210609	6/9/2021	N	21F0180	21F0180-10	X				X	X	X		
AGW247-5	AGW247-5-27-20210609	6/9/2021	N	21F0180	21F0180-11	X				X	X	X		
AGW248-1	AGW248-1-5-20210604	6/4/2021	N	21F0097	21F0097-08	X								
AGW248-5	AGW248-5-26-20210604	6/4/2021	N	21F0097	21F0097-09	X								
AGW249-1	AGW249-1-8-20210609	6/9/2021	N	21F0180	21F0180-20	X								
AGW249-5	AGW249-5-29-20210609	6/9/2021	N	21F0180	21F0180-19	X								
AGW250-2	AGW250-2-26-20210607	6/7/2021	N	21F0141	21F0141-04	X								
AGW250-3	AGW250-3-41-20210607	6/7/2021	N	21F0141	21F0141-05	X								
AGW251-1	AGW251-1-8-20210609	6/9/2021	N	21F0180	21F0180-18	X								
AGW251-2	AGW251-2-25-20210607	6/7/2021	N	21F0141	21F0141-06	X				X	X	X		
AGW251-3	AGW251-3-40-20210608	6/8/2021	N	21F0155	21F0155-02	X				X	X	X		
AGW251-6	AGW251-6-76-20210608	6/8/2021	N	21F0155	21F0155-03	X								
AGW254-1	AGW254-1-6-20210603	6/3/2021	N	21F0083	21F0083-07	X								
AGW254-2	AGW254-2-20-20210602	6/2/2021	N	21F0066	21F0066-07	X								
AGW254-5	AGW254-5-50-20210602	6/2/2021	N	21F0066	21F0066-05	X								
AGW255-1	AGW255-1-13-20210607	6/7/2021	N	21F0141	21F0141-01	X								
AGW255-3	AGW255-3-30-20210607	6/7/2021	N	21F0141	21F0141-02	X								
AGW255-5	AGW255-5-55-20210607	6/7/2021	N	21F0141	21F0141-03	X								
AGW256	AGW256-20210604	6/4/2021	PDN	21F0099	21F0099-05	X								
AGW257	AGW257-20210604	6/4/2021	PDN	21F0099	21F0099-06	X								
AGW259	AGW259-20210602	6/2/2021	PDN	21F0066	21F0066-06	X								
AGW261	AGW261-20210610	6/10/2021	PDN	21F0220	21F0220-18	X								

Table 1-1
2Q2021 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	Free Cyanide by ASTM D7237 (b)
AGW262	AGW262-20210610	6/10/2021	PDN	21F0220	21F0220-13	X								
AGW263	AGW263-20210604	6/4/2021	PDN	21F0097	21F0097-06	X								
AGW266	AGW266-20210610	6/10/2021	PDN	21F0220	21F0220-01	X								
AGW269	AGW269-20210601	6/1/2021	N	21F0035	21F0035-01	X				X	X	X		
AGW270	AGW270-20210601	6/1/2021	N	21F0035	21F0035-03	X				X	X	X		
AGW271	AGW271-20210601	6/1/2021	N	21F0035	21F0035-02	X				X	X	X		
AGW272	AGW272-20210602	6/2/2021	N	21F0065	21F0065-04	X				X	X	X		
AGW272	AGW912-20210602	6/2/2021	FD	21F0065	21F0065-05	X				X	X	X		
AGW273	AGW273-20210602	6/2/2021	N	21F0065	21F0065-06	X				X	X	X		
AGW274	AGW274-20210602	6/2/2021	N	21F0065	21F0065-07	X				X	X	X		
AGW275	AGW275-20210602	6/2/2021	N	21F0074	21F0074-01	X				X	X	X		
AGW275	AGW913-20210602	6/2/2021	FD	21F0074	21F0074-03	X				X	X	X		
AGW276-2	AGW276-2-25-20210604	6/4/2021	N	21F0098	21F0098-01	X								
AGW276-5	AGW276-5-60-20210604	6/4/2021	N	21F0099	21F0099-02	X								
AGW276-6	AGW276-6-80-20210604	6/4/2021	N	21F0098	21F0098-02	X								
AGW277	AGW277-20210603	6/3/2021	N	21F0096	21F0096-01				X					
AGW278-1	AGW278-1-17-20210607	6/7/2021	N	21F0139	21F0139-06	X								
AGW278-1	AGW278-1-17-NAOH-20210607	6/7/2021	N	A1F0279	A1F0279-06									X
AGW278-2	AGW278-2-25-20210610	6/10/2021	N	21F0215	21F0215-08	X								
AGW278-4	AGW278-4-45-20210610	6/10/2021	N	21F0215	21F0215-10	X								
AGW278-6	AGW278-6-80-20210610	6/10/2021	N	21F0215	21F0215-09	X								
AGW281	AGW281-20210603	6/3/2021	N	21F0096	21F0096-02				X					
AGW282	AGW282-20210603	6/3/2021	N	21F0084	21F0084-02				X					
AGW283-1	AGW283-1-21-20210608	6/8/2021	N	21F0156	21F0156-13	X								
AGW283-2	AGW283-2-30-20210608	6/8/2021	N	21F0156	21F0156-18	X								
IW34	IW34-20210602	6/2/2021	N	21F0065	21F0065-02	X				X	X	X		
IW36	IW36-20210602	6/2/2021	N	21F0065	21F0065-03	X				X	X	X		
IW37	IW37-20210601	6/1/2021	N	21F0035	21F0035-04	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 Analytical Resources, Incorporated.

Abbreviations/Acronyms:

BTEX = benzene, toluene, ethylbenzene, and xylenes
EPA = US Environmental Protection Agency
FD = field duplicate
ID = identification
MEE = methane, ethane, ethene
N = primary sample
NWTPH = Northwest Total Petroleum Hydrocarbon
PDFD = passive diffusion field duplicate
PDN = passive diffusion primary sample
SDG = sample delivery group
SIM = selected ion monitoring
TOC = total organic carbon
TPH-Dx = total petroleum hydrocarbons diesel range
TPH-Gx = total petroleum hydrocarbons gasoline range
VOC = volatile organic compound

Table 1-2
2Q2021 Semiannual Groundwater Sampling 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 8260D SIM (µg/L)						General Chemistry by EPA 300.0, SM5310B (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	On-Shallow	21F0165	6/9/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.46**	0.0200 U	--	--	--	--	--
AGW002R	On-Shallow	21F0156	6/8/2021	N	0.200 U	**0.216**	0.200 U	0.200 U	0.200 U	**0.0375**	**2.91**	**1.72**	0.39 U	0.24 U	**1800**
AGW006R	Shallow	21F0156	6/8/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW009	Shallow-WT	21F0165	6/9/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW024	Shallow	21F0074	6/2/2021	PDN	0.200 U	**1.55**	0.200 U	0.200 U	0.200 U	**0.802**	--	--	--	--	--
AGW025	Shallow	21F0215	6/10/2021	PDN	0.200 U	**2.72**	0.200 U	**0.259**	0.200 U	**1.45**	--	--	--	--	--
AGW026	Shallow	21F0215	6/10/2021	PDN	0.200 U	**0.433**	0.200 U	0.200 U	**0.378**	0.0200 U	--	--	--	--	--
AGW026	Shallow	21F0215	6/10/2021	PDFD	0.200 U	**0.439**	0.200 U	0.200 U	**0.378**	0.0200 U	--	--	--	--	--
AGW027	Shallow-WT	21F0074	6/2/2021	PDN	0.200 U	**0.302**	0.200 U	0.200 U	0.200 U	**0.0737**	--	--	--	--	--
AGW030	Shallow	21F0228	6/11/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0464**	--	--	--	--	--
AGW030	Shallow	21F0228	6/11/2021	PDFD	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0422**	--	--	--	--	--
AGW031R	Shallow	21F0228	6/11/2021	PDN	0.200 U	**0.246**	0.200 U	0.200 U	**0.532**	0.0200 U	--	--	--	--	--
AGW032	Shallow-WT	21F0074	6/2/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0279**	--	--	--	--	--
AGW033	Shallow-WT	21F0228	6/11/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW034	Deep	21F0074	6/2/2021	PDN	0.200 U	**0.301**	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW035	Deep	21F0228	6/11/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.58**	0.0200 U	--	--	--	--	--
AGW037	Shallow-WT	21F0215	6/10/2021	PDN	0.200 U	**1.02**	0.200 U	0.200 U	**1.73**	**0.140**	--	--	--	--	--
AGW039	Shallow-WT	21F0215	6/10/2021	PDN	0.200 U	**0.869**	0.200 U	0.200 U	**0.211**	**0.0241**	--	--	--	--	--
AGW040	Shallow-WT	21F0215	6/10/2021	PDN	0.200 U	**0.249**	0.200 U	0.200 U	**0.423**	0.0200 U	--	--	--	--	--
AGW041	Shallow-WT	21F0084	6/3/2021	PDN	0.200 U	0.200 U	**0.215**	0.200 U	**0.212**	0.0200 U	--	--	--	--	--
AGW053R	Shallow-WT	21F0156	6/8/2021	PDN	0.200 U	**0.487**	0.200 U	0.200 U	**0.984**	0.0200 U	--	--	--	--	--
AGW055R	Intermediate	21F0156	6/8/2021	PDN	0.200 U	**1.02**	0.200 U	0.200 U	**0.268**	**0.103**	--	--	--	--	--
AGW057R	Intermediate	21F0165	6/9/2021	PDN	0.200 U	0.200 U	**0.417**	0.200 U	**0.695**	0.0200 U	--	--	--	--	--
AGW058R	Shallow-WT	21F0165	6/9/2021	PDN	0.200 U	0.200 U	**0.323**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW059R	Shallow-WT	21F0156	6/8/2021	PDN	0.200 U	0.200 U	**0.283**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW060R	Intermediate	21F0156	6/8/2021	PDN	0.200 U	**2.56**	0.200 U	0.200 U	**0.471**	**0.0541**	--	--	--	--	--
AGW064	Shallow-WT	21F0228	6/11/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW065	Shallow-WT	21F0228	6/11/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW066	Shallow-WT	21F0156	6/8/2021	PDN	0.200 U	**3.26**	0.200 U	0.200 U	**2.85**	**0.0201**	--	--	--	--	--
AGW067	Shallow-WT	21F0156	6/8/2021	PDN	0.200 U	**2.32**	0.200 U	0.200 U	**3.14**	0.0200 U	--	--	--	--	--
AGW072	Intermediate	21F0156	6/8/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.782**	0.0200 U	--	--	--	--	--
AGW073	Deep	21F0156	6/8/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW074	Shallow-WT	21F0099	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW078	Shallow-WT	21F0084	6/3/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW079	Shallow-WT	21F0074	6/2/2021	PDN	0.200 U	**0.308**	0.200 U	0.200 U	0.200 U	**0.776**	--	--	--	--	--
AGW081	Shallow-WT	21F0215	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW085	Shallow-WT	21F0084	6/3/2021	PDN	0.200 U	0.200 U	**0.210**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--

