

January 24, 2017

Byung Maeng
Washington State Department of Ecology
Northwest Regional Office
3190 160th Avenue SE
Bellevue, Washington 98008-5452

**Re: November 2016 Semiannual Groundwater Monitoring Report
Boeing Developmental Center, Tukwila, Washington**

Dear Byung:

This letter and attached data constitute the semiannual letter report for groundwater monitoring at The Boeing Company Developmental Center in Tukwila, Washington. This report, which covers the period following the April 2016 semiannual sampling event through the semiannual event in November 2016, provides a brief summary of the data and remedial activities performed at the site during the reporting period. Remedial actions are underway in Solid Waste Management Unit (SWMU)-20, SWMU-17, and Area of Concern (AOC)-05. All other SWMUs and AOCs identified in the 1994 RCRA Facility Assessment (RFA) have been excluded from further investigation based on determinations that they do not pose a threat to human health or the environment. In addition, stormwater/storm drain source control investigations and stormwater data for the Industrial Stormwater General Permit are not included in this report.

Groundwater monitoring during the reporting period was performed in November 2016 at SWMU-20 wells; and in August and November at SWMU-17 and AOC-05. Analytical data for SWMU-20, SWMU-17, and AOC-05 are enclosed for your review and include sample results, summary tables, and laboratory data packages. Summary figures, historical analytical summary data, and volatile organic compound (VOC) concentration trend charts are provided for key constituents present in SWMU-20. A well location figure and tables of current data and cumulative data are provided for SWMU-17. Included for AOC-05 are a well location figure and cumulative tables for total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene, and xylenes (BTEX); and conventional parameters, as well as trend plots for TPH-Gasoline (TPH-G), BTEX, and nitrate. Summary tables include proposed cleanup levels (CULs) from the May 7, 2013 *Proposed Cleanup Standards and Comparison to Site Data* document.

At SWMU-20, November 2016 groundwater monitoring results indicate concentrations of tetrachloroethene (PCE), trichloroethene (TCE), and breakdown products were below the proposed CULs at all SWMU-20 monitoring wells, as was also previously observed in April 2016. *In situ* anaerobic bioremediation was enhanced by the October/November 2015 electron donor injection event to wells located on the fringes of the TCE source zone; the core of the TCE source zone was treated by prior

bioremediation injections. VOCs were monitored at each of the nine wells injected in 2015, with total organic carbon (TOC) and monitored natural attenuation (MNA) parameters also monitored at three of the injected wells (MW-6A, MW-6B, MW-22A). TOC concentrations continued to remain substantially elevated at these three wells, as was observed in April 2016. The sulfate-reducing to methanogenic aquifer redox conditions, which have largely persisted in SWMU-20 following initial source zone injections, continued in November. At all source zone wells, PCE and TCE remained below reporting limits; cis-1,2-dichloroethene (cDCE) detections were less than or equal to 0.5 micrograms per liter ($\mu\text{g/L}$), well below the proposed CUL (134 $\mu\text{g/L}$); and vinyl chloride (VC) detections were below the proposed CUL (2.4 $\mu\text{g/L}$). At the non-source zone wells, at least one or more VOCs including PCE, TCE, cDCE, and/or VC were detected at all wells, with the exception of MW-14C; all detections were below proposed CULs. Ethane was detected at one (MW-9A) of the four wells being monitored for ethene and ethane. Semiannual monitoring will continue at SWMU-20 to evaluate continued treatment, per the Ecology-approved monitoring reduction program that was implemented beginning with the April 2015 sampling event.

At SWMU-17, groundwater monitoring results from August and November 2016 show that *in situ* anaerobic bioremediation continued to be enhanced following the August 2011 electron donor injection, which has been the only injection at SWMU-17 to date. Increases in one or more breakdown or end products (cDCE, VC, and ethene) were observed at all injection wells following injection. In November 2016, PCE, TCE, cDCE, and VC concentrations were below proposed CULs at all wells, except BDC-05-05 and BDC-05-18 where the TCE concentration (1.5 and 1.6 $\mu\text{g/L}$ respectively) exceeded the proposed CUL (1.4 $\mu\text{g/L}$). August and November 2016 were the first two quarters since treatment began that VC was below its proposed CUL at all SWMU-17 wells monitored. Complete reductive dechlorination beyond VC continued, as indicated by end products ethene and/or ethane, which were detected in November at 12 of 17 wells analyzed. Non-toxic end products ethene and ethane were predominant on a molar basis over TCE, cDCE, and VC at all 12 wells where detected. Low sulfate and elevated concentrations of methane persisted at most wells, indicating a continuation of the highly reduced aquifer redox conditions required for complete dechlorination, despite decreasing TOC at injection wells (now ranging from 5 to 23 milligrams per liter [mg/L]). Quarterly and semiannual monitoring will continue for evaluation of treatment progress. Additional donor injection at SWMU-17 is not necessary at this time.

At AOC-05 in August and November, TPH-G and BTEX concentrations remained below their proposed CULs at previously impacted well BDC-104 and downgradient wells BDC-101 and BDC-102, while at BDC-103 contaminants were above proposed CULs and nitrate available for *in situ* anaerobic bioremediation became depleted. TPH-G, benzene, and ethylbenzene were detected above their proposed CULs at BDC-103, while total xylenes and toluene were detected below their proposed CULs. Nitrate was not detected at BDC-103 in August or November. An additional nitrate injection was completed in December at BDC-103 for continued biotreatment; the prior injection was in March 2016. Nitrate monitoring was also performed at the two nearest downgradient wells (BDC-101 and

BDC-102) and at four wells located farther downgradient (MW-17A, MW-18A, MW-21A, and BDC-05-04). Nitrate concentrations were above the 10 mg/L action level at downgradient wells BDC-101 and BDC-102 in August but were below in November. Nitrate continued to be below the action level at the four wells farther downgradient (BDC-05-04, MW-17A, MW-18A, and MW-21A). Groundwater sampling at AOC-05 wells will continue on a quarterly basis to evaluate treatment progress. As required, semiannual monitoring for nitrate at the four wells farther downgradient will also continue until nitrate remains below 10 mg/L for two consecutive semiannual events at downgradient wells BDC-101 and BDC-102.

Please call or email me if you have any questions or if you would like to discuss any of the sampling results in more detail.

LANDAU ASSOCIATES, INC.



Clinton L. Jacob, PE, LG
Principal Engineer

BRD/CLJ/ljc

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Enclosures: Developmental Center Groundwater Monitoring – November 2016
 SWMU-20 Data Tables, Maps, and Trend Charts
 SWMU-17 Data Tables and Map
 AOC-05 Data Table, Trend Charts, and Map
 Groundwater Elevation Table
 Groundwater Sample Collection Forms and Analytical Data (DVD)

cc: Carl Bach, Boeing EHS Remediation (elec. w/o data)
 Mark Adams, Ecology (elec. w/o data)
 Susanne McIlveen, Boeing Defense and Space, EHS Manager (elec. w/o data)
 Jolene Brokenshire, Boeing Defense and Space, EHS (elec. w/o data)

***DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
NOVEMBER 2016***

DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
NOVEMBER 2016

SWMU-20 VOC/CONVENTIONALS DATA TABLES

SWMU-20 SUMMARY DATA

- **SWMU-20 VOC SUMMARY MAPS**
- **SWMU-20 ANALYTICAL RESULTS SUMMARY
(January 1994 through Present)**
- **SWMU-20 VOC CONCENTRATION TREND CHARTS
(January 1994 through Present)**
- **SWMU-20 CLEANUP ACTION SUMMARY – SOURCE ZONE**
- **SWMU-20 CLEANUP ACTION SUMMARY – NON-SOURCE
ZONE**

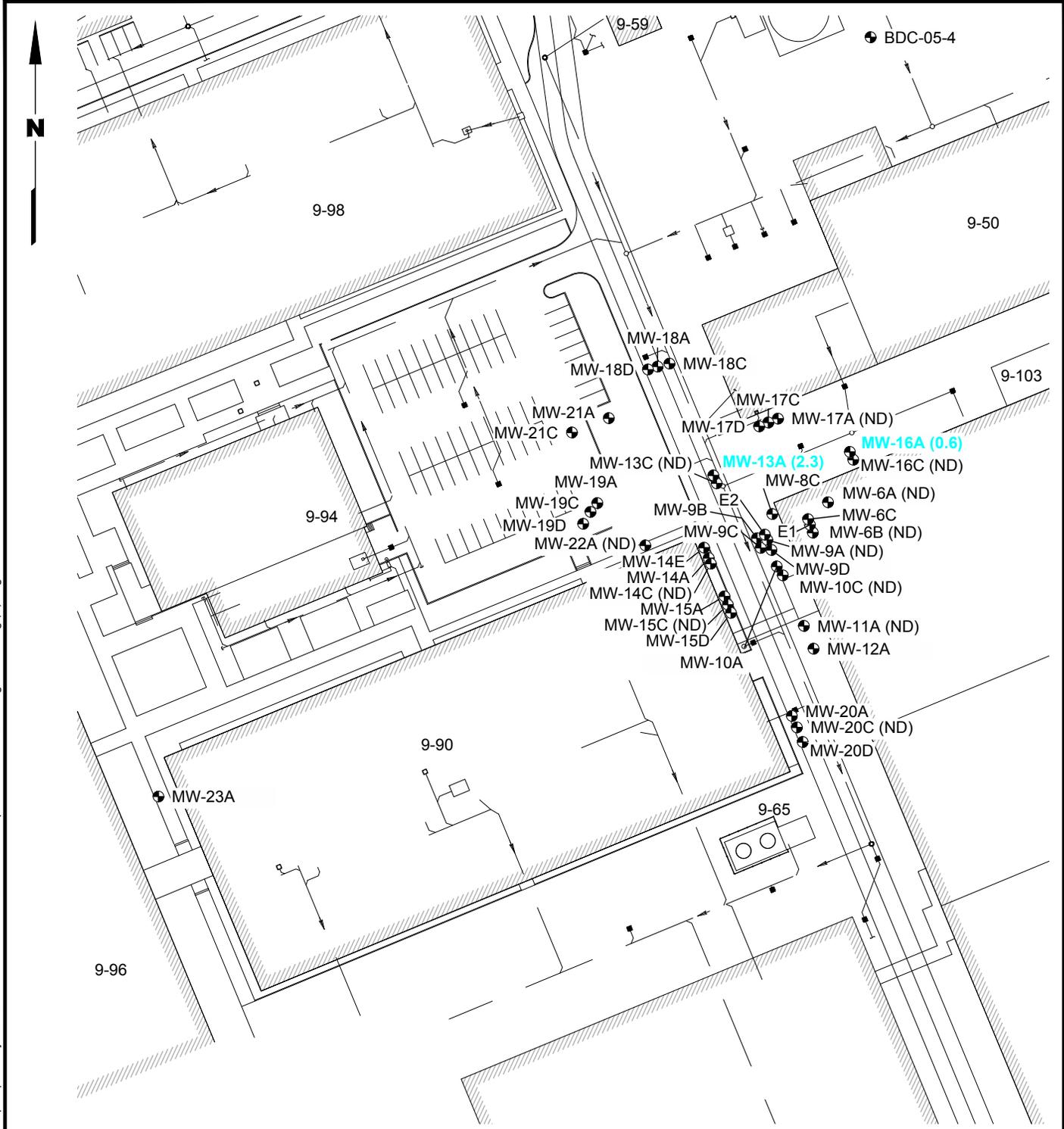
**SWMU-20 VOA/CONVENTIONALS DATA
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
NOVEMBER 2016**

Sample Name:	DC-MW-6A	DC-MW-6B	DC-MW-9A	DC-MW-10C	DC-MW-11A	MW-11A-Dup	DC-MW-13A	DC-MW-13C	DC-MW-14C	DC-MW-15C	DC-MW-16A	DC-MW-16C	DC-MW-17A	DC-MW-20C	DC-MW-22A	TRIP BLANK
Lab SDG:	1728897	1728897	1728897	1728897	1728897	1728897	1728897	1728897	1728897	1728897	1728897	1728897	1727669	1728897	1728897	1728897
Lab Sample ID:	8678790	8678788	8678782	8678785	8678784	8678781	8678786	8678787	8678798	8678795	8678793	8678792	8673625	8678794	8678796	8678799
Sample Date:	11/01/2016	11/01/2016	11/01/2016	11/01/2016	11/01/2016	11/01/2016	11/01/2016	11/01/2016	11/02/2016	11/02/2016	11/02/2016	11/02/2016	11/1/2016	11/02/2016	11/02/2016	11/01/2016
Test ID: VOA SW8260C (µg/L)																
cis-1,2-Dichloroethene	0.5	0.5 J	0.2 U	0.5	15	16	0.2 U	0.2 U	0.2 U	1.7 J	14 J	1.9	8.2 J	0.6 J	0.5 J	0.2 U
Tetrachloroethene	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	2.3	0.2 U	0.2 U	0.2 UJ	0.6 J	0.2 U	0.2 UJ	0.2 UJ	0.2 UJ	0.2 U
Trichloroethene	0.2 U	0.2 UJ	0.2 U	0.2 U	0.2 U	0.2 U	0.7	0.2 U	0.2 U	0.3 J	0.3 J	0.2 U	0.4 J	0.2 UJ	0.2 UJ	0.2 U
Vinyl Chloride	0.7	0.2 J	0.2 U	0.2 U	0.5	0.5	0.2 U	0.2	0.2 U	0.7 J	0.5 J	0.3	0.8 J	0.5 J	0.2 UJ	0.2 U
NATURAL ATTENUATION PARAMETERS																
Method Modified RSK175 (µg/L)																
Methane	20,000	23,000	19,000												18,000	
Ethane	100 U	100 U	120												100 U	
Ethene	100 U	100 U	1.0 U												100 U	
Conventional Parameters																
Sulfate (mg/L) (EPA 300.0)	0.47 J	0.71 J	0.30 U												0.30 U	
Total Organic Carbon (mg/L) (SM5310C)	121	274	17.5												542	

µg/L = micrograms per liter
mg/L = milligrams per liter
EPA = US Environmental Protection Agency

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

Boeing/Developmental Center/Summary Report | G:\Projects\025\087\016\020\Semianual GW Report November 2016\Figure 1-4.dwg (A) *Figure 1* 1/3/2017



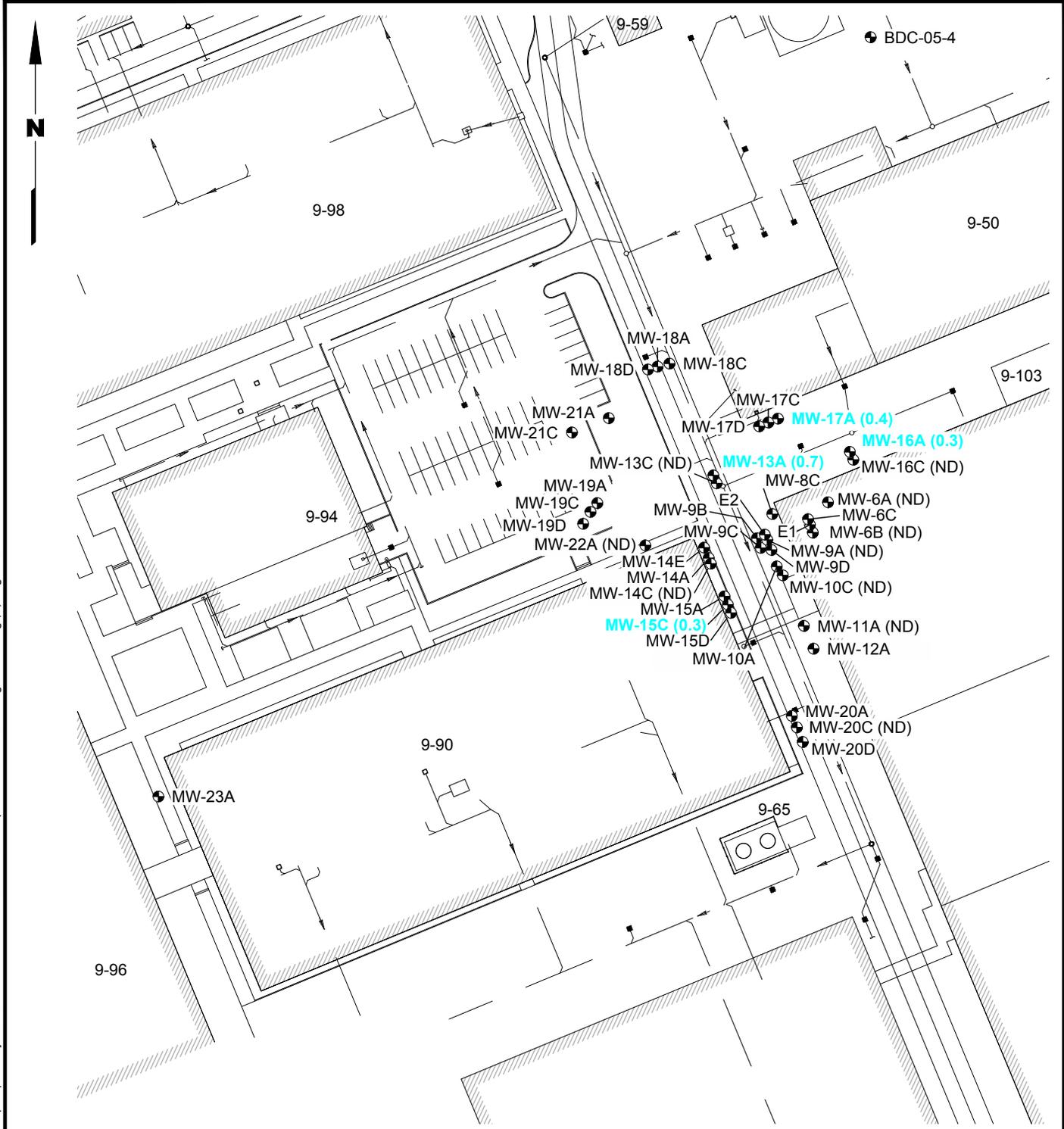
Legend

- Monitoring Well Location
- (ND) Tetrachloroethene Not Detected at 0.2 µg/L Detection Limit
- (1.6) Tetrachloroethene Groundwater Concentration in µg/L

Boeing Developmental Center Tukwila, Washington	SWMU-20 Tetrachloroethene November 2016 Groundwater Concentrations	Figure 1
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Boeing/Developmental Center/Summary Report | G:\Projects\025\087\016\020\Semianual GW Report November 2016\Figure 1-4.dwg (A) "Figure 2" 1/3/2017



Legend

- Monitoring Well Location
- (ND) Trichloroethene Not Detected at 0.2 µg/L Detection Limit
- (0.7) Trichloroethene Groundwater Concentration in µg/L

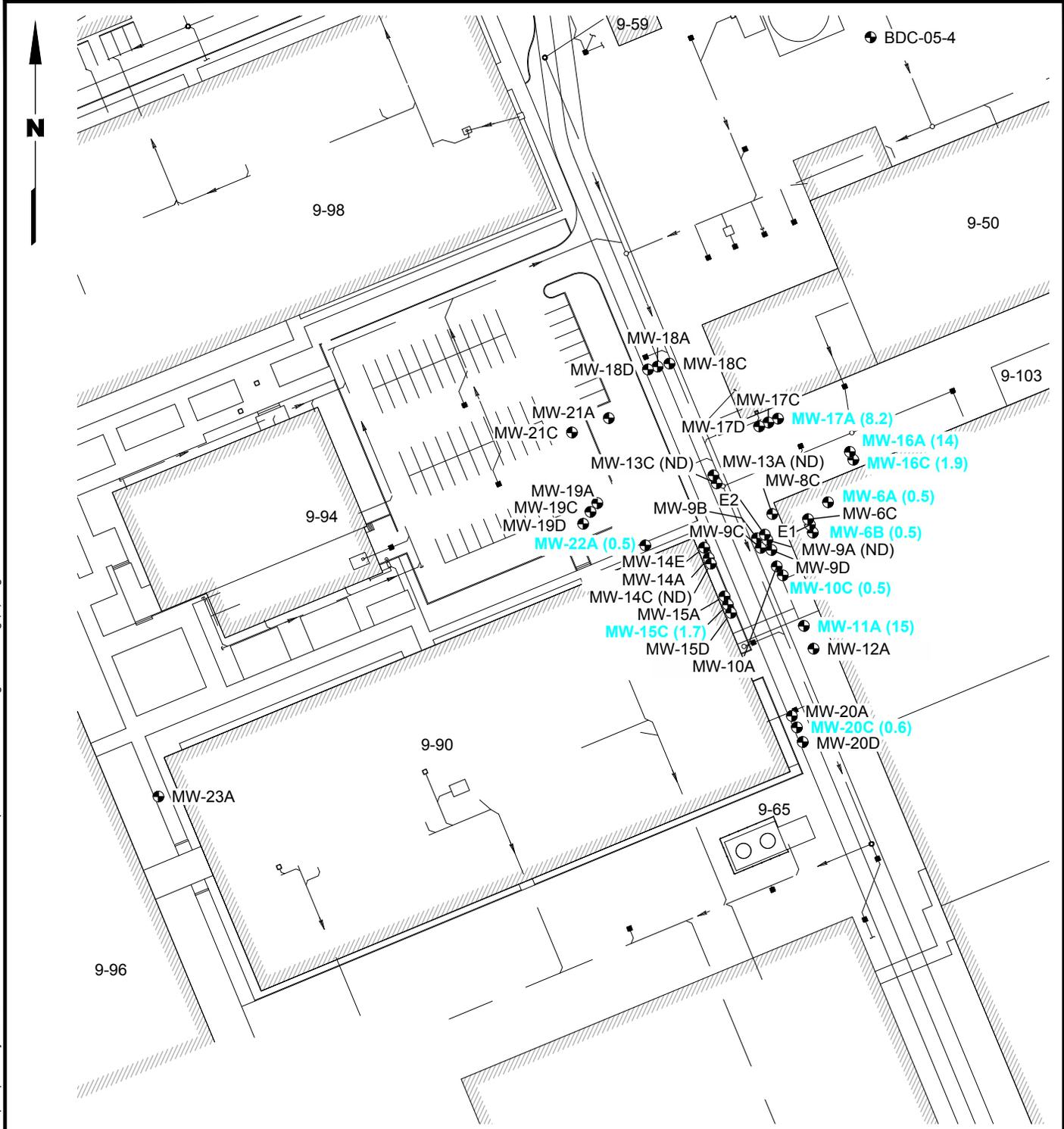


Boeing Developmental Center
Tukwila, Washington

**SWMU-20 Trichloroethene
November 2016
Groundwater Concentrations**

Figure
2

Boeing/Developmental Center/Summary Report | G:\Projects\025\087\016\020\Semianual GW Report November 2016\Figure 1-4.dwg (A) *Figure 3* 1/3/2017



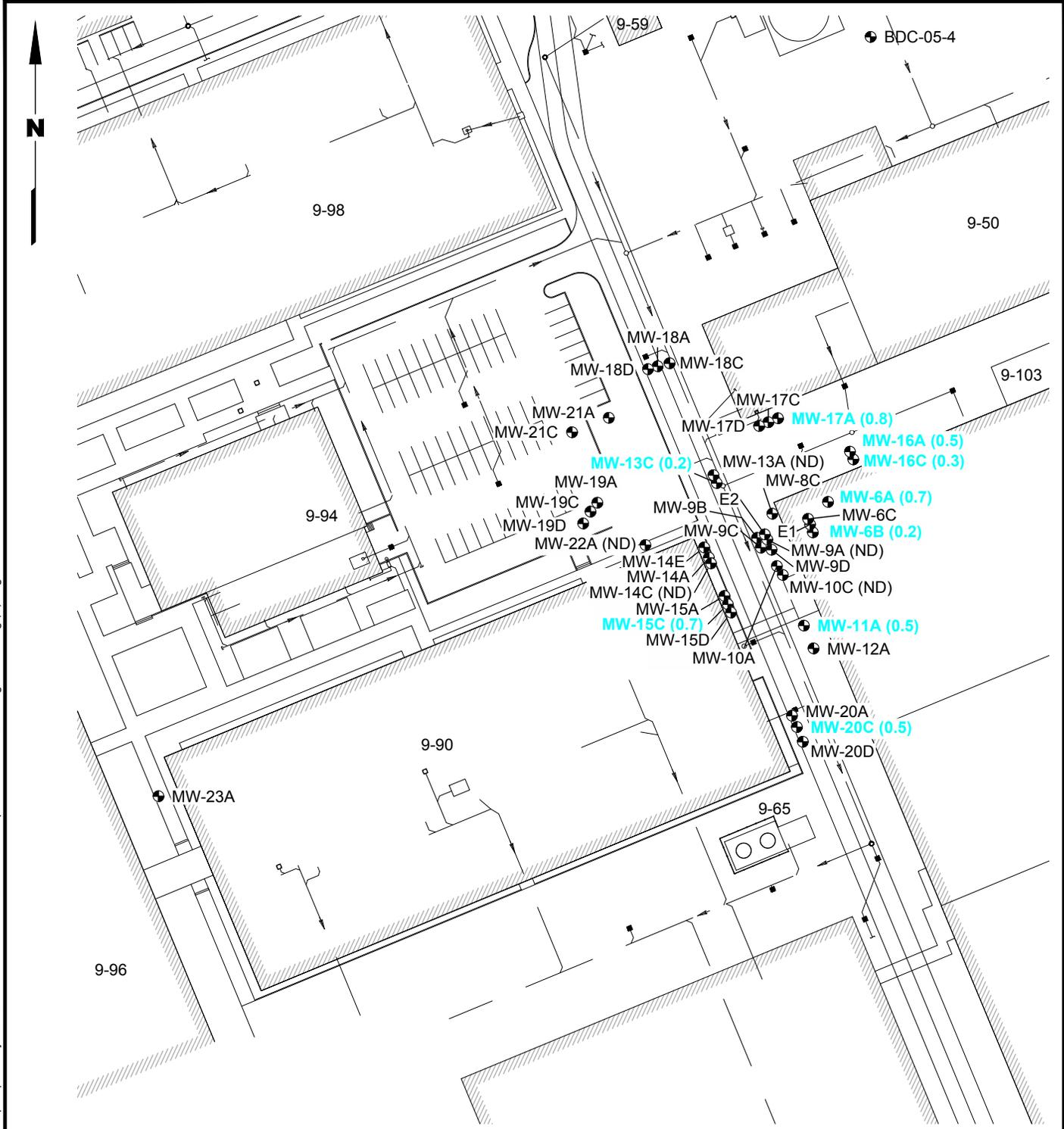
Legend

- Monitoring Well Location
- (ND) Cis-1,2-Dichloroethene Not Detected at 0.2 µg/L Detection Limit
- (20) Cis-1,2-Dichloroethene Groundwater Concentration in µg/L



Boeing Developmental Center Tukwila, Washington	SWMU-20 Cis-1,2-Dichloroethene November 2016 Groundwater Concentrations	Figure 3
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Boeing/Developmental Center/Summary Report | G:\Projects\025\087\016\020\Semianual GW Report November 2016\Figure 1-4.dwg (A) *Figure 4* 1/3/2017



Legend

-  Monitoring Well Location
- (ND) Vinyl Chloride Not Detected at 0.2 µg/L Detection Limit
- (0.7) Vinyl Chloride Groundwater Concentration in µg/L



Boeing Developmental Center
Tukwila, Washington

**SWMU-20 Vinyl Chloride
November 2016
Groundwater Concentrations**

Figure
4

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

TETRACHLOROETHENE (µg/L)

	Jan-94	May-95	Oct-95	Feb-96	May-96	Aug-96	Nov-96	Feb-97	May-97	Aug-97	Nov-97	Jun-98	Oct-98	Jun-99	Nov-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02	Jun-03	Nov-03	May-04	Aug-04	Oct-04	Feb-05	Mar-05	May-05
06A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.0	<1.0	<1.0	<1.0	nt	<1.0	
06B	27	5.87	14.4	9.62 J	26.18	13.7	14.3	21.5	21.3	17	16.9	18.9	16.3	22.6	2.3	6	10.19	2.6	2.4	10	10	7.9	3.9	9.5	1.9	<1.0	<1.0	nt	<2.0
06C	22	<1.00	<10.00	<10.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00
08C	16	<1.00	<5.00	<5.00	<3.33	<10.00	13.5	<5.00	<4.00	<4.00	<4.00	7.8	<5.00	<1.00	<2.00	<2.00	<2.00	<1.00	<1.00	<1.00	<1.00	<3.0	<5.0	<1.00	nt	<1.00	nt	<1.00	
09A	420	2568.25	1589	1970	785.7	114	272	98	76	96.9	56.6	39.4	94	5.1	38	40	36.6	12.65	16	14	540	1800	1000	150	<3.0	<5.0	<10	nt	<1.00
09B	820	1972.65	668.1	1266	934.6	78.9	75.9	44.3	35	10.9	21.5	31.3	<10.00	6.74	3.6	<2.00	6.62	1.18	2.1	<1.00	<1.00	1.0	250	<3.0	<5.0	<5.0	<10	nt	<1.00
09C	nd	11.32	<5.00	<10.00	1.24	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00
09D	8.8	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	<1.00	
10A	180	635.8	754 E	468.85	242.1	114	342	67.5	77.8	76.5	70.3	72.5	86.4	38	21.5	16.6	21.63	30.3	11	24	24	34	58	29	14	15	4.7	nt	4.2
10C	6.9	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	<1.00	
11A	5.2	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	<1.00
12A	3.9	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	<1.00	
13A	10	4.17	<5.00	<5.00	6.82	3	2.1	3.2	2.1	1.7	1.5	1.6	1.3	<1.00	<1.00	1.2	<1.00	<1.00	1.6	2.7	2.4	3.4	3.0	5.1	nt	4.3	nt	nt	6.1
13C	5.1	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	<1.00	
14A	410	4.42	<5.00	133.57	96.06	11.2	<5.00	<4.00	<2.00	<2.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.0	<5.0	nt	<10
14C	7.2	9.02	10.53	8.64 J	5.44	6.1	<1.00	<10.00	<10.00	<10.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	<1.00	
14E	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	<1.00
15A	11	<1.00	<5.00	<5.00	<5.00	<2.00	<1.00	<4.00	<2.00	<1.00	<2.00	<3.33	<10.00	<1.00	<10.00	<10.00	<10.00	<1.00	<1.00	<1.00	<1.00	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0
15C	13	<1.00	<33.30	<5.00	<1.00	1.1	<1.00	<2.00	<10.00	<10.00	<10.00	<3.33	<1.00	<2.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
15D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
16A	1.6	1.10	<5.00	<5.00	<1.00	1.7	<1.00	1.1	<1.00	<1.00	<1.00	1.64	1.03	1.3	2.3	2.2	<1.00	<1.00	<1.00	<1.00	1.2	1.2	1.1	1.2	nt	1.2	nt	nt	1.2
16C	nd	<1.00	<5.00	<10.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
17A	36	1.39	<5.00	<5.00	1.55	<1.00	1.3	2.7	1.90 J	2.2	<1.00	2.6	2.4	2.5	2.1	2.6	4.15	nt	<1.00	3.8	4.6	4.6	4.8	4.8	nt	5.2	nt	nt	nt
17C	36	<1.00	<5.00	<5.00	<1.00	1.6	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt										
17D	46	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt										
18A	5.4	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	<1.00	nt	nt	nt	nt	nt
18C	4.6	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
18D	4.6	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt										
19A	6	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	<1.00	nt	<1.00	nt	nt	<1.00
19C	6.5	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
19D	9.5	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt										
20A	3.4	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt										
20C	3.9	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
20D	4.3	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt										
21A	nt	nt	nt	nt	<1.00	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt							
21C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	nt						
22A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.00	<1.00
23A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.00	<1.00

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

TETRACHLOROETHENE (µg/L)

	Aug-05	Nov-05	Feb-06	May-06	Aug-06	Nov-06	Feb-07	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	May-12	Nov-12	May-13	Nov-13	May-14	Nov-14	Apr-15	Oct-15	Apr-16	Nov-16
06A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
06B	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2.0	<0.2
06C	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	nt													
08C	nt	<1.0	nt	<1.0	nt	<5.0	nt	<3.0	<5.0	<5.0	<5.0	<1.0	<3.0	nt													
09A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<0.2	1.9	<1.0	<5.0	<1.0	<1.0	<2.0	<0.2	<0.2	<2.0	<2.0	<2.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2
09B	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	nt													
09C	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<3.0	nt													
09D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	nt													
10A	2.7	3.3	3.7	1.8	1.6	<0.2	1.2	1.1	1.2	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	nt	nt	nt	nt
10C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
11A	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<2.0	<2.0	<2.0	<0.2	<0.2	0.2	<0.2	<0.2
12A	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	0.2	<0.2	<0.2	<0.2	0.3	0.3	nt	nt	nt	nt
13A	nt	6.0	nt	7.1	nt	8.3	nt	8.2	6.4	8.7	6.5	7.7	9.2	9.4	3.6	3.9	1.6	2.3	2.2	4.5	2.2	3.1	2.3	1.8	1.5	1.6	2.3
13C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<2.0	<2.0	<2.0	<1.0	<0.2	<0.2	<0.2	<0.2	
14A	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	nt	nt	nt	nt
14C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<2.0	<2.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
14E	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt													
15A	nt	<5.0	nt	<5.0	nt	<3.0	nt	<1.0	<1.0	<3.0	<1.0	<3.0	<1.0	<1.0	<1.0	<10	<0.2	<0.1	<0.2	<0.5	<0.2	<0.2	<0.2	nt	nt	nt	nt
15C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<5.0	<2.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2
15D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt													
16A	nt	1.3	nt	1.0	nt	<0.2	nt	1.1	1.7	1.2	1.5	1.6	2.2	1.4	1.3	1.6	1.4	1.6	1.1	1.4	2.1	1.4	1.6	1.4	1.5	0.8	0.6
16C	nt	<1.0	nt	<1.0	nt	1.2	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
17A	nt	4.0	nt	4.2	nt	2.2	nt	4.7	4.2	4.3	4.2	3.2	3.7	4.0	2.3	3.1	2.6	3.1	2.8	3.6	3.9	3.6	2.9	3.4	3.4	<2.0	<0.2
17C	nt																										
17D	nt																										
18A	nt																										
18C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	nt													
18D	nt																										
19A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt													
19C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt													
19D	nt																										
20A	nt																										
20C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<2.0	<5.0	<2.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2	
20D	nt																										
21A	nt																										
21C	nt																										
22A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
23A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	nt													

µg/L = micrograms per liter
 nd = not detected
 nt = not tested

J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
 E = Estimated concentration calculated for an analyte response above the valid instruction calibration range. A dilution is required to obtain an accurate quantification of the analyte.
 Bold = detected compound

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

TRICHLOROETHENE (µg/L)

	Jan-94	May-95	Oct-95	Feb-96	May-96	Aug-96	Nov-96	Feb-97	May-97	Aug-97	Nov-97	Jun-98	Oct-98	Jun-99	Nov-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02	Jun-03	Nov-03	May-04	Aug-04	Oct-04	Feb-05	Mar-05	May-05
06A	nt	1.0	<1.0	<1.0	<1.0	nt	<1.0																						
06B	4.2	3.57	6.00 J	<5.00	7.37	3.5	2.5	4.9	4.7	4.6	6.5	3.5	2.6	4.54	2.2	4.7	8.71	5.83	4.7	5.9	4.5	2.9	1.0	3.2	1.2	<1.0	<1.0	nt	<2.0
06C	1.6	<1.00	31.36	<10.00	<1.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	91.6	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00
08C	21	3.16	<5.00	<5.00	<3.33	<10.00	26.2	<5.00	<4.00	<4.00	<4.00	26.6	<5.00	<1.00	<2.00	<2.00	<2.00	<1.00	<1.00	<1.00	<1.00	<3.00	<5.00	<1.00	<1.00	<1.00	nt	<1.00	
09A	500	1796.5	1507	2318	1160	90.8	191	49.3	51.1	69.2	56.4	15.4	77	3.5	35	23	24.3	25.21	32	24	580	990	1500	230	11	19	<10	nt	<1.00
09B	160	1463	524.7	1206	554	58.6	35.2	28.7	31.5	4.9	15.4	20.65	<10.00	7.5	4.8	2.6	11.2	5.79	4.8	2.5	12	9.7	370	4.2	16	17	<10	nt	<1.00
09C	nd	19.41	<5.00	<10.00	3.54	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00
09D	2.2	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
10A	120	333.23	411 E	268.41	115.3	56.7	128	28.4	38.2	36.6	48.8	23.8	33.9	19.2	14	8.3	13.11	17.02	18	24	29	32	49	27	12	15	4.8	nt	5.4
10C	3.9	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	<1.00
11A	7	2.41	<5.00	<5.00	2.54	1.9	1	<1.00	<1.00	1.2	1.6	<1.00	1.03	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.9	2.2	2.2	2.8	2.1	nt	2.0	nt	nt	2.0
12A	5.5	1.13	<5.00	<5.00	<1.00	1.7	1.2	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
13A	31	12.23	<5.00	9.57 J	16.52	3.4	3.4	2	1.5	2.9	3	1.1	1.7	1.8	2.3	2.4	2.12	1.28	<1.00	3.4	3.3	3.9	3.8	4.6	nt	4.0	nt	nt	4.6
13C	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
14A	600	6.25	<5.00	151.58	146.72	84.1	2.8	<4.00	<2.00	<2.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2.9	39	<5.00	nt	<10
14C	6.6	14.41	21.93	13.33	7.61	12.5	<1.00	<10.00	<10.00	<10.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
14E	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
15A	7.5	<1.00	<5.00	<5.00	<5.00	<2.00	<1.00	<4.00	<2.00	<1.00	<2.00	<3.33	<10.00	<1.00	<10.00	<10.00	<10.00	<1.00	<1.00	<1.00	<1.00	<5.00	<5.00	<5.00	nt	<5.00	nt	nt	<5.00
15C	12	<1.00	<33.30	<5.00	<1.00	7.5	<1.00	<2.00	12	<10.00	<10.00	<3.33	<1.00	<2.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
15D	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00										
16A	4.4	5.02	<5.00	<5.00	2.57	4	2.1	2.6	2	1.9	<1.00	<1.00	<1.00	1.01	1.4	1.2	1.08	<1.00	<1.00	<1.00	1.5	1.3	1.2	1.2	nt	1.3	nt	nt	1.8
16C	nd	<1.00	<5.00	<10.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
17A	7.2	17.42	17.04	<5.00	7.28	<1.00	9.8	17.5	4.9	18	2	<1.00	12.4	11.1	11.5	6.6	13.99	nt	5.9	7.4	7.5	7.4	7.9	6.5	nt	4.8	nt	nt	nt
17C	2.1	<1.00	<5.00	<5.00	<1.00	14.1	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt										
17D	2.3	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt										
18A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	<1.00	nt	nt	nt	nt	nt
18C	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
18D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt										
19A	1.5	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	<1.00	nt	nt	<1.00	nt	<1.00
19C	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
19D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt										
20A	1.1	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt										
20C	1.8	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	<1.00
20D	1.5	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt										
21A	nt	nt	nt	nt	<1.00	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt						
21C	nt	<1.00	<1.00	<1.00	<1.00	<1.00	nt																						
22A	nt	<1.00	<1.00																										
23A	nt	<1.00	<1.00																										

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

TRICHLOROETHENE (µg/L)

	Aug-05	Nov-05	Feb-06	May-06	Aug-06	Nov-06	Feb-07	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	May-12	Nov-12	May-13	Nov-13	May-14	Nov-14	Apr-15	Oct-15	Apr-16	Nov-16	
06A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
06B	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2.0	<0.2	
06C	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	nt														
08C	nt	<1.0	nt	<1.0	nt	<5.0	nt	<3.0	<5.0	<5.0	<5.0	<1.0	<3.0	nt														
09A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	0.2	4.6	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	<0.2	<2.0	<2.0	<2.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2	
09B	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	nt														
09C	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<3.0	nt														
09D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	nt														
10A	6.3	6.7	9.6	3.7	1.6	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	nt	nt	nt	nt	
10C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
11A	nt	2.0	nt	1.1	nt	1.5	nt	1.5	1.1	1.2	1.2	<1.0	1.0	1.1	<1.0	<1.0	0.5	0.7	<2.0	<2.0	<2.0	<2.0	0.4	0.5	0.2	0.3	<0.2	
12A	nt	<1.0	nt	<1.0	nt	0.7	nt	<1.0	<1.0	0.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.6	<0.2	0.4	<0.2	0.5	<0.2	<0.2	nt	nt	nt	nt	
13A	nt	4.5	nt	4.6	nt	6.5	nt	7.0	4.2	6.8	3.7	5.6	6.0	5.3	2.8	2.4	<1.0	0.8	0.8	2.5	0.6	1.3	0.5	0.4	0.3	0.3	0.7	
13C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<2.0	<2.0	<2.0	<2.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	
14A	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	nt	nt	nt	nt	
14C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<2.0	<2.0	<2.0	<1.0	<0.2	<0.2	<0.2	<0.2	
14E	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt														
15A	nt	<5.0	nt	<5.0	nt	<3.0	nt	<1.0	<1.0	<3.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<0.2	<0.5	<0.2	<0.2	<0.2	nt	nt	nt	nt	
15C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	3.2	<5.0	<2.0	<2.0	<0.2	<0.2	<0.2	<0.2	0.6	0.3
15D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt														
16A	nt	2.2	nt	1.4	nt	0.8	nt	1.3	1.2	1.3	1.4	1.6	1.5	1.4	1.1	1.4	1.3	1.7	1.5	1.5	1.8	1.6	1.5	1.4	1.5	0.7	0.3	
16C	nt	<1.0	nt	<1.0	nt	2.3	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
17A	nt	5.4	nt	4.4	nt	6.3	nt	5.3	4.3	5.1	5.2	4.9	4.5	3.1	4.8	2.2	2.8	2.0	3.5	2.8	3.4	2.6	3.1	2.3	2.6	<2.0	0.4	
17C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
17D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
18A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
18C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	nt														
18D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
19A	<1.0	<1.0	<1.0	<1.0	<1.0	0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt														
19C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt														
19D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
20A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
20C	nt	<1.0	nt	<1.0	nt	0.2	nt	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<2.0	<5.0	<2.0	<2.0	<0.2	<0.2	<0.2	0.2	<0.2		
20D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
21A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
21C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
22A	<1.0	<1.0	<1.0	<1.0	<1.0	0.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
23A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	nt														

µg/L = micrograms per liter
 nd = not detected
 nt = not tested

J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
 E = Estimated concentration calculated for an analyte response above the valid instruction calibration range. A dilution is required to obtain an accurate quantification of the analyte.
 Bold = detected compound

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

CIS-1,2-DICHLOROETHENE (µg/L)

	Jan-94	May-95	Oct-95	Feb-96	May-96	Aug-96	Nov-96	Feb-97	May-97	Aug-97	Nov-97	Jun-98	Oct-98	Jun-99	Nov-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02	Jun-03	Nov-03	May-04	Aug-04	Oct-04	Feb-05	Mar-05	May-05	
06A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	23	45	2.6	3.3	nt	2.6	
06B	23	43.71	53.75	29.45	58.31	46.3	30.5	37.4	60.9	61.8	76.4	66.7	9.9	70.1	49.7	71.5	91.77	63.94	27	40	23	13	11	10	13	10	11	nt	5.5	
06C	7.9	14.57	99.09	<10.00	1.01	107	1.9	3.1	22.1	28.3	12.3	1.1	181 E	<2.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.4	<1.0	3.6	nt	1.1	
08C	44	14.95	<5.00	5.55 J	8	1.1	37.6	<5.00	37.3	46.1	42.3	38.4	<5.00	1.1	<2.00	3.2	<2.00	<1.00	<1.0	<1.0	<1.0	<3.0	<5.0	<1.0	nt	<1.0	nt	nt	<1.0	
09A	2500	5790.9	3286	7484	6143	443	816	520	258	206 E	199	94.3	680	15.5	187	421	60.75	266.6	100	280	1600	2300	2300	970	370	460	41	nt	<1.0	
09B	940	5010.35	1307 E	3407 E	1521	207	142	164 E	510	35.1	111	939 E	178	122.04	41.2	102.4	135.2	112.3	100	<180	180	140	850	250	530	300	890	nt	12	
09C	520	431.66	159.69	70	33.67	29.8	1.6	4.6	2.6	2	1.7	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.1	6.7	2.7	4.1	8.9	4.0	1.7	<1.0	1.7	nt	1.2	
09D	5.1	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
10A	470	421.26	297 E	249.16	159.2	90.1	17.8	29	66.1	58.5	74.1	29.3	6.9	33.3	20.6	10.6	14.14	14.09	36	80	110	88	98	80	170	100	24	nt	26	
10C	14	1.93	<5.00	<5.00	1.01	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	3.7	3.3	14	6.2	4.3	nt	6.4	nt	nt	4.0	
11A	54	15.86	10.82	7.17 J	10.27	9.3	6.4	4.9	6.6	6.1	4.2	2.8	2.3	2.1	1.1	1.5	1.55	1.27	2.1	6.0	12	17	18	21	nt	20	nt	nt	20	
12A	20	2.30	17.5	<5.00	1.09	9.5	6.6	<1.00	6.1	3.7	3	1.7	1.7	1.8	1.03	1.9	2.07	1.46	2.2	1.8	3.3	1.4	4	1.8	nt	4.4	nt	nt	2.0	
13A	8.2	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.6	<1.00	<1.00	1.2	1.3	1.2	1.2	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
13C	16	1.14	<5.00	<5.00	<1.00	1.3	<1.00	1.3	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	1.4	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
14A	590	15.50	9.83 J	294.36	115.94	249	114	6.4	24.2	18.3	9.5	4.9	3.7	7	3.2	3.8	<1.00	<1.00	<1.0	<1.0	7.2	23	170	140	560	1200	300	nt	<10	
14C	110	187.91	1017.82	237.4	70.06	326	211	183	163	136	82.7	25.6	21.7	6.2	<1.00	1.2	2.83	1.64	<1.0	1.5	2.4	31	13	63	nt	22	nt	nt	11	
14E	1.1	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
15A	9.1	3.29	<5.00	<5.00	<5.00	3.6	3.5	4.5	5	5.5	5.5	15.65	<10.00	<1.00	<10.00	<10.00	<10.00	4.99	4.9	2.8	2.8	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0	
15C	92	69.14	640.52	93.62	1.47	463	532	187	1470	1100	719	785 E	90.5	53.2	28.4	1.01	2.53	<1.00	1.1	<1.0	<1.0	2.9	5.7	9.1	nt	11	nt	nt	13	
15D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
16A	5.5	12.63	5.38 J	<5.00	25.39	12	3.2	6.2	2.4	1.7	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.76	1.82	2.6	<1.0	1.2	2.4	1.3	2.3	nt	1.8	nt	nt	2.6	
16C	14	11.83	6.24 J	<10.00	5.66	2.6	1.6	1.6	1.13	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	1.7	nt	2.4	nt	nt	2.8	
17A	4.3	1.38	<5.00	<5.00	1.09	<1.00	1.4	1.2	2.90 J	4.13	<1.00	2.3	3.8	4.1	4.3	2.3	2.1	nt	2	<1.0	1.0	1.4	1.6	1.0	nt	1.2	nt	nt	nt	
17C	5.3	<1.00	<5.00	<5.00	1.19	1.6	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt											
17D	1.8	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt											
18A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	<1.0	nt	nt	nt	nt	nt	
18C	1.3	2.02	<5.00	<5.00	<1.00	1	<1.00	<1.00	<1.00	<1.00	<1.00	1.1	1.8	1.9	2.1	1.3	1.59	1.42	<1.0	<1.0	<1.0	1.7	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
18D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt											
19A	2.4	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	<1.0	nt	nt	<1.0	nt	<1.0	
19C	1.7	1.17	<5.00	<5.00	1.37	1.3	<1.00	<1.00	1.2	1.2	1.2	2	1.2	1.4	<1.00	1.03	<1.00	1.01	<1.0	<1.0	<1.0	<1.0	1	<1.0	nt	<1.0	nt	nt	<1.0	
19D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt											
20A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt											
20C	16	7.34	6.06 J	<5.00	2.46	2.5	2.1	1.9	1.6	<1.00	<1.00	<1.00	1.5	<1.00	<1.00	1.3	<1.00	1.09	1.1	<1.0	1.3	2.1	1.6	1.4	nt	1.7	nt	nt	1.7	
20D	1.8	2.22	<5.00	<5.00	46.38	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt											
21A	nt	nt	nt	nt	<1.00	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	nt							
21C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.00	<1.0	<1.0	1.3	nt								
22A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	3.5	2.3
23A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.0	<1.0	

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

CIS-1,2-DICHLOROETHENE (µg/L)

	Aug-05	Nov-05	Feb-06	May-06	Aug-06	Nov-06	Feb-07	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	May-12	Nov-12	May-13	Nov-13	May-14	Nov-14	Apr-15	Oct-15	Apr-16	Nov-16
06A	1.6	1.3	1.4	<1.0	<1.0	0.4	<1.0	<1.0	<0.2	<1.0	1.7	<4.0	1.9	1.3	<1.0	<1.0	0.3	0.4	0.3	<0.5	0.4	0.4	0.4	0.6	0.2	1	0.5
06B	1.8	1.1	<1.0	<1.0	<1.0	1.4	3.8	1.4	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	0.5	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<2.0	0.5	
06C	1.1	1.1	<1.0	<1.0	<1.0	0.3	<1.0	<1.0	0.2	<1.0	<1.0	<1.0	<1.0	nt													
08C	nt	<1.0	nt	<1.0	nt	<5.0	nt	<3.0	<5.0	<5.0	<5.0	<1.0	<3.0	nt													
09A	<1.0	<1.0	<1.0	<1.0	<1.0	0.3	<1.0	<1.0	<1.0	110	160	<1.0	<5.0	<1.0	<1.0	<2.0	0.2	0.2	<2.0	<2.0	<2.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2
09B	<1.0	<1.0	<1.0	<1.0	<1.0	0.3	<1.0	<1.0	<1.0	0.2	<1.0	<1.0	<1.0	nt													
09C	7.6	1.2	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<3.0	nt													
09D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	nt													
10A	48	47	42	63	38	7.4	32	28	22	22	1.6	<2.0	<1.0	<1.0	<1.0	<2.0	0.2	0.2	0.3	0.2	0.2	<1.0	0.2	nt	nt	nt	nt
10C	nt	<1.0	nt	1.5	nt	1.9	nt	6.7	7.2	15	8.5	<1.0	<1.0	<1.0	3.5	5.8	3.7	5.4	6.1	6.0	3.5	5.4	2.6	2.2	1.0	0.5	0.5
11A	nt	22	nt	20	nt	24	nt	26	27	26	33	26	30	26	22	22	23	24	25	22	24	19	24	21	19	20	15
12A	nt	3.8	nt	1.5	nt	4.4	nt	2.4	3.2	3.2	4.7	1.4	4.7	<1.0	4.3	<1.0	3.1	<0.2	2.1	0.5	2.2	<0.2	0.3	nt	nt	nt	nt
13A	nt	<1.0	nt	<1.0	nt	0.3	nt	0.4	<1.0	0.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
13C	nt	<1.0	nt	<1.0	nt	0.8	nt	0.8	<1.0	0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<2.0	<2.0	<2.0	<2.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
14A	<1.0	6.0	<1.0	2.1	3.0	<1.0	<1.0	1.5	1.6	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.6	0.3	0.6	<0.5	0.5	0.3	0.4	nt	nt	nt	nt
14C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	1.1	1.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<2.0	<2.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2
14E	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt													
15A	nt	<5.0	nt	<5.0	nt	<3.0	nt	1.4	<1.0	<3.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	0.3	<1.0	0.4	0.6	0.5	0.6	0.4	nt	nt	nt	nt
15C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	1.8	1.9	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<5.0	<2.0	<2.0	0.5	0.6	0.5	1.2	1.7
15D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt													
16A	nt	2.1	nt	2.3	nt	4.2	nt	1.9	1.2	1.2	1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.5	0.5	0.6	<0.5	0.3	0.4	0.4	0.3	0.3	10	14
16C	nt	4.6	nt	5.2	nt	2.0	nt	8.8	7	7.8	5.3	5.0	4.9	3.7	3.3	3.7	3.3	4.8	4.9	3.9	4.4	3.4	3.4	2.2	2.7	0.9	1.9
17A	nt	1.1	nt	<1.0	nt	1.0	nt	1.0	<1.0	0.8	1.2	1.4	1.1	<1.0	2.3	1.5	1.0	0.5	0.9	0.8	1.0	0.4	0.9	0.4	1.1	8.0	8.2
17C	nt																										
17D	nt																										
18A	nt																										
18C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	nt													
18D	nt																										
19A	<1.0	<1.0	<1.0	<1.0	<1.0	0.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt													
19C	nt	<1.0	nt	<1.0	nt	0.3	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt													
19D	nt																										
20A	nt																										
20C	nt	2.1	nt	1.8	nt	2.1	nt	1.6	1.6	1.6	1.5	1.4	1.7	1.3	1.4	1.1	1.3	1.2	<2.0	<5.0	<2.0	<2.0	0.9	0.7	1.0	2.2	0.6
20D	nt																										
21A	nt																										
21C	nt																										
22A	2.3	1.4	1.4	2.4	1.8	2.2	2.5	2.5	2	2.6	2.2	2.5	2.1	1.7	1.2	1.1	0.9	0.6	0.5	0.4	0.5	0.5	0.4	0.6	0.5	0.5	0.5
23A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	0.3	<1.0	<1.0	<1.0	<1.0	nt													

µg/L = micrograms per liter
 nd = not detected
 nt = not tested

J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
 E = Estimated concentration calculated for an analyte response above the valid instruction calibration range. A dilution is required to obtain an accurate quantification of the analyte.
 Bold = detected compound

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

VINYL CHLORIDE (µg/L)

	Jan-94	May-95	Oct-95	Feb-96	May-96	Aug-96	Nov-96	Feb-97	May-97	Aug-97	Nov-97	Jun-98	Oct-98	Jun-99	Nov-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02	Jun-03	Nov-03	May-04	Aug-04	Oct-04	Feb-05	Mar-05	May-05	
06A	nt	4.0	5.9	31	<1.0	nt	<1.0																							
06B	13	36.53	31.8	52.29	44.78	54.5	49.4	63.7	88.7	55	62.7	46.3	4.2	48.4	25.9	8	21.58	10.62	8.9	12	11	8.4	17	9.4	2.3	3.6	<1.0	nt	<2.0	
06C	30	20.89	34.09	38.34	22.06	164	12	18.3	50.3	39.5	26.1	6	54.6	4.4	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	
08C	130	42.13	32.69	35.33	35.96	129	41.2	201	488	256	210	20.6	<5.00	49.7	21.4	2.4	<2.00	<1.00	<1.0	<1.0	<1.0	<3.0	<5.0	2.8	nt	3.5	nt	<1.0		
09A	240	917.05	449	1385	844.9	124	228	80.9	185	127	135	83.8	425	14	278	499	17.95	86.44	7.8	46	150	120	180	37	150	220	37	nt	<1.0	
09B	140	648.6	175.6	836	228.2	104	62.6	41.7	270	20.9	50.7	439.56	132	152.36	66.6	82.6	146.7	78.9	110	7.6	27	19	360	<3.0	100	340	520	nt	24	
09C	190	233.79	185 E	71.74	50.13	106	19.4	59.8	147	102.5	87.8	1.1	<1.00	59	16.4	<1.00	<1.00	<1.00	<1.0	18	8.6	5.6	8.0	3.3	<1.0	1.5	<1.0	nt	<1.0	
09D	nd	1.37	<5.00	<5.00	<1.00	1	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0		
10A	120	116.25	16.12	31.6	651.2	80.9	16.7	48.2	33.4	9.8	8.8	8.7	1.3	12.1	3.5	3	3.32	3.32	2.9	28	54	36	9.1	6.4	4.0	23	6.8	nt	7.2	
10C	39	28.29	33.16	40.41	18.69	11.6	10.1	9	<1.00	4.3	3.8	1.7	1.6	2.8	1.4	2.1	<1.00	<1.00	<1.0	8.4	15	15	8.8	4.0	nt	11	nt	nt	1.9	
11A	39	26.80	8.37 J	12.14	14.04	3.8	1.8	<1.00	<1.00	<1.00	3.4	<1.00	<1.00	1.1	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
12A	14	<1.00	17.16	<5.00	<1.00	2.9	8.6	<1.00	9.4	6.7	1.1	1.3	<1.00	2.7	1.06	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
13A	12	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
13C	760	3.03	<5.00	15.24	11.48	3.6	1.9	2.5	2.2	<1.00	<1.00	1	1.6	1.8	<1.00	<1.00	<1.00	<1.00	<1.0	1.6	3.3	4.9	2.2	2.5	nt	3.3	nt	nt	<1.0	
14A	170	11.38	30.32	44.4	36.4	339	232	162	270	158	70	29.1	13.74	58.2	20.9	19.7	<1.00	<1.00	<1.0	<1.0	69	28	240	110	180	650	1000	nt	<10	
14C	120	103.49	1587.3	1477	134.78	414	175	1296	307	148	144	39.4	56.4	30.2	<1.00	<1.00	4.67	1.21	<1.0	<1.0	4.4	50	35	44	nt	75	nt	nt	6.1	
14E	10	1.43	<5.00	<5.00	<1.00	1.3	<1.00	<1.00	1.3	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
15A	16	13.84	31.2	54.62	19.45	19.4	23	20.4	23.5	17.4	18.6	61.61	17.2	2.9	37	16	<10.00	3.86	1.8	2.0	3.3	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0	
15C	38	38.79	142.38	69.81	5.12	104	220	69	598	519	500	772 E	194 E	121.2	49.2	1.4	21.32	<1.00	1.5	<1.0	1.3	5.6	16	11	nt	17	nt	nt	6.4	
15D	nt	8.6	5.2	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0											
16A	6	9.18	<5.00	<5.00	8.42	4.4	<1.00	<1.00	2.2	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
16C	15	23.46	38.59	45.16	31.71	20.8	11.8	11.3	9.1	3	<1.00	1.4	<1.00	1.9	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	1.4	3.8	2.6	5.4	nt	8.5	nt	nt	7.7	
17A	nd	<1.00	<5.00	<5.00	<1.00	1	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	nt	
17C	10	2.32	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt											
17D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt											
18A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	<1.0	nt	nt	nt	nt	nt	
18C	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.1	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
18D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt												
19A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	nt	<1.0	nt	nt	<1.0	nt	<1.0	
19C	5.5	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	<1.0	nt	nt	<1.0	
19D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt												
20A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt												
20C	47	20.12	12.63	13.77	8.32	6.7	3.4	3.3	3.4	<1.00	<1.00	1.6	1.8	<1.00	1.9	<1.00	1.06	<1.00	<1.0	1.4	2.7	4.0	3.1	2.4	nt	4.6	nt	nt	2.3	
20D	nd	6.98	<5.00	<5.00	31.12	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt											
21A	nt	nt	nt	nt	<1.00	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<1.0	<1.0	nt								
21C	nt	<1.00	<1.0	<1.0	<1.0	nt																								
22A	nt	2.0	2.9																											
23A	nt	<1.0	<1.0																											

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

VINYL CHLORIDE (µg/L)

