LANDAU ASSOCIATES

October 14, 2016

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

Attn: Robin Harrover

Transmitted via email to: *rharrover461@ecy.wa.gov*

Re: Status Report No. 56, July through September 2016 Activity Period
Boeing Auburn Facility
WAD 041337130, RCRA Corrective Action Agreed Order No. 01HWTRNR-3345
Auburn, Washington
Project No.0025164.130.501

Dear Ms. Harrover:

The Resource Conservation and Recovery Act (RCRA) Corrective Action Agreed Order (Auburn Agreed Order) became effective on August 14, 2002. As required under Section VI.13 of the Auburn Agreed Order, The Boeing Company (Boeing) is providing Status Report No. 56, which covers the 3-month activity period of July through September 2016.

References

1. July 12, 2016. Ecology Listserv (Boeing Fabrication Auburn Site): Come see us! Ecology at Algona Days, July 16.
2. July 15, 2016. Letter: Status Report: No. 55, April Through June 2016 Activity Period, Boeing Auburn Facility, WAD 041337130, RCRA Corrective Action Agreed Order No. 01HWTRNR-3345. From Jennifer Wynkoop, Landau Associates, Inc. (LAI), to Robin Harrover, Washington State Department of Ecology (Ecology).
3. July 18, 2016. Email: Boeing Auburn Site, 2nd Quarter Status Report No. 55. From Robin Harrover, Ecology, to Representatives of City of Auburn, City of Algona, City of Pacific, and Washington State Department of Health (WDOH).
4. July 18, 2016. Ecology Listserv (Boeing Fabrication Auburn Site): On Display Now – July 18 – Boeing Auburn Contamination cleanup Information.
5. July 20, 2016. Letter: Ecology approval of the report: Agency Review Draft, Fall 2014 Auburn Groundwater Investigation, Boeing Auburn Facility, prepared for the Boeing Company by Landau Associates; December 15, 2015; FS #2018; CS #5049; EPA WAD041337130. From Robin Harrover, Ecology, to James Bet, Boeing.
6. July 26, 2016. Letter: Ecology Request for Supplemental Documentation regarding the Groundwater Modeling Report; prepared for the Boeing Company by Landau Associates; May

2, 2016; FS #2018; CS #5049; EPA WAD041337130. From Robin Harrover, Ecology to James Bet, Boeing.

7. July 27, 2016. Ecology Listserv (Boeing Fabrication Auburn Site): Ecology, Rat City Roller Girls and more! – July 2016.
8. July 27, 2016. Email: FW: air testing map. From Neal Hines, Ecology to James Bet, Boeing and Jennifer Wynkoop, LAI.
9. July 27, 2016. Email: Algona Days Summary. From Thea Levkovitz, Ecology, to representatives of Boeing, City of Algona, and WDOH.
10. July 28, 2016. Conference Call: Technical Items. Participants: James Bet, Boeing, Jennifer Wynkoop and Sarah Fees, LAI, and Robin Harrover and Neal Hines, Ecology.
11. July 28, 2016. Letter: 2016 Vapor Intrusion Investigation Data Submittal for Los Cabos, Boeing Auburn Facility, Auburn, Washington. From Jennifer Wynkoop, LAI to Neal Hines, Ecology.
12. July 29, 2016. Email: Follow-up from conf. call 7/28/2016. From Neal Hines, Ecology, to James Bet, Boeing, Jennifer Wynkoop, LAI, and Robin Harrover, Ecology.
13. August 4, 2016. LAI. Report: Fall 2014 Auburn Groundwater Investigation, Boeing Auburn Facility, Auburn, Washington.
14. August 5, 2016. File Transfer: Boeing Auburn RI Report. From Sarah Fees, LAI to Robin Harrover and Neal Hines, Ecology.
15. August 8, 2016. Letter: June 2016 Data Submittal, Boeing Auburn Facility, Auburn, Washington. From Jennifer Wynkoop, LAI, to Robin Harrover, Ecology.
16. August 10, 2016. Conference Call: Additional Modeling Request Discussion. Participants: Neal Hines and Robin Harrover, Ecology, James Bet, Boeing, Jennifer Wynkoop, Sarah Fees, and Ben Lee, LAI.
17. August 12, 2016. Email: Boeing Auburn – June Sampling Results Data Submittal and 2014 Auburn Drilling Report. From Robin Harrover, Ecology, to Representatives of City of Auburn, City of Algona, City of Pacific, and Washington State Department of Health.
18. August 12, 2016. Email: Outreach Materials Request. From Robin Harrover, Ecology, to James Bet, Boeing.
19. August 16, 2016. Email: Re: Outreach Materials Request. From Jennifer Wynkoop, LAI, to Robin Harrover, Ecology and James Bet, Boeing. (Attachment: PDFs and JPEGs of water table figures requested and the Perimeter Road report.)
20. August 18, 2016. LAI. Draft Technical Memorandum: 2015 Surface Water Investigation, Boeing Auburn Facility, Auburn, Washington. From Sarah Fees and Jennifer Wynkoop, LAI, to Robin Harrover and Neal Hines, Washington State Department of Ecology.
21. August 21, 2016. Email: Phase VII Sampling Matrix Updated. From Jennifer Wynkoop, LAI, to Robin Harrover and Neal Hines, Ecology.
22. August 24, 2016. Email: Response to Ecology Request for Supplemental Model Documentation. From Jennifer Wynkoop, LAI, to Robin Harrover, Ecology. (Attachment: Ecology requested figure updates.)

23. August 24, 2016. Email: Request for Electronic Database. From Robin Harrover, Ecology, to Jennifer Wynkoop, LAI.
24. August 26, 2016. Conference Call: Electronic database. Attended by James Bet, Boeing, Jennifer Wynkoop, LAI, and Neal Hines and Robin Harrover, Ecology.
25. August 29, 2016. File Transfer: Appendix F and Tables 3-1 and 3-2. From Jennifer Wynkoop, LAI, to Robin Harrover and Neal Hines, Ecology.
26. August 30, 2016. Ecology Listserv (Boeing Fabrication Auburn Site): What's New? – Boeing Auburn Groundwater Contamination: September 2016.
27. August 31, 2016. Letter: Groundwater Monitoring Results: March and June 2016, Auburn School District Warehouse Property Wells, Auburn, Washington. From Jennifer Wynkoop, LAI, to Cindi Blansfield, Assistant Superintendent of Business and Operations, Auburn School District.
28. August 31, 2016. Letter: Groundwater Monitoring Results: March and June 2016, City of Algona Wells, Algona, Washington. From Jennifer Wynkoop, LAI, to David Hill, Mayor, City of Algona.
29. August 31, 2016. Letter: Groundwater Monitoring Results: March and June 2016, City of Auburn Wells, Auburn Washington. From Jennifer Wynkoop, LAI, to Chris Thorn, Water Quality Program Coordinator, City of Auburn.
30. August 31, 2016. Letter: Groundwater Monitoring Results: June 2016, Sentry Wells, Pacific, Washington. From Jennifer Wynkoop, LAI, to Jim Morgan, Public Works Manager, City of Pacific.
31. August 31, 2016. Letter: Groundwater Monitoring Results: June 2016, Coastal Farm and Ranch Well, Auburn, Washington. From Jennifer Wynkoop, LAI, to Byron Baule, Operations Manager, Coastal Farm and Ranch.
32. August 31, 2016. Letter: Groundwater Monitoring Results: March and June 2016, 840 Industry Drive North Well, Algona, Washington. From Jennifer Wynkoop, LAI, to Ben Brodsky, Senior Development and Construction Manager, DCT Industrial (DCTI).
33. August 31, 2016. Letter: Groundwater Monitoring Results: June 2016, Boeing Wells on Fana Auburn 234 LLC property, Auburn, Washington. From Jennifer Wynkoop, LAI, to John Powers, Fana Group of Companies.
34. August 31, 2016. Letter: Groundwater Monitoring Results: June 2016, Boeing Wells on Fana Auburn LLC Property, Auburn, Washington. From Jennifer Wynkoop, LAI, to John Powers, Fana Group of Companies.
35. August 31, 2016. Letter: Groundwater Monitoring results: March and June 2016, U.S. General Services Administration wells, Auburn, Washington. From Jennifer Wynkoop, LAI, to Richard Hall, Auburn Senior Property Manager, U.S. General Services Administration (GSA).
36. August 31, 2016. Letter: Groundwater Monitoring Results: June 2016, Boeing Wells Along the Interurban Trail, Auburn and Algona, Washington. From Jennifer Wynkoop, LAI, to Kurt Krebs, Puget Sound Energy (PSE).
37. August 31, 2016. Letter: Groundwater Monitoring Results: March and June 2016, Primus Wells, Algona, Washington. From Jennifer Wynkoop, LAI, to Peter Wazlawek, Primus International, Inc. (Primus)

38. August 31, 2016. Letter: Groundwater Monitoring Results: March and June 2016, WP Glimcher Wells, Auburn, Washington. From Jennifer Wynkoop, LAI, to Christian Faltenberger, General Manager, WP Glimcher.
39. August 31, 2016. Letter: Groundwater Monitoring Results: June 2016, Washington State Department of Transportation Wells, Auburn, Washington. From Jennifer Wynkoop, LAI, to Amir Ahmadi, Regional Materials Engineer, Washington State Department of Transportation (WSDOT).
40. September 1, 2016. Email: Photo of GW Sampling. From Thea Levkovitz, Ecology, to Jennifer Wynkoop, LAI.
41. September 1, 2016. Email: SW and Air Location Tables. From Jennifer Wynkoop, LAI, to Robin Harrover and Neal Hines, Ecology. (Attachment: Location tables for surface water and air samples.)
42. September 12, 2016. Email: VI Map. From Jennifer Wynkoop, LAI, to Thea Levkovitz, Ecology. (Attachment: Summary website figure for commercial/industrial vapor intrusion work.)
43. September 14, 2016. LAI Draft Report: Draft 2016 Tier II Commercial Vapor Intrusion Report for Los Cabos Property, Boeing Auburn Facility, Auburn, Washington.
44. September 15, 2016. Email: PDB Comparison Results. From Jennifer Wynkoop, LAI, to Robin Harrover and Neal Hines, Ecology. (Attachment: Tables and plots for comparison between PDB and low-flow sampling.)
45. September 15, 2016. Email: Risk-based CULs. From Jennifer Wynkoop, LAI, to Robin Harrover and Neal Hines, Ecology. (Attachment: Risk-based CULs spreadsheet and figure showing CUL exceedances.)
46. September 15, 2016. Email: Photo of GW Sampling. From Megan Hilfer, Boeing to Thea Levkovitz, Ecology, and Jennifer Wynkoop, LAI. (Attachment: Two photos of quarterly groundwater sampling.)
47. September 27, 2016. Conference Call: PDB Results and Risk Based CULs. Attended by James Bet, Boeing, Jennifer Wynkoop and Sarah Fees, LAI, and Neal Hines and Robin Harrover, Ecology.