Table 1-2
2Q2021 Semiannual Groundwater Sampling 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 8260D SIM (µg/L)						General Chemistry by EPA 300.0, SM5310B (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
AGW087	Intermediate	21F0098	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW088	Shallow	21F0098	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW089	Intermediate	21F0098	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW090	Shallow	21F0098	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW091	Intermediate	21F0099	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW095R	Intermediate	21F0228	6/11/2021	PDN	0.200 U	**0.225**	0.200 U	0.200 U	**1.07**	0.0200 U	--	--	--	--	--
AGW098R	Deep	21F0228	6/11/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.273**	0.0200 U	--	--	--	--	--
AGW105R	Intermediate	21F0228	6/11/2021	PDN	0.200 U	**0.449**	0.200 U	0.200 U	**0.782**	**0.313**	--	--	--	--	--
AGW106R	Shallow	21F0156	6/8/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	**12.5**	**0.53**	0.39 U	0.24 U	**9.78**
AGW110R	Shallow	21F0156	6/8/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.111**	**0.706**	**1.97**	0.39 U	0.24 U	**3000**
AGW112R	Shallow	21F0156	6/8/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.566**	0.0200 U	--	--	--	--	--
AGW115	Shallow-WT	21F0165	6/9/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW116	Shallow-WT	21F0165	6/9/2021	PDN	0.200 U	0.200 U	**0.293**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW117	Shallow-WT	21F0084	6/3/2021	PDN	0.200 U	0.200 U	**0.416**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW118	Shallow-WT	21F0165	6/9/2021	PDN	0.200 U	0.200 U	**0.504**	0.200 U	**0.200**	0.0200 U	--	--	--	--	--
AGW119	Intermediate	21F0215	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW120	Shallow	21F0215	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW125	Shallow	21F0156	6/8/2021	PDN	0.200 U	**1.66**	0.200 U	0.200 U	**5.82**	**0.0275**	--	--	--	--	--
AGW125	Shallow	21F0156	6/8/2021	PDFD	0.200 U	**1.67**	0.200 U	0.200 U	**5.83**	**0.0267**	--	--	--	--	--
AGW126	Intermediate	21F0156	6/8/2021	N	**0.238**	**4.88**	0.200 U	0.200 U	**6.43**	**0.0559**	--	--	--	--	--
AGW129	Shallow-WT	21F0165	6/9/2021	PDN	0.200 U	0.200 U	**0.376**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW131	Shallow	21F0074	6/2/2021	PDN	0.200 U	**0.797**	0.200 U	0.200 U	0.200 U	**1.31**	--	--	--	--	--
AGW133	Shallow	21F0165	6/9/2021	PDN	0.200 U	0.200 U	**0.258**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW134	Shallow	21F0228	6/11/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0812**	--	--	--	--	--
AGW135	Shallow	21F0228	6/11/2021	PDN	0.200 U	**0.255**	0.200 U	0.200 U	**0.705**	0.0200 U	--	--	--	--	--
AGW136	Shallow	21F0099	6/4/2021	PDN	0.200 U	**0.930**	0.200 U	0.200 U	**1.65**	0.0200 U	--	--	--	--	--
AGW137	Intermediate	21F0099	6/4/2021	PDN	0.200 U	**1.44**	0.200 U	0.200 U	**2.78**	0.0200 U	--	--	--	--	--
AGW138	Deep	21F0099	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.392**	0.0200 U	--	--	--	--	--
AGW139	Intermediate	21F0099	6/4/2021	PDN	0.200 U	**0.294**	0.200 U	0.200 U	**2.48**	0.0200 U	--	--	--	--	--
AGW140	Intermediate	21F0228	6/11/2021	PDN	0.200 U	**1.69**	0.200 U	0.200 U	**2.66**	**0.0704**	--	--	--	--	--
AGW141	Intermediate	21F0218	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.40**	0.0200 U	--	--	--	--	--
AGW142	Deep	21F0218	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW144	Intermediate	21F0031	6/1/2021	PDN	0.200 U	**1.88**	0.200 U	**0.361**	**0.950**	**0.231**	--	--	--	--	--
AGW145	Intermediate	21F0031	6/1/2021	PDN	0.200 U	**7.29**	0.200 U	**0.888**	**9.47**	**0.698**	--	--	--	--	--
AGW146	Deep	21F0031	6/1/2021	PDN	0.200 U	**1.62**	0.200 U	0.200 U	**3.58**	**0.114**	--	--	--	--	--
AGW147	Intermediate	21F0031	6/1/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW148	Intermediate	21F0097	6/4/2021	PDN	0.200 U	**1.37**	0.200 U	0.200 U	**2.65**	**0.0415**	--	--	--	--	--

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Volatile Organic Compounds, General Chemistry, and Dissolved Gases
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Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260D SIM (µg/L)						General Chemistry by EPA 300.0, SM5310B (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
AGW149	Intermediate	21F0097	6/4/2021	PDN	0.200 U	**0.283**	0.200 U	0.200 U	**2.56**	0.0200 U	--	--	--	--	--
AGW150	Intermediate	21F0083	6/3/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.645**	0.0200 U	--	--	--	--	--
AGW150	Intermediate	21F0083	6/3/2021	PDFD	0.200 U	0.200 U	0.200 U	0.200 U	**0.640**	0.0200 U	--	--	--	--	--
AGW151	Intermediate	21F0098	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.236**	0.0200 U	--	--	--	--	--
AGW152	Shallow	21F0165	6/9/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.774**	--	--	--	--	--
AGW153	Shallow	21F0215	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW154	Intermediate	21F0215	6/10/2021	PDN	0.200 U	**0.378**	0.200 U	0.200 U	**0.301**	**0.0244**	--	--	--	--	--
AGW155	Intermediate	21F0165	6/9/2021	PDN	0.200 U	**1.63**	0.200 U	**0.232**	0.200 U	**3.41**	--	--	--	--	--
AGW156	Intermediate	21F0074	6/2/2021	PDN	0.200 U	**4.22**	0.200 U	**0.352**	**0.463**	**1.06**	--	--	--	--	--
AGW157	Intermediate	21F0031	6/1/2021	PDN	0.200 U	**3.73**	0.200 U	0.200 U	**0.383**	**0.216**	--	--	--	--	--
AGW158	Intermediate	21F0098	6/4/2021	PDN	0.200 U	**0.505**	**0.227**	0.200 U	**1.64**	**0.0243**	--	--	--	--	--
AGW159	Deep	21F0099	6/4/2021	PDN	0.200 U	**0.611**	0.200 U	0.200 U	**2.91**	**0.0484**	--	--	--	--	--
AGW160	Intermediate	21F0032	6/1/2021	PDN	0.200 U	**0.242**	0.200 U	0.200 U	**2.08**	0.0200 U	--	--	--	--	--
AGW161	Intermediate	21F0031	6/1/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.774**	0.0200 U	--	--	--	--	--
AGW162	Intermediate	21F0218	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.359**	0.0200 U	--	--	--	--	--
AGW163	Intermediate	21F0215	6/10/2021	PDN	0.200 U	**1.26**	0.200 U	0.200 U	**3.34**	**0.0329**	--	--	--	--	--
AGW164	Intermediate	21F0215	6/10/2021	PDN	0.200 U	**0.226**	0.200 U	0.200 U	**0.922**	0.0200 U	--	--	--	--	--
AGW165	Shallow	21F0215	6/10/2021	PDN	0.200 U	**1.02**	0.200 U	0.200 U	**1.58**	**0.131**	--	--	--	--	--
AGW166	Intermediate	21F0220	6/10/2021	PDN	0.200 U	**1.18**	0.200 U	0.200 U	0.200 U	**0.204**	--	--	--	--	--
AGW167	Deep	21F0220	6/10/2021	PDN	0.200 U	**1.99**	0.200 U	**0.209**	**4.76**	**0.112**	--	--	--	--	--
AGW168	Intermediate	21F0218	6/10/2021	PDN	0.200 U	**1.33**	0.200 U	0.200 U	**4.38**	**0.0369**	--	--	--	--	--
AGW169	Deep	21F0218	6/10/2021	PDN	0.200 U	**1.09**	0.200 U	0.200 U	**4.68**	**0.0344**	--	--	--	--	--
AGW170	Intermediate	21F0218	6/10/2021	PDN	0.200 U	**0.277**	0.200 U	0.200 U	**1.64**	0.0200 U	--	--	--	--	--
AGW171	Deep	21F0218	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.964**	0.0200 U	--	--	--	--	--
AGW172	Intermediate	21F0032	6/1/2021	PDN	0.200 U	**0.368**	0.200 U	0.200 U	**3.84**	0.0200 U	--	--	--	--	--
AGW173	Intermediate	21F0032	6/1/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW174	Intermediate	21F0031	6/1/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.986**	0.0200 U	--	--	--	--	--
AGW175	Intermediate	21F0031	6/1/2021	N	0.200 U	**0.310**	0.200 U	0.200 U	**1.44**	0.0200 U	--	--	--	--	--
AGW176	Intermediate	21F0032	6/1/2021	PDN	0.200 U	**0.295**	0.200 U	0.200 U	**2.59**	0.0200 U	--	--	--	--	--
AGW177	Intermediate	21F0032	6/1/2021	PDN	0.200 U	**0.999**	0.200 U	0.200 U	**3.44**	0.0200 U	--	--	--	--	--
AGW178	Deep	21F0032	6/1/2021	PDN	0.200 U	**0.438**	0.200 U	0.200 U	**3.55**	0.0200 U	--	--	--	--	--
AGW179	Intermediate	21F0032	6/1/2021	PDN	0.200 U	**5.49**	0.200 U	0.200 U	0.200 U	**0.601**	--	--	--	--	--
AGW180	Deep	21F0032	6/1/2021	PDN	0.200 U	**0.358**	0.200 U	0.200 U	**2.53**	0.0200 U	--	--	--	--	--
AGW181	Intermediate	21F0220	6/10/2021	PDN	0.200 U	**2.76**	0.200 U	0.200 U	**1.46**	**0.0218**	--	--	--	--	--
AGW182	Intermediate	21F0220	6/10/2021	PDN	0.200 U	**2.22**	0.200 U	**0.225**	**1.44**	**0.164**	--	--	--	--	--
AGW183	Deep	21F0220	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW184	Intermediate	21F0097	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--