	Aug-05	Nov-05	Feb-06	May-06	Aug-06	Nov-06	Feb-07	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	May-12	Nov-12	May-13	Nov-13	May-14	Nov-14	Apr-15	Oct-15	Apr-16	Nov-16	
06A	<1.0	1.2	4.8	1.6	1.5	2.1	6.7	2.9	1.2	1.4	<1.0	<4.0	<1.0	1.9	1.7	1.4	0.8	1.2	0.8	1.3	2.4	1.5	2.7	3.3	2.5	0.7	0.7	
06B	1.6	1.3	1.4	1.3	1.1	2.6	9.5	6.5	1	<1.0	<1.0	<1.0	<1.0	4.2	5.4	5.2	0.8	6.0	3.7	4.3	2.5	2.4	1.8	1.8	1.0	<2.0	0.2	
06C	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	0.3	<1.0	<1.0	<1.0	<1.0	nt														
08C	nt	<1.0	nt	<1.0	nt	<5.0	nt	<3.0	<5.0	<5.0	<5.0	<1.0	<3.0	nt														
09A	<1.0	<1.0	<1.0	<1.0	1.2	1.1	<1.0	2.8	<1.0	85	42	<1.0	<5.0	<1.0	<1.0	<2.0	<0.2	<0.2	<2.0	<2.0	<2.0	<2.0	<2.0	<0.2	<0.2	<0.2	0.7	<0.2
09B	1.7	<1.0	1.3	<1.0	<1.0	0.5	<1.0	<1.0	<1.0	0.4	<1.0	<1.0	<1.0	nt														
09C	2.2	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	0.2	<1.0	<1.0	<3.0	nt														
09D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	nt														
10A	76	73	150	19	20	9.2	35	44	78	180	5.0	<2.0	<1.0	<1.0	<2.0	0.4	0.4	0.4	0.3	0.4	0.4	<1.0	0.3	nt	nt	nt	nt	
10C	nt	1.0	nt	2.2	nt	2.6	nt	5.8	5.6	6.9	7.5	<1.0	<1.0	<1.0	4.4	4.7	4.3	4.0	4.4	4.5	3.7	2.9	2.5	1.7	1.1	<0.2	<0.2	
11A	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	0.2	<1.0	<1.0	<1.0	<1.0	<1.0	0.4	0.4	<2.0	<2.0	<2.0	<2.0	<2.0	0.4	0.3	0.4	0.4	0.5	
12A	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	nt	nt	nt	
13A	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
13C	nt	3.8	nt	2.2	nt	3.4	nt	4.4	2	0.6	2.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.3	<2.0	<2.0	<2.0	<1.0	0.2	0.3	0.2	0.3	0.2	
14A	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	0.2	<0.2	<0.5	<0.2	0.3	0.2	nt	nt	nt	nt	
14C	nt	1.8	nt	<1.0	nt	1.0	nt	2.5	11	22	4.3	1.1	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<2.0	<2.0	<1.0	<0.2	<0.2	<0.2	0.3	<0.2	
14E	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt														
15A	nt	<5.0	nt	<5.0	nt	<3.0	nt	2.6	1.3	<3.0	<2.0	<3.0	1.4	1.6	1.4	<1.0	1.0	1.2	0.8	1.1	0.8	1.0	0.5	nt	nt	nt	nt	
15C	nt	<1.0	nt	<1.0	nt	<0.2	nt	2.2	2.5	6.6	6.6	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<5.0	2.3	2.9	2.5	2.4	2.0	0.5	0.7	
15D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt														
16A	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.5	
16C	nt	12	nt	6.3	nt	<0.2	nt	10	8.9	7.9	8.8	6.3	5.6	3.4	2.8	3.2	2.5	4.2	3.8	2.8	2.1	1.2	1.3	1.2	1.1	0.3	0.3	
17A	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2.0	0.8	
17C	nt	nt																										
17D	nt	nt																										
18A	nt	nt																										
18C	nt	<1.0	nt	<1.0	nt	<0.2	nt	0.2	<1.0	0.2	<1.0	<1.0	<1.0	nt														
18D	nt	nt																										
19A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt														
19C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt														
19D	nt	nt																										
20A	nt	nt																										
20C	nt	2.9	nt	1.6	nt	1.5	nt	1.8	1.3	2.5	2.7	2.0	2.3	1.8	1.4	1.8	2.1	1.5	<2.0	<5.0	<2.0	<2.0	0.7	1.0	0.9	0.3	0.5	
20D	nt	nt																										
21A	nt	nt																										
21C	nt	nt																										
22A	3.2	2.2	3.3	1.7	2.4	2.4	2.3	2.7	1.3	1.9	3.1	2.5	1.8	1.7	2.7	2.2	1.7	2.0	1.8	2.0	1.7	1.6	1.5	1.5	1.5	<0.2	<0.2	
23A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	nt	nt													

µg/L = micrograms per liter
 nd = not detected
 nt = not tested

J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
 E = Estimated concentration calculated for an analyte response above the valid instruction calibration range. A dilution is required to obtain an accurate quantification of the analyte.
 Bold = detected compound

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

BENZENE (µg/L)

	Jan-94	May-95	Oct-95	Feb-96	May-96	Aug-96	Nov-96	Feb-97	May-97	Aug-97	Nov-97	Jun-98	Oct-98	Jun-99	Nov-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02	Jun-03	Nov-03	May-04	Aug-04	Oct-04	Feb-05	Mar-05	May-05	
06A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.0	<1.0	<1.0	<1.0	nt	<1.0	
06B	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.3	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<2.0	
06C	nd	8.64	230.09	29.96	13.7	5.6	2.9	3.4	4.6	4.1	4.2	4.2	5.7	2.8	2.7	<1.00	2.76	1.94	1.7	<1.00	<1.00	<1.00	2.2	<1.00	<1.00	1.9	1.2	nt	1.7	
08C	nd	225.74	135.58	104.73	104.6	31.8	121	27.5	6.1	<4.00	<4.00	13.6	<5.00	<1.00	<2.00	15.8	<2.00	<1.00	<1.00	5.4	4.4	<3.0	<5.0	2.0	nt	1.3	nt	<1.0		
09A	nd	<1.00	<5.00	<500.00	<50.00	<3.33	<10.00	<4.00	<5.00	<1.00	<4.00	<1.00	<10.00	<1.00	<10.00	<10.00	<5.00	<1.00	<1.00	<1.00	<1.00	<15	<20	<20	<3.0	<5.0	<10	nt	<1.0	
09B	nd	19.76	<33.30	<50.00	<10.00	2.5	<1.00	<1.00	7.5	3.1	3.3	<3.33	<10.00	<2.00	<2.00	<2.00	<2.00	<1.00	1.2	<1.00	<1.00	<1.00	<1.00	<3.0	<5.0	<5.0	<10	nt	<1.0	
09C	nd	<1.00	<5.00	<10.00	<1.00	9.6	2.4	6.3	9.3	4.8	3.6	1.7	2.5	1.7	<1.00	1.5	1.36	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	
09D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	<1.0		
10A	nd	<1.00	<5.00	<50.00	<10.00	<1.00	<3.33	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	
10C	nd	1.15	<5.00	<5.00	1.33	1.4	1.4	1.5	1.4	1.2	1.3	1.3	1.1	1.1	<1.00	1.4	1.23	<1.00	1.3	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	<1.0	
11A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	<1.0	
12A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	<1.0	
13A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	<1.0	
13C	nd	4.88	69.66	33.56	25.76	75	34.1	36.5	20.5	7.6	6.8	3.9	3.3	3	<1.00	2	2.31	1.16	<1.00	<1.00	3.6	6.9	2.7	4.2	nt	1.3	nt	nt	1.9	
14A	nd	<1.00	<5.00	<20.00	<1.00	<10.00	<5.00	<4.00	<2.00	<2.00	<2.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<5.0	<5.0	nt	<10
14C	nd	<1.00	<5.00	<5.00	26.44	22	11.7	<10.00	<10.00	<10.00	4.3	2.8	4.64	2.5	1.2	1.4	1.33	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	nt	<1.0	
14E	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	<1.0	
15A	nd	<1.00	<5.00	<5.00	<5.00	<2.00	<1.00	<4.00	<2.00	<1.00	<2.00	<3.33	<10.00	<1.00	<10.00	<10.00	<10.00	<1.00	<1.00	<1.00	<1.00	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0	
15C	nd	<1.00	<33.30	<5.00	<1.00	<3.33	<1.00	<2.00	<10.00	<10.00	<10.00	<3.33	5.2	5.2	5.4	<1.00	4.28	2.92	3.2	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	nt	<1.0	
15D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	<1.0	
16A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	2	<1.00	10.9	49.8	1.6	46.03	33.88	15	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	<1.0	
16C	nd	<1.00	<5.00	<10.00	<1.00	3.3	31.2	11.3	14.4	18.8	1.7	15	8.3	10	6.4	7.8	4.33	4.99	4.5	1.7	2.6	1.2	2.8	<1.00	nt	1.0	nt	<1.0		
17A	nd	<1.00	<5.00	<5.00	<1.00	78.8	2.7	<1.00	<1.00	<1.00	<1.00	11.2	<1.00	<1.00	<1.00	1.5	<1.00	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	nt	nt	
17C	nd	142.64	73.23	34.26	92.46	40.6	22.5	36.6	4.7	21.8	8.53	5.6	2.7	3.7	2.4	2.1	nt	<1.00	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
17D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	nt	nt	nt	nt	nt	nt	nt	
18A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	nt	nt
18C	14	8.77	5.28 J	<5.00	5.79	5.4	3.1	3.6	4	2.9	2.7	1.5	1.4	1.5	<1.00	1.1	1.26	<1.00	<1.00	<1.00	<1.00	2.2	<1.00	<1.00	nt	<1.0	nt	nt	<1.0	
18D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
19A	1.1	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	<1.00	nt	nt	<1.0	nt	<1.0	
19C	61	17.57	13.44	7.14 J	10.46	6.8	5.6	6.8	6.2	3.4	2.9	2.2	1.8	1.8	1.3	1.2	1.43	1.3	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	nt	<1.0	
19D	3.9	3.60	<5.00	<5.00	2.42	2.2	1.6	1.9	1.7	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
20A	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt
20C	nd	<1.00	<5.00	<5.00	<1.00	1.1	<1.00	1.1	1.1	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.1	<1.00	<1.00	nt	<1.0	nt	<1.0	
20D	nd	<1.00	<5.00	<5.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	
21A	nt	nt	nt	nt	<1.00	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt
21C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	nt	nt	nt	nt
22A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.0	<1.0
23A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<1.0	<1.0

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

BENZENE (µg/L)

	Aug-05	Nov-05	Feb-06	May-06	Aug-06	Nov-06	Feb-07	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	May-12	Nov-12	May-13	Nov-13	May-14	Nov-14	Apr-15	Oct-15	Apr-16	Nov-16		
06A	<1.0	<1.0	<1.0	<1.0	<1.0	0.4	<1.0	<1.0	0.3	<1.0	<1.0	<4.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	nt	<0.2	
06B	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	nt	<0.2	
06C	1.9	1.9	1.3	1.3	1.2	1.2	<1.0	<1.0	0.9	<1.0	<1.0	<1.0	<1.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
08C	nt	<1.0	nt	<1.0	nt	<5.0	nt	<3.0	<5.0	<5.0	<5.0	<1.0	<3.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
09A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<5.0	<1.0	<1.0	<2.0	<0.2	<0.2	<2.0	<2.0	<2.0	<2.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2	
09B	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
09C	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<3.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
09D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
10A	<1.0	<1.0	<1.0	<1.0	<1.0	0.3	<1.0	<1.0	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<2.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<0.2	nt	nt	nt	nt	
10C	nt	<1.0	nt	<1.0	nt	0.2	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	nt	0.3	
11A	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<2.0	<2.0	<2.0	<0.2	<0.2	<0.2	<0.2	nt	<0.2	
12A	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	nt	nt	nt	nt	
13A	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
13C	nt	3.0	nt	2.1	nt	2.1	nt	1.2	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<2.0	<2.0	<2.0	<2.0	<1.0	<0.2	<0.2	<0.2	<0.2	nt	<0.2	
14A	<1.0	<3.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	nt	nt	nt	nt	
14C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<2.0	<2.0	<1.0	<0.2	<0.2	<0.2	<0.2	nt	<0.2	
14E	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
15A	nt	<5.0	nt	<5.0	nt	<3.0	nt	<1.0	<1.0	<3.0	<1.0	<3.0	<1.0	<1.0	<1.0	<1.0	0.4	<1.0	0.4	<0.5	0.3	0.3	0.2	nt	nt	nt	nt	nt	
15C	nt	<1.0	nt	<1.0	nt	0.4	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<2.0	<5.0	<2.0	<2.0	<0.2	<0.2	<0.2	<0.2	nt	0.2	
15D	nt	<1.0	nt	<1.0	nt	<1.0	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
16A	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
16C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.4	
17A	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	nt	
17C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
17D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
18A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
18C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<0.2	<1.0	<0.2	<1.0	<1.0	<1.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
18D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
19A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
19C	nt	<1.0	nt	<1.0	nt	<0.2	nt	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
19D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
20A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
20C	nt	<1.0	nt	<1.0	nt	0.5	nt	0.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.4	<2.0	<5.0	<2.0	<2.0	0.2	0.2	<0.2	nt	0.3	nt	0.3	
20D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
21A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
21C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
22A	<1.0	<1.0	<1.0	<1.0	<1.0	0.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.2	0.4	0.4	0.5	0.3	0.4	0.5	0.3	0.3	nt	<0.2	nt	
23A	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<1.0	<1.0	0.2	<1.0	<1.0	<1.0	<1.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt

µg/L = micrograms per liter
 nd = not detected
 nt = not tested

J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
 E = Estimated concentration calculated for an analyte response above the valid instruction calibration range. A dilution is required to obtain an accurate quantification of the analyte.
 Bold = detected compound

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

NAPHTHALENE (µg/L)

	Jan-94	May-95	Oct-95	Feb-96	May-96	Aug-96	Nov-96	Feb-97	May-97	Aug-97	Nov-97	Jun-98	Oct-98	Jun-99	Nov-99	Jun-00	Dec-00	Jun-01	Dec-01	Jun-02	Dec-02	Jun-03	Nov-03	May-04	Aug-04	Oct-04	Feb-05	Mar-05	May-05	
06A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	<5.0	<5.0	<5.0	<5.0	nt	<5.0	
06B	nt	nt	nt	nt	<1.00	2.8	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.4	<1.00	<1.00	<1.00	<1.00	4.5	1.8	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<10	
06C	nt	nt	nt	nt	29.26	10.4	9.1	8.8	7.2	<1.00	18.4	3	25.1	3.4	<1.00	7.7	44.97	9.73	2.8	<5.0	<5.0	<5.0	220	14	<5.0	<5.0	<5.0	<5.0		
08C	nt	nt	nt	nt	351.9	401	155	370	234	118	292	600 E	38.6	230	137	109.2	174.1	125	210	180 J	290	390	300	130	nt	180	nt	nt	130	
09A	nt	nt	nt	nt	<50.00	<3.33	<10.00	<4.00	<5.00	<1.00	7	<1.00	<10.00	<1.00	<10.00	<10.00	8.65	3.63	<1.0	<5.0	<5.0	<75	<100	<100	<15	<25	<50	nt	<5.0	
09B	nt	nt	nt	nt	<10.00	<2.00	<1.00	<1.00	13.8	22.4	<2.00	<3.33	<10.00	3.4	4.6	<2.00	11.2	2.24	3.1	<5.0	<5.0	<5.0	<5.0	<15	<25	<25	<50	nt	<5.0	
09C	nt	nt	nt	nt	<1.00	1.2	<1.00	8.8	6.5	<1.00	25	<1.00	<1.00	9.9	6.8	<1.00	1.67	1.8	1.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	7.7	68	nt	51	
09D	nt	nt	nt	nt	<1.00	1.3	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	nt	<5.0	
10A	nt	nt	nt	nt	<10.00	4.2	<3.33	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	
10C	nt	nt	nt	nt	14.27	30.5	6.3	56.1	6.4	7.6	5.8	2.8	<1.00	3.8	4.7	2.7	5.77	<1.00	36	5.0	<5.0	<5.0	<5.0	9.4	nt	<5.0	nt	nt	<5.0	
11A	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.1	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	<5.0	
12A	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	<5.0	
13A	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0	
13C	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0	
14A	nt	nt	nt	nt	<1.00	<10.00	<5.00	<4.00	<2.00	<2.00	<2.00	<1.00	<1.00	150	4.8	235	113.23	84.7	35	5.7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<25	<25	nt	<50
14C	nt	nt	nt	nt	<2.00	<10.00	<1.00	<10.00	<10.00	<10.00	11.8	7.2	6.5	6.3	7.3	17.2	8.7	6.79	3.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	<5.0
14E	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0	
15A	nt	nt	nt	nt	423.67	239	152	247	136	67.3	465 E	1721 E	916	58.9	561	797	695.6	985.5	1100	840 J	510	370	490	700	nt	430	nt	nt	440	
15C	nt	nt	nt	nt	<1.00	1	<1.00	4.4	<10.00	<10.00	<10.00	<3.33	4.8	<2.00	<2.00	29.8	<1.00	<1.00	<1.0	<5.0 J	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0
15D	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	7.4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0
16A	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	3.1	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0
16C	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0	
17A	nt	nt	nt	nt	<1.00	62	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	nt	
17C	nt	nt	nt	nt	<1.00	<1.00	26.6	<1.00	0.6	37.3	106	<1.00	<1.00	31.9	16.6	13.7	nt	12.12	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	
17D	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
18A	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	nt	<5.0	nt	nt	nt	nt	nt
18C	nt	nt	nt	nt	<1.00	<1.00	<1.00	1.7	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.1	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0
18D	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
19A	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.54	nt	nt	nt	nt	nt	<5.0	nt	nt	<5.0	nt	<5.0
19C	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0	
19D	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
20A	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	5.48	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
20C	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	1.81	<1.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	nt	nt	<5.0
20D	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
21A	nt	nt	nt	nt	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.0	<5.0	<5.0	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
21C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	207.4	<1.0	<5.0	<5.0	nt	nt	nt	nt	nt	nt	nt	nt	
22A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	9.9	140
23A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	19	130	

**SWMU-20 ANALYTICAL RESULTS SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JANUARY 1994 THROUGH PRESENT**

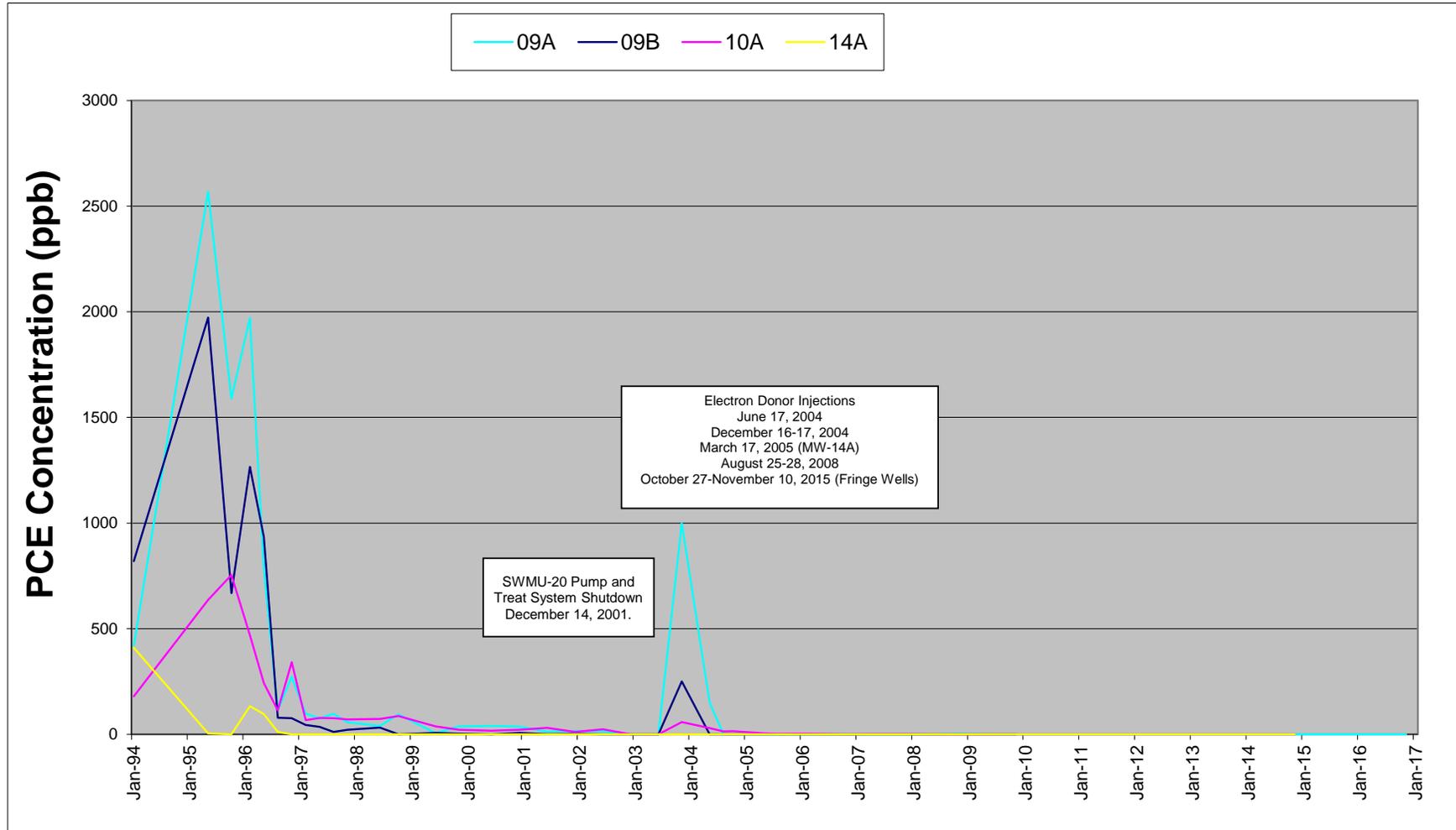
NAPHTHALENE (µg/L)

	Aug-05	Nov-05	Feb-06	May-06	Aug-06	Nov-06	Feb-07	May-07	Nov-07	May-08	Nov-08	May-09	Nov-09	May-10	Nov-10	May-11	Nov-11	May-12	Nov-12	May-13	Nov-13	May-14	Nov-14	Apr-15	Oct-15	Apr-16	Nov-16	
06A	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5.0	<5.0	<0.5	<5.0	<5.0	<20	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	nt	<0.5
06B	<5.0	<5.0	<5.0	<5.0	<5.0	0.6	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	nt	<0.5
06C	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	<5.0	<5.0	4.6	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	nt	nt	nt									
08C	nt	82	nt	910	nt	440	nt	500	540	180	1100	62	65	nt	nt	nt	nt											
09A	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<0.5	<5.0	<50	<25	<5.0	<5.0	<5.0	5.3	9.5	7.5	56	23	9.9	8.7	2.6	1.8	nt	0.9	
09B	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	0.6	<5.0	<5.0	<5.0	nt	nt	nt	nt											
09C	29	12	5.1	<5.0	<5.0	14	18	5.5	<5.0	6.7	<5.0	56	69	nt	nt	nt	nt											
09D	nt	<5.0	nt	<5.0	nt	<2.5	nt	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	nt	nt	nt	nt											
10A	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<10	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5	<0.5	nt	nt	nt	nt	nt
10C	nt	<5.0	nt	<5.0	nt	<0.5	nt	<5.0	<5.0	<0.5	<5.0	100	39	12	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10	<0.5	nt	8.8	
11A	nt	<5.0	nt	<5.0	nt	<5.0	nt	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	nt	<0.5	
12A	nt	<5.0	nt	<5.0	nt	<0.5	nt	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	nt	nt	nt	nt
13A	nt	<5.0	nt	<5.0	nt	<0.5	nt	<0.5	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	nt	<0.5
13C	nt	<5.0	nt	<5.0	nt	16	nt	16	<5.0	0.5	<5.0	<5.0	<5.0	22	6.5	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<2.5	<0.5	3.3	<0.5	nt	<0.5	
14A	<50	<15	<5.0	<10	<5.0	7.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	0.5	<0.5	0.8	<0.5	0.7	<0.5	<0.5	nt	nt	nt	nt	nt	
14C	nt	<5.0	nt	<5.0	nt	6.3	nt	6.2	<5.0	<5.0	<5.0	<5.0	<5.0	15	<5.0	<5.0	<0.5	<0.5	<5.0	<5.0	<2.5	<0.5	<0.5	<0.5	nt	<0.5	<0.5	
14E	nt	<5.0	nt	<5.0	nt	<0.5	nt	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	nt	nt	nt											
15A	nt	390	nt	220	nt	180	nt	72	170	180	230	170	190	310	240	210	190	170	120	84	180	89	190	nt	nt	nt	nt	
15C	nt	<5.0	nt	<5.0	nt	<0.5	nt	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	nt	<0.5	
15D	nt	<5.0	nt	<5.0	nt	<2.5	nt	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	nt	nt	nt											
16A	nt	<5.0	nt	<5.0	nt	<0.5	nt	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	nt	0.6
16C	nt	<5.0	nt	<5.0	nt	<0.5	nt	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	nt	<0.5
17A	nt	<5.0	nt	<5.0	nt	<0.5	nt	<0.5	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	nt	nt
17C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
17D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
18A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
18C	nt	<5.0	nt	<5.0	nt	<0.5	nt	0.6	<5.0	<0.5	86	47	<5.0	nt	nt	nt	nt											
18D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
19A	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	nt	nt	nt											
19C	nt	<5.0	nt	<5.0	nt	0.5	nt	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	nt	nt	nt											
19D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
20A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
20C	nt	<5.0	nt	<5.0	nt	0.8	nt	<0.5	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<0.5	<0.5	nt	<0.5	
20D	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
21A	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
21C	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt	nt
22A	180	170	210 J	120	200	140	110	100	25	41	32	51	15	14	16	20	12	15	9.2	11	7.1	9.8	6.5	6.2	4.7	nt	110	
23A	100	<5.0	45	69	140	9.0	26	36	6.1	5.3	<5.0	9.8	<5.0	nt	nt	nt												

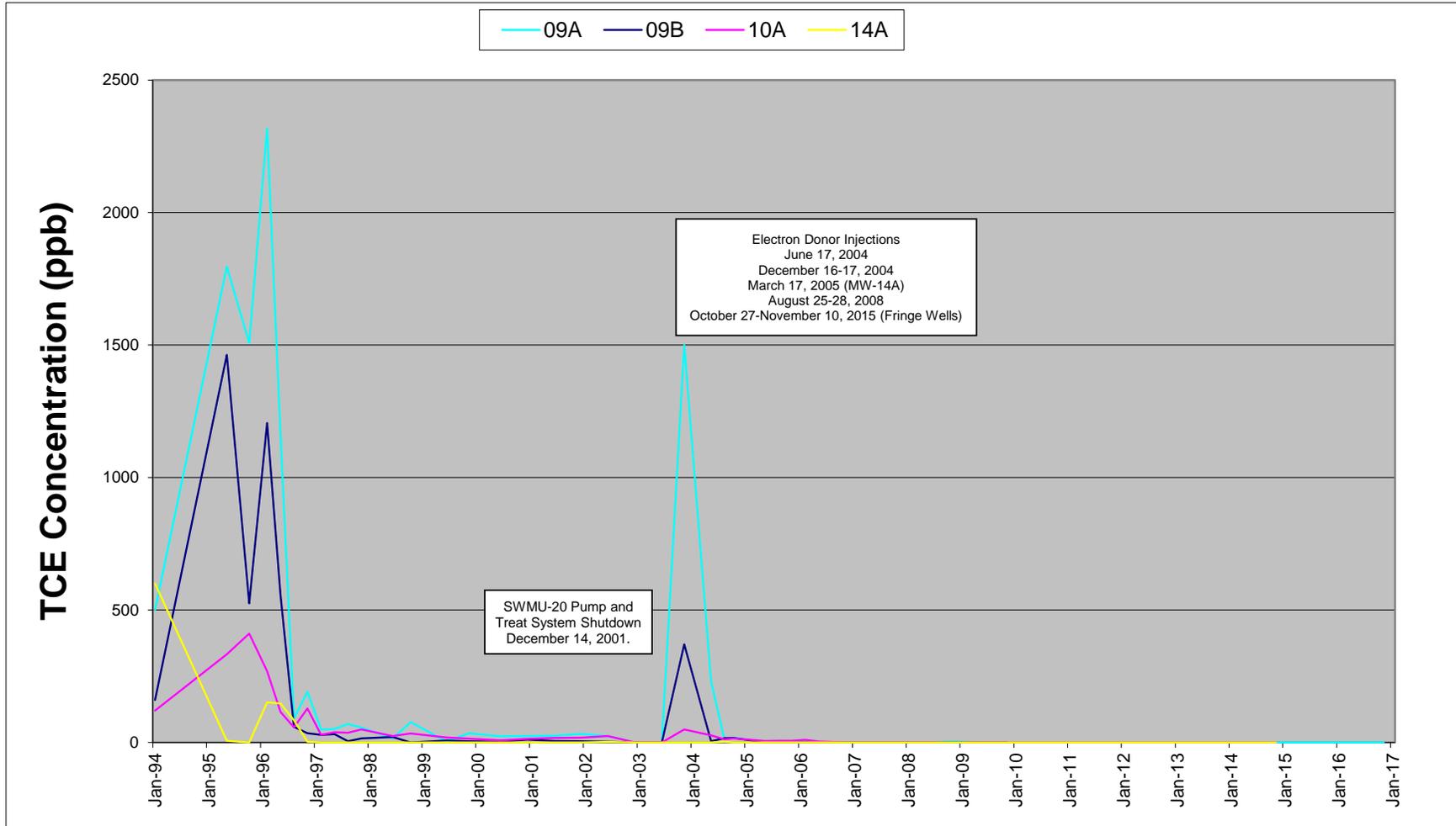
µg/L = micrograms per liter
 nd = not detected
 nt = not tested

J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
 E = Estimated concentration calculated for an analyte response above the valid instruction calibration range. A dilution is required to obtain an accurate quantification of the analyte.
 Bold = detected compound

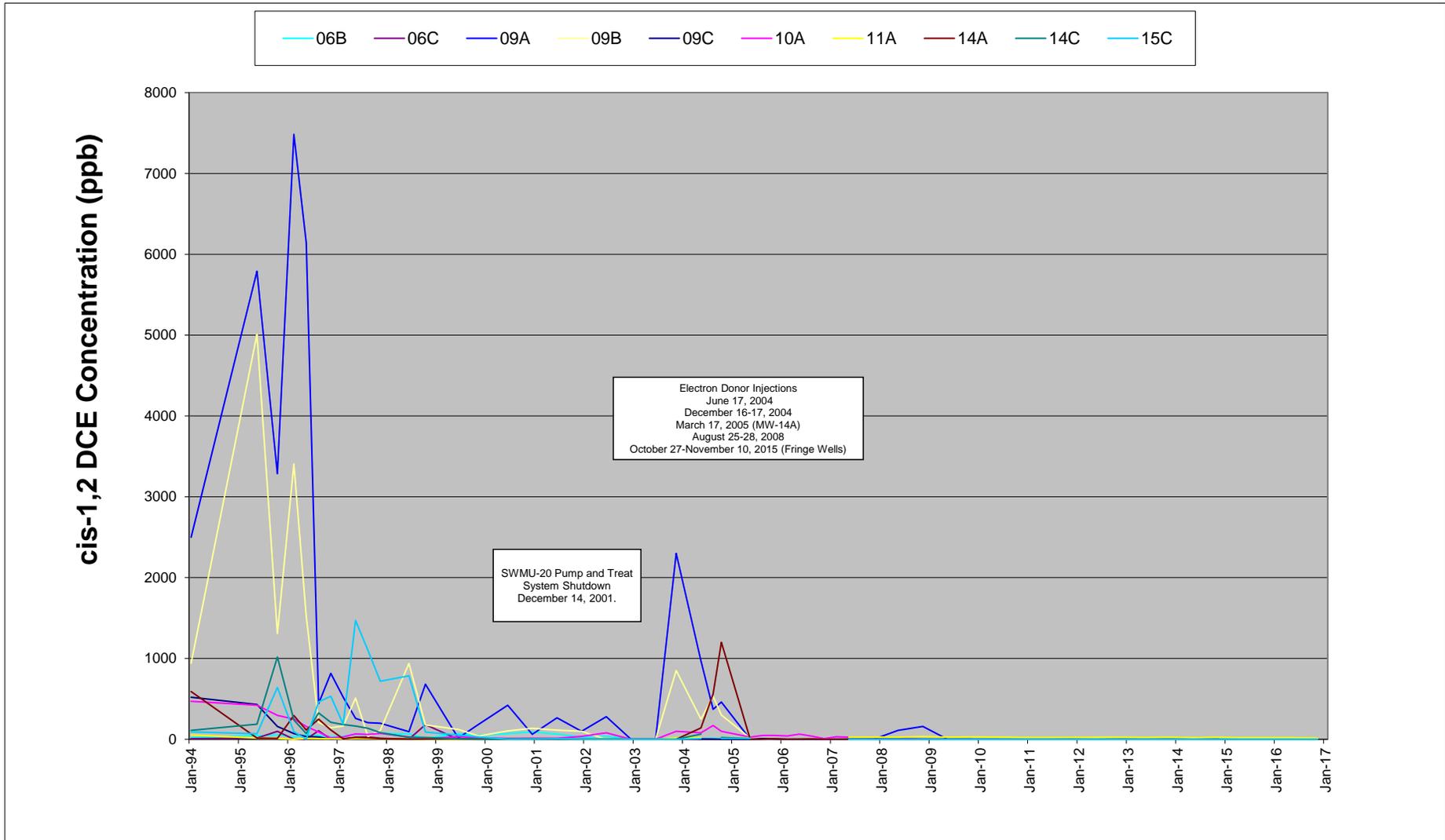
DEVELOPMENTAL CENTER WELLS TETRACHLOROETHENE CONCENTRATIONS (Wells with PCE Historically Detected over 50 ppb)



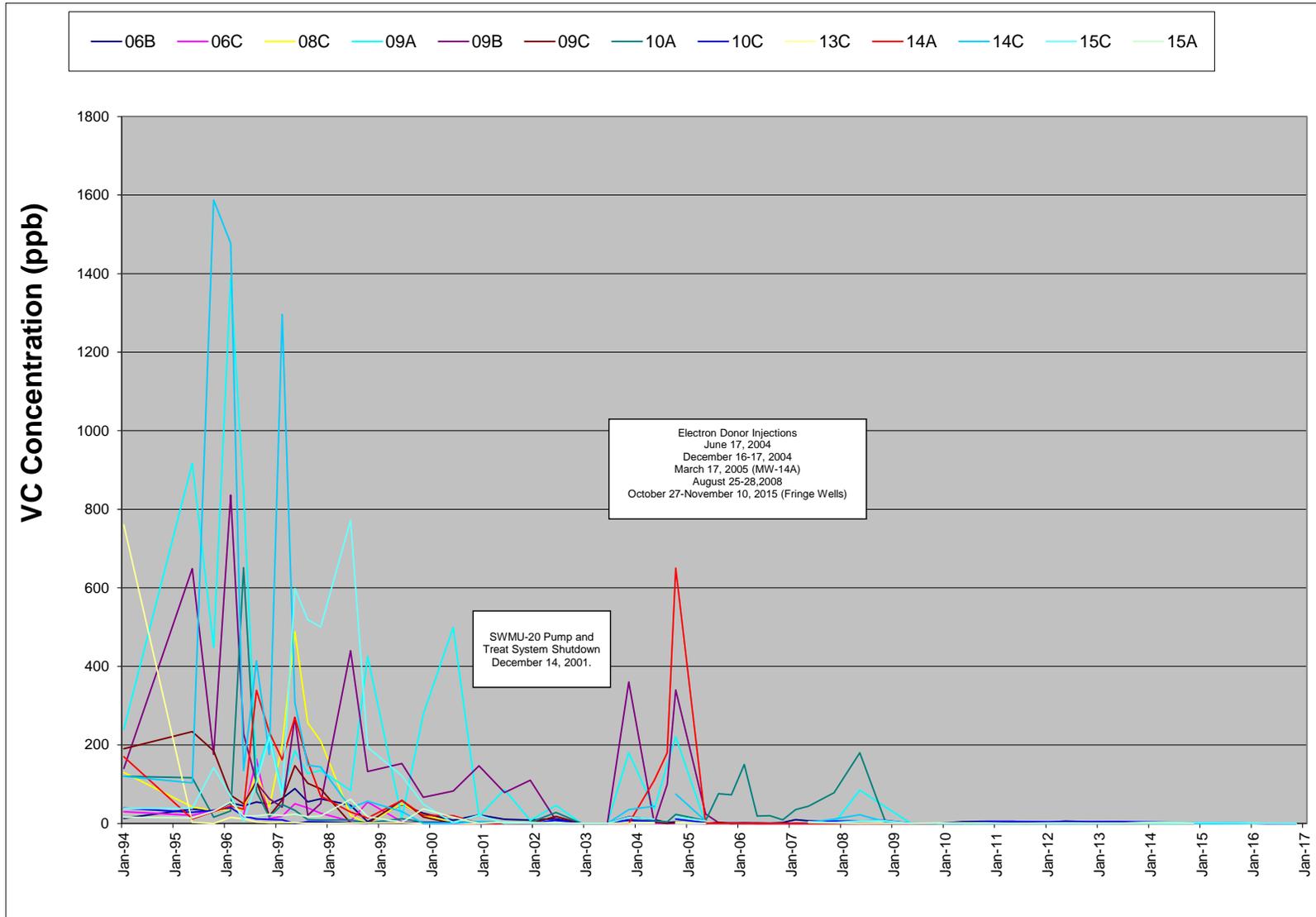
DEVELOPMENTAL CENTER WELLS TRICHLOROETHENE CONCENTRATIONS (Wells with TCE Historically Detected over 50 ppb)



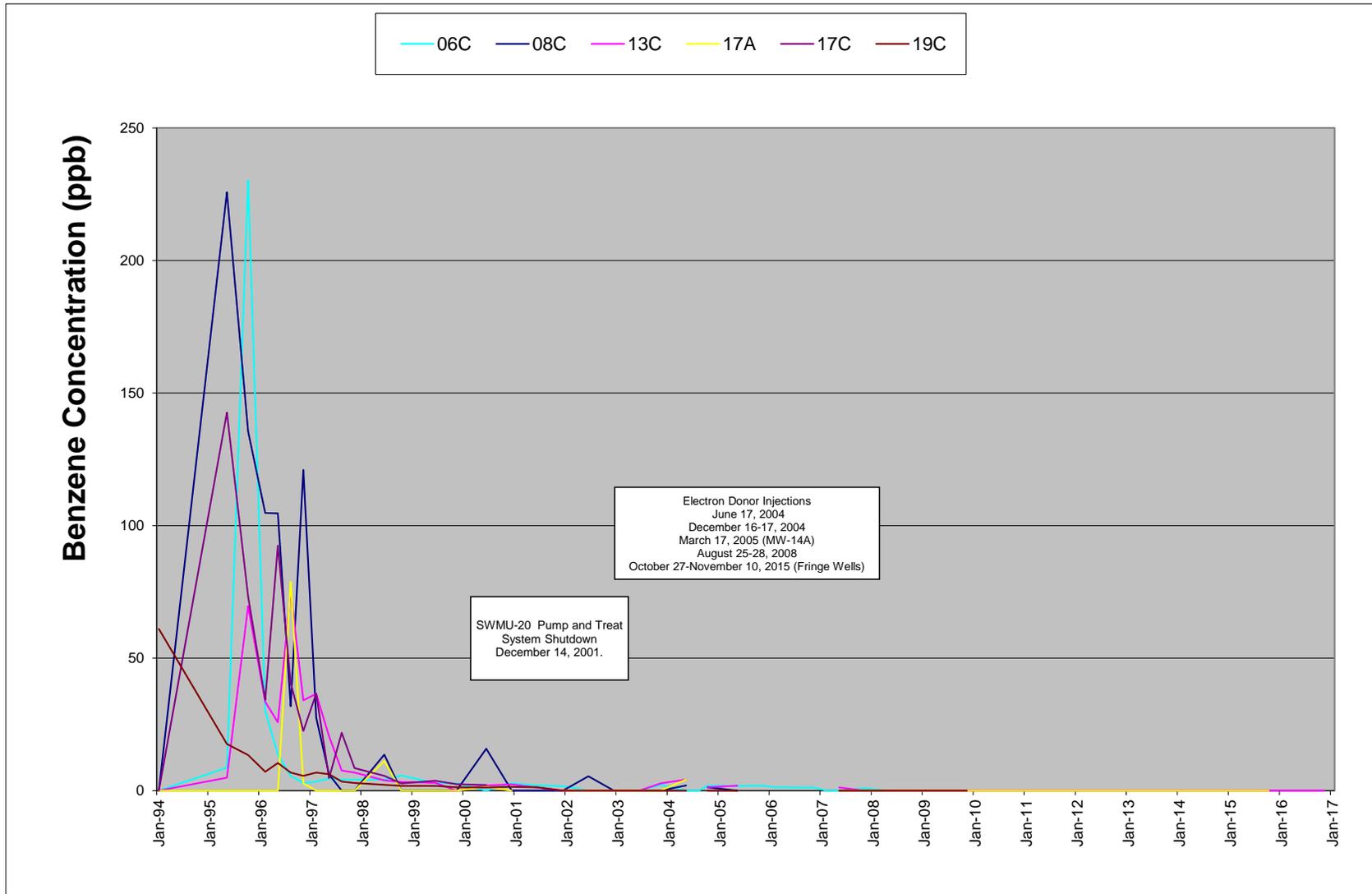
DEVELOPMENTAL CENTER WELLS CIS-1,2 DICHLOROETHENE CONCENTRATIONS (Wells with cis-1,2 DCE Historically Detected over 50 ppb)



DEVELOPMENTAL CENTER WELLS VINYL CHLORIDE CONCENTRATIONS (Wells with VC Historically Detected over 50 ppb)



DEVELOPMENTAL CENTER WELLS BENZENE CONCENTRATIONS (Wells with Benzene Historically Detected over 50 ppb)



**SWMU-20 CLEANUP ACTION SUMMARY - SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds						Aquifer Redox Conditions					Donor Parameters		Notes
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	pH	TOC (mg/L)	
							5.3 (µg/L)	1.4 (µg/L)	134 (µg/L)	2.4 (µg/L)	---	---								
06A (c)	06/15/2004	-2					<1.0	1.0	23	4.0	<0.50	<0.50	6.34	-19.6	0.8	58.9	<0.50	6.5	18.8	---
06A (c)	08/23/2004	67					<1.0	<1.0	45	5.9	<0.50	<0.50	0.46	92	3.5	40.7	21	7.0	288	Hazy brown
06A (c)	10/19/2004	124	-58				<1.0	<1.0	2.6	31	<0.50	<0.50	0.70	54	3.0	44.8	530	6.8	80.8	---
06A (c)	02/22/2005	250	68				<1.0	<1.0	3.3	<1.0	<0.50	<0.50	1.15	187	2.4	<0.1	130	6.8	244	---
06A (c)	05/16/2005	333	151				<1.0	<1.0	2.6	<1.0	<0.50	<0.50	1.25	58	3.0	0.1	10000	6.9	145	---
06A (c)	08/22/2005	431	249				<1.0	<1.0	1.6	<1.0	<0.50	<0.50	1.26	212	2.7	3.1	390	6.8	54.2	Clear, with yellow tint
06A (c)	11/14/2005	515	333				<1.0	<1.0	1.3	1.2	<0.50	<0.50	0.93	108	3.0	0.1	3700	6.9	31.8	---
06A (c)	02/22/2006	615	433				<1.0	<1.0	1.4	4.8	<11.4	<12.3	0.80	186	2.6	60.4	10100	6.4	15.5	---
06A (c)	05/18/2006	700	518				<1.0	<1.0	<1.0	1.6	<11	<12	6.41	1	3.0	20.9	16000	6.6	23.9	---
06A (c)	08/16/2006	790	608				<1.0	<1.0	<1.0	1.5	<1.1	<1.2	0.89	240	2.2	23.1	18800	6.5	23.2	---
06A (c)	11/29/2006	895	713				<0.2	<0.2	0.4	2.1	<1.1	<1.2	2.09	102	2.6	33.1	20200	6.5	31.4	---
06A (c)	02/23/2007	981	799				<1.0	<1.0	<1.0	6.7	<1.1	<1.2	0.65	-97	4.5	26.2	17400	6.5	24.6	---
06A (c)	05/24/2007	1071	889				<1.0	<1.0	<1.0	2.9	<1.1	2.0	0.56	184	4.0	21.0	18300	6.7	21.5	---
06A (c)	11/30/2007	1261	1079				<0.2	<0.2	<0.2	1.2	<1.1	2.2	0.80	173	3.0	29.1	21900	6.7	22.6	---
06A (c)	05/21/2008	1434	1252		-96		<1.0	<1.0	<1.0	1.4	<1.1	1.3	2.11	-82	2.5	21.0	13200	6.9	20.1	---
06A (c)	11/25/2008	1622	1440		92		<1.0	<1.0	<1.0	1.7	<1.0	<1.1	1.71	-73	3.4	0.1	19700	6.5	150	---
06A (c)	05/20/2009	1798	1616		268		<4.0	<4.0	<4.0	<4.0	<1.1	<1.2	0.52	-45	4.0	<0.5	19500	6.8	38.2	---
06A (c)	11/19/2009	1981	1799		451		<1.0	<1.0	1.9	<1.0	<1.1	<1.2	2.66	6	2.8	0.8	20100	6.2	25.4	---
06A (c)	5/24/2010	2167	1985		637		<1.0	<1.0	1.3	1.9	<1.1	<1.2	3.56	448	2.0	16	19900	6.6	19.3	---
06A (c)	11/11/2010	2338	2156		808		<1.0	<1.0	<1.0	1.7	<1.1	<1.2	4.75	106	2.6	0.4	24700	7.0	20.2	---
06A (c)	5/4/2011	2512	2330		982		<1.0	<1.0	<1.0	1.4	<1.1	<1.2	2.14	22	2.5	<0.2	21400	7.1	13.6	---
06A (c)	11/13/2011	2705	2523		1175		<0.2	<0.2	0.3	0.8	<1.1	<1.2	5.80	-54	1.0	0.3	6370	7.2	12.7	---
06A (c)	5/15/2012	2889	2707		1359		<0.2	<0.2	0.4	1.2	<1.0	<1.0	0.08	66	2.0	4.3	13000	6.7	11.6	---
06A (c)	11/14/2012	3072	2890		1542		<0.2	<0.2	0.3	0.8	<1.0	<4.0	0.02	-0.5	1.5	<0.30	13000	6.9	9.0	---
06A (c)	5/21/2013	3260	3078		1730		<0.5	<0.5	<0.5	1.3	<1.0	<1.0	0.17	-434	2.6	3.3	5200	7.9	8.8	---
06A (c)	11/12/2013	3435	3253		1905		<0.2	<0.2	0.4	2.4	<1.0	<1.0	2.68	-298	1.2	5.8	3500	6.8	8.3	---
06A (c)	5/7/2014	3611	3429		2081		<0.2	<0.2	0.4	1.5	<1.0	<1.0	3.60	-386	1.5	11.2	1300	7.1	7.2	---
06A (c)	11/5/2014	3793	3611		2263		<0.2	<0.2	0.4	2.7	<1.0	<1.0	0.28	-89	1.0	13.9	770	6.7	7.2	---
06A (c)	4/29/2015	3968	3786		2438		<0.2	<0.2	0.6	3.3	<1.0	<1.0	0.36	-54	3.0	17.5	430	6.7	5.2	---
06A (c)	10/26/2015	4148	3966		2618	-16	<0.2	<0.2	0.2	2.5	<1.0	<1.0	0.17	-66	0.8	19.7	410	6.6	6.5	---
06A (c)	4/19/2016	4324	4142		2794	160	<0.2	<0.2	1	0.7	<100	<100	0.06	-118	1.0	<0.30	18000	7.0	203	Cola brown
06A (c)	11/1/2016	4520	4338		2990	356	<0.2	<0.2	0.5	0.7	<100	<100	0.35	-154.9	NM	0.47	20000	7.1	121	Opaque dark brown/amber color
06B	05/04/2004	-44					9.5	3.2	10	9.4	<0.50	<0.50	0.36	179	4.5	18.7	130	6.8	25.6	Clear, yellow tint
06B	08/23/2004	67					1.9	1.2	13	2.3	<0.50	<0.50	0.45	115	3.2	33.8	1100	6.9	177	Yellow-brown tint (nearly clear)
06B	10/19/2004	124	-58				<1.0	<1.0	10	3.6	<0.50	<0.50	0.61	217	3.5	14.8	590	6.7	53.6	Yellow tint
06B	02/22/2005	250	68				<1.0	<1.0	11	<1.0	<0.50	<0.50	0.79	224	2.6	<0.5	3800	6.9	968	---
06B	05/16/2005	333	151				<2.0	<2.0	5.5	<2.0	<0.50	<0.50	1.51	133	3.5	<0.5	2300	6.9	336	Clear, yellow-brown tint
06B	08/22/2005	431	249				<1.0	<1.0	4.1	1.6	<0.50	<0.50	1.21	217	2.8	<0.1	440	6.9	100	Clear, with yellow tint
06B	11/14/2005	515	333				<1.0	<1.0	1.1	1.3	<0.50	<0.50	1.05	241	2.8	<0.1	2900	6.9	64.4	---
06B	02/22/2006	615	433				<1.0	<1.0	<1.0	1.4	53.5	<12.3	0.74	184	2.6	14.8	13000	6.4	30.4	---
06B	05/18/2006	700	518				<1.0	<1.0	<1.0	1.3	<11	<12	2.25	52	3.2	13.6	16000	6.6	25.9	---
06B	08/16/2006	790	608				<1.0	<1.0	<1.0	1.1	<1.1	<1.2	0.82	225	2.4	12.9	21700	6.5	14.7	---
06B	11/29/2006	895	713				<0.2	<0.2	1.4	2.6	<1.1	<1.2	1.82	111	2.4	10.9	22000	6.5	25.2	---
06B	02/23/2007	981	799				<1.0	<1.0	3.8	9.5	<1.1	<1.2	0.75	-66	5.0	25.0	17700	6.5	21.1	---
06B	05/24/2007	1071	889				<1.0	<1.0	1.4	6.5	<1.1	<1.2	0.58	151	3.0	11.3	18500	6.6	21.4	---
06B	11/30/2007	1261	1079				<0.2	<0.2	<0.2	1.0	<1.1	4.0	0.83	135	4.0	26.3	24900	6.4	26.5	---
06B	05/21/2008	1434	1252		-96		<1.0	<1.0	<1.0	<1.0	<1.1	4.9	2.66	-61	3.4	21.1	12700	6.7	20.4	---

**SWMU-20 CLEANUP ACTION SUMMARY - SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds						Aquifer Redox Conditions					Donor Parameters		Notes
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	pH	TOC (mg/L)	
							5.3 (µg/L)	1.4 (µg/L)	134 (µg/L)	2.4 (µg/L)	---	---								
06B	11/25/2008	1622	1440			92	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	2.53	-68	2.4	0.2	18400	6.6	19.6	---
06B	05/20/2009	1798	1616			268	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.33	-36	4.0	<0.5	25300	6.9	20.9	---
06B	11/19/2009	1981	1799			451	<1.0	<1.0	<1.0	<1.0	<1.1	6.7	1.01	10	2.8	0.1	22500	6.9	20.0	---
06B	5/24/2010	2167	1985			637	<1.0	<1.0	<1.0	4.2	<1.1	1.6	3.05	417	2.0	3.0	7110	7.0	19.1	---
06B	11/11/2010	2338	2156			808	<1.0	<1.0	<1.0	5.4	<1.1	1.4	3.40	112	2.0	8.6	4600	7.1	15.8	---
06B	5/4/2011	2512	2330			982	<1.0	<1.0	<1.0	5.2	<1.1	<1.2	2.55	57	2.2	19.7	2120	7.1	12.6	---
06B	11/13/2011	2705	2523			1175	<0.2	<0.2	<0.2	0.8	<1.1	<1.2	6.10	-34	1.5	0.3	2260	7.3	14.8	---
06B	5/15/2012	2889	2707			1359	<0.2	<0.2	0.5	6.0	<1.0	1.3	0.14	71	1.8	10.9	2200	6.6	11.4	---
06B	11/14/2012	3072	2890			1542	<0.2	<0.2	<0.2	3.7	<1.0	1.8	0.02	10	2.0	7.0	2300	6.8	13.7	---
06B	5/21/2013	3260	3078			1730	<0.5	<0.5	<0.5	4.3	<1.0	<1.0	0.17	-427	2.5	20.1	720	7.7	11.0	---
06B	11/12/2013	3435	3253			1905	<0.2	<0.2	<0.2	2.5	<1.0	<1.0	2.62	-309	1.5	4.0	350	7.0	15.5	---
06B	5/7/2014	3611	3429			2081	<0.2	<0.2	<0.2	2.4	<1.0	<1.0	3.50	-320	1.6	2.8	1200	7.1	10.2	---
06B	11/5/2014	3793	3611			2263	<0.2	<0.2	<0.2	1.8	<1.0	<1.0	0.30	-54	1.7	4.7	2200	6.8	6.9	---
06B	4/29/2015	3968	3786			2438	<0.2	<0.2	<0.2	1.8	<1.0	<1.0	0.52	-39	1.0	0.99	1300	6.6	4.0	---
06B	10/26/2015	4148	3966			2618	<0.2	<0.2	<0.2	1.0	<1.0	<1.0	0.99	-39	1.0	2.0	1900	6.6	4.9	---
06B	4/19/2016	4324	4142			2794	<2.0	<2.0	<2.0	<2.0	<100	<100	0.06	-78	NM	0.3	17000	6.8	306	---
06B	11/1/2016	4520	4338			2990	<0.2	<0.2	0.5	0.2	<100	<100	0.32	-148.5	NM	0.71	23000	7.24	274	Opaque dark brown/black color
06C	05/04/2004	-44					<1.0	<1.0	<1.0	<1.0	<0.50	0.6	0.40	93	5.0	20.7	360	6.7	29.0	---
06C	08/23/2004	67					<1.0	<1.0	1.4	<1.0	5.7	5.9	0.63	95	2.5	42.7	3100	6.3	1560	White froth on surface of purge water
06C	10/19/2004	124	-58				<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	2.00	206	3.0	18.1	450	6.3	464	Yellow tint
06C	02/22/2005	250	68				<1.0	<1.0	3.6	<1.0	<0.50	<0.50	0.82	198	2.6	<0.5	2400	6.9	858	---
06C	05/16/2005	333	151				<1.0	<1.0	1.1	<1.0	<0.50	<0.50	1.94	98	3.0	0.2	2700	7.0	111	Clear, with yellow tint
06C	08/22/2005	431	249				<1.0	<1.0	4.1	<1.0	<0.50	<0.50	1.36	194	2.8	<0.1	510	7.0	68.7	Clear, with yellow tint
06C	11/14/2005	515	333				<1.0	<1.0	1.1	<1.0	<0.50	<0.50	1.07	258	2.0	<0.1	2900	7.0	48.3	---
06C	02/22/2006	615	433				<1.0	<1.0	<1.0	<1.0	47.7	<12.3	0.88	247	1.4	47.5	12300	6.6	93.4	---
06C	05/18/2006	700	518				<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	4.88	129	2.0	30.6	15000	6.6	36.6	---
06C	08/16/2006	790	608				<1.0	<1.0	<1.0	<1.0	<1.1	2.3	0.93	231	1.6	31.8	18900	6.6	13.4	---
06C	11/29/2006	895	713				<0.2	<0.2	0.3	<0.2	<1.1	1.4	2.25	192	1.8	27.3	20600	6.6	46.4	---
06C	02/23/2007	981	799				<1.0	<1.0	<1.0	<1.0	<1.1	1.7	1.08	-46	4.0	25.9	18900	6.4	39.0	---
06C	05/24/2007	1071	889				<1.0	<1.0	<1.0	<1.0	<1.1	2.0	0.72	216	3.5	20.8	20800	6.5	34.0	---
06C	11/30/2007	1261	1079				<0.2	<0.2	0.2	0.3	<1.1	2.8	1.58	174	4.2	32.6	30500	6.2	40.2	---
06C	05/21/2008	1434	1252			-96	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	2.91	-16	2.5	21.0	23800	6.3	31.9	---
06C	11/25/2008	1622	1440			92	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	3.39	-66	2.6	<0.1	28700	6.8	634	---
06C	05/20/2009	1798	1616			268	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.66	-28	3.5	<0.8	20600	6.9	39.2	---
06C	11/19/2009	1981	1799			451	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	1.89	26	NM	<0.1	25600	6.2	42.8	---
09A	05/03/2004	-45					150	230	970	37	<0.50	<0.50	0.46	287	1.0	64.2	8.4	6.7	16.2	Clear, yellow tint
09A	08/23/2004	67					<3.0	11	370	150	4.2	<0.50	0.40	143	2.6	51.8	4.7	7.1	56.8	Clear with black tint, H2S odor
09A	10/19/2004	124	-58				<5.0	19	460	220	2.7	<0.50	0.53	219	4.0	77.4	17	6.9	19.6	Clear, slightly yellow tint
09A	02/21/2005	249	67				<10	<10	41	37	1.9	<0.50	0.78	169	2.0	<0.5	1500	7.1	2110	Hazy, yellow color
09A	05/11/2005	328	146				<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	1.53	141	2.0	<0.5	1700	7.2	1260	Hazy, yellow-brown tint
09A	08/22/2005	431	249				<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	1.58	141	2.8	<0.1	460	6.8	156	Clear, yellow-brown tint
09A	11/14/2005	515	333				<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	1.07	238	2.0	<0.1	2600	6.9	62.8	---
09A	02/21/2006	614	432				<1.0	<1.0	<1.0	<1.0	<11.4	<12.3	0.94	332	2.6	0.2	5650	6.3	58.8	---
09A	05/15/2006	697	515				<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	1.35	193	2.2	63.4	15000	6.4	44.4	---
09A	08/16/2006	790	608				<1.0	<1.0	<1.0	1.2	<1.1	2.1	1.55	175	2.0	56.8	16800	6.4	50.0	---
09A	11/27/2006	893	711				<0.2	<0.2	0.3	1.1	1.9	6.3	2.09	211	3.2	52.5	15200	6.6	51.0	---
09A	02/22/2007	980	798				<1.0	<1.0	<1.0	<1.0	<1.1	7.8	0.65	-107	4.6	0.3	15300	6.4	48.8	---

**SWMU-20 CLEANUP ACTION SUMMARY - SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds						Aquifer Redox Conditions					Donor Parameters		Notes
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	pH	TOC (mg/L)	
							5.3 (µg/L)	1.4 (µg/L)	134 (µg/L)	2.4 (µg/L)	--- (µg/L)	--- (µg/L)								
09A	05/22/2007	1069	887				<1.0	<1.0	<1.0	2.8	<1.1	4.8	0.75	91	2.6	0.1	16700	6.6	43.1	---
09A	11/29/2007	1260	1078				<1.0	<1.0	<1.0	<1.0	<1.1	24.5	1.01	147	3.8	45.4	27600	6.4	40.6	---
09A	05/19/2008	1432	1250		-98		<0.2	0.2	110	85	7.8	35.6	2.26	-82	3.0	29.4	17100	6.7	31.0	---
09A	11/24/2008	1621	1439		91		1.9	4.6	160	42	4.0	2.1	2.61	-52	3.0	<2.0	13700	6.2	5600	---
09A	05/18/2009	1796	1614		266		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.44	-88	2.5	<2.0	18100	7.1	1620	---
09A	11/16/2009	1978	1796		448		<5.0	<1.0	<5.0	<5.0	<1.1	<1.2	1.23	-61	2.6	<1.0	16600	6.6	403	---
09A	5/20/2010	2163	1981		633		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	11.09	515	2.2	<1.0	18700	7.0	72.8	Duffy: Interference w/DO sensor?
09A	11/10/2010	2337	2155		807		<1.0	<1.0	<1.0	<1.0	<1.1	2.0	3.92	118	2.2	0.3	24400	7.0	70.0	---
09A	5/3/2011	2511	2329		981		<2.0	<2.0	<2.0	<2.0	<1.1	2.0	2.55	33	2.0	<0.2	17800	6.9	44.4	---
09A	11/13/2011	2705	2523		1175		<0.2	<0.2	0.2	<0.2	<1.1	1.2	2.23	-66	1.2	0.4	11800	7.0	39.4	---
09A	5/14/2012	2888	2706		1358		<0.2	<0.2	0.2	<0.2	<1.0	13	0.57	91	1.5	0.40	22000	6.4	30.5	---
09A	11/14/2012	3072	2890		1542		<2.0	<2.0	<2.0	<2.0	<1.0	11	0.02	-4	2.0	0.53	21000	6.6	30.9	---
09A	5/21/2013	3260	3078		1730		<2.0	<2.0	<2.0	<2.0	<1.0	16	0.32	-399	1.8	<0.30	24000	7.8	33.0	---
09A	11/12/2013	3435	3253		1905		<2.0	<2.0	<2.0	<2.0	<1.0	10	3.87	-258	1.7	0.41	18000	6.5	30.2	---
09A	5/7/2014	3611	3429		2081		<2.0	<2.0	<2.0	<2.0	<1.0	29	4.46	-322	1.4	0.50	26000	6.7	21.5	---
09A	11/5/2014	3793	3611		2263		<0.2	<0.2	<0.2	<0.2	<1.0	15	0.12	-90	2.0	<0.30	25000	6.6	24.8	---
09A	4/29/2015	3968	3786		2438		<0.2	<0.2	<0.2	<0.2	<1.0	28	0.20	-63	1.4	0.58	27000	6.4	17.8	---
09A	10/26/2015	4148	3966		2618	-16	<0.2	<0.2	<0.2	<0.2	<1.0	49	0.10	-38	1.0	0.57	21000	6.3	21.7	---
09A	4/19/2016	4324	4142		2794	160	<0.2	<0.2	<0.2	0.7	<1.0	34	0.15	-105	0.8	<0.30	22000	6.7	33.3	---
09A	11/1/2016	4520	4338		2990	356	<0.2	<0.2	<0.2	<0.2	<1.0	120	0.73	-89	NM	<0.30	19000	6.46	17.5	Slight yellow/greenish tint
09B	05/03/2004	-45					<3.0	4.2	250	<3.0	<0.50	<0.50	0.37	269	4.0	61.4	2.7	6.8	20.7	Clear, yellow tint
09B	08/23/2004	67					<5.0	16	530	100	0.76	<0.50	0.34	174	1.4	73.0	23	7.4	29.7	Clear, yellow-brown tint, H2S odor
09B	10/19/2004	124	-58				<5.0	17	300	340	1.4	<0.50	0.30	219	1.0	59.6	29	7.5	24.3	Clear with yellow color
09B	02/21/2005	249	67				<1.0	<1.0	890	520	1.7	<0.50	0.56	160	2.8	1.0	2000	6.8	608	Hazy, tan brown color
09B	05/11/2005	328	146				<1.0	<1.0	12	24	<0.50	<0.50	1.48	158	3.5	0.4	9600	7.0	219	Hazy, yellow-brown tint
09B	08/22/2005	431	249				<1.0	<1.0	<1.0	1.7	<0.50	<0.50	1.45	224	2.5	<0.1	400	6.7	17.6	Clear, with yellow-brown tint
09B	11/14/2005	515	333				<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	1.24	235	1.4	<0.1	3100	6.8	51.2	---
09B	02/21/2006	614	432				<1.0	<1.0	<1.0	1.3	<11.4	<12.3	0.90	329	2.8	<0.1	8730	6.3	46.4	---
09B	05/15/2006	697	515				<1.0	<1.0	<1.0	<1.0	<11	<12	1.11	191	1.8	33.9	17000	6.3	45.6	---
09B	08/16/2006	790	608				<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.94	188	1.6	55.4	19300	6.3	250	---
09B	11/27/2006	893	711				<0.2	<0.2	0.3	0.5	<1.1	<1.2	1.76	190	2.8	50.2	21800	6.5	78.2	---
09B	02/22/2007	980	798				<1.0	<1.0	<1.0	<1.0	<1.1	1.6	0.67	-80	3.5	0.2	16100	6.3	64.0	---
09B	05/22/2007	1069	887				<1.0	<1.0	<1.0	<1.0	<1.1	1.4	0.76	154	3.0	<0.1	18700	6.5	35.3	---
09B	11/29/2007	1260	1078				<1.0	<1.0	<1.0	<1.0	<1.1	3.8	1.29	238	2.2	58.3	29800	6.2	44.5	---
09B	05/19/2008	1432	1250		-98		<0.2	<0.2	0.2	0.4	<1.1	3.0	2.34	-78	3.4	39.1	12900	6.4	37.3	---
09B	11/24/2008	1621	1439		91		<1.0	<1.0	<1.0	<1.0	<1.1	17.6	2.22	-47	3.0	<1.0	27000	6.7	27.0	---
09B	05/18/2009	1796	1614		266		<1.0	<1.0	<1.0	<1.0	<1.1	6.9	0.38	-38	3.5	<0.5	19700	6.9	37.1	---
09B	11/16/2009	1978	1796		448		<1.0	<1.0	<1.0	<1.0	<1.1	16.1	1.27	12	3.5	<0.1	24500	6.2	28.1	---
09C	05/03/2004	-45					<1.0	<1.0	4.0	3.3	1.9	0.7	0.33	229	4.0	19.1	350	6.8	28.5	Clear, yellow tint
09C	08/23/2004	67					<1.0	<1.0	1.7	<1.0	1.1	2.8	0.47	114	2.6	23.2	610	6.7	302	Clear, H2S odor
09C	10/19/2004	124	-58				<1.0	<1.0	<1.0	1.5	1.1	<0.50	0.60	185	3.0	12.2	620	7.0	99.6	Near clear, yellow tint
09C	02/21/2005	249	67				<1.0	<1.0	1.7	<1.0	<0.50	1.6	0.60	154	2.0	<0.1	3500	6.6	300	Clear with yellow tint
09C	05/11/2005	328	146				<1.0	<1.0	1.2	<1.0	<0.50	<0.50	1.34	138	2.5	<0.1	2700	6.4	44.6	Yellow-brown tint
09C	08/22/2005	431	249				<1.0	<1.0	7.6	2.2	<0.50	<0.50	1.31	230	2.5	<0.1	360	6.7	52.0	---
09C	11/14/2005	515	333				<1.0	<1.0	1.2	<1.0	<0.50	<0.50	1.41	228	2.4	<0.1	7300	6.9	50.6	---
09C	02/21/2006	614	432				<1.0	<1.0	<1.0	<1.0	<11.4	<12.3	0.78	326	2.4	<0.1	10300	6.5	44.2	---
09C	05/15/2006	697	515				<1.0	<1.0	<1.0	<1.0	<11	<12	1.01	192	2.0	27.9	21000	7.0	42.1	---