Work Conducted

General Site-wide Corrective Action Activities

On July 15, 2016, LAI submitted Status Report No. 55 regarding second quarter 2016 activities to Ecology and other stakeholders[1] for their records (Reference #2). Analytical data for each quarter is typically included in the status report but was not available in time for inclusion in Status Report No. 55; therefore, a separate data submittal with June 2016 data was prepared and submitted to Ecology and other stakeholders on August 8, 2016 (Reference #15). Ecology distributed the data submittal to the same list of stakeholders as the status report (Reference #17).

[1] A list of stakeholders that receive paper copies of the quarterly status reports are listed at the end of this document. Ecology also forwards quarterly status reports via email to representative of the City of Algona, City of Auburn, City of Pacific, and WDOH (Reference #3).

As part of various offsite monitoring well access agreement and right-of-way (ROW) permits, Boeing provides semi-annual groundwater data submittals. The following semi-annual groundwater data submittals were distributed during the third quarter 2016:

- Data for AGW237(D), AGW238(I), and AGW239(S) located on the Auburn School District warehouse property from the March and June 2016 sampling events to the Auburn School District (Reference #27)
- Data for 35 wells located on City of Algona ROW from the March and June 2016 sampling events to the City of Algona (Reference #28)
- Data for 32 wells located on City of Auburn ROW from the March and June 2016 sampling events to the City of Auburn (Reference #29)
- Sentry well data from the June 2016 sampling event to the City of Pacific (Reference #30)
- AGW236 data from the June 2016 sampling event to Coastal Farm and Ranch (Reference #31)
- AGW276(M) data from the March and June 2016 sampling events to DCT Industrial (DCTI; Reference #32)
- AGW179(I) and AGW180(D) data from the June 2016 sampling event to Fana Auburn 234 LLC (Reference #33)
- AGW177(I) and AGW178(D) data from the June 2016 sampling event to Fana Auburn LLC (Reference #34)
- Data for AGW256(I), AGW257(S), and AGW258(S) from the March and June 2016 sampling events to General Services Administration (Reference #35)
- Data for 16 wells located on the Interurban Trail from the June 2016 sampling event to Puget Sound Energy (Reference #36)
- Data for the 13 wells from the March and June 2016 sampling events to Primus (Reference #37)
- Data for 17 wells located on The Outlet Collection property from the March and June 2016 sampling events to WP Glimcher (Reference #38)
- Data for APP-057 from the June 2016 sampling event to WSDOT (Reference #39).

Ecology project managers, Robin Harrover and Neal Hines, continued to attend regularly scheduled monthly conference calls[2] with Boeing, LAI, and the City of Algona's environmental consultant, ICF. The primary purpose of these calls is to discuss technical aspects of the project scope and schedule, data results, and public outreach. Boeing and Ecology communication personnel also attend these calls. Meeting notes continued to be recorded and distributed by LAI.

In addition to the regularly scheduled project calls, Boeing and Ecology had a number of other technical calls related to determining cleanup levels as part of preparing for the feasibility study and other technical project items. These conference calls occurred on July 28 and September 27, 2016

[2] The September conference call was cancelled due to scheduling conflicts.

(Reference #10 and #47). Following the July 28, 2016 conference call, Ecology provided a summary of recommendations for calculating risk-based cleanup levels (Reference #12). These risk-based cleanup levels were discussed further during the September 27, 2016 conference call. In preparation for the September 27, 2016 conference call, LAI distributed a risk-based cleanup level spreadsheet (Reference #45). The discussion during the September 27, 2016 conference call also included a discussion of the results from additional comparison of passive diffusion bags (PDBs) and low-flow sampling techniques for groundwater sampling. On September 15, 2016, LAI distributed the results of the PDB vertical comparison results collected in June 2016 (Reference #44). Additional discussions on the use of PDBs for groundwater sampling is expected to continue in the fourth quarter 2016. Time series plots including the PDB results from June in comparison to historical results will be provided to Ecology in the fourth quarter 2016.

Remedial Investigation Report

The draft remedial investigation (RI) report was submitted to Ecology on August 5, 2016 (Reference #14). In order to review the data for the RI Report, Ecology requested the RI data in electronic format (Reference #23). Boeing, LAI, and Ecology discussed the requirements for electronic data submittal on August 26, 2016 (Reference #24). LAI provided electronic data tables in two submittals on August 29 and September 1, 2016 (References #25 and #41). Ecology comments on the RI report are expected to be received early in the fourth quarter. The final RI report is expected to be submitted following edits based on Ecology comments in the fourth quarter.

Other Reporting

Boeing completed a number of other reporting tasks in the third quarter 2016 as described below.

Tier II Commercial Vapor Intrusion Assessment

Boeing completed the Tier II vapor intrusion assessment at the Los Cabos Property in June 2016. Boeing submitted the results of the Los Cabos vapor intrusion investigation to Ecology on July 28, 2016 (Reference #11). Boeing submitted a draft report summarizing the results of the investigation on September 14, 2016 (Reference #43). Boeing expects to receive comments from Ecology and to finalize this report in the fourth quarter 2016.

2014 Auburn Groundwater Investigation

Boeing submitted the draft 2014 Auburn groundwater investigation report to Ecology in December 2015. Ecology provided comments and approval of the report on July 20, 2016 (Reference #5). Boeing finalized the report with incorporation of Ecology comments on August 4, 2016 (Reference #13).

2015 Surface Water Sampling Investigation

Boeing submitted the draft 2015 surface water investigation technical memorandum to Ecology on August 18, 2016 (Reference #20). Boeing expects to receive comments from Ecology and to finalize this report in the fourth quarter 2016.

Site-wide Groundwater Model

Boeing finalized the site-wide groundwater model report in May 2016. On July 26, 2016, Ecology requested supplemental documentation regarding the groundwater model report (Reference #6). Boeing, LAI, and Ecology discussed the supplemental documentation required via a conference call on August 10, 2016 (Reference #16) The supplemental documentation agreed upon during the conference call was provided to Ecology on August 24, 2016 (Reference #22).

Groundwater Sampling and Surface Water Sampling

Phase VII (i.e., seven) quarterly groundwater sampling took place from September 6 to September 8, 2016. The quarterly groundwater sampling data are provided in Attachment 1. The current monitoring well network is presented on Figure 1-1. A sampling matrix for the September 2016 quarterly sampling event is presented in Table 1-1. A complete summary of analytical results is presented in Table 1-2. Detected compounds are summarized in Table 1-3. On August 21, 2016, Boeing provided an updated Phase VII sampling matrix with changes to analyses for vinyl chloride (VC) at three wells to Ecology prior to the start of the quarterly sampling (Reference #21).

Surface water sampling activities included annual (dry season) sampling at seven locations. The dry season surface water sampling event occurred on August 30, 2016. Boeing completed resampling activities at one location (SW-18) due to unexpected detections of VC where there were no previous historical detections. Resampling activities occurred on September 21, 2015. VC was detected again during the resampling event at SW-18. The dry season surface water sampling data and resampling data are provided in Attachment 1. The surface water sampling locations are presented on Figure 1-1. A complete summary of surface water analytical results is presented in Table 1-4.

Algona Enhanced Natural Attenuation Pilot Test

The enhanced natural attenuation pilot test injection began on August 17, 2015 and was completed on September 4, 2015. Approximately 80,000 gallons of electron donor solution was injected into the shallow water-bearing zone. Boeing is performing quarterly post-injection sampling to monitor the effectiveness of the pilot test injection. The September 2016 sampling event was the fourth quarterly sampling event following injection activities. A summary of results from the pilot test monitoring wells is provided in Attachment 2. The pilot test injection and monitoring well locations are presented on Figure 2-1. Pilot test data are summarized in Table 2-1. A summary of the first year of pilot test results will be presented in the Algona Pilot Test annual report and is expected to be submitted to Ecology in the fourth quarter 2016.

Data Management

During the second quarter 2016, Ecology requested that Boeing submit historical Boeing Auburn project data to Ecology's Environmental Information Management (EIM) database. Boeing and Ecology agreed on the timeframe and data range that would be included in the EIM submittal. Boeing submitted the required EIM data on September 27, 2016. The data will be uploaded to the EIM database pending review and approval by Ecology's EIM coordinator.

Communications

Ecology posted several update notifications on their website. Website notifications included updates about informational displays available at the City of Auburn annex building (Reference #4), updates about the status of the quarterly groundwater sampling and surface water sampling events (Reference #26), and notifications that Ecology would be present at Algona Days (Reference #1 and 7). In addition, Ecology also provided a summary of Algona Day activities to the communications group (Reference #9).

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). Ecology also has communications conference calls with Mayor Hill (City of Algona). Ecology shares information from these meetings with Boeing by distributing meeting notes and via discussions during project conference calls. Conference calls with the City of Auburn continue to occur quarterly. Regular attendees include representatives from Boeing, LAI, the City of Auburn, and Ecology. Meeting notes continue to be recorded and distributed by LAI.

Ecology requested Boeing's assistance to provide a number of outreach materials on August 12, 2016 (Reference #18). Boeing provided these figures and other documents to Ecology on August 16, 2016 (Reference #19). Ecology also requested a figure for their website showing all vapor intrusion activities in commercial areas (Reference #8). Boeing provided this figure with some language to describe the figure for the website (Reference #42). On September 1, 2016, Ecology requested photos of the September quarterly groundwater sampling event (Reference #40). Boeing provided these requested photos to Ecology on September 15, 2016 (Reference #46).

Building 17-06 Ongoing Monitoring

Boeing is continuing to monitor petroleum hydrocarbons in well AGW128 in Building 17-06. During the third quarter, Boeing conducted dye testing of the hydraulic oil reservoirs on the adjacent mill and monitored the chip conveyance system and AGW128 for dye. Sorbent socks were placed in the well to extract product for evaluating the presence/absence of dye. No dye was noted in either the chip

conveyance system or the well during the third quarter. The well continues to be checked regularly for product thickness. Boeing is continuing to investigate the source of the contamination.

Occurrence of Problems

On September 21, 2016, representatives from the City of Algona, notified LAI that a monitoring well (AGW169) was protruding above the pavement. The City of Algona is planning on restriping the road to include a bike lane. Representatives from the City of Algona were concerned that the elevated well monument could possibly create a hazard for bicycles. LAI coordinated with the City of Algona with scheduling and completing a repair of the well monument to address the concerns. The monument repair was completed on September 29, 2016 and the monument is now flush with the pavement surface.