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Volatile Organic Compounds, General Chemistry, and Dissolved Gases
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Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260D SIM (µg/L)						General Chemistry by EPA 300.0, SM5310B (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
AGW185	Deep	21F0031	6/1/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.79**	0.0200 U	--	--	--	--	--
AGW186	Intermediate	21F0220	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.455**	0.0200 U	--	--	--	--	--
AGW187	Intermediate	21F0031	6/1/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**1.29**	0.0200 U	--	--	--	--	--
AGW188	Intermediate	21F0180	6/9/2021	N	0.200 U	**0.458**	0.200 U	0.200 U	**3.08**	0.0200 U	--	--	--	--	--
AGW188	Intermediate	21F0180	6/9/2021	FD	0.200 U	**0.444**	0.200 U	0.200 U	**3.01**	0.0200 U	--	--	--	--	--
AGW189	Intermediate	21F0220	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.489**	0.0200 U	--	--	--	--	--
AGW190	Intermediate	21F0031	6/1/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.906**	0.0200 U	--	--	--	--	--
AGW190	Intermediate	21F0031	6/1/2021	PDFD	0.200 U	0.200 U	0.200 U	0.200 U	**0.909**	0.0200 U	--	--	--	--	--
AGW191	Off-Intermediate	21F0097	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW192	Off-Deep	21F0097	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW193	Shallow	21F0220	6/10/2021	PDN	0.200 U	**1.51**	0.200 U	0.200 U	**2.33**	**0.141**	--	--	--	--	--
AGW194	Shallow	21F0099	6/4/2021	PDN	0.200 U	**0.686**	0.200 U	0.200 U	**1.32**	**0.0216**	--	--	--	--	--
AGW195	Deep	21F0032	6/1/2021	PDN	0.200 U	**0.705**	0.200 U	0.200 U	**6.10**	**0.0220**	--	--	--	--	--
AGW196	Intermediate	21F0032	6/1/2021	PDN	0.200 U	**2.50**	0.200 U	0.200 U	0.200 U	**6.47**	--	--	--	--	--
AGW197	Deep	21F0032	6/1/2021	PDN	0.200 U	**1.48**	0.200 U	0.200 U	**8.68**	0.0200 U	--	--	--	--	--
AGW198	Intermediate	21F0032	6/1/2021	PDN	0.200 U	**0.607**	0.200 U	0.200 U	**6.62**	0.0200 U	--	--	--	--	--
AGW199	Deep	21F0032	6/1/2021	PDN	0.200 U	**2.62**	0.200 U	0.200 U	**6.25**	**0.0234**	--	--	--	--	--
AGW200-2	Shallow	21F0165	6/9/2021	N	0.200 U	**2.09**	0.200 U	**0.226**	**0.238**	**1.37**	--	--	--	--	--
AGW200-5	Intermediate	21F0165	6/9/2021	N	0.200 U	**4.41**	0.200 U	**0.340**	**1.02**	**0.740**	--	--	--	--	--
AGW200-6	Deep	21F0165	6/9/2021	N	0.200 U	**5.53**	0.200 U	**0.433**	**0.626**	**0.810**	--	--	--	--	--
AGW201-2	Shallow	21F0215	6/10/2021	N	0.200 U	**2.05**	0.200 U	0.200 U	**0.261**	**1.37**	--	--	--	--	--
AGW201-5	Intermediate	21F0215	6/10/2021	N	0.200 U	**2.98**	0.200 U	**0.220**	**2.98**	**0.497**	--	--	--	--	--
AGW201-6	Deep	21F0215	6/10/2021	N	0.200 U	**3.51**	0.200 U	**0.262**	**5.04**	**0.394**	--	--	--	--	--
AGW202-2	Shallow	21F0228	6/11/2021	N	0.200 U	**1.50**	0.200 U	0.200 U	**1.02**	**0.254**	--	--	--	--	--
AGW202-4	Intermediate	21F0228	6/11/2021	N	0.200 U	**0.999**	0.200 U	0.200 U	**1.85**	**0.253**	--	--	--	--	--
AGW202-6	Deep	21F0228	6/11/2021	N	0.200 U	**0.271**	0.200 U	0.200 U	**0.676**	0.0200 U	--	--	--	--	--
AGW203-2	Shallow	21F0228	6/11/2021	N	0.200 U	0.200 U	**0.286**	0.200 U	**0.697**	0.0200 U	--	--	--	--	--
AGW203-4	Intermediate	21F0228	6/11/2021	N	0.200 U	0.200 U	**0.330**	0.200 U	**2.14**	0.0200 U	--	--	--	--	--
AGW203-4	Intermediate	21F0228	6/11/2021	FD	0.200 U	0.200 U	**0.331**	0.200 U	**2.17**	0.0200 U	--	--	--	--	--
AGW203-6	Deep	21F0228	6/11/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW204	Intermediate	21F0084	6/3/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW206	Intermediate	21F0165	6/9/2021	PDN	0.200 U	0.200 U	**0.311**	0.200 U	**0.412**	0.0200 U	--	--	--	--	--
AGW207-2	Shallow	21F0155	6/8/2021	N	0.200 U	**4.43**	0.200 U	0.200 U	**2.97**	**0.128**	--	--	--	--	--
AGW207-4	Intermediate	21F0155	6/8/2021	N	0.200 U	**1.41**	0.200 U	0.200 U	**3.95**	**0.133**	--	--	--	--	--
AGW207-7	Deep	21F0155	6/8/2021	N	0.200 U	**0.447**	0.200 U	0.200 U	**3.91**	**0.0204**	--	--	--	--	--
AGW208-2	Shallow	21F0155	6/8/2021	N	0.200 U	**3.18**	0.200 U	0.200 U	**1.26**	0.0200 U	--	--	--	--	--
AGW208-4	Intermediate	21F0155	6/8/2021	N	0.200 U	**1.00**	0.200 U	0.200 U	**2.07**	0.0200 U	--	--	--	--	--