**SWMU-20 CLEANUP ACTION SUMMARY - SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds						Aquifer Redox Conditions					Donor Parameters		Notes
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	pH	TOC (mg/L)	
							5.3 (µg/L)	1.4 (µg/L)	134 (µg/L)	2.4 (µg/L)	---	---								
09C	08/16/2006	790	608				<1.0	<1.0	<1.0	<1.0	<1.1	1.6	0.80	199	1.2	28.8	22900	6.5	33.0	---
09C	11/27/2006	893	711				<0.2	<0.2	<0.2	<0.2	<1.1	9.1	1.40	289	2.4	26.7	23500	6.5	44.0	---
09C	02/22/2007	980	798				<1.0	<1.0	<1.0	<1.0	<1.1	3.9	0.75	-32	3.6	0.2	17700	6.5	33.8	---
09C	05/22/2007	1069	887				<1.0	<1.0	<1.0	<1.0	<1.1	5.4	0.52	123	3.5	<0.1	20600	6.6	25.4	---
09C	11/29/2007	1260	1078				<1.0	<1.0	<1.0	<1.0	<1.1	5.4	0.81	147	3.6	27.3	30000	6.5	27.1	---
09C	05/19/2008	1432	1250			-98	<0.2	<0.2	<0.2	0.2	<1.1	15.2	2.11	-57	4.6	18.6	22800	6.5	22.3	---
09C	11/24/2008	1621	1439			91	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	2.92	-44	1.8	<2.0	17700	6.6	334	---
09C	05/18/2009	1796	1614			266	<1.0	<1.0	<1.0	<1.0	<1.1	4.3	0.45	-44	3.5	<0.5	21400	7.0	24.0	---
09C	11/16/2009	1978	1796			448	<3.0	<3.0	<3.0	<3.0	<1.1	1.9	1.27	-7	3.0	<0.1	22400	6.4	20.7	---
10A	05/03/2004	-45					29	27	80	6.4	<0.50	<0.50	0.60	108	2.0	37.8	2.8	6.8	20.0	Clear, yellow tint
10A	08/23/2004	67					14	12	170	4.0	<0.50	<0.50	0.49	181	3.5	38.9	1.1	7.0	59.6	Clear, black tint
10A	10/19/2004	124	-58				15	15	100	23	<0.50	<0.50	0.66	224	4.0	37.8	2.7	7.0	24.0	Clear
10A	02/21/2005	249	67				4.7	4.8	24	6.8	<0.50	0.54	0.53	166	3.6	24.3	430	7.0	22.4	Clear, yellow color
10A	05/11/2005	328	146				4.2	5.4	26	7.2	<0.50	<0.50	0.95	47	3.0	27.9	540	7.2	25.9	Clear, yellow-brown tint
10A	08/22/2005	431	249				2.7	6.3	48	76	<0.50	<0.50	0.73	177	2.0	48.8	240	7.0	31.4	Clear, with yellow-brown tint
10A	11/14/2005	515	333				3.3	6.7	47	73	<0.50	<0.50	0.91	178	2.0	50.6	370	7.1	34.1	---
10A	02/21/2006	614	432				3.7	9.6	42	150	<11.4	<12.3	0.54	320	2.0	53.9	1130	6.8	45.8	---
10A	05/15/2006	697	515				1.8	3.7	63	19	<1.1	<1.2	0.67	190	1.8	57.4	3100	6.8	49.2	---
10A	08/16/2006	790	608				1.6	1.6	38	20	<1.1	<1.2	1.50	201	1.4	57.5	1620	6.7	50.8	---
10A	11/27/2006	893	711				<0.2	<0.2	7.4	9.2	2.6	2.6	2.67	201	3.0	57.9	1650	6.9	56.0	---
10A	02/22/2007	980	798				1.2	<1.0	32	35	<1.1	<1.2	0.57	-176	4.6	20.4	1370	6.8	56.4	---
10A	05/22/2007	1069	887				1.1	<1.0	28	44	<1.1	1.4	0.88	73	3.0	10.2	2590	6.9	47.3	---
10A	11/29/2007	1260	1078				1.2	<1.0	22	78	4.4	3.7	0.80	106	4.2	47.9	4810	6.9	47.8	---
10A	05/19/2008	1432	1250			-98	<1.0	<1.0	22	180	7.9	4.4	2.19	-177	4.0	32.5	4870	7.0	33.3	---
10A	11/24/2008	1621	1439			91	<1.0	<1.0	1.6	5.0	<1.1	<1.2	2.29	-87	3.4	1.3	16900	7.1	1200	---
10A	05/18/2009	1796	1614			266	<2.0	<2.0	<2.0	<2.0	<1.1	<1.2	0.66	-80	3.3	<1.0	17900	6.9	168	---
10A	11/16/2009	1978	1796			448	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	3.14	-40	4.2	<1.0	18200	6.3	69.2	---
10A	5/20/2010	2163	1981			633	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	16.23	341	3.0	<1.0	17600	6.8	60.4	Duffy: Replace DO electroic membrane
10A	11/10/2010	2337	2155			807	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	4.09	67	2.4	0.5	22800	6.9	56.8	---
10A	5/3/2011	2511	2329			981	<2.0	<2.0	<2.0	<2.0	<1.1	<1.2	2.47	-21	2.5	<0.2	20700	6.9	41.6	---
10A	11/13/2011	2705	2523			1175	<0.2	<0.2	0.2	0.4	<1.1	<1.2	2.45	-38	2.0	0.3	15400	7.1	33.8	---
10A	5/14/2012	2888	2706			1358	<0.2	<0.2	0.2	0.4	<1.0	<1.0	0.57	88	2.5	0.32	20000	6.4	38.0	---
10A	11/14/2012	3072	2890			1542	<0.2	<0.2	0.3	0.4	<1.0	<1.0	0.03	-16	2.0	<0.30	19000	6.6	30.6	---
10A	5/21/2013	3260	3078			1730	<0.2	<0.2	0.2	0.3	<1.0	<3.0	0.35	-340	1.8	<0.30	26000	7.5	29.5	---
10A	11/12/2013	3435	3253			1905	<0.2	<0.2	0.2	0.4	<1.0	2.5	3.53	-242	1.4	0.38	16000	6.5	29.1	---
10A	5/7/2014	3611	3429			2081	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.06	-305	2.1	<0.30	26000	6.7	27.9	---
10A	11/5/2014	3793	3611			2263	<0.2	<0.2	0.2	0.3	<1.0	5.5	0.17	-134	2.0	<0.30	25000	6.5	26.1	---
14A	05/04/2004	-44					<1.0	<1.0	140	110	<0.50	<0.50	0.53	-8	7.5	38.9	590	6.8	20.7	Clear, yellow tint
14A	08/23/2004	67					<1.0	2.9	560	180	0.89	0.67	0.54	162	3.2	30.1	810	6.8	22.6	---
14A	10/19/2004	124	-58				<5.0	39	1200	650	<0.50	<0.50	0.64	69	3.0	43.3	350	6.9	20.6	---
14A	02/21/2005	249	67	-24			<5.0	300	1000	13	2.7	0.41	101	1.8	3.8	1700	6.9	44.0	Clear, yellow tint	
14A	05/16/2005	333	151	60			<10	<10	<10	<10	<0.50	<0.50	5.90	45	4.0	<2.0	590	6.4	8620	---
14A	08/22/2005	431	249	158			<10	<10	<10	<10	<0.50	<0.50	1.62	234	3.0	<2.0	220	6.8	5380	Clear, yellow-brown
14A	11/15/2005	516	334	243			<3.0	<3.0	6.0	<3.0	<0.50	<0.50	1.26	257	2.0	<0.1	2500	6.4	602	---
14A	02/21/2006	614	432	341			<1.0	<1.0	<1.0	<1.0	<11.4	<12.3	1.36	335	2.0	<0.1	5400	7.4	180	---
14A	05/17/2006	699	517	426			<2.0	<2.0	2.1	<2.0	<11	<12	1.78	76	2.8	12.0	9400	6.4	67.1	---
14A	08/16/2006	790	608	517			<1.0	<1.0	3.0	<1.0	<1.1	<1.2	1.16	240	1.2	16.5	6320	6.5	66.0	---

**SWMU-20 CLEANUP ACTION SUMMARY - SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds						Aquifer Redox Conditions					Donor Parameters		Notes	
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	pH	TOC (mg/L)		
							5.3 (µg/L)	1.4 (µg/L)	134 (µg/L)	2.4 (µg/L)	---	---									
14A	11/29/2006	895	713	622			<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	1.57	248	2.8	11.8	11100	6.3	72.0	---	
14A	02/22/2007	980	798	707			<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.89	-56	7.0	0.2	7670	6.2	34.9	---	
14A	05/23/2007	1070	888	797			<1.0	<1.0	1.5	<1.0	<1.1	<1.2	1.11	165	3.0	8.6	10100	6.3	27.5	---	
14A	12/03/2007	1264	1082	991			<1.0	<1.0	1.6	<1.0	<1.1	<1.2	2.29	-86	3.2	15.9	14500	6.4	55.6	---	
14A	05/20/2008	1433	1251	1160	-97		<1.0	<1.0	1.2	<1.0	<1.1	<1.2	3.45	-88	3.6	<0.1	12100	6.3	26.3	---	
14A	11/24/2008	1621	1439	1348	91		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	2.79	-70	3.0	194	14500	6.1	8.68	---	
14A	05/20/2009	1798	1616	1525	268		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.41	-95	3.5	20.0	14400	6.3	9.83	---	
14A	11/17/2009	1979	1797	1706	449		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.81	-18	3.2	165	15800	5.7	6.22	---	
14A	5/24/2010	2167	1985	1894	637		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	4.29	311	2.8	5.1	14600	6.4	8.07	---	
14A	11/10/2010	2337	2155	2064	807		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	2.47	171	2.6	38.6	14300	6.8	6.88	---	
14A	5/5/2011	2513	2331	2240	983		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	2.96	83	1.8	8.4	15100	7.1	3.28	---	
14A	11/13/2011	2705	2523	2432	1175		<0.2	<0.2	0.6	<0.2	<1.1	<1.2	2.04	-52	1.5	<0.1	7510	6.9	8.05	---	
14A	5/14/2012	2888	2706	2615	1358		<0.2	<0.2	0.3	0.2	<1.0	8.7	0.13	62	2.6	3.4	16000	6.4	5.9	---	
14A	11/14/2012	3072	2890	2799	1542		<0.2	<0.2	0.6	<0.2	<1.0	5.0	0.03	31	1.5	79.0	16000	6.4	6.5	---	
14A	5/21/2013	3260	3078	2987	1730		<0.5	<0.5	<0.5	<0.5	<1.0	4.8	0.24	-428	2.4	2.3	18000	7.4	6.5	---	
14A	11/12/2013	3435	3253	3162	1905		<0.2	<0.2	0.5	<0.2	<1.0	6.3	4.46	-286	1.3	0.52	14000	6.4	8.0	---	
14A	5/7/2014	3611	3429	3338	2081		<0.2	<0.2	0.3	0.3	<1.0	4.6	4.39	-427	1.6	19.9	15000	6.8	6.5	---	
14A	11/5/2014	3793	3611	3520	2263		<0.2	<0.2	0.4	0.2	<1.0	10	0.04	-48	2.0	23.6	15000	6.5	6.8	---	
15A	05/03/2004	-45					<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	---	
15A	10/26/2004	131	-51				<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	---	
15A	05/16/2005	333	151				<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	---	
15A	11/15/2005	516	334				<5.0	<5.0	<5.0	<5.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	---	
15A	05/17/2006	699	517				<5.0	<5.0	<5.0	<5.0	NA	NA	0.79	131	NA	NA	NA	NA	6.7	NA	---
15A	11/29/2006	895	713				<3.0	<3.0	<3.0	<3.0	NA	NA	1.26	513	NA	NA	NA	NA	6.6	NA	---
15A	05/23/2007	1070	888				<1.0	<1.0	1.4	2.6	NA	NA	1.19	144	NA	NA	NA	NA	6.7	NA	---
15A	12/03/2007	1264	1082				<1.0	<1.0	<1.0	1.3	NA	NA	1.31	-105	NA	NA	NA	NA	6.6	NA	---
15A	05/20/2008	1433	1251		-97		<3.0	<3.0	<3.0	<3.0	NA	NA	2.57	-135	NA	NA	NA	NA	6.7	NA	---
15A	11/24/2008	1621	1439		91		<1.0	<1.0	<1.0	<2.0	NA	NA	2.07	-61	NA	NA	NA	NA	6.8	NA	---
15A	05/19/2009	1797	1615		267		<3.0	<3.0	<3.0	<3.0	NA	NA	0.35	-33	NA	NA	NA	NA	6.9	NA	---
15A	11/18/2009	1980	1798		450		<1.0	<1.0	<1.0	1.4	NA	NA	0.72	-0.1	NA	NA	NA	NA	6.3	NA	---
15A	5/20/2010	2163	1981		633		<1.0	<1.0	<1.0	1.6	NA	NA	1.10	606	NA	NA	NA	NA	6.8	NA	---
15A	11/10/2010	2337	2155		807		<1.0	<1.0	<1.0	1.4	NA	NA	2.42	118	NA	NA	NA	NA	7.1	NA	---
15A	5/5/2011	2513	2331		983		<1.0	<1.0	<1.0	<1.0	NA	NA	4.83	-19	NA	NA	NA	NA	7.2	NA	---
15A	11/13/2011	2705	2523		1175		<0.2	<0.2	0.3	1.0	NA	NA	4.01	-41	NA	NA	NA	NA	7.3	NA	---
15A	5/14/2012	2888	2706		1358		<1.0	<1.0	<1.0	1.2	NA	NA	0.64	56	NA	NA	NA	NA	6.7	NA	---
15A	11/13/2012	3071	2889		1541		<0.2	<0.2	0.4	0.8	NA	NA	0.03	23	NA	NA	NA	NA	6.8	NA	---
15A	5/21/2013	3260	3078		1730		<0.5	<0.5	0.6	1.1	NA	NA	0.20	-394	NA	NA	NA	NA	7.4	NA	---
15A	11/12/2013	3435	3253		1905		<0.2	<0.2	0.5	0.8	NA	NA	3.38	-267	NA	NA	NA	NA	6.7	NA	---
15A	5/7/2014	3611	3429		2081		<0.2	<0.2	0.6	1.0	NA	NA	3.86	-351	NA	NA	NA	NA	6.9	NA	---
15A	11/5/2014	3793	3611		2263		<0.2	<0.2	0.4	0.5	NA	NA	0.09	-126	NA	NA	NA	NA	6.8	NA	---
19A	05/02/2004	-46	-228				<1.0	<1.0	<1.0	<1.0	NA	NA	0.33	-3	NA	NA	NA	NA	6.5	NA	---
19A	02/21/2005	249	67				<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	0.65	180	NA	47.4	17	6.7	15.5	---	
19A	05/12/2005	329	147				<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	0.63	169	3.0	31.3	9.1	6.8	14.2	Clear, colorless	
19A	08/22/2005	431	249				<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	0.74	106	3.0	68.3	16	6.6	10.5	Clear, colorless	
19A	11/15/2005	516	334				<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	0.56	201	2.6	95.9	35	6.8	9.30	---	
19A	02/22/2006	615	433				<1.0	<1.0	<1.0	<1.0	<11.4	<12.3	0.77	65	3.0	124.0	111	6.6	31.3	---	
19A	05/17/2006	699	517				<1.0	<1.0	<1.0	<1.0	<11	<12	1.14	56	2.0	73.4	230	6.4	15.7	---	
19A	08/15/2006	789	607				<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.60	229	2.0	47.3	202	6.4	11.5	---	

**SWMU-20 CLEANUP ACTION SUMMARY - SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds						Aquifer Redox Conditions					Donor Parameters		Notes
							Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	pH	TOC (mg/L)	
		5.3 (µg/L)	1.4 (µg/L)	134 (µg/L)	2.4 (µg/L)	---	---	PCE (µg/L)	TCE (µg/L)	cDCE (µg/L)	VC (µg/L)	Ethene (µg/L)								
19A	11/27/2006	893	711				<0.2	0.2	0.3	<0.2	<1.1	<1.2	0.88	264	2.0	41.9	186	6.4	13.6	---
19A	02/22/2007	980	798				<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.42	-23	3.0	20.7	248	6.2	19.8	---
19A	05/22/2007	1069	887				<1.0	<1.0	<1.0	<1.0	<1.1	5.2	0.34	277	3.5	30.8	179	6.4	15.4	---
19A	11/29/2007	1260	1078				<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.67	243	2.2	37.2	235	6.2	14.3	---
19A	05/20/2008	1433	1251			-97	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	3.23	-79	3.8	20.9	134	6.4	11.5	---
19A	11/23/2008	1620	1438			90	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	1.62	-61	2.0	46.1	97.8	6.4	10.6	---
19A	05/19/2009	1797	1615			267	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.30	-28	3.2	28.6	127	6.8	12.8	---
19A	11/18/2009	1980	1798			450	<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	1.58	-2	3.4	22.1	122	6.5	10.7	---
22A	03/21/2005	277	95	4			<1.0	<1.0	3.5	2.0	<0.50	<0.50	1.86	53	2.8	12.8	280	7.0	11.1	Hazy, suspended silt
22A	05/12/2005	329	147	56			<1.0	<1.0	2.3	2.9	<0.50	<0.50	0.83	155	2.6	1.3	300	7.1	31.3	---
22A	08/22/2005	431	249	158			<1.0	<1.0	2.3	3.2	<0.50	<0.50	0.70	170	2.6	3.0	230	6.9	26.5	Clear, slight yellow-brown tint
22A	11/16/2005	517	335	244			<1.0	<1.0	1.4	2.2	<0.50	<0.50	1.67	321	2.4	1.3	1300	6.3	29.9	---
22A	02/22/2006	615	433	342			<1.0	<1.0	1.4	3.3	<11.4	<12.3	0.69	97	2.0	59.0	1940	6.8	32.0	---
22A	05/17/2006	699	517	426			<1.0	<1.0	2.4	1.7	<11	<12	0.67	102	2.6	32.7	3600	6.8	17.6	---
22A	08/15/2006	789	607	516			<1.0	<1.0	1.8	2.4	<1.1	<1.2	0.65	239	2.0	54.7	5700	6.7	24.0	---
22A	11/30/2006	896	714	623			<0.2	0.3	2.2	2.4	<1.1	<1.2	2.15	286	2.6	40.0	4020	6.6	25.2	---
22A	02/22/2007	980	798	707			<1.0	<1.0	2.5	2.3	<1.1	<1.2	0.53	-76	5.0	<0.1	3000	6.6	22.4	---
22A	05/23/2007	1070	888	797			<1.0	<1.0	2.5	2.7	<1.1	<1.2	0.30	51	3.0	27.3	3510	6.8	18.2	---
22A	12/03/2007	1264	1082	991			<1.0	<1.0	2.0	1.3	<1.1	<1.2	0.61	41	2.6	12.3	2030	6.6	16.0	---
22A	05/20/2008	1433	1251	1160		-97	<1.0	<1.0	2.6	1.9	<1.1	<1.2	2.83	-103	4.0	20.2	1540	6.7	13.8	---
22A	11/23/2008	1620	1438	1347		90	<1.0	<1.0	2.2	3.1	<1.1	<1.2	1.13	-70	1.8	2.6	3100	6.8	19.2	---
22A	05/19/2009	1797	1615	1524		267	<1.0	<1.0	2.5	2.5	<1.1	<1.2	0.26	-43	3.2	3.4	3490	7.0	21.0	---
22A	11/18/2009	1980	1798	1707		450	<1.0	<1.0	2.1	1.8	<1.1	<1.2	0.43	-3.3	3.0	2.1	2060	6.4	13.8	---
22A	5/24/2010	2167	1985	1894		637	<1.0	<1.0	1.7	1.7	<1.1	<1.2	6.58	204	2.4	0.6	2370	7.0	15.1	---
22A	11/11/2010	2338	2156	2065		808	<1.0	<1.0	1.2	2.7	<1.1	<1.2	3.27	113	2.2	0.5	4650	7.0	21.8	---
22A	5/4/2011	2512	2330	2239		982	<1.0	<1.0	1.1	2.2	<1.1	<1.2	1.96	4	2.0	0.6	6350	7.0	22.4	---
22A	11/13/2011	2705	2523	2432		1175	<0.2	<0.2	0.9	1.7	<1.1	<1.2	2.89	-38	1.2	0.4	2510	7.3	17.6	---
22A	5/14/2012	2888	2706	2615		1358	<0.2	<0.2	0.6	2.0	<1.0	3.3	0.03	45	2.2	<0.30	5100	6.8	25.4	---
22A	11/14/2012	3072	2890	2799		1542	<0.2	<0.2	0.5	1.8	<1.0	1.7	0.03	1	1.8	<0.30	4400	6.9	22.7	---
22A	5/20/2013	3259	3077	2986		1729	<0.2	<0.2	0.4	2.0	<1.0	1.6	0.24	-404	1.0	<0.30	6100	7.7	24.6	---
22A	11/12/2013	3435	3253	3162		1905	<0.2	<0.2	0.5	1.7	<1.0	1.1	3.69	-289	1.4	1.8	3500	6.7	19.8	---
22A	5/7/2014	3611	3429	3338		2081	<0.2	<0.2	0.5	1.6	<1.0	<1.0	4.8	-368	1.3	0.66	4200	6.8	23.6	---
22A	11/5/2014	3793	3611	3520		2263	<0.2	<0.2	0.4	1.5	<1.0	1.5	0.13	-131	1.5	0.39	4800	6.8	25.8	---
22A	4/29/2015	3968	3786	3695		2438	<0.2	<0.2	0.6	1.5	<1.0	<1.0	0.09	-87	1.0	2.0	4300	6.5	14.8	---
22A	10/27/2015	4149	3967	3876		2619	<0.2	<0.2	0.5	1.5	<1.0	<1.0	0.07	-64	2.0	2.6	3500	6.6	16.7	---
22A	4/19/2016	4324	4142	4051		2794	<0.2	<0.2	0.5	1.2	<100	<100	0.14	-163	1.0	1.9	15000	7.0	2980	---
22A	11/2/2016	4521	4339	4248		357	<0.2	<0.2	0.5	<0.2	<100	<100	0.37	-252.6	NM	<0.30	18000	7.34	542	Clear dark brown/amber color
23A	03/21/2005	277	95	4			<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	0.63	81	2.0	0.4	410	7.0	33.0	Slight yellow tint
23A	05/12/2005	329	147	56			<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	0.58	158	2.0	<0.1	260	7.2	39.9	---
23A	08/22/2005	431	249	158			<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	0.75	130	3.4	1.5	98	7.0	21.0	---
23A	11/16/2005	517	335	244			<1.0	<1.0	<1.0	<1.0	<0.50	<0.50	0.49	291	2.6	4.1	140	7.2	30.8	---
23A	02/22/2006	615	433	342			<1.0	<1.0	<1.0	<1.0	<11.4	<12.3	0.60	127	2.2	91.8	1520	6.4	34.5	---
23A	05/17/2006	699	517	426			<1.0	<1.0	<1.0	<1.0	<11	<12	0.60	120	3.0	38.8	1700	6.7	30.0	---
23A	08/15/2006	789	607	516			<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.77	256	2.2	63.9	3080	6.7	32.6	---
23A	11/30/2006	896	714	623			<0.2	<0.2	<0.2	<0.2	<1.1	<1.2	1.96	287	2.5	40.7	1930	6.2	45.2	---
23A	02/22/2007	980	798	707			<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.40	-58	2.0	2.9	1360	6.5	34.6	---
23A	05/23/2007	1070	888	797			<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.41	193	3.3	52.7	1850	6.4	38.7	---
23A	11/30/2007	1261	1079	988			<0.2	<0.2	0.3	<0.2	<1.1	<1.2	0.55	159	2.2	81.1	4430	6.6	38.6	---

**SWMU-20 CLEANUP ACTION SUMMARY - SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds						Aquifer Redox Conditions					Donor Parameters		Notes
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	pH	TOC (mg/L)	
							5.3 (µg/L)	1.4 (µg/L)	134 (µg/L)	2.4 (µg/L)	---	---								
23A	05/21/2008	1434	1252	1161	-96		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	3.12	-28	2.2	31.7	1570	6.1	29.6	---
23A	11/25/2008	1622	1440	1349	92		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	4.22	-68	1.8	<0.1	3270	6.8	39.0	---
23A	05/19/2009	1797	1615	1524	267		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.31	-3	3.2	0.1	2370	6.5	39.1	---
23A	11/18/2009	1980	1798	1707	450		<1.0	<1.0	<1.0	<1.0	<1.1	<1.2	0.41	1	2.4	1.6	1970	6.5	30.9	---

PCE = tetrachloroethene

TCE = trichloroethene

cDCE = cis-1,2-dichloroethene

VC = vinyl chloride

DO = dissolved oxygen

ORP = oxidation reduction potential

TOC = total organic carbon

Bold = detected compound

µg/L = micrograms per liter

mg/L = milligrams per liter

mV = millivolts

NA = not analyzed

Box = exceedance of proposed cleanup level

(a) Injections occurred on:

-6/17/04 (6A, B, C; 9A, B, C)

-12/16-17/04 (6A, 6B;9A,9B)

-3/17/05 (14A)

-8/25-28/08 (6A, 9A, 10A)

-10/27-11/11/15 (6A, 6B, 10C,
15C, 16A, 16C, 17A, 20C, 22A)

(b) Conducted at Well MW-14A only.

(c) MW-06A installed June 2004.

(d) Proposed Cleanup Standards and Comparison to Site Data, Boeing Developmental Center, Tukwila, Washington (Landau Associates, 5/7/13).

**SWMU-20 CLEANUP ACTION SUMMARY - NON SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds			
							Proposed Groundwater Cleanup Levels (c)			
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
MW-8C	5/3/2004	-45					<1.0	<1.0	<1.0	2.8
MW-8C	10/25/2004	130	-52				<1.0	<1.0	<1.0	3.5
MW-8C	5/12/2005	329	147				<1.0	<1.0	<1.0	<1.0
MW-8C	11/14/2005	515	333				<1.0	<1.0	<1.0	<1.0
MW-8C	5/15/2006	697	515				<10	<10	<10	<10
MW-8C	11/27/2006	893	711				<5.0	<5.0	<5.0	<5.0
MW-8C	5/21/2007	1068	886				<3.0	<3.0	<3.0	<3.0
MW-8C	11/29/2007	1260	1078				<5.0	<5.0	<5.0	<5.0
MW-8C	5/19/2008	1432	1250		-98		<5.0	<5.0	<5.0	<5.0
MW-8C	11/23/2008	1620	1438		90		<5.0	<5.0	<5.0	<5.0
MW-8C	05/18/2009	1796	1614		266		<1.0	<1.0	<1.0	<1.0
MW-8C	11/16/2009	1978	1796		448		<3.0	<3.0	<3.0	<3.0
MW-9D	5/3/2004	-45					<1.0	<1.0	<1.0	<1.0
MW-9D	10/19/2004	124	-58				<1.0	<1.0	<1.0	<1.0
MW-9D	5/11/2005	328	146				<1.0	<1.0	<1.0	<1.0
MW-9D	11/14/2005	515	333				<1.0	<1.0	<1.0	<1.0
MW-9D	5/15/2006	697	515				<1.0	<1.0	<1.0	<1.0
MW-9D	11/27/2006	893	711				<1.0	<1.0	<1.0	<1.0
MW-9D	5/22/2007	1069	887				<1.0	<1.0	<1.0	<1.0
MW-9D	11/29/2007	1260	1078				<1.0	<1.0	<1.0	<1.0
MW-9D	5/19/2008	1432	1250		-98		<0.2	<0.2	<0.2	<0.2
MW-9D	11/24/2008	1621	1439		91		<1.0	<1.0	<1.0	<1.0
MW-9D	05/18/2009	1796	1614		266		<1.0	<1.0	<1.0	<1.0
MW-9D	11/16/2009	1978	1796		448		<1.0	<1.0	<1.0	<1.0
MW-10C	5/3/2004	-45					<1.0	<1.0	4.3	4.0
MW-10C	10/19/2004	124	-58				<1.0	<1.0	6.4	11
MW-10C	5/11/2005	328	146				<1.0	<1.0	4.0	1.9
MW-10C	11/14/2005	515	333				<1.0	<1.0	<1.0	1.0
MW-10C	5/15/2006	697	515				<1.0	<1.0	1.5	2.2
MW-10C	11/27/2006	893	711				<0.2	<0.2	1.9	2.6
MW-10C	5/22/2007	1069	887				<1.0	<1.0	6.7	5.8
MW-10C	11/29/2007	1260	1078				<1.0	<1.0	7.2	5.6
MW-10C	5/19/2008	1432	1250		-98		<0.2	<0.2	15	6.9
MW-10C	11/24/2008	1621	1439		91		<1.0	<1.0	8.5	7.5
MW-10C	05/18/2009	1796	1614		266		<1.0	<1.0	<1.0	<1.0
MW-10C	11/16/2009	1978	1796		448		<1.0	<1.0	<1.0	<1.0
MW-10C	5/20/2010	2163	1981		633		<1.0	<1.0	<1.0	<1.0
MW-10C	11/10/2010	2337	2155		807		<1.0	<1.0	3.5	4.4
MW-10C	5/3/2011	2511	2329		981		<1.0	<1.0	5.8	4.7
MW-10C	11/13/2011	2705	2523		1175		<0.2	<0.2	3.7	4.3
MW-10C	5/14/2012	2888	2706		1358		<0.2	<0.2	5.4	4.0
MW-10C	11/14/2012	3072	2890		1542		<0.2	<0.2	6.1	4.4
MW-10C	5/21/2013	3260	3078		1730		<0.2	<0.2	6.0	4.5
MW-10C	11/12/2013	3435	3253		1905		<0.2	<0.2	3.5	3.7
MW-10C	5/7/2014	3611	3429		2081		<0.2	<0.2	5.4	2.9
MW-10C	11/5/2014	3793	3611		2263		<0.2	<0.2	2.6	2.5
MW-10C	4/28/2015	3967	3785		2437		<0.2	<0.2	2.2	1.7
MW-10C	10/26/2015	4148	3966		2618	-16	<0.2	<0.2	1.0	1.1
MW-10C	4/19/2016	4324	4142		2794	160	<0.2	<0.2	0.5	<0.2
MW-10C	11/1/2016	4520	4338		2990	356	<0.2	<0.2	0.5	<0.2

**SWMU-20 CLEANUP ACTION SUMMARY - NON SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds			
							Proposed Groundwater Cleanup Levels (c)			
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
MW-11A	5/2/2004	-46					<1.0	2.1	21	<1.0
MW-11A	10/25/2004	130	-52				<1.0	2.0	20	<1.0
MW-11A	5/12/2005	329	147				<1.0	2.0	20	<1.0
MW-11A	11/15/2005	516	334				<1.0	2.0	22	<1.0
MW-11A	5/16/2006	698	516				<1.0	1.1	20	<1.0
MW-11A	11/26/2006	892	710				<1.0	1.5	24	<1.0
MW-11A	5/22/2007	1069	887				<1.0	1.5	26	<1.0
MW-11A	11/27/2007	1258	1076				<1.0	1.1	27	<1.0
MW-11A	5/19/2008	1432	1250		-98		<0.2	1.2	26	0.2
MW-11A	11/23/2008	1620	1438		90		<1.0	1.2	33	<1.0
MW-11A	05/18/2009	1796	1614		266		<1.0	<1.0	26	<1.0
MW-11A	11/17/2009	1979	1797		449		<1.0	1.0	30	<1.0
MW-11A	5/19/2010	2162	1980		632		<1.0	1.1	26	<1.0
MW-11A	11/8/2010	2335	2153		805		<1.0	<1.0	22	<1.0
MW-11A	5/3/2011	2511	2329		981		<1.0	<1.0	22	<1.0
MW-11A	11/13/2011	2705	2523		1175		<0.2	0.5	23	0.4
MW-11A	5/14/2012	2888	2706		1358		<0.2	0.7	24	0.4
MW-11A	11/14/2012	3072	2890		1542		<2.0	<2.0	25	<2.0
MW-11A	5/21/2013	3260	3078		1730		<2.0	<2.0	22	<2.0
MW-11A	11/12/2013	3435	3253		1905		<2.0	<2.0	24	<2.0
MW-11A	5/7/2014	3611	3429		2081		<2.0	<2.0	19	<2.0
MW-11A	11/4/2014	3792	3610		2262		<0.2	0.4	24	0.4
MW-11A	4/28/2015	3967	3785		2437		<0.2	0.5	21	0.3
MW-11A	10/26/2015	4148	3966		2618		0.2	0.2	19	0.4
MW-11A	4/19/2016	4324	4142		2794		<0.2	0.3	20	0.4
MW-11A	11/1/2016	4520	4338		2990		<0.2	<0.2	15	0.5
MW-12A	5/2/2004	-46					<1.0	<1.0	1.8	<1.0
MW-12A	10/25/2004	130	-52				<1.0	<1.0	4.4	<1.0
MW-12A	5/12/2005	329	147				<1.0	<1.0	2.0	<1.0
MW-12A	11/15/2005	516	334				<1.0	<1.0	3.8	<1.0
MW-12A	5/16/2006	698	516				<1.0	<1.0	1.5	<1.0
MW-12A	11/26/2006	892	710				<0.2	0.7	4.4	<0.2
MW-12A	5/22/2007	1069	887				<1.0	<1.0	2.4	<1.0
MW-12A	11/27/2007	1258	1076				<1.0	<1.0	3.2	<1.0
MW-12A	5/19/2008	1432	1250		-98		<0.2	0.6	3.2	<0.2
MW-12A	11/23/2008	1620	1438		90		<1.0	<1.0	4.7	<1.0
MW-12A	05/18/2009	1796	1614		266		<1.0	<1.0	1.4	<1.0
MW-12A	11/17/2009	1979	1797		449		<1.0	<1.0	4.7	<1.0
MW-12A	5/19/2010	2162	1980		632		<1.0	<1.0	<1.0	<1.0
MW-12A	11/8/2010	2335	2153		805		<1.0	<1.0	4.3	<1.0
MW-12A	5/3/2011	2511	2329		981		<1.0	<1.0	<1.0	<1.0
MW-12A	11/13/2011	2705	2523		1175		<0.2	0.6	3.1	<0.2
MW-12A	5/14/2012	2888	2706		1358		0.2	<0.2	<0.2	<0.2
MW-12A	11/14/2012	3072	2890		1542		<0.2	0.4	2.1	<0.2
MW-12A	5/21/2013	3260	3078		1730		<0.2	<0.2	0.5	<0.2
MW-12A	11/12/2013	3435	3253		1905		<0.2	0.5	2.2	<0.2
MW-12A	5/7/2014	3611	3429		2081		0.3	<0.2	<0.2	<0.2
MW-12A	11/4/2014	3792	3610		2262		0.3	<0.2	0.3	<0.2

**SWMU-20 CLEANUP ACTION SUMMARY - NON SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds			
							Proposed Groundwater Cleanup Levels (c)			
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
MW-13A	5/2/2004	-46					5.1	4.6	<1.0	<1.0
MW-13A	10/25/2004	130	-52				4.3	4.0	<1.0	<1.0
MW-13A	5/12/2005	329	147				6.1	4.6	<1.0	<1.0
MW-13A	11/14/2005	515	333				6.0	4.5	<1.0	<1.0
MW-13A	5/16/2006	698	516				7.1	4.6	<1.0	<1.0
MW-13A	11/27/2006	893	711				8.3	6.5	0.3	<0.2
MW-13A	5/21/2007	1068	886				8.2	7.0	0.4	<0.2
MW-13A	11/28/2007	1259	1077				6.4	4.2	<1.0	<1.0
MW-13A	5/19/2008	1432	1250		-98		8.7	6.8	0.3	<0.2
MW-13A	11/23/2008	1620	1438		90		6.5	3.7	<1.0	<1.0
MW-13A	05/18/2009	1796	1614		266		7.7	5.6	<1.0	<1.0
MW-13A	11/17/2009	1979	1797		449		9.2	6.0	<1.0	<1.0
MW-13A	5/20/2010	2163	1981		633		9.4	5.3	<1.0	<1.0
MW-13A	11/10/2010	2337	2155		807		3.6	2.8	<1.0	<1.0
MW-13A	5/4/2011	2512	2330		982		3.9	2.4	<1.0	<1.0
MW-13A	11/3/2011	2695	2513		1165		1.6	<1.0	<1.0	<1.0
MW-13A	5/14/2012	2888	2706		1358		2.3	0.8	<0.2	<0.2
MW-13A	11/13/2012	3071	2889		1541		2.2	0.8	<0.2	<0.2
MW-13A	5/21/2013	3260	3078		3078		4.5	2.5	0.5	<0.2
MW-13A	11/12/2013	3435	3253		3253		2.2	0.6	<0.2	<0.2
MW-13A	5/7/2014	3611	3429		3429		3.1	1.3	<0.2	<0.2
MW-13A	11/4/2014	3792	3610		3610		2.3	0.5	<0.2	<0.2
MW-13A	4/28/2015	3967	3785		3785		1.8	0.4	<0.2	<0.2
MW-13A	10/27/2015	4149	3967		3967		1.5	0.3	<0.2	<0.2
MW-13A	4/19/2016	4324	4142		4142		1.6	0.3	<0.2	<0.2
MW-13A	11/1/2016	4520	4338		4338		2.3	0.7	<0.2	<0.2
MW-13C	5/2/2004	-46					<1.0	<1.0	<1.0	2.5
MW-13C	10/25/2004	130	-52				<1.0	<1.0	<1.0	3.3
MW-13C	5/12/2005	329	147				<1.0	<1.0	<1.0	<1.0
MW-13C	11/14/2005	515	333				<1.0	<1.0	<1.0	3.8
MW-13C	5/16/2006	698	516				<1.0	<1.0	<1.0	2.2
MW-13C	11/27/2006	893	711				<0.2	<0.2	0.8	3.4
MW-13C	5/21/2007	1068	886				<0.2	<0.2	0.8	4.4
MW-13C	11/28/2007	1259	1077				<1.0	<1.0	<1.0	2
MW-13C	5/19/2008	1432	1250		-98		<0.2	<0.2	0.2	0.6
MW-13C	11/23/2008	1620	1438		90		<1.0	<1.0	<1.0	2.2
MW-13C	05/18/2009	1796	1614		266		<1.0	<1.0	<1.0	<1.0
MW-13C	11/17/2009	1979	1797		449		<1.0	<1.0	<1.0	<1.0
MW-13C	5/20/2010	2163	1981		633		<1.0	<1.0	<1.0	<1.0
MW-13C	11/10/2010	2337	2155		807		<1.0	<1.0	<1.0	<1.0
MW-13C	5/4/2011	2512	2330		982		<1.0	<1.0	<1.0	<1.0
MW-13C	11/3/2011	2695	2513		1165		<1.0	<1.0	<1.0	<1.0
MW-13C	5/14/2012	2888	2706		1358		<0.2	<0.2	<0.2	0.3
MW-13C	11/13/2012	3071	2889		1541		<2.0	<2.0	<2.0	<2.0
MW-13C	5/21/2013	3260	3078		1730		<2.0	<2.0	<2.0	<2.0
MW-13C	11/12/2013	3435	3253		1905		<2.0	<2.0	<2.0	<2.0
MW-13C	5/7/2014	3611	3429		2081		<1.0	<1.0	<1.0	<1.0
MW-13C	11/4/2014	3792	3610		2262		<0.2	<0.2	<0.2	0.2
MW-13C	4/28/2015	3967	3785		2437		<0.2	<0.2	<0.2	0.3
MW-13C	10/27/2015	4149	3967		2619		<0.2	<0.2	<0.2	0.2
MW-13C	4/19/2016	4324	4142		2794		<0.2	<0.2	<0.2	0.3
MW-13C	11/1/2016	4520	4338		2990		<0.2	<0.2	<0.2	0.2

**SWMU-20 CLEANUP ACTION SUMMARY - NON SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds			
							Proposed Groundwater Cleanup Levels (c)			
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
MW-14C	5/4/2004	-44					<1.0	<1.0	63	44
MW-14C	10/26/2004	131	-51	-142			<1.0	<1.0	22	75
MW-14C	5/16/2005	333	151	60			<1.0	<1.0	11	6.1
MW-14C	11/15/2005	516	334	243			<1.0	<1.0	<1.0	1.8
MW-14C	5/17/2006	699	517	426			<1.0	<1.0	<1.0	<1.0
MW-14C	11/29/2006	895	713	622			<0.2	<0.2	<0.2	1.0
MW-14C	5/23/2007	1070	888	797			<1.0	<1.0	<1.0	2.5
MW-14C	12/3/2007	1264	1082	991			<1.0	<1.0	1.1	11
MW-14C	5/20/2008	1433	1251	1160	-97		<1.0	<1.0	1.4	22
MW-14C	11/24/2008	1621	1439	1348	91		<1.0	<1.0	<1.0	4.3
MW-14C	05/20/2009	1798	1616	1525	268		<1.0	<1.0	<1.0	1.1
MW-14C	11/17/2009	1979	1797	1706	449		<1.0	<1.0	<1.0	<1.0
MW-14C	5/24/2010	2167	1985	1894	637		<1.0	<1.0	<1.0	<1.0
MW-14C	11/10/2010	2337	2155	2064	807		<1.0	<1.0	<1.0	<1.0
MW-14C	5/5/2011	2513	2331	2240	983		<1.0	<1.0	<1.0	<1.0
MW-14C	11/13/2011	2705	2523	2432	1175		<0.2	<0.2	<0.2	<0.2
MW-14C	5/14/2012	2888	2706	2615	1358		<0.2	<0.2	<0.2	<0.2
MW-14C	11/14/2012	3072	2890	2799	1542		<2.0	<2.0	<2.0	<2.0
MW-14C	5/21/2013	3260	3078	2987	1730		<2.0	<2.0	<2.0	<2.0
MW-14C	11/12/2013	3435	3253	3162	1905		<2.0	<2.0	<2.0	<2.0
MW-14C	5/7/2014	3611	3429	3338	2081		<1.0	<1.0	<1.0	<1.0
MW-14C	11/5/2014	3793	3611	3520	2263		<0.2	<0.2	<0.2	<0.2
MW-14C	4/29/2015	3968	3786	3695	2438		<0.2	<0.2	<0.2	<0.2
MW-14C	10/27/2015	4149	3967	3876	2619		<0.2	<0.2	<0.2	<0.2
MW-14C	4/19/2016	4324	4142	4051	2794		<0.2	<0.2	<0.2	0.3
MW-14C	11/2/2016	4521	4339	4248	2991		<0.2	<0.2	<0.2	<0.2
MW-14E	5/4/2004	-44					<1.0	<1.0	<1.0	<1.0
MW-14E	10/26/2004	131	-51	-142			<1.0	<1.0	<1.0	<1.0
MW-14E	5/16/2005	333	151	60			<1.0	<1.0	<1.0	<1.0
MW-14E	11/15/2005	516	334	243			<1.0	<1.0	<1.0	<1.0
MW-14E	5/17/2006	699	517	426			<1.0	<1.0	<1.0	<1.0
MW-14E	11/29/2006	895	713	622			<0.2	<0.2	<0.2	<0.2
MW-14E	5/23/2007	1070	888	797			<1.0	<1.0	<1.0	<1.0
MW-14E	12/3/2007	1264	1082	991			<1.0	<1.0	<1.0	<1.0
MW-14E	5/20/2008	1433	1251	1160	-97		<1.0	<1.0	<1.0	<1.0
MW-14E	11/24/2008	1621	1439	1348	91		<1.0	<1.0	<1.0	<1.0
MW-14E	05/20/2009	1798	1616	1525	268		<1.0	<1.0	<1.0	<1.0
MW-14E	11/17/2009	1979	1797	1706	449		<1.0	<1.0	<1.0	<1.0
MW-15C	5/3/2004	-45					<1.0	<1.0	9.1	11
MW-15C	10/26/2004	131	-51				<1.0	<1.0	11	17
MW-15C	5/16/2005	333	151				<1.0	<1.0	13	6.4
MW-15C	11/15/2005	516	334				<1.0	<1.0	<1.0	<1.0
MW-15C	5/17/2006	699	517				<1.0	<1.0	<1.0	<1.0
MW-15C	11/29/2006	895	713				<0.2	<0.2	<0.2	<0.2
MW-15C	5/23/2007	1070	888				<1.0	<1.0	<1.0	2.2
MW-15C	12/3/2007	1264	1082				<1.0	<1.0	<1.0	2.5
MW-15C	5/20/2008	1433	1251		-97		<1.0	<1.0	1.8	6.6
MW-15C	11/24/2008	1621	1439		91		<1.0	<1.0	1.9	6.6
MW-15C	05/19/2009	1797	1615		267		<1.0	<1.0	<1.0	<1.0
MW-15C	11/18/2009	1980	1798		450		<1.0	<1.0	<1.0	<1.0
MW-15C	5/20/2010	2163	1981		633		<1.0	<1.0	<1.0	<1.0
MW-15C	11/10/2010	2337	2155		807		<1.0	<1.0	<1.0	<1.0

**SWMU-20 CLEANUP ACTION SUMMARY - NON SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds			
							Proposed Groundwater Cleanup Levels (c)			
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
MW-15C	5/5/2011	2513	2331		983		<1.0	<1.0	<1.0	<1.0
MW-15C	11/13/2011	2705	2523		1175		<0.2	<0.2	<0.2	<0.2
MW-15C	5/14/2012	2888	2706		1358		<0.2	<0.2	<0.2	<0.2
MW-15C	11/13/2012	3071	2889		1541		<2.0	3.2	<2.0	<2.0
MW-15C	5/21/2013	3260	3078		1730		<5.0	<5.0	<5.0	<5.0
MW-15C	11/12/2013	3435	3253		1905		<2.0	<2.0	<2.0	2.3
MW-15C	5/7/2014	3611	3429		2081		<2.0	<2.0	<2.0	2.9
MW-15C	11/5/2014	3793	3611		2263		<0.2	<0.2	0.5	2.5
MW-15C	4/29/2015	3968	3786		2438		<0.2	<0.2	0.6	2.4
MW-15C	10/27/2015	4149	3967		2619	-15	<0.2	<0.2	0.5	2.0
MW-15C	4/19/2016	4324	4142		2794	160	<0.2	0.6	1.2	0.5
MW-15C	11/2/2016	4521	4339		2991	357	<0.2	0.3	1.7	0.7
MW-15D	5/3/2004	-45					<1.0	<1.0	<1.0	<1.0
MW-15D	10/26/2004	131	-51				<1.0	<1.0	<1.0	<1.0
MW-15D	5/16/2005	333	151				<1.0	<1.0	<1.0	<1.0
MW-15D	11/15/2005	516	334				<1.0	<1.0	<1.0	<1.0
MW-15D	5/17/2006	699	517				<1.0	<1.0	<1.0	<1.0
MW-15D	11/29/2006	895	713				<1.0	<1.0	<1.0	<1.0
MW-15D	5/23/2007	1070	888				<1.0	<1.0	<1.0	<1.0
MW-15D	12/3/2007	1264	1082				<1.0	<1.0	<1.0	<1.0
MW-15D	5/20/2008	1433	1251		-97		<1.0	<1.0	<1.0	<1.0
MW-15D	11/24/2008	1621	1439		91		<1.0	<1.0	<1.0	<1.0
MW-15D	05/19/2009	1797	1615		267		<1.0	<1.0	<1.0	<1.0
MW-15D	11/18/2009	1980	1798		450		<1.0	<1.0	<1.0	<1.0
MW-16A	5/2/2004	-46					1.2	1.2	2.3	<1.0
MW-16A	10/25/2004	130	-52				1.2	1.3	1.8	<1.0
MW-16A	5/12/2005	329	147				1.2	1.8	2.6	<1.0
MW-16A	11/15/2005	516	334				1.3	2.2	2.1	<1.0
MW-16A	5/16/2006	698	516				1.0	1.4	2.3	<1.0
MW-16A	11/26/2006	892	710				<0.2	0.8	4.2	<0.2
MW-16A	5/22/2007	1069	887				1.1	1.3	1.9	<1.0
MW-16A	11/28/2007	1259	1077				1.7	1.2	1.2	<1.0
MW-16A	5/19/2008	1432	1250		-98		1.2	1.3	1.2	<0.2
MW-16A	11/23/2008	1620	1438		90		1.5	1.4	1.0	<1.0
MW-16A	05/18/2009	1796	1614		266		1.6	1.6	<1.0	<1.0
MW-16A	11/16/2009	1978	1796		448		2.2	1.5	<1.0	<1.0
MW-16A	5/20/2010	2163	1981		633		1.4	1.4	<1.0	<1.0
MW-16A	11/10/2010	2337	2155		807		1.3	1.1	<1.0	<1.0
MW-16A	5/4/2011	2512	2330		982		1.6	1.4	<1.0	<1.0
MW-16A	11/13/2011	2705	2523		1175		1.4	1.3	0.5	<0.2
MW-16A	5/14/2012	2888	2706		1358		1.6	1.7	0.5	<0.2
MW-16A	11/14/2012	3072	2890		1542		1.1	1.5	0.6	<0.2
MW-16A	5/21/2013	3260	3078		1730		1.4	1.5	<0.5	<0.5
MW-16A	11/12/2013	3435	3253		1905		2.1	1.8	0.3	<0.2
MW-16A	5/8/2014	3612	3430		2082		1.4	1.6	0.4	<0.2
MW-16A	11/5/2014	3793	3611		2263		1.6	1.5	0.4	<0.2
MW-16A	4/28/2015	3967	3785		2437		1.4	1.4	0.3	<0.2
MW-16A	10/26/2015	4148	3966		2618	-16	1.5	1.5	0.3	<0.2
MW-16A	4/19/2016	4324	4142		2794	160	0.8	0.7	10	<0.2
MW-16A	11/2/2016	4521	4339		2991	357	0.6	0.3	14	0.5

**SWMU-20 CLEANUP ACTION SUMMARY - NON SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds			
							Proposed Groundwater Cleanup Levels (c)			
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
MW-16C	5/2/2004	-46					<1.0	<1.0	1.7	5.4
MW-16C	10/25/2004	130	-52				<1.0	<1.0	2.4	8.5
MW-16C	5/12/2005	329	147				<1.0	<1.0	2.8	7.7
MW-16C	11/15/2005	516	334				<1.0	<1.0	4.6	12
MW-16C	5/16/2006	698	516				<1.0	<1.0	5.2	6.3
MW-16C	11/26/2006	892	710				1.2	2.3	2.0	<0.2
MW-16C	5/22/2007	1069	887				<1.0	<1.0	8.8	10
MW-16C	11/28/2007	1259	1077				<1.0	<1.0	7	8.9
MW-16C	5/19/2008	1432	1250		-98		<0.2	<0.2	7.8	7.9
MW-16C	11/23/2008	1620	1438		90		<1.0	<1.0	5.3	8.8
MW-16C	05/18/2009	1796	1614		266		<1.0	<1.0	5.0	6.3
MW-16C	11/16/2009	1978	1796		448		<1.0	<1.0	4.9	5.6
MW-16C	5/20/2010	2163	1981		633		<1.0	<1.0	3.7	3.4
MW-16C	11/10/2010	2337	2155		807		<1.0	<1.0	3.3	2.8
MW-16C	5/4/2011	2512	2330		982		<1.0	<1.0	3.7	3.2
MW-16C	11/13/2011	2705	2523		1175		<0.2	<0.2	3.3	2.5
MW-16C	5/14/2012	2888	2706		1358		<0.2	<0.2	4.8	4.2
MW-16C	11/14/2012	3072	2890		1542		<0.2	<0.2	4.9	3.8
MW-16C	5/21/2013	3260	3078		1730		<0.5	<0.5	3.9	2.8
MW-16C	11/12/2013	3435	3253		1905		<0.2	<0.2	4.4	2.1
MW-16C	5/8/2014	3612	3430		2082		<0.2	<0.2	3.4	1.2
MW-16C	11/5/2014	3793	3611		2263		<0.2	<0.2	3.4	1.3
MW-16C	4/28/2015	3967	3785		2437		<0.2	<0.2	2.2	1.2
MW-16C	10/26/2015	4148	3966		2618	-16	<0.2	<0.2	2.7	1.1
MW-16C	4/19/2016	4324	4142		2794	160	<0.2	<0.2	0.9	0.3
MW-16C	11/2/2016	4521	4339		2991	357	<0.2	<0.2	1.9	0.3
MW-17A	5/2/2004	-46					4.8	6.5	1.0	<1.0
MW-17A	10/25/2004	130	-52				5.2	4.8	1.2	<1.0
MW-17A	11/15/2005	516	334				4.0	5.4	1.1	<1.0
MW-17A	5/15/2006	697	515				4.2	4.4	<1.0	<1.0
MW-17A	11/27/2006	893	711				2.2	6.3	1.0	<0.2
MW-17A	5/21/2007	1068	886				4.7	5.3	1.0	<0.2
MW-17A	11/29/2007	1260	1078				4.2	4.3	<1.0	<1.0
MW-17A	5/19/2008	1432	1250		-98		4.3	5.1	0.8	<0.2
MW-17A	11/23/2008	1620	1438		90		4.2	5.2	1.2	<1.0
MW-17A	05/19/2009	1797	1615		267		3.2	4.9	1.4	<1.0
MW-17A	11/12/2009	1974	1792		444		3.7	4.5	1.1	<1.0
MW-17A	5/20/2010	2163	1981		633		4.0	3.1	<1.0	<1.0
MW-17A	11/8/2010	2335	2153		805		2.3	4.8	2.3	<1.0
MW-17A	5/3/2011	2511	2329		981		3.1	2.2	1.5	<1.0
MW-17A	11/3/2011	2695	2513		1165		2.6	2.8	1.0	<1.0
MW-17A	5/14/2012	2888	2706		1358		3.1	2.0	0.5	<0.2
MW-17A	11/13/2012	3071	2889		1541		2.8	3.5	0.9	<0.2
MW-17A	5/20/2013	3259	3077		1729		3.6	2.8	0.8	<0.2
MW-17A	11/4/2014	3792	3610		2262		3.9	3.4	1.0	<0.2
MW-17A	5/6/2014	3610	3428		2080		3.6	2.6	0.4	<0.2
MW-17A	11/4/2014	3792	3610		2262		2.9	3.1	0.9	<0.2
MW-17A	4/28/2015	3967	3785		2437		3.4	2.3	0.4	<0.2
MW-17A	10/26/2015	4148	3966		2618	-16	3.4	2.6	1.1	<0.2
MW-17A	4/19/2016	4324	4142		2794	160	<2.0	<2.0	8	<2.0
MW-17A	11/1/2016	4520	4338		2990	356	<2.0	0.4	8.2	0.8

**SWMU-20 CLEANUP ACTION SUMMARY - NON SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds			
							Proposed Groundwater Cleanup Levels (c)			
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
MW-18A	5/2/2004	-46	-228				<1.0	<1.0	<1.0	<1.0
MW-18C	5/2/2004	-46					<1.0	<1.0	<1.0	<1.0
MW-18C	10/25/2004	130	-52				<1.0	<1.0	<1.0	<1.0
MW-18C	5/12/2005	329	147				<1.0	<1.0	<1.0	<1.0
MW-18C	11/15/2005	516	334				<1.0	<1.0	<1.0	<1.0
MW-18C	5/17/2006	699	517				<1.0	<1.0	<1.0	<1.0
MW-18C	11/27/2006	893	711				<0.2	<0.2	<0.2	<0.2
MW-18C	5/21/2007	1068	886				<0.2	<0.2	<0.2	0.2
MW-18C	11/28/2007	1259	1077				<1.0	<1.0	<1.0	<1.0
MW-18C	5/19/2008	1432	1250		-98		<0.2	<0.2	<0.2	0.2
MW-18C	11/23/2008	1620	1438		90		<1.0	<1.0	<1.0	<1.0
MW-18C	05/19/2009	1797	1615		267		<1.0	<1.0	<1.0	<1.0
MW-18C	11/17/2009	1979	1797		449		<1.0	<1.0	<1.0	<1.0
MW-19C	5/2/2004	-46					<1.0	<1.0	<1.0	<1.0
MW-19C	10/25/2004	130	-52				<1.0	<1.0	<1.0	<1.0
MW-19C	5/12/2005	329	147				<1.0	<1.0	<1.0	<1.0
MW-19C	11/15/2005	516	334				<1.0	<1.0	<1.0	<1.0
MW-19C	5/17/2006	699	517				<1.0	<1.0	<1.0	<1.0
MW-19C	11/27/2006	893	711				<0.2	<0.2	0.3	<0.2
MW-19C	5/22/2007	1069	887				<1.0	<1.0	<1.0	<1.0
MW-19C	11/29/2007	1260	1078				<1.0	<1.0	<1.0	<1.0
MW-19C	5/20/2008	1433	1251		-97		<1.0	<1.0	<1.0	<1.0
MW-19C	11/23/2008	1620	1438		90		<1.0	<1.0	<1.0	<1.0
MW-19C	05/19/2009	1797	1615		267		<1.0	<1.0	<1.0	<1.0
MW-19C	11/18/2009	1980	1798		450		<1.0	<1.0	<1.0	<1.0
MW-20C	5/3/2004	-45					<1.0	<1.0	1.4	2.4
MW-20C	10/25/2004	130	-52				<1.0	<1.0	1.7	4.6
MW-20C	5/12/2005	329	147				<1.0	<1.0	1.7	2.3
MW-20C	11/15/2005	516	334				<1.0	<1.0	2.1	2.9
MW-20C	5/17/2006	699	517				<1.0	<1.0	1.8	1.6
MW-20C	11/29/2006	895	713				<0.2	0.2	2.1	1.5
MW-20C	5/21/2007	1068	886				<0.2	<0.2	1.6	1.8
MW-20C	11/29/2007	1260	1078				<1.0	<1.0	1.6	1.3
MW-20C	5/20/2008	1433	1251		-97		<1.0	<1.0	1.6	2.5
MW-20C	11/23/2008	1620	1438		90		<1.0	<1.0	1.5	2.7
MW-20C	05/19/2009	1797	1615		267		<1.0	<1.0	1.4	2.0
MW-20C	11/18/2009	1980	1798		450		<1.0	<1.0	1.7	2.3
MW-20C	5/20/2010	2163	1981		633		<1.0	<1.0	1.3	1.8
MW-20C	11/8/2010	2335	2153		805		<1.0	<1.0	1.4	1.4
MW-20C	5/4/2011	2512	2330		982		<1.0	<1.0	1.1	1.8
MW-20C	11/3/2011	2695	2513		1165		<1.0	<1.0	1.3	2.1
MW-20C	5/14/2012	2888	2706		1358		<0.2	<0.2	1.2	1.5
MW-20C	11/13/2012	3071	2889		1541		<2.0	<2.0	<2.0	<2.0
MW-20C	5/21/2013	3260	3078		1730		<5.0	<5.0	<5.0	<5.0
MW-20C	11/12/2013	3435	3253		1905		<2.0	<2.0	<2.0	<2.0
MW-20C	5/7/2014	3611	3429		2081		<2.0	<2.0	<2.0	<2.0

**SWMU-20 CLEANUP ACTION SUMMARY - NON SOURCE ZONE
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	Elapsed Time from Injections (a) (days)					Volatile Organic Compounds			
							Proposed Groundwater Cleanup Levels (c)			
		1st Injection	2nd Injection	3rd (b) Injection	4th Injection	5th Injection	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
MW-20C	11/5/2014	3793	3611		2263		<0.2	<0.2	0.9	0.7
MW-20C	4/28/2015	3967	3785		2437		<0.2	<0.2	0.7	1.0
MW-20C	10/27/2015	4149	3967		2619	-15	<0.2	<0.2	1.0	0.9
MW-20C	4/19/2016	4324	4142		2794	160	<0.2	0.2	2.2	0.3
MW-20C	11/2/2016	4521	4339		2991	357	<0.2	0.2	0.6	0.5

PCE = tetrachloroethene

TCE = trichloroethene

cDCE = cis-1,2-dichloroethene

VC = vinyl chloride

µg/L = micrograms per liter

Bold = detected compound

Box = Exceedance of proposed
cleanup level

(a) Injections occurred on:

6/17/04 (6A, B, C; 9A, B, C)

12/16-17/04 (6A, 6B;9A,9B)

3/17/05 (14A)

8/25-28/08 (6A, 9A, 10A)

10/27-11/11/15 (6A, 6B, 10C, 15C, 16A, 16C, 17A, 20C, 22A)

(b) Conducted at Well MW-14A only.