During the June annual groundwater sampling event, a PDB stuck in the casing during removal at monitoring well AGW175. The PDB was extracted from the well and sampling was completed utilizing low-flow sampling techniques. A camera survey of the well was completed and the well casing appeared to be cracked at the top of the screen. The structural integrity of the well is intact. The PDB was likely stuck on a sharp edge where the well casing was cracked. Since the crack is at the top of the well screen casing, the screened interval for groundwater sampling is unchanged. The monitoring well remains useable with intact structural integrity; however, low-flow sampling techniques will continue to be used at this well in the future.

Projected Work for Next Reporting Period October through December 2016

Activities projected for the next reporting period pertain to the Algona pilot test, reporting, and ongoing monitoring of groundwater and surface water. Tasks during fourth quarter 2016 are expected to include:

- Responding to Ecology comments on the draft RI report
- Finalizing the Los Cabos Tier II vapor intrusion investigation report
- Finalizing the 2015 surface water sampling activities technical memorandum
- Submitting a report on the first year of the Algona pilot test investigation
- Submitting a report on the natural attenuation assessment completed in June 2016
- Submitting time series plots for the PDB sampling completed in June 2016
- Conducting the semi-annual groundwater sampling event in December 2016.

Other Significant Findings, Changes, and Contacts

None.

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If you have any questions regarding this status report, or need any other information, please do not hesitate to contact Jim Bet (206) 679-0433 or me (253) 284-4879.

LANDAU ASSOCIATES, INC.

Jennifer Wynkoop
Senior Associate Scientist

SEF/JWW/jrc
[Y:\025\164\R\QUARTERLY PROGRESS RPTS\2016\3Q16\3Q2016 STATUS RPT NO. 56_FINAL.DOCX]

cc: James Bet, Boeing (email only)
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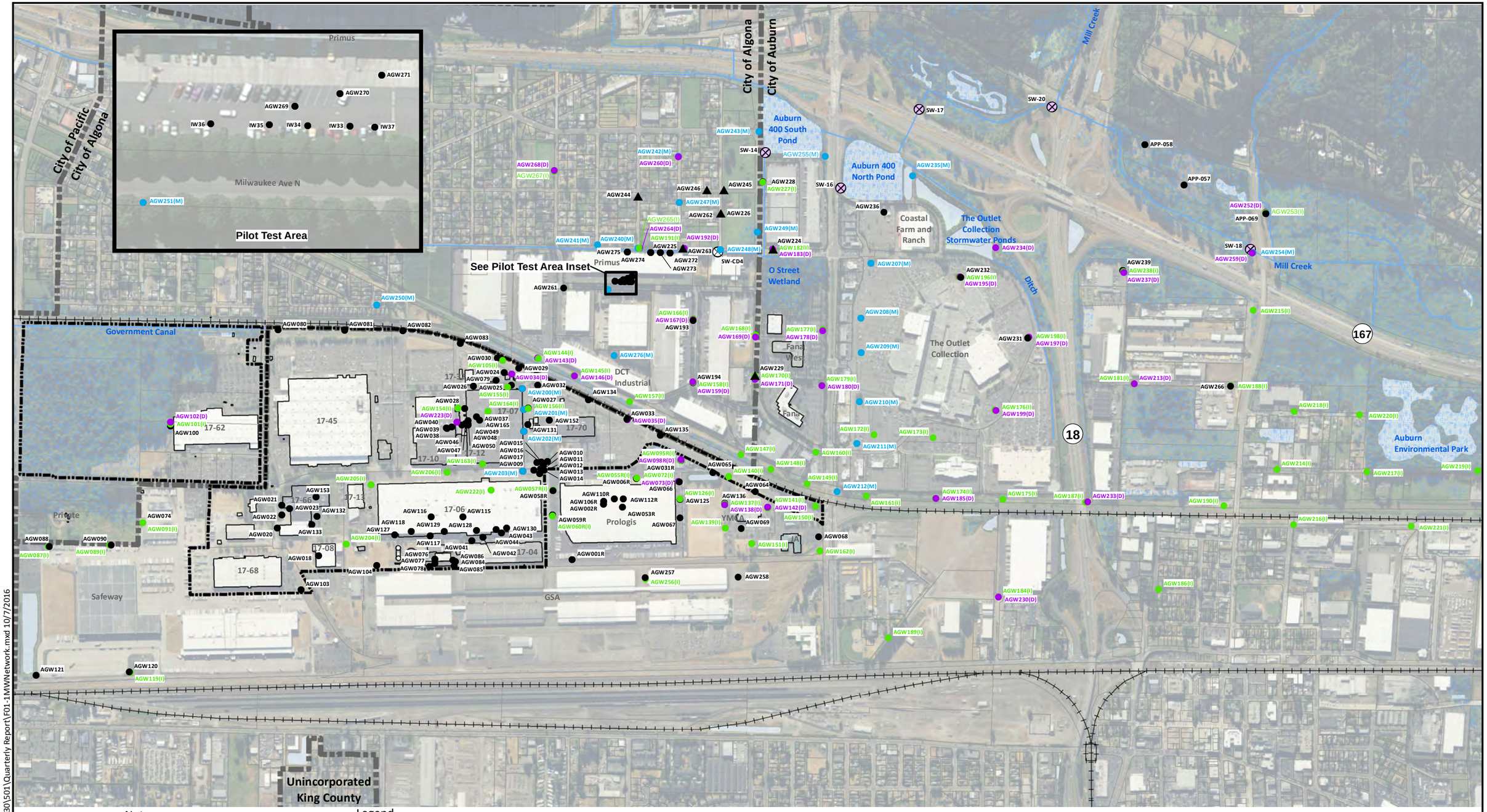
Kim Lemon, Prologis (email only)
Neal Hines, Ecology (email only)
Jason Berry, YMCA Auburn (email only)

Attachments: Attachment 1: Groundwater Sampling Results
Attachment 2: Pilot Test Results

ATTACHMENT 1

Groundwater Sampling Results



Notes

1. Well designations beginning with APP are installed and owned by WSDOT.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

Legend

- Annual Surface Water Sample Location
- Semiannual Surface Water Sampling Location
- Offsite Water Table Well
- Shallow Monitoring Well (2 to 30 ft BGS)
- (I) Intermediate Monitoring Well (40 to 60 ft BGS)
- (D) Deep Monitoring Well (80 to 100 ft BGS)
- (M) Multi-Level Well
- Wetland Areas
- Water Bodies
- Waterways

N

0 1,000 2,000

Scale in Feet

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

LANDAU ASSOCIATES

Boeing Auburn
Auburn, Washington

Current Monitoring Well Network

Figure 1-1

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Table 1-1
3Q2016 Groundwater Sampling Matrix
Boeing Auburn Facility
Auburn, Washington

Sample Location:	Field Sample ID:	Sample Date:	Sample Type:	Laboratory SDG:	Laboratory Sample ID:	Sulfate by EPA 300.0	AMME by RSK-175	Total Suflide by SM 4500-S2-D	TOC by SM 5310C	VOCs by SW-846 8260C	VC by SW-846 8260C SIM
AGW191	AGW191-20160906	9/6/2016	PDN	1705535	8574915					X	X
AGW192	AGW192-20160906	9/6/2016	PDN	1705535	8574914					X	X
AGW225	AGW225-20160908	9/8/2016	N	1706585	8579167/8579168	X	X	X	X	X	X
AGW226	AGW226-20160908	9/8/2016	N	1706585	8579173/8579174	X	X	X	X	X	X
AGW240-1	AGW240-1-7-20160908	9/8/2016	N	1705539	8574955/8574956	X	X	X	X	X	X
AGW240-1	AGW901-20160908	9/8/2016	FD	1705539	8574953/8574954	X	X	X	X	X	X
AGW240-5	AGW240-5-28-20160908	9/8/2016	N	1706585	8579165/8579166	X	X	X	X	X	X
AGW247-1	AGW247-1-6-20160908	9/8/2016	N	1706585	8579169/8579170	X	X	X	X	X	X
AGW247-5	AGW247-5-27-20160908	9/8/2016	N	1706585	8579171/8579172	X	X	X	X	X	X
AGW251-1	AGW251-1-8-20160906	9/6/2016	N	1705535	8574920/8574921	X	X	X	X	X	X
AGW251-2	AGW251-2-25-20160908	9/8/2016	N	1705539	8574949/8574950	X	X	X	X	X	X
AGW251-3	AGW251-3-40-20160908	9/8/2016	N	1705539	8574951/8574952	X	X	X	X	X	X
AGW262	AGW262-20160906	9/6/2016	PDN	1705535	8574912					X	X
AGW262	AGW900-20160906	9/6/2016	PDFD	1705535	8574913					X	X
AGW263	AGW263-20160906	9/6/2016	PDN	1705535	8574916					X	X
AGW269	AGW269-20160907	9/7/2016	N	1705536	8574926/8574927	X	X	X	X	X	X
AGW270	AGW270-20160907	9/7/2016	N	1705536	8574924/8574925	X	X	X	X	X	X
AGW271	AGW271-20160907	9/7/2016	N	1705536	8574928/8574929	X	X	X	X	X	X
AGW272	AGW272-20160907	9/7/2016	N	1705538	8574939/8574940	X	X	X	X	X	X
AGW273	AGW273-20160907	9/7/2016	N	1705538	8574941/8574942	X	X	X	X	X	X
AGW274	AGW274-20160908	9/8/2016	N	1705539	8574945/8574946	X	X	X	X	X	X
AGW275	AGW275-20160908	9/8/2016	N	1705539	8574947/8574948	X	X	X	X	X	X
AGW276-2	AGW276-2-25-20160906	9/6/2016	N	1705535	8574917					X	X
AGW276-5	AGW276-5-60-20160906	9/6/2016	N	1705535	8574918					X	X
AGW276-6	AGW276-6-80-20160906	9/6/2016	N	1705535	8574919					X	X
IW34	IW34-20160907	9/7/2016	N	1705536	8574932/8574933	X	X	X	X	X	X
IW36	IW36-20160907	9/7/2016	N	1705536	8574930/8574931	X	X	X	X	X	X
IW37	IW37-20160907	9/7/2016	N	1705536	8574934/8574935	X	X	X	X	X	X

Abbreviations and Acronyms

AMEE = acetylene, methane, ethene, ethane
EPA = US Environmental Protection Agency
FD = field duplicate
N = primary sample
PDN = passive diffusion primary sample
SDG = sample delivery group
SIM = selected ion monitoring
TOC = total organic compound
VC = Vinyl Chloride
VOC = volatile organic compound

Table 1-2
2Q2016 Groundwater Analytical Results
Boeing Auburn Facility
Auburn, Washington