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2Q2021 Semiannual Groundwater Sampling 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 8260D SIM (µg/L)						General Chemistry by EPA 300.0, SM5310B (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
AGW208-6	Deep	21F0155	6/8/2021	N	0.200 U	**0.419**	0.200 U	0.200 U	**3.56**	0.0200 U	--	--	--	--	--
AGW209-2	Shallow	21F0155	6/8/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.803**	--	--	--	--	--
AGW209-5	Intermediate	21F0155	6/8/2021	N	0.200 U	**1.12**	0.200 U	0.200 U	**1.34**	**1.15**	--	--	--	--	--
AGW209-6	Deep	21F0155	6/8/2021	N	0.200 U	**0.672**	0.200 U	0.200 U	**3.43**	0.0200 U	--	--	--	--	--
AGW210-2	Shallow	21F0155	6/8/2021	N	0.200 U	**0.269**	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW210-5	Intermediate	21F0155	6/8/2021	N	0.200 U	**1.13**	0.200 U	0.200 U	**1.07**	**0.0432**	--	--	--	--	--
AGW210-6	Deep	21F0155	6/8/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	**2.28**	0.0200 U	--	--	--	--	--
AGW211-5	Intermediate	21F0155	6/8/2021	N	0.200 U	**1.07**	0.200 U	0.200 U	**1.63**	0.0200 U	--	--	--	--	--
AGW211-6	Deep	21F0155	6/8/2021	N	0.200 U	**0.652**	0.200 U	0.200 U	**0.799**	0.0200 U	--	--	--	--	--
AGW212-5	Intermediate	21F0066	6/2/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	**0.921**	0.0200 U	--	--	--	--	--
AGW212-5	Intermediate	21F0066	6/2/2021	FD	0.200 U	0.200 U	0.200 U	0.200 U	**0.931**	0.0200 U	--	--	--	--	--
AGW212-7	Deep	21F0083	6/3/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	**3.16**	0.0200 U	--	--	--	--	--
AGW213	Deep	21F0220	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW214	Intermediate	21F0180	6/9/2021	N	0.200 U	**0.329**	0.200 U	0.200 U	**1.78**	0.0200 U	--	--	--	--	--
AGW215	Intermediate	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW216	Intermediate	21F0083	6/3/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	**0.622**	0.0200 U	--	--	--	--	--
AGW217	Intermediate	21F0083	6/3/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	**1.28**	**0.0221**	--	--	--	--	--
AGW218	Intermediate	21F0180	6/9/2021	N	0.200 U	**0.324**	0.200 U	0.200 U	**2.43**	0.0200 U	--	--	--	--	--
AGW219	Intermediate	21F0066	6/2/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW220	Intermediate	21F0083	6/3/2021	N	0.200 U	**0.226**	0.200 U	0.200 U	**0.335**	0.0200 U	--	--	--	--	--
AGW221	Intermediate	21F0083	6/3/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW222	Intermediate	21F0165	6/9/2021	PDN	0.200 U	0.200 U	**0.450**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW225	Off-Shallow	21F0097	6/4/2021	N	0.200 U	**4.03**	0.200 U	**0.314**	**1.78**	**0.388**	**1.80**	**3.94**	0.39 U	0.24 U	**343**
AGW226	Off-Shallow	21F0220	6/10/2021	N	0.200 U	**3.65**	0.200 U	0.200 U	**1.37**	**0.533**	**4.46**	**2.19**	0.39 U	0.24 U	**1140**
AGW227	Intermediate	21F0220	6/10/2021	PDN	0.200 U	**2.59**	0.200 U	**0.264**	**1.31**	**0.172**	--	--	--	--	--
AGW228	Shallow	21F0220	6/10/2021	N	0.200 U	**2.44**	0.200 U	**0.265**	**2.66**	**0.189**	--	--	--	--	--
AGW229	Shallow-WT	21F0218	6/10/2021	PDN	0.200 U	**2.28**	0.200 U	0.200 U	**1.30**	**0.0394**	--	--	--	--	--
AGW230	Deep	21F0097	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.697**	0.0200 U	--	--	--	--	--
AGW231	Shallow	21F0032	6/1/2021	PDN	0.200 U	**1.08**	0.200 U	0.200 U	0.200 U	**1.81**	--	--	--	--	--
AGW232	Shallow	21F0220	6/10/2021	PDN	0.200 U	**0.449**	0.200 U	0.200 U	0.200 U	**6.62**	--	--	--	--	--
AGW234	Deep	21F0246	6/15/2021	PDN	**0.259**	**1.62**	0.200 U	0.200 U	**6.32**	**0.0547**	--	--	--	--	--
AGW235-2	Shallow	21F0235	6/14/2021	N	0.200 U	**1.53**	0.200 U	**0.240**	0.200 U	**4.14**	--	--	--	--	--
AGW235-2	Shallow	21F0235	6/14/2021	FD	0.200 U	**1.27**	0.200 U	**0.231**	0.200 U	**4.15**	--	--	--	--	--
AGW235-4	Intermediate	21F0235	6/14/2021	N	0.200 U	**12.3 J**	0.200 U	0.200 U	**0.793**	**0.115**	--	--	--	--	--
AGW235-7	Deep	21F0235	6/14/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW236	Shallow	21F0155	6/8/2021	N	0.200 U	**5.01**	0.200 U	0.200 U	**1.52**	**0.312**	--	--	--	--	--
AGW237	Deep	21F0220	6/10/2021	PDN	**0.702**	**0.988**	0.200 U	0.200 U	**2.23**	**0.0268**	--	--	--	--	--

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Auburn, Washington

Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260D SIM (µg/L)						General Chemistry by EPA 300.0, SM5310B (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
AGW238	Intermediate	21F0220	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW239	Shallow	21F0180	6/9/2021	N	0.200 U	**1.08**	0.200 U	0.200 U	0.200 U	**0.485**	--	--	--	--	--
AGW239	Shallow	21F0180	6/9/2021	FD	0.200 U	**1.05**	0.200 U	0.200 U	0.200 U	**0.470**	--	--	--	--	--
AGW240-1	Off-Shallow-WT	21F0097	6/4/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0574**	0.100 U	**9.27**	**2.96**	0.24 U	**7750**
AGW240-5	Off-Shallow	21F0097	6/4/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0366**	0.100 U	**5.24**	**3.24**	0.24 U	**5110**
AGW241-1	Shallow-WT	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW241-5	Shallow	21F0180	6/9/2021	N	0.200 U	**0.580**	0.200 U	0.200 U	0.200 U	**0.0318**	--	--	--	--	--
AGW242-1	Shallow-WT	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.152**	--	--	--	--	--
AGW242-2	Shallow	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW243-1	Shallow-WT	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0225**	--	--	--	--	--
AGW243-3	Shallow	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW244	Shallow-WT	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	**7.30**	**13.57**	0.39 U	0.24 U	**516**
AGW245	Shallow-WT	21F0220	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW246	Shallow-WT	21F0220	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW247-1	Off-Shallow-WT	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	**0.346**	0.200 U	0.0200 U	0.100 U	**8.36**	0.39 U	0.24 U	**7140**
AGW247-5	Off-Shallow	21F0180	6/9/2021	N	0.200 U	**0.482**	0.200 U	**0.204**	0.200 U	**0.545**	0.100 U	**4.85**	0.39 U	0.24 U	**5370**
AGW248-1	Shallow-WT	21F0097	6/4/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW248-5	Shallow	21F0097	6/4/2021	N	0.200 U	**1.72**	0.200 U	0.200 U	**3.20**	**0.127**	--	--	--	--	--
AGW249-1	Shallow-WT	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.693**	--	--	--	--	--
AGW249-5	Shallow	21F0180	6/9/2021	N	0.200 U	**1.71**	0.200 U	0.200 U	**4.26**	**0.0674**	--	--	--	--	--
AGW250-2	Shallow	21F0141	6/7/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0221**	--	--	--	--	--
AGW250-3	Intermediate	21F0141	6/7/2021	N	0.200 U	**0.528**	0.200 U	0.200 U	**0.355**	**0.0373**	--	--	--	--	--
AGW251-1	Off-Shallow-WT	21F0180	6/9/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW251-2	Off-Shallow	21F0141	6/7/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.226**	0.100 U	**6.06**	0.39 U	0.24 U	**2830**
AGW251-3	Off-Intermediate	21F0155	6/8/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**2.00**	**0.120**	**6.01**	0.39 U	0.24 U	**2510**
AGW251-6	Deep	21F0155	6/8/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.213**	--	--	--	--	--
AGW254-1	Shallow-WT	21F0083	6/3/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW254-2	Shallow	21F0066	6/2/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0351**	--	--	--	--	--
AGW254-5	Intermediate	21F0066	6/2/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW255-1	Shallow-WT	21F0141	6/7/2021	N	0.200 U	**1.77**	0.200 U	0.200 U	**0.344**	**0.759**	--	--	--	--	--
AGW255-3	Shallow	21F0141	6/7/2021	N	0.200 U	**1.12**	0.200 U	0.200 U	0.200 U	**0.200**	--	--	--	--	--
AGW255-5	Intermediate	21F0141	6/7/2021	N	0.200 U	**0.924**	0.200 U	0.200 U	0.200 U	**0.166**	--	--	--	--	--
AGW256	Intermediate	21F0099	6/4/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	**0.636**	0.0200 U	--	--	--	--	--
AGW257	Shallow	21F0099	6/4/2021	PDN	0.200 U	0.200 U	**0.382**	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW259	Deep	21F0066	6/2/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW261	Shallow	21F0220	6/10/2021	PDN	0.200 U	**1.68**	0.200 U	**0.232**	**1.95**	**0.0457**	--	--	--	--	--
AGW262	Off-Shallow-WT	21F0220	6/10/2021	PDN	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.157**	--	--	--	--	--