(c) Proposed Cleanup Standards and Comparison to Site Data, Boeing Developmental Center,
Tukwila, Washington (Landau Associates, 5/7/13).

DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
NOVEMBER 2016

SWMU-17 VOA/METALS/CONVENTIONALS DATA TABLES

SWMU-17 CLEANUP ACTION SUMMARY

SWMU-17 REMEDIAL ACTION INJECTION AND MONITORING WELLS

**SWMU-17 VOA/METALS/CONVENTIONALS DATA
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
AUGUST AND NOVEMBER 2016**

Sample Name:	BDC-05-02	BDC-05-02	BDC-05-03	BDC-05-04	BDC-05-05	BDC-05-07	BDC-05-08	BDC-05-09	BDC-05-10	BDC-05-11	BDC-05-12	BDC-05-12	BDC-05-13	BDC-05-14	BDC-05-15	BDC-05-16	BDC-05-16	BDC-05-17	BDC-05-18	BDC-05-18	BDC-05-19	BDC-05-19-Dup	BDC-05-19
LLI SDG:	1694013	1728650	1729222	1728650	1728650	1728650	1729222	1728650	1728650	1728650	1694013	1729222	1729222	1729222	1729222	1694013	1729222	1729222	1694013	1728650	1694013	1694013	1729222
LLI Sample ID:	8522388	8677735	8679825	8677723	8677729	8677741	8679861	8677747	8677753	8677765	8522394	8679843	8679873	8679891	8679879	8522430	8679867	8679855	8522376	8677759	8522412	8522436	8679849
Sample Date:	08/09/2016	11/02/2016	11/03/2016	11/02/2016	11/02/2016	11/02/2016	11/03/2016	11/02/2016	11/02/2016	11/02/2016	08/09/2016	11/03/2016	11/03/2016	11/03/2016	11/03/2016	08/09/2016	11/03/2016	11/03/2016	08/09/2016	11/02/2016	08/09/2016	08/09/2016	11/3/2016
Test ID: VOA SW8260C (µg/L)																							
Vinyl Chloride	0.2 U	0.3	0.5	1.3	0.8	0.4	0.4	0.2 U	1.0	0.2 U	0.2 U	0.9	0.6	0.9	0.2 U	0.4	0.4	0.3	0.2				
cis-1,2-Dichloroethene	0.3	0.2 U	0.2 U	1.5	0.2 U	0.2	0.2 U	2.6	4.1	0.2 U	0.2 U	0.2 U											
Trichloroethene	1.6	0.2 U	0.3	0.2 U	1.5	0.2 U	2.9	1.6	0.2 U	0.2 U	0.2 U												
Tetrachloroethene	1.6	1.7	1.4	0.2 U	0.8	0.8	0.2 U	1.8	1.2	0.2 U	0.2 U	0.2 U											
Test ID: Total Metals (mg/L)																							
Arsenic (EPA 200.8)	0.0209	0.0032	0.0065	0.0078	0.00078 J	0.0022		0.0092	0.0218	0.0171	0.0043	0.0156	0.0231	0.0073	0.0471	0.0325	0.0224	0.0405	0.0028	0.0045	0.0146	0.0154	0.0117
Copper (EPA 200.8)	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0029	0.0020 U		0.0020 U	0.0020 U														
Test ID: Dissolved Metals (mg/L)																							
Arsenic (EPA 200.8)	0.0111	0.0022	0.0058	0.0079	0.00042 J	0.0020 J		0.0087	0.0206	0.0152	0.0081	0.0143	0.0198	0.0074	0.0441	0.0326	0.0207	0.0350	0.0019 J	0.0037	0.0136	0.0138	0.0104
Copper (EPA 200.8)	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0028	0.0020 U		0.0020 U	0.0021	0.0020 U	0.0020 U												
Test ID: Conventional (mg/L)																							
Sulfate (EPA 300.0)	3.8	0.30 U	7.7	0.75 J	35.7	0.30 U	0.30 U	2.8	0.30 U	2.5	2.6	0.60 J	0.66 J	0.30 J									
Total Organic Carbon (SM5310C)	14.4	6.0	2.3	7.4	3.2	5.5	4.7	5.2	7.5	9.0	9.4	10.6	12.2	16.0	22.5	16.9	13.0	19.9	1.0 U	2.0	12.2	13.2	12.9
Test ID: Dissolved Gases; Mod RSK-175 (µg/L)																							
Methane	12,000	10,000	310			8,400		7,600	6,100	13,000	13,000	12,000	15,000	17,000	15,000	15,000	13,000	19,000	740	3,300	17,000	19,000	18,000
Ethane	4.9 J	1.0 U	1.0 U			1.6 J		9.2	19	5.8	2.7 J	2.8 J	2.3 J	1.0 U	9.4	12	6.9	7.6	1.0 U	1.0 U	3.9 J	3.8 J	1.0 U
Ethene	1.0 U	1.0 U	1.0 U			1.0 U		1.0 J	1.0 U	1.8 J	1.0 U	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														

**SWMU-17 VOA/METALS/CONVENTIONALS DATA
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
AUGUST AND NOVEMBER 2016**

Sample Name:	BDC-05-20	BDC-05-20	BDC-05-21	BDC-05-21	BDC-05-21-Dup	BDC-05-22	BDC-05-22	BDC-05-23	BDC-05-23	BDC-05-24	BDC-05-24	Trip Blank	Trip Blank	Trip Blank
LLI SDG:	1694013	1729222	1694013	1728650	1728650	1694013	1729222	1694013	1729222	1694013	1729222	1694013	1728650	1729222
LLI Sample ID:	8522418	8679837	8522382	8677771	8677777	8522406	8679831	8522400	8679819	8522424	8679885	8522442	8677783	8679897
Sample Date:	08/09/2016	11/03/2016	08/09/2016	11/02/2016	11/02/2016	08/09/2016	11/03/2016	08/09/2016	11/03/2016	08/09/2016	11/03/2016	8/9/2016	11/2/2016	11/3/2016
Test ID: VOA SW8260C (µg/L)														
Vinyl Chloride	2.2	1.4	1.6	1.3	1.3	1.5	0.8	1.1	0.5	2.2	0.8	0.2 U	0.2 U	0.2 U
cis-1,2-Dichloroethene	0.2 U	0.2 U	0.6	0.4	0.4	6.2	7.0	3.2	3.7	1.9	0.7	0.2 U	0.2 U	0.2 U
Trichloroethene	0.2 U	1.1	0.3	0.2 U	0.2 U	0.7	0.2	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				
Test ID: Total Metals (mg/L)														
Arsenic (EPA 200.8)	0.03	0.0273	0.0081	0.0081	0.0085	0.0289	0.0249	0.0257	0.0233	0.0045	0.0020			
Copper (EPA 200.8)	0.0020 U	0.0020 U	0.0020 U	0.0020 U	0.0030	0.0020 U	0.0020 U							
Test ID: Dissolved Metals (mg/L)														
Arsenic (EPA 200.8)	0.0282	0.0275	0.0084	0.0088	0.0083	0.0297	0.0253	0.0246	0.0226	0.0033	0.0019 J			
Copper (EPA 200.8)	0.0020 U	0.0020 U	0.0039	0.0020 U	0.0020 U	0.0020 U	0.0020 U							
Test ID: Conventional (mg/L)														
Sulfate (EPA 300.0)	0.37 J	0.30 U	0.30 U	0.30 U	0.30 U	6.6	0.57 J	2.8	4.2	2.2	0.80 J			
Total Organic Carbon (SM5310C)	12.9	14.1	6.7	9.5	9.6	6.2	5.7	7.3	7.4	2.6	4.9			
Test ID: Dissolved Gases; Mod RSK-175 (µg/L)														
Methane	8,400	8,900	11,000	8,800	8,300					6,000	12,000		3.0 U	
Ethane	2.9 J	2.5 J	2.3 J	1.8 J	1.9 J					3.6 J	1.3 J		1.0 U	
Ethene	7.0	5.2	3.0 J	1.2 J	1.3 J					3.6 J	1.9 J		1.0 U	
Acetylene	1.0 U					1.0 U	1.0 U		1.0 U					

µg/L = micrograms per liter
mg/L = milligrams per liter
EPA = US Environmental Protection Agency

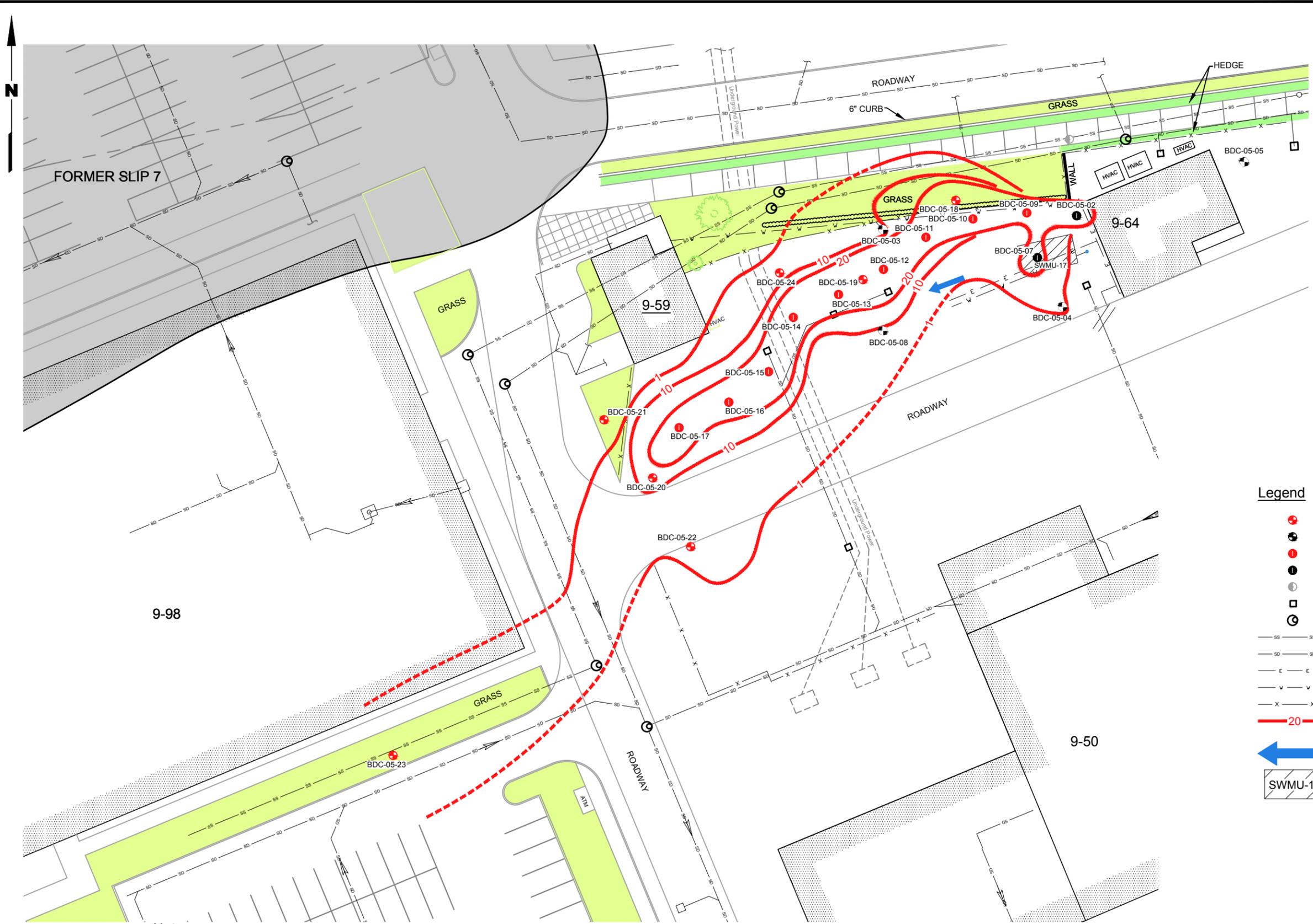
U = Compound was analyzed for, but was not detected at the given detection limit.
J = Analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

**GROUNDWATER DATA SUMMARY
BOEING DEVELOPMENTAL CENTER SWMU-17**

Well	Date	Pilot Injection Elapsed Time From Injection (days)	Full Injection #1 Elapsed Time From Injection (days)	Volatile Organic Compounds						Metals				Aquifer Redox Conditions					Donor Indicators		VOCs- micromoles/Liter (b)						Molar Fraction (c)												
				PCE (µg/L)	TCE (µg/L)	c DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	As, Tot (mg/L)	As, Dis (mg/L)	Cu, Tot (mg/L)	Cu, Dis (mg/L)	DO (mg/L)	Nitrate (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (mg/L)	ORP (mV)	TOC (mg/L)	pH	PCE	TCE	c DCE	VC	Ethene	Ethane	Total Chloroethenes (d)	Ethene + Ethane	PCE	TCE	c DCE	VC	Ethene + Ethane				
				5.3	1.4	134	2.4	NA	NA	NA	0.008	0.008	0.008	0.008																									
BDC-05-04 (MW 22 ft XG)	5/21/2007	-526		<1.0	<1.0	1.4	<1.0					0.018	<0.001	<0.002	<0.002												0.00	0.00	0.01	0.00		0.01		0.00	0.00	1.00	0.00		
	11/26/2007	-337		<1.0	<1.0	1.6	<1.0					0.009	<0.001	<0.002	<0.002												0.00	0.00	0.02	0.00		0.02		0.00	0.00	1.00	0.00		
	5/22/2008	-159		1.5	0.9	1.2	<0.2					0.018	<0.001	<0.002	<0.002												0.01	0.01	0.01	0.00		0.03		0.32	0.24	0.44	0.00		
BDC-05-04	10/23/2008	-5		1.1	0.8	2.1	<0.2	<1.1	<1.2	<1.1		0.009	<0.001	<0.002	<0.002	2.45	7.6	0.1	31.0	0.3	73.5	3.8	6.33				0.01	0.01	0.02	0.00	0.00	0.00	0.03	0.00	0.19	0.18	0.63	0.00	0.00
BDC-05-04	11/20/2008	23		1.1	0.7	3.6	<0.2	<1.1	<1.2	<1.1		0.019	<0.001	<0.002	<0.002	0.59	4.5	0.8	25.2	0.05	-16	5.1	6.25				0.01	0.01	0.04	0.00	0.00	0.00	0.05	0.00	0.14	0.11	0.76	0.00	0.00
BDC-05-04	12/16/2008	49		<1.0	<1.0	2.4	<1.0	<1.1	<1.2	<1.1		0.019	0.002	0.003	<0.002	0.55	5.5	1.0	30.4	1.6	-98	6.9	6.24				0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	1.00	0.00	0.00
BDC-05-04	1/16/2009	80		<1.0	<1.0	2.0	<1.0	<1.1	<1.2	<1.1		0.017	<0.001	<0.002	<0.002	0.06	4.3	1.0	21.8	1.5	-192	5.1	6.23				0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	1.00	0.00	0.00
BDC-05-04	2/11/2009	106		1.0	<1.0	1.5	<1.0	<1.1	<1.2	<1.1		0.020	<0.001	<0.002	<0.002	2.45	5.9	1.0	31.8	1.1	-54	6.8	6.17				0.01	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.28	0.00	0.72	0.00	0.00
BDC-05-04	3/9/2009	132		1.0	<1.0	1.3	<1.0	<1.1	<1.2	<1.1		0.014	0.001	0.002	<0.002	0.27	4.8	1.5	30.1	0.2	35	5.2	6.22				0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.31	0.00	0.69	0.00	0.00
BDC-05-04	4/16/2009	170		1.2	<1.0	<1.0	<1.0	<1.1	<1.2	<1.1		0.011	0.001	<0.002	<0.002	1.48	5.9	1.4	33.6	<0.0007	68	5.7	6.29				0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.00	0.00	0.00	0.00	0.00
BDC-05-04	5/13/2009	197		<1.0	<1.0	1.0	<1.0	<1.1	<1.2	<1.1		0.007	0.001	0.002	0.002	0.33	4.5	1.6	26.6	0.4	49	5.2	6.37				0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	1.00	0.00	0.00	
BDC-05-04	8/16/2009	292		1.3	<1.0	<1.0	<1.0	<1.1	<1.2	<1.1		0.012	0.001	0.002	<0.002	0.86	5.4	2.2	30.6	<0.0007	93	5.0	6.97				0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	1.00	0.00	0.00	0.00	0.00
BDC-05-04	11/13/2009	381		<1.0	<1.0	1.2	<1.0	<1.1	<1.2	<1.1		0.005	0.001	<0.002	<0.002	0.56	2.2	3.0	18.4	2.4	109	4.4	5.86				0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.00	0.00	0.00
BDC-05-04	2/16/2010	476		<1.0	<1.0	1.1	<1.0	<1.1	<1.2	<1.1		0.004	0.002	0.012	0.002	0.88	<0.1	3.3	24.6	1.5	899	8.9	6.24				0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	1.00	0.00	0.00
BDC-05-04	5/18/2010	567		1.1	<1.0	1.2	<1.0	<1.1	<1.2	<1.1		0.014	0.001	0.005	<0.002	0.75	<0.1	3.0	25.4	1.3	473	7.1	6.19				0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.00	0.35	0.00	0.65	0.00	0.00
BDC-05-04	8/17/2010	658		<1.0	<1.0	3.0	<1.0	<1.1	<1.2	<1.1		0.012	0.002	0.006	<0.002	1.00	<0.1	2.8	17.7	3.5	108	8.7	6.48				0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00	1.00	0.00	0.00
BDC-05-04	11/9/2010	742		<1.0	<1.0	4.3	<1.0	<1.1	<1.2	<1.1		0.008	0.004	<0.002	<0.002	2.21	<0.1	2.2	21.3	3.0	101	7.2	6.84				0.00	0.00	0.04	0.00	0.00	0.00	0.04	0.00	0.00	0.00	1.00	0.00	0.00
BDC-05-04	2/15/2011	840		<1.0	<1.0	2.9	<1.0	<1.1	<1.2	<1.1		0.007	0.004	<0.002	<0.002	2.50	<0.1	2.4	19.4	4.5	93	6.9	6.85				0.00	0.00	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00	1.00	0.00	0.00
BDC-05-04	5/2/2011	916	-108	0.4	0.5	3.1	<0.2	<1.1	<1.2	<1.1		0.008	0.004	<0.002	<0.002	1.69	<0.1	2.2	18.0	1.8	49	6.8	6.76				0.00	0.00	0.03	0.00	0.00	0.00	0.04	0.00	0.06	0.10	0.84	0.00	0.00
BDC-05-04	11/2/2011	1100	76	<1.0	<1.0	4.2	<1.0					0.007	0.006	<0.002	<0.002	1.52	<1.0	1.2	<1.0		-3	6.6	7.17				0.00	0.00	0.04	0.00		0.04		0.00	0.00	1.00	0.00	0.00	
BDC-05-04	5/7/2012	1287	263	0.4	0.6	3.6	<0.2					0.017	0.016	<0.002	<0.002	0.16		2.0	21.5		98	8.6	6.39				0.00	0.00	0.04	0.00		0.04		0.05	0.10	0.84	0.00		
BDC-05-04	11/13/2012	1477	453	<0.5	<0.5	3.3	<0.5					0.012	0.010	0.002	<0.002	0.02		1.2	14.3		27	6.5	6.65				0.00	0.00	0.03	0.00		0.03		0.00	0.00	1.00	0.00	0.00	
BDC-05-04	5/23/2013	1668	644	<0.2	<0.2	2.1	<0.2					0.026	0.027	<0.002	<0.002	0.49		1.5	13.7		-310	12.7	7.78				0.00	0.00	0.02	0.00		0.02		0.00	0.00	1.00	0.00	0.00	
BDC-05-04	11/13/2013	1842	818	<0.2	0.3	3.6	<0.2					0.016	0.015	0.002	<0.002	2.05		1.8	14.4		-262	8.1	6.48				0.00	0.00	0.04	0.00		0.04		0.00	0.06	0.94	0.00	0.00	
BDC-05-04	5/13/2014	2023	999	0.6	0.3	0.8	<0.2					0.002	0.002	0.005	0.002	3.86		0.6	14.1		-177	8.2	6.28				0.00	0.00	0.01	0.00		0.01		0.26	0.16	0.58	0.00	0.00	
BDC-05-04	11/11/2014	2205	1181	0.3	0.2	2.8	0.4					0.006	0.004	<0.002	<0.002	0.38		1.6	6.2		-58	4.8	6.25				0.00	0.00	0.03	0.01		0.04		0.05	0.04	0.75	0.17	0.00	
BDC-05-04	4/27/2015	2372	1348	1.0	0.4	1.0	<0.2					0.004	0.001	0.005	0.003	0.09		0.4	16.3		48	2.7	5.92				0.01	0.00	0.01	0.00		0.02		0.31	0.16	0.53	0.00	0.00	
BDC-05-04	10/28/2015	2556	1532	<0.2	<0.2	3.6	0.7					0.008	0.007	<0.002	<0.002	0.43		1.4	1.3		-26	6.1	6.44				0.00	0.00	0.04	0.01		0.05		0.00	0.00	0.77	0.23	0.00	
BDC-05-04	4/21/2016	2732	1708	1.0	0.3	0.4	<0.2					0.002	0.001	0.004	0.003	0.25		0.8	12.2		35	2.4	6.05				0.01	0.00	0.00	0.00		0.01		0.48	0.18	0.33	0.00	0.00	
BDC-05-04	11/2/2016	2927	1903	<0.2	<0.2	1.5	<0.2					0.008	0.008	<0.002	<0.002	0.39	<0.10	1.4	0.75		-140.5	7.4	6.51				0.00	0.00	0.02	0.00		0.02		0.00	0.00	1.00	0.00	0.00	
BDC-05-05 (MW UG)	5/21/2007	-526		<1.0	<1.0	<1.0	<1.0					0.002	<0.001	0.003	<0.002												0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00	0.00		
	11/26/2007	-337		<1.0	<1.0	<1.0																																	

**GROUNDWATER DATA SUMMARY
BOEING DEVELOPMENTAL CENTER SWMU-17**

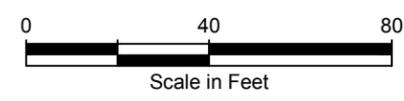
Well	Date	Pilot Injection Elapsed Time From Injection (days)	Full Injection #1 Elapsed Time From Injection (days)	Volatile Organic Compounds						Metals				Aquifer Redox Conditions					Donor Indicators		VOCs- micromoles/Liter (b)						Molar Fraction (c)								
				PCE (µg/L)	TCE (µg/L)	c DCE (µg/L)	VC (µg/L)	Ethene (µg/L)	Ethane (µg/L)	Acetylene (µg/L)	As, Tot (mg/L)	As, Dis (mg/L)	Cu, Tot (mg/L)	Cu, Dis (mg/L)	DO (mg/L)	Nitrate (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (mg/L)	ORP (mV)	TOC (mg/L)	pH	PCE	TCE	c DCE	VC	Ethene	Ethane	Total Chloroethenes (d)	Ethene + Ethane	PCE	TCE	c DCE	VC	Ethene + Ethane
				5.3	1.4	134	2.4	NA	NA	NA	0.008	0.008	0.008	0.008																					
BDC-05-21	7/20/2015		1432	<0.2	<0.2	0.8	3.0	2.7	<1.0	<1.0		0.17		1.2	0.55	6.8	-84	4.5	6.41		0.00	0.00	0.01	0.05	0.10	0.00	0.06	0.10	0.00	0.00	0.00	0.05	0.31	0.63	
BDC-05-21	10/27/2015		1531	<0.2	<0.2	0.5	4.1	2.1	<1.0	<1.0	0.009	0.011	<0.002	<0.002	0.08		2.0	0.49	3.0	-46	5.7	6.53					0.07	0.07	0.00	0.07	0.07	0.00	0.04	0.45	0.51
BDC-05-21	1/26/2016		1622	<0.2	<0.2	2.0	2.9	1.2	<1.0	<1.0					1.41		1.40	2.5	-119	13.8	6.50					0.07	0.04	0.00	0.00	0.19	0.42	0.39			
BDC-05-21	4/21/2016		1708	<0.2	<0.2	1.7	2.4	1.6	<1.0	<1.0	0.016	0.016	<0.002	<0.002	0.18		1.0	1.1	4.6	-75	12.7	6.78					0.06	0.06	0.00	0.16	0.34	0.50			
BDC-05-21	8/9/2016		1818	<0.2	<0.2	0.6	1.6	3	2.3	<1.0	0.0081	0.0084	<0.002	<0.002	0.05		4.0	<0.30	11.0	-99.6	6.7	6.52					0.03	0.11	0.08	0.03	0.12	0.85			
BDC-05-21	11/2/2016		1903	<0.2	<0.2	0.4	1.3	1.2	1.8	<1.0	0.008	0.009	<0.002	<0.002	0.43		0.8	<0.30	8.8	-122.8	9.5	6.45					0.02	0.04	0.06	0.03	0.16	0.80			
BDC-05-22	7/31/2011		-18	<1.0	1.1	9.6	1.0	<1.1	<1.2	<1.1	0.025	0.024	<0.002	<0.002	2.02	<0.1	2.2	14.0	5.1	-59	7.9	7.21					0.02	0.00	0.00	0.12	0.00	0.00	0.07	0.13	0.00
(MW 48 ft XG)	11/3/2011		77	<1.0	2.1	10	<1.0				0.020	0.020	<0.002	<0.002	1.46	<0.1	0.8	18.1		19	6.1	7.08					0.02	0.10	0.00	0.12	0.00	0.13	0.87	0.00	
	2/19/2012		185	<0.2	2.0	13	0.4							0.43	<0.5	1.2	17.0		110	6.2	6.73						0.02	0.13	0.01	0.16	0.00	0.10	0.86	0.04	
BDC-05-22	5/7/2012		263	<0.2	2.0	11	0.5				0.025	0.023	0.002	<0.002	0.81		1.6	19.4		32	8.4	6.68					0.02	0.11	0.01	0.14	0.00	0.11	0.83	0.06	
BDC-05-22	9/5/2012		384	<0.2	1.8	9.5	0.8							0.06		2.2	14.7		75	7.6	6.71						0.01	0.10	0.01	0.12	0.00	0.11	0.79	0.10	
BDC-05-22	11/16/2012		456	<0.5	1.6	10	0.7				0.033	0.031	<0.002	<0.002	0.02		0.8	17.8		5	7.7	6.93					0.01	0.10	0.01	0.13	0.00	0.10	0.82	0.09	
BDC-05-22	2/26/2013		558	<0.2	1.3	9.4	1.2							0.09		1.6	10.1		23	7.5	6.92						0.01	0.10	0.02	0.13	0.00	0.08	0.77	0.15	
BDC-05-22	5/23/2013		644	<0.2	1.2	10	0.6				0.029	0.029	<0.002	<0.002	0.25		1.4	6.3		-233	8.7	7.63					0.01	0.10	0.01	0.12	0.00	0.07	0.85	0.08	
BDC-05-22	8/28/2013		741	<0.2	1.2	7.3	0.2							0.65			3.5		-322	8.9	6.69						0.01	0.08	0.00	0.09	0.00	0.10	0.86	0.04	
BDC-05-22	11/14/2013		819	<0.2	1.2	6.9	<0.2				0.028	0.027	<0.002	<0.002	1.96		1.5	5.9		-240	8.8	6.74					0.01	0.07	0.00	0.08	0.00	0.11	0.89	0.00	
BDC-05-22	2/12/2014		909	<0.2	0.7	5.7	<0.2							2.67		2.0	4.9		-224	7.3	6.88						0.01	0.06	0.00	0.06	0.00	0.08	0.92	0.00	
BDC-05-22	5/13/2014		999	<0.2	1.4	6.7	<0.2				0.027	0.025	<0.002	<0.002	3.16		1.5	8.7		-183	8.4	6.68					0.01	0.07	0.00	0.08	0.00	0.13	0.87	0.00	
BDC-05-22	8/6/2014		1084	<0.2	1.2	5.5	<0.2							4.59		1.6	10.9		-137	9.6	7.31						0.01	0.06	0.00	0.07	0.00	0.14	0.86	0.00	
BDC-05-22	11/10/2014		1180	<0.2	1.2	5.8	<0.2				0.031	0.031	<0.002	<0.002	0.05		1.4	19.2		-113	6.8	6.43					0.01	0.06	0.00	0.07	0.00	0.13	0.87	0.00	
BDC-05-22	1/21/2015		1252	<0.2	0.7	4.2	<0.2							0.30		1.0	1.2		-140	7.3	6.53						0.01	0.04	0.00	0.05	0.00	0.11	0.89	0.00	
BDC-05-22	4/27/2015		1348	<0.2	0.5	4.2	<0.2				0.025	0.026	0.004	<0.002	0.14		1.8	<0.30		-115	5.2	6.44					0.00	0.04	0.00	0.05	0.00	0.08	0.92	0.00	
BDC-05-22	7/21/2015		1433	<0.2	0.7	5.5	<0.2							0.12		1.0	4.4		-47	6.1	6.38						0.01	0.06	0.00	0.06	0.00	0.09	0.91	0.00	
BDC-05-22	10/27/2015		1531	<0.2	0.6	4.5	<0.2				0.030	0.027	<0.002	<0.002	0.09		1.0	4.2		-50	6.9	6.59					0.00	0.05	0.00	0.05	0.00	0.09	0.91	0.00	
BDC-05-22	1/26/2016		1622	<0.2	0.9	7.1	<0.2							0.28		1.4	8.5		-109	6.8	6.55						0.01	0.07	0.00	0.08	0.00	0.09	0.91	0.00	
BDC-05-22	4/21/2016		1708	<0.2	0.9	7.3	<0.2				0.035	0.034	<0.002	<0.002	0.79		1.0	22.4		-39	6.0	6.44					0.01	0.08	0.00	0.08	0.00	0.08	0.92	0.00	
BDC-05-22	8/9/2016		1818	<0.2	1.1	6.2	1.5				0.0289	0.0297	<0.002	<0.002	0.04		2.2	6.6		-60.8	6.2	6.50					0.01	0.06	0.02	0.10	0.00	0.09	0.66	0.25	
BDC-05-22	11/3/2016		1904	<0.2	0.3	7.0	0.8				0.0249	0.0253	<0.002	0.004	0.60		0.8	0.57		-126.9	5.7	6.66					0.00	0.07	0.01	0.09	0.00	0.03	0.83	0.15	
BDC-05-23	7/31/2011		-18	<1.0	<1.0	3.2	<1.0	<1.1	<1.2	<1.1	0.005	0.005	0.002	<0.002	2.72	<0.1	2.2	8.6	6.0	-101	9.1	7.47						0.03	0.00	0.00	0.03	0.00	0.00	1.00	0.00
(MW 170ft DG)	11/3/2011		77	<1.0	<1.0	4.8	<1.0				0.005	0.006	<0.002	<0.002	1.45	<0.1	1.0	25.2		1	8.8	7.08						0.00	0.05	0.00	0.05	0.00	0.00	1.00	0.00
	2/19/2012		185	<0.2	0.6	4.7	0.7							0.96	<0.5	1.2	8.9		162	8.1	6.33							0.00	0.05	0.01	0.06	0.00	0.07	0.75	0.17
BDC-05-23	5/7/2012		263	<0.2	0.7	5.4	0.8				0.008	0.008	<0.002	<0.002	0.07		2.0	15.8		45	9.3	6.70					0.01	0.06	0.01	0.07	0.00	0.07	0.75	0.17	
BDC-05-23	9/5/2012		384	<0.2	0.7	6.2	0.9							0.08		1.9	8.8		78	11.3	6.84						0.01	0.06	0.01	0.08	0.00	0.06	0.76	0.17	
BDC-05-23	11/16/2012		456	<0.5	0.8	6.9	0.5				0.012	0.010	<0.002	<0.002	0.09		1.0	4.9		-6	11.6	7.06					0.01	0.07	0.01	0.09	0.00	0.07	0.83	0.09	
BDC-05-23	2/25/2013		557	<0.2	0.5	4.2	1.0							0.08		1.5	0.87		72	9.2	6.91						0.00	0.04	0.02	0.06	0.00	0.06	0.69	0.25	
BDC-05-23	5/23/2013		644	<0.2	0.5	4.7	1.0				0.015	0.015	<0.002	<0.002	0.31		1.2	1.7		-234	11.0	7.59					0.00	0.05	0.02	0.07	0.00	0.06	0.71	0.23	
BDC-05-23	8/28/2013		741	<1.0	2.2	21	5.4							0.60		0.5	0.35		-323	10.4	6.76						0.02	0.22	0.09	0.32	0.00	0.05	0.68	0.	



- Legend**
- New Monitoring Well (July 2011)
 - Existing Monitoring Well
 - New Injection Wells (July 2011)
 - Existing Injection Wells
 - Abandoned Monitoring Well
 - Catch Basin
 - Manhole
 - SS — SS — Sanitary Sewer Utility
 - SD — SD — Storm Drain Utility
 - E — E — Electrical Utility
 - W — W — Water Utility
 - X — X — Existing Fence
 - 20 — Baseline Concentration Contours for PCE and/or TCE (µg/L)
 - ← Groundwater Flow Direction
 - SWMU-17 Solid Waste Management Unit

Note

- Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.



Boeing Developmental Center
Tukwila, Washington

**Injection and Monitoring Well
Baseline Concentrations**

Figure
7



***DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
NOVEMBER 2016***

AOC-05 DATA

- **AOC-05 Cleanup Action Summary**
- **AOC-05 Downgradient Monitoring**
- **AOC-05 TPH-G, BTEX, and Nitrate Concentration Trend Charts (June 2001 through Present)**
- **Site Plan**

**AOC-05 CLEANUP ACTION SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	ORC	Pilot	Full Scale	Full Scale	Full Scale	Full Scale	Full Scale	Full Scale	Total Xylenes (µg/L)	Aquifer Redox Conditions							Donor Indicators		Comments										
		Injection BDC-103	Injection BDC-103	Injection 1 BDC-103/104	Injection 2 BDC-103/104	Injection 3 BDC-103/104	Injection 4 BDC-103/104	Injection 5 BDC-103/104	Injection 6 BDC-103	Injection 7 BDC-103	Injection 8 BDC-103	Injection 9 BDC-103	Injection 10 BDC-103		TPH-G (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-Xylene (µg/L)	o-Xylene (µg/L)	DO (mg/L)	Nitrate (mg-N/L)	Nitrite (mg-N/L)		Iron II (mg/L)	Sulfate (mg/L)	Methane (µg/L)	ORP (mV)	TOC (mg/L)	pH
BDC-101	6/11/2001													109.2																
BDC-101	9/4/2001													53.8																
BDC-101	12/3/2001													650																
BDC-101	3/13/2002													<1.0																
BDC-101	4/29/2002	-8												<0.25	<1.0	<1.0	2.2	<1.0	<1.0											
BDC-101	6/3/2002	27												<0.25	1.0	<1.0	<1.0	<1.0	<1.0											
BDC-101	7/1/2002	55												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0											
BDC-101	8/1/2002	86												<0.25	3.1	<1.0	2.4	<1.0	<1.0											
BDC-101	12/2/2002	209												0.61	4.3	<1.0	21	27	6.4											
BDC-101	3/10/2003	307												<0.25	1.0	<1.0	4.5	3.2	<1.0											
BDC-101	6/3/2003	392												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0											
BDC-101	11/19/2003	561												0.42	13	<1.0	15	35	<1.0					0.36	1.1	0.010	0.2	16	240	120.3
BDC-101	4/28/2004	722												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0											
BDC-101	10/18/2004	895												0.64	10	<1.0	15	43	<1.0											
BDC-101	5/10/2005	1099												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0											
BDC-101	11/10/2005	1283												0.25	7.6	<1.0	2.6	42	<1.0				0.96	4.4			34.3	259	2.05	
BDC-101	5/15/2006	1469												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				2.78	17.8	0.059	0.0	64.1	80		
BDC-101	11/20/2006	1658	-59											1.1	10	<1.0	15	72.0	<1.0				0.92	0.122	0.016	2.4	8.7	174		
BDC-101	2/20/2007	1750	33											<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				2.39	15.0	0.047	0.2	50.0	277	6.63	
BDC-101	3/19/2007	1777	60											<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				5.97	8.83	0.037	0.5	38.5	213	6.60	
BDC-101	4/24/2007	1813	96											<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				3.09	9.59	0.041	0.5	34.1	136	6.46	
BDC-101	5/17/2007	1836	119											<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				2.35	9.95	0.046	0.4	35.7	297	6.55	
BDC-101	11/26/2007	2029	312											<0.25	<1.0	<1.0	2.1	6.5	<1.0				6.5	2.30	5.88	0.032	0.0	26.8	287	
BDC-101	2/18/2008	2113	396	-8										<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				3.55	8.10	0.040	0.0	31.5	341	6.29	
BDC-101	3/27/2008	2151	434	30										<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				3.19	9.3	<0.10	0.2	40.0	506		
BDC-101	5/15/2008	2200	483	79	-40									<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				2.57	6.8	<0.10	0.0	24.6	176	6.44	
BDC-101	7/16/2008	2262	545	141	22									<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				3.34	5.3	<0.10	0.0	21.8	-232	6.52	
BDC-101	9/15/2008	2323	606	202	83	-45								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				1.22	5.33	0.023	0.0	28.7	153		
BDC-101	11/20/2008	2389	672	268	149	21								0.44	1.6	<1.0	<1.0	<1.0	<1.0				1.45	2.9	0.1	0.8	17.1	-22	6.65	
BDC-101	1/16/2009	2446	729	325	206	78								<0.25	1.1	<1.0	<1.0	<1.0	<1.0				0	4.40	0.042	0.4	29.5	-245	6.50	
BDC-101	2/11/2009	2472	755	351	232	104								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				2.62	8.5	<0.1	0.4	39.6	-16	6.43	
BDC-101	3/9/2009	2498	781	377	258	130								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				0.93	9.4	<0.1	0.0	46.8	54	6.54	
BDC-101	4/16/2009	2536	819	415	296	168								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				1.69	9.0	<0.1	0.0	36.0	131	6.61	
BDC-101	5/14/2009	2564	847	443	324	196	-34							<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				1.00	13.0	<0.1	0.0	44.4	68	6.81	
BDC-101	7/17/2009	2628	911	507	388	260	30							<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				2.80	12.6	<0.1	0.0	49.0	19	7.17	
BDC-101	9/9/2009	2682	965	561	442	314	84	-49						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				1.25	6.2	<0.1	0.0	31.7	179	6.90	
BDC-101	11/12/2009	2746	1029	625	506	378	148	15						0.35	1.8	<1.0	6.6	16	<1.0				1.37	11.3	<0.1	0.0-0.2	36.7	124	6.53	
BDC-101	2/17/2010	2843	1126	722	603	475	245	112						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				2.86	13.9	<0.1	0.0	48.7	640	6.55	
BDC-101	5/17/2010	2932	1215	811	692	564	334	201						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				3.20	20.7	<1.0	0.0	58.7	372	6.86	
BDC-101	8/16/2010	3023	1306	902	783	655	425	292	-37					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				2.21	15.6	<0.1	0.0	56.9	76	7.21	
BDC-101	11/8/2010	3107	1390	986	867	739	509	376	47					<0.25	2.0	<1.0	<1.0	<1.0	<1.0				2.02	2.2	<0.1	0.4	14.7	145	6.97	
BDC-101	2/16/2011	3207	1490	1086	967	839	609	476	147					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				7.46	23.9	<0.1	0.0	68.2	161	7.30	
BDC-101	5/3/2011	3283	1566	1162	1043	915	685	552	223					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				5.57	23.7	<0.1	0.0	66.2	208	6.99	
BDC-101	8/1/2011	3373	1656	1252	1133	1005	775	642	313					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				5.50	17.9	<0.1	0.0	48.1	150	7.07	
BDC-101	11/1/2011	3465	1748	1344	1225	1097	867	734	405	-105				<0.25	<1.0	<1.0	<1.0	<1.0	<1.0				6.69	6.1	<0.1	0.0	24.8	40	7.23	
BDC-101	2/19/2012	3575	1858	1454	1335	1207	977	844	515	5				<0.25	2.0	<1.0	<1.0	<2.0	<1.0	<2.0				0.53	6.6	0.3	27.7	12	6.81	
BDC-101	5/3/2012	3649	1932	1528	1409	1281	1051	918	589	79				<0.25	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0				3.75	15.9	0.0	51.2	263	6.60	
BDC-101	9/4/2012	3773	2056	1652	1533	1405	1175	1042	713	203	-49			<0.25	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0										

**AOC-05 CLEANUP ACTION SUMMARY
DEVELOPMENTAL CENTER GROUNDWATER MONITORING**

Well	Date	ORC	Pilot	Full Scale	Volatile Organic Compounds (all units in ug/L)						Aquifer Redox Conditions						Donor Indicators																
		Injection	Injection	Injection 1	Injection 2	Injection 3	Injection 4	Injection 5	Injection 6	Injection 7	Injection 8	Injection 9	Injection 10	TPH-G	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Total Xylenes	DO	Nitrate	Nitrite	Iron II	Sulfate	Methane	ORP	TOC	pH				
		Elapsed Time from Injection (days)																															
BDC-104	2/18/2008	2113	396	-8										2.9	<1.0	<1.0	47	180	28	208	2.09	1.63	0.072	3.0	18.7						598		
BDC-104	3/27/2008	2151	434	30										3.2	<1.0	<1.0	22	220	52	272	1.34	161	0.1	0.5	52.2						259		
BDC-104	5/15/2008	2200	483	79	-40									1.0	<1.0	<1.0	7.0	26	22	48	1.24	28.7	0.7	0.4	26.6						94	6.69	
BDC-104	7/16/2008	2262	545	141	22									2.3	<1.0	2.9	3.3	110	50	160	1.56	196	0.4	0.0	74.7						-221	7.17	
BDC-104	9/15/2008	2323	606	202	83	-45								0.64	<1.0	2.6	<1.0	20	16	36	0.06	122	0.729	0.0	38.4						191		
BDC-104	11/20/2008	2389	672	268	149	21								<0.25	<1.0	<1.0	<1.0	1.4	4.1	5.5	0.96	67.2	<0.10	0.2	24.3						-27	7.46	
BDC-104	1/16/2009	2446	729	325	206	78								0.26	<1.0	<1.0	<1.0	<1.0	5.5	5.5	0.05	71.4	0.204	0.6	34.6						-164	6.86	
BDC-104	2/11/2009	2472	755	351	232	104								<0.25	<1.0	<1.0	<1.0	1.3	1.1	2.4	1.78	95.4	0.1	0.2	20.1						-75	6.68	
BDC-104	3/9/2009	2498	781	377	258	130								<0.25	<1.0	<1.0	<1.0	1.3	1.1	2.4	0	91.5	<0.1	0.0	19.2						20	6.67	
BDC-104	4/16/2009	2536	819	415	296	168								<0.25	<1.0	<1.0	<1.0	<1.0	1.6	1.6	0.34	67.2	<0.1	0.0	21.6						67	6.63	
BDC-104	5/14/2009	2564	847	443	324	196	-34							<0.25	<1.0	<1.0	<1.0	<1.0	1.4	1.4	0.51	63.4	<0.1	0.0	20.1						6	6.70	
BDC-104	7/17/2009	2628	911	507	388	260	30							<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.41	21.0	0.5	1.0	30.8						-3	7.30	
BDC-104	9/9/2009	2682	965	561	442	314	84	-49						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.63	39.8	0.1	0.8	41.6						61	7.20	
BDC-104	11/12/2009	2746	1029	625	506	378	148	15						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.99	115	1.4	0.0	24.1						68	6.49	
BDC-104	2/17/2010	2843	1126	722	603	475	245	112						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.73	119	0.1	0.0	111						868	6.93	
BDC-104	5/17/2010	2932	1215	811	692	564	334	201						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.98	47.4	<1.0	0.6	30.5						482	6.74	
BDC-104	8/16/2010	3023	1306	902	783	655	425	292	-37					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.59	38.4	0.2	2.5	23.6						76	6.92	
BDC-104	11/8/2010	3107	1390	986	867	739	509	376	47					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.87	32.5	<0.1	0.0	18.6						115	7.23	
BDC-104	2/16/2011	3207	1490	1086	967	839	609	476	147					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.48	40.0	<0.1	0.4	24.1						423	6.71	
BDC-104	5/3/2011	3283	1566	1162	1043	915	685	552	223					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.19	31.3	<0.1	1.2	26.8						231	6.63	
BDC-104	8/1/2011	3373	1656	1252	1133	1005	775	642	313					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.10	11.7	<0.1	0.0	21.2						121	7.20	
BDC-104	11/1/2011	3465	1748	1344	1225	1097	867	734	405	-105				<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.43	14.6	<0.1	0.0	18.7						-53	7.40	
BDC-104	2/19/2012	3575	1858	1454	1335	1207	977	844	515	5				<0.25	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	0.26	21.6		0.0	29.2						66	6.23	
BDC-104	5/3/2012	3649	1932	1528	1409	1281	1051	918	589	79				<0.25	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	0.06	19.4		1.5	26.5						207	6.78	
BDC-104	9/4/2012	3773	2056	1652	1533	1405	1175	1042	713	203	-49			<0.25	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	0.68	12.3	<0.10	0.5	22.1						130	7.11	
BDC-104	11/13/2012	3843	2126	1722	1603	1475	1245	1112	783	273	21			<0.25	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	0.24	0.80	<0.10		5.1					64	7.19		
BDC-104	2/20/2013	3942	2225	1821	1702	1574	1344	1211	882	372	120			0.28	<1.0	6.5	<1.0	17	3.3	20.3	0.44	2.5	<0.10	0.2	3.6						82	6.96	
BDC-104	5/20/2013	4031	2314	1910	1791	1663	1433	1300	971	461	209			<0.25	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	2.01	20.0	<0.10	0.0	20.8						-230	7.16	
BDC-104	8/28/2013	4131	2414	2010	1891	1763	1533	1400	1071	561	309	-76		<0.25	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	0.52	16.4	<0.10	1.0	35.3						-322	6.82	
BDC-104	11/19/2013	4214	2497	2093	1974	1846	1616	1483	1154	644	392	7		<0.25	<1.0	<1.0	<1.0	<2.0	<2.0	<2.0	8.09	0.47	<0.10	0.0	3.1						-35	7.16	
BDC-104	2/11/2014	4298	2581	2177	2058	1930	1700	1567	1238	728	476	91		<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	6.11	0.54	<0.10	0.0	3.4						-135	7.04	
BDC-104	5/6/2014	4382	2665	2261	2142	2014	1784	1651	1322	812	560	175		<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	8.49	0.35	<0.10	0.0	4.2						-113	6.82	
BDC-104	8/7/2014	4475	2758	2354	2235	2107	1877	1744	1415	905	653	268		<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	3.04	2.9	<0.10	0.0	4.4						64	7.44	
BDC-104	11/4/2014	4564	2847	2443	2324	2196	1966	1833	1504	994	742	357		<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.66	2.1	<0.10	0.0	10.1						39	6.50	
BDC-104	1/21/2015	4642	2925	2521	2402	2274	2044	1911	1582	1072	820	435		<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	4.02	11.3	<0.10	0.0	36.3						135	5.87	
BDC-104	4/28/2015	4739	3022	2618	2499	2371	2141	2008	1679	1169	917	532		<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	2.37	11.3	<0.10	0.0	74.4						85	6.09	
BDC-104	7/20/2015	4822	3105	2701	2582	2454	2224	2091	1762	1252	1000	615		<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.18	11.7	<0.10	0.2	74.4						-22	6.48	
BDC-104	10/26/2015	4920	3203	2799	2680	2552	2322	2189	1860	1350	1098	713		<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.20	14.1	<0.10	1.0	84.2						-2.0	6.72	
BDC-104	1/27/2016	5013	3296	2892	2773	2645	2415	2282	1953	1443	1191	806	-56	<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	0.13	11.5	<0.10	0.0	69.1						16.0	6.67	
BDC-																																	

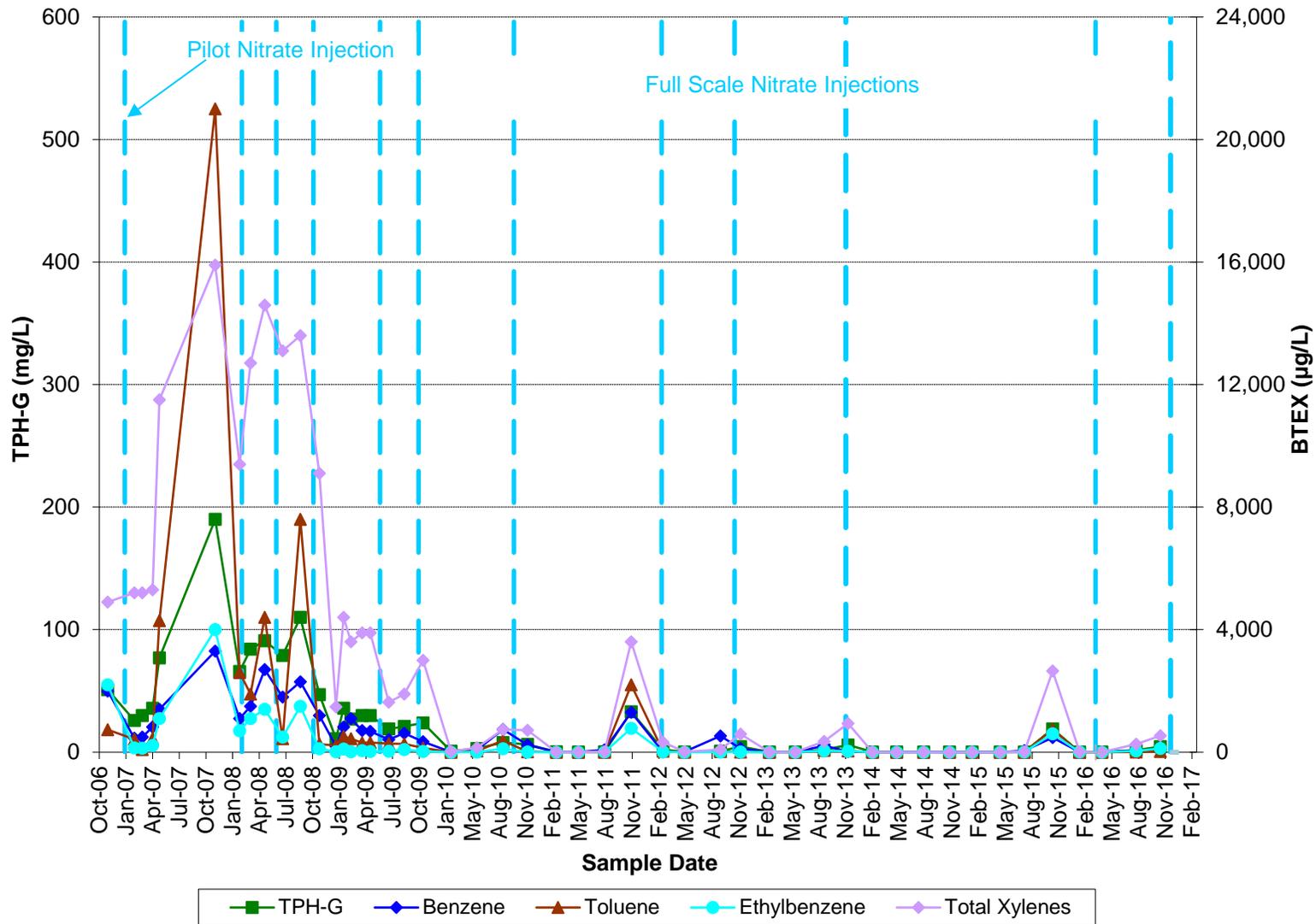
**NITRATE CONCENTRATIONS AT DOWNGRADIENT MONITORING LOCATIONS
AOC-05 ANAEROBIC BIOREMEDIATION REMEDIAL ACTION
BOEING DEVELOPMENTAL CENTER**

Area	Well	Date		Aquifer Redox Conditions					
				DO (mg/L)	Nitrate (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (mg/L)	ORP (mV)
SWMU-17	BDC-05-04	5/15/2006	Natural Redox Baseline		12.3	2.6	33.4		
SWMU-17	BDC-05-04	10/23/2008		2.45	7.6	0.1	31.0	0.29	73.5
SWMU-17	BDC-05-04	11/2/2008		0.59	4.5	0.8	25.2	0.05	-16
SWMU-17	BDC-05-04	12/16/2008		0.55	5.5	1.0	30.4	1.61	-98
SWMU-17	BDC-05-04	1/16/2009		0.06	4.3	1.0	21.8	1.48	-192
SWMU-17	BDC-05-04	2/11/2009		2.45	5.9	1.0	31.8	1.06	-54
SWMU-17	BDC-05-04	3/9/2009		0.27	4.8	1.5	30.1	0.20	35
SWMU-17	BDC-05-04	4/16/2009		1.48	5.9	1.4	33.6	<0.0007	68
SWMU-17	BDC-05-04	5/13/2009		0.33	4.5	1.6	26.6	0.37	49
SWMU-17	BDC-05-04	8/16/2009		0.86	5.4	2.2	30.6	<0.0007	93
SWMU-17	BDC-05-04	11/13/2009	Downgradient Monitoring Triggered	0.56	2.2	3.0	18.4	2.44	109
SWMU-17	BDC-05-04	2/16/2010		0.88	<0.1	3.3	24.6	1.49	899
SWMU-17	BDC-05-04	5/18/2010		0.75	<0.1	3.0	25.4	1.32	473
SWMU-17	BDC-05-04	8/17/2010		1.00	<0.1	2.8	17.1	3.53	108
SWMU-17	BDC-05-04	11/9/2010		2.21	<0.1	2.2	21.3	3.00	101
SWMU-17	BDC-05-04	2/15/2011		2.50	<0.1	2.4	19.4	4.46	93
SWMU-17	BDC-05-04	5/2/2011		1.69	<0.1	2.2	18.0	1.75	49
SWMU-17	BDC-05-04	11/2/2011		1.52	<1.0	1.2	<1.0		-3
SWMU-17	BDC-05-04	5/7/2012		0.16		2.0	21.5		98
SWMU-17	BDC-05-04	9/4/2012		0.21	<0.10		16.6		96
SWMU-17	BDC-05-04	11/13/2012		0.03	<0.10	1.8	16.9		64
SWMU-17	BDC-05-04	5/23/2013		0.49		1.5	13.7		-310
SWMU-17	BDC-05-04	11/19/2013		2.56	<0.10	1.0	13.2		-259
SWMU-17	BDC-05-04	5/6/2014		3.49	0.40		14.4		-299
SWMU-17	BDC-05-04	11/4/2014		0.05	<0.10	1.6	<1.0		-126
SWMU-17	BDC-05-04	4/28/2015		0.11	5.0	0.4	13.5		74
SWMU-17	BDC-05-04	10/26/2015		0.08	<0.10	1.5	<1.0		-101
SWMU-17	BDC-05-04	4/13/2016		0.57	5.5		13.9		46
SWMU-17	BDC-05-04	11/2/2016		0.39	<0.10		0.75		-140.5
SWMU-20	MW-17A	05/15/2006	Natural Redox Baseline		1.37	0.0	27.0		
SWMU-20	MW-17A	11/12/2009	Downgradient Monitoring Triggered		0.9				
SWMU-20	MW-17A	5/17/2010			1.6	0.2	21.0		
SWMU-20	MW-17A	11/8/2010			0.1	2.1	15.7		
SWMU-20	MW-17A	5/3/2011			1.6	0.0	19.8		
SWMU-20	MW-17A	8/1/2011			0.5	0.0	20.5		
SWMU-20	MW-17A	11/1/2011			0.3	0.0	23.2		
SWMU-20	MW-17A	5/3/2012			4.4	0.0			
SWMU-20	MW-17A	9/4/2012			2.0		26.8		
SWMU-20	MW-17A	11/13/2012			0.59	0.0	22.9		
SWMU-20	MW-17A	5/20/2013			2.9		26.8		
SWMU-20	MW-17A	11/19/2013			1.3	0.4	23.9		
SWMU-20	MW-17A	5/6/2014			2.2	0.0	23.7		
SWMU-20	MW-17A	11/4/2014			0.16	0.4	26.0		
SWMU-20	MW-17A	4/28/2015			1.6	0.0	26.3		
SWMU-20	MW-17A	10/26/2015		0.17	0.91	0.0	29.0		-11.1
SWMU-20	MW-17A	4/13/2016		0.31	1.7	1.8	0.90		-175
SWMU-20	MW-17A	11/1/2016		0.41	<0.10	1.4			-215.9
SWMU-20	MW-18A	05/15/2006	Natural Redox Baseline		0.154	0.4	64.8		
SWMU-20	MW-18A	11/12/2009	Downgradient Monitoring Triggered		0.8				
SWMU-20	MW-18A	05/17/2010			1.0	0.4	32.2		
SWMU-20	MW-18A	11/08/2010			0.1	0.0	14.2		
SWMU-20	MW-18A	5/3/2011			<0.1	0.0	31.5		
SWMU-20	MW-18A	8/1/2011			1.1	0.0	42.2		
SWMU-20	MW-18A	11/1/2011			0.7	0.0	93.3		
SWMU-20	MW-18A	5/3/2012			<0.10	0.0			
SWMU-20	MW-18A	9/4/2012			<0.10		19.5		
SWMU-20	MW-18A	11/13/2012			<0.10	0.0	21.5		
SWMU-20	MW-18A	5/20/2013			<0.10		19.6		
SWMU-20	MW-18A	11/19/2013			<0.10	0.6	15.0		
SWMU-20	MW-18A	5/6/2014			<0.10	0.0	26.1		
SWMU-20	MW-18A	11/4/2014			<0.10	0.4	21.0		
SWMU-20	MW-18A	4/28/2015			0.11	0.0	19.1		
SWMU-20	MW-18A	10/26/2015		0.10	<0.10	0.6	23.4		-7.1
SWMU-20	MW-18A	4/13/2016		0.76	0.10	0.0	42.8		38
SWMU-20	MW-18A	11/1/2016		0.26	<0.10	0.4			-8.5