Sample Location:	AGW191	AGW192	AGW225	AGW226	AGW240-1	AGW240-1	AGW240-5	AGW247-1	AGW247-5	AGW251-1	AGW251-2	AGW251-3	AGW262	AGW262	AGW263	AGW269	AGW270	AGW271	AGW272
Zone:	Intermediate	Deep	Shallow	Shallow	Shallow-WT	Shallow-WT	Shallow	Shallow-WT	Shallow	Shallow-WT	Shallow	Intermediate	Shallow-WT	Shallow-WT	Shallow-WT	Shallow	Shallow	Shallow	Shallow
Laboratory SDG:	1705535	1705535	1706585	1706585	1705539	1705539	1706585	1706585	1706585	1705535	1705539	1705539	1705535	1705535	1705535	1705536	1705536	1705536	1705538
Sample Date:	9/6/2016	9/6/2016	9/8/2016	9/8/2016	9/8/2016	9/8/2016	9/8/2016	9/8/2016	9/8/2016	9/6/2016	9/8/2016	9/8/2016	9/6/2016	9/6/2016	9/6/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016
Sample Type:	PDN	PDN	N	N	N	FD	N	N	N	N	N	N	PDN	PDFD	PDN	N	N	N	N
Volatile Organic Compounds (µg/L; SW-846 8260C)																			
Acetone	58 U	78 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	45 U	48 U	59 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone/MEK	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon Disulfide	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	0.2 U	**0.2**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	0.2 U	0.2 U	**4.4**	**3.8**	0.2 U	0.2 U	0.2 U	0.2 U	**1.3**	0.2 U	0.2 U	**0.9**	0.2 U	0.2 U	**5.4**	**0.6**	**3.3**	**4.4**	**3.9**
trans-1,2-Dichloroethene	0.2 U	0.2 U	**0.5**	**0.3**	0.2 U	0.2 U	**0.2**	**0.4**	**0.6**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.5**	**0.3**	**0.5**	**0.5**	**0.6**
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methylene Chloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.3**	**0.3**	0.2 U	**0.4**	**0.2**	**0.7**	0.2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene	0.2 U	0.2 U	**2.0**	**1.1**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.5**	0.2 U	0.2 U	0.2 U	**0.3**
Trichlorofluoromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Acetate	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Vinyl Chloride	0.2 U	0.2 U	**0.4**	**0.7**	0.2 U	0.2 U	0.2 U	**3.8**	**3.2**	**1.4**	**1.6**	**4.6**	**0.5**	**0.5**	**0.3**	**5.9**	**2.7**	**1.1**	**2.0**
Vinyl Chloride (by 8260C SIM)	0.020 U	0.020 U	**0.46**	**0.90**	**0.091 J**	**0.057 J**	**0.20**	**4.7**	**3.9**	**1.6**	**1.8**	**5.1**	**0.53**	**0.52**	**0.27**	**6.4**	**2.9**	**1.1**	**2.3**
m-&p-Xylenes	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Conventionals (mg/L; EPA 300.0, SM 4500-S2-D, SM 5310C)																			
Sulfate	--	--	**5.7**	**17.6**	1.0 U	1.0 U	1.0 U	**1.3**	**1.6**	**4.3**	1.0 U	1.0 U	--	--	--	1.0 U	**1.1**	1.0 U	**1.6**
Sulfide, Total	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U
Total Organic Carbon	--	--	**4.3**	**4.2**	**7.7**	**7.8**	**5.7 J**	**11.1**	**6.7**	**13.1**	**8.1**	**6.7**	--	--	--	**9.9**	**39.1**	**16.9**	**4.9**
Dissolved Gasses (µg/L; RSK-175)																			
Methane	--	--	**340**	**1,100**	**8,900**	**8,800**	**31,000**	**4,200**	**1,300**	**1,100**	**3,300**	**2,100**	--	--	--	**29,000**	**22,000**	**28,000**	**360**
Ethane	--	--	1.0 U	1.0 U	**4.2 J**	**4.5 J**	**3.7 J**	1.0 U	1.0 U	1.0 U	**1.3 J**	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U
Ethene	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.3 J**	**2.6 J**	1.0 U	--	--	--	**1.3 J**	**1.0 J**	1.0 U	1.0 U
Acetylene	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U

Table 1-2
2Q2016 Groundwater Analytical Results
Boeing Auburn Facility
Auburn, Washington

Sample Location:	AGW273	AGW274	AGW275	AGW276-2	AGW276-5	AGW276-6	IW34	IW36	IW37
Zone:	Shallow	Shallow	Shallow	Shallow	Intermediate	Deep	Shallow	Shallow	Shallow
Laboratory SDG:	1705538	1705539	1705539	1705535	1705535	1705535	1705536	1705536	1705536
Sample Date:	9/7/2016	9/8/2016	9/8/2016	9/6/2016	9/6/2016	9/6/2016	9/7/2016	9/7/2016	9/7/2016
Sample Type:	N	N	N	N	N	N	N	N	N
Volatile Organic Compounds (µg/L; SW-846 8260C)									
Acetone	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**79**	5.0 U	**91**
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone/MEK	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**200**	5.0 U	**200**
Carbon Disulfide	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	**2.6**	0.2 U	0.2 U	**1.6**	**7.3**	**1.8**	**7.4**	**1.7**	**2.7**
trans-1,2-Dichloroethene	**0.5**	0.2 U	0.2 U	0.2 U	**0.6**	0.2 U	**0.8**	**0.4**	0.2 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Methylene Chloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1**	0.2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene	0.2 U	0.2 U	0.2 U	**0.4**	0.2 U	**3.2**	**1.9**	0.2 U	0.2 U
Trichlorofluoromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Acetate	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ
Vinyl Chloride	**4.1**	**0.9**	0.2 U	**1.0**	**0.8**	0.2 U	**0.3**	**3.9**	0.2 U
Vinyl Chloride (by 8260C SIM)	**4.2**	**1.1**	**0.061**	**1.1**	**0.85**	**0.13**	**0.34**	**4.3**	**0.14**
m-&p-Xylenes	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Conventionals (mg/L; EPA 300.0, SM 4500-S2-D, SM 5310C)									
Sulfate	1.0 U	1.0 U	1.0 U	--	--	--	**1.1**	1.0 U	**1.3**
Sulfide, Total	0.1 U	0.1 UJ	0.1 U	--	--	--	**0.14 J**	0.1 U	0.1 U
Total Organic Carbon	**6.7**	**7.0**	**8.3**	--	--	--	**377**	**11.2**	**337**
Dissolved Gasses (µg/L; RSK-175)									
Methane	**900**	**9,600**	**16,000**	--	--	--	**17,000**	**6,600**	**17,000**
Ethane	1.0 U	**3.6 J**	**5.8**	--	--	--	1.0 U	**1.8 J**	1.0 U
Ethene	1.0 U	**1.6 J**	1.0 U	--	--	--	**1.5 J**	1.0 U	1.0 U
Acetylene	1.0 U	1.0 U	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U

Notes:
-- = not analyzed
Bold = detected compound
J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
U = The compound was not detected at the reported concentration.
UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

Abbreviations and Acronyms:
EPA = US Environmental Protection Agency
FD = field duplicate
ID = identification
µg/L = microgram per liter
mg/L = milligram per liter
N = primary sample
PDFD = passive diffusion field duplicate
PDN = passive diffusion primary sample
SDG = sample delivery group
SIM = selected ion monitoring
WT = water table

Table 1-3
3Q2016 Groundwater Analytical Results - Detections Only
Boeing Auburn Facility
Auburn, Washington

Sample Location:	AGW191	AGW192	AGW225	AGW226	AGW240-1	AGW240-1	AGW240-5	AGW247-1	AGW247-5	AGW251-1
Zone:	Intermediate	Deep	Shallow	Shallow	Shallow-WT	Shallow-WT	Shallow	Shallow-WT	Shallow	Shallow-WT
Laboratory SDG:	1705535	1705535	1706585	1706585	1705539	1705539	1706585	1706585	1706585	1705535
Sample Date:	9/6/2016	9/6/2016	9/8/2016	9/8/2016	9/8/2016	9/8/2016	9/8/2016	9/8/2016	9/8/2016	9/6/2016
Sample Type:	PDN	PDN	N	N	N	FD	N	N	N	N
Volatile Organic Compounds (µg/L; SW-846 8260C)										
Acetone	58 U	78 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone/MEK	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**0.2**	0.2 U	**0.2**	0.2 U
cis-1,2-Dichloroethene	0.2 U	0.2 U	**4.4**	**3.8**	0.2 U	0.2 U	0.2 U	0.2 U	**1.3**	0.2 U
trans-1,2-Dichloroethene	0.2 U	0.2 U	**0.5**	**0.3**	0.2 U	0.2 U	**0.2**	**0.4**	**0.6**	0.2 U
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene	0.2 U	0.2 U	**2.0**	**1.1**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Chloride	0.2 U	0.2 U	**0.4**	**0.7**	0.2 U	0.2 U	0.2 U	**3.8**	**3.2**	**1.4**
Vinyl Chloride (by 8260C SIM)	0.020 U	0.020 U	**0.46**	**0.90**	**0.091 J**	**0.057 J**	**0.20**	**4.7**	**3.9**	**1.6**
Conventionals (mg/L; EPA 300.0, SM 4500-S2-D, SM 5310C)										
Sulfate	--	--	**5.7**	**17.6**	1.0 U	1.0 U	1.0 U	**1.3**	**1.6**	**4.3**
Sulfide, Total	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Total Organic Carbon	--	--	**4.3**	**4.2**	**7.7**	**7.8**	**5.7 J**	**11.1**	**6.7**	**13.1**
Dissolved Gasses (µg/L; RSK-175)										
Methane	--	--	**340**	**1,100**	**8,900**	**8,800**	**31,000**	**4,200**	**1,300**	**1,100**
Ethane	--	--	1.0 U	1.0 U	**4.2 J**	**4.5 J**	**3.7 J**	1.0 U	1.0 U	1.0 U
Ethene	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**1.3 J**

Table 1-3
3Q2016 Groundwater Analytical Results - Detections Only
Boeing Auburn Facility
Auburn, Washington