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Sample Location	Zone	Laboratory SDG	Sample Date	Sample Type	Select VOCs by SW-846 8260D SIM (µg/L)						General Chemistry by EPA 300.0, SM5310B (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
AGW263	Off-Shallow-WT	21F0097	6/4/2021	PDN	0.200 U	**5.00**	0.200 U	**0.345**	**0.834**	**0.478**	--	--	--	--	--
AGW266	Shallow	21F0220	6/10/2021	PDN	0.200 U	**0.439**	0.200 U	0.200 U	0.200 U	**0.0508**	--	--	--	--	--
AGW269	Off-Shallow	21F0035	6/1/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.796**	0.100 U	**7.57**	0.39 U	0.24 U	**1290**
AGW270	Off-Shallow	21F0035	6/1/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.639**	0.100 U	**8.60**	0.39 U	0.24 U	**2510**
AGW271	Off-Shallow	21F0035	6/1/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.499**	0.100 U	**8.57**	0.39 U	0.24 U	**6180**
AGW272	Off-Shallow	21F0065	6/2/2021	N	0.200 U	**2.46**	0.200 U	**0.458**	**0.268**	**1.85**	**0.143**	**4.27**	0.39 U	0.24 U	**685**
AGW272	Off-Shallow	21F0065	6/2/2021	FD	0.200 U	**2.46**	0.200 U	**0.447**	**0.271**	**1.79**	**0.142**	**4.29**	0.39 U	0.24 U	**720**
AGW273	Off-Shallow	21F0065	6/2/2021	N	0.200 U	**0.282**	0.200 U	0.200 U	0.200 U	**2.32**	0.100 U	**5.85**	0.39 U	0.24 U	**1610**
AGW274	Off-Shallow	21F0065	6/2/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**2.25**	0.100 U	**6.49**	0.39 U	0.24 U	**1720**
AGW275	Off-Shallow	21F0074	6/2/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0276**	0.100 U	**6.55**	**2.36**	0.24 U	**2770**
AGW275	Off-Shallow	21F0074	6/2/2021	FD	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.0269**	0.100 U	**6.59**	**3.37**	0.24 U	**3200**
AGW276-2	Off-Shallow	21F0098	6/4/2021	N	0.200 U	**1.14**	0.200 U	0.200 U	0.200 U	**0.549**	--	--	--	--	--
AGW276-5	Off-Intermediate	21F0099	6/4/2021	N	0.200 U	**4.71**	0.200 U	**0.411**	0.200 U	**1.81**	--	--	--	--	--
AGW276-6	Off-Deep	21F0098	6/4/2021	N	0.200 U	**2.15**	0.200 U	0.200 U	**2.50**	**0.112**	--	--	--	--	--
AGW278-1	Shallow-WT	21F0139/A1F0279	6/7/2021	N	0.200 U	**1.02**	0.200 U	0.200 U	**0.650**	**0.380**	--	--	--	--	--
AGW278-2	Shallow	21F0215	6/10/2021	N	0.200 U	**1.31**	0.200 U	0.200 U	0.200 U	**0.886**	--	--	--	--	--
AGW278-4	Intermediate	21F0215	6/10/2021	N	0.200 U	**0.474**	0.200 U	0.200 U	0.200 U	**2.68**	--	--	--	--	--
AGW278-6	Deep	21F0215	6/10/2021	N	0.200 U	**0.240**	0.200 U	0.200 U	0.200 U	0.0200 U	--	--	--	--	--
AGW283-1	Shallow-WT	21F0156	6/8/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	**3.60**	0.0200 U	--	--	--	--	--
AGW283-2	Shallow	21F0156	6/8/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	**0.329**	0.0200 U	--	--	--	--	--
IW34	On-Shallow	21F0065	6/2/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**1.11**	0.100 U	**8.65**	0.39 U	0.24 U	**5280**
IW36	On-Shallow	21F0065	6/2/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**1.00**	0.100 U	**8.00**	0.39 U	0.24 U	**2660**
IW37	Shallow	21F0035	6/1/2021	N	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	**0.343**	0.100 U	**6.04**	0.39 U	0.24 U	**4670**

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:

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

Table 1-3
2Q2021 Semiannual Groundwater Sampling 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 8260D (µg/L)						Petroleum Hydrocarbons by NWTPH-Gx/Dx (mg/L)			Dissolved Metals by SW-846 6020B (mg/L)			Cyanide by ASTM D7237-10 (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)	Cadmium	Copper	Nickel	Free Cyanide
AGW010	Shallow-WT	21F0096	6/3/2021	N	**1.16**	**1.29**	**124**	**6.11**	**0.87**	**6.98**	**3.25**	**0.353**	0.200 U	--	--	--	--
AGW010	Shallow-WT	21F0096	6/3/2021	FD	**1.14**	**1.38**	**150**	**6.45**	**0.94**	**7.40**	**3.33**	**0.336**	0.200 U	--	--	--	--
AGW044	Shallow-WT	21F0084	6/3/2021	N	--	--	--	--	--	--	--	**0.123**	0.200 U	--	--	--	--
AGW047	Shallow	A1F0279	6/7/2021	N	--	--	--	--	--	--	--	--	--	--	--	--	0.00500 U
AGW048	Shallow	21F0139/A1F0279	6/7/2021	N	--	--	--	--	--	--	--	--	--	**0.00492**	--	**0.00135**	0.00500 U
AGW048	Shallow	21F0139/A1F0279	6/7/2021	FD	--	--	--	--	--	--	--	--	--	**0.00525**	--	**0.00135**	0.00500 U
AGW049	Shallow	21F0139/A1F0279	6/7/2021	N	--	--	--	--	--	--	--	--	--	**0.0180**	**0.0853**	**0.0166**	0.00500 U
AGW050	Shallow	21F0139/A1F0279	6/7/2021	N	--	--	--	--	--	--	--	--	--	**0.00838**	--	**0.00913**	**0.00943**
AGW128	Shallow-WT	21F0165	6/9/2021	N	--	--	--	--	--	--	--	**0.331**	**1.90**	--	--	--	--
AGW130	Shallow-WT	21F0096	6/3/2021	N	--	--	--	--	--	--	--	0.100 U	0.200 U	--	--	--	--
AGW277	Shallow-WT	21F0096	6/3/2021	N	--	--	--	--	--	--	--	0.100 UJ	0.200 UJ	--	--	--	--
AGW278-1	Shallow-WT	21F0139/A1F0279	6/7/2021	N	--	--	--	--	--	--	--	--	--	--	--	--	0.00500 U
AGW281	Shallow-WT	21F0096	6/3/2021	N	--	--	--	--	--	--	--	0.100 U	0.200 U	--	--	--	--
AGW282	Shallow-WT	21F0084	6/3/2021	N	--	--	--	--	--	--	--	0.100 U	**0.203**	--	--	--	--

Notes:

Bold text indicates detected analyte.

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:

BTEX = benzene, toluene, ethylbenzene, and xylenes

FD = field duplicate

µg/L = micrograms per liter

mg/L = milligrams per liter

-- = not analyzed

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

N

LANDAU ASSOCIATES

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

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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	-0.8	<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	-0.1	<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	0.3	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.8	<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	2.0	<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	2.2	<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	2.8	<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	3.3	<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	3.7	<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
		12/5/2019	4.3	<0.200	1.88	3.03	0.251	<0.200	0.320	<1.14	<1.23	0.28	-22.6	4.0	3.08	355	Fe/S	4.28	53	0.00	0.27	0.64	0.10	0.00
		5/29/2020	4.7	<0.200	1.38	3.00	0.242	<0.200	0.353	<0.24	<0.39	0.17	46.6	3.9	1.93	341	Fe/S	4.32	50	0.00	0.21	0.67	0.11	0.00
		12/3/2020	5.3	<0.200	2.07	4.63	0.383	<0.200	0.516	<0.24	<0.39	0.44	-214.1	6.0	1.68	307	Fe/S	3.73	76	0.00	0.21	0.68	0.11	0.00
		6/4/2021	5.8	<0.200	1.78	4.03	0.314	<0.200	0.388	<0.24	<0.39	1.69	-2.0	1.5	1.80	343	Fe/S	3.94	65	0.00	0.21	0.69	0.10	0.00
AGW226	WT	8/14/2015	-0.1	<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	0.2	<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	0.5	<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	0.8	<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	1.0	<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	1.3	<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	1.5	<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	1.8	<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	2.0	<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	2.2	<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	2.8	<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	3.2	<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	3.8	<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
		12/2/2019	4.2	<0.200	1.25	2.00	<0.200	<0.200	0.795	<1.14	<1.23	0.20	-94.9	0.80	22.2	1600	S/M	7.06	43	0.00	0.22	0.48	0.30	0.00
		6/4/2020	4.8	<0.200	1.56	3.31	0.209	<0.200	0.565	<0.24	<0.39	0.21	-48.5	3.50	4.33	1150	S/M	2.3	57	0.00	0.21	0.63	0.16	0.00
		12/2/2020	5.3	<0.200	1.45	4.31	0.266	<0.200	0.929	<0.24	<0.39	0.30	5.6	2.2	4.10	797	S/M	2.57	73	0.00	0.15	0.65	0.20	0.00
		6/10/2021	5.8	<0.200	1.37	3.65	<0.200	<0.200	0.533	<0.24	<0.39	0.56	-15.8	3.5	4.46	1140	S/M	2.19	57	0.00	0.18	0.67	0.15	0.00