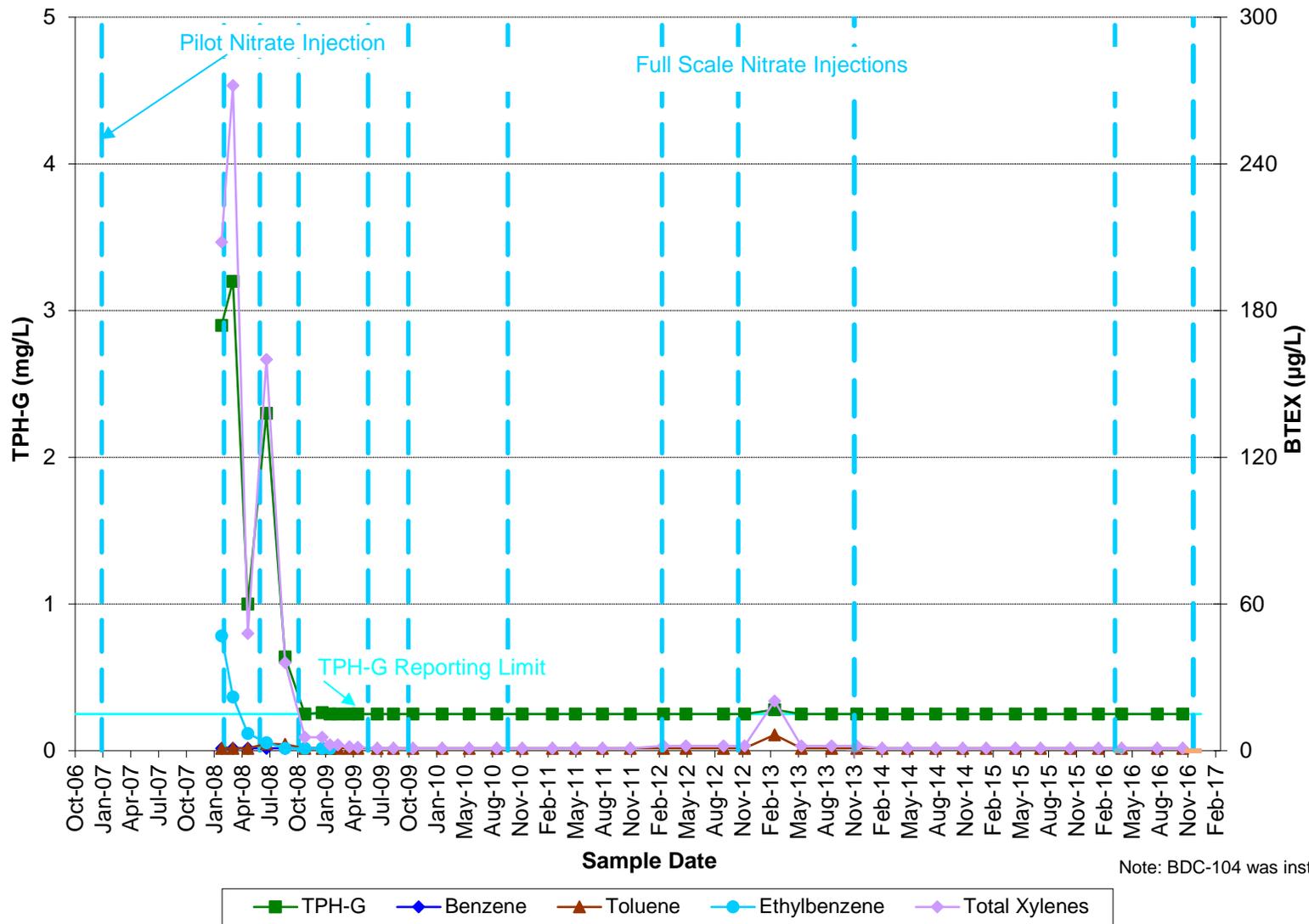
**NITRATE CONCENTRATIONS AT DOWNGRADIENT MONITORING LOCATIONS
AOC-05 ANAEROBIC BIOREMEDIATION REMEDIAL ACTION
BOEING DEVELOPMENTAL CENTER**

Area	Well	Date		Aquifer Redox Conditions					
				DO (mg/L)	Nitrate (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (mg/L)	ORP (mV)
SWMU-20	MW-21A	05/15/2006	Natural Redox Baseline		0.136	0.4	54.9		
SWMU-20	MW-21A	11/12/2009	Downgradient Monitoring Triggered		<0.1				
SWMU-20	MW-21A	05/17/2010			0.2	0.0	11.9		
SWMU-20	MW-21A	11/08/2010			<0.1	0.0	5.9		
SWMU-20	MW-21A	5/3/2011			0.2	0.0	52.1		
SWMU-20	MW-21A	8/1/2011			0.1	0.0	26.7		
SWMU-20	MW-21A	11/1/2011			<0.1	0.0	9.3		
SWMU-20	MW-21A	5/3/2012			0.17	0.0			
SWMU-20	MW-21A	9/4/2012			<0.10		6.7		
SWMU-20	MW-21A	11/13/2012			0.16	0.0	18.5		
SWMU-20	MW-21A	5/20/2013			0.10	0.5	13.5		
SWMU-20	MW-21A	11/19/2013			<0.10	0.0	15.6		
SWMU-20	MW-21A	5/6/2014			<0.10	0.0	7.6		
SWMU-20	MW-21A	11/4/2014			<0.10	0.0	5.1		
SWMU-20	MW-21A	4/28/2015			<0.10	0.0	5.3		
SWMU-20	MW-21A	10/26/2015		0.33	0.11	0.0	3.9		10.3
SWMU-20	MW-21A	4/13/2016		2.08	<0.10	0.0	4.9		56
SWMU-20	MW-21A	11/1/2016		1.71	0.10	0.2			78
DO = dissolved oxygen									
mg/L = milligrams per liter									
mg-N/L = milligrams nitrogen per liter									
mV = millivolt									
ORP = oxidation reduction potential									
Nitrate column bolded for emphasis of target compound. Other results included for aquifer redox evaluation.									
= not analyzed									

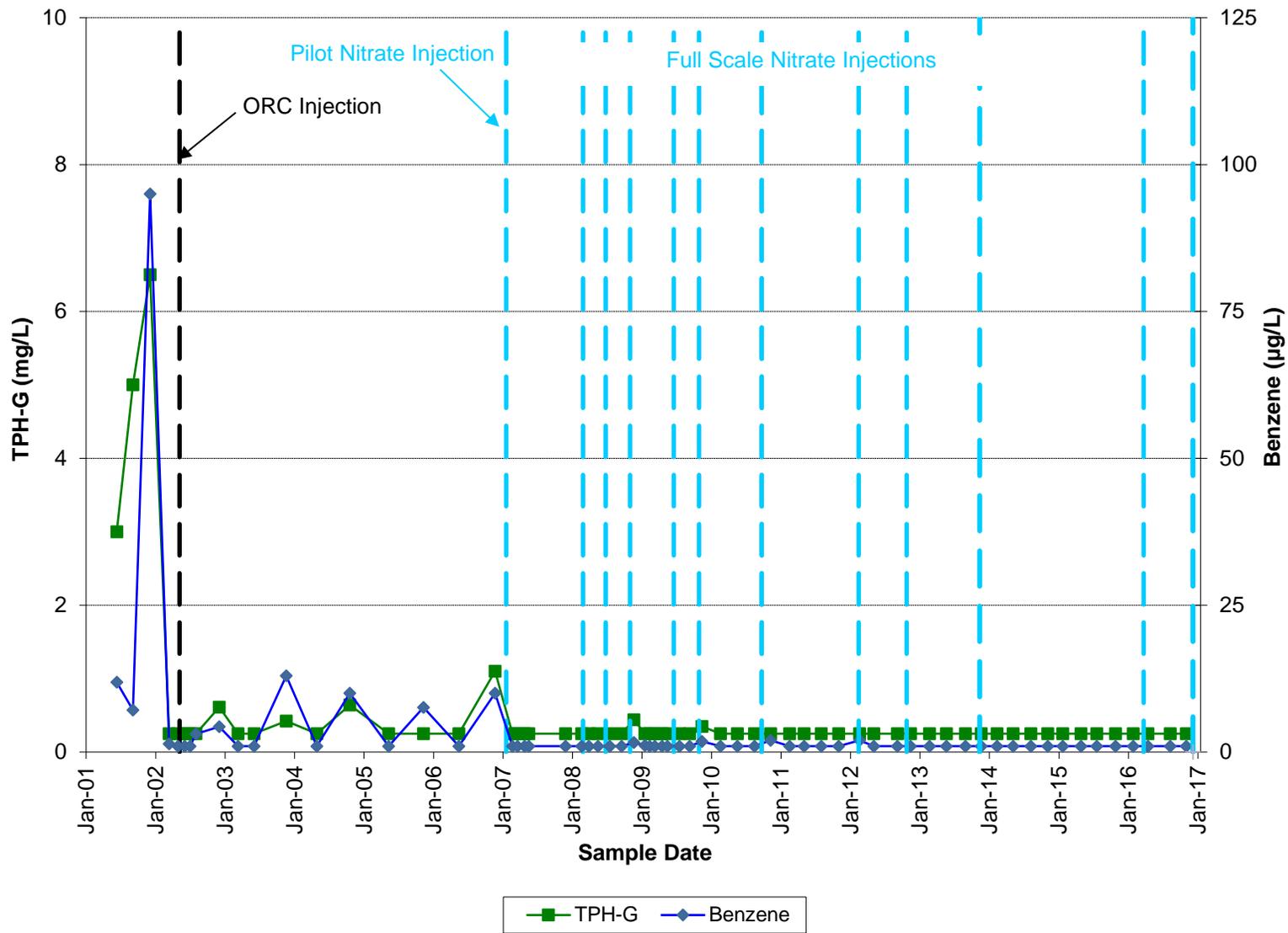
BDC-103 TPH-G and BTEX Concentrations Beginning with 2007 Pilot Testing



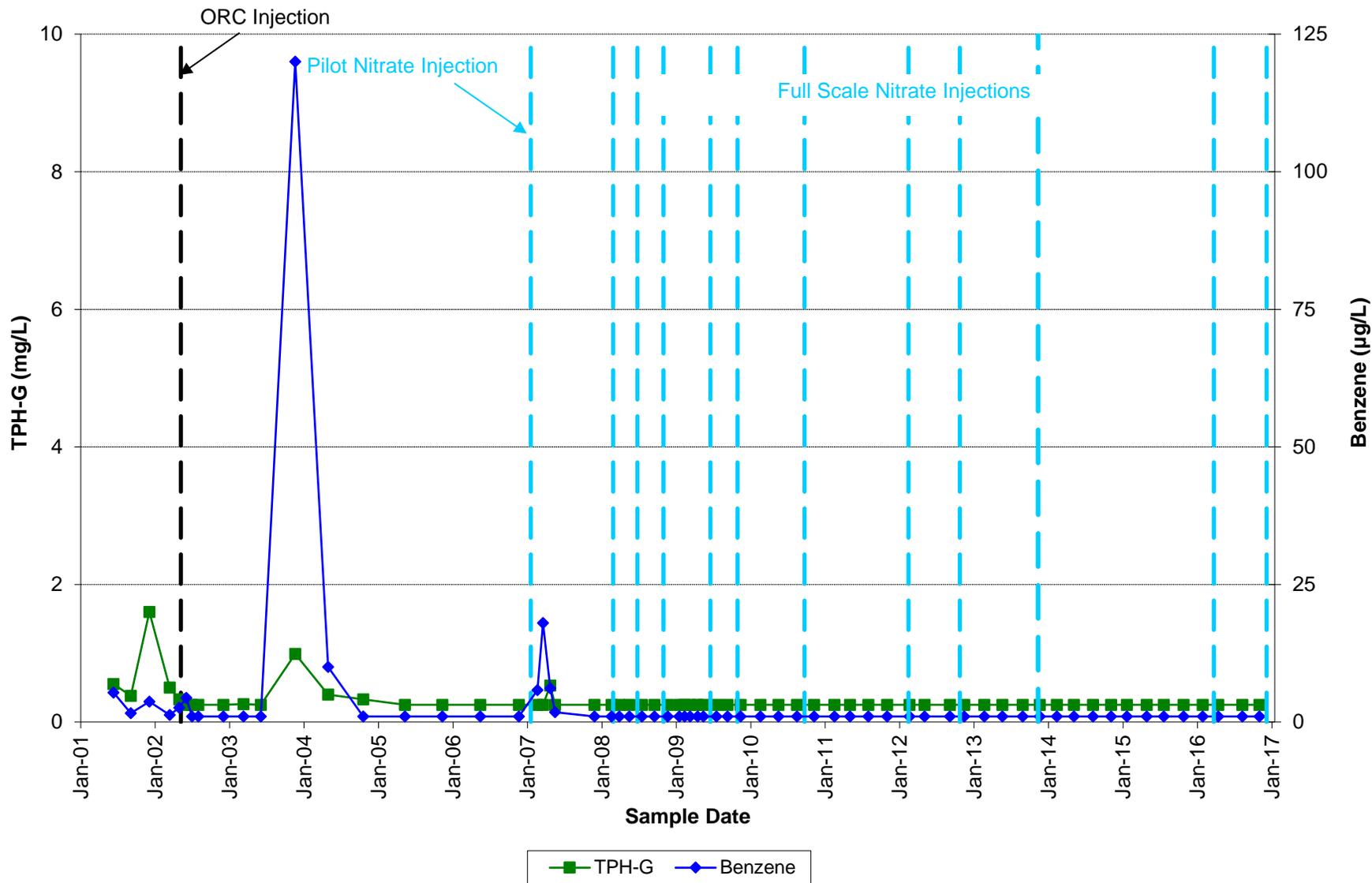
BDC-104 TPH-G and BTEX Concentrations Beginning with 2007 Pilot Testing



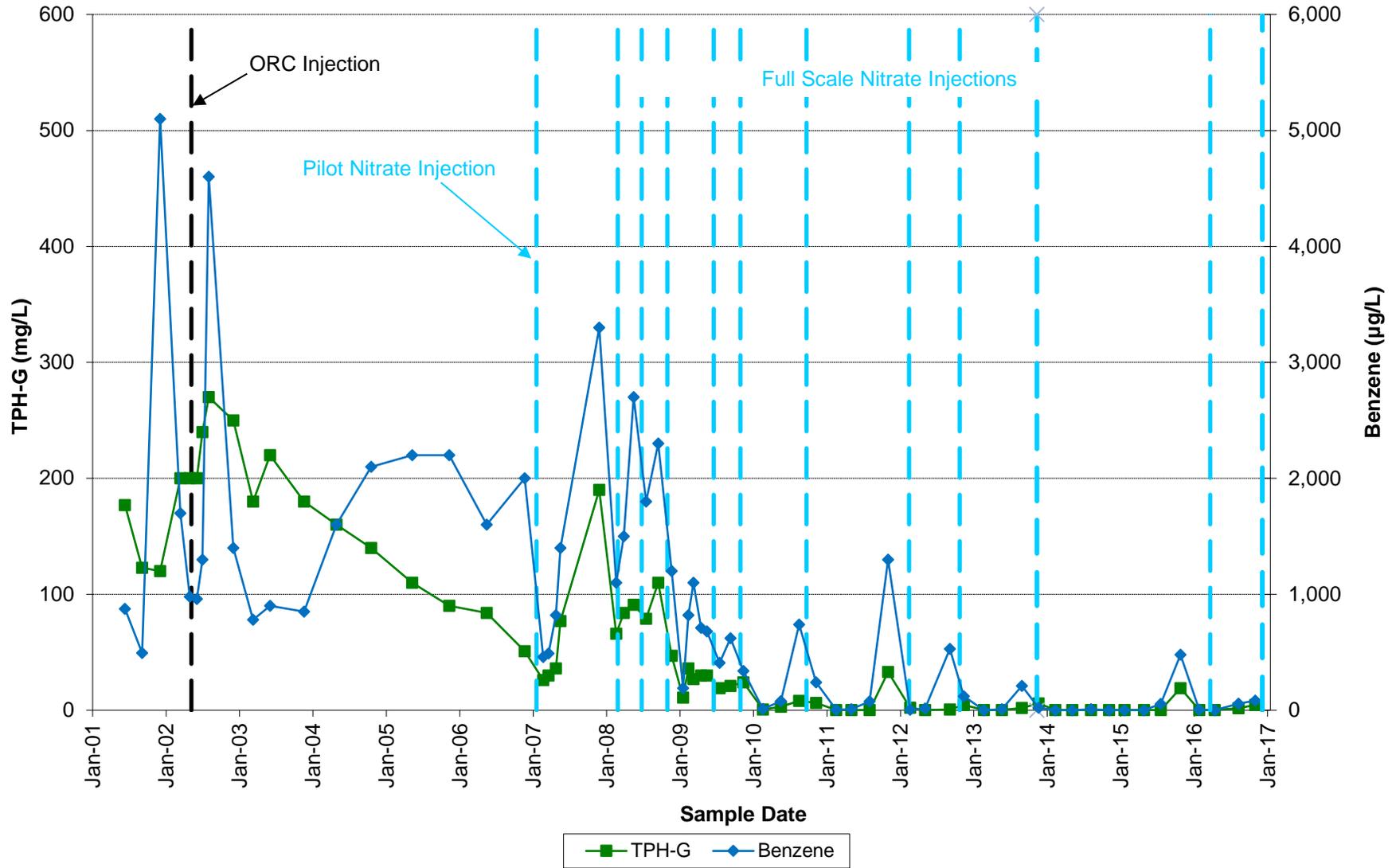
BDC-101 TPH-G and Benzene Concentrations Since 2001



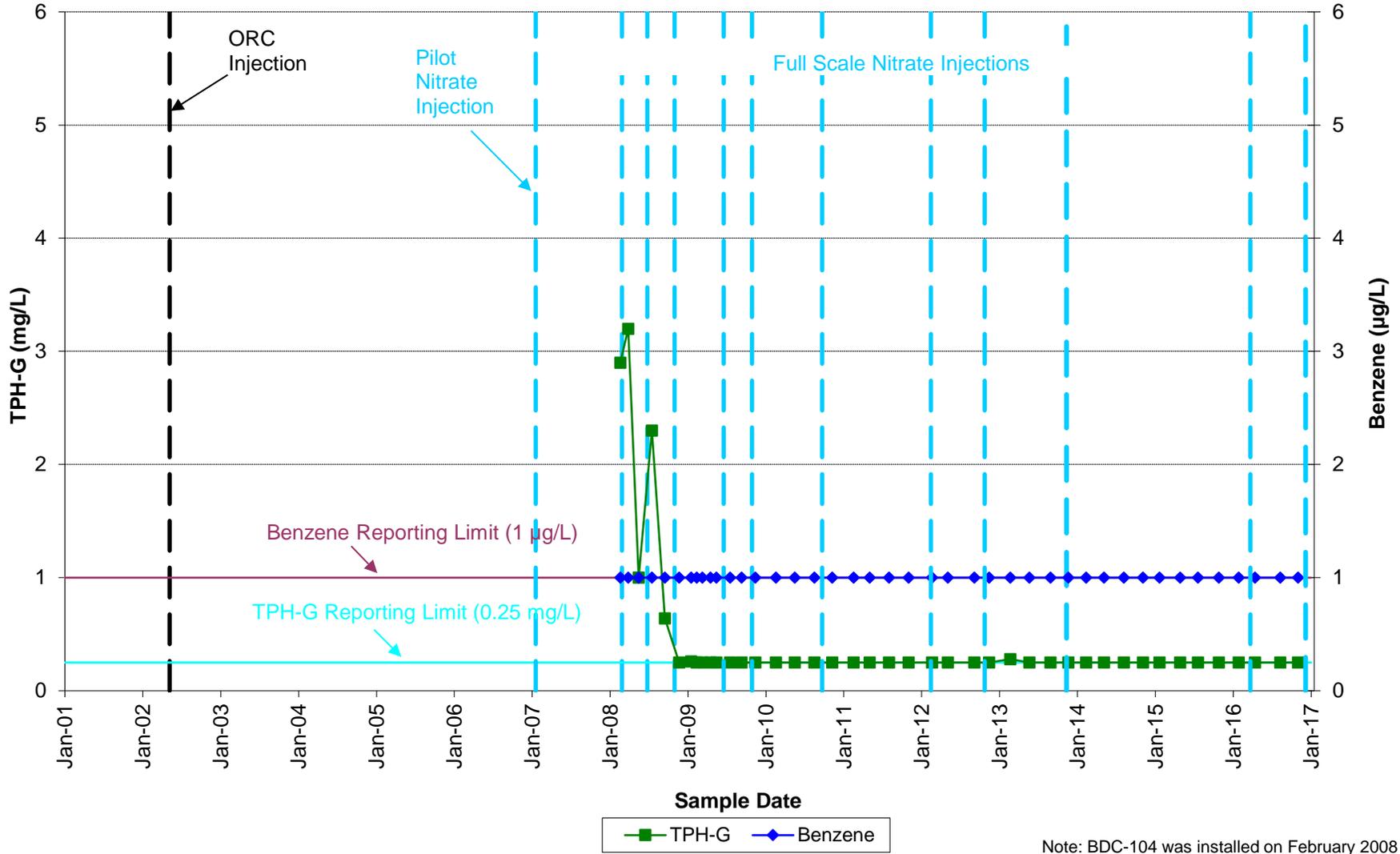
BDC-102 TPH-G and Benzene Concentrations Since 2001



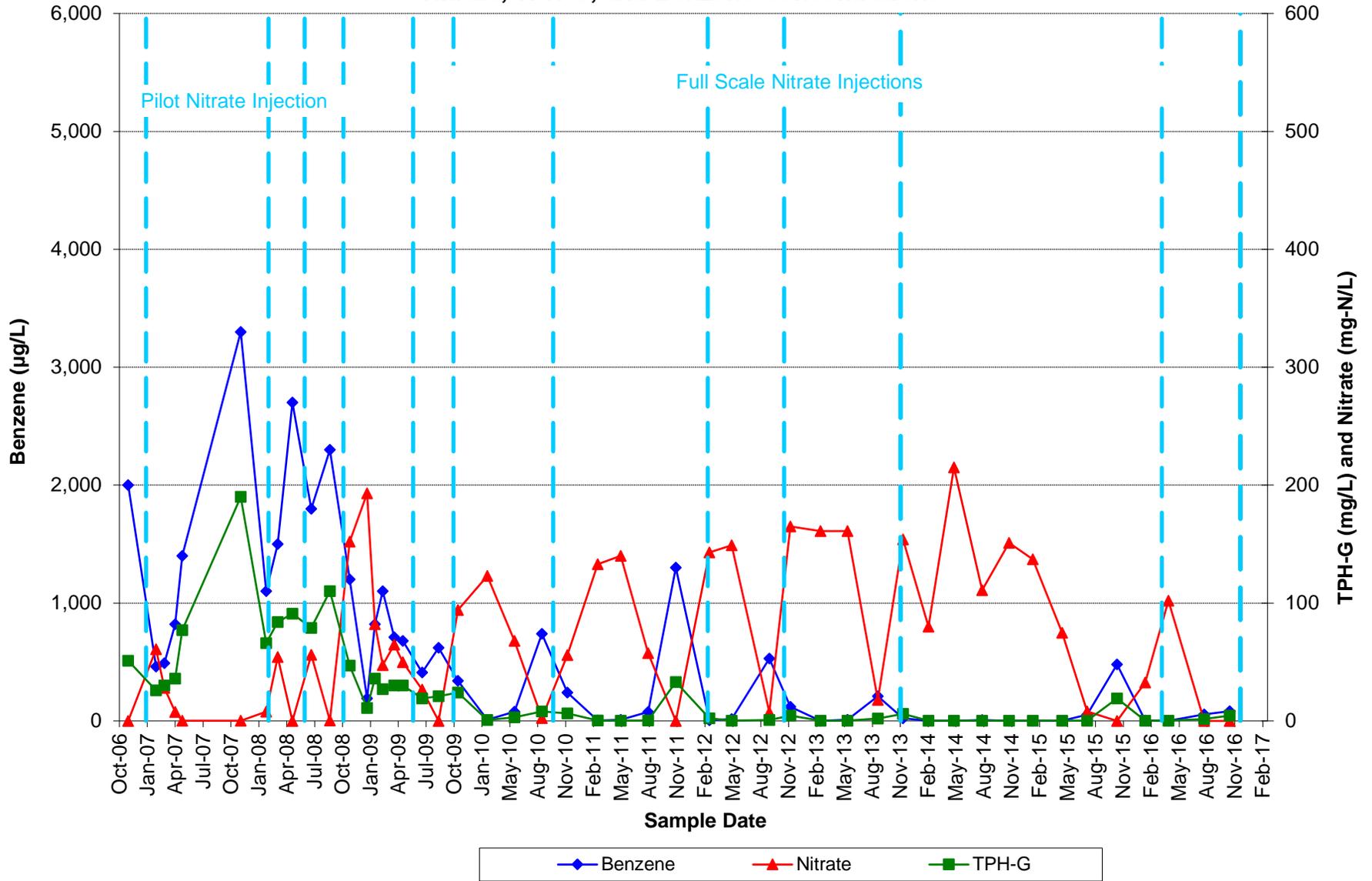
BDC-103 TPH-G and Benzene Concentrations Since 2001



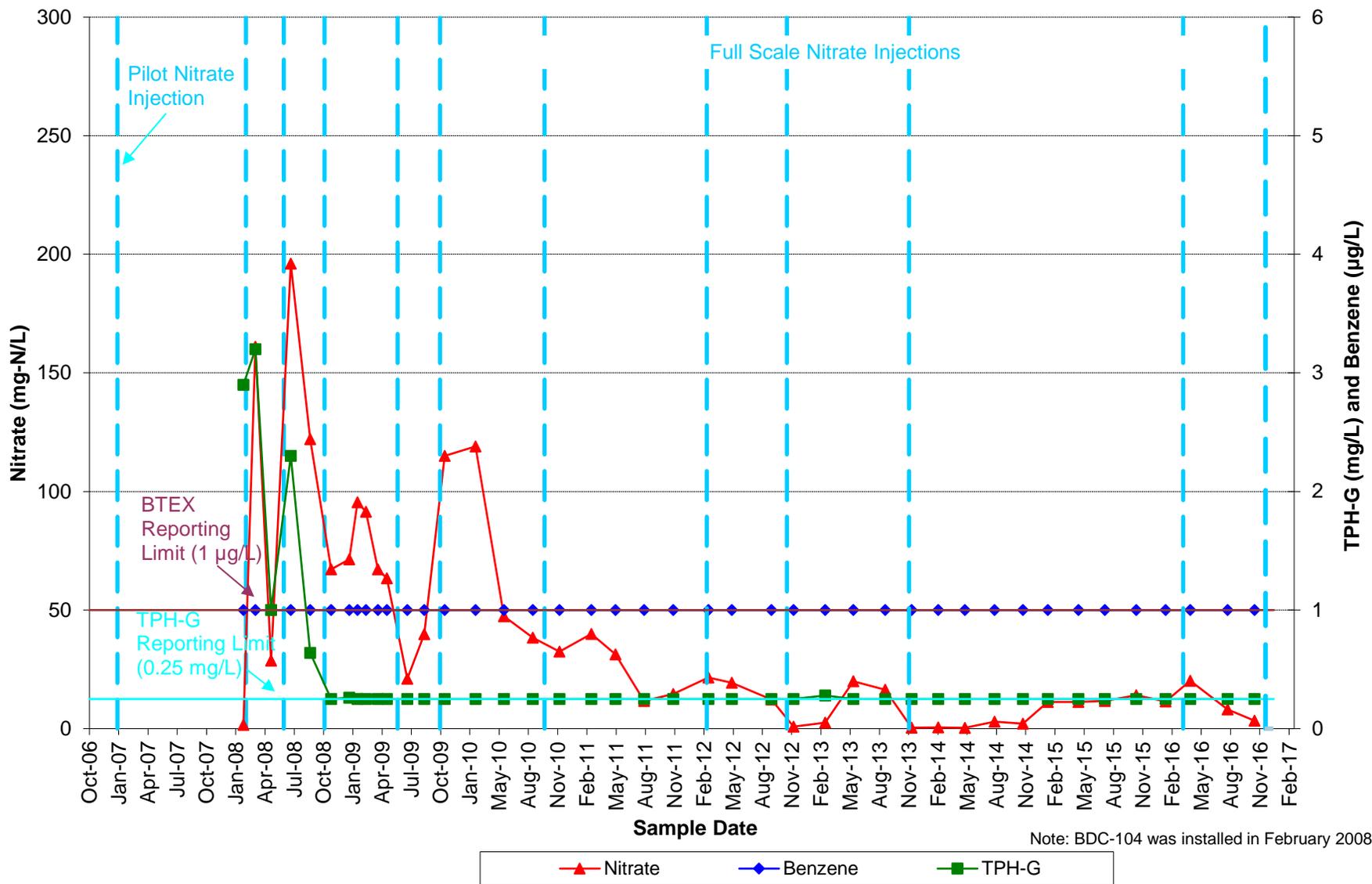
BDC-104 TPH-G and Benzene Concentrations Since 2001



BDC-103 Nitrate, TPH-G, and Benzene Concentrations



BDC-104 Nitrate, TPH-G, and Benzene Concentrations

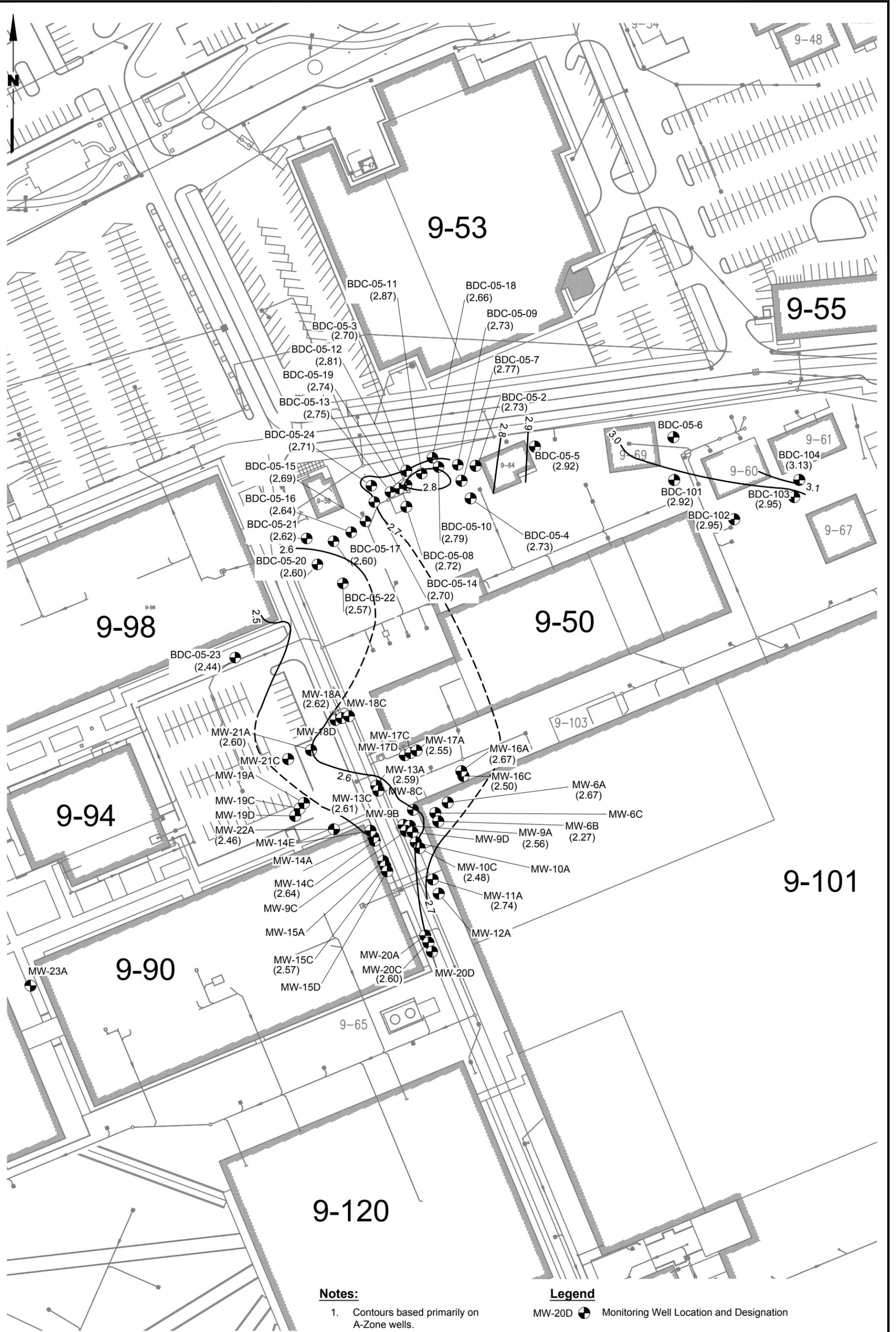


Note: BDC-104 was installed in February 2008

***DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
NOVEMBER 2016***

GROUNDWATER ELEVATION INFORMATION

- **CONTOUR MAP**
- **CUMULATIVE WATER LEVEL MEASUREMENTS
(November 1999 to Present)**



DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS

Well Location / Bldg.	Well ID No.	Well Depth (ft)	November 2016		August 2016		April 2016		January 2016		October 2015		July 2015		April 2015		January 2015		November 2014		August 2014		May 2014		February 2014		November 2013		
			Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	
9-101-bldg.	MW-6A	24.25	12.13	2.67			12.38	2.42			12.80	2.00			12.65	2.15			12.22	2.58			12.10	2.70			12.82	1.98	
9-101-bldg.	MW-6B	27.20	12.82	2.27			12.77	2.32			13.16	1.93			13.02	2.07			12.58	2.51			14.44	0.65			13.16	1.93	
9-101-bldg.	MW-6C	40.55																											
9-101-bldg.	MW-8C	40.20																											
9-101-bldg.	MW-9A	21.30	12.18	2.56			12.37	2.37			12.83	1.91			12.64	2.10			12.18	2.56			12.07	2.67			12.88	1.86	
9-101-bldg.	MW-9B	26.90																											
9-101-bldg.	MW-9C	38.80																											
9-101-bldg.	MW-9D	56.00																											
9-101-bldg.	MW-10A	20.20																		12.14	2.55			11.98	2.71			12.81	1.88
9-101-bldg.	MW-10C	40.40	12.16	2.48			12.37	2.27			12.66	1.96			12.57	2.05			12.06	2.56			11.91	2.71			12.73	1.89	
9-101-bldg.	MW-11A	19.90	12.14	2.74			12.47	2.41			12.87	2.01			12.74	2.14			12.31	2.57			12.10	2.78			12.89	1.99	
9-101-bldg.	MW-12A	20.20																	12.38	2.45			12.17	2.66			12.98	1.85	
9-101-bldg.	MW-13A	19.37	11.55	2.59			11.82	2.32			12.23	1.91			12.19	1.95			11.71	2.43			11.62	2.52			12.37	1.77	
9-101-bldg.	MW-13C	35.62	11.41	2.61			11.71	2.31			12.08	1.94			12.07	1.95			11.59	2.43			11.49	2.53			12.23	1.79	
9-101-bldg.	MW-14A	19.00																	11.93	2.44			11.85	2.52			12.59	1.78	
9-101-bldg.	MW-14C	33.30	11.33	2.64			11.78	2.19			11.95	2.02			11.95	2.02			11.54	2.43			11.49	2.48			12.17	1.80	
9-101-bldg.	MW-14E	82.10																											
9-101-bldg.	MW-15A	20.70																		11.77	2.40			11.72	2.45			12.44	1.73
9-101-bldg.	MW-15C	34.35	11.98	2.57			12.45	2.10			12.19	1.98			12.29	1.88			11.70	2.47			11.71	2.46			12.42	1.75	
9-101-bldg.	MW-15D	51.80																											
9-101-bldg.	MW-16A	20.55	12.32	2.67			12.60	2.39			12.96	2.03			12.85	2.14			12.40	2.59			12.22	2.77			13.06	1.93	
9-101-bldg.	MW-16C	38.30	12.54	2.50			12.70	2.34			13.14	1.90			13.02	2.02			12.58	2.46			12.32	2.72			13.24	1.80	
9-101-bldg.	MW-17A	19.00	12.11	2.55			12.28	2.38			12.83	1.97			12.67	2.13			12.25	2.55			12.11	2.69			12.90	1.90	
9-101-bldg.	MW-17C	35.00																											
9-101-bldg.	MW-17D	52.50																											
9-101-bldg.	MW-18A	20.02	11.68	2.62			11.87	2.43			12.36	1.94			12.26	2.04			11.86	2.44			11.70	2.60			12.23	2.07	
9-101-bldg.	MW-18C	34.55																											
9-101-bldg.	MW-18D	52.85																											
9-101-bldg.	MW-19A	16.86																											
9-101-bldg.	MW-19C	33.92																											
9-101-bldg.	MW-19D	51.86																											
9-101-bldg.	MW-20A	19.34																											
9-101-bldg.	MW-20C	35.32	11.55	2.60			11.95	2.20			12.14	2.01			12.19	1.96			11.61	2.54			11.58	2.57			12.40	1.75	
9-101-bldg.	MW-20D	50.15																											
9-101-bldg.	MW-22A	19.20	11.79	2.46			12.12	2.13			12.34	1.91			12.33	1.92			11.96	2.29			11.90	2.35			12.42	1.83	
9-101-bldg.	MW-23A	19.50																											
9-101/9-50 bldg.	MW-21A	19.90	11.85	2.60			12.10	2.35			12.55	1.90			12.48	1.97			12.06	2.39			11.90	2.55			12.39	2.06	
9-101/9-50 bldg.	MW-21C	34.00																											
9-64-bldg.	BDC-05-02	25.35	11.68	2.73	12.53	1.88	11.77	2.64	10.85	3.56	12.28	2.13	12.30	2.11	12.07	2.34	11.49	2.92	11.77	2.64	12.26	2.15	11.69	2.72	12.21	2.20	12.36	2.05	
9-64-bldg.	BDC-05-03	25.47	11.71	2.70			11.86	2.55			12.33	2.08			12.19	2.22			11.79	2.62			11.76	2.65			12.43	1.98	
9-64-bldg.	BDC-05-04	25.36	11.86	2.73			11.95	2.64			12.54	2.05			12.26	2.33			11.95	2.64			11.93	2.66			12.51	2.08	
9-64-bldg.	BDC-05-05	24.18	11.52	2.92			11.57	2.87			12.18	2.26			11.86	2.58			11.53	2.91			11.47	2.97			12.15	2.29	
9-64-bldg.	BDC-05-07	25.30	11.22	2.77			11.38	2.61			11.88	2.11			11.67	2.32			11.37	2.62			11.29	2.70			11.96	2.03	
9-64-bldg.	BDC-05-08	26.75	11.95	2.72			12.11	2.56			12.62	2.05			12.47	2.20			12.10	2.57			12.07	2.60			12.72	1.95	
9-64-bldg.	BDC-05-09	24.55	11.68	2.73			11.80	2.61			12.30	2.11			12.10	2.31			11.79	2.62			11.71	2.70			12.37	2.04	
9-64-bldg.	BDC-05-10	24.57	11.62	2.79			11.80	2.61			12.27	2.14			12.11	2.30			11.72	2.69			11.70	2.71			12.36	2.05	
9-64-bldg.	BDC-05-11	24.85	11.78	2.87			12.02	2.63			12.99	1.66			12.33	2.32			11.93	2.72			11.91	2.74			12.59	2.06	
9-64-bldg.	BDC-05-12	24.87	11.91	2.81	12.80	1.92	12.11	2.61	11.21	3.51	12.59	2.13	12.63	2.09	12.43	2.29	11.83	2.89	12.06	2.66	12.58	2.14	12.01	2.71	12.53	2.19	12.88	1.84	
9-64-bldg.	BDC-05-13	24.78	11.68	2.75			11.87	2.56			12.37	2.06			12.20	2.23			11.85	2.58			11.86	2.57			12.44	1.99	
9-64-bldg.	BDC-05-14	24.85	11.52	2.70			11.71	2.51			12.18	2.04			12.03	2.19			11.70	2.52			11.68	2.54			12.25	1.97	
9-64-bldg.	BDC-05-15	24.48	11.28	2.69			11.49	2.48			11.95	2.02			11.83	2.14			11.47	2.50			11.42	2.55			12.04	1.93	
9-64-bldg.	BDC-05-16	24.89	11.43	2.64	12.31	1.76	11.65	2.42	10.79	3.28	12.10	1.97	12.10	1.97	11.90	2.17	11.31	2.76	11.65	2.42	12.04	2.03	11.60	2.47	12.00	2.07	12.16	1.91	
9-64-bldg.	BDC-05-17	24.82	11.65	2.60			11.86	2.39			12.29	1.96			12.12	2.13			11.86	2.39			11.83	2.42			12.34	1.91	
9-64-bldg.	BDC-05-18	24.69	11.13	2.66	11.96	1.83	11.22	2.57	10.34	3.45	11.77	2.02	11.75	2.04	11.50	2.29	10.98	2.81	11.14	2.65	11.51	2.28	11.16	2.63	11.62	2.17	11.71	2.08	
9-64-bldg.	BDC-05-19	24.85	11.82	2.74	12.68	1.88	11.99	2.57	11.11	3.45	12.49	2.07	12.53	2.03	12.33	2.23	11.61	2.95	11.96	2.60	12.47	2.09	11.91	2.65	12.43	2.13	12.58	1.98	
9-64-bldg.	BDC-05-20	24.80	11.74	2.60	12.62	1.72	11.92	2.42	11.08	3.26	12.37	1.97	12.42	1.92	12.25	2.09	11.64	2.70	11.92	2.42	12.45	1.89	11.95	2.39	12.28	2.06	12.46	1.88	
9-64-bldg.	BDC-05-21	24.86	11.57	2.62	12.50	1.69	11.80	2.39	10.96	3.23	12.22	1.97	12.24	1.95	12.10	2.09	11.51	2.68	11.80	2.39	12.29	1.90	11.79	2.40	12.15	2.04	12.30	1.89	
9-64-bldg.	BDC-05-22	25.07	11.59	2.57	12.42	1.74	11.73	2.43	10.89	3.27	12.19	1.97	12.29	1.87	12.04	2.12	11.47	2.69	11.74	2.42	12.25	1.91	11.75	2.41	12.08	2.08	12.25	1.91	
9-6																													

DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS

Well Location / Bldg.	Well ID No.	Well Depth (ft)	August 2013		May 2013		February 2013		November 2012		May 2012		November 2011		July 2011		May 2011		November 2010		May 2010		November 2009	
			Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)	Depth to Water (ft)	Water Elevation (ft)
9-101-bldg.	MW-6A	24.25			12.92	1.88			12.82	1.98	12.61	2.19	12.99	1.81			12.50	2.30	12.70	2.10	12.69	2.11	12.42	2.38
9-101-bldg.	MW-6B	27.20			13.27	1.82			13.17	1.92	12.96	2.13	13.29	1.80			12.81	2.28	13.06	2.03	13.04	2.05	12.73	2.36
9-101-bldg.	MW-6C	40.55																					12.72	2.35
9-101-bldg.	MW-8C	40.20																					12.70	2.22
9-101-bldg.	MW-9A	21.30			12.80	1.94			12.83	1.91	12.54	2.20	13.03	1.71			12.53	2.21	12.65	2.09	12.65	2.09	12.43	2.31
9-101-bldg.	MW-9B	26.90																					12.30	2.29
9-101-bldg.	MW-9C	38.80																					12.40	2.26
9-101-bldg.	MW-9D	56.00																					12.43	2.23
9-101-bldg.	MW-10A	20.20			12.72	1.97			12.77	1.92	12.55	2.14	12.97	1.72			12.47	2.22	12.64	2.05	12.62	2.07	12.46	2.23
9-101-bldg.	MW-10C	40.40			12.65	1.97			12.70	1.92	12.49	2.13	12.90	1.72			12.38	2.24	12.55	2.07	12.53	2.09	12.41	2.21
9-101-bldg.	MW-11A	19.90			12.84	2.04			12.19	2.69	12.65	2.23	13.03	1.85			12.62	2.26	12.59	2.29	12.69	2.19	12.52	2.36
9-101-bldg.	MW-12A	20.20			12.88	1.95			13.01	1.82	12.70	2.13	13.23	1.60			12.71	2.12	12.68	2.15	12.73	2.10	12.56	2.27
9-101-bldg.	MW-13A	19.37			12.36	1.78			12.27	1.87	12.20	1.94	12.66	1.48			12.11	2.03	12.08	2.06	12.14	2.00	11.89	2.25
9-101-bldg.	MW-13C	35.62			12.22	1.80			12.11	1.91	12.06	1.96	12.52	1.50			11.94	2.08	11.92	2.10	12.02	2.00	11.71	2.31
9-101-bldg.	MW-14A	19.00			12.65	1.72			12.53	1.84	12.46	1.91	12.71	1.66			12.16	2.21	12.22	2.15	12.39	1.98	12.10	2.27
9-101-bldg.	MW-14C	33.30			12.25	1.72			12.07	1.90	12.09	1.88	12.20	1.77			12.78	1.19	11.82	2.15	12.00	1.97	11.65	2.32
9-101-bldg.	MW-14E	82.10																					7.20	6.98
9-101-bldg.	MW-15A	20.70			12.48	1.69			12.34	1.83	12.16	2.01	12.51	1.66			11.87	2.30	12.12	2.05	12.22	1.95	11.89	2.28
9-101-bldg.	MW-15C	34.35			12.54	1.63			12.27	1.90	12.36	1.81	12.44	1.73			11.49	2.68	12.00	2.17	12.17	2.00	11.85	2.32
9-101-bldg.	MW-15D	51.80																					12.02	2.39
9-101-bldg.	MW-16A	20.55			13.07	1.92			13.02	1.97	12.81	2.18	13.19	1.80			12.67	2.32	12.84	2.15	12.88	2.11	12.68	2.31
9-101-bldg.	MW-16C	38.30			13.25	1.79			13.17	1.87	13.01	2.03	13.33	1.71			12.84	2.20	13.02	2.02	13.04	2.00	12.63	2.41
9-101-bldg.	MW-17A	19.00			12.98	1.82			12.78	2.02	12.26	2.54	12.73	2.07	12.84	1.96	12.45	2.35	12.65	2.15	12.63	2.17	12.55	2.25
9-101-bldg.	MW-17C	35.00																						
9-101-bldg.	MW-17D	52.50																						
9-101-bldg.	MW-18A	20.02			12.58	1.72			12.39	1.91	11.90	2.40	12.84	1.46	12.43	1.87	12.14	2.16	12.22	2.08	12.25	2.05	12.21	2.09
9-101-bldg.	MW-18C	34.55																					12.36	2.27
9-101-bldg.	MW-18D	52.85																						
9-101-bldg.	MW-19A	16.86			10.74	1.49																	10.11	2.12
9-101-bldg.	MW-19C	33.92																					9.98	2.25
9-101-bldg.	MW-19D	51.86																						
9-101-bldg.	MW-20A	19.34																					12.37	1.94
9-101-bldg.	MW-20C	35.32			12.50	1.65			12.22	1.93	12.18	1.97	12.76	1.39			12.27	1.88	11.87	2.28	12.06	2.09	11.70	2.45
9-101-bldg.	MW-20D	50.15																						
9-101-bldg.	MW-22A	19.20			12.72	1.53			12.42	1.83	12.35	1.90	12.52	1.73			12.14	2.11	12.40	1.85	12.30	1.95	12.04	2.21
9-101-bldg.	MW-23A	19.50																					11.86	2.41
9-101/9-50 bldg.	MW-21A	19.90			12.80	1.65			12.60	1.85	12.13	2.32	13.05	1.40	12.67	1.78	12.41	2.04	12.43	2.02	12.45	2.00	12.37	2.08
9-101/9-50 bldg.	MW-21C	34.00																						
9-64-bldg.	BDC-05-02	25.35	12.47	1.94	12.29	2.12	12.19	2.22	12.31	2.10	11.81	2.60	12.63	1.78	12.35	2.06	11.81	2.60	12.10	2.31	12.14	2.27	12.05	2.36
9-64-bldg.	BDC-05-03	25.47			12.36	2.05			12.36	2.05	11.95	2.46	12.77	1.64			11.94	2.47	12.21	2.20	12.24	2.17	12.11	2.30
9-64-bldg.	BDC-05-04	25.36			12.17	2.42			12.52	2.07	12.05	2.54	12.82	1.77			12.03	2.56	12.30	2.29	12.33	2.26	12.22	2.37
9-64-bldg.	BDC-05-05	24.18			12.13	2.31			13.40	1.04	11.65	2.79	12.50	1.94			11.61	2.83	11.95	2.49	11.97	2.47	11.89	2.55
9-64-bldg.	BDC-05-07	25.30			11.92	2.07			11.97	2.02	11.40	2.59	12.23	1.76			11.42	2.57	11.95	2.04	11.75	2.24	11.95	2.04
9-64-bldg.	BDC-05-08	26.75			12.64	2.03			12.64	2.03	12.28	2.39	13.02	1.65			12.20	2.47	12.49	2.18	12.51	2.16	12.39	2.28
9-64-bldg.	BDC-05-09	24.55			12.31	2.10			12.36	2.05	11.90	2.51	12.68	1.73	12.27	2.13								
9-64-bldg.	BDC-05-10	24.57			12.31	2.10			12.30	2.11	11.95	2.46	12.74	1.67	12.27	2.14								
9-64-bldg.	BDC-05-11	24.85			12.51	2.14			12.55	2.10	12.13	2.52	12.92	1.73	12.60	2.05								
9-64-bldg.	BDC-05-12	24.87	12.78	1.94	12.61	2.11	12.53	2.19	12.66	2.06	12.24	2.48	13.00	1.72	12.57	2.15								
9-64-bldg.	BDC-05-13	24.78			12.40	2.03			12.44	1.99	12.02	2.41	12.78	1.65	12.35	2.08								
9-64-bldg.	BDC-05-14	24.85			12.21	2.01			12.29	1.93	11.83	2.39	12.55	1.67	12.23	1.99								
9-64-bldg.	BDC-05-15	24.48			12.07	1.90			11.97	2.00	11.63	2.34	12.34	1.63	11.95	2.02								
9-64-bldg.	BDC-05-16	24.89	12.25	1.82	12.19	1.88	12.04	2.03	12.09	1.98	11.78	2.29	12.44	1.63	12.05	2.02								
9-64-bldg.	BDC-05-17	24.82			12.30	1.95			12.27	1.98	11.65	2.60	12.60	1.65	12.27	1.98								
9-64-bldg.	BDC-05-18	24.69	11.90	1.89	11.72	2.07	11.63	2.16	11.75	2.04	11.34	2.45	12.10	1.69	11.84	1.95								
9-64-bldg.	BDC-05-19	24.85	12.68	1.88	12.52	2.04	12.44	2.12	12.60	1.96	12.15	2.41	12.90	1.66	12.59	1.97								
9-64-bldg.	BDC-05-20	24.80	12.55	1.79	12.38	1.96	12.41	1.93	12.44	1.90	12.08	2.26	12.75	1.59	12.47	1.87								
9-64-bldg.	BDC-05-21	24.86	12.42	1.77	12.26	1.93	12.25	1.94	12.30	1.89	11.94	2.25	12.59	1.60	12.34	1.85								
9-64-bldg.	BDC-05-22	25.07	12.38	1.78	12.22	1.94	12.18	1.98	12.24	1.92	11.87	2.29	12.54	1.62	12.27	1.89								
9-64-bldg.	BDC-05-23	25.10	12.83	1.63	12.70	1.76	12.56	1.90	12.74	1.72	12.39	2.07	13.08	1.38	12.79	1.67								
9-64-bldg.	BDC-05-24	24.73	12.34	1.85	12.19	2.00	12.09	2.10	12.20	1.99	11.82	2.37	12.59	1.60	12.28	1.91								
9-60 bldg.	BDC-101	18.42	12.27	2.20	11.99	2.48	11.77	2.70	12.20	2.27	11.32	3.15	12.46	2.01	12.16	2.31	11.48	2.99	11.92	2.55	11.82	2.65	11.82	2.65
9-60 bldg.	BDC-102	18.83	12.04	2.23	11.79	2.48	11.55	2.72	11.93	2.34	11.13	3.14	12.16	2.11	11.92	2.35	11.20	3.07	11.67	2.60	11.57	2.70	11.58	2.69
9-60 bldg.	BDC-103	18.51	12.06	2.28	11.71	2.63	11.43	2.91	11.88	2.46</														

***DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
NOVEMBER 2016***

GROUNDWATER SAMPLE COLLECTION FORMS

ANALYTICAL DATA

(DVD)

SWMU-20
(Groundwater Sample Collection Forms and Analytical Data)

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 01 /2016 @ 1121
 Sample Number: MW-6A- 161101 Weather: INDOORS
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.13 Time: 1050 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 01 /2016 @ 1054 End Purge: Date/Time: 11/ 01 /2016 @ 1116 Gallons Purged: 0.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1057	20.1	2105	0.54	7.14	-129.4	12.28			
1100	20	1812	0.6	7.06	-142.2	12.28			
1103	20	1736	0.46	7.07	-147.7	12.31			
1106	20	1717	0.42	7.08	-150				
1109	20	1693	0.39	7.09	-153.3				
1112	20	1676	0.36	7.1	-154.5				
1114	20	1670	0.35	7.1	-154.6				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type DED BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): DARK BROWN/AMBER COLOR, CANNOT SEE THROUGH IT, STORNG ORGANIC ODOR, NS.

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	20	1670	0.35	7.1	-154.9				
2	20	1668	0.35	7.1	-155.4				
3	20	1666	0.35	7.1	-154.7				
4	20	1666	0.35	7.1	-154.4				
Average:	20.0	1667.5	0.4	7.1	-154.9	#DIV/0!	12.29		

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/> (8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2) (Total Cyanide) (WAD Cyanide) (Free Cyanide) (Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/1/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/01/2016 @ 1031
 Sample Number: MW-6B- 161101 Weather: INDOORS
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.82 Time: 1003 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/01/2016 @ 1006 End Purge: Date/Time: 11/01/2016 @ 1025 Gallons Purged: 0.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1009	19.2	2831	0.65	7.16	-132		12.82		
1012	19.9	2639	0.52	7.21	-142.5		12.82		
1015	20.4	2003	0.42	7.28	-150.7		12.85		
1018	20.2	2037	0.36	7.27	-150.3		12.87		
1021	20.5	2066	0.33	7.25	-149				
1024	20.6	2039	0.33	7.25	-150.9				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type DED BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): DARK BRWON/BLACK, CANNOT SEE ANYTHING, STRONG ORGANICS ODOR, NS. SLIGHT

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	20.6	2039	0.32	7.25	-150.6				
2	20.6	2036	0.32	7.24	-149.4				
3	20.6	2035	0.32	7.24	-148				
4	20.6	2033	0.31	7.24	-145.9				
Average:	20.6	2035.8	0.3	7.2	-148.5	#DIV/0!	12.87		

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: WATER COMING OUT IS BLACK. LOOKS LIKE DIRTY MOTOR OIL
 Signature: JHA Date: 11/1/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 01 /2016 @ 906
 Sample Number: MW-9A- 161101 Weather: 60'S, RAINING
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.18 Time: 836 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 01 /2016 @ 838 End Purge: Date/Time: 11/ 01 /2016 @ 900 Gallons Purged: 0.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
841	17.2	586	1.31	6.63	-106.8		12.19		
844	16.7	554	1.35	6.62	-103.2		12.19		
847	16.4	535	1.2	6.6	-100		12.19		
850	16	512	0.95	6.53	-93.6				
853	15.8	502	0.87	6.48	-90.4				
856	15.7	493	0.78	6.46	-89				
858	15.7	489	0.74	6.45	-89				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type DED BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, SLIGHT YELLOW/GREENISH TINT, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	15.7	489	0.73	6.45	-88.9				
2	15.7	488	0.73	6.45	-88.8				
3	15.7	487	0.73	6.46	-89.1				
4	15.7	487	0.73	6.46	-89				
Average:	15.7	487.8	0.7	6.5	-89.0	#DIV/0!	12.19		

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): MSMSD
 Comments: _____
 Signature: JHA Date: 11/01/16

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 01 /2016 @ 941
 Sample Number: MW-10C- 161101 Weather: 60'S, DRIZZLZING
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.16 Time: 916 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 01 /2016 @ 918 End Purge: Date/Time: 11/ 01 /2016 @ 940 Gallons Purged: 0.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>921</u>	<u>16.6</u>	<u>1613</u>	<u>1.48</u>	<u>6.61</u>	<u>-63.6</u>		<u>12.2</u>		
<u>924</u>	<u>16.3</u>	<u>1598</u>	<u>0.94</u>	<u>6.55</u>	<u>-67.3</u>		<u>12.2</u>		
<u>927</u>	<u>16.1</u>	<u>1558</u>	<u>0.76</u>	<u>6.49</u>	<u>-69.1</u>		<u>12.2</u>		
<u>930</u>	<u>16</u>	<u>1493</u>	<u>0.62</u>	<u>6.44</u>	<u>-70</u>				
<u>933</u>	<u>15.9</u>	<u>1467</u>	<u>0.57</u>	<u>6.42</u>	<u>-70.3</u>				
<u>936</u>	<u>15.9</u>	<u>1438</u>	<u>0.51</u>	<u>6.41</u>	<u>-71</u>				
<u>938</u>	<u>15.8</u>	<u>1414</u>	<u>0.47</u>	<u>6.4</u>	<u>-71.6</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type DED BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, DARK BROWN/AMBER COLOR, SLIGHT ORGANIC ODOR, NS. VERY EFFERVESCENT

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>15.8</u>	<u>1410</u>	<u>0.47</u>	<u>6.4</u>	<u>-71.6</u>				
<u>2</u>	<u>15.8</u>	<u>1406</u>	<u>0.47</u>	<u>6.39</u>	<u>-71.5</u>				
<u>3</u>	<u>15.8</u>	<u>1403</u>	<u>0.46</u>	<u>6.4</u>	<u>-71.9</u>				
<u>4</u>	<u>15.7</u>	<u>1401</u>	<u>0.45</u>	<u>6.39</u>	<u>-71.8</u>				
Average:	<u>15.8</u>	<u>1405.0</u>	<u>0.5</u>	<u>6.4</u>	<u>-71.7</u>	<u>#DIV/0!</u>	<u>12.20</u>		

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/> (8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/> (pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F) (COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2) (Total Cyanide) (WAD Cyanide) (Free Cyanide) (Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic) VOC (Boeing short list) Methane Ethane Ethene Acetylene _____ _____ others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/1/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 1/2016 @ 912
 Sample Number: MW-11A- 161101 Weather: 50'S, RAIN
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.14 Time: 840 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 1/2016 @842 End Purge: Date/Time: 11/ 1/2016 @ 906 Gallons Purged: ~1.0
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
845	19.09	847	1.02	6.69	-158.3	-	12.15	<0.25	
848	19	842	2.63	6.72	-157.7	-	-	<0.50	
851	19.09	837	3.95	6.72	-153.9	-	12.15	<0.50	WAITING ON DO
854	19.07	826	1.86	6.71	-150.4	-	-	<0.75	
857	19.12	813	0.62	6.71	-117.2	-	12.15	<0.75	
900	19.17	806	0.44	6.71	-144.8	-	-	<1	
903	19.07	802	0.4	6.71	-143.3	-	12.15	<1	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	19.06	801	0.4	6.71	-143.1				
2	19.12	801	0.38	6.71	-142.76				
3	19.12	798	0.37	6.71	-142				
4	19.11	790	0.36	6.71	-141.3				
Average:	19.1	797.5	0.4	6.7	-142.3	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): BDC-DUPI-161101 @ 0850
 Comments: Duplicate location DO DIDN'T FULLY STABILIZE. PURGED FOR 21 MINUTES, THEN SAMPLED
 Signature: SAR Date: 11.1.16

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 1/2016 @ 957
 Sample Number: MW-13A- 161101 Weather: 50'S, RAIN
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.55 Time: 934 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 1/2016 @ 935 End Purge: Date/Time: 11/ 1/2016 @ 956 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
938	17.29	265	0.29	6.36	-9.7	-	11.547	<0.25	
941	17.57	257	0.29	6.35	-2.3	-	-	<0.25	
944	17.55	251	0.28	6.26	6.3	-	11.55	<0.5	
947	17.87	250	0.75	6.2	9.5	-	-	<0.5	
950	17.71	249	0.43	6.18	9.6	-	11.56	<0.75	
953	17.85	250	0.3	6.14	13.2	-	-	<0.75	
956	17.86	249	0.27	6.13	14.5	-	11.57	<1	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLES, NO ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	17.88	249	0.27	6.13	15.7				
2	17.91	249	0.26	6.13	16				
3	17.95	249	0.26	6.13	15.7				
4	17.94	249	0.25	6.12	15.5				
Average:	17.9	249.0	0.3	6.1	15.7	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (Cl) (SO ₄) (NO ₃) (NO ₂) (F)
	(COD) (TOC) (Total PO ₄) (Total Kiedahl Nitrogen) (NH ₃) (NO ₃ /NO ₂)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: DO DIDN'T FULLY STABILIZE. PURGED 21 MINUTES, THEN SAMPLED
 Signature: SAR Date: 11.1.16

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 1/2016 @ 1032
 Sample Number: MW-13C- 161101 Weather: 50'S, RAIN
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.41 Time: 1005 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/1/2016 @ 1006 End Purge: Date/Time: 11/ 1/2016 @1024 Gallons Purged: ~1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other ON SITE DECANT

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1009	16.9	1022	0.44	6.36	-122	-	11.41	<0.25	
1012	17	897	0.27	6.47	-113.2	-	-	<0.25	
1015	17.09	810	0.25	6.5	-106.8	-	11.42	<0.5	
1018	17.12	787	0.23	6.5	-104.6	-	-	<0.5	WAITING ON CON
1021	17.07	776	0.25	6.52	-108.1	-	11.42	<0.75	STABLE

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN, SLIGHT EFFERVESCENSE

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	17.06	775	0.25	6.52	-108.4				
2	17.06	774	0.25	6.52	-108.2				
3	17.09	774	0.26	6.52	-108.2				
4	17.09	774	0.26	6.52	-108.3				
Average:	17.1	774.3	0.3	6.5	-108.3	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: SAR Date: 11.1.16

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 01 /2016 @ 1221
 Sample Number: MW-17A- 161101 Weather: 60'S, OVERCAST
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.11 Time: 1154 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 01 /2016 @ 1155 End Purge: Date/Time: 11/ 01 /2016 @ 1217 Gallons Purged: 0.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1158</u>	<u>18</u>	<u>7222</u>	<u>1.16</u>	<u>7.2</u>	<u>-221.5</u>		<u>12.14</u>		
<u>1201</u>	<u>18.1</u>	<u>7002</u>	<u>0.75</u>	<u>7.18</u>	<u>-220.6</u>		<u>12.15</u>		
<u>1204</u>	<u>18.1</u>	<u>6814</u>	<u>0.63</u>	<u>7.15</u>	<u>-212.2</u>		<u>12.15</u>		
<u>1207</u>	<u>18.1</u>	<u>6831</u>	<u>0.58</u>	<u>7.15</u>	<u>-206.8</u>				
<u>1210</u>	<u>17.9</u>	<u>6689</u>	<u>0.48</u>	<u>7.14</u>	<u>-213.5</u>				
<u>1213</u>	<u>17.8</u>	<u>6621</u>	<u>0.44</u>	<u>7.14</u>	<u>-214.1</u>				
<u>1215</u>	<u>17.5</u>	<u>6589</u>	<u>0.41</u>	<u>7.14</u>	<u>-210.6</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, AMBER COLOR, ORGANIC ODOR, NS. SLIGHT EFFERVESCENT.