Sample Location:	AGW251-2	AGW251-3	AGW262	AGW262	AGW263	AGW269	AGW270	AGW271	AGW272	AGW273
Zone:	Shallow	Intermediate	Shallow-WT	Shallow-WT	Shallow-WT	Shallow	Shallow	Shallow	Shallow	Shallow
Laboratory SDG:	1705539	1705539	1705535	1705535	1705535	1705536	1705536	1705536	1705538	1705538
Sample Date:	9/8/2016	9/8/2016	9/6/2016	9/6/2016	9/6/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016	9/7/2016
Sample Type:	N	N	PDN	PDFD	PDN	N	N	N	N	N
Volatile Organic Compounds (µg/L; SW-846 8260C)										
Acetone	5.0 U	5.0 U	45 U	48 U	59 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
2-Butanone/MEK	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	0.2 U	**0.9**	0.2 U	0.2 U	**5.4**	**0.6**	**3.3**	**4.4**	**3.9**	**2.6**
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	**0.5**	**0.3**	**0.5**	**0.5**	**0.6**	**0.5**
Toluene	0.2 U	0.2 U	**0.3**	**0.3**	0.2 U	**0.4**	**0.2**	**0.7**	0.2 U	0.2 U
Trichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	**1.5**	0.2 U	0.2 U	0.2 U	**0.3**	0.2 U
Vinyl Chloride	**1.6**	**4.6**	**0.5**	**0.5**	**0.3**	**5.9**	**2.7**	**1.1**	**2.0**	**4.1**
Vinyl Chloride (by 8260C SIM)	**1.8**	**5.1**	**0.53**	**0.52**	**0.27**	**6.4**	**2.9**	**1.1**	**2.3**	**4.2**
Conventionals (mg/L; EPA 300.0, SM 4500-S2-D, SM 5310C)										
Sulfate	1.0 U	1.0 U	--	--	--	1.0 U	**1.1**	1.0 U	**1.6**	1.0 U
Sulfide, Total	0.1 U	0.1 U	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Total Organic Carbon	**8.1**	**6.7**	--	--	--	**9.9**	**39.1**	**16.9**	**4.9**	**6.7**
Dissolved Gasses (µg/L; RSK-175)										
Methane	**3,300**	**2,100**	--	--	--	**29,000**	**22,000**	**28,000**	**360**	**900**
Ethane	**1.3 J**	1.0 U	--	--	--	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethene	**2.6 J**	1.0 U	--	--	--	**1.3 J**	**1.0 J**	1.0 U	1.0 U	1.0 U

Table 1-3
3Q2016 Groundwater Analytical Results - Detections Only
Boeing Auburn Facility
Auburn, Washington

Sample Location:	AGW274	AGW275	AGW276-2	AGW276-5	AGW276-6	IW34	IW36	IW37
Zone:	Shallow	Shallow	Shallow	Intermediate	Deep	Shallow	Shallow	Shallow
Laboratory SDG:	1705539	1705539	1705535	1705535	1705535	1705536	1705536	1705536
Sample Date:	9/8/2016	9/8/2016	9/6/2016	9/6/2016	9/6/2016	9/7/2016	9/7/2016	9/7/2016
Sample Type:	N	N	N	N	N	N	N	N
Volatile Organic Compounds (µg/L; SW-846 8260C)								
Acetone	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**79**	5.0 U	**91**
2-Butanone/MEK	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	**200**	5.0 U	**200**
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	0.2 U	0.2 U	**1.6**	**7.3**	**1.8**	**7.4**	**1.7**	**2.7**
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	**0.6**	0.2 U	**0.8**	**0.4**	0.2 U
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1**	0.2 U
Trichloroethene	0.2 U	0.2 U	**0.4**	0.2 U	**3.2**	**1.9**	0.2 U	0.2 U
Vinyl Chloride	**0.9**	0.2 U	**1.0**	**0.8**	0.2 U	**0.3**	**3.9**	0.2 U
Vinyl Chloride (by 8260C SIM)	**1.1**	**0.061**	**1.1**	**0.85**	**0.13**	**0.34**	**4.3**	**0.14**
Conventionals (mg/L; EPA 300.0, SM 4500-S2-D, SM 5310C)								
Sulfate	1.0 U	1.0 U	--	--	--	**1.1**	1.0 U	**1.3**
Sulfide, Total	0.1 UJ	0.1 U	--	--	--	**0.14 J**	0.1 U	0.1 U
Total Organic Carbon	**7.0**	**8.3**	--	--	--	**377**	**11.2**	**337**
Dissolved Gasses (µg/L; RSK-175)								
Methane	**9,600**	**16,000**	--	--	--	**17,000**	**6,600**	**17,000**
Ethane	**3.6 J**	**5.8**	--	--	--	1.0 U	**1.8 J**	1.0 U
Ethene	**1.6 J**	1.0 U	--	--	--	**1.5 J**	1.0 U	1.0 U

Notes:

-- = not analyzed

Bold = detected compound

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

U = The compound was not detected at the reported concentration.

UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

Abbreviations and Acronyms:

FD = field duplicate

µg/L = microgram per liter

mg/L = milligram per liter

N = primary sample

PDN = passive diffusion primary sample

PDFD = passive diffusion field duplicate

SDG = sample delivery group

SIM = selected ion monitoring

WT = water table

ID = identification

EPA = United States Environmental Protection Agency

Table 1-4
3Q2016 Surface Water Analytical Results
Boeing Auburn Facility
Auburn, Washington

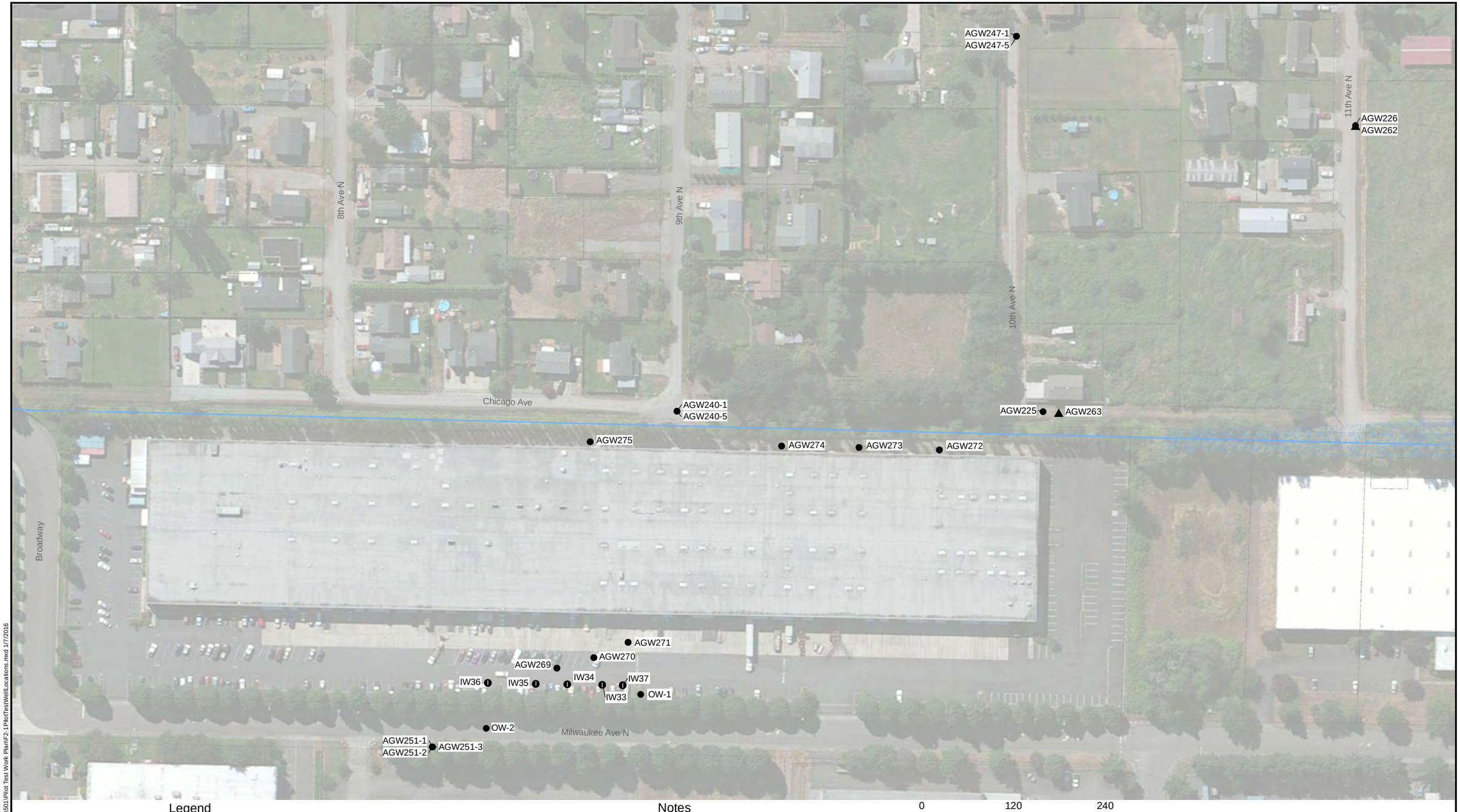
Sample ID:	SW-14	SW-16	SW-17	SW-18	SW-18	SW-18	SW-20	SW-CD4	SW-CD4
Laboratory SDG:	1702024	1702024	1702024	1702024	1711368	1711368	1702024	1702024	1702024
Sample Date:	8/30/2016	8/30/2016	8/30/2016	8/30/2016	9/21/2016	9/21/2016	8/30/2016	8/30/2016	8/30/2016
Sample Type:	N	N	N	N	N	FD	N	N	FD
Volatile Organic Compounds (µg/L; SW-846 8260C)									
Acetone	5.0 UJ	**10**	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 UJ	5.0 UJ	5.0 UJ
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Butanone/MEK	5.0 UJ	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 UJ	5.0 UJ	5.0 UJ
Carbon Disulfide	0.5 U	**0.7**	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
Carbon Tetrachloride	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Chloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,1-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	**0.7**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**1.4**	**1.5**
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
cis-1,3-Dichloropropene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
trans-1,3-Dichloropropene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2-Hexanone	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
4-Methyl-2-Pentanone	5.0 UJ	5.0 U	5.0 U	5.0 UJ	5.0 U	5.0 U	5.0 UJ	5.0 UJ	5.0 UJ
Methylene Chloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 UJ	0.2 U	0.2 U	0.2 U
Tetrachloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Toluene	0.2 U	**0.3**	**1.5**	**0.4**	0.2 U	0.2 U	**0.2**	0.2 U	0.2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Trichloroethene	**1.0**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	**2.4**	**2.3**
Trichlorofluoromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Acetate	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 UJ
Vinyl Chloride	**0.2**	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Vinyl Chloride (by 8260C SIM)	**0.089**	**0.026**	**0.050**	**0.027**	**0.022**	0.020 U	0.020 U	**0.11**	**0.12**
m-&p-Xylenes	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U

Notes:
U = The compound was not detected at the reported concentration.
UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate
Bold = detected compound

Abbreviations and Acronyms:
FD = field duplicate
µg/L = microgram per liter
N = primary sample
SDG = sample delivery group
SIM = selected ion monitoring

ATTACHMENT 2

Pilot Test Results



Legend

- Offsite Water Table Well
- Shallow Monitoring Well
- Shallow Injection Well
- Waterways