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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
AGW240-1	WT	12/1/2014	-0.8	<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	7.9	0.00	0.00	0.02	0.04	0.94
		8/14/2015	-0.1	<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	2.8	0.00	0.00	0.02	0.01	0.97
		12/7/2015	0.3	<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	4.8	0.00	0.00	0.00	0.04	0.96
		3/3/2016	0.5	<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	0.8	<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	1.8	0.00	0.00	0.00	0.02	0.98
		9/8/2016	1.0	<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	1.5	0.00	0.00	0.00	0.01	0.99
		11/30/2016	1.2	<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	2.1	0.00	0.00	0.00	0.02	0.98
		3/10/2017	1.5	<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	2.1	0.00	0.00	0.00	0.01	0.99
		6/6/2017	1.8	<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	0.8	0.00	0.00	0.00	0.02	0.98
		9/5/2017	2.0	<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	1.1	0.00	0.00	0.00	0.01	0.99
		11/27/2017	2.2	<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	2.8	<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	3.3	<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	0.8	0.00	0.00	0.00	1.00	0.00
		6/5/2019	3.8	<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	0.00	0.00	0.00	1.00	0.00
		12/5/2019	4.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.0365	<1.14	2.13	0.32	-33.9	4.60	0.442	8350	M	8.67	0.6	0.00	0.00	0.00	0.01	0.99
		6/1/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	<0.24	2.18	0.33	126.1	3.00	0.117	5700	M	7.99	0	0.00	0.00	0.00	0.00	1.00
		12/3/2020	5.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.0797	<0.24	2.25	0.46	-209.6	5.50	0.190	7820	M	7.94	1.3	0.00	0.00	0.00	0.02	0.98
		6/4/2021	5.8	<0.200	<0.200	<0.200	<0.200	<0.200	0.0574	<0.24	2.96	0.68	-38.9	2.50	<0.100	7750	M	9.27	0.9	0.00	0.00	0.00	0.01	0.99
AGW240-5	SZ	12/1/2014	-0.8	<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	-0.1	<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	0.3	<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	0.5	<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	0.8	<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	1.0	<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	5.3	0.00	0.00	0.02	0.02	0.96
		11/30/2016	1.2	<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	3.7	0.00	0.00	0.02	0.01	0.97
		3/10/2017	1.5	<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	1.1	0.00	0.00	0.00	0.00	1.00
		6/6/2017	1.8	<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	1.2	0.00	0.00	0.00	0.00	1.00
		9/5/2017	2.0	<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	0.00	0.00	0.00	0.01	0.99
		11/27/2017	2.2	<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	0.00	0.00	0.00	0.00	1.00
		6/5/2018	2.8	<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	0.00	0.00	0.00	0.00	1.00
		12/7/2018	3.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.0237	<0.24	<0.39	0.38	-60.8	6.5	<0.100	12300	M	6.89	0.4	0.00	0.00	0.00	1.00	0.00
		6/5/2019	3.8	<0.200	<0.200	<0.200	<0.200	<0.200	0.0475	<0.24	2.86	0.39	-80.4	6.0	0.134	11900	M	5.75	0.8	0.00	0.00	0.00	1.00	0.00
		12/5/2019	4.3	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	<1.14	2.47	0.41	-48.1	4.0	0.161	5060	M	7.47	0	0.00	0.00	0.00	0.00	1.00
		6/1/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.0368	<0.24	2.18	0.64	39.8	5.5	0.143	4640	M	5.68	0.6	0.00	0.00	0.00	0.01	0.99
		12/3/2020	5.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.0354	<0.24	3.69	0.32	-43.8	4.6	0.118	4400	M	6.30	0.6	0.00	0.00	0.00	0.00	1.00
		6/4/2021	5.8	<0.200	<0.200	<0.200	<0.200	<0.200	0.0366	<0.24	3.24	0.56	-51.9	3.4	<0.100	5110	M	5.24	0.6	0.00	0.00	0.00	0.01	0.99

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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
AGW244	WT	12/1/2016	1.2	<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	1.5	<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	1.8	<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	2.0	<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	2.2	<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	2.8	<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	3.2	<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	3.8	<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
		12/4/2019	4.3	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	<1.14	<1.23	0.76	-169.8	1.20	15.3	506	S/M	11.20	0	0.00	0.00	0.00	0.00	0.00
		6/4/2020	4.8	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	<0.24	<0.39	0.68	114.7	1.00	11.3	67	Fe/S	5.25	0	0.00	0.00	0.00	0.00	0.00
		12/3/2020	5.3	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	<0.24	<0.39	0.79	-204.4	0.5	9.11	14.3	Fe/S	4.81	0	0.00	0.00	0.00	0.00	0.00
		6/9/2021	5.8	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	<0.24	<0.39	0.67	23.3	3.0	7.3	516	S/M	13.57	0	0.00	0.00	0.00	0.00	0.00
AGW247-1	WT	12/2/2014	-0.8	<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	-0.1	<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	0.2	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.8	<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	2.0	<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	2.2	<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	2.5	<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	2.8	<0.20	<0.20	<0.20	0.39	<0.20	3.1	1.0	1.1	0.66	108.7	4.5	<1.2	4500	M	8.6	54	0.00	0.00	0.03	0.39	0.57
		9/4/2018	3.0	<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	3.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.369	<0.24	<0.39	1.25	-11.8	4.0	8.69	2360	S/M	16.85	5.9	0.00	0.00	0.00	1.00	0.00
		5/28/2019	3.7	<0.200	<0.200	<0.200	0.318	<0.200	1.77	<0.24	<0.39	0.55	-40.4	4.5	0.212	7310	M	8.28	32	0.00	0.00	0.10	0.90	0.00
		12/2/2019	4.2	<0.200	<0.200	<0.200	0.207	<0.200	0.38	<1.14	<1.23	0.69	-102.1	5.0	0.81	2110	M	15.91	8.2	0.00	0.00	0.26	0.74	0.00
		5/28/2020	4.7	<0.200	<0.200	<0.200	0.232	<0.200	0.352	<0.24	<0.39	0.79	10.0	5.5	0.17	5160	M	8.39	8.0	0.00	0.00	0.30	0.70	0.00
		12/4/2020	5.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.0731	<0.24	<0.39	0.59	-222.1	5.5	0.857	2900	M	25.35	1.2	0.00	0.00	0.00	1.00	0.00
		6/9/2021	5.8	<0.200	<0.200	<0.200	0.346	<0.200	<0.0200	<0.24	<0.39	0.36	-33.3	4.5	<0.100	7140	M	8.36	3.6	0.00	0.00	1.00	0.00	0.00

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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	-0.8	<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	-0.1	<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	0.2	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.8	<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	2.0	<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	2.2	<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	2.8	<0.20	<0.20	0.48	0.3	<0.20	1.1	0.87	2.9	0.99	113.9	3.5	<1.2	2400	M	5.9	26	0.00	0.00	0.05	0.11	0.83
		12/3/2018	3.2	<0.200	<0.200	0.999	0.422	<0.200	1.72	<0.24	<0.39	0.60	-44.9	6.0	<0.100	3120	M	5.42	42	0.00	0.00	0.35	0.65	0.00
		5/28/2019	3.7	<0.200	<0.200	0.824	0.273	<0.200	1.06	<0.24	<0.39	0.42	-61.1	2.0	0.157	3520	M	5.23	28	0.00	0.00	0.40	0.60	0.00
		12/2/2019	4.2	<0.200	<0.200	0.446	0.294	<0.200	0.957	<1.14	<1.23	0.30	-102.9	4.0	0.351	1920	M	6.22	23	0.00	0.00	0.33	0.67	0.00
		5/29/2020	4.7	<0.200	<0.200	0.303	<0.200	<0.200	0.565	<0.24	<0.39	0.55	13.0	5.5 (d)	0.125	3380	M	5.88	12	0.00	0.00	0.26	0.74	0.00
		12/4/2020	5.3	<0.200	<0.200	0.551	0.349	<0.200	0.983	0.92	2.75	0.43	-211.7	6.5	0.133	2660	M	5.39	25	0.00	0.00	0.06	0.11	0.83
		6/9/2021	5.8	<0.200	<0.200	0.482	0.204	<0.200	0.545	<0.24	<0.39	0.30	-43.4	5.5	<0.100	5370	M	4.85	16	0.00	0.00	0.45	0.55	0.00
AGW251-1	WT	12/2/2014	-0.8	<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	-0.1	<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	0.2	<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	3.7	0.00	0.00	0.00	1.00	0.00
		3/3/2016	0.5	<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	2.4	0.00	0.00	0.00	1.00	0.00
		6/20/2016	0.8	<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	1.0	<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	1.2	<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	0.6	0.00	0.00	0.00	1.00	0.00
		3/7/2017	1.5	<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	0.8	0.00	0.00	0.00	1.00	0.00
		6/7/2017	1.8	<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	2.0	<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	2.2	<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	2.8	<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	5.4	0.00	0.00	0.00	0.14	0.86
		12/13/2018	3.3	<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	1.7	0.00	0.00	0.00	1.00	0.00
		5/29/2019	3.7	<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	0.9	0.00	0.00	0.00	1.00	0.00
		12/9/2019	4.3	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	<1.14	<1.23	--	--	2.20	170	5.96	Fe	35.56	0	0.00	0.00	0.00	0.00	0.00
		6/3/2020	4.8	<0.200	<0.200	<0.200	<0.200	<0.200	0.223	<0.24	<0.39	7.41	98.9	4.5 (e)	50.9	250	Fe	12.35	3.6	0.00	0.00	0.00	1.00	0.00
		12/2/2020	5.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.437	<0.24	<0.39	--	--	3.4	32.4	546	S/M	13.70	7.0	0.00	0.00	0.00	1.00	0.00
		6/9/2021	5.8	<0.200	<0.200	<0.200	<0.200	<0.200	<0.0200	-- (g)	-- (g)	-- (g)	-- (g)	-- (g)	-- (g)	-- (g)	-- (g)	-- (g)	0	0.00	0.00	0.00	0.00	0.00