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>17.5</u>	<u>6590</u>	<u>0.42</u>	<u>7.14</u>	<u>-215.5</u>				
<u>2</u>	<u>17.5</u>	<u>6588</u>	<u>0.41</u>	<u>7.14</u>	<u>-214.8</u>				
<u>3</u>	<u>17.5</u>	<u>6584</u>	<u>0.4</u>	<u>7.14</u>	<u>-216.5</u>				
<u>4</u>	<u>17.5</u>	<u>6586</u>	<u>0.39</u>	<u>7.14</u>	<u>-216.7</u>				
Average:	<u>17.5</u>	<u>6587.0</u>	<u>0.4</u>	<u>7.1</u>	<u>-215.9</u>	<u>#DIV/0!</u>	<u>12.13</u>	<u>1.4 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (Cl) (SO ₄) (NO₃) (NO ₂) (F)
	(COD) (TOC) (Total PO ₄) (Total Kiedahl Nitrogen) (NH ₃) (NO ₃ /NO ₂)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: FOAMY AT FIRST WHEN FILLING BOTTLES
 Signature: JHA Date: 11/1/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 1102
 Sample Number: MW-14C- 161102 Weather: 50-60, RAINY
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.33 Time: 1038 Flow through cell vol. _____ GW Meter No.(s) HERON 2
 Begin Purge: Date/Time: 11/ 02 /2016 @ 1039 End Purge: Date/Time: 11/ 02 /2016 @ 1056 Gallons Purged: ~1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other: DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1042	20.89	914	0.47	6.45	-89.4	-	11.34		
1045	20.8	914	0.24	6.47	-91.6	-	-	<0.25	
1048	20.75	908	0.22	6.47	-91.7	-	11.35	<0.5	WAITING ON D.O.
1051	20.55	905	0.21	6.45	-91.9	-	-	<0.5	
1054	20.53	901	0.2	6.43	-89.6	-	-	<0.75	stable

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): clear, slight yellow color, no sheen, organic odor

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	20.62	902	0.2	6.43	-89.7				
2	20.66	902	0.19	6.43	-89.4				
3	20.67	903	0.19	6.43	-89.5				
4	20.68	903	0.19	6.43	-89.4				
Average:	20.7	902.5	0.2	6.4	-89.5	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: CUT A NEW SECTION OF TUBING. SAMPLE TUBE WAS MISSING
 Signature: SAR Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 1051
 Sample Number: MW-15C- 161102 Weather: 50-60'S, RAINING
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.98 Time: 1023 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 02 /2016 @ 1027 End Purge: Date/Time: 11/ 02 /2016 @ 1049 Gallons Purged: 0.75
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1030	19.9	3519	1.08	6.94	-116.3		12.14		TURNED DISCHARGE
1033	19.9	3266	0.84	6.9	-114.6		12.05		
1036	19.5	3198	0.66	6.88	-110.5		12.13		
1039	18.9	2925	0.53	6.78	-96.8		12.15		
1042	18.8	2860	0.55	6.76	-93.6				
1045	18.6	2754	0.51	6.73	-88.8				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type DED BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): TURBID, DARK BROWN COLOR, ORGANIC ODOR, NS. SLIGHT EFFERVESCENT.

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	18.6	2753	0.5	6.73	-88.2				
2	18.6	2723	0.51	6.72	-88				
3	18.6	2723	0.49	6.72	-87.8				
4	18.6	2722	0.47	6.72	-87.5				
Average:	18.6	2730.3	0.5	6.7	-87.9	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 922
 Sample Number: MW-16A- 161102 Weather: 50-60, RAIN
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.32 Time: 842 Flow through cell vol. _____ GW Meter No.(s) HERON 2
 Begin Purge: Date/Time: 11/ 02 /2016 @ 846 End Purge: Date/Time: 11/ 02 /2016 @ 909 Gallons Purged: ~1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other TE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
849	16.18	5167	4.5	7.17	-257.3	-	12.49	<0.25	
852	16.59	5514	0.88	7.3	-266.7	-	-	<0.25	
855	16.73	5560	0.73	7.3	-260.4	-	12.59	<0.50	
858	16.75	5509	0.62	7.26	-253	-	-	<0.50	
901	16.88	5460	0.58	7.23	-252.6	-	12.59	<0.75	WAITING ON DO
904	16.82	5422	0.52	7.2	-247	-	-	<0.75	
907	16.97	5423	0.42	7.18	-245.7	-	-	<1	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, BROWN, STRONG ORGANIC ODOR, NO SHEEN, FOAMY

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	16.96	5417	0.42	7.17	-249				
2	16.96	5414	0.42	7.17	-250.5				
3	16.99	5429	0.45	7.17	-252.3				
4	17.14	54.26	0.45	7.17	-253.9				
Average:	17.0	4078.6	0.4	7.2	-251.4	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: D.O. DIDN'T FULLY STABILIZE, PURGED FOR 20 MINUTES AND SAMPLED
 Signature: SAR Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 906
 Sample Number: MW-16C- 161102 Weather: 50-60'S, RAINING
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.54 Time: 840 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 02 /2016 @ 843 End Purge: Date/Time: 11/ 02 /2016 @ 904 Gallons Purged: 0.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
846	14.8	1805	1.17	6.5	-106		12.54	>.25	
849	14.8	1943	0.74	6.53	-114.7		12.54	>0.25	
852	14.8	1732	0.55	6.41	-102.4		12.54	0.25	
855	15	1602	0.47	6.4	-97.5				
858	15	1475	0.45	6.38	-92.1				
901	15.2	1319	0.45	6.34	-83				WAITING ON CON
903	15.2	1251	0.4	6.32	-77.6				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR WITH SUSPENDED PARTICLES, LIGHT BROWN COLOR, ORGANICS ODOR, NS. EFFI

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	15.2	1244	0.41	6.3	-75.7				
2	15.2	1237	0.4	6.3	-76				
3	15.2	1227	0.41	6.3	-75.6				
4	15.2	1220	0.4	6.3	-75.2				
Average:	15.2	1232.0	0.4	6.3	-75.6	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 1000
 Sample Number: MW-20C- 161102 Weather: 50-60, RAIN
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.55 Time: 937 Flow through cell vol. _____ GW Meter No.(s) HERON 2
 Begin Purge: Date/Time: 11/ 02 /2016 @ 938 End Purge: Date/Time: 11/ 02 /2016 @ 958 Gallons Purged: ~1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other: DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
941	16.98	925	0.75	6.58	-98.7	-	11.86	<0.25	DECREASE PUMP
944	16.44	699	0.35	6.34	-72.6	-	11.81	<0.25	
947	16.57	614	0.36	6.16	-62.6	-	11.79	<0.50	
950	16.54	591	0.35	6.04	-57.3	-	-	<0.50	
953	16.53	581	0.3	6.02	-57.3	-	-	<0.75	
956	16.59	572	0.25	5.98	-54.8	-	-	<-.75	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): TURBID, BROWN, FLOATIES, ORGANIC ODOR

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	16.65	585	0.24	5.97	-57.6				
2	16.64	588	0.24	5.97	-57.2				
3	16.65	587	0.23	5.97	-57.3				
4	16.69	585	0.23	5.97	-57				
Average:	16.7	586.3	0.2	6.0	-57.3	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (Cl) (SO ₄) (NO ₃) (NO ₂) (F)
	(COD) (TOC) (Total PO ₄) (Total Kiedahl Nitrogen) (NH ₃) (NO ₃ /NO ₂)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: NEARLY STABLE BUT NOT FULLY, PURGED FOR 20 MINUTES AND SAMPLED
 Signature: SAR Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 1006
 Sample Number: MW-22A- 161102 Weather: 50-60'S, RAINING
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.79 Time: 935 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 02 /2016 @ 938 End Purge: Date/Time: 11/ 02 /2016 @ 1000 Gallons Purged: 0.75
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
941	16.6	6784	1	7.39	-234.4		11.92		
944	16.2	6541	0.74	7.37	-241.6		11.96		TURNED DOWN P
947	16	6459	0.67	7.36	-244.7		11.96		
950	15.6	6358	0.52	7.34	-247.3		11.96		
953	15.5	6328	0.48	7.34	-249.1				
956	15.4	6298	0.4	7.34	-247.9				
958	15.4	6306	0.38	7.34	-251.5				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type DED BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, DARK BROWN/AMBER COLOR, STRONG ORGANIC ODOR, NS. SLIGHT EFFERVESC

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	15.4	6306	0.38	7.34	-252.1				
2	15.4	6306	0.38	7.34	-252.4				
3	15.4	6304	0.37	7.34	-252.7				
4	15.4	6305	0.36	7.34	-253.1				
Average:	15.4	6305.3	0.4	7.3	-252.6	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/2/2016

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Report Date: November 22, 2016

Project: Boeing_DC: SWMU-20 s-ann

Submittal Date: 11/03/2016

Group Number: 1728897

State of Sample Origin: WA

Client Sample Description

	Lancaster Labs (LL) #
BDC-DUP1-161101 Water	8678781
MW-9A-161101 Water	8678782
MW-9A-161101 Water	8678783
MW-11A-161101 Water	8678784
MW-10C-161101 Water	8678785
MW-13A-161101 Water	8678786
MW-13C-161101 Water	8678787
MW-6B-161101 Water	8678788
MW-6B-161101 Water	8678789
MW-6A-161101 Water	8678790
MW-6A-161101 Water	8678791
MW-16C-161102 Water	8678792
MW-16A-161102 Water	8678793
MW-20C-161102 Water	8678794
MW-15C-161102 Water	8678795
MW-22A-161102 Water	8678796
MW-22A-161102 Water	8678797
MW-14C-161102 Water	8678798
Trip Blank Water	8678799

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To The Boeing Company
Electronic Copy To Landau

Attn: Lindsey E. Mahrt
Attn: Chris Kimmel

Respectfully Submitted,

A handwritten signature in black ink that reads "Kay Hower". The signature is written in a cursive style with a long, sweeping tail on the letter "e".

Kay Hower

(510) 672-3979

Project Name: Boeing_DC: SWMU-20 s-ann
LL Group #: 1728897

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:

SW-846 8260C, GC/MS Volatiles

Sample #s: 8678794

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample in the initial and diluted trials.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

The GC/MS volatile internal standard peak areas listed below are outside the acceptance criteria of -50% to +100% for both the initial analysis and the diluted analysis.

Internal Standard - Initial Analysis % Recovery
tert-Butyl Alcohol-d10 -59

Internal Standard - Diluted analysis % Recovery
tert-Butyl Alcohol-d10 -53

The analysis was repeated and the continuing calibration verification standard bracketing the sample on the re-analysis trial is also outside the acceptance limits.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
acrolein	-22
acetone	-21
4-methyl-2-pentanone	-23
2-hexanone	-21
trans-1,4-dichloro-2-butene	-21
hexachlorobutadiene	-21
1,2,3-trichlorobenzene	-21

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The reported concentration in the re-analysis trial of the associated sample(s) is considered to be estimated.

Therefore the result for the following analyte(s) is estimated:
acetone.

Sample #s: 8678796

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample in the initial trial.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
acrolein	-22
acetone	-21
4-methyl-2-pentanone	-23
2-hexanone	-21
trans-1,4-dichloro-2-butene	-21
hexachlorobutadiene	-21
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The reported concentration in the initial trial of the associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated: acetone and 4-methyl-2-pentanone.

A preserved vial was submitted for analysis. However, the pH at the time of analysis was 7.

Since the analyst observed that the sample foamed while purging, an anti-foaming agent was added to the sample so that it could be analyzed at a lower dilution factor.

The analysis was repeated and the continuing calibration verification standard bracketing the sample on the diluted trial is also outside the acceptance limits.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

Sample #s: 8678781

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
acrolein	-22
acetone	-21
4-methyl-2-pentanone	-23
2-hexanone	-21
trans-1,4-dichloro-2-butene	-21
hexachlorobutadiene	-21
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Since the analyst observed that the sample foamed while purging, an anti-foaming agent was added to the sample so that it could be analyzed at a lower dilution factor.

Sample #s: 8678787, 8678790

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
acrolein	-22
acetone	-21
4-methyl-2-pentanone	-23
2-hexanone	-21
trans-1,4-dichloro-2-butene	-21
hexachlorobutadiene	-21
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Since the analyst observed that the sample foamed while purging, an anti-foaming agent was added to the sample so that it could be analyzed at a lower dilution factor.

Sample #s: 8678782, 8678784, 8678785, 8678786, 8678792, 8678798, 8678799

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample #s: 8678795

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

A preserved vial was submitted for analysis. However, the pH at the time of analysis was 3.

Sample #s: 8678788

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

A preserved vial was submitted for analysis. However, the pH at the time of analysis was 4.

Sample #s: 8678793

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

A preserved vial was submitted for analysis. However, the pH at the time of analysis was 7.

Batch #: H163151AB (Sample number(s): 8678781, 8678787, 8678790, 8678794, 8678796 UNSPK: P678782)

The recovery(ies) for one or more surrogates were outside of the QC window for sample(s) 8678794RE

RSKSOP-175 modified, GC Miscellaneous

Sample #s: 8678789, 8678791, 8678797

Reporting limits were raised due to interference from the sample matrix.

Batch #: 163120012A (Sample number(s): 8678783, 8678789, 8678791, 8678797 UNSPK: 8678783)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Methane

Sample Description: BDC-DUP1-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678781
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 08:50 by SR

The Boeing Company

Submitted: 11/03/2016 09:30

PO Box 3707

Reported: 11/22/2016 21:13

MC 1W-12

Seattle WA 98124

01DUP

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.0 U	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	16	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.6	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	2.2	0.5	1

Sample Description: BDC-DUP1-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678781
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 08:50 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

01DUP

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.2 U	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.5	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
acrolein	-22
acetone	-21
4-methyl-2-pentanone	-23
2-hexanone	-21
trans-1,4-dichloro-2-butene	-21
hexachlorobutadiene	-21
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Since the analyst observed that the sample foamed while purging, an anti-foaming agent was added to the sample so that it could be analyzed at a lower dilution factor.

Sample Description: BDC-DUP1-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678781
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 08:50 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/22/2016 21:13 Seattle WA 98124

01DUP

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AB	11/11/2016 21:27	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AB	11/11/2016 21:27	Matthew S Krause	1

Sample Description: MW-9A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678782
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW9A1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.0 U	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.4	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.9	0.5	1
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1

Sample Description: MW-9A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678782
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW9A1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.2 U	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Wet Chemistry	SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	17.5	1.0

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: MW-9A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678782
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:06 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/22/2016 21:13 Seattle WA 98124

MW9A1

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 14:16	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 14:16	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667604A	11/08/2016 15:58	Drew M Gerhart	1

Sample Description: MW-9A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678783
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/22/2016 21:13

MW9A-

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Ethane	74-84-0	120	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	17,000 E	3.0	1
Trial ID: DL					
07105	Ethane	74-84-0	200 U	200	200
07105	Ethene	74-85-1	200 U	200	200
07105	Methane	74-82-8	19,000	600	200
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	MEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 13:21	Johanna C Kennedy	1
07105	MEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 11:38	Johanna C Kennedy	200
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 12:15	Alexandria M Lanager	1

Sample Description: MW-11A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678784
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:12 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW11A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.0 U	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	15	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.6	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1

Sample Description: MW-11A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678784
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:12 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW11A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.2 U	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.5	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: MW-11A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678784
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:12 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/22/2016 21:13

MW11A

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 16:40	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 16:40	Kerri E Legerlotz	1

Sample Description: MW-10C-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678785
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:41 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW10C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.0 U	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.3	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.5	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	8.8	0.5	1

Sample Description: MW-10C-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678785
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:41 by SR

The Boeing Company

PO Box 3707

Submitted: 11/03/2016 09:30

MC 1W-12

Reported: 11/22/2016 21:13

Seattle WA 98124

MW10C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.8	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: MW-10C-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678785
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:41 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/22/2016 21:13

MW10C

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 18:23	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 18:23	Kerri E Legerlotz	1

Sample Description: MW-13A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678786
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:57 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW13A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.0 U	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.3	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1

Sample Description: MW-13A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678786
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:57 by SR

The Boeing Company

PO Box 3707

Submitted: 11/03/2016 09:30

MC 1W-12

Reported: 11/22/2016 21:13

Seattle WA 98124

MW13A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	2.3	0.2	1
11996	Toluene	108-88-3	0.2 U	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.7	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: MW-13A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678786
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 09:57 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/22/2016 21:13

MW13A

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 17:01	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 17:01	Kerri E Legerlotz	1

Sample Description: MW-13C-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678787
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 10:32 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MC13C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.0 U	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.3	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1

Sample Description: MW-13C-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678787
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 10:32 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MC13C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.2 U	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.2	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
acrolein	-22
acetone	-21
4-methyl-2-pentanone	-23
2-hexanone	-21
trans-1,4-dichloro-2-butene	-21
hexachlorobutadiene	-21
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Since the analyst observed that the sample foamed while purging, an anti-foaming agent was added to the sample so that it could be analyzed at a lower dilution factor.

Sample Description: MW-13C-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678787
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 10:32 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/22/2016 21:13 Seattle WA 98124

MC13C

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AB	11/11/2016 21:48	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AB	11/11/2016 21:48	Matthew S Krause	1

Sample Description: MW-6B-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678788
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 10:31 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW6B1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	9.6	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	1.3	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.5	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1

Sample Description: MW-6B-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678788
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 10:31 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW6B1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.9	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.2	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

A preserved vial was submitted for analysis. However, the pH at the time of analysis was 4.

Wet Chemistry	SM 5310 C-2000	mg/l	mg/l
00273 Total Organic Carbon	n.a.	274	10.0

Sample Description: MW-6B-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678788
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 10:31 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/22/2016 21:13 Seattle WA 98124

MW6B1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 18:43	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 18:43	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667604A	11/09/2016 13:29	Drew M Gerhart	10

Sample Description: MW-6B-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678789
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 10:31 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW6B-

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Ethane	74-84-0	100 U	100	100
07105	Ethene	74-85-1	100 U	100	100
07105	Methane	74-82-8	23,000	300	100
Reporting limits were raised due to interference from the sample matrix.					
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.71 J	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	MEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 14:53	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 15:40	Alexandria M Lanager	1

Sample Description: MW-6A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678790
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 11:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW6A1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.3	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.5	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	1.9	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1

Sample Description: MW-6A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678790
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 11:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW6A1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	2.5	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.7	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
acrolein	-22
acetone	-21
4-methyl-2-pentanone	-23
2-hexanone	-21
trans-1,4-dichloro-2-butene	-21
hexachlorobutadiene	-21
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Since the analyst observed that the sample foamed while purging, an anti-foaming agent was added to the sample so that it could be analyzed at a lower dilution factor.

Wet Chemistry	SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	121	5.0

Sample Description: MW-6A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678790
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 11:21 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/22/2016 21:13 Seattle WA 98124

MW6A1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AB	11/11/2016 22:08	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AB	11/11/2016 22:08	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667604A	11/08/2016 18:37	Drew M Gerhart	5

Sample Description: MW-6A-161101 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678791
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016 11:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW6A-

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Ethane	74-84-0	100 U	100	100
07105	Ethene	74-85-1	100 U	100	100
07105	Methane	74-82-8	20,000	300	100
Reporting limits were raised due to interference from the sample matrix.					
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.47 J	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	MEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 15:10	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 17:30	Alexandria M Lanager	1

Sample Description: MW-16C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678792
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 09:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW16C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.0 U	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.4	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	1.9	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1

Sample Description: MW-16C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678792
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 09:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW16C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.2	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.3	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: MW-16C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678792
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 09:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/22/2016 21:13

MW16C

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 19:23	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 19:23	Kerri E Legerlotz	1

Sample Description: MW-16A-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678793
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 09:22 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW16A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	11	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	12	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	14	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.6	0.5	1

Sample Description: MW-16A-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678793
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 09:22 by SR

The Boeing Company

PO Box 3707

Submitted: 11/03/2016 09:30

MC 1W-12

Reported: 11/22/2016 21:13

Seattle WA 98124

MW16A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.6	0.2	1
11996	Toluene	108-88-3	0.4	0.2	1
11996	1,1,2,2,2-Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.3	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.5	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

A preserved vial was submitted for analysis. However, the pH at the time of analysis was 7.

Sample Description: MW-16A-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678793
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 09:22 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/22/2016 21:13 Seattle WA 98124

MW16A

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 21:26	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 21:26	Kerri E Legerlotz	1

Sample Description: MW-20C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678794
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:00 by SR

The Boeing Company
PO Box 3707
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Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW20C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	37	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.3	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.6	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1

Sample Description: MW-20C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678794
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:00 by SR

The Boeing Company

PO Box 3707

Submitted: 11/03/2016 09:30

MC 1W-12

Reported: 11/22/2016 21:13

Seattle WA 98124

MW20C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	180 E	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.5	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1
Trial ID: DL					
11996	Acetone	67-64-1	50 U	50	10
11996	Acrolein	107-02-8	250 U	250	10
11996	Acrylonitrile	107-13-1	50 U	50	10
11996	Benzene	71-43-2	2.0 U	2.0	10
11996	Bromobenzene	108-86-1	5.0 U	5.0	10
11996	Bromochloromethane	74-97-5	5.0 U	5.0	10
11996	Bromodichloromethane	75-27-4	5.0 U	5.0	10
11996	Bromoform	75-25-2	5.0 U	5.0	10
11996	Bromomethane	74-83-9	5.0 U	5.0	10
11996	2-Butanone	78-93-3	50 U	50	10
11996	n-Butylbenzene	104-51-8	5.0 U	5.0	10
11996	sec-Butylbenzene	135-98-8	5.0 U	5.0	10
11996	tert-Butylbenzene	98-06-6	5.0 U	5.0	10
11996	Carbon Disulfide	75-15-0	5.0 U	5.0	10
11996	Carbon Tetrachloride	56-23-5	2.0 U	2.0	10
11996	Chlorobenzene	108-90-7	5.0 U	5.0	10
11996	Chloroethane	75-00-3	5.0 U	5.0	10
11996	Chloroform	67-66-3	2.0 U	2.0	10
11996	Chloromethane	74-87-3	5.0 U	5.0	10
11996	2-Chlorotoluene	95-49-8	5.0 U	5.0	10
11996	4-Chlorotoluene	106-43-4	5.0 U	5.0	10
11996	1,2-Dibromo-3-chloropropane	96-12-8	5.0 U	5.0	10
11996	Dibromochloromethane	124-48-1	5.0 U	5.0	10
11996	Dibromomethane	74-95-3	5.0 U	5.0	10
11996	trans-1,4-Dichloro-2-butene	110-57-6	50 U	50	10
11996	1,2-Dichlorobenzene	95-50-1	5.0 U	5.0	10
11996	1,3-Dichlorobenzene	541-73-1	5.0 U	5.0	10

Sample Description: MW-20C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678794
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:00 by SR

The Boeing Company

PO Box 3707

Submitted: 11/03/2016 09:30

MC 1W-12

Reported: 11/22/2016 21:13

Seattle WA 98124

MW20C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	1,4-Dichlorobenzene	106-46-7	5.0 U	5.0	10
11996	1,1-Dichloroethane	75-34-3	5.0 U	5.0	10
11996	1,2-Dichloroethane	107-06-2	2.0 U	2.0	10
11996	1,1-Dichloroethene	75-35-4	2.0 U	2.0	10
11996	cis-1,2-Dichloroethene	156-59-2	2.0 U	2.0	10
11996	trans-1,2-Dichloroethene	156-60-5	2.0 U	2.0	10
11996	1,2-Dichloropropane	78-87-5	5.0 U	5.0	10
11996	1,3-Dichloropropane	142-28-9	5.0 U	5.0	10
11996	2,2-Dichloropropane	594-20-7	5.0 U	5.0	10
11996	1,1-Dichloropropene	563-58-6	5.0 U	5.0	10
11996	cis-1,3-Dichloropropene	10061-01-5	2.0 U	2.0	10
11996	trans-1,3-Dichloropropene	10061-02-6	2.0 U	2.0	10
11996	Ethylbenzene	100-41-4	5.0 U	5.0	10
11996	Ethylene dibromide	106-93-4	5.0 U	5.0	10
11996	Hexachlorobutadiene	87-68-3	5.0 U	5.0	10
11996	2-Hexanone	591-78-6	50 U	50	10
11996	Isopropylbenzene	98-82-8	5.0 U	5.0	10
11996	4-Isopropyltoluene	99-87-6	5.0 U	5.0	10
11996	Methyl Iodide	74-88-4	5.0 U	5.0	10
11996	4-Methyl-2-pentanone	108-10-1	50 U	50	10
11996	Methylene Chloride	75-09-2	5.0 U	5.0	10
11996	Naphthalene	91-20-3	5.0 U	5.0	10
11996	n-Propylbenzene	103-65-1	5.0 U	5.0	10
11996	Styrene	100-42-5	5.0 U	5.0	10
11996	1,1,1,2-Tetrachloroethane	630-20-6	5.0 U	5.0	10
11996	1,1,2,2-Tetrachloroethane	79-34-5	2.0 U	2.0	10
11996	Tetrachloroethene	127-18-4	2.0 U	2.0	10
11996	Toluene	108-88-3	240	2.0	10
11996	1,1,2,2-Trichloroethane	76-13-1	5.0 U	5.0	10
11996	1,2,3-Trichlorobenzene	87-61-6	5.0 U	5.0	10
11996	1,2,4-Trichlorobenzene	120-82-1	5.0 U	5.0	10
11996	1,1,1-Trichloroethane	71-55-6	5.0 U	5.0	10
11996	1,1,2-Trichloroethane	79-00-5	2.0 U	2.0	10
11996	Trichloroethene	79-01-6	2.0 U	2.0	10
11996	Trichlorofluoromethane	75-69-4	5.0 U	5.0	10
11996	1,2,3-Trichloropropane	96-18-4	10 U	10	10
11996	1,2,4-Trimethylbenzene	95-63-6	5.0 U	5.0	10
11996	1,3,5-Trimethylbenzene	108-67-8	5.0 U	5.0	10
11996	Vinyl Acetate	108-05-4	5.0 U	5.0	10
11996	Vinyl Chloride	75-01-4	2.0 U	2.0	10
11996	m,p-Xylene	179601-23-1	5.0 U	5.0	10
11996	o-Xylene	95-47-6	5.0 U	5.0	10

Trial ID: RE

11996	Acetone	67-64-1	12	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1

Sample Description: MW-20C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678794
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:00 by SR

The Boeing Company

PO Box 3707

Submitted: 11/03/2016 09:30

MC 1W-12

Reported: 11/22/2016 21:13

Seattle WA 98124

MW20C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.3	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	110 E	0.2	1

Sample Description: MW-20C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678794
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:00 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/22/2016 21:13 Seattle WA 98124

MW20C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.2	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample in the initial and diluted trials.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

The GC/MS volatile internal standard peak areas listed below are outside the acceptance criteria of -50% to +100% for both the initial analysis and the diluted analysis.

Internal Standard - Initial Analysis % Recovery
tert-Butyl Alcohol-d10 -59

Internal Standard - Diluted analysis % Recovery
tert-Butyl Alcohol-d10 -53

The analysis was repeated and the continuing calibration verification standard bracketing the sample on the re-analysis trial is also outside the acceptance limits.

The affected analyte(s) and response(s) are:

Sample Description: MW-20C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678794
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:00 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/22/2016 21:13 Seattle WA 98124

MW20C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
	Analyte		Response (%Drift)		
	acrolein		-22		
	acetone		-21		
	4-methyl-2-pentanone		-23		
	2-hexanone		-21		
	trans-1,4-dichloro-2-butene		-21		
	hexachlorobutadiene		-21		
	1,2,3-trichlorobenzene		-21		

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The reported concentration in the re-analysis trial of the associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated: acetone.

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 20:04	Kerri E Legerlotz	1
11996	8260C Boeing 69	SW-846 8260C	2-DL	H163151AA	11/10/2016 20:24	Kerri E Legerlotz	10
11996	8260C Boeing 69	SW-846 8260C	3-RE	H163151AB	11/11/2016 20:47	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 20:04	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	H163151AA	11/10/2016 20:24	Kerri E Legerlotz	10
01163	GC/MS VOA Water Prep	SW-846 5030B	3	H163151AB	11/11/2016 20:47	Matthew S Krause	1

Sample Description: MW-15C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678795
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:51 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW15C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	6.9	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.9	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	1.7	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.7	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1

Sample Description: MW-15C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678795
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:51 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW15C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.5	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.3	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.7	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

A preserved vial was submitted for analysis. However, the pH at the time of analysis was 3.

Sample Description: MW-15C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678795
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:51 by SR The Boeing Company
Submitted: 11/03/2016 09:30 PO Box 3707
Reported: 11/22/2016 21:13 MC 1W-12
Seattle WA 98124

MW15C

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 19:44	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 19:44	Kerri E Legerlotz	1

Sample Description: MW-22A-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678796
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW22A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	8.0	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	7.1	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	1.4	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.5	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	1.5	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	75 E	0.5	1

Sample Description: MW-22A-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678796
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:06 by SR

The Boeing Company

PO Box 3707

Submitted: 11/03/2016 09:30

MC 1W-12

Reported: 11/22/2016 21:13

Seattle WA 98124

MW22A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	1.2	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	2.1	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
11996	m,p-Xylene	179601-23-1	1.1	0.5	1
11996	o-Xylene	95-47-6	1.4	0.5	1
Trial ID: DL					
11996	Acetone	67-64-1	50 U	50	10
11996	Acrolein	107-02-8	250 U	250	10
11996	Acrylonitrile	107-13-1	50 U	50	10
11996	Benzene	71-43-2	2.0 U	2.0	10
11996	Bromobenzene	108-86-1	5.0 U	5.0	10
11996	Bromochloromethane	74-97-5	5.0 U	5.0	10
11996	Bromodichloromethane	75-27-4	5.0 U	5.0	10
11996	Bromoform	75-25-2	5.0 U	5.0	10
11996	Bromomethane	74-83-9	5.0 U	5.0	10
11996	2-Butanone	78-93-3	50 U	50	10
11996	n-Butylbenzene	104-51-8	5.0 U	5.0	10
11996	sec-Butylbenzene	135-98-8	5.0 U	5.0	10
11996	tert-Butylbenzene	98-06-6	5.0 U	5.0	10
11996	Carbon Disulfide	75-15-0	5.0 U	5.0	10
11996	Carbon Tetrachloride	56-23-5	2.0 U	2.0	10
11996	Chlorobenzene	108-90-7	5.0 U	5.0	10
11996	Chloroethane	75-00-3	5.0 U	5.0	10
11996	Chloroform	67-66-3	2.0 U	2.0	10
11996	Chloromethane	74-87-3	5.0 U	5.0	10
11996	2-Chlorotoluene	95-49-8	5.0 U	5.0	10
11996	4-Chlorotoluene	106-43-4	5.0 U	5.0	10
11996	1,2-Dibromo-3-chloropropane	96-12-8	5.0 U	5.0	10
11996	Dibromochloromethane	124-48-1	5.0 U	5.0	10
11996	Dibromomethane	74-95-3	5.0 U	5.0	10
11996	trans-1,4-Dichloro-2-butene	110-57-6	50 U	50	10
11996	1,2-Dichlorobenzene	95-50-1	5.0 U	5.0	10
11996	1,3-Dichlorobenzene	541-73-1	5.0 U	5.0	10

Sample Description: MW-22A-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678796
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW22A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	1,4-Dichlorobenzene	106-46-7	5.0 U	5.0	10
11996	1,1-Dichloroethane	75-34-3	5.0 U	5.0	10
11996	1,2-Dichloroethane	107-06-2	2.0 U	2.0	10
11996	1,1-Dichloroethene	75-35-4	2.0 U	2.0	10
11996	cis-1,2-Dichloroethene	156-59-2	2.0 U	2.0	10
11996	trans-1,2-Dichloroethene	156-60-5	2.0 U	2.0	10
11996	1,2-Dichloropropane	78-87-5	5.0 U	5.0	10
11996	1,3-Dichloropropane	142-28-9	5.0 U	5.0	10
11996	2,2-Dichloropropane	594-20-7	5.0 U	5.0	10
11996	1,1-Dichloropropene	563-58-6	5.0 U	5.0	10
11996	cis-1,3-Dichloropropene	10061-01-5	2.0 U	2.0	10
11996	trans-1,3-Dichloropropene	10061-02-6	2.0 U	2.0	10
11996	Ethylbenzene	100-41-4	5.0 U	5.0	10
11996	Ethylene dibromide	106-93-4	5.0 U	5.0	10
11996	Hexachlorobutadiene	87-68-3	5.0 U	5.0	10
11996	2-Hexanone	591-78-6	50 U	50	10
11996	Isopropylbenzene	98-82-8	5.0 U	5.0	10
11996	4-Isopropyltoluene	99-87-6	5.0 U	5.0	10
11996	Methyl Iodide	74-88-4	5.0 U	5.0	10
11996	4-Methyl-2-pentanone	108-10-1	50 U	50	10
11996	Methylene Chloride	75-09-2	5.0 U	5.0	10
11996	Naphthalene	91-20-3	110	5.0	10
11996	n-Propylbenzene	103-65-1	5.0 U	5.0	10
11996	Styrene	100-42-5	5.0 U	5.0	10
11996	1,1,1,2-Tetrachloroethane	630-20-6	5.0 U	5.0	10
11996	1,1,2,2-Tetrachloroethane	79-34-5	2.0 U	2.0	10
11996	Tetrachloroethene	127-18-4	2.0 U	2.0	10
11996	Toluene	108-88-3	2.0 U	2.0	10
11996	112Trichloro122Trifluoroethane	76-13-1	5.0 U	5.0	10
11996	1,2,3-Trichlorobenzene	87-61-6	5.0 U	5.0	10
11996	1,2,4-Trichlorobenzene	120-82-1	5.0 U	5.0	10
11996	1,1,1-Trichloroethane	71-55-6	5.0 U	5.0	10
11996	1,1,2-Trichloroethane	79-00-5	2.0 U	2.0	10
11996	Trichloroethene	79-01-6	2.0 U	2.0	10
11996	Trichlorofluoromethane	75-69-4	5.0 U	5.0	10
11996	1,2,3-Trichloropropane	96-18-4	10 U	10	10
11996	1,2,4-Trimethylbenzene	95-63-6	5.0 U	5.0	10
11996	1,3,5-Trimethylbenzene	108-67-8	5.0 U	5.0	10
11996	Vinyl Acetate	108-05-4	5.0 U	5.0	10
11996	Vinyl Chloride	75-01-4	2.0 U	2.0	10
11996	m,p-Xylene	179601-23-1	5.0 U	5.0	10
11996	o-Xylene	95-47-6	5.0 U	5.0	10

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample in the initial trial.

The affected analyte(s) and response(s) are:

Analyte Response (%Drift)

Sample Description: MW-22A-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678796
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:06 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/22/2016 21:13 Seattle WA 98124

MW22A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
	acrolein	-22			
	acetone	-21			
	4-methyl-2-pentanone	-23			
	2-hexanone	-21			
	trans-1,4-dichloro-2-butene	-21			
	hexachlorobutadiene	-21			
	1,2,3-trichlorobenzene	-21			

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The reported concentration in the initial trial of the associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated: acetone and 4-methyl-2-pentanone.

A preserved vial was submitted for analysis. However, the pH at the time of analysis was 7.

Since the analyst observed that the sample foamed while purging, an anti-foaming agent was added to the sample so that it could be analyzed at a lower dilution factor.

The analysis was repeated and the continuing calibration verification standard bracketing the sample on the diluted trial is also outside the acceptance limits.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

Wet Chemistry	SM 5310 C-2000	mg/l	mg/l	
00273 Total Organic Carbon	n.a.	542	50.0	50

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: MW-22A-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678796
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/22/2016 21:13

MW22A

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AB	11/11/2016 21:07	Matthew S Krause	1
11996	8260C Boeing 69	SW-846 8260C	2-DL	H163151AA	11/10/2016 21:05	Kerri E Legerlotz	10
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AB	11/11/2016 21:07	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	2	H163151AA	11/10/2016 21:05	Kerri E Legerlotz	10
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667604B	11/08/2016 19:29	Drew M Gerhart	50

Sample Description: MW-22A-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678797
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 10:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/22/2016 21:13

MW22-

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Ethane	74-84-0	100 U	100	100
07105	Ethene	74-85-1	100 U	100	100
07105	Methane	74-82-8	18,000	300	100
Reporting limits were raised due to interference from the sample matrix.					
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	MEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 15:26	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 18:01	Alexandria M Lanager	1

Sample Description: MW-14C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678798
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 11:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW14C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.0 U	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1

Sample Description: MW-14C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678798
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 11:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

MW14C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.2 U	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: MW-14C-161102 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678798
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/02/2016 11:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/22/2016 21:13

MW14C

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 17:42	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 17:42	Kerri E Legerlotz	1

Sample Description: Trip Blank Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678799
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

TBDC1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Acetone	67-64-1	5.0 U	5.0	1
11996	Acrolein	107-02-8	25 U	25	1
11996	Acrylonitrile	107-13-1	5.0 U	5.0	1
11996	Benzene	71-43-2	0.2 U	0.2	1
11996	Bromobenzene	108-86-1	0.5 U	0.5	1
11996	Bromochloromethane	74-97-5	0.5 U	0.5	1
11996	Bromodichloromethane	75-27-4	0.5 U	0.5	1
11996	Bromoform	75-25-2	0.5 U	0.5	1
11996	Bromomethane	74-83-9	0.5 U	0.5	1
11996	2-Butanone	78-93-3	5.0 U	5.0	1
11996	n-Butylbenzene	104-51-8	0.5 U	0.5	1
11996	sec-Butylbenzene	135-98-8	0.5 U	0.5	1
11996	tert-Butylbenzene	98-06-6	0.5 U	0.5	1
11996	Carbon Disulfide	75-15-0	0.5 U	0.5	1
11996	Carbon Tetrachloride	56-23-5	0.2 U	0.2	1
11996	Chlorobenzene	108-90-7	0.5 U	0.5	1
11996	Chloroethane	75-00-3	0.5 U	0.5	1
11996	Chloroform	67-66-3	0.2 U	0.2	1
11996	Chloromethane	74-87-3	0.5 U	0.5	1
11996	2-Chlorotoluene	95-49-8	0.5 U	0.5	1
11996	4-Chlorotoluene	106-43-4	0.5 U	0.5	1
11996	1,2-Dibromo-3-chloropropane	96-12-8	0.5 U	0.5	1
11996	Dibromochloromethane	124-48-1	0.5 U	0.5	1
11996	Dibromomethane	74-95-3	0.5 U	0.5	1
11996	trans-1,4-Dichloro-2-butene	110-57-6	5.0 U	5.0	1
11996	1,2-Dichlorobenzene	95-50-1	0.5 U	0.5	1
11996	1,3-Dichlorobenzene	541-73-1	0.5 U	0.5	1
11996	1,4-Dichlorobenzene	106-46-7	0.5 U	0.5	1
11996	1,1-Dichloroethane	75-34-3	0.5 U	0.5	1
11996	1,2-Dichloroethane	107-06-2	0.2 U	0.2	1
11996	1,1-Dichloroethene	75-35-4	0.2 U	0.2	1
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.2 U	0.2	1
11996	1,2-Dichloropropane	78-87-5	0.5 U	0.5	1
11996	1,3-Dichloropropane	142-28-9	0.5 U	0.5	1
11996	2,2-Dichloropropane	594-20-7	0.5 U	0.5	1
11996	1,1-Dichloropropene	563-58-6	0.5 U	0.5	1
11996	cis-1,3-Dichloropropene	10061-01-5	0.2 U	0.2	1
11996	trans-1,3-Dichloropropene	10061-02-6	0.2 U	0.2	1
11996	Ethylbenzene	100-41-4	0.5 U	0.5	1
11996	Ethylene dibromide	106-93-4	0.5 U	0.5	1
11996	Hexachlorobutadiene	87-68-3	0.5 U	0.5	1
11996	2-Hexanone	591-78-6	5.0 U	5.0	1
11996	Isopropylbenzene	98-82-8	0.5 U	0.5	1
11996	4-Isopropyltoluene	99-87-6	0.5 U	0.5	1
11996	Methyl Iodide	74-88-4	0.5 U	0.5	1
11996	4-Methyl-2-pentanone	108-10-1	5.0 U	5.0	1
11996	Methylene Chloride	75-09-2	0.5 U	0.5	1
11996	Naphthalene	91-20-3	0.5 U	0.5	1
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1

Sample Description: Trip Blank Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678799
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/22/2016 21:13

TBDC1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	Styrene	100-42-5	0.5 U	0.5	1
11996	1,1,1,2-Tetrachloroethane	630-20-6	0.5 U	0.5	1
11996	1,1,2,2-Tetrachloroethane	79-34-5	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Toluene	108-88-3	0.2 U	0.2	1
11996	112Trichloro122Trifluoroethane	76-13-1	0.5 U	0.5	1
11996	1,2,3-Trichlorobenzene	87-61-6	0.5 U	0.5	1
11996	1,2,4-Trichlorobenzene	120-82-1	0.5 U	0.5	1
11996	1,1,1-Trichloroethane	71-55-6	0.5 U	0.5	1
11996	1,1,2-Trichloroethane	79-00-5	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Trichlorofluoromethane	75-69-4	0.5 U	0.5	1
11996	1,2,3-Trichloropropane	96-18-4	1.0 U	1.0	1
11996	1,2,4-Trimethylbenzene	95-63-6	0.5 U	0.5	1
11996	1,3,5-Trimethylbenzene	108-67-8	0.5 U	0.5	1
11996	Vinyl Acetate	108-05-4	0.5 U	0.5	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
11996	m,p-Xylene	179601-23-1	0.5 U	0.5	1
11996	o-Xylene	95-47-6	0.5 U	0.5	1

The referenced method allows a maximum of 20% of the analytes in the calibration to exceed the 20% Drift continuing calibration verification criteria. The Analyte(s) exceeding 20% Drift is not detected in this sample.

The affected analyte(s) and response(s) are:

Analyte	Response (%Drift)
chloromethane	-24
acrolein	-24
4-methyl-2-pentanone	-26
2-hexanone	-25
trans-1,4-dichloro-2-butene	-29
1,2,3-trichlorobenzene	-21

A Method Detection Limit (MDL) standard is analyzed to confirm sensitivity of the instrument for samples with non-detect analytes associated with a continuing calibration verification standard exhibiting low response (outside the 20%D criteria). The MDL standard shows adequate sensitivity at or below the reporting limit.

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Sample Description: Trip Blank Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8678799
LL Group # 1728897
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 11/01/2016

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/22/2016 21:13

TBDC1

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C Boeing 69	SW-846 8260C	1	H163151AA	11/10/2016 13:55	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163151AA	11/10/2016 13:55	Kerri E Legerlotz	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ
	ug/l	ug/l
Batch number: H163151AA	Sample number(s):	8678782, 8678784-8678786, 8678788, 8678792-8678796, 8678798-8678799
Acetone	5.0 U	5.0
Acrolein	25 U	25
Acrylonitrile	5.0 U	5.0
Benzene	0.2 U	0.2
Bromobenzene	0.5 U	0.5
Bromochloromethane	0.5 U	0.5
Bromodichloromethane	0.5 U	0.5
Bromoform	0.5 U	0.5
Bromomethane	0.5 U	0.5
2-Butanone	5.0 U	5.0
n-Butylbenzene	0.5 U	0.5
sec-Butylbenzene	0.5 U	0.5
tert-Butylbenzene	0.5 U	0.5
Carbon Disulfide	0.5 U	0.5
Carbon Tetrachloride	0.2 U	0.2
Chlorobenzene	0.5 U	0.5
Chloroethane	0.5 U	0.5
Chloroform	0.2 U	0.2
Chloromethane	0.5 U	0.5
2-Chlorotoluene	0.5 U	0.5
4-Chlorotoluene	0.5 U	0.5
1,2-Dibromo-3-chloropropane	0.5 U	0.5
Dibromochloromethane	0.5 U	0.5
Dibromomethane	0.5 U	0.5
trans-1,4-Dichloro-2-butene	5.0 U	5.0
1,2-Dichlorobenzene	0.5 U	0.5
1,3-Dichlorobenzene	0.5 U	0.5
1,4-Dichlorobenzene	0.5 U	0.5
1,1-Dichloroethane	0.5 U	0.5
1,2-Dichloroethane	0.2 U	0.2
1,1-Dichloroethene	0.2 U	0.2
cis-1,2-Dichloroethene	0.2 U	0.2
trans-1,2-Dichloroethene	0.2 U	0.2
1,2-Dichloropropane	0.5 U	0.5
1,3-Dichloropropane	0.5 U	0.5
2,2-Dichloropropane	0.5 U	0.5
1,1-Dichloropropene	0.5 U	0.5
cis-1,3-Dichloropropene	0.2 U	0.2
trans-1,3-Dichloropropene	0.2 U	0.2
Ethylbenzene	0.5 U	0.5

*- Outside of specification

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Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

Method Blank (continued)

Analysis Name	Result	LOQ
	ug/l	ug/l
Ethylene dibromide	0.5 U	0.5
Hexachlorobutadiene	0.5 U	0.5
2-Hexanone	5.0 U	5.0
Isopropylbenzene	0.5 U	0.5
4-Isopropyltoluene	0.5 U	0.5
Methyl Iodide	0.5 U	0.5
4-Methyl-2-pentanone	5.0 U	5.0
Methylene Chloride	0.5 U	0.5
Naphthalene	0.5 U	0.5
n-Propylbenzene	0.5 U	0.5
Styrene	0.5 U	0.5
1,1,1,2-Tetrachloroethane	0.5 U	0.5
1,1,2,2-Tetrachloroethane	0.2 U	0.2
Tetrachloroethene	0.2 U	0.2
Toluene	0.2 U	0.2
112Trichloro122Trifluoroethane	0.5 U	0.5
1,2,3-Trichlorobenzene	0.5 U	0.5
1,2,4-Trichlorobenzene	0.5 U	0.5
1,1,1-Trichloroethane	0.5 U	0.5
1,1,2-Trichloroethane	0.2 U	0.2
Trichloroethene	0.2 U	0.2
Trichlorofluoromethane	0.5 U	0.5
1,2,3-Trichloropropane	1.0 U	1.0
1,2,4-Trimethylbenzene	0.5 U	0.5
1,3,5-Trimethylbenzene	0.5 U	0.5
Vinyl Acetate	0.5 U	0.5
Vinyl Chloride	0.2 U	0.2
m,p-Xylene	0.5 U	0.5
o-Xylene	0.5 U	0.5
Batch number: H163151AB	Sample number (s):	8678781, 8678787, 8678790, 8678794, 8678796
Acetone	5.0 U	5.0
Acrolein	25 U	25
Acrylonitrile	5.0 U	5.0
Benzene	0.2 U	0.2
Bromobenzene	0.5 U	0.5
Bromochloromethane	0.5 U	0.5
Bromodichloromethane	0.5 U	0.5
Bromoform	0.5 U	0.5
Bromomethane	0.5 U	0.5
2-Butanone	5.0 U	5.0
n-Butylbenzene	0.5 U	0.5
sec-Butylbenzene	0.5 U	0.5
tert-Butylbenzene	0.5 U	0.5
Carbon Disulfide	0.5 U	0.5
Carbon Tetrachloride	0.2 U	0.2
Chlorobenzene	0.5 U	0.5
Chloroethane	0.5 U	0.5

*- Outside of specification

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Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

Method Blank (continued)

Analysis Name	Result	LOQ
	ug/1	ug/1
Chloroform	0.2 U	0.2
Chloromethane	0.5 U	0.5
2-Chlorotoluene	0.5 U	0.5
4-Chlorotoluene	0.5 U	0.5
1,2-Dibromo-3-chloropropane	0.5 U	0.5
Dibromochloromethane	0.5 U	0.5
Dibromomethane	0.5 U	0.5
trans-1,4-Dichloro-2-butene	5.0 U	5.0
1,2-Dichlorobenzene	0.5 U	0.5
1,3-Dichlorobenzene	0.5 U	0.5
1,4-Dichlorobenzene	0.5 U	0.5
1,1-Dichloroethane	0.5 U	0.5
1,2-Dichloroethane	0.2 U	0.2
1,1-Dichloroethene	0.2 U	0.2
cis-1,2-Dichloroethene	0.2 U	0.2
trans-1,2-Dichloroethene	0.2 U	0.2
1,2-Dichloropropane	0.5 U	0.5
1,3-Dichloropropane	0.5 U	0.5
2,2-Dichloropropane	0.5 U	0.5
1,1-Dichloropropene	0.5 U	0.5
cis-1,3-Dichloropropene	0.2 U	0.2
trans-1,3-Dichloropropene	0.2 U	0.2
Ethylbenzene	0.5 U	0.5
Ethylene dibromide	0.5 U	0.5
Hexachlorobutadiene	0.5 U	0.5
2-Hexanone	5.0 U	5.0
Isopropylbenzene	0.5 U	0.5
4-Isopropyltoluene	0.5 U	0.5
Methyl Iodide	0.5 U	0.5
4-Methyl-2-pentanone	5.0 U	5.0
Methylene Chloride	0.5 U	0.5
Naphthalene	0.5 U	0.5
n-Propylbenzene	0.5 U	0.5
Styrene	0.5 U	0.5
1,1,1,2-Tetrachloroethane	0.5 U	0.5
1,1,2,2-Tetrachloroethane	0.2 U	0.2
Tetrachloroethene	0.2 U	0.2
Toluene	0.2 U	0.2
112Trichloro122Trifluoroethane	0.5 U	0.5
1,2,3-Trichlorobenzene	0.5 U	0.5
1,2,4-Trichlorobenzene	0.5 U	0.5
1,1,1-Trichloroethane	0.5 U	0.5
1,1,2-Trichloroethane	0.2 U	0.2
Trichloroethene	0.2 U	0.2
Trichlorofluoromethane	0.5 U	0.5
1,2,3-Trichloropropane	1.0 U	1.0
1,2,4-Trimethylbenzene	0.5 U	0.5
1,3,5-Trimethylbenzene	0.5 U	0.5

*- Outside of specification

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Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

Method Blank (continued)

Analysis Name	Result	LOQ
	ug/l	ug/l
Vinyl Acetate	0.5 U	0.5
Vinyl Chloride	0.2 U	0.2
m,p-Xylene	0.5 U	0.5
o-Xylene	0.5 U	0.5
Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 163120012A	Sample number(s): 8678783, 8678789, 8678791, 8678797	
Ethane	1.0 U	1.0
Ethene	1.0 U	1.0
Methane	3.0 U	3.0
Analysis Name	Result	LOQ
	mg/l	mg/l
Batch number: 16312667604A	Sample number(s): 8678782, 8678788, 8678790	
Total Organic Carbon	1.0 U	1.0
Batch number: 16312667604B	Sample number(s): 8678796	
Total Organic Carbon	1.0 U	1.0
Analysis Name	Result	MDL
	mg/l	mg/l
Batch number: 16320972601A	Sample number(s): 8678783, 8678789	
Sulfate	0.30 U	0.30
Batch number: 16320972601B	Sample number(s): 8678791, 8678797	
Sulfate	0.30 U	0.30

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: H163151AA	Sample number(s): 8678782, 8678784-8678786, 8678788, 8678792-8678796, 8678798-8678799								
Acetone	37.5	30.56			82		65-130		
Acrolein	37.5	28.18			75		34-144		
Acrylonitrile	25	23.27			93		68-135		
Benzene	5.00	5.01			100		80-120		
Bromobenzene	5.00	4.76			95		80-120		
Bromochloromethane	5.00	4.97			99		80-125		
Bromodichloromethane	5.00	5.03			101		80-120		
Bromoform	5.00	4.75			95		62-128		
Bromomethane	5.00	3.90			78		62-131		
2-Butanone	37.5	31.39			84		66-135		
n-Butylbenzene	5.00	4.96			99		80-120		

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Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
sec-Butylbenzene	5.00	4.80			96		80-120		
tert-Butylbenzene	5.00	4.71			94		80-120		
Carbon Disulfide	5.00	4.87			97		65-120		
Carbon Tetrachloride	5.00	4.57			91		79-124		
Chlorobenzene	5.00	4.81			96		80-120		
Chloroethane	5.00	3.83			77		63-125		
Chloroform	5.00	4.64			93		80-120		
Chloromethane	5.00	3.30			66		55-126		
2-Chlorotoluene	5.00	4.84			97		80-120		
4-Chlorotoluene	5.00	4.92			98		80-120		
1,2-Dibromo-3-chloropropane	5.00	4.28			86		63-134		
Dibromochloromethane	5.00	4.82			96		78-127		
Dibromomethane	5.00	5.19			104		80-122		
trans-1,4-Dichloro-2-butene	25	18.13			73		10-188		
1,2-Dichlorobenzene	5.00	4.67			93		80-120		
1,3-Dichlorobenzene	5.00	4.75			95		80-120		
1,4-Dichlorobenzene	5.00	4.62			92		80-120		
1,1-Dichloroethane	5.00	4.83			97		75-120		
1,2-Dichloroethane	5.00	4.65			93		72-127		
1,1-Dichloroethene	5.00	4.96			99		76-120		
cis-1,2-Dichloroethene	5.00	4.84			97		80-120		
trans-1,2-Dichloroethene	5.00	4.96			99		80-120		
1,2-Dichloropropane	5.00	5.16			103		80-120		
1,3-Dichloropropane	5.00	4.93			99		80-120		
2,2-Dichloropropane	5.00	4.45			89		73-121		
1,1-Dichloropropene	5.00	4.53			91		77-120		
cis-1,3-Dichloropropene	5.00	5.21			104		80-124		
trans-1,3-Dichloropropene	5.00	5.09			102		77-121		
Ethylbenzene	5.00	4.64			93		80-120		
Ethylene dibromide	5.00	5.17			103		80-120		
Hexachlorobutadiene	5.00	4.18			84		69-120		
2-Hexanone	25	18.98			76		73-128		
Isopropylbenzene	5.00	4.52			90		80-120		
4-Isopropyltoluene	5.00	4.70			94		80-120		
Methyl Iodide	5.00	4.56			91		75-120		
4-Methyl-2-pentanone	25	22.73			91		71-129		
Methylene Chloride	5.00	4.99			100		80-120		
Naphthalene	5.00	4.34			87		64-123		
n-Propylbenzene	5.00	4.87			97		79-120		
Styrene	5.00	4.96			99		80-120		
1,1,1,2-Tetrachloroethane	5.00	4.66			93		80-120		
1,1,2,2-Tetrachloroethane	5.00	5.24			105		75-123		
Tetrachloroethene	5.00	4.43			89		80-120		
Toluene	5.00	4.78			96		80-120		
1,1,2,2-Trichloroethane	5.00	4.74			95		75-120		
1,2,3-Trichlorobenzene	5.00	3.93			79		66-120		
1,2,4-Trichlorobenzene	5.00	4.13			83		67-120		

*- Outside of specification

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Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
1,1,1-Trichloroethane	5.00	4.34			87		79-120		
1,1,2-Trichloroethane	5.00	5.04			101		80-120		
Trichloroethene	5.00	4.86			97		80-120		
Trichlorofluoromethane	5.00	3.83			77		71-131		
1,2,3-Trichloropropane	5.00	5.07			101		80-125		
1,2,4-Trimethylbenzene	5.00	4.78			96		80-120		
1,3,5-Trimethylbenzene	5.00	4.84			97		80-120		
Vinyl Acetate	12.5	12.49			100		63-122		
Vinyl Chloride	5.00	3.66			73		62-128		
m,p-Xylene	10	9.51			95		80-120		
o-Xylene	5.00	4.59			92		80-120		
Batch number: H163151AB	Sample number(s) : 8678781,8678787,8678790,8678794,8678796								
Acetone	37.5	30.09			80		65-130		
Acrolein	37.5	24.92			66		34-144		
Acrylonitrile	25	21.45			86		68-135		
Benzene	5.00	5.18			104		80-120		
Bromobenzene	5.00	5.03			101		80-120		
Bromochloromethane	5.00	5.01			100		80-125		
Bromodichloromethane	5.00	5.35			107		80-120		
Bromoform	5.00	5.07			101		62-128		
Bromomethane	5.00	3.89			78		62-131		
2-Butanone	37.5	30.59			82		66-135		
n-Butylbenzene	5.00	5.19			104		80-120		
sec-Butylbenzene	5.00	4.93			99		80-120		
tert-Butylbenzene	5.00	5.20			104		80-120		
Carbon Disulfide	5.00	4.91			98		65-120		
Carbon Tetrachloride	5.00	4.73			95		79-124		
Chlorobenzene	5.00	5.07			101		80-120		
Chloroethane	5.00	3.91			78		63-125		
Chloroform	5.00	4.81			96		80-120		
Chloromethane	5.00	3.29			66		55-126		
2-Chlorotoluene	5.00	5.11			102		80-120		
4-Chlorotoluene	5.00	5.12			102		80-120		
1,2-Dibromo-3-chloropropane	5.00	4.04			81		63-134		
Dibromochloromethane	5.00	5.31			106		78-127		
Dibromomethane	5.00	5.40			108		80-122		
trans-1,4-Dichloro-2-butene	25	18.77			75		10-188		
1,2-Dichlorobenzene	5.00	4.93			99		80-120		
1,3-Dichlorobenzene	5.00	4.93			99		80-120		
1,4-Dichlorobenzene	5.00	4.86			97		80-120		
1,1-Dichloroethane	5.00	4.97			99		75-120		
1,2-Dichloroethane	5.00	4.96			99		72-127		
1,1-Dichloroethene	5.00	5.02			100		76-120		
cis-1,2-Dichloroethene	5.00	5.01			100		80-120		
trans-1,2-Dichloroethene	5.00	5.14			103		80-120		
1,2-Dichloropropane	5.00	5.39			108		80-120		
1,3-Dichloropropane	5.00	5.25			105		80-120		

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Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

LCS/LCSD (continued)

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
2,2-Dichloropropane	5.00	4.59			92		73-121		
1,1-Dichloropropene	5.00	4.62			92		77-120		
cis-1,3-Dichloropropene	5.00	5.55			111		80-124		
trans-1,3-Dichloropropene	5.00	5.47			109		77-121		
Ethylbenzene	5.00	4.91			98		80-120		
Ethylene dibromide	5.00	5.55			111		80-120		
Hexachlorobutadiene	5.00	4.24			85		69-120		
2-Hexanone	25	19.6			78		73-128		
Isopropylbenzene	5.00	4.80			96		80-120		
4-Isopropyltoluene	5.00	4.84			97		80-120		
Methyl Iodide	5.00	4.65			93		75-120		
4-Methyl-2-pentanone	25	19.25			77		71-129		
Methylene Chloride	5.00	5.13			103		80-120		
Naphthalene	5.00	4.51			90		64-123		
n-Propylbenzene	5.00	5.07			101		79-120		
Styrene	5.00	5.31			106		80-120		
1,1,1,2-Tetrachloroethane	5.00	4.85			97		80-120		
1,1,2,2-Tetrachloroethane	5.00	5.48			110		75-123		
Tetrachloroethene	5.00	4.79			96		80-120		
Toluene	5.00	4.99			100		80-120		
1,1,2-Trichloro-1,1,2,2-Tetrafluoroethane	5.00	4.73			95		75-120		
1,2,3-Trichlorobenzene	5.00	4.02			80		66-120		
1,2,4-Trichlorobenzene	5.00	4.36			87		67-120		
1,1,1-Trichloroethane	5.00	4.47			89		79-120		
1,1,2-Trichloroethane	5.00	5.39			108		80-120		
Trichloroethene	5.00	5.03			101		80-120		
Trichlorofluoromethane	5.00	3.89			78		71-131		
1,2,3-Trichloropropane	5.00	5.37			107		80-125		
1,2,4-Trimethylbenzene	5.00	5.01			100		80-120		
1,3,5-Trimethylbenzene	5.00	5.02			100		80-120		
Vinyl Acetate	12.5	11.95			96		63-122		
Vinyl Chloride	5.00	3.58			72		62-128		
m,p-Xylene	10	10.02			100		80-120		
o-Xylene	5.00	4.85			97		80-120		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 163120012A	Sample number(s): 8678783,8678789,8678791,8678797								
Ethane	59.2	60.47			102		85-115		
Ethene	60.8	62.26			102		83-115		
Methane	59.8	63.51			106		85-115		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16312667604A	Sample number(s): 8678782,8678788,8678790								
Total Organic Carbon	25	26.05			104		91-113		
Batch number: 16312667604B	Sample number(s): 8678796								
Total Organic Carbon	25	26.05			104		91-113		