Notes

1. 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 2013

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

				Volatile Organic Compounds									Aquifer Redox Conditions							Donor Indicators		Molar Fraction							
Well	Groundwater Zone	Date	Elapsed Time from Injection (days)	PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	tDCE (µg/L)	11DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)	pH	PCE	TCE	Sum of cDCE, tDCE, 11DCE	VC	Ethene	Ethane	Ethene+ Ethane	Total	Max Fraction
AGW225	WT	12/1/2014	-277	<0.2	2.3	5.7	0.6	<0.2	0.5	<1.0	<1.0	<1.0	1.20	-76.8	2.6	4.8	<0.16	290	Fe/S	3.7	6.55	0.00	0.19	0.72	0.09	0.00	0.00	0.00	1.00	0.72
		8/14/2015	-21	<0.2	1.9	5.1	0.5	<0.2	0.49	<1.0	<1.0	<1.0	1.39	213.3	6.4	4.1	<0.16	360	Fe/S	4.2	6.48	0.00	0.18	0.72	0.10	0.00	0.00	0.00	1.00	0.72
		12/8/2015	95	<0.2	2.1	4.8	0.5	<0.2	0.5	<1.0	<1.0	<1.0	2.0	-54.7	4.0	4.2	<0.16	170	Fe/S	3.8	6.93	0.00	0.20	0.70	0.10	0.00	0.00	0.00	1.00	0.70
		3/2/2016	180	<0.2	1.9	4.6	0.4	<0.2	0.54	<1.0	<1.0	<1.0	0.73	-14	2.5	3.3	<0.16	420	Fe/S	4.3	6.34	0.00	0.19	0.69	0.12	0.00	0.00	0.00	1.00	0.69
		6/23/2016	293	<0.2	2.3	4.4	0.5	<0.2	0.5	<1.0	<1.0	<1.0	3.40	271	2.0	4.9	<0.10	330	Fe/S	3.6	6.00	0.00	0.23	0.66	0.11	0.00	0.00	0.00	1.00	0.66
		9/8/2016	370	<0.2	2.0	4.4	0.5	<0.2	0.46	<1.0	<1.0	<1.0	0.48	-6.0	2.5	5.7	<0.10	340	Fe/S	4.3	6.32	0.00	0.21	0.69	0.10	0.00	0.00	0.00	1.00	0.69
AGW226	WT	8/14/2015	-21	<0.2	4.1	3.1	0.3	<0.2	0.56	<1.0	<1.0	<1.0	0.55	-12.2	2.0	8.0	<0.16	970	S/M	2.6	6.17	0.00	0.41	0.47	0.12	0.00	0.00	0.00	1.00	0.47
		12/2/2015	89	<0.2	0.5	1.8	<0.2	<0.2	0.4	<1.0	<1.0	<1.0	7.29	-26.1	2.0	7.8	<0.16	1000	S/M	5.5	5.07	0.00	0.13	0.65	0.22	0.00	0.00	0.00	1.00	0.65
		3/3/2016	181	<0.2	3.6	3.1	0.3	<0.2	0.54	<1.0	<1.0	<1.0	0.54	-28.45	2.5	6.5	<0.16	1300	S/M	2.4	6.36	0.00	0.39	0.49	0.12	0.00	0.00	0.00	1.00	0.49
		6/21/2016	291	<0.2	1.0	4.8	0.3	<0.2	0.7	<1.0	<1.0	<1.0	0.44	177	2.0	7.4	<0.10	1200	S/M	2.7	5.91	0.00	0.11	0.74	0.16	0.00	0.00	0.00	1.00	0.74
		9/8/2016	370	<0.2	1.1	3.8	0.3	<0.2	0.90	<1.0	<1.0	<1.0	0.70	82.5	0.0	17.6	<0.10	1100	S/M	4.2	6.22	0.00	0.13	0.65	0.22	0.00	0.00	0.00	1.00	0.65
AGW240-1	WT	12/1/2014	-277	<0.020	<0.2	<0.2	0.3	<0.2	0.3	<1.0	3.5	<1.0	1.32	-169.5	2.7	<1.0	<0.16	3200	M	8.6	6.62	0.00	0.00	0.02	0.04	0.00	0.94	0.94	1.00	0.94
		8/14/2015	-21	<0.020	<0.2	<0.2	0.2	<0.2	0.049	<1.0	2.5	<1.0	0.54	-67.3	1.8	<1.0	<0.16	2900	M	8.1	6.45	0.00	0.00	0.02	0.01	0.00	0.97	0.97	1.00	0.97
		12/7/2015	94	<0.020	<0.2	<0.2	<0.2	<0.2	0.3	<1.0	3.1	<1.0	1.89	-83.3	2.5	<1.0	<0.16	2800	M	7.5	4.51	0.00	0.00	0.00	0.04	0.00	0.96	0.96	1.00	0.96
		3/3/2016	181	<0.2	<0.2	<0.2	<0.2	<0.2	1.0	<1.0	3.2	<1.0	0.73	-13.23	5.0	<1.0	<0.16	2900	M	7.9	6.60	0.00	0.00	0.00	0.13	0.00	0.87	0.87	1.00	0.87
		6/15/2016	285	<0.2	<0.2	<0.2	<0.2	<0.2	0.11	<1.0	3.4	<1.0	1.9	-42.5	1.5	<1.0	<0.10	5700	M	7.5	6.44	0.00	0.00	0.00	0.02	0.00	0.98	0.98	1.00	0.98
		9/8/2016	370	<0.2	<0.2	<0.2	<0.2	<0.2	0.091	<1.0	4.2	<1.0	0.60	-45.4	4.5	<1.0	<0.10	8900	M	7.7	6.44	0.00	0.00	0.00	0.01	0.00	0.99	0.99	1.00	0.99
AGW240-5	SZ	12/1/2014	-277	<0.020	<0.2	4.9	0.7	<0.2	6.6	<1.0	1.0	<1.0	0.51	-116.1	2.8	<1.0	<0.16	2200	M	6.6	6.67	0.00	0.00	0.29	0.54	0.00	0.17	0.17	1.00	0.54
		8/14/2015	-21	<0.020	<0.2	3.3	0.4	<0.2	5.6	1.2	<1.0	<1.0	0.77	-41.7	2.8	<1.0	<0.16	2000	M	5.4	6.19	0.00	0.00	0.22	0.53	0.25	0.00	0.25	1.00	0.53
		12/7/2015	94	<0.020	<0.2	1.8	0.3	<0.2	4.3	1.3	1.3	<1.0	0.81	-86.8	6.0	<1.0	<0.16	2200	M	6.5	4.01	0.00	0.00	0.12	0.38	0.26	0.24	0.50	1.00	0.50
		3/3/2016	181	<0.2	<0.2	1.7	0.3	<0.2	3.1	<1.0	<1.0	<1.0	0.55	-19.15	6.0	<1.0	<0.16	1700	M	6.9	6.67	0.00	0.00	0.29	0.71	0.00	0.00	0.00	1.00	0.71
		6/15/2016	285	<0.2	<0.2	0.3	0.3	<0.2	2.5	2.0	2.3	<1.0	0.33	-40.8	3.0	<1.0	<0.10	8100	M	20.2	6.4	0.00	0.00	0.03	0.21	0.37	0.39	0.76	1.00	0.76
		9/8/2016	370	<0.2	<0.2	<0.2	0.2	<0.2	0.20	<1.0	3.7	<1.0	0.36	-48.8	4.0	<1.0	<0.10	31000	M	5.7	6.46	0.00	0.00	0.02	0.02	0.00	0.96	0.96	1.00	0.96
AGW247-1	WT	12/2/2014	-276	<0.020	<0.2	0.8	<0.2	<0.2	0.17	<1.0	1.0	<1.0	0.64	-76.1	2.5	6.3	<0.16	3600	S/M	57.4	6.19	0.00	0.00	0.19	0.06	0.00	0.75	0.75	1.00	0.75
		8/14/2015	-21	<0.020	<0.2	3.4	0.4	<0.2	2.5	<1.0	<1.0	<1.0	0.49	-61.4	3.4	<1.0	<0.16	5200	M	9.6	6.36	0.00	0.00	0.49	0.51	0.00	0.00	0.00	1.00	0.51