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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
AGW251-2	SZ	12/2/2014	-0.8	<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	-0.1	<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	0.2	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.8	<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	2.0	<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	2.2	<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	2.8	<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	3.3	<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	3.7	<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
		12/9/2019	4.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.649	0.98	2.09	0.23	-197.6	4.6	0.144	3020	M	6.25	10	0.00	0.00	0.00	0.09	0.91
		6/3/2020	4.8	<0.200	<0.200	<0.200	<0.200	<0.200	0.388	4.04	1.66	0.36	71.6	5.5	0.149	2100	M	6.45	6.2	0.00	0.00	0.00	0.03	0.97
		12/2/2020	5.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.711	<0.24	<0.39	0.44	-64.8	4.0	0.221	1890	M	5.41	11	0.00	0.00	0.00	1.00	0.00
		6/7/2021	5.8	<0.200	<0.200	<0.200	<0.200	<0.200	0.226	<0.24	<0.39	0.42	-42.4	4.5	<0.100	2830	M	6.06	3.6	0.00	0.00	0.00	1.00	0.00
AGW251-3	IZ	12/2/2014	-0.8	<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	-0.1	<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	0.2	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.8	<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	2.0	<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	2.3	<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	2.5	<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	2.8	<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	3.0	<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	3.3	<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	3.7	<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
		12/9/2019	4.3	<0.200	<0.200	0.201	<0.200	<0.200	4.87	0.64	0.65	0.25	-235.2	3.6	<0.100	2250	M	5.97	80	0.00	0.00	0.02	0.63	0.36
		6/3/2020	4.8	<0.200	<0.200	<0.200	<0.200	<0.200	2.46	4.82	1.67	0.38	31.6	5.5	0.119	1990	M	6.41	39	0.00	0.00	0.00	0.15	0.85
		12/2/2020	5.3	<0.200	<0.200	<0.200	<0.200	<0.200	6.17	<0.24	<0.39	0.43	-41.2	4.4	0.142	1730	M	5.12	99	0.00	0.00	0.00	1.00	0.00
		6/8/2021	5.8	<0.200	<0.200	<0.200	<0.200	<0.200	2.00	<0.24	<0.39	0.48	-60.1	2.5	0.120	2510	M	6.01	32	0.00	0.00	0.00	1.00	0.00

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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
AGW269	SZ	8/14/2015	-0.1	<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	0.3	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.7	<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	2.0	<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	2.2	<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	2.7	<0.20	<0.20	<0.20	<0.20	<0.20	0.89	<0.40	3.7	1.14	103.5	4.0	<1.2	12000	M	8.5	14	0.00	0.00	0.00	0.10	0.90
		12/4/2018	3.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.159	<0.24	<0.39	0.67	-11.3	5.0	<0.100	22000	M	7.53	2.5	0.00	0.00	0.00	1.00	0.00
		5/30/2019	3.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.718	<0.24	1.77	0.53	-20.1	6.0	0.115	5710	M	7.65	11	0.00	0.00	0.00	0.16	0.84
		12/3/2019	4.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.0696	<1.14	2.04	0.19	-177.8	4.6	0.681	12600	M	8.26	1.1	0.00	0.00	0.00	0.02	0.98
		5/26/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.744	<0.24	<0.39	0.83	95.8	1.8	0.137	2230	M	7.86	12	0.00	0.00	0.00	1.00	0.00
		12/1/2020	5.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.0991	<0.24	<0.39	0.39	-202.6	5.5	<0.100	3170	M	7.43	1.6	0.00	0.00	0.00	1.00	0.00
		6/1/2021	5.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.796	<0.24	<0.39	0.30	-18.5	4.5	<0.100	1290	M	7.57	13	0.00	0.00	0.00	1.00	0.00
AGW270	SZ	8/13/2015	-0.1	<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	0.3	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.7	<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	2.0	<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	2.2	<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	2.7	<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	3.3	<0.200	<0.200	<0.200	<0.200	<0.200	1.26	<0.24	<0.39	0.85	-5.3	2.0	<0.100	18200	M	10.96	20	0.00	0.00	0.00	1.00	0.00
		5/30/2019	3.7	<0.200	<0.200	<0.200	<0.200	<0.200	3.36	<0.37	1.32	0.33	-29.6	2.5	0.147	16900	M	10.35	54	0.00	0.00	0.00	0.55	0.45
		12/3/2019	4.2	<0.200	<0.200	<0.200	<0.200	<0.200	1.11	<1.14	1.37	0.19	-145.6	3.8	0.109	11000	M	10.30	18	0.00	0.00	0.00	0.28	0.72
		5/27/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	1.57	<0.24	<0.39	0.44	32.5	6.0	0.134	4400	M	9.18	25	0.00	0.00	0.00	1.00	0.00
		12/1/2020	5.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.830	<0.24	1.77	0.34	-211.4	5.0	<0.100	3420	M	8.82	13	0.00	0.00	0.00	0.18	0.82
		6/1/2021	5.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.639	<0.24	<0.39	0.24	-58.4	4.5	<0.100	2510	M	8.60	10	0.00	0.00	0.00	1.00	0.00

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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	-0.1	<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	0.3	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.7	<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	2.0	<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	2.2	<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	4.6	0.00	0.00	0.00	1.00	0.00
		6/1/2018	2.7	<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	9.1	0.00	0.00	0.00	0.07	0.93
		12/4/2018	3.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.214	<0.24	<0.39	0.76	-8.0	4.0	<0.100	17600	M	10.39	3.4	0.00	0.00	0.00	1.00	0.00
		5/30/2019	3.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.467	<0.24	2.23	0.47	-70.0	4.5	0.158	12100	M	13.71	7.5	0.00	0.00	0.00	0.09	0.91
		12/3/2019	4.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.142	<1.14	2.00	0.21	-169.4	1.8	<0.100	8380	M	11.39	2.3	0.00	0.00	0.00	0.03	0.97
		5/26/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.677	<0.24	<0.39	0.26	50.8	1.9	0.124	6470	M	10.09	11	0.00	0.00	0.00	1.00	0.00
		12/1/2020	5.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.170	<0.24	<0.39	0.27	-27.2	4.4	0.115	5390	M	9.06	3	0.00	0.00	0.00	1.00	0.00
		6/1/2021	5.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.499	<0.24	<0.39	0.22	-73.0	3.5	<0.100	6180	M	8.57	8.0	0.00	0.00	0.00	1.00	0.00
AGW272	SZ	8/13/2015	-0.1	<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	0.3	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.7	<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	2.0	<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	2.2	<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	2.7	<0.20	0.32	3.7	0.51	<0.20	1.3	0.88	<0.57	0.99	123.6	5.0	2.7	410	Fe/S	4.8	67	0.00	0.02	0.44	0.21	0.32
		12/4/2018	3.3	<0.200	0.261	4.66	0.5	<0.200	1.76	<0.24	<0.39	0.47	-25.7	6.0	<0.100	1080	M	3.51	83	0.00	0.02	0.64	0.34	0.00
		5/30/2019	3.7	<0.200	0.323	3.22	0.507	<0.200	1.5	<0.30	<0.39	2.09	-20.9	4.0	0.410	841	M	4.10	65	0.00	0.04	0.59	0.37	0.00
		12/3/2019	4.2	<0.200	<0.200	1.67	0.439	<0.200	3.68	0.44	<1.23	0.18	-185.5	3.4	<0.100	1170	M	4.22	81	0.00	0.00	0.23	0.61	0.16
		5/27/2020	4.7	<0.200	0.311	2.63	0.394	<0.200	1.41	<0.24	<0.39	2.04	101.5	6.0	0.273	428	Fe/S	4.57	56	0.00	0.04	0.56	0.40	0.00
		12/1/2020	5.2	<0.200	0.211	1.69	0.540	<0.200	4.34	<0.24	<0.39	0.34	-26.7	5.0	<0.100	824	M	3.82	94	0.00	0.02	0.24	0.74	0.00
		6/2/2021	5.7	<0.200	0.268	2.46	0.458	<0.200	1.85	<0.24	<0.39	0.39	-53.7	3.5	0.143	685	M	4.27	62	0.00	0.03	0.49	0.48	0.00

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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
AGW273	SZ	8/13/2015	-0.1	<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	0.3	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.7	<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	2.0	<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	2.2	<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	2.5	<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	2.7	<0.20	<0.20	1.4	0.3	<0.20	3.3	1.5	1.2	0.53	120.5	4.0	<1.2	1100	M	6.3	70	0.00	0.00	0.11	0.32	0.57
		9/4/2018	3.0	<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	3.3	<0.200	<0.200	0.501	0.219	<0.200	3.09	<0.24	<0.39	0.47	-62.1	6.0	<0.100	3130	M	5.56	57	0.00	0.00	0.13	0.87	0.00
		5/31/2019	3.7	<0.200	<0.200	0.870	0.267	<0.200	3.18	1.17	0.83	0.59	61.0	5.5	0.129	1880	M	6.09	63	0.00	0.00	0.09	0.39	0.53
		12/4/2019	4.3	<0.200	<0.200	0.209	<0.200	<0.200	2.00	0.78	1.98	0.31	-211.7	3.6	0.120	4160	M	6.53	34	0.00	0.00	0.02	0.25	0.73
		5/27/2020	4.7	<0.200	<0.200	0.385	<0.200	<0.200	2.12	<0.24	<0.39	0.38	49.8	6.0	0.130	1140	M	6.24	38	0.00	0.00	0.10	0.90	0.00
		12/1/2020	5.2	<0.200	<0.200	<0.200	<0.200	<0.200	1.60	<0.24	<0.39	0.38	-193.9	5.5	<0.100	2120	M	5.67	26	0.00	0.00	0.00	1.00	0.00
		6/2/2021	5.7	<0.200	<0.200	0.282	<0.200	<0.200	2.32	<0.24	<0.39	0.38	-54.3	3.5	<0.100	1610	M	5.85	40	0.00	0.00	0.07	0.93	0.00
AGW274	SZ	8/13/2015	-0.1	<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	0.3	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.7	<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	2.0	<0.20	<0.20	<0.20	<0.20	<0.20	0.43	0.79	4.4	2.22	-55.9	4.3	<1.2	5300	M	6.9	6.9	0.00	0.00	0.00	0.04	0.96
		11/28/2017	2.2	<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	3.2	0.00	0.00	0.00	0.02	0.98
		6/1/2018	2.7	<0.20	<0.20	0.82	0.2	<0.20	3.2	1.5	1.5	0.55	117.5	4.0	<1.2	870	M	7.1	62	0.00	0.00	0.06	0.31	0.63
		12/5/2018	3.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.116	<0.24	<0.39	0.55	-63.3	6.5	<0.100	7640	M	7.11	1.9	0.00	0.00	0.00	1.00	0.00
		5/31/2019	3.7	<0.200	<0.200	<0.200	<0.200	<0.200	1.82	0.57	1.47	0.51	85.1	5.0	0.152	1910	M	6.59	29	0.00	0.00	0.00	0.30	0.70
		12/4/2019	4.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.0957	<1.14	1.94	0.25	-209.5	3.6	<0.100	7040	M	9.64	1.5	0.00	0.00	0.00	0.02	0.98
		5/27/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	1.98	<0.24	<0.39	0.42	85.1	6.5	0.137	1350	M	6.43	32	0.00	0.00	0.00	1.00	0.00
		12/1/2020	5.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.112	<0.24	<0.39	0.35	-39.3	5.0	0.120	5870	M	7.58	1.8	0.00	0.00	0.00	1.00	0.00
		6/2/2021	5.7	<0.200	<0.200	<0.200	<0.200	<0.200	2.25	<0.24	<0.39	0.39	-53.4	4.5	<0.100	1720	M	6.49	36	0.00	0.00	0.00	1.00	0.00