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Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 16320972601A Sulfate	7.50	7.47			100		90-110		
Sample number(s): 8678783,8678789									
Batch number: 16320972601B Sulfate	7.50	7.47			100		90-110		
Sample number(s): 8678791,8678797									

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max	
Batch number: H163151AA											
Sample number(s): 8678782, 8678784-8678786, 8678788, 8678792-8678796, 8678798-8678799											
UNSPK: 8678782											
Acetone	5.0	U	37.5	27.41	37.5	28.53	73	76	65-130	4	30
Acrolein	25	U	37.5	27.36	37.5	27.17	73	72	34-144	1	30
Acrylonitrile	5.0	U	25	22.12	25	22.5	88	90	68-135	2	30
Benzene	0.2	U	5.00	5.07	5.00	5.18	101	104	80-120	2	30
Bromobenzene	0.5	U	5.00	4.57	5.00	4.68	91	94	80-120	2	30
Bromochloromethane	0.5	U	5.00	5.00	5.00	4.89	100	98	80-125	2	30
Bromodichloromethane	0.5	U	5.00	4.93	5.00	5.20	99	104	80-120	5	30
Bromoform	0.5	U	5.00	4.56	5.00	4.64	91	93	62-128	2	30
Bromomethane	0.5	U	5.00	4.18	5.00	4.02	84	80	62-131	4	30
2-Butanone	5.0	U	37.5	28.23	37.5	30.51	75	81	66-135	8	30
n-Butylbenzene	0.5	U	5.00	5.14	5.00	5.36	103	107	80-120	4	30
sec-Butylbenzene	0.5	U	5.00	4.83	5.00	4.95	97	99	80-120	2	30
tert-Butylbenzene	0.5	U	5.00	4.62	5.00	4.79	92	96	80-120	3	30
Carbon Disulfide	0.5	U	5.00	5.11	5.00	5.40	102	108	65-120	5	30
Carbon Tetrachloride	0.2	U	5.00	4.75	5.00	4.84	95	97	79-124	2	30
Chlorobenzene	0.5	U	5.00	4.84	5.00	4.88	97	98	80-120	1	30
Chloroethane	0.5	U	5.00	4.22	5.00	4.21	84	84	63-125	0	30
Chloroform	0.2	U	5.00	4.61	5.00	4.72	92	94	80-120	2	30
Chloromethane	0.5	U	5.00	3.62	5.00	3.48	72	70	55-126	4	30
2-Chlorotoluene	0.5	U	5.00	4.75	5.00	4.93	95	99	80-120	4	30
4-Chlorotoluene	0.5	U	5.00	4.80	5.00	4.82	96	96	80-120	0	30
1,2-Dibromo-3-chloropropane	0.5	U	5.00	4.40	5.00	4.57	88	91	63-134	4	30
Dibromochloromethane	0.5	U	5.00	4.68	5.00	4.92	94	98	78-127	5	30
Dibromomethane	0.5	U	5.00	4.90	5.00	5.05	98	101	80-122	3	30
trans-1,4-Dichloro-2-butene	5.0	U	25	15.07	25	13.86	60	55	10-188	8	30
1,2-Dichlorobenzene	0.5	U	5.00	4.52	5.00	4.70	90	94	80-120	4	30
1,3-Dichlorobenzene	0.5	U	5.00	4.63	5.00	4.74	93	95	80-120	2	30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max	
1,4-Dichlorobenzene	0.5	U	5.00	4.45	5.00	4.61	89	92	80-120	3	30
1,1-Dichloroethane	0.5	U	5.00	4.78	5.00	4.96	96	99	75-120	4	30
1,2-Dichloroethane	0.2	U	5.00	4.57	5.00	4.69	91	94	72-127	3	30
1,1-Dichloroethene	0.2	U	5.00	5.18	5.00	5.28	104	106	76-120	2	30
cis-1,2-Dichloroethene	0.106		5.00	4.96	5.00	5.15	97	101	80-120	4	30
trans-1,2-Dichloroethene	0.385		5.00	5.58	5.00	5.70	104	106	80-120	2	30
1,2-Dichloropropane	0.5	U	5.00	5.02	5.00	5.29	100	106	80-120	5	30
1,3-Dichloropropane	0.5	U	5.00	4.71	5.00	4.81	94	96	80-120	2	30
2,2-Dichloropropane	0.5	U	5.00	4.62	5.00	4.74	92	95	73-121	2	30
1,1-Dichloropropene	0.5	U	5.00	4.73	5.00	4.81	95	96	77-120	2	30
cis-1,3-Dichloropropene	0.2	U	5.00	4.94	5.00	5.16	99	103	80-124	4	30
trans-1,3-Dichloropropene	0.2	U	5.00	4.93	5.00	4.98	99	100	77-121	1	30
Ethylbenzene	0.5	U	5.00	4.77	5.00	4.78	95	96	80-120	0	30
Ethylene dibromide	0.5	U	5.00	4.92	5.00	5.04	98	101	80-120	2	30
Hexachlorobutadiene	0.5	U	5.00	4.58	5.00	5.10	92	102	69-120	11	30
2-Hexanone	5.0	U	25	18.58	25	19.49	74	78	73-128	5	30
Isopropylbenzene	0.5	U	5.00	4.73	5.00	4.73	95	95	80-120	0	30
4-Isopropyltoluene	0.5	U	5.00	4.65	5.00	4.83	93	97	80-120	4	30
Methyl Iodide	0.5	U	5.00	4.57	5.00	4.69	91	94	75-120	3	30
4-Methyl-2-pentanone	5.0	U	25	18.38	25	19.34	74	77	71-129	5	30
Methylene Chloride	0.5	U	5.00	4.79	5.00	4.91	96	98	80-120	2	30
Naphthalene	0.932		5.00	5.52	5.00	5.71	92	96	64-123	3	30
n-Propylbenzene	0.5	U	5.00	4.89	5.00	5.00	98	100	79-120	2	30
Styrene	0.5	U	5.00	4.92	5.00	5.00	98	100	80-120	1	30
1,1,1,2-Tetrachloroethane	0.5	U	5.00	4.55	5.00	4.60	91	92	80-120	1	30
1,1,2,2-Tetrachloroethane	0.2	U	5.00	4.72	5.00	4.87	94	97	75-123	3	30
Tetrachloroethene	0.2	U	5.00	4.72	5.00	4.63	94	93	80-120	2	30
Toluene	0.2	U	5.00	4.92	5.00	4.93	98	99	80-120	0	30
112Trichloro122Trifluoroethane	0.5	U	5.00	5.04	5.00	5.03	101	101	75-120	0	30
1,2,3-Trichlorobenzene	0.5	U	5.00	4.06	5.00	4.26	81	85	66-120	5	30
1,2,4-Trichlorobenzene	0.5	U	5.00	4.12	5.00	4.42	82	88	67-120	7	30
1,1,1-Trichloroethane	0.5	U	5.00	4.46	5.00	4.64	89	93	79-120	4	30
1,1,2-Trichloroethane	0.2	U	5.00	4.85	5.00	4.93	97	99	80-120	2	30
Trichloroethene	0.2	U	5.00	5.08	5.00	5.15	102	103	80-120	1	30
Trichlorofluoromethane	0.5	U	5.00	4.43	5.00	4.29	89	86	71-131	3	30
1,2,3-Trichloropropane	1.0	U	5.00	4.47	5.00	4.90	89	98	80-125	9	30
1,2,4-Trimethylbenzene	0.5	U	5.00	4.68	5.00	4.81	94	96	80-120	3	30
1,3,5-Trimethylbenzene	0.5	U	5.00	4.72	5.00	4.87	94	97	80-120	3	30
Vinyl Acetate	0.5	U	12.5	13.03	12.5	12.68	104	101	63-122	3	30
Vinyl Chloride	0.2	U	5.00	4.21	5.00	4.10	84	82	62-128	3	30
m,p-Xylene	0.5	U	10	9.74	10	9.80	97	98	80-120	1	30
o-Xylene	0.5	U	5.00	4.61	5.00	4.62	92	92	80-120	0	30
Batch number: H163151AB	Sample number(s): 8678781,8678787,8678790,8678794,8678796 UNSPK: 8678782										
Acetone	5.0	U	37.5	27.41	37.5	28.53	73	76	65-130	4	30

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l		MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Acrolein	25	U	37.5	27.36	37.5	27.17	73	72	34-144	1	30
Acrylonitrile	5.0	U	25	22.12	25	22.5	88	90	68-135	2	30
Benzene	0.2	U	5.00	5.07	5.00	5.18	101	104	80-120	2	30
Bromobenzene	0.5	U	5.00	4.57	5.00	4.68	91	94	80-120	2	30
Bromochloromethane	0.5	U	5.00	5.00	5.00	4.89	100	98	80-125	2	30
Bromodichloromethane	0.5	U	5.00	4.93	5.00	5.20	99	104	80-120	5	30
Bromoform	0.5	U	5.00	4.56	5.00	4.64	91	93	62-128	2	30
Bromomethane	0.5	U	5.00	4.18	5.00	4.02	84	80	62-131	4	30
2-Butanone	5.0	U	37.5	28.23	37.5	30.51	75	81	66-135	8	30
n-Butylbenzene	0.5	U	5.00	5.14	5.00	5.36	103	107	80-120	4	30
sec-Butylbenzene	0.5	U	5.00	4.83	5.00	4.95	97	99	80-120	2	30
tert-Butylbenzene	0.5	U	5.00	4.62	5.00	4.79	92	96	80-120	3	30
Carbon Disulfide	0.5	U	5.00	5.11	5.00	5.40	102	108	65-120	5	30
Carbon Tetrachloride	0.2	U	5.00	4.75	5.00	4.84	95	97	79-124	2	30
Chlorobenzene	0.5	U	5.00	4.84	5.00	4.88	97	98	80-120	1	30
Chloroethane	0.5	U	5.00	4.22	5.00	4.21	84	84	63-125	0	30
Chloroform	0.2	U	5.00	4.61	5.00	4.72	92	94	80-120	2	30
Chloromethane	0.5	U	5.00	3.62	5.00	3.48	72	70	55-126	4	30
2-Chlorotoluene	0.5	U	5.00	4.75	5.00	4.93	95	99	80-120	4	30
4-Chlorotoluene	0.5	U	5.00	4.80	5.00	4.82	96	96	80-120	0	30
1,2-Dibromo-3-chloropropane	0.5	U	5.00	4.40	5.00	4.57	88	91	63-134	4	30
Dibromochloromethane	0.5	U	5.00	4.68	5.00	4.92	94	98	78-127	5	30
Dibromomethane	0.5	U	5.00	4.90	5.00	5.05	98	101	80-122	3	30
trans-1,4-Dichloro-2-butene	5.0	U	25	15.07	25	13.86	60	55	10-188	8	30
1,2-Dichlorobenzene	0.5	U	5.00	4.52	5.00	4.70	90	94	80-120	4	30
1,3-Dichlorobenzene	0.5	U	5.00	4.63	5.00	4.74	93	95	80-120	2	30
1,4-Dichlorobenzene	0.5	U	5.00	4.45	5.00	4.61	89	92	80-120	3	30
1,1-Dichloroethane	0.5	U	5.00	4.78	5.00	4.96	96	99	75-120	4	30
1,2-Dichloroethane	0.2	U	5.00	4.57	5.00	4.69	91	94	72-127	3	30
1,1-Dichloroethene	0.2	U	5.00	5.18	5.00	5.28	104	106	76-120	2	30
cis-1,2-Dichloroethene	0.106		5.00	4.96	5.00	5.15	97	101	80-120	4	30
trans-1,2-Dichloroethene	0.385		5.00	5.58	5.00	5.70	104	106	80-120	2	30
1,2-Dichloropropane	0.5	U	5.00	5.02	5.00	5.29	100	106	80-120	5	30
1,3-Dichloropropane	0.5	U	5.00	4.71	5.00	4.81	94	96	80-120	2	30
2,2-Dichloropropane	0.5	U	5.00	4.62	5.00	4.74	92	95	73-121	2	30
1,1-Dichloropropene	0.5	U	5.00	4.73	5.00	4.81	95	96	77-120	2	30
cis-1,3-Dichloropropene	0.2	U	5.00	4.94	5.00	5.16	99	103	80-124	4	30
trans-1,3-Dichloropropene	0.2	U	5.00	4.93	5.00	4.98	99	100	77-121	1	30
Ethylbenzene	0.5	U	5.00	4.77	5.00	4.78	95	96	80-120	0	30
Ethylene dibromide	0.5	U	5.00	4.92	5.00	5.04	98	101	80-120	2	30
Hexachlorobutadiene	0.5	U	5.00	4.58	5.00	5.10	92	102	69-120	11	30
2-Hexanone	5.0	U	25	18.58	25	19.49	74	78	73-128	5	30
Isopropylbenzene	0.5	U	5.00	4.73	5.00	4.73	95	95	80-120	0	30
4-Isopropyltoluene	0.5	U	5.00	4.65	5.00	4.83	93	97	80-120	4	30
Methyl Iodide	0.5	U	5.00	4.57	5.00	4.69	91	94	75-120	3	30
4-Methyl-2-pentanone	5.0	U	25	18.38	25	19.34	74	77	71-129	5	30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Methylene Chloride	0.5 U	5.00	4.79	5.00	4.91	96	98	80-120	2	30
Naphthalene	0.932	5.00	5.52	5.00	5.71	92	96	64-123	3	30
n-Propylbenzene	0.5 U	5.00	4.89	5.00	5.00	98	100	79-120	2	30
Styrene	0.5 U	5.00	4.92	5.00	5.00	98	100	80-120	1	30
1,1,1,2-Tetrachloroethane	0.5 U	5.00	4.55	5.00	4.60	91	92	80-120	1	30
1,1,2,2-Tetrachloroethane	0.2 U	5.00	4.72	5.00	4.87	94	97	75-123	3	30
Tetrachloroethene	0.2 U	5.00	4.72	5.00	4.63	94	93	80-120	2	30
Toluene	0.2 U	5.00	4.92	5.00	4.93	98	99	80-120	0	30
112Trichloro122Trifluoroethane	0.5 U	5.00	5.04	5.00	5.03	101	101	75-120	0	30
1,2,3-Trichlorobenzene	0.5 U	5.00	4.06	5.00	4.26	81	85	66-120	5	30
1,2,4-Trichlorobenzene	0.5 U	5.00	4.12	5.00	4.42	82	88	67-120	7	30
1,1,1-Trichloroethane	0.5 U	5.00	4.46	5.00	4.64	89	93	79-120	4	30
1,1,2-Trichloroethane	0.2 U	5.00	4.85	5.00	4.93	97	99	80-120	2	30
Trichloroethene	0.2 U	5.00	5.08	5.00	5.15	102	103	80-120	1	30
Trichlorofluoromethane	0.5 U	5.00	4.43	5.00	4.29	89	86	71-131	3	30
1,2,3-Trichloropropane	1.0 U	5.00	4.47	5.00	4.90	89	98	80-125	9	30
1,2,4-Trimethylbenzene	0.5 U	5.00	4.68	5.00	4.81	94	96	80-120	3	30
1,3,5-Trimethylbenzene	0.5 U	5.00	4.72	5.00	4.87	94	97	80-120	3	30
Vinyl Acetate	0.5 U	12.5	13.03	12.5	12.68	104	101	63-122	3	30
Vinyl Chloride	0.2 U	5.00	4.21	5.00	4.10	84	82	62-128	3	30
m,p-Xylene	0.5 U	10	9.74	10	9.80	97	98	80-120	1	30
o-Xylene	0.5 U	5.00	4.61	5.00	4.62	92	92	80-120	0	30
	ug/l	ug/l	ug/l	ug/l	ug/l					
Batch number: 163120012A	Sample number(s): 8678783,8678789,8678791,8678797 UNSPK: 8678783									
Ethane	121.71	59.2	168.34	59.2	183.47	79	104	74-131	9	30
Ethene	1.0 U	60.8	61.66	60.8	68.73	101	113	72-133	11	30
Methane	17384.59	59.8	16286.57	59.8	17443.8	-1835	99 (2)	73-125	7	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16312667604A	Sample number(s): 8678782,8678788,8678790 UNSPK: 8678782									
Total Organic Carbon	17.51	10	28.38			109		91-113		
Batch number: 16312667604B	Sample number(s): 8678796 UNSPK: P679929									
Total Organic Carbon	1.0 U	10	11.17			112		91-113		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16320972601A	Sample number(s): 8678783,8678789 UNSPK: 8678783									
Sulfate	0.30 U	10	10.48			105		90-110		
Batch number: 16320972601B	Sample number(s): 8678791,8678797 UNSPK: P679868									
Sulfate	0.30 U	10	10.28			103		90-110		

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 16312667604A Total Organic Carbon	Sample number(s): 8678782, 8678788, 8678790 17.51	BKG: 8678782 17.35	1	3
Batch number: 16312667604B Total Organic Carbon	Sample number(s): 8678796 1.0 U	BKG: P679929 1.0 U	0 (1)	3
Batch number: 16320972601A Sulfate	Sample number(s): 8678783, 8678789 0.30 U	BKG: 8678783 0.30 U	0 (1)	15
Batch number: 16320972601B Sulfate	Sample number(s): 8678791, 8678797 0.30 U	BKG: P679868 0.30 U	0 (1)	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260C Boeing 69
Batch number: H163151AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8678782	98	103	99	97
8678784	100	103	98	96
8678785	97	101	99	102
8678786	99	105	97	95
8678788	97	102	97	103
8678792	98	103	98	103
8678793	96	104	98	102
8678794	96	101	97	102
8678794DL	96	102	98	99
8678795	97	103	98	102
8678796DL	97	101	99	101
8678798	98	106	99	98
8678799	99	106	98	97
Blank	99	104	100	97
LCS	99	101	97	100
MS	98	105	98	102
MSD	100	107	95	101
Limits:	77-114	74-113	77-110	78-110

Analysis Name: 8260C Boeing 69
Batch number: H163151AB

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/22/2016 21:13

Group Number: 1728897

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8678781	98	102	97	102
8678787	95	107	98	103
8678790	97	102	98	103
8678794RE	108	140*	91	107
8678796	97	112	98	105
Blank	98	105	99	94
LCS	99	104	97	100
MS	98	105	98	102
MSD	100	107	95	101
Limits:	77-114	74-113	77-110	78-110

Analysis Name: MEE by RSK-175
Batch number: 163120012A

	Propene
8678783	84
8678783DL	91
8678789	92
8678791	100
8678797	102
Blank	108
LCS	108
MS	78
MSD	87
Limits:	44-123

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Client: Boeing

Delivery and Receipt Information

Delivery Method: UPS Arrival Timestamp: 11/03/2016 9:30
 Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Joseph Huber (7831) at 05:15 on 11/04/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* *All Temperatures in °C.*

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT121	1.2	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	none detected
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...
- W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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SWMU-17
(Groundwater Sample Collection Forms and Analytical Data)

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/9 /2016 @ 1120
 Sample Number: BDC-05-02 160809 Weather: OVERCAST
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.53 Time: 1100 Flow through cell vol. _____ GW Meter No.(s) 2
 Begin Purge: Date/Time: 8/ 9/16 @ 1103 End Purge: Date/Time: 8/9 /16 @ 1120 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits +/- 3% +/- 3% +/- 10% +/- 0.1 units +/- 10 mV +/- 10% < 0.3 ft >= 1 flow through cell									
1106	17.32	346	0.67	6.23	-78.8				
1109	18.16	346	0.6	6.16	-85.4				
1112	18.39	346	0.87	6.26	-93.8				
1115	18.43	347	1.11	6.28	-97.1				
1118	18.34	347	0.86	6.28	-98.7				
1121	18.29	346	0.55	6.29	-101.1				
1124									

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): YELLOW CLEAR NONS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	18.29	346	0.52	6.29	-101.2			1.4	
2	18.32	346	0.5	6.28	-101.3				
3	18.35	346	0.49	6.28	-101.3				
4	18.39	346	0.48	6.28	-101.2				
Average:	18.3	346.0	0.5	6.3	-101.3	#DIV/0!	#DIV/0!	mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
2	AMEE (RSKSOP-175 Mod)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: DSB Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1210
 Sample Number: BDC-05-12 160809 Weather: OVERCAST
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.8 Time: 1152 Flow through cell vol. _____ GW Meter No.(s) 9
 Begin Purge: Date/Time: 8/ 9 /16 @ 1153 End Purge: Date/Time: 8/ 9 /16 @ 1205 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1156	17.3	304	0.28	6.08	-90.5				
1159	17.98	306	0.29	6.05	-100.4				
1202	18	305	0.3	6.08	-102.5				
1205									
1208									
1211									

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERI _____
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR COLORLESS NONS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	17.98	305	0.32	6.09	-104.6				
2	17.96	306	0.35	6.1	-105.9				
3	17.94	307	0.36	6.11	-107.7			2.5	
4	17.95	308	0.38	6.12	-108.8				
Average:	18.0	306.5	0.4	6.1	-106.8	#DIV/0!	#DIV/0!	mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
2	AMEE (RSKSOP-175 Mod)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: DSB Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1440
 Sample Number: BDC-05-16 160809 Weather: 60'S, OVERCAST
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.31 Time: 1414 Flow through cell vol. _____ GW Meter No.(s) 1
 Begin Purge: Date/Time: 8/9 /16 @ 1418 End Purge: Date/Time: 8/ 9 /16 @ 1433 Gallons Purged: 1.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1422	18.71	379	-0.01	6.54	-36				
1425	18.81	381	-0.01	6.58	-56.5				
1428	18.67	381	-0.01	6.58					
1431	18.83	382	-0.01	6.57	-73.5				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type peri _____
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, SLIGHT YELLOW TINIT, NO/NS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	18.83	382	-0.01	6.57	-74.1				
2	18.81	382	-0.01	6.57	-74.7				
3	18.79	382	-0.02	6.57	-75.2				
4	18.79	381	-0.02	6.57	-76.2				
Average:	18.8	381.8	0.0	6.6	-75.1	#DIV/0!	#DIV/0!	1.6 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
2	AMEE (RSKSOP-175 Mod)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1000
 Sample Number: BDC-05-18 160809 Weather: 60'S, CLOUDY
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.96 Time: 925 Flow through cell vol. _____ GW Meter No.(s) 1
 Begin Purge: Date/Time: 8/ 9 /16 @ 934 End Purge: Date/Time: 8/ 9 /16 @ 955 Gallons Purged: 1.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits +/- 3% +/- 3% +/- 10% +/- 0.1 units +/- 10 mV +/- 10% < 0.3 ft >= 1 flow through cell									
937	16.29	120	0.18	6.97	-7.7				
940	16.26	118	0.13	6.77	-6.7				
943	16.26	118	0.1	6.64	-6.1				
946	16.17	118	0.1	6.57	-6.1				
949	16.15	118	0.1	6.51	-5.9				WAITING ON Ph
952	16.17	117	0.24	6.47	-6				
954	16.18	117	0.39	6.46	-5.7				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERI
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	16.18	117	0.41	6.45	-5.6				
2	16.19	117	0.41	6.45	-5.6				
3	16.19	117	0.42	6.45	-5.7				
4	16.2	118	0.43	6.45	-5.9				
Average:	16.2	117.3	0.4	6.5	-5.7	#DIV/0!	#DIV/0!	2.8 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (TI) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
2	AMEE (RSKSOP-175 Mod)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____ MS/MSD location _____
 Comments: _____
 Signature: JHA Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1320
 Sample Number: BDC-05-19 160809 Weather: OVERCAST
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.68 Time: 1255 Flow through cell vol. _____ GW Meter No.(s) 2
 Begin Purge: Date/Time: 8/9 /16 @ 1257 End Purge: Date/Time: 8/ 9 /16 @ 1316 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1300	16.5	342	0.09	6.11	-92.7				
1303	17.64	350	0.12	6.07	-103.7				
1306	17.7	347	0.17	6.09	-107.7				
1309	17.88	333	0.37	6.07	-106.1				
1312	17.75	321	0.51	6.09	-107.9				
1315	17.74	315	0.37	6.05	-107.5				
1318									

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERI
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR COLORLESS NONS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	17.74	314	0.36	6.05	-107.6				
2	17.71	312	0.32	6.05	-107.6				
3	17.64	311	0.29	6.09	-109.9			1.5	
4	17.64	311	0.27	6.08	-111.4				
Average:	17.7	312.0	0.3	6.1	-109.1	#DIV/0!	#DIV/0!	mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/> (8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2) (Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic VOC (Boeing (38) short list)
2	AMEE (RSKSOP-175 Mod)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): DUP2 sample location
 Comments: _____
 Signature: DSB Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 700
 Sample Number: BDC-05-19 160809 Weather: OVERCAST
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) _____ Time: _____ Flow through cell vol. _____ GW Meter No.(s) 2
 Begin Purge: Date/Time: 8/ 9 /16 @ 814 End Purge: Date/Time: 8/ 9 /16 @ Gallons Purged: _____
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	through cell	

DUP	OF	BDC-05-19							
-----	----	-----------	--	--	--	--	--	--	--

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): _____

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	17.74	314	0.34	6.06	-107.8				
2	17.67	312	0.3	6.05	-107.4				
3	17.64	311	0.28	6.08	-110.6				
4	17.68	311	0.26	6.08	-111.7				
Average:	17.7	312.0	0.3	6.1	-109.4	#DIV/0!	#DIV/0!	mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/> (8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2) (Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic VOC (Boeing (38) short list)
2	AMEE (RSKSOP-175 Mod)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____ Duplicate to BDC-05-19 @
 Comments: _____
 Signature: DSB Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1400
 Sample Number: BDC-05-20 160809 Weather: 60'S, CLOUDY
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.62 Time: 1330 Flow through cell vol. _____ GW Meter No.(s) 1
 Begin Purge: Date/Time: 8/ 9 /16 @ 1334 End Purge: Date/Time: 8/ 9 /16 @ 1349 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits +/- 3% +/- 3% +/- 10% +/- 0.1 units +/- 10 mV +/- 10% < 0.3 ft >= 1 flow through cell									
1337	20.45	354	0	6.61	-37.8				
1340	21	359	0	6.62	-62.3				
1343	21.29	361	0	6.62	-71.9				
1346	21.43	363	-0.01	6.62	-80.5				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERI
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	21.43	363	-0.01	6.62	-81				
2	21.43	362	-0.01	6.62	-81.5				
3	21.4	363	-0.01	6.62	-82.4				
4	21.41	363	0	6.62	-82.9				
Average:	21.4	362.8	0.0	6.6	-82.0	#DIV/0!	#DIV/0!	2.0 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
2	AMEE (RSKSOP-175 Mod)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1115
 Sample Number: BDC-05-21 160809 Weather: 60'S, CLOUDY
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.5 Time: 1047 Flow through cell vol. _____ GW Meter No.(s) 1
 Begin Purge: Date/Time: 8/ 9 /16 @ 1051 End Purge: Date/Time: 8/ 9 /16 @ 1112 Gallons Purged: 1.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1054</u>	<u>21.85</u>	<u>381</u>	<u>0.25</u>	<u>6.49</u>	<u>-56.8</u>				
<u>1057</u>	<u>22.11</u>	<u>391</u>	<u>0.17</u>	<u>6.49</u>	<u>-73.8</u>				
<u>1100</u>	<u>21.82</u>	<u>389</u>	<u>0.11</u>	<u>6.5</u>	<u>-84.7</u>				<u>WAITING ON DO</u>
<u>1103</u>	<u>21.78</u>	<u>388</u>	<u>0.09</u>	<u>6.5</u>	<u>-89.8</u>				
<u>1106</u>	<u>21.7</u>	<u>387</u>	<u>0.07</u>	<u>6.51</u>	<u>-94.5</u>				
<u>1109</u>	<u>21.62</u>	<u>386</u>	<u>0.05</u>	<u>6.52</u>	<u>-97.3</u>				
<u>1111</u>	<u>21.6</u>	<u>386</u>	<u>0.05</u>	<u>6.52</u>	<u>-99.2</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERI
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>21.6</u>	<u>386</u>	<u>0.05</u>	<u>6.52</u>	<u>-99.3</u>				
<u>2</u>	<u>21.58</u>	<u>386</u>	<u>0.05</u>	<u>6.52</u>	<u>-99.5</u>				
<u>3</u>	<u>21.58</u>	<u>386</u>	<u>0.05</u>	<u>6.52</u>	<u>-99.6</u>				
<u>4</u>	<u>21.55</u>	<u>386</u>	<u>0.05</u>	<u>6.52</u>	<u>-99.8</u>				
Average:	<u>21.6</u>	<u>386.0</u>	<u>0.1</u>	<u>6.5</u>	<u>-99.6</u>	<u>#DIV/0!</u>	<u>#DIV/0!</u>	<u>4.00 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
<u>3</u>	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
<u>2</u>	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
<u>2</u>	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
<u>2</u>	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
<u>2</u>	AMEE (RSKSOP-175 Mod)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____
 Comments: FILLING A 500 ML POLY FOR THE METALS BATCH QC AT THIS LOCATION
 Signature: JHA Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1312
 Sample Number: BDC-05-22 1608 Weather: 60'S, CLOUDY
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.42 Time: 1240 Flow through cell vol. _____ GW Meter No.(s) 1
 Begin Purge: Date/Time: 8/ 9 /16 @ 1245 End Purge: Date/Time: 8/ 9 /16 @ 1307 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1248	19.42	392	0.21	6.46	-10.2				
1251	19.49	394	0.14	6.48	-24.8				
1254	19.34	393	0.09	6.48	-38.3				
1257	19.26	393	0.08	6.48	-45.1				
1300	19.16	393	0.06	6.48	-50.2				WAITING ON DO
1303	18.96	392	0.05	6.5	-58.3				
1305	18.99	393	0.04	6.5	-59.8				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERI
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	19	393	0.04	6.5	-60.2				
2	18.99	393	0.04	6.5	-60.5				
3	18.97	393	0.04	6.5	-60.9				
4	18.97	393	0.04	6.5	-61.4				
Average:	19.0	393.0	0.0	6.5	-60.8	#DIV/0!	#DIV/0!	2.2 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1221
 Sample Number: BDC-05-23 160809 Weather: 60'S, CLOUDY
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.88 Time: 1150 Flow through cell vol. _____ GW Meter No.(s) 1
 Begin Purge: Date/Time: 8/ 9 /16 @ 1155 End Purge: Date/Time: 8/ 9 /16 @ 1210 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1158	16.54	393	0.1	6.63	-35.4				
1201	16.56	393	0.05	6.7	-62.3				
1204	16.52	392	0.04	6.72	-75.2				
1207	16.58	393	0.03	6.72	-82.9				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERI
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	16.57	393	0.03	6.68	-80.7				
2	16.57	393	0.03	6.63	-79.7				
3	16.56	393	0.03	6.62	-80				
4	16.56	393	0.02	6.63	-80.9				
Average:	16.6	393.0	0.0	6.6	-80.3	#DIV/0!	#DIV/0!	1.8 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1435
 Sample Number: BDC-05-24 160809 Weather: OVERCAST
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.37 Time: 1410 Flow through cell vol. _____ GW Meter No.(s) 2
 Begin Purge: Date/Time: 8/ 9 /16 @ 1410 End Purge: Date/Time: 8/ 9 /16 @ 1424 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits +/- 3% +/- 3% +/- 10% +/- 0.1 units +/- 10 mV +/- 10% < 0.3 ft >= 1 flow through cell									
1413	17.09	198	0.28	6.18	-19.7				
1416	17.17	194	0.16	5.86	-22.4				
1419	17.2	194	0.16	5.83	-26.3				
1422	17.1	196	0.15	5.84	-31.9				
1425									
1428									
1431									

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR COLORLESS NONS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	17.08	197	0.14	5.86	-33.6				
2	17.08	198	0.16	5.84	-33.7			0.8	
3	17.08	198	0.15	5.84	-34.4				
4	17.07	199	0.16	5.87	-36.5				
Average:	17.1	198.0	0.2	5.9	-34.6	#DIV/0!	#DIV/0!	mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
2	(Total & Dissolved Metals) (Field Filtered) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Ti) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
2	AMEE (RSKSOP-175 Mod)
	Ferrous Iron Kit
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: DSB Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 1316
 Sample Number: BDC-05-02 161102 Weather: 50-60'S, RAINING
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.68 Time: 1249 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 02 /2016 @ 1251 End Purge: Date/Time: 11/ 02 /2016 @ 1305 Gallons Purged: 0.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1254</u>	<u>14.6</u>	<u>335</u>	<u>0.72</u>	<u>6.35</u>	<u>-59.2</u>		<u>11.68</u>		
<u>1257</u>	<u>14.5</u>	<u>339</u>	<u>0.56</u>	<u>6.38</u>	<u>-75.3</u>		<u>11.68</u>		
<u>1300</u>	<u>14.6</u>	<u>339</u>	<u>0.56</u>	<u>6.42</u>	<u>-80.8</u>		<u>11.68</u>		
<u>1303</u>	<u>14.7</u>	<u>339</u>	<u>0.51</u>	<u>6.42</u>	<u>-83.1</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, WITH SOME SUSPENDED PARTICLES, SLIGHTEST YELLOW TINT, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>14.7</u>	<u>339</u>	<u>0.5</u>	<u>6.42</u>	<u>-83.3</u>				
<u>2</u>	<u>14.7</u>	<u>339</u>	<u>0.5</u>	<u>6.42</u>	<u>-83.4</u>				
<u>3</u>	<u>14.7</u>	<u>339</u>	<u>0.49</u>	<u>6.42</u>	<u>-83.5</u>				
<u>4</u>	<u>14.7</u>	<u>339</u>	<u>0.5</u>	<u>6.42</u>	<u>-83.6</u>				
Average:	<u>14.7</u>	<u>339.0</u>	<u>0.5</u>	<u>6.4</u>	<u>-83.5</u>	<u>#DIV/0!</u>		<u>0.6 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 1236
 Sample Number: BDC-05-04 161102 Weather: 50-60'S, RAINING
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.86 Time: 1208 Flow through cell vol. GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 02 /2016 @ 1209 End Purge: Date/Time: 11/ 02 /2016 @ 1231 Gallons Purged: 0.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1212</u>	<u>14.2</u>	<u>418</u>	<u>0.87</u>	<u>6.61</u>	<u>-168.3</u>		<u>11.86</u>		
<u>1215</u>	<u>14.3</u>	<u>395</u>	<u>0.73</u>	<u>6.63</u>	<u>-169.7</u>		<u>11.86</u>		
<u>1218</u>	<u>14.2</u>	<u>364</u>	<u>0.52</u>	<u>6.58</u>	<u>-151.6</u>		<u>11.86</u>		
<u>1221</u>	<u>14.2</u>	<u>356</u>	<u>0.49</u>	<u>6.59</u>	<u>-153.2</u>				
<u>1224</u>	<u>14</u>	<u>348</u>	<u>0.44</u>	<u>6.57</u>	<u>-152</u>				
<u>1227</u>	<u>13.9</u>	<u>342</u>	<u>0.41</u>	<u>6.53</u>	<u>-147.4</u>				
<u>1229</u>	<u>13.9</u>	<u>338</u>	<u>0.4</u>	<u>6.51</u>	<u>-139.9</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>13.9</u>	<u>338</u>	<u>0.39</u>	<u>6.51</u>	<u>-140.8</u>				
<u>2</u>	<u>13.9</u>	<u>338</u>	<u>0.39</u>	<u>6.51</u>	<u>-141.3</u>				
<u>3</u>	<u>13.9</u>	<u>337</u>	<u>0.38</u>	<u>6.5</u>	<u>-140</u>				
<u>4</u>	<u>13.9</u>	<u>337</u>	<u>0.39</u>	<u>6.5</u>	<u>-139.8</u>				
Average:	<u>13.9</u>	<u>337.5</u>	<u>0.4</u>	<u>6.5</u>	<u>-140.5</u>	<u>#DIV/0!</u>		<u>1.4 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 2 /2016 @ 1242
 Sample Number: BDC-05-05 161102 Weather: 50-60, RAIN
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.52 Time: 1215 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/2 /2016 @ 1219 End Purge: Date/Time: 11/ 2 /2016@ 1242 Gallons Purged: ~1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other: DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1222	14.45	460	0.65	6.65	-1.1	-	11.54	<0.25	
1225	14.48	461	0.54	6.62	4.8	-	-	<0.25	
1228	14.52	461	0.8	6.59	9.3	-	11.55	<0.50	WAITING ON D.O.
1231	14.35	460	1.06	6.58	10.9				
1234	14.3	458	0.73	6.56	-1.3	-	-	<0.75	
1237	14.42	460	0.37	6.55	3.1				
1239	14.38	459	0.31	6.55	5.2				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____

Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN
CLEAR, COLORLESS, NO ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	14.36	459	0.3	6.54	6.3				
2	14.32	458	0.29	6.54	6.7				
3	14.3	457	0.28	6.54	6.2				
4	14.31	458	0.27	6.54	7.2				
Average:		458.0	0.3	6.5	6.6	#DIV/0!		0.20 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____

Signature: SAR Date: 11.2.16

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 2 /2016 @ 1332
 Sample Number: BDC-05-07 161102 Weather: 50-60, RAIN
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.22 Time: 1307 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 2 /2016 @ 1308 End Purge: Date/Time: 11/ 2 /2016 @ 1330 Gallons Purged: ~1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other: DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1311	15.06	339	0.13	6.49	-102.2	-	11.22	<0.25	
1314	15.12	337	0.14	6.49	-104	-	-	<0.25	
1317	15.23	342	0.25	6.49	-107.5	-	11.22	<0.50	WAITING ON D.O.
1320	15.25	340	0.29	6.489	-107.1	-	-	<0.50	
1323	15.24	336	0.22	6.46	-106.2	-	11.22	<0.75	
1326	15.24	336	0.19	6.46	-104.5	-	-	<0.75	
1328	15.3	334	0.15	6.44	-103.2	-	-	<1	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR,COLORLESS, NO ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	15.31	334	0.15	6.44	-103.1				
2	15.32	334	0.14	6.44	-103				
3	15.31	334	0.14	6.44	-103				
4	14.24	333	0.14	6.44	-102.7				
Average:	15.0	333.8	0.1	6.4	-103.0	#DIV/0!		0.60 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: D.O. DIN'T FULLY STABILIZE, PURGED FOR 20 MINUTES, THEN SAMPLED
 Signature: SAR Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 1351
 Sample Number: BDC-05-09 161102 Weather: 50-60', RAINING
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.68 Time: 1324 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 02 /2016 @ 1325 End Purge: Date/Time: 11/ 02 /2016 @ 1338 Gallons Purged: 0.75
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1328	14.9	253	0.39	6.39	-78.3				
1331	14.9	254	0.38	6.39	-79.1				
1334	14.9	254	0.4	6.37	-82				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	14.9	254	0.4	6.37	-82.1				
2	14.8	254	0.4	6.36	-82.2				
3	14.8	254	0.41	6.36	-82.4				
4	14.8	255	0.41	6.36	-82.5				
Average:	14.8	254.3	0.4	6.4	-82.3	#DIV/0!		1.6 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (Cl) (SO ₄) (NO ₃) (NO ₂) (F)
2	(COD) (TOC) (Total PO ₄) (Total Kiedahl Nitrogen) (NH ₃) (NO ₃ /NO ₂) (Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 2 /2016 @ 1432
 Sample Number: BDC-05-10 161102 Weather: 50-60, RAIN
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.62 Time: 1407 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 2 /2016 @ 1408 End Purge: Date/Time: 11/ 2 /2016 @ 1430 Gallons Purged: ~0.75
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other DECANT STATIONM

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1411	14.82	224	0.16	6.34	-96.1	-	11.63	<0.25	
1414	15.07	226	0.12	6.33	-103.1	-	-	<0.25	
1417	14.93	226	0.11	6.35	-107.4	-	11.63	<0.50	WAITING ON D.O.
1420	14.9	227	0.12	6.35	-108.8	-	-	<0.50	STABLE
1423									

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	14.96	227	0.14	6.34	-108.9				
2	15.02	226	0.14	6.35	-109				
3	15.05	227	0.15	6.34	-109				
4	15.07	227	0.16	6.34	-109.2				
Average:	15.0	226.8	0.1	6.3	-109.0	#DIV/0!		0.60 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: SAR Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ /2016 1515
 Sample Number: BDC-05-11 161102 Weather: 50-60, RAIN
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.78 Time: 1446 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 2/2016 @1449 End Purge: Date/Time: 11/ 2/2016 @ 1511 Gallons Purged: ~2
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other: DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1452</u>	<u>15.49</u>	<u>216</u>	<u>0.07</u>	<u>6.26</u>	<u>-111.5</u>	<u>-</u>	<u>11.84</u>	<u><0.25</u>	
<u>1455</u>	<u>15.44</u>	<u>223</u>	<u>0.07</u>	<u>6.31</u>	<u>-116.6</u>	<u>-</u>	<u>-</u>	<u><0.50</u>	
<u>1458</u>	<u>15.43</u>	<u>225</u>	<u>0.11</u>	<u>6.3</u>	<u>-117.2</u>	<u>-</u>	<u>11.86</u>	<u><0.75</u>	
<u>1501</u>	<u>15.42</u>	<u>226</u>	<u>0.13</u>	<u>6.3</u>	<u>-117</u>	<u>-</u>	<u>-</u>	<u><1.0</u>	<u>WAITING ON D.O.</u>
<u>1504</u>	<u>15.44</u>	<u>227</u>	<u>0.22</u>	<u>6.29</u>	<u>-118.5</u>	<u>-</u>	<u>11.86</u>	<u><1.25</u>	
<u>1507</u>	<u>15.49</u>	<u>228</u>	<u>0.19</u>	<u>6.28</u>	<u>-117.9</u>	<u>-</u>	<u>-</u>	<u><1.5</u>	
<u>1510</u>	<u>15.53</u>	<u>230</u>	<u>0.12</u>	<u>6.27</u>	<u>-118.2</u>	<u>-</u>	<u>-</u>	<u><1.75</u>	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>15.54</u>	<u>229</u>	<u>0.12</u>	<u>6.27</u>	<u>-118.4</u>				
<u>2</u>	<u>15.55</u>	<u>230</u>	<u>0.11</u>	<u>6.27</u>	<u>-118.1</u>				
<u>3</u>	<u>15.55</u>	<u>233</u>	<u>0.11</u>	<u>6.27</u>	<u>-118</u>				
<u>4</u>	<u>15.55</u>	<u>233</u>	<u>0.11</u>	<u>6.26</u>	<u>-117.9</u>				
Average:	<u>15.5</u>	<u>231.3</u>	<u>0.1</u>	<u>6.3</u>	<u>-118.1</u>	<u>#DIV/0!</u>		<u>2.8 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: D.O. DIDN'T FULLY STABILIZE, PURGED FOR 20 MINUTES, THEN SAMPLED
 Signature: SAR Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/02/2016 @ 1446
 Sample Number: BDC-05-18 161102 Weather: 60'S, CLEAR
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.13 Time: 1415 Flow through cell vol. GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/02/2016 @ 1417 End Purge: Date/Time: 11/02/2016 @ 1440 Gallons Purged: 1.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
<u>1420</u>	<u>15.4</u>	<u>138</u>	<u>0.37</u>	<u>6.25</u>	<u>30.1</u>		<u>11.16</u>		
<u>1423</u>	<u>15.5</u>	<u>141</u>	<u>0.27</u>	<u>6.23</u>	<u>19.7</u>				
<u>1426</u>	<u>15.5</u>	<u>145</u>	<u>0.25</u>	<u>6.21</u>	<u>11.8</u>				
<u>1429</u>	<u>15.5</u>	<u>149</u>	<u>0.24</u>	<u>6.21</u>	<u>8.1</u>				
<u>1432</u>	<u>15.5</u>	<u>157</u>	<u>0.27</u>	<u>6.21</u>	<u>-0.4</u>				
<u>1435</u>	<u>15.5</u>	<u>161</u>	<u>0.3</u>	<u>6.21</u>	<u>-6.4</u>				
<u>1437</u>	<u>15.5</u>	<u>165</u>	<u>0.34</u>	<u>6.21</u>	<u>-10</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
<u>1</u>	<u>15.5</u>	<u>165</u>	<u>0.34</u>	<u>6.21</u>	<u>-10.6</u>				
<u>2</u>	<u>15.5</u>	<u>166</u>	<u>0.33</u>	<u>6.21</u>	<u>-11.1</u>				
<u>3</u>	<u>15.5</u>	<u>166</u>	<u>0.33</u>	<u>6.21</u>	<u>-11.4</u>				
<u>4</u>	<u>15.5</u>	<u>166</u>	<u>0.34</u>	<u>6.21</u>					
Average:	<u>15.5</u>	<u>165.8</u>	<u>0.3</u>	<u>6.2</u>	<u>-11.8</u>	<u>#DIV/0!</u>		<u>1.0 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (Cl) (SO ₄) (NO ₃) (NO ₂) (F)
2	(COD) (TOC) (Total PO ₄) (Total Kiedahl Nitrogen) (NH ₃) (NO ₃ /NO ₂)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 1541
 Sample Number: BDC-05-21 161102 Weather: 60'S, CLEAR
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.57 Time: 1510 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 02 /2016 @ 1516 End Purge: Date/Time: 11/ 02 /2016 @ 1538 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1519	20.2	412	0.49	6.52	-107.8		11.57		
1522	21	424	0.5	6.54	-119.6		11.57		
1525	21.8	431	0.6	6.54	-125.5		11.57		
1528	21.7	428	0.54	6.54	-126.4				
1531	21.6	424	0.48	6.51	-125.8				
1534	21.5	421	0.46	6.48	-124.1				
1536	21.5	421	0.43	6.45	-123				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	21.6	421	0.43	6.45	-122.8				
2	21.6	421	0.42	6.45	-122.9				
3	21.6	421	0.43	6.45	-122.8				
4	21.6	421	0.42	6.45	-122.8				
Average:	21.6	421.0	0.4	6.5	-122.8	#DIV/0!		0.8 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (Cl) (SO ₄) (NO ₃) (NO ₂) (F)
2	(COD) (TOC) (Total PO ₄) (Total Kiedahl Nitrogen) (NH ₃) (NO ₃ /NO ₂)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): BDC-DUP3-1611 @ 1601
 Comments: Duplicate location
 Signature: JHA Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 02 /2016 @ 1601
 Sample Number: BDC-DUP3 1611 Weather: _____
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) _____ Time: _____ Flow through cell vol. _____ GW Meter No.(s) _____
 Begin Purge: Date/Time: 11/ /2016 End Purge: Date/Time: 11/ /2016 Gallons Purged: _____
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	through cell	

SEE BDC-05-21 SCF FOR PURGE DATA

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type _____
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): _____

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1									
2									
3									
4									
Average:	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!		mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): Duplicate to BD-05-21-1611 @ 1541
 Comments: _____
 Signature: JHA Date: 11/2/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 3 /2016 @ 922
 Sample Number: BDC-05-03 161103 Weather: 50's, part sun/clouds
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.71 Time: 844 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 3/2016 @ 857 End Purge: Date/Time: 11/ 3/2016 @ 917 Gallons Purged: ~1.
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits +/- 3% +/- 3% +/- 10% +/- 0.1 units +/- 10 mV +/- 10% < 0.3 ft >= 1 flow through cell									
900	14.36	158	1.11	5.98	9.2	-	-	<0.25	
903	14.32	160	2.34	5.98	6.7	-	11.72	<0.25	
906	14.29	162	1.79	5.95	7.5	-	-	<0.50	
909	14.51	164	1.13	5.92	9.4	-	11.71	<0.50	
912	14.59	166	0.99	5.91	8	-	-	<0.75	
915	14.56	167	0.88	5.91	7.1	-	-	<0.75	
918	14.47	168	0.81	5.91	5.9	-	-	<1.0	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	14.45	169	0.78	5.91	5.7				
2	14.43	169	0.78	5.91	5.4				
3	14.45	169	0.76	5.91	5.2				
4	14.45	169	0.77	5.91	5.1				
Average:	14.4	169.0	0.8	5.9	5.4	#DIV/0!		3.0 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: D.O. DIDN'T FULLY STABILIZE. PURGED FOR 21 MINUTES, THEN SAMPLED
 Signature: SAR Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 3 /2016 @ 1212
 Sample Number: BDC-05-08 161103 Weather: 60-70, SUNNY
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.95 Time: 1144 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 3/2016 @1146 End Purge: Date/Time: 11/ 3/2016 @ 1157 Gallons Purged: ~0.75
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other ITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1149	15.73	342	0.2	6.26	-104	-	11.95	<0.25	
1152	15.76	344	0.19	6.21	-106.4	-	-	<0.25	
1155	15.73	344	0.2	6.21	-108.7	-	11.96	<0.50	STABLE
1158									
1201									
1204									
1207									

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): SLIGHTLY TURBID, COLORLESS, SLIGHT SOUR ORGANIC ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	15.72	344	0.19	6.21	-109.5				
2	15.72	344	0.19	6.22	-109.7				
3	15.73	344	0.19	6.22	-109.9				
4	15.74	344	0.19	6.22	-110.2				
Average:	15.7	344.0	0.2	6.2	-109.8	#DIV/0!		1.6 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: REPLACED BENT TUBING W/ 3/8" POLY
 Signature: SAR Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 3 /2016 @ 1022
 Sample Number: BDC-05-12 161103 Weather: 50-60, PART SUN/CLOUDS
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.91 Time: 945 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 3 /2016 946 End Purge: Date/Time: 11/ 3 /2016 @ 1009 Gallons Purged: ~1.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
949	14.67	289	0.24	6.31	-111.1	-	11.91		
952	14.82	292	0.23	6.38	-122	-	-	<0.25	
955	14.85	299	0.32	6.39	-124.2	-	11.92	<0.50	
958	15.07	300	0.27	6.42	-126.9	-	-	<0.50	
1001	15	301	0.19	6.43	-128	-	11.92	<0.75	
1004	15.07	302	0.17	6.43	-128.3	-	-	<0.75	
1007	14.99	301	0.15	6.44	-129	-	11.92	<1.	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____

Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS WITH TRACE YELLOW PARTICULATES. SLIGHT ORGANIC ODOR, NO

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	15.03	301	0.13	6.44	-129				
2	15.04	301	0.13	6.44	-129.1				
3	15.02	301	0.13	6.43	-129				
4	15	301	0.13	6.43	-129				
Average:	15.0	301.0	0.1	6.4	-129.0	#DIV/0!		3.0 MG/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: D.O. DIDN'T FULLY STABILIZE. PURGED FOR 21 MINUTES, THEN SAMPLED
 Signature: SAR Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 3 /2016 @ 1252
 Sample Number: BDC-05-13 1611 Weather: 60-70, SUNNY
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.68 Time: 1227 Flow through cell: _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 3/2016 1229 End Purge: Date/Time: 11/ 3/2016@ 1251 Gallons Purged: ~0.75
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1232	17.59	306	0.09	6.42	-137.3	-	11.68	<0.25	
1235	17.43	308	0.07	6.31	-137.4	-	-	<0.25	
1238	17.33	309	0.07	6.3	-138.1	-	11.68	<0.50	
1241	17.33	310	0.07	6.31	-140	-	-	<0.50	STABLE
1244									

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	17.29	310	0.08	6.31	-140.5				
2	17.28	311	0.08	6.31	-140.8				
3	17.27	311	0.09	6.32	-141				
4	17.26	311	0.08	6.32	-141.2				
Average:	17.3	310.8	0.1	6.3	-140.9	#DIV/0!		1.0 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: SAR Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 03 /2016 @ 1411
 Sample Number: BDC-05-14 161103 Weather: 60'S, SUNNY
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.52 Time: 1343 Flow through cell vol. GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 03 /2016 @ 1346 End Purge: Date/Time: 11/ 03 /2016 @ 851 Gallons Purged: 0.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1349	17.3	437	0.27	6.15	-67.8		11.52		
1352	17.5	439	0.27	6.14	-77.1		11.52		
1355	17.7	441	0.36	6.17	-85.7		11.52		
1358	17.9	441	0.41	6.25	-94.3				
1401	18.2	443	0.39	6.35	-102.2				
1404	18.3	441	0.35	6.43	-109.6				
1406	18.4	439	0.33	6.43	-110.2				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, YELLOWISH TINT, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	18.4	439	0.32	6.44	-110.3				
2	18.4	439	0.32	6.44	-110.8				
3	18.4	439	0.33	6.45	-111.3				
4	18.4	439	0.32	6.45	-111.5				
Average:	18.40	439	0.32	6.45	-111.0	#DIV/0!		2.6 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (Cl) (SO ₄) (NO ₃) (NO ₂) (F)
2	(COD) (TOC) (Total PO ₄) (Total Kiedahl Nitrogen) (NH ₃) (NO ₃ /NO ₂)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 03 /2016 @ 1321
 Sample Number: BDC-05-15 161103 Weather: 60'S, SUNNY
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.28 Time: 1252 Flow through cell vol. GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 03 /2016 @ 1255 End Purge: Date/Time: 11/ 03 /2016 @ 851 Gallons Purged: 0.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1258</u>	<u>18.1</u>	<u>467</u>	<u>0.38</u>	<u>6.22</u>	<u>-101</u>		<u>11.28</u>		
<u>1301</u>	<u>18.2</u>	<u>468</u>	<u>0.39</u>	<u>6.1</u>	<u>-109.2</u>		<u>11.28</u>		
<u>1304</u>	<u>18.2</u>	<u>470</u>	<u>0.41</u>	<u>6.21</u>	<u>-115.4</u>		<u>11.28</u>		
<u>1307</u>	<u>18.2</u>	<u>470</u>	<u>0.47</u>	<u>6.27</u>	<u>-120.7</u>				
<u>1310</u>	<u>18.1</u>	<u>470</u>	<u>0.45</u>	<u>6.34</u>	<u>-126.7</u>				
<u>1313</u>	<u>18.2</u>	<u>471</u>	<u>0.39</u>	<u>6.38</u>	<u>-131.3</u>				
<u>1315</u>	<u>17.9</u>	<u>469</u>	<u>0.32</u>	<u>6.44</u>	<u>-135.6</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, YELLOWISH TINT, NO/NS. SLIGHT EFFERVESCENT

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>17.9</u>	<u>469</u>	<u>0.31</u>	<u>6.44</u>	<u>-135.6</u>				
<u>2</u>	<u>17.9</u>	<u>469</u>	<u>0.31</u>	<u>6.44</u>	<u>-135.8</u>				
<u>3</u>	<u>17.9</u>	<u>469</u>	<u>0.31</u>	<u>6.44</u>	<u>-135.7</u>				
<u>4</u>	<u>17.9</u>	<u>469</u>	<u>0.31</u>	<u>6.44</u>	<u>-135.8</u>				
Average:	<u>17.9</u>	<u>469.0</u>	<u>0.3</u>	<u>6.4</u>	<u>-135.7</u>	<u>#DIV/0!</u>		<u>1.0 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
<u>3</u>	<u>(8260)</u> (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
<u>2</u>	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) <u>(SO4)</u> (NO3) (NO2) (F)
<u>2</u>	(COD) <u>(TOC)</u> (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
<u>1</u>	(Total Metals) <u>(As)</u> (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) <u>(Cu)</u> (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
<u>1</u>	(Dissolved Metals) <u>(As)</u> (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) <u>(Cu)</u> (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
<u>2</u>	<u>Methane Ethane Ethene Acetylene</u>
	<u>Ferrous Iron test</u>
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 03 /2016 @ 1216
 Sample Number: BDC-05-16 161103 Weather: 60'S, PARTLY SUNNY
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.43 Time: 1146 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 03 /2016 @ 1149 End Purge: Date/Time: 11/ 03 /2016 @ 851 Gallons Purged: 0.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1152</u>	<u>17.3</u>	<u>356</u>	<u>0.28</u>	<u>6.12</u>	<u>-75.5</u>		<u>11.43</u>		
<u>1155</u>	<u>17.7</u>	<u>358</u>	<u>0.31</u>	<u>6.07</u>	<u>-82.3</u>		<u>11.43</u>		
<u>1158</u>	<u>18.2</u>	<u>362</u>	<u>0.3</u>	<u>6.1</u>	<u>-87.5</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
<u>1</u>	<u>18.2</u>	<u>363</u>	<u>0.31</u>	<u>6.12</u>	<u>-89.1</u>				
<u>2</u>	<u>18.1</u>	<u>363</u>	<u>0.32</u>	<u>6.13</u>	<u>-90.4</u>				
<u>3</u>	<u>18</u>	<u>362</u>	<u>0.32</u>	<u>6.13</u>	<u>-91.2</u>				
<u>4</u>	<u>18</u>	<u>362</u>	<u>0.32</u>	<u>6.15</u>	<u>-92.3</u>				
Average:	<u>18.1</u>	<u>362.5</u>	<u>0.3</u>	<u>6.1</u>	<u>-90.8</u>	<u>#DIV/0!</u>		<u>1.6 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
<u>3</u>	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
<u>2</u>	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
<u>2</u>	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
<u>1</u>	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
<u>1</u>	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
<u>2</u>	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____ MSMSD location _____
 Comments: _____
 Signature: JHA Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 03 /2016 @ 1126
 Sample Number: BDC-05-17 161103 Weather: 60'S, SUNNY
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.65 Time: 1055 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 03 /2016 @ 1057 End Purge: Date/Time: 11/ 03 /2016 @ 851 Gallons Purged: 0.75
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1100	17.1	407	0.31	6.07	-89.9				
1103	17.3	406	0.25	6.06	-99.9				
1106	17.4	406	0.27	6.06	-103.1				
1109	17.4	406	0.3	6.1	-107.9				
1112	17.4	406	0.36	6.16	-112.9				
1115	17.4	406	0.41	6.2	-116.3				
1117	17.4	406	0.43	6.22	-118.1				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	17.4	406	0.44	6.23	-118.4				
2	17.4	406	0.45	6.23	-118.7				
3	17.4	406	0.45	6.23	-118.9				
4	17.4	406	0.46	6.24	-119.2				
Average:	17.4	406.0	0.5	6.2	-118.8	#DIV/0!		1.0 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 3 /2016 @ 1102
 Sample Number: BDC-05-19 161103 Weather: 60-70, SUNNY
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.82 Time: 1039 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 3 /2016 @ 1040 End Purge: Date/Time: 11/ 3 /2016 @ 1101 Gallons Purged: ~2
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1043</u>	<u>15.77</u>	<u>326</u>	<u>0.07</u>	<u>6.39</u>	<u>-104</u>	<u>-</u>	<u>11.85</u>	<u><0.25</u>	
<u>1046.00</u>	<u>15.81</u>	<u>313</u>	<u>0.09</u>	<u>6.21</u>	<u>-102.9</u>	<u>-</u>	<u>-</u>	<u><0.5</u>	
<u>1049</u>	<u>15.82</u>	<u>304</u>	<u>0.16</u>	<u>6.14</u>	<u>-103</u>	<u>-</u>	<u>11.85</u>	<u><0.75</u>	
<u>1052</u>	<u>15.88</u>	<u>299</u>	<u>0.23</u>	<u>6.12</u>	<u>-105</u>	<u>-</u>	<u>-</u>	<u><1.0</u>	
<u>1055</u>	<u>15.88</u>	<u>296</u>	<u>0.2</u>	<u>6.14</u>	<u>-108.4</u>	<u>-</u>	<u>11.86</u>	<u><1.25</u>	
<u>1058</u>	<u>15.89</u>	<u>294</u>	<u>0.11</u>	<u>6.2</u>	<u>-113.2</u>	<u>-</u>	<u>-</u>	<u><1.50</u>	
<u>1101</u>	<u>15.94</u>	<u>295</u>	<u>0.09</u>	<u>6.22</u>	<u>-114.9</u>	<u>-</u>	<u>11.86</u>	<u><1.75</u>	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, SLIGHT ORGANIC ODOR AND SLIGHT EFFERVESCENSE.