		12/2/2015	89	<0.020	<0.2	1.5	0.3	<0.2	2.1	<1.0	<1.0	<1.0	4.32	-101.2	5.5	1.1	<0.16	6900	M	13.2	5.41	0.00	0.00	0.36	0.64	0.00	0.00	0.00	1.00	0.64
		3/2/2016	180	<0.2	<0.2	0.9	0.4	<0.2	4.0	<1.0	<1.0	<1.0	0.44	-32.23	6.0	<1.0	<0.16	7100	M	9.4	6.54	0.00	0.00	0.17	0.83	0.00	0.00	0.00	1.00	0.83
		6/15/2016	285	<0.2	<0.2	<0.2	0.5	<0.2	4.9	<1.0	<1.0	<1.0	0.43	-49.5	2.5	<1.0	<0.10	6100	M	9.7	6.38	0.00	0.00	0.06	0.94	0.00	0.00	0.00	1.00	0.94
		9/8/2016	370	<0.2	<0.2	<0.2	0.4	<0.2	4.7	<1.0	<1.0	<1.0	0.62	-48.6	2.5	1.3	<0.10	4200	M	11.1	6.32	0.00	0.00	0.05	0.95	0.00	0.00	0.00	1.00	0.95
AGW247-5	SZ	12/2/2014	-276	<0.020	<0.2	6.6	0.7	<0.2	1.7	<1.0	1.7	<1.0	0.22	-136	5.0	<1.0	<0.16	4000	M	21.3	6.89	0.00	0.00	0.47	0.17	0.00	0.36	0.36	1.00	0.47
		8/14/2015	-21	<0.020	<0.2	4.7	0.8	<0.2	3.0	<1.0	<1.0	<1.0	0.54	-90.3	2.4	1.1	<0.16	3400	M	6.2	6.45	0.00	0.00	0.54	0.46	0.00	0.00	0.00	1.00	0.54
		12/2/2015	89	<0.020	<0.2	2.9	0.7	<0.2	4.0	<1.0	<1.0	<1.0	4.76	-97.4	4.5	<1.0	<0.16	2100	M	6.7	5.29	0.00	0.00	0.37	0.63	0.00	0.00	0.00	1.00	0.63
		3/3/2016	181	<0.2	<0.2	2.2	0.7	<0.2	4.5	<1.0	<1.0	<1.0	0.51	-63.1	6.5	<1.0	<0.16	2000	M	5.7	6.78	0.00	0.00	0.29	0.71	0.00	0.00	0.00	1.00	0.71
		6/15/2016	285	<0.2	<0.2	1.8	0.8	<0.2	4.4	<1.0	<1.0	<1.0	0.34	-72.1	2.0	<1.0	<0.10	2300	M	5.4	6.45	0.00	0.00	0.28	0.72	0.00	0.00	0.00	1.00	0.72
		9/8/2016	370	<0.2	<0.2	1.3	0.6	<0.2	3.9	<1.0	<1.0	<1.0	0.34	-77.9	3.5	1.6	<0.10	1300	M	6.7	6.54	0.00	0.00	0.24	0.76	0.00	0.00	0.00	1.00	0.76
AGW251-1	WT	12/2/2014	-276	<0.020	<0.2	<0.2	<0.2	<0.2	1.8	2.2	5.8	<1.0	0.83	-73.1	3.4	37.2	<0.16	16000	S/M	27.3	6.65	0.00	0.00	0.00	0.10	0.26	0.64	0.90	1.00	0.90
		8/14/2015	-21	<0.020	<0.2	<0.2	<0.2	<0.2	0.62	<1.0	<1.0	<1.0	4.51	208.8	6.8	1.3	<0.16	140	Fe/S	16.9	6.63	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00
		12/3/2015	90	<0.020	<0.2	<0.2	<0.2	<0.2	0.23	<1.0	<1.0	<1.0	12.0	-60.5	1.0	280	<0.16	440	Fe/S	8.9	6.08	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00
		3/3/2016	181	<0.2	<0.2	<0.2	<0.2	<0.2	0.15	<1.0	<1.0	<1.0	0.85	41.55	1.0	117	<0.16	560	Fe/S	33.8	6.18	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00
		6/20/2016	290	<0.2	<0.2	<0.2	<0.2	<0.2	1.1	<1.0	<1.0	<1.0	0.83	124.4	2.0	20.7	<2.0	1800	S/M	11	6.33	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	1.00
		9/6/2016	368	<0.2	<0.2	<0.2	<0.2	<0.2	1.6	1.3	<1.0	<1.0	2.19	-78.2	4.5	4.3	<0.10	1100	S/M	13.1	6.58	0.00	0.00	0.00	0.36	0.64	0.00	0.64	1.00	0.64
AGW251-2	SZ	12/2/2014	-276	<0.020	<0.2	2.0	0.2	<0.2	4.7	3.2	5.9	<1.0	0.49	-141.9	4.0	1.1	<0.16	8500	M	11.2	6.92	0.00	0.00	0.06	0.18	0.28	0.48	0.76	1.00	0.76
		8/14/2015	-21	<0.020	<0.2	<0.2	<0.2	<0.2	5.7	2.2	1.6	<1.0	0.94	210.6	5.2	2.1	<0.16	4800	M	7.1	6.71	0.00	0.00	0.00	0.41	0.35	0.24	0.59	1.00	0.59
		12/3/2015	90	<0.020	<0.2	<0.2	<0.2	<0.2	3.9	1.8	1.1	<1.0	13.38	-109.1	6.0	1.2	<0.16	3900	M	6.8	6.06	0.00	0.00	0.00	0.38	0.39	0.22	0.62	1.00	0.62
		3/3/2016	181	<0.2	<0.2	<0.2	<0.2	<0.2	4.9	1.9	1.1	<1.0	0.56	-99.13	1.5	1.9	<0.16	2900	M	7.2	6.75	0.00	0.00	0.00	0.43	0.37	0.20	0.57	1.00	0.57
		6/20/2016	290	<0.2	<0.2	<0.2	<0.2	<0.2	2.7	2.7	1.1	<1.0	0.56	48.8	2.0	<1.0	<2.0	3700	M	8.1	6.46	0.00	0.00	0.00	0.25	0.55	0.21	0.75	1.00	0.75
		9/8/2016	370	<0.2	<0.2	<0.2	<0.2	<0.2	1.8	2.6	1.3	<1.0	0.73	-81.8	2.0	<1.0	<0.10	3300	M	8.1	6.67	0.00	0.00	0.00	0.17	0.56	0.26	0.83	1.00	0.83
AGW251-3	IZ	12/2/2014	-276	<0.020	<0.2	5.9	0.5	<0.2	4.3	<1.0	1.2	<1.0	1.09	-112.2	3.1	<1.0	<0.16	2500	M	7.6	6.67	0.00	0.00	0.38	0.39	0.00	0.23	0.23	1.00	0.39
		8/14/2015	-21	<0.020	<0.2	3.0	0.2	<0.2	5.0	<1.0	<1.0	<1.0	1.51	209.7	5.8	<1.0	<0.16	2200	M	6.3	6.39	0.00	0.00	0.29	0.71	0.00	0.00	0.00	1.00	0.71
		12/3/2015	90	<0.020	<0.2	3.0	<0.2	<0.2	5.0	<1.0	<1.0	<1.0	10.63	-93.7	6.0	<1.0	<0.16	2100	M	6.1	5.73	0.00	0.00	0.28	0.72	0.00	0.00	0.00	1.00	0.72
		3/3/2016	181	<0.2	<0.2	1.2	<0.2	<0.2	7.8	<1.0	<1.0	<1.0	0.59	-50.43	2.0	<1.0	<0.16	2600	M	7.3	6.42	0.00	0.00	0.09	0.91	0.00	0.00	0.00	1.00	0.91
		6/20/2016	290	<0.2	<0.2	1.2	<0.2	<0.2	6.1	<1.0	<1.0	<1.0	0.45	78.3	2.0	<1.0	<2.0	2600	M	8.1	6.26	0.00	0.00	0.11	0.89	0.00	0.00	0.00	1.00	0.89
		9/8/2016	370	<0.2	<0.2	0.9	<0.2	<0.2	5.1	<1.0	<1.0	<1.0	0.68	-38.6	3.5	<1.0	<0.10	2100	M	6.7	6.43	0.00	0.00	0.10	0.90	0.00	0.00	0.00	1.00	0.90