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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
AGW275	SZ	8/13/2015	-0.1	<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	0.3	<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	0.5	<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	0.8	<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	2.6	0.00	0.00	0.00	0.01	0.99
		9/8/2016	1.0	<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	0.00	0.00	0.00	0.01	0.99
		11/29/2016	1.2	<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	2.9	0.00	0.00	0.01	0.00	0.99
		3/6/2017	1.5	<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	0.9	0.00	0.00	0.00	0.01	0.99
		6/1/2017	1.7	<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	0.8	0.00	0.00	0.00	0.00	1.00
		9/5/2017	2.0	<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	0.8	0.00	0.00	0.00	0.01	0.99
		11/29/2017	2.2	<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	2.7	<0.20	<0.20	<0.20	<0.20	<0.20	<0.020	<0.40	4.1	0.7	120	3.0	<1.2	8100	M	8.7	0	0.00	0.00	0.00	0.00	1.00
		12/5/2018	3.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.0295	<0.24	<0.39	0.45	-65.4	6.0	<0.100	2830	M	6.06	0.5	0.00	0.00	0.00	1.00	0.00
		5/31/2019	3.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.0260	<0.24	2.65	0.39	93.5	5.5	0.317	4390	M	7.55	0.4	0.00	0.00	0.00	0.00	1.00
		12/4/2019	4.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.0266	<1.14	2.29	0.18	-205.9	4.6	<0.100	2130	M	6.69	0.4	0.00	0.00	0.00	0.01	0.99
		5/26/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.0220	<0.24	<0.39	0.43	49.1	4.2 (f)	0.122	2810	M	7.34	0.4	0.00	0.00	0.00	1.00	0.00
		12/1/2020	5.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.0259	<0.24	<0.39	0.48	-231.1	4.0	<0.100	1820	M	5.60	0.4	0.00	0.00	0.00	1.00	0.00
		6/2/2021	5.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.0276	<0.24	2.36	0.66	-43.2	0.8	<0.100	2770	M	6.55	0.4	0.00	0.00	0.00	0.01	0.99
IW33	SZ	8/13/2015	-0.1	<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	1.2	--	--	--	--	--	--	--	--	**	38.3	--	--	--	--	205	--	--	--	--	--	--
IW34	SZ	8/17/2015	0.0	<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	0.3	<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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.7	<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	2.0	<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	2.2	<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	2.7	<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	3.3	<0.200	<0.200	0.272	<0.200	<0.200	0.67	<0.24	<0.39	0.52	-2.7	4.0	<0.100	23300	M	46.99	14	0.00	0.00	0.21	0.79	0.00
		5/30/2019	3.7	<0.200	<0.200	<0.200	<0.200	<0.200	3.90	<0.27	<0.61	0.51	-4.2	4.5	0.158	24800	M	12.63	62	0.00	0.00	0.00	1.00	0.00
		12/3/2019	4.2	<0.200	<0.200	0.269	<0.200	<0.200	0.568	<1.14	0.94	0.23	-192.4	3.8	0.114	17200	M	21.05	12	0.00	0.00	0.06	0.21	0.72
		5/26/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	3.090	<0.24	<0.39	0.90	73.3	1.9	0.139	11400	M	9.73	49	0.00	0.00	0.00	1.00	0.00
		12/1/2020	5.2	<0.200	<0.200	<0.200	<0.200	<0.200	1.23	<0.24	<0.39	0.46	-205.1	5.0	<0.100	12900	M	9.74	20	0.00	0.00	0.00	1.00	0.00
		6/2/2021	5.7	<0.200	<0.200	<0.200	<0.200	<0.200	1.11	<0.24	<0.39	0.28	-47.2	3.5	<0.100	5280	M	8.65	18	0.00	0.00	0.00	1.00	0.00
IW35	SZ	8/17/2015	0.0	<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	1.2	--	--	--	--	--	--	--	--	0.76	0.7	--	--	--	--	16.3	--	--	--	--	--	--

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

Well	Aquifer Zone	Date	Elapsed Time from Injection (years)	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	0.0	<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	0.3	<0.020		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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.7	<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	2.0	<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	2.2	<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	2.5	<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	2.7	<0.20	<0.20	0.22	0.23	<0.20	3.3	1.2	2.2	0.65	106.2	4.0	<1.2	1900	M	9.8	57	0.00	0.00	0.03	0.30	0.67
		9/4/2018	3.0	<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	3.3	<0.200	<0.200	<0.200	<0.200	<0.200	2.65	<0.24	<0.39	0.51	-8.7	5.5	<0.100	2410	M	8.24	42	0.00	0.00	0.00	1.00	0.00
		5/30/2019	3.7	<0.200	<0.200	<0.200	<0.200	<0.200	2.92	<0.36	1.16	0.43	-13.3	3.5	0.114	1830	M	8.57	47	0.00	0.00	0.00	0.55	0.45
		12/3/2019	4.2	<0.200	<0.200	<0.200	<0.200	<0.200	1.71	0.48	1.24	0.18	-187.7	3.0	0.15	2290	M	8.87	27	0.00	0.00	0.00	0.32	0.68
		5/26/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	1.54	<0.24	<0.39	0.44	115.2	1.7	0.148	1690	M	8.57	25	0.00	0.00	0.00	1.00	0.00
		12/1/2020	5.2	<0.200	<0.200	<0.200	<0.200	<0.200	1.56	<0.24	<0.39	0.24	-23.1	4.0	0.105	1500	M	7.79	25	0.00	0.00	0.00	1.00	0.00
		6/2/2021	5.7	<0.200	<0.200	<0.200	<0.200	<0.200	1.00	<0.24	<0.39	0.22	-47.3	6.0	<0.100	2660	M	8.00	16	0.00	0.00	0.00	1.00	0.00
IW37	SZ	8/13/2015	-0.1	<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	0.3	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	0.5	<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	0.8	<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	1.0	<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	1.2	<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	1.5	<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	1.7	<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	2.0	<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	2.2	<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	2.5	<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	2.7	<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	3.0	<0.20	<0.20	<0.20	<0.20	<0.20	0.42	--	--	1.04	108.6	--	--	--	--	--	6.7	0.00	0.00	0.00	1.00	0.00
		12/5/2018	3.3	<0.200	<0.200	<0.200	<0.200	<0.200	0.309	<0.24	<0.39	0.42	-70.1	6.5	<0.100	23900	M	18.89	4.9	0.00	0.00	0.00	1.00	0.00
		5/30/2019	3.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.466	<0.24	1.65	0.44	-38.2	5.5	0.132	12200	M	9.93	7.5	0.00	0.00	0.00	0.12	0.88
		12/3/2019	4.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.285	<1.14	2.09	0.18	-188.2	2.6	<0.100	16200	M	13.73	4.6	0.00	0.00	0.00	0.06	0.94
		5/26/2020	4.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.801	<0.24	<0.39	0.30	42.9	1.7	0.116	3090	M	6.77	13	0.00	0.00	0.00	1.00	0.00
		12/1/2020	5.2	<0.200	<0.200	<0.200	<0.200	<0.200	0.318	<0.24	<0.39	0.26	-43.0	3.0	<0.100	4400	M	8.44	5.1	0.00	0.00	0.00	1.00	0.00
		6/1/2021	5.7	<0.200	<0.200	<0.200	<0.200	<0.200	0.343	<0.24	<0.39	0.23	-82.2	3.5	<0.100	4670	M	6.04	5.5	0.00	0.00	0.00	1.00	0.00

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

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.
(d) Iron was measured on June 3, 2020.
(e) Iron was measured on June 5, 2020.
(f) Iron was measured on May 28, 2020.

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
VC = vinyl chloride
WT = Water Table Zone

ATTACHMENT 3

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