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

				Volatile Organic Compounds									Aquifer Redox Conditions							Donor Indicators		Molar Fraction							
Well	Groundwater Zone	Date	Elapsed Time from Injection (days)	PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	tDCE (µg/L)	11DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Aquifer Redox State	TOC (mg/L)	pH	PCE	TCE	Sum of cDCE, tDCE, 11DCE	VC	Ethene	Ethane	Ethene+ Ethane	Total	Max Fraction
AGW269	SZ	8/14/2015	-21	<0.020	<0.2	6.7	0.7	<0.2	3.2	<1.0	<1.0	<1.0	0.52	-95.9	1.0	1.9	<0.16	1300	M	9.1	6.66	0.00	0.00	0.60	0.40	0.00	0.00	0.00	1.00	0.60
		12/7/2015	94	<0.020	0.2	7.4	1.2	<0.2	5.1	<1.0	1.7	<1.0	0.36	-49.0	4.0	<1.0	<0.16	26000	M	122	6.37	0.00	0.01	0.39	0.36	0.00	0.25	0.25	1.00	0.39
		3/2/2016	180	<0.2	<0.2	6.5	1.0	<0.2	5.2	<1.0	2.0	<1.0	0.27	-43.8	2.0	<1.0	<0.16	15000	M	8.5	6.35	0.00	0.00	0.34	0.37	0.00	0.29	0.29	1.00	0.37
		6/16/2016	286	<0.2	<0.2	1.9	0.6	<0.2	8.7	<1.0	<2.3	<1.0	0.36	-28.1	2.0	<1.0	<0.10	24000	M	8.2	6.20	0.00	0.00	0.16	0.84	0.00	0.00	0.00	1.00	0.84
		9/7/2016	369	<0.2	<0.2	0.6	0.3	<0.2	6.4	1.3	<1.0	<1.0	0.49	-21.7	4.0	<1.0	<0.10	29000	M	9.9	6.09	0.00	0.00	0.06	0.65	0.29	0.00	0.29	1.00	0.65
AGW270	SZ	8/13/2015	-22	<0.020	<0.2	7.3	1.0	<0.2	2.2	<1.0	<1.0	<1.0	1.58	199.4	5.8	<1.0	<0.16	750	M	7.2	6.57	0.00	0.00	0.71	0.29	0.00	0.00	0.00	1.00	0.71
		12/7/2015	94	<0.020	1.7	10	1.7	<0.2	1.3	1.5	2.0	<1.0	0.30	-11.0	2.5	<1.0	<0.16	23000	M	682	5.62	0.00	0.05	0.44	0.08	0.19	0.24	0.44	1.00	0.44
		3/2/2016	180	<0.2	0.7	8.8	1.0	<0.2	1.7	<1.0	2.8	<1.0	0.30	-38.6	6.5	<1.0	<0.16	22000	M	75.2	6.25	0.00	0.02	0.45	0.12	0.00	0.41	0.41	1.00	0.45
		6/16/2016	286	<0.2	0.3	6.0	0.8	<0.2	2.0	<1.0	<2.0	<1.0	0.60	-52.4	2.0	<1.0	<0.10	25000	M	46.7	6.05	0.00	0.02	0.67	0.31	0.00	0.00	0.00	1.00	0.67
		9/7/2016	369	<0.2	<0.2	3.3	0.5	<0.2	2.9	1.0	<1.0	<1.0	0.49	-47.9	3.0	1.1	<0.10	22000	M	39.1	5.96	0.00	0.00	0.32	0.38	0.29	0.00	0.29	1.00	0.38
AGW271	SZ	8/13/2015	-22	<0.020	<0.2	6.5	0.7	<0.2	4.6	<1.0	<1.0	<1.0	1.32	204.0	6.2	<1.0	<0.16	2300	M	6.8	6.67	0.00	0.00	0.50	0.50	0.00	0.00	0.00	1.00	0.50
		12/7/2015	94	<0.020	1.2	15	1.8	<0.2	5.9	1.2	1.9	<1.0	0.33	22.2	7.0	<1.0	<0.16	19000	M	971	5.55	0.00	0.02	0.45	0.25	0.11	0.17	0.28	1.00	0.45
		3/2/2016	180	<0.2	1.8	15	2.4	<0.2	2.8	1.5	3.0	<1.0	0.37	25.8	6.0	<10.0	<0.16	28000	M	1080	5.41	0.00	0.04	0.46	0.11	0.14	0.26	0.39	1.00	0.46
		6/16/2016	286	<0.2	0.3	6.9	0.7	<0.2	2.0	<1.0	<2.6	<1.0	0.58	-35.8	3.0	<1.0	<0.10	29000	M	48.6	6.02	0.00	0.02	0.70	0.28	0.00	0.00	0.00	1.00	0.70
		9/7/2016	369	<0.2	<0.2	4.4	0.5	<0.2	1.1	<1.0	<1.0	<1.0	0.43	-39.5	2.5	<1.0	<0.10	28000	M	16.9	5.97	0.00	0.00	0.74	0.26	0.00	0.00	0.00	1.00	0.74
AGW272	SZ	8/13/2015	-22	<0.020	0.2	7.3	0.6	<0.2	0.66	<1.0	<1.0	<1.0	0.49	-55.2	1.8	1.5	<0.16	400	Fe/S	5.4	6.37	0.00	0.02	0.87	0.11	0.00	0.00	0.00	1.00	0.87
		12/7/2015	94	<0.020	0.2	6.4	0.7	<0.2	1.8	<1.0	<1.0	<1.0	1.36	-85.3	4.0	<1.0	<0.16	940	M	3.5	5.33	0.00	0.01	0.71	0.28	0.00	0.00	0.00	1.00	0.71
		3/2/2016	180	<0.2	0.3	5.4	0.5	<0.2	1.2	<1.0	<1.0	<1.0	0.91	-71.43	1.0	1.1	<0.16	460	Fe/S	4.1	6.53	0.00	0.03	0.74	0.23	0.00	0.00	0.00	1.00	0.74
		6/17/2016	287	<0.2	0.3	4.9	0.6	<0.2	2.0	<1.0	<1.0	<1.0	0.76	-29.8	2.5	1.4	<0.10	450	Fe/S	4.1	6.43	0.00	0.03	0.62	0.35	0.00	0.00	0.00	1.00	0.62
		9/7/2016	369	<0.2	0.3	3.9	0.6	<0.2	2.3	<1.0	<1.0	<1.0	0.42	-37.5	3.0	1.6	<0.10	360	Fe/S	4.9	6.30	0.00	0.03	0.54	0.43	0.00	0.00	0.00	1.00	0.54
AGW273	SZ	8/13/2015	-22	<0.020	<0.2	6.3	0.7	<0.2	4.2	<1.0	<1.0	<1.0	1.61	193.0	4.6	<1.0	<0.16	880	M	6.1	6.38	0.00	0.00	0.52	0.48	0.00	0.00	0.00	1.00	0.52
		12/7/2015	94	<0.020	<0.2	3.4	0.6	<0.2	6.0	<1.0	<1.0	<1.0	1.52	-99.3	6.0	<1.0	<0.16	1500	M	6.0	4.77	0.00	0.00	0.30	0.70	0.00	0.00	0.00	1.00	0.70
		3/2/2016	180	<0.2	<0.2	3.5	0.5	<0.2	3.9	<1.0	<1.0	<1.0	0.51	-54.3	1.2	<1.0	<0.16	1300	M	6.1	6.48	0.00	0.00	0.40	0.60	0.00	0.00	0.00	1.00	0.60
		6/17/2016	287	<0.2	<0.2	2.9	5.0	<0.2	3.9	<1.0	<1.0	<1.0	0.71	24.1	2.0	<1.0	<0.10	1300	M	5.5	6.16	0.00	0.00	0.57	0.43	0.00	0.00	0.00	1.00	0.57
		9/7/2016	369	<0.2	<0.2	2.6	0.5	<0.2	4.2	<1.0	<1.0	<1.0	0.77	-30.9	4.0	<1.0	<0.10	900	M	6.7	6.21	0.00	0.00	0.32	0.68	0.00	0.00	0.00	1.00	0.68
AGW274	SZ	8/13/2015	-22	<0.020	<0.2	<0.2	<0.2	<0.2	4.0	2.3	<1.0	<1.0	0.54	-36.6	3.6	<1.0	<0.16	1900	M	7.5	6.29	0.00	0.00	0.00	0.44	0.56	0.00	0.56	1.00	0.56
		12/7/2015	94	<0.020	<0.2	<0.2	<0.2	<0.2	1.9	1.3	2.2	<1.0	2.07	-95.0	4.0	<1.0	<0.16	2700	M	8.1	4.83	0.00	0.00	0.00	0.20	0.31	0.49	0.80	1.00	0.80
		3/2/2016	180	<0.2	<0.2	2.0	0.4	<0.2	5.5	<1.0	<1.0	<1.0	0.43	-48.9	2.0	<1.0	<0.16	920	M	7.0	6.45	0.00	0.00	0.22	0.78	0.00	0.00	0.00	1.00	0.78
		6/17/2016	287	<0.2	<0.2	0.6	0.3	<0.2	4.6	1.5	<1.0	<1.0	0.47	-5.1	2.0	<1.0	<0.10	920	M	5.8	6.22	0.00	0.00	0.07	0.54	0.39	0.00	0.39	1.00	0.54
		9/8/2016	370	<0.2	<0.2	<0.2	<0.2	<0.2	1.1	1.6	3.6	<1.0	1.05	-33.1	2.8	<1.0	<0.10	9600	M	7.0	6.31	0.00	0.00	0.00	0.09	0.29	0.62	0.91	1.00	0.91
AGW275	SZ	8/13/2015	-22	<0.020	<0.2	2.3	0.3	<0.2	7.7	<1.0	<1.0	<1.0	0.64	-47.6	3.0	1.0	<0.16	2000	M	7.6	6.33	0.00	0.00	0.18	0.82	0.00	0.00	0.00	1.00	0.82
		12/7/2015	94	<0.020	<0.2	2.5	0.3	<0.2	7.7	<1.0	<1.0	<1.0	1.02	-100.3	4.5	<1.0	<0.16	2100	M	6.9	4.69	0.00	0.00	0.19	0.81	0.00	0.00	0.00	1.00	0.81
		3/2/2016	180	<0.2	<0.2	0.6	<0.2	<0.2	7.7	2.2	1.6	<1.0	0.35	-48.5	2.2	<1.0	<0.16	14000	M	79.7	6.39	0.00	0.00	0.02	0.47	0.30	0.20	0.50	1.00	0.50
		6/17/2016	287	<0.2	<0.2	<0.2	<0.2	<0.2	0.16	2.8	4.5	<1.0	0.44	0.07	3.5	<1.0	<0.10	26000	M	7.9	6.35	0.00	0.00	0.00	0.01	0.40	0.59	0.99	1.00	0.99
		9/8/2016	370	<0.2	<0.2	<0.2	<0.2	<0.2	0.061	<1.0	5.8	<1.0	0.46	-45.3	2.0	<1.0	<0.10	16000	M	8.3	6.43	0.00	0.00	0.00	0.01	0.00	0.99	0.99	1.00	0.99
IW34	SZ	8/17/2015	-18	<0.020	0.2	7.6	0.8	<0.2	4.9	<1.0	<1.0	<1.0	0.57	-60.2	4.0	<1.0	<0.16	1900	M	6.9	6.25	0.00	0.01	0.52	0.47	0.00	0.00	0.00	1.00	0.52
		12/7/2015	94	<0.10	1.6	8.5	1.2	<0.2	1.1	2.9	1.7	<1.0	1.79	-24.7	9.5	22.5	<0.16	7900	M	6010	2.21	0.00	0.04	0.35	0.06	0.36	0.20	0.55	1.00	0.55
		3/2/2016	180	<0.2	5.3	16	2.5	<0.2	1.1	3	2.7	<1.0	0.39	44.1	7.0	<10.0	<0.16	15000	M	6450	4.63	0.00	0.09	0.43	0.04	0.24	0.20	0.44	1.00	0.44
		6/16/2016	286	<0.2	5.4	16	2.2	<0.2	0.9	3.8	2.2	<1.0	1.07	116	3.0	1.9	0.16	23000	M	3840	4.60	0.00	0.09	0.42	0.03	0.30	0.16	0.46	1.00	0.46
		9/7/2016	369	<0.2	1.9	7.4	0.8	<0.2	0.34	1.5	<1.0	<1.0	0.46	-85.3	6.0	1.1	0.14	17000	M	377	5.82	0.00	0.09	0.54	0.03	0.34	0.00	0.34	1.00	0.54
IW36	SZ	8/17/2015	-18	<0.020	0.2	3.3	0.7	<0.2	6.0	<1.0	<1.0	<1.0	0.58	-29.5	2.8	<1.0	<0.16	1700	M	7.6	6.29	0.00	0.01	0.30	0.69	0.00	0.00	0.00	1.00	0.69
		12/7/2015	94	<0.020	<1.0	1.6	<1.0	<1.0	3.8	<1.0	1.4	<1.0	1.77	-100.2	6.0	<1.0	<0.16	17000	M	63.7	4.36	0.00	0.00	0.13	0.49	0.00	0.38	0.38	1.00	0.49
		3/2/2016	180	<0.2	<0.2	1.5	0.4	<0.2	5.7	<1.0	2.0	<1.0	0.32	-47.58	1.5	<1.0	<0.16	14000	M	17.9	6.31	0.00	0.00	0.11	0.51	0.00	0.38	0.38	1.00	0.51
		6/16/2016	286	<0.2	<0.2	1.5	0.4	<0.2	4.5	<1.0	1.9	<1.0	0.36	-7.85	1.0	<1.0	<0.10	11000	M	11.4	6.06	0.00	0.00	0.13	0.47	0.00	0.41	0.41	1.00	0.47
		9/7/2016	369	<0.2	<0.2	1.7	0.4	<0.2	4.3	<1.0	1.8	<1.0	0.35	-27.8	4.5	<1.0	<0.10	6600	M	11.2	6.25	0.00	0.00	0.14	0.46	0.00	0.40	0.40	1.00	0.46
IW37	SZ	8/13/2015	-22	<0.020	<0.2	5.3	0.5	<0.2	4.9	<1.0	<1.0	<1.0	0.56	-45.0	2.0	<1.0	<0.16	1800	M	6.6	6.29	0.00	0.00	0.43	0.57	0.00	0.00	0.00	1.00	0.57
		12/7/2015	94	0.16	1.3	13	2.0	<0.2	1.5	5.8	3.1	<1.0	1.40	-24.2	9.0	6.6	<0.16	3800	M	4780	2.45	0.00	0.02	0.31	0.05	0.41	0.21	0.62	1.00	0.62
		3/2/2016	180	<0.2	0.8	7.7	1.0	<0.2	1.2	1.8	2.2	<1.0	0.47	35.1	5.0	<10.0	<0.16	23000	M	2480	5.00	0.00	0.02	0.36	0.08	0.25	0.29	0.54	1.00	0.54
		6/17/2016	287	<0.2	0.3	6.0	0.3	<0.2	0.4	<1.0	1.6	<1.0	0.91	-81.5	2.5	<1.0	<0.10	20000	M	1130	5.99	0.00	0.02	0.51	0.05	0.00	0.42	0.42	1.00	0.51
		9/7/2016	369	<0.2	<0.2	2.7	<0.2	<0.2	0.14	<1.0	<1.0	<1.0	0.91	-123.4	5.0	1.3	<0.10	17000	M	337	6.08	0.00	0.00	0.93	0.07	0.00	0.00	0.00	1.00	0.93

Abbreviations and Acronyms

11DCE = 1,1-dichloroethene
cDCE = cis-1,2-dichloroethene
DO = Dissolved Oxygen
DZ = Deep Zone
Fe = Iron-reducing
IZ = Intermediate Zone
ORP = oxidation/reduction potential
PCE = tetrachloroethene
M = Methanogenic
SZ = Shallow Zone
S = Sulfate-reducing
tDCE = trans-1,2-dichloroethene
TOC = Total Organic Carbon
TCE = Trichloroethene
VC = Vinyl Chloride
WT = Water Table

Notes

Electron donor injection performed August 18 through September 4, 2015
Blue shading indicates the compound with highest molar fraction per event
Water table is a subset of the shallow zone