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
<u>1</u>	<u>15.96</u>	<u>296</u>	<u>0.08</u>	<u>6.23</u>	<u>-115.6</u>				
<u>2</u>	<u>15.97</u>	<u>294</u>	<u>0.08</u>	<u>6.23</u>	<u>-116</u>				
<u>3</u>	<u>15.97</u>	<u>294</u>	<u>0.07</u>	<u>6.24</u>	<u>-116.3</u>				
<u>4</u>	<u>15.99</u>	<u>294</u>	<u>0.07</u>	<u>6.24</u>	<u>-116.6</u>				
Average:	<u>16.0</u>	<u>294.5</u>	<u>0.1</u>	<u>6.2</u>	<u>-116.1</u>	<u>#DIV/0!</u>		<u>2.6 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
<u>3</u>	<u>(8260)</u> (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
<u>2</u>	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (Cl) <u>(SO₄)</u> (NO ₃) (NO ₂) (F)
<u>2</u>	(COD) <u>(TOC)</u> (Total PO ₄) (Total Kiedahl Nitrogen) (NH ₃) (NO ₃ /NO ₂)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
<u>1</u>	(Total Metals) <u>(As)</u> (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) <u>(Cu)</u> (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
<u>1</u>	(Dissolved Metals) <u>(As)</u> (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) <u>(Cu)</u> (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
<u>2</u>	Methane Ethane Ethene Acetylene
	<u>Ferrous Iron test</u>
	others

Duplicate Sample No(s): _____
 Comments: DIDN'T FULLY STABILIZE. PURGED FOR 21 MINUTES, THEN SAMPLED
 Signature: SAR Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 03 /2016 @ 1021
 Sample Number: BDC-05-20 161103 Weather: 60'S, PARTLY SUNNY
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.74 Time: 954 Flow through cell vol. GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 03 /2016 @ 955 End Purge: Date/Time: 11/ 03 /2016 @ 851 Gallons Purged: 0.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>958</u>	<u>17.3</u>	<u>439</u>	<u>0.46</u>	<u>6.62</u>	<u>-109.6</u>		<u>11.74</u>		
<u>1001</u>	<u>17.3</u>	<u>439</u>	<u>0.44</u>	<u>6.62</u>	<u>-110.3</u>		<u>11.74</u>		
<u>1004</u>	<u>18</u>	<u>446</u>	<u>0.55</u>	<u>6.63</u>	<u>-116.4</u>		<u>11.74</u>		
<u>1007</u>	<u>18</u>	<u>443</u>	<u>0.62</u>	<u>6.64</u>	<u>-120</u>				
<u>1010</u>	<u>18</u>	<u>440</u>	<u>0.53</u>	<u>6.61</u>	<u>-120.1</u>				
<u>1013</u>	<u>18.1</u>	<u>436</u>	<u>0.43</u>	<u>6.59</u>	<u>-121.1</u>				
<u>1015</u>	<u>18</u>	<u>433</u>	<u>0.41</u>	<u>6.61</u>	<u>-122.2</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>18</u>	<u>433</u>	<u>0.4</u>	<u>6.61</u>	<u>-122.1</u>				
<u>2</u>	<u>18</u>	<u>433</u>	<u>0.4</u>	<u>6.6</u>	<u>-121.8</u>				
<u>3</u>	<u>18</u>	<u>433</u>	<u>0.39</u>	<u>6.6</u>	<u>-121.9</u>				
<u>4</u>	<u>18.1</u>	<u>433</u>	<u>0.39</u>	<u>6.6</u>	<u>-121.9</u>				
Average:	<u>18.03</u>	<u>433</u>	<u>0.40</u>	<u>6.60</u>	<u>-121.9</u>	<u>#DIV/0!</u>		<u>1.0 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
<u>3</u>	<u>(8260)</u> (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
<u>2</u>	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) <u>(SO4)</u> (NO3) (NO2) (F)
<u>2</u>	(COD) <u>(TOC)</u> (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
<u>1</u>	(Total Metals) <u>(As)</u> (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) <u>(Cu)</u> (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
<u>1</u>	(Dissolved Metals) <u>(As)</u> (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) <u>(Cu)</u> (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
<u>2</u>	<u>Methane Ethane Ethene Acetylene</u>
	<u>Ferrous Iron test</u>
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 03 /2016 @ 946
 Sample Number: BDC-05-22 161103 Weather: 60'S, PARTLY SUNNY
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.59 Time: 914 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 03 /2016 @ 920 End Purge: Date/Time: 11/ 03 /2016 @ 851 Gallons Purged: 0.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
923	14.8	356	0.72	6.7	-114.1		11.59		
926	14.7	356	0.65	6.71	-122.8		11.59		
929	14.7	357	0.61	6.69	-125.6		11.59		
932	14.7	359	0.6	6.66	-125.9				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	15	360	0.6	6.65	-125.5				
2	15.1	362	0.6	6.66	-126.6				
3	15.3	362	0.59	6.67	-127.5				
4	15.3	363	0.59	6.67	-128.1				
Average:	15.2	361.8	0.6	6.7	-126.9	#DIV/0!		0.8 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: NO TUBING IN WELL. INSTALLING NEW TUBING.
 Signature: JHA Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 03 /2016 @ 906
 Sample Number: BDC-05-23 161103 Weather: 60'S, PARTLY SUNNY
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.02 Time: 838 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 03 /2016 @ 842 End Purge: Date/Time: 11/ 03 /2016 @ 851 Gallons Purged: 0.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>845</u>	<u>13.4</u>	<u>381</u>	<u>0.67</u>	<u>6.69</u>	<u>-113.3</u>		<u>12.02</u>		
<u>848</u>	<u>13.4</u>	<u>381</u>	<u>0.61</u>	<u>6.72</u>	<u>-118.3</u>		<u>12.02</u>		
<u>851</u>	<u>13.6</u>	<u>383</u>	<u>0.61</u>	<u>6.73</u>	<u>-121.7</u>		<u>12.02</u>		

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>13.6</u>	<u>383</u>	<u>0.61</u>	<u>6.73</u>	<u>-122</u>				
<u>2</u>	<u>13.6</u>	<u>382</u>	<u>0.61</u>	<u>6.73</u>	<u>-122.1</u>				
<u>3</u>	<u>13.6</u>	<u>383</u>	<u>0.63</u>	<u>6.73</u>	<u>-122.3</u>				
<u>4</u>	<u>13.6</u>	<u>383</u>	<u>0.62</u>	<u>6.73</u>	<u>-122.5</u>				
Average:	<u>13.60</u>	<u>383</u>	<u>0.62</u>	<u>6.73</u>	<u>-122.2</u>	<u>#DIV/0!</u>		<u>0.6 mg/L</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
2	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/3/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 3/2016 @ 1402
 Sample Number: BDC-05-24 161103 Weather: 70'S, SUNNY
 Landau Representative: SAR/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.48 Time: 1330 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 3/2016@ 1332 End Purge: Date/Time: 11/ 3/2016 @ 1355 Gallons Purged: ~1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other SITE DECANT STATION

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1335	16.45	298	0.18	6.11	-75	-	11.48	<0.25	
1338	16.37	300	0.13	5.97	-76.5	-	-	<0.25	
1341	16.36	299	0.14	5.92	-78	-	11.49	<0.50	
1344	16.4	296	0.12	5.9	-80	-	-	<0.50	WAITING ON D.O.
1347	16.36	294	0.15	5.9	-82.2	-	11.49	<0.75	
1350	16.34	295	0.26	5.92	-84.5	-	-	<0.75	
1353	16.41	291	0.32	5.95	-86	-	11.5	<1.00	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	16.45	293	0.34	5.95	-86				
2	16.45	293	0.34	5.95	-86.1				
3	16.44	294	0.34	5.95	-86.6				
4	16.42	294	0.34	5.96	-86.9				
Average:	16.4	293.5	0.3	6.0	-86.4	#DIV/0!		1.8 MG/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
3	(8260) (8010) (8020) (NWT PH-G) (NWT PH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWT PH-D) (NWT PH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO ₃ /CO ₃) (Cl) (SO ₄) (NO ₃) (NO ₂) (F)
2	(COD) (TOC) (Total PO ₄) (Total Kiedahl Nitrogen) (NH ₃) (NO ₃ /NO ₂)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
1	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
1	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
2	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: D.O. DIDN'T FULLY STABILIZE. PURGED FOR 21 MINUTES, THEN SAMPLED
 Signature: SAR Date: 11/3/2016

ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Report Date: August 26, 2016

Project: Boeing_DC:SWMU-17 s-ann

Submittal Date: 08/11/2016

Group Number: 1694013

State of Sample Origin: WA

<u>Client Sample Description</u>	Lancaster Labs <u>(LL) #</u>
BDC-05-18-160809 Water	8522376
BDC-05-18-160809 Water	8522377
BDC-05-18-160809 Total Metals Water	8522378
BDC-05-18-160809 Total Metals Water	8522379
BDC-05-18-160809 Dissolved Metals Water	8522380
BDC-05-18-160809 Dissolved Metals Water	8522381
BDC-05-21-160809 Water	8522382
BDC-05-21-160809 Water	8522383
BDC-05-21-160809 Total Metals Water	8522384
BDC-05-21-160809 Total Metals Water	8522385
BDC-05-21-160809 Dissolved Metals Water	8522386
BDC-05-21-160809 Dissolved Metals Water	8522387
BDC-05-02-160809 Water	8522388
BDC-05-02-160809 Water	8522389
BDC-05-02-160809 Total Metals Water	8522390
BDC-05-02-160809 Total Metals Water	8522391
BDC-05-02-160809 Dissolved Metals Water	8522392
BDC-05-02-160809 Dissolved Metals Water	8522393
BDC-05-12-160809 Water	8522394
BDC-05-12-160809 Water	8522395
BDC-05-12-160809 Total Metals Water	8522396
BDC-05-12-160809 Total Metals Water	8522397
BDC-05-12-160809 Dissolved Metals Water	8522398
BDC-05-12-160809 Dissolved Metals Water	8522399
BDC-05-23-160809 Water	8522400
BDC-05-23-160809 Water	8522401
BDC-05-23-160809 Total Metals Water	8522402
BDC-05-23-160809 Total Metals Water	8522403
BDC-05-23-160809 Dissolved Metals Water	8522404
BDC-05-23-160809 Dissolved Metals Water	8522405
BDC-05-22-160809 Water	8522406
BDC-05-22-160809 Water	8522407

BDC-05-22-160809 Total Metals Water	8522408
BDC-05-22-160809 Total Metals Water	8522409
BDC-05-22-160809 Dissolved Metals Water	8522410
BDC-05-22-160809 Dissolved Metals Water	8522411
BDC-05-19-160809 Water	8522412
BDC-05-19-160809 Water	8522413
BDC-05-19-160809 Total Metals Water	8522414
BDC-05-19-160809 Total Metals Water	8522415
BDC-05-19-160809 Dissolved Metals Water	8522416
BDC-05-19-160809 Dissolved Metals Water	8522417
BDC-05-20-160809 Water	8522418
BDC-05-20-160809 Water	8522419
BDC-05-20-160809 Total Metals Water	8522420
BDC-05-20-160809 Total Metals Water	8522421
BDC-05-20-160809 Dissolved Metals Water	8522422
BDC-05-20-160809 Dissolved Metals Water	8522423
BDC-05-24-160809 Water	8522424
BDC-05-24-160809 Water	8522425
BDC-05-24-160809 Total Metals Water	8522426
BDC-05-24-160809 Total Metals Water	8522427
BDC-05-24-160809 Dissolved Metals Water	8522428
BDC-05-24-160809 Dissolved Metals Water	8522429
BDC-05-16-160809 Water	8522430
BDC-05-16-160809 Water	8522431
BDC-05-16-160809 Total Metals Water	8522432
BDC-05-16-160809 Total Metals Water	8522433
BDC-05-16-160809 Dissolved Metals Water	8522434
BDC-05-16-160809 Dissolved Metals Water	8522435
BDC-05-DUP2-160809 Water	8522436
BDC-05-DUP2-160809 Water	8522437
BDC-05-DUP2-160809 Total Metals Water	8522438
BDC-05-DUP2-160809 Total Metals Water	8522439
BDC-05-DUP2-160809 Dissolved Metals Water	8522440
BDC-05-DUP2-160809 Dissolved Metals Water	8522441
Trip Blank Water	8522442

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To The Boeing Company
Electronic Copy To Landau

Attn: Lindsey E. Mahrt
Attn: Chris Kimmel

Respectfully Submitted,

A handwritten signature in black ink that reads "Kay Hower". The signature is written in a cursive style with a long, sweeping tail on the letter "e".

Kay Hower

(510) 672-3979

Project Name: Boeing_DC:SWMU-17 s-ann
LL Group #: 1694013

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:**RSKSOP-175 modified, GC Miscellaneous**

Batch #: 162250009A (Sample number(s): 8522377, 8522383, 8522389, 8522395, 8522413, 8522419, 8522425, 8522431, 8522437 UNSPK: 8522377)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Methane

EPA 200.8 rev 5.4, Metals

Batch #: 162287050007A (Sample number(s): 8522378 UNSPK: 8522378 BKG: 8522378)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Copper

Batch #: 162307050001A (Sample number(s): 8522410-8522411, 8522414-8522417, 8522420-8522421 UNSPK: P529674 BKG: P529674)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Copper

Batch #: 162327050003A (Sample number(s): 8522408-8522409, 8522422-8522423, 8522426-8522429, 8522432, 8522434 UNSPK: 8522408 BKG: 8522408)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Copper

EPA 200.8 rev 5.4, Metals Dissolved

Batch #: 162307050001A (Sample number(s): 8522410-8522411, 8522414-8522417, 8522420-8522421 UNSPK: P529674 BKG: P529674)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Copper

Batch #: 162327050003A (Sample number(s): 8522408-8522409, 8522422-8522423, 8522426-8522429, 8522432, 8522434 UNSPK: 8522408 BKG: 8522408)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Copper

Sample Description: BDC-05-18-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522376
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 10:00 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

1-518

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	2.6	0.2	1
11996	Tetrachloroethene	127-18-4	1.8	0.2	1
11996	Trichloroethene	79-01-6	2.9	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	1.0 U	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 01:49	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 01:49	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 06:48	Clinton M Wilson	1

Sample Description: BDC-05-18-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522377
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 10:00 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

2-518

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	650 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	5.0 U	5.0	5
07105	Ethane	74-84-0	5.0 U	5.0	5
07105	Ethene	74-85-1	5.0 U	5.0	5
07105	Methane	74-82-8	740	15	5
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	2.5	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	162250009A	08/12/2016 11:11	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	162250009A	08/15/2016 15:50	Johanna C Kennedy	5
00228	Sulfate	EPA 300.0	1	16228972901A	08/16/2016 00:25	Alexandria M Lanager	1

Sample Description: BDC-05-18-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522378
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 10:00 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162287050007A	08/22/2016 17:59	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162287050007	08/21/2016 21:00	Annamaria Kuhns	1

Sample Description: BDC-05-18-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522379
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 10:00 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0028	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162287050008A	08/19/2016 03:31	Tara L Snyder	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162287050008	08/18/2016 08:37	Katlin N Cataldi	1

Sample Description: BDC-05-18-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522380
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 10:00 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050001A	08/22/2016 20:15	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050001	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-18-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522381
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 10:00 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0019 J	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050002A	08/22/2016 21:28	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050002	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-21-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522382
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:15 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

521-1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	0.6	ug/1 0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	1.6	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	6.7	mg/1 1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 02:50	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 02:50	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 07:27	Clinton M Wilson	1

Sample Description: BDC-05-21-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522383
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:15 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30
Reported: 08/26/2016 12:45

521-2

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	2.3 J		1.0	1
07105	Ethene	74-85-1	3.0 J		1.0	1
07105	Methane	74-82-8	8,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	50 U		50	50
07105	Ethane	74-84-0	50 U		50	50
07105	Ethene	74-85-1	50 U		50	50
07105	Methane	74-82-8	11,000		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	162250009A	08/12/2016 16:03	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	162250009A	08/15/2016 16:09	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 06:33	Alexandria M Lanager	1

Sample Description: BDC-05-21-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522384
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:15 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050001A	08/22/2016 20:24	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050001	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-21-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522385
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:15 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0081	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050001A	08/22/2016 20:26	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050001	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-21-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522386
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:15 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050001A	08/22/2016 20:28	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050001	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-21-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522387
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:15 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0084	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050001A	08/22/2016 20:33	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050001	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-02-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522388
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:20 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

502-1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	0.3	0.2	1
11996	Tetrachloroethene	127-18-4	1.6	0.2	1
11996	Trichloroethene	79-01-6	1.6	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	14.4	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 03:10	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 03:10	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 07:40	Clinton M Wilson	1

Sample Description: BDC-05-02-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522389
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:20 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

502-2

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	4.9 J		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	8,800 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	50 U		50	50
07105	Ethane	74-84-0	50 U		50	50
07105	Ethene	74-85-1	50 U		50	50
07105	Methane	74-82-8	12,000		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	3.8		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	162250009A	08/12/2016 16:23	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	162250009A	08/15/2016 16:28	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 06:48	Alexandria M Lanager	1

Sample Description: BDC-05-02-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522390
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:20 by DB

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PO Box 3707
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Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050001A	08/22/2016 20:35	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050001	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-02-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522391
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:20 by DB

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0209	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050001A	08/22/2016 20:37	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050001	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-02-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522392
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:20 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved		EPA 200.8 rev 5.4	mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050001A	08/22/2016 20:39	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050001	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-02-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522393
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 11:20 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0111	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050001A	08/22/2016 20:40	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050001	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-12-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522394
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:10 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

512-1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.4	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	9.4	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 03:31	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 03:31	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 08:08	Clinton M Wilson	1

Sample Description: BDC-05-12-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522395
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:10 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30
Reported: 08/26/2016 12:45

512-2

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	2.7 J		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	11,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	100 U		100	100
07105	Ethane	74-84-0	100 U		100	100
07105	Ethene	74-85-1	100 U		100	100
07105	Methane	74-82-8	13,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	162250009A	08/12/2016 16:42	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	162250009A	08/15/2016 16:48	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 07:03	Alexandria M Lanager	1

Sample Description: BDC-05-12-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522396
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:10 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050002A	08/22/2016 21:37	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050002	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-12-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522397
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:10 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0043	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050002A	08/22/2016 21:39	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050002	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-12-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522398
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:10 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved		EPA 200.8 rev 5.4	mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050002A	08/22/2016 21:41	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050002	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-12-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522399
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:10 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0081	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050002A	08/22/2016 21:46	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050002	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-23-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522400
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:21 by DB

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

523-1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	3.2	ug/l 0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	1.1	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	7.3	mg/l 1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 03:51	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 03:51	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 08:21	Clinton M Wilson	1

Sample Description: BDC-05-23-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522401
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:21 by DB

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MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 2.8	mg/l 0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 07:18	Alexandria M Lanager	1

Sample Description: BDC-05-23-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522402
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:21 by DB

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Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050002A	08/22/2016 21:48	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050002	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-23-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522403
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:21 by DB

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0257	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050002A	08/22/2016 21:50	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050002	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-23-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522404
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:21 by DB

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved		EPA 200.8 rev 5.4	mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050002A	08/22/2016 21:52	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050002	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-23-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522405
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 12:21 by DB

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0246	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050002A	08/22/2016 21:53	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050002	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-22-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522406
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:12 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

522-1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	6.2	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	1.1	0.2	1
11996	Vinyl Chloride	75-01-4	1.5	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	6.2	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 04:11	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 04:11	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 08:34	Clinton M Wilson	1

Sample Description: BDC-05-22-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522407
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:12 by DB

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MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 6.6	mg/l 0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 07:32	Alexandria M Lanager	1

Sample Description: BDC-05-22-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522408
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

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CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:00	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-22-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522409
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:12 by DB

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Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0289	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:09	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-22-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522410
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:12 by DB

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Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162307050001A	08/18/2016 07:29	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162307050001	08/17/2016 20:30	Annamaria Kuhns	1

Sample Description: BDC-05-22-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522411
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:12 by DB

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Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0297	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162307050001A	08/18/2016 07:31	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162307050001	08/17/2016 20:30	Annamaria Kuhns	1

Sample Description: BDC-05-19-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522412
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:20 by DB

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Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

519-1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.4	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	12.2	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 04:32	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 04:32	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 08:47	Clinton M Wilson	1

Sample Description: BDC-05-19-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522413
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:20 by DB

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Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

519-2

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0	U	1.0	1
07105	Ethane	74-84-0	3.9	J	1.0	1
07105	Ethene	74-85-1	1.0	U	1.0	1
07105	Methane	74-82-8	16,000	E	3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	200	U	200	200
07105	Ethane	74-84-0	200	U	200	200
07105	Ethene	74-85-1	200	U	200	200
07105	Methane	74-82-8	17,000		600	200
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.60	J	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	162250009A	08/12/2016 17:02	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	162250009A	08/15/2016 17:07	Johanna C Kennedy	200
00228	Sulfate	EPA 300.0	1	16228972901A	08/16/2016 01:09	Alexandria M Lanager	1

Sample Description: BDC-05-19-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522414
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:20 by DB

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Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162307050001A	08/18/2016 07:33	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162307050001	08/17/2016 20:30	Annamaria Kuhns	1

Sample Description: BDC-05-19-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522415
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:20 by DB

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Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0146	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162307050001A	08/18/2016 07:40	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162307050001	08/17/2016 20:30	Annamaria Kuhns	1

Sample Description: BDC-05-19-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522416
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:20 by DB

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Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162307050001A	08/18/2016 07:42	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162307050001	08/17/2016 20:30	Annamaria Kuhns	1

Sample Description: BDC-05-19-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522417
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 13:20 by DB

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Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0136	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162307050001A	08/18/2016 07:44	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162307050001	08/17/2016 20:30	Annamaria Kuhns	1

Sample Description: BDC-05-20-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522418
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:00 by DB

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Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

1-520

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	2.2	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	12.9	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 04:52	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 04:52	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 09:00	Clinton M Wilson	1

Sample Description: BDC-05-20-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522419
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:00 by DB

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MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

2-520

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	2.9 J		1.0	1
07105	Ethene	74-85-1	7.0		1.0	1
07105	Methane	74-82-8	7,100 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	50 U		50	50
07105	Ethane	74-84-0	50 U		50	50
07105	Ethene	74-85-1	50 U		50	50
07105	Methane	74-82-8	8,400		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.37 J		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	162250009A	08/12/2016 17:42	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	162250009A	08/15/2016 17:26	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16228972901A	08/16/2016 01:24	Alexandria M Lanager	1

Sample Description: BDC-05-20-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522420
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:00 by DB The Boeing Company
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Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162307050001A	08/18/2016 07:46	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162307050001	08/17/2016 20:30	Annamaria Kuhns	1

Sample Description: BDC-05-20-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522421
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:00 by DB

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Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0300	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162307050001A	08/18/2016 07:47	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162307050001	08/17/2016 20:30	Annamaria Kuhns	1

Sample Description: BDC-05-20-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522422
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:00 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved		EPA 200.8 rev 5.4	mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:11	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-20-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522423
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:00 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0282	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:13	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-24-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522424
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:35 by DB

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MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

524-1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	1.9	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.7	0.2	1
11996	Vinyl Chloride	75-01-4	2.2	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	2.6	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 05:12	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 05:12	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 09:13	Clinton M Wilson	1

Sample Description: BDC-05-24-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522425
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:35 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

524-2

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	3.6 J		1.0	1
07105	Ethene	74-85-1	3.6 J		1.0	1
07105	Methane	74-82-8	6,700 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	50 U		50	50
07105	Ethane	74-84-0	50 U		50	50
07105	Ethene	74-85-1	50 U		50	50
07105	Methane	74-82-8	6,000		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	2.2		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	162250009A	08/12/2016 18:02	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	162250009A	08/16/2016 11:10	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16228972901A	08/16/2016 01:39	Alexandria M Lanager	1

Sample Description: BDC-05-24-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522426
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:35 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:18	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-24-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522427
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:35 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0045	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:20	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-24-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522428
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:35 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:22	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-24-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522429
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:35 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0033	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:24	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-16-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522430
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:40 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

516-1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.9	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	16.9	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 05:32	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 05:32	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16236298706A	08/24/2016 09:26	Clinton M Wilson	1

Sample Description: BDC-05-16-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522431
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:40 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30
Reported: 08/26/2016 12:45

516-2

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	12		1.0	1
07105	Ethene	74-85-1	1.0 J		1.0	1
07105	Methane	74-82-8	12,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	100 U		100	100
07105	Ethane	74-84-0	100 U		100	100
07105	Ethene	74-85-1	100 U		100	100
07105	Methane	74-82-8	15,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	162250009A	08/12/2016 18:21	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	162250009A	08/15/2016 18:05	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16228972901A	08/16/2016 01:54	Alexandria M Lanager	1

Sample Description: BDC-05-16-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522432
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:40 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:26	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-16-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522433
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:40 by DB

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0325	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162367050005A	08/24/2016 12:12	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162367050005	08/23/2016 23:00	Annamaria Kuhns	1

Sample Description: BDC-05-16-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522434
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:40 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162327050003A	08/22/2016 19:27	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162327050003	08/22/2016 07:05	Ann Borg	1

Sample Description: BDC-05-16-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522435
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 14:40 by DB

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MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0326	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162367050005A	08/24/2016 12:13	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162367050005	08/23/2016 23:00	Annamaria Kuhns	1

Sample Description: BDC-05-DUP2-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522436
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 07:00 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

FD2-1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.3	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	13.2	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 05:53	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 05:53	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16238298704B	08/26/2016 03:49	Clinton M Wilson	1

Sample Description: BDC-05-DUP2-160809 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522437
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 07:00 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30
Reported: 08/26/2016 12:45

FD2-2

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0	U	1.0	1
07105	Ethane	74-84-0	3.8	J	1.0	1
07105	Ethene	74-85-1	1.0	U	1.0	1
07105	Methane	74-82-8	15,000	E	3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	100	U	100	100
07105	Ethane	74-84-0	100	U	100	100
07105	Ethene	74-85-1	100	U	100	100
07105	Methane	74-82-8	19,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.66	J	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	162250009A	08/12/2016 18:41	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	162250009A	08/15/2016 18:25	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16228972901A	08/16/2016 02:08	Alexandria M Lanager	1

Sample Description: BDC-05-DUP2-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522438
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 07:00 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162367050005A	08/24/2016 12:15	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162367050005	08/23/2016 23:00	Annamaria Kuhns	1

Sample Description: BDC-05-DUP2-160809 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522439
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 07:00 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0154	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162367050005A	08/24/2016 12:17	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162367050005	08/23/2016 23:00	Annamaria Kuhns	1

Sample Description: BDC-05-DUP2-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522440
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 07:00 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	162367050005A	08/24/2016 12:19	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162367050005	08/23/2016 23:00	Annamaria Kuhns	1

Sample Description: BDC-05-DUP2-160809 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522441
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016 07:00 by DB The Boeing Company
PO Box 3707
Submitted: 08/11/2016 09:30 MC 1W-12
Reported: 08/26/2016 12:45 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0138	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	162367050005A	08/24/2016 12:20	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	162367050005	08/23/2016 23:00	Annamaria Kuhns	1

Sample Description: Trip Blank Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8522442
LL Group # 1694013
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 08/09/2016

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/26/2016 12:45

TBS17

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H162292AA	08/17/2016 06:13	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H162292AA	08/17/2016 06:13	Matthew S Krause	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/26/2016 12:45

Group Number: 1694013

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ
	ug/l	ug/l
Batch number: H162292AA	Sample number(s): 8522376, 8522382, 8522388, 8522394, 8522400, 8522406, 8522412, 8522418, 8522424, 8522430, 8522436, 8522442	
cis-1,2-Dichloroethene	0.2 U	0.2
Tetrachloroethene	0.2 U	0.2
Trichloroethene	0.2 U	0.2
Vinyl Chloride	0.2 U	0.2
Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 162250009A	Sample number(s): 8522377, 8522383, 8522389, 8522395, 8522413, 8522419, 8522425, 8522431, 8522437	
Acetylene	1.0 U	1.0
Ethane	1.0 U	1.0
Ethene	1.0 U	1.0
Methane	3.0 U	3.0
Analysis Name	Result	LOQ
	mg/l	mg/l
Batch number: 162287050007A	Sample number(s): 8522378	
Copper	0.0020 U	0.0020
Analysis Name	Result	MDL
	mg/l	mg/l
Batch number: 162287050008A	Sample number(s): 8522379	
Arsenic	0.00040 U	0.00040
Batch number: 162307050001A	Sample number(s): 8522410-8522411, 8522414-8522417, 8522420-8522421	
Arsenic	0.00068 U	0.00068
Copper	0.00052 U	0.00052
Batch number: 162327050001A	Sample number(s): 8522380, 8522384-8522387, 8522390-8522393	
Arsenic	0.00040 U	0.00040
Copper	0.00021 U	0.00021
Batch number: 162327050002A	Sample number(s): 8522381, 8522396-8522399, 8522402-8522405	
Arsenic	0.00040 U	0.00040
Copper	0.00021 U	0.00021
Batch number: 162327050003A	Sample number(s): 8522408-8522409, 8522422-8522423, 8522426-8522429, 8522432, 8522434	
Arsenic	0.00040 U	0.00040
Copper	0.00021 U	0.00021
Batch number: 162367050005A	Sample number(s): 8522433, 8522435, 8522438-8522441	
Arsenic	0.00040 U	0.00040

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/26/2016 12:45

Group Number: 1694013

Method Blank (continued)

Analysis Name	Result	MDL
	mg/l	mg/l
Copper	0.00034 U	0.00034
Analysis Name	Result	LOQ
	mg/l	mg/l
Batch number: 16236298706A	Sample number(s): 8522376, 8522382, 8522388, 8522394, 8522400, 8522406, 8522412, 8522418, 8522424, 8522430	
Total Organic Carbon	1.0 U	1.0
Batch number: 16238298704B	Sample number(s): 8522436	
Total Organic Carbon	1.0 U	1.0
Analysis Name	Result	MDL
	mg/l	mg/l
Batch number: 16228972901A	Sample number(s): 8522377, 8522413, 8522419, 8522425, 8522431, 8522437	
Sulfate	0.30 U	0.30
Batch number: 16228972901B	Sample number(s): 8522383, 8522389, 8522395, 8522401, 8522407	
Sulfate	0.30 U	0.30

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: H162292AA	Sample number(s): 8522376, 8522382, 8522388, 8522394, 8522400, 8522406, 8522412, 8522418, 8522424, 8522430, 8522436, 8522442								
cis-1,2-Dichloroethene	5.00	5.10			102		80-120		
Tetrachloroethene	5.00	5.02			100		80-120		
Trichloroethene	5.00	5.16			103		80-120		
Vinyl Chloride	5.00	4.51			90		62-128		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 162250009A	Sample number(s): 8522377, 8522383, 8522389, 8522395, 8522413, 8522419, 8522425, 8522431, 8522437								
Acetylene	51.2	49.75			97		61-148		
Ethane	59.2	60.21			102		85-115		
Ethene	60.8	61.35			101		83-115		
Methane	59.8	64.08			107		85-115		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 162287050007A	Sample number(s): 8522378								
Copper	0.0500	0.0469			94		85-115		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 162287050008A	Sample number(s): 8522379								
Arsenic	0.0100	0.0113			113		85-115		

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/26/2016 12:45

Group Number: 1694013

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 162307050001A	Sample number(s): 8522410-8522411, 8522414-8522417, 8522420-8522421								
Arsenic	0.0100	0.0105			105		85-115		
Copper	0.0500	0.0520			104		85-115		
Batch number: 162327050001A	Sample number(s): 8522380, 8522384-8522387, 8522390-8522393								
Arsenic	0.0100	0.00953			95		85-115		
Copper	0.0500	0.0491			98		85-115		
Batch number: 162327050002A	Sample number(s): 8522381, 8522396-8522399, 8522402-8522405								
Arsenic	0.0100	0.0102			102		85-115		
Copper	0.0500	0.0506			101		85-115		
Batch number: 162327050003A	Sample number(s): 8522408-8522409, 8522422-8522423, 8522426-8522429, 8522432, 8522434								
Arsenic	0.0100	0.0107			107		85-115		
Copper	0.0500	0.0505			101		85-115		
Batch number: 162367050005A	Sample number(s): 8522433, 8522435, 8522438-8522441								
Arsenic	0.0100	0.0106			106		85-115		
Copper	0.0500	0.0488			98		85-115		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16236298706A	Sample number(s): 8522376, 8522382, 8522388, 8522394, 8522400, 8522406, 8522412, 8522418, 8522424, 8522430								
Total Organic Carbon	25	26.42			106		91-113		
Batch number: 16238298704B	Sample number(s): 8522436								
Total Organic Carbon	25	26.85			107		91-113		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16228972901A	Sample number(s): 8522377, 8522413, 8522419, 8522425, 8522431, 8522437								
Sulfate	7.50	7.52			100		90-110		
Batch number: 16228972901B	Sample number(s): 8522383, 8522389, 8522395, 8522401, 8522407								
Sulfate	7.50	7.52			100		90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: H162292AA	Sample number(s): 8522376, 8522382, 8522388, 8522394, 8522400, 8522406, 8522412, 8522418, 8522424, 8522430, 8522436, 8522442 UNSPK: 8522376									
cis-1,2-Dichloroethene	2.63	5.00	8.07	5.00	8.63	109	120	80-120	7	30
Tetrachloroethene	1.79	5.00	7.18	5.00	7.77	108	120	80-120	8	30
Trichloroethene	2.86	5.00	8.35	5.00	8.81	110	119	80-120	5	30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/26/2016 12:45

Group Number: 1694013

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Vinyl Chloride	0.2 U	5.00	5.20	5.00	5.39	104	108	62-128	4	30
Batch number: 162250009A	Sample number(s): 8522377, 8522383, 8522389, 8522395, 8522413, 8522419, 8522425, 8522431, 8522437 UNSPK: 8522377									
Acetylene	1.0 U	51.2	45.92	51.2	49.76	90	97	61-148	8	20
Ethane	1.0 U	59.2	55.63	59.2	57.65	94	97	74-131	4	30
Ethene	1.0 U	60.8	58.31	60.8	60.43	96	99	72-133	4	30
Methane	647.22	59.8	644.69	59.8	681.25	-3 (2)	57 (2)	73-125	6	30
Batch number: 162287050007A	Sample number(s): 8522378 UNSPK: 8522378									
Copper	0.000356	0.0500	0.0477			95		70-130		
Batch number: 162287050008A	Sample number(s): 8522379 UNSPK: 8522379									
Arsenic	0.00279	0.0100	0.0135			107		70-130		
Batch number: 162307050001A	Sample number(s): 8522410-8522411, 8522414-8522417, 8522420-8522421 UNSPK: P529674									
Arsenic	0.00068 U	0.0100	0.0117			117		70-130		
Copper	0.000873	0.0500	0.0556			110		70-130		
Batch number: 162327050001A	Sample number(s): 8522380, 8522384-8522387, 8522390-8522393 UNSPK: 8522380, P522380									
Arsenic	0.00173	0.0100	0.0115			98		70-130		
Copper	0.00021 U	0.0500	0.0474			95		70-130		
Batch number: 162327050002A	Sample number(s): 8522381, 8522396-8522399, 8522402-8522405 UNSPK: 8522381, P522381									
Arsenic	0.00188	0.0100	0.0119			101		70-130		
Copper	0.00021 U	0.0500	0.0494			99		70-130		
Batch number: 162327050003A	Sample number(s): 8522408-8522409, 8522422-8522423, 8522426-8522429, 8522432, 8522434 UNSPK: 8522408, P522408									
Arsenic	0.0303	0.0100	0.0397			94		70-130		
Copper	0.000251	0.0500	0.0495			99		70-130		
Batch number: 162367050005A	Sample number(s): 8522433, 8522435, 8522438-8522441 UNSPK: P542259									
Arsenic	0.0128	0.0100	0.0241			113		70-130		
Copper	0.323	0.0500	0.384			122 (2)		70-130		
Batch number: 16236298706A	Sample number(s): 8522376, 8522382, 8522388, 8522394, 8522400, 8522406, 8522412, 8522418, 8522424, 8522430 UNSPK: 8522376									
Total Organic Carbon	1.0 U	10	11.3			113		91-113		
Batch number: 16238298704B	Sample number(s): 8522436 UNSPK: P524226									
Total Organic Carbon	3.13	10	14.03			109		91-113		

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/26/2016 12:45

Group Number: 1694013

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16228972901A Sulfate	2.49	10	12.25			98		90-110		
Batch number: 16228972901B Sulfate	42.25	100	141.77			100		90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 162287050007A Copper	0.000356	0.0020 U	200* (1)	20
Batch number: 162287050008A Arsenic	0.00279	0.00267	5 (1)	20
Batch number: 162307050001A Arsenic	0.00068 U	0.00068 U	0 (1)	20
Batch number: 162307050001A Copper	0.000873	0.000667	27* (1)	20
Batch number: 162327050001A Arsenic	0.00173	0.00204	17 (1)	20
Batch number: 162327050001A Copper	0.00021 U	0.00021 U	0 (1)	20
Batch number: 162327050002A Arsenic	0.00188	0.00184	2 (1)	20
Batch number: 162327050002A Copper	0.00021 U	0.00021 U	0 (1)	20
Batch number: 162327050003A Arsenic	0.0303	0.0297	2	20
Batch number: 162327050003A Copper	0.000251	0.00021 U	200* (1)	20
Batch number: 162367050005A Arsenic	0.0128	0.0132	3	20
Batch number: 162367050005A Copper	0.323	0.333	3	20
Batch number: 16236298706A Total Organic Carbon	1.0 U	1.0 U	0 (1)	3
Batch number: 16238298704B				

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/26/2016 12:45

Group Number: 1694013

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Total Organic Carbon	3.13	3.02	3 (1)	3
Batch number: 16228972901A	Sample number(s): 8522377, 8522413, 8522419, 8522425, 8522431, 8522437	BKG: 8522377		
Sulfate	2.49	2.50	0 (1)	15
Batch number: 16228972901B	Sample number(s): 8522383, 8522389, 8522395, 8522401, 8522407	BKG: P522368		
Sulfate	42.25	42.82	1 (1)	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260C VC, TCE, PCE, cis1,2-DCE
Batch number: H162292AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8522376	99	100	98	95
8522382	100	102	99	98
8522388	101	104	98	98
8522394	98	103	99	97
8522400	101	103	97	95
8522406	101	103	98	96
8522412	99	105	97	97
8522418	101	103	98	96
8522424	100	102	98	95
8522430	100	102	98	97
8522436	100	104	97	98
8522442	99	98	98	95
Blank	101	100	99	96
LCS	104	103	97	97
MS	100	102	99	98
MSD	101	105	100	100
Limits:	77-114	74-113	77-110	78-110

Analysis Name: AMEE by RSK-175
Batch number: 162250009A

	Propene
8522377	96
8522377DL	92
8522383	91
8522383DL	101
8522389	89
8522389DL	101
8522395	90

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/26/2016 12:45

Group Number: 1694013

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Propene
8522395DL	104
8522413	94
8522413DL	101
8522419	91
8522419DL	101
8522425	94
8522425DL	93
8522431	96
8522431DL	98
8522437	90
8522437DL	102
Blank	107
LCS	109
MS	96
MSD	97
Limits:	44-123

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.



Lancaster Laboratories

Acct. # 13419

Group # 169408

For Eurofins Lancaster Laboratories use only. Sample # 822376-412

Boeing Chain of Custody

Client Information

Site Location: Boeing Seattle, WA
 Site Project: Developmental Center (SWMU-17)
 Site Program#: 0025217, 099.039
 Boeing PM: Lindsey Mahr
 Consultant Contact: Chris Kimmel
 Report To: Lindsey Mahr & Chris Kimmel
 Invoice To: Boeing EHS Other (specify):
 Sampler: Deven Brandt & Seavani Huerta # of Coolers: 4

Sample Identification

Sample ID	Collected		Matrix	No. of Containers
	Date	Time		
BDC-05-18-160809	8-9-16	1000	AQ	30
BDC-05-21-160809	8-9-16	1115	AQ	11
BDC-05-02-160809	8-9-16	1120	AQ	11
BDC-05-12-160809	8-9-16	1210	AQ	10
BDC-05-23-160809	8-9-16	1221	AQ	9
BDC-05-22-160809	8-9-16	1312	AQ	8
BDC-05-19-160809	8-9-16	1320	AQ	10
BDC-05-20-160809	8-9-16	1400	AQ	10
BDC-05-24-160809	8-9-16	1435	AQ	10
BDC-05-16-160809	8-9-16	1440	AQ	10
BDC-05-DUPZ-160809	8-9-16	0700	AQ	10
Trip Blanks	—	—	AQ	4

Turnaround Time Requested (please circle)

Standard

5 day

4 day

72 hour

48 hour

24 hour

Date needed: _____

Analyses Requested

Analyses	Requested
VOC's (8260c)	X
AMEE (SKSOP-175 Mod)	X
TOC (SMS310C)	X
Sulfate (300.0)	X
TD Arsenic & Copper (200.8)*	X
MSMSD	X
Batch QC	X
2 per cooler	X

Remarks/Comments

P lot #1
 *Field F. Hand

Relinquished by:

Chris Kimmel

Date/Time: 8-9-16 1540

Relinquished by:

[Signature]

Date/Time: _____

Relinquished by:

[Signature]

Date/Time: _____

Relinquished by commercial carrier (circle):

UPS FedEx Other:

Temperature upon Receipt: 1.9-2.5

Custody Seals Intact? Yes No

Client: Boeing

SWMU-17

Delivery and Receipt Information

Delivery Method: Fed Ex Arrival Timestamp: 08/11/2016 9:30
 Number of Packages: 4 Number of Projects: 2
 State/Province of Origin: WA

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Cory Jeremiah (10469) at 18:31 on 08/11/2016

Samples Chilled Details: SWMU-17

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	4.9	IR	Wet	Y	Bagged	N
2	DT146	2.8	DT	Wet	Y	Bagged	N
3	DT146	1.7	DT	Wet	Y	Bagged	N
4	DT146	5.1	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m³	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Report Date: November 21, 2016

Project: Boeing_DC:SWMU-17 s-ann

Submission Date: 11/03/2016

Group Number: 1728650

State of Sample Origin: WA

<u>Client Sample Description</u>	Lancaster Labs <u>(LL) #</u>
BDC-05-04-161102 Water	8677723
BDC-05-04-161102 Water	8677724
BDC-05-04-161102 Total Metals Water	8677725
BDC-05-04-161102 Total Metals Water	8677726
BDC-05-04-161102 Dissolved Metals Water	8677727
BDC-05-04-161102 Dissolved Metals Water	8677728
BDC-05-05-161102 Water	8677729
BDC-05-05-161102 Water	8677730
BDC-05-05-161102 Total Metals Water	8677731
BDC-05-05-161102 Total Metals Water	8677732
BDC-05-05-161102 Dissolved Metals Water	8677733
BDC-05-05-161102 Dissolved Metals Water	8677734
BDC-05-02-161102 Water	8677735
BDC-05-02-161102 Water	8677736
BDC-05-02-161102 Total Metals Water	8677737
BDC-05-02-161102 Total Metals Water	8677738
BDC-05-02-161102 Dissolved Metals Water	8677739
BDC-05-02-161102 Dissolved Metals Water	8677740
BDC-05-07-161102 Water	8677741
BDC-05-07-161102 Water	8677742
BDC-05-07-161102 Total Metals Water	8677743
BDC-05-07-161102 Total Metals Water	8677744
BDC-05-07-161102 Dissolved Metals Water	8677745
BDC-05-07-161102 Dissolved Metals Water	8677746
BDC-05-09-161102 Water	8677747
BDC-05-09-161102 Water	8677748
BDC-05-09-161102 Total Metals Water	8677749
BDC-05-09-161102 Total Metals Water	8677750
BDC-05-09-161102 Dissolved Metals Water	8677751
BDC-05-09-161102 Dissolved Metals Water	8677752
BDC-05-10-161102 Water	8677753
BDC-05-10-161102 Water	8677754

BDC-05-10-161102 Total Metals Water	8677755
BDC-05-10-161102 Total Metals Water	8677756
BDC-05-10-161102 Dissolved Metals Water	8677757
BDC-05-10-161102 Dissolved Metals Water	8677758
BDC-05-18-161102 Water	8677759
BDC-05-18-161102 Water	8677760
BDC-05-18-161102 Total Metals Water	8677761
BDC-05-18-161102 Total Metals Water	8677762
BDC-05-18-161102 Dissolved Metals Water	8677763
BDC-05-18-161102 Dissolved Metals Water	8677764
BDC-05-11-161102 Water	8677765
BDC-05-11-161102 Water	8677766
BDC-05-11-161102 Total Metals Water	8677767
BDC-05-11-161102 Total Metals Water	8677768
BDC-05-11-161102 Dissolved Metals Water	8677769
BDC-05-11-161102 Dissolved Metals Water	8677770
BDC-05-21-161102 Water	8677771
BDC-05-21-161102 Water	8677772
BDC-05-21-161102 Total Metals Water	8677773
BDC-05-21-161102 Total Metals Water	8677774
BDC-05-21-161102 Dissolved Metals Water	8677775
BDC-05-21-161102 Dissolved Metals Water	8677776
BDC-DUP3-161102 Water	8677777
BDC-DUP3-161102 Water	8677778
BDC-DUP3-161102 Total Metals Water	8677779
BDC-DUP3-161102 Total Metals Water	8677780
BDC-DUP3-161102 Dissolved Metals Water	8677781
BDC-DUP3-161102 Dissolved Metals Water	8677782
Trip Blank Water	8677783
Trip Blank Water	8677784

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To The Boeing Company
Electronic Copy To Landau

Attn: Lindsey E. Mahrt
Attn: Chris Kimmel

Respectfully Submitted,



Kay Hower

(510) 672-3979

Project Name: Boeing_DC:SWMU-17 s-ann
LL Group #: 1728650

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are not included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:**EPA 200.8 rev 5.4, Metals**

Batch #: 163107050022A (Sample number(s): 8677749-8677752, 8677755-8677758, 8677761-8677762 UNSPK: 8677749 BKG: 8677749)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Copper

EPA 200.8 rev 5.4, Metals Dissolved

Batch #: 163107050022A (Sample number(s): 8677749-8677752, 8677755-8677758, 8677761-8677762 UNSPK: 8677749 BKG: 8677749)

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Copper

SM 5310 C-2000, Wet Chemistry

Batch #: 16312667602B (Sample number(s): 8677723, 8677729, 8677735, 8677741, 8677747 UNSPK: P672367 BKG: P672367)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Total Organic Carbon

Batch #: 16312667603A (Sample number(s): 8677753, 8677759, 8677765, 8677771, 8677777 UNSPK: P678131 BKG: P678131)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Total Organic Carbon

The duplicate RPD for the following analyte(s) exceeded the acceptance window:
Total Organic Carbon

Sample Description: BDC-05-04-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677723
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:36 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

DC541

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	1.5	ug/l 0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	0.10 U	mg/l 0.10	1
SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	7.4	mg/l 1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163124AA	11/08/2016 06:03	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163124AA	11/08/2016 06:03	Matthew S Krause	1
00368	Nitrate Nitrogen	EPA 300.0	1	16308987131B	11/04/2016 04:38	Clinton M Wilson	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667602B	11/08/2016 02:30	Drew M Gerhart	1

Sample Description: BDC-05-04-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677724
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:36 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 0.75 J	mg/l 0.30	1

Sample Comments

State of Washington Lab Certification No. C457
All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16319120131B	11/15/2016 01:25	Hallie Burnett	1

Sample Description: BDC-05-04-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677725
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:36 by SR

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MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050004A	11/21/2016 04:22	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050004	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-04-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677726
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:36 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0078	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050004A	11/21/2016 04:24	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050004	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-04-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677727
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:36 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050004A	11/21/2016 04:25	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050004	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-04-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677728
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:36 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0079	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050004A	11/21/2016 04:27	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050004	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-05-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677729
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:42 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

DC551

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.8	0.2	1
11996	Trichloroethene	79-01-6	1.5	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	3.2	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163124AA	11/08/2016 06:23	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163124AA	11/08/2016 06:23	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667602B	11/08/2016 02:44	Drew M Gerhart	1

Sample Description: BDC-05-05-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677730
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:42 by SR

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MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 35.7	mg/l 1.5	5

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16319120131B	11/16/2016 06:28	Clinton M Wilson	5

Sample Description: BDC-05-05-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677731
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:42 by SR

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Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0029	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050004A	11/21/2016 04:29	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050004	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-05-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677732
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:42 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.00078 J	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050004A	11/21/2016 04:30	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050004	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-05-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677733
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:42 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
06033	Metals Dissolved Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0028	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:31	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-05-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677734
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 12:42 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.00042 J	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:40	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-02-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677735
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:16 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

DC521

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	1.7	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	6.0	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163124AA	11/08/2016 06:44	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163124AA	11/08/2016 06:44	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667602B	11/08/2016 02:59	Drew M Gerhart	1

Sample Description: BDC-05-02-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677736
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:16 by SR

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Submitted: 11/03/2016 09:30
Reported: 11/21/2016 10:53

DC522

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	7,600 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	50 U	50	50
07105	Ethane	74-84-0	50 U	50	50
07105	Ethene	74-85-1	50 U	50	50
07105	Methane	74-82-8	10,000	150	50
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163090014A	11/04/2016 11:37	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163090014A	11/07/2016 16:39	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 13:02	Alexandria M Lanager	1

Sample Description: BDC-05-02-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677737
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:16 by SR

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CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:42	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-02-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677738
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:16 by SR

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Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0032	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:44	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-02-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677739
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:16 by SR

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Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:49	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-02-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677740
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:16 by SR The Boeing Company
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CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0022	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:51	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-07-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677741
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:32 by SR

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Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

DC571

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2	0.2	1
11996	Tetrachloroethene	127-18-4	0.8	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.3	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	5.5	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163124AA	11/08/2016 07:04	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163124AA	11/08/2016 07:04	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667602B	11/08/2016 03:29	Drew M Gerhart	1

Sample Description: BDC-05-07-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677742
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:32 by SR

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Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/21/2016 10:53

DC572

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	1.6 J	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	6,900 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	50 U	50	50
07105	Ethane	74-84-0	50 U	50	50
07105	Ethene	74-85-1	50 U	50	50
07105	Methane	74-82-8	8,400	150	50
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163090014A	11/04/2016 11:55	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163090014A	11/07/2016 17:16	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 13:18	Alexandria M Lanager	1

Sample Description: BDC-05-07-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677743
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:32 by SR

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Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:53	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-07-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677744
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:32 by SR

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Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0022	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:55	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-07-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677745
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:32 by SR The Boeing Company
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Submitted: 11/03/2016 09:30 MC 1W-12
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CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:57	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-07-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677746
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:32 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0020 J	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050021A	11/19/2016 07:59	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050021	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-09-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677747
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:51 by SR

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Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

DC591

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	1.3	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	5.2	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163124AA	11/08/2016 07:25	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163124AA	11/08/2016 07:25	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667602B	11/08/2016 03:44	Drew M Gerhart	1

Sample Description: BDC-05-09-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677748
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:51 by SR

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Submitted: 11/03/2016 09:30
Reported: 11/21/2016 10:53

DC592

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	9.2	1.0	1
07105	Ethene	74-85-1	1.0 J	1.0	1
07105	Methane	74-82-8	5,800 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	50 U	50	50
07105	Ethane	74-84-0	50 U	50	50
07105	Ethene	74-85-1	50 U	50	50
07105	Methane	74-82-8	7,600	150	50
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	2.8	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163090014A	11/04/2016 12:13	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163090014A	11/07/2016 17:35	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 13:34	Alexandria M Lanager	1

Sample Description: BDC-05-09-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677749
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:51 by SR

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Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 12:39	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-09-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677750
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:51 by SR

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Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0092	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 12:48	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-09-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677751
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:51 by SR The Boeing Company
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Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 12:50	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-09-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677752
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 13:51 by SR

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Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0087	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 12:52	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-10-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677753
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:32 by SR

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Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

D5101

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.8	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	7.5	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163124AA	11/08/2016 07:45	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163124AA	11/08/2016 07:45	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667603A	11/08/2016 05:39	Drew M Gerhart	1

Sample Description: BDC-05-10-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677754
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:32 by SR

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MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

D5102

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	19	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	5,700 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	50 U	50	50
07105	Ethane	74-84-0	50 U	50	50
07105	Ethene	74-85-1	50 U	50	50
07105	Methane	74-82-8	6,100	150	50
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163090014A	11/04/2016 12:32	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163090014A	11/07/2016 17:54	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 13:49	Alexandria M Lanager	1

Sample Description: BDC-05-10-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677755
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:32 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 12:57	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-10-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677756
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:32 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0218	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 12:59	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-10-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677757
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:32 by SR

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 13:01	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-10-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677758
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:32 by SR

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0206	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 13:03	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-18-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677759
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:46 by SR

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

D5181

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	4.1	ug/l 0.2	1
11996	Tetrachloroethene	127-18-4	1.2	0.2	1
11996	Trichloroethene	79-01-6	1.6	0.2	1
11996	Vinyl Chloride	75-01-4	0.4	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	2.0	mg/l 1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/08/2016 23:07	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/08/2016 23:07	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667603A	11/08/2016 06:10	Drew M Gerhart	1

Sample Description: BDC-05-18-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677760
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:46 by SR

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/21/2016 10:53

D5182

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	2,900 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	20 U	20	20
07105	Ethane	74-84-0	20 U	20	20
07105	Ethene	74-85-1	20 U	20	20
07105	Methane	74-82-8	3,300	60	20
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	2.6	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163090014A	11/04/2016 12:50	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163090014A	11/07/2016 18:12	Johanna C Kennedy	20
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 14:05	Alexandria M Lanager	1

Sample Description: BDC-05-18-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677761
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:46 by SR

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 13:05	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-18-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677762
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:46 by SR

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PO Box 3707
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Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0045	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050022A	11/19/2016 13:07	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050022	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-18-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677763
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:46 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:07	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-18-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677764
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 14:46 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0037	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:16	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-11-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677765
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:15 by SR

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Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

D5111

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.4	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	9.0	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/08/2016 23:27	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/08/2016 23:27	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667603A	11/08/2016 06:24	Drew M Gerhart	1

Sample Description: BDC-05-11-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677766
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:15 by SR

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MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/21/2016 10:53

D5112

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	5.8		1.0	1
07105	Ethene	74-85-1	1.8 J		1.0	1
07105	Methane	74-82-8	11,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	100 U		100	100
07105	Ethane	74-84-0	100 U		100	100
07105	Ethene	74-85-1	100 U		100	100
07105	Methane	74-82-8	13,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163090014A	11/04/2016 13:08	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163090014A	11/07/2016 18:35	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 14:52	Alexandria M Lanager	1

Sample Description: BDC-05-11-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677767
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:15 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:17	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-11-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677768
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:15 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0171	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:19	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-11-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677769
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:15 by SR

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:24	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-11-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677770
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:15 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0152	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:26	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-21-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677771
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:41 by SR

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/21/2016 10:53

D5211

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C ug/1 ug/1					
11996	cis-1,2-Dichloroethene	156-59-2	0.4	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	1.3	0.2	1
Wet Chemistry SM 5310 C-2000 mg/1 mg/1					
00273	Total Organic Carbon	n.a.	9.5	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/08/2016 23:47	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/08/2016 23:47	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667603A	11/08/2016 06:38	Drew M Gerhart	1

Sample Description: BDC-05-21-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677772
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:41 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30
Reported: 11/21/2016 10:53

D5212

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	1.8 J		1.0	1
07105	Ethene	74-85-1	1.2 J		1.0	1
07105	Methane	74-82-8	6,100 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	50 U		50	50
07105	Ethane	74-84-0	50 U		50	50
07105	Ethene	74-85-1	50 U		50	50
07105	Methane	74-82-8	8,800		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163090014A	11/04/2016 13:46	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163090014A	11/07/2016 18:53	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 15:08	Alexandria M Lanager	1

Sample Description: BDC-05-21-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677773
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:41 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:28	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-21-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677774
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:41 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0081	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:29	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-21-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677775
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:41 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
	Metals Dissolved	EPA 200.8 rev 5.4	mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:31	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-21-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677776
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 15:41 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0088	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050023A	11/18/2016 19:33	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050023	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-DUP3-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677777
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 16:01 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

DFD31

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	0.4	ug/1 0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	1.3	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	9.6	mg/1 1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 00:07	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 00:07	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667603A	11/08/2016 06:52	Drew M Gerhart	1

Sample Description: BDC-DUP3-161102 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677778
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 16:01 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

DFD32

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	1.9 J		1.0	1
07105	Ethene	74-85-1	1.3 J		1.0	1
07105	Methane	74-82-8	6,300 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	50 U		50	50
07105	Ethane	74-84-0	50 U		50	50
07105	Ethene	74-85-1	50 U		50	50
07105	Methane	74-82-8	8,300		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163090014A	11/04/2016 14:05	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163090014A	11/07/2016 19:11	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16320972601A	11/15/2016 15:24	Alexandria M Lanager	1

Sample Description: BDC-DUP3-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677779
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 16:01 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 17:05	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-DUP3-161102 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677780
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 16:01 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0085	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 17:07	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-DUP3-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677781
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 16:01 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 17:08	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-DUP3-161102 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677782
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016 16:01 by SR The Boeing Company
PO Box 3707
Submitted: 11/03/2016 09:30 MC 1W-12
Reported: 11/21/2016 10:53 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0083	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 17:13	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: Trip Blank Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677783
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

DCTB1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/08/2016 21:24	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/08/2016 21:24	Matthew S Krause	1

Sample Description: Trip Blank Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8677784
LL Group # 1728650
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/02/2016

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/03/2016 09:30

Reported: 11/21/2016 10:53

DCTB2

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	3.0 U	3.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163090014A	11/04/2016 11:19	Johanna C Kennedy	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/21/2016 10:53

Group Number: 1728650

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ
	ug/l	ug/l
Batch number: H163124AA	Sample number(s): 8677723, 8677729, 8677735, 8677741, 8677747, 8677753	
cis-1,2-Dichloroethene	0.2 U	0.2
Tetrachloroethene	0.2 U	0.2
Trichloroethene	0.2 U	0.2
Vinyl Chloride	0.2 U	0.2
Batch number: H163132AA	Sample number(s): 8677759, 8677765, 8677771, 8677777, 8677783	
cis-1,2-Dichloroethene	0.2 U	0.2
Tetrachloroethene	0.2 U	0.2
Trichloroethene	0.2 U	0.2
Vinyl Chloride	0.2 U	0.2
Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 163090014A	Sample number(s): 8677736, 8677742, 8677748, 8677754, 8677760, 8677766, 8677772, 8677778, 8677784	
Acetylene	1.0 U	1.0
Ethane	1.0 U	1.0
Ethene	1.0 U	1.0
Methane	3.0 U	3.0
	mg/l	mg/l
Batch number: 163107050004A	Sample number(s): 8677725-8677728, 8677731-8677732	
Arsenic	0.00040 U	0.00040
Copper	0.00034 U	0.00034
Batch number: 163107050021A	Sample number(s): 8677733-8677734, 8677737-8677740, 8677743-8677746	
Arsenic	0.00040 U	0.00040
Copper	0.00021 U	0.00021
Batch number: 163107050022A	Sample number(s): 8677749-8677752, 8677755-8677758, 8677761-8677762	
Arsenic	0.00040 U	0.00040
Copper	0.00021 U	0.00021
Batch number: 163107050023A	Sample number(s): 8677763-8677764, 8677767-8677770, 8677773-8677776	
Arsenic	0.00040 U	0.00040
Copper	0.00034 U	0.00034
Batch number: 163107050028A	Sample number(s): 8677779-8677782	
Arsenic	0.00040 U	0.00040
Copper	0.00034 U	0.00034
Analysis Name	Result	LOQ

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/21/2016 10:53

Group Number: 1728650

Method Blank (continued)

Analysis Name	Result	LOQ
	mg/l	mg/l
Batch number: 16308987131B	Sample number(s): 8677723	
Nitrate Nitrogen	0.10 U	0.10
Batch number: 16312667602B	Sample number(s): 8677723, 8677729, 8677735, 8677741, 8677747	
Total Organic Carbon	1.0 U	1.0
Batch number: 16312667603A	Sample number(s): 8677753, 8677759, 8677765, 8677771, 8677777	
Total Organic Carbon	1.0 U	1.0
Analysis Name	Result	MDL
	mg/l	mg/l
Batch number: 16319120131B	Sample number(s): 8677724, 8677730	
Sulfate	0.30 U	0.30
Batch number: 16320972601A	Sample number(s): 8677736, 8677742, 8677748, 8677754, 8677760, 8677766, 8677772, 8677778	
Sulfate	0.30 U	0.30

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: H163124AA	Sample number(s): 8677723, 8677729, 8677735, 8677741, 8677747, 8677753								
cis-1,2-Dichloroethene	5.00	4.78	5.00	4.71	96	94	80-120	1	30
Tetrachloroethene	5.00	4.63	5.00	4.69	93	94	80-120	1	30
Trichloroethene	5.00	4.90	5.00	4.84	98	97	80-120	1	30
Vinyl Chloride	5.00	3.83	5.00	3.70	77	74	62-128	4	30
Batch number: H163132AA	Sample number(s): 8677759, 8677765, 8677771, 8677777, 8677783								
cis-1,2-Dichloroethene	5.00	4.79			96		80-120		
Tetrachloroethene	5.00	4.52			90		80-120		
Trichloroethene	5.00	4.87			97		80-120		
Vinyl Chloride	5.00	3.71			74		62-128		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 163090014A	Sample number(s): 8677736, 8677742, 8677748, 8677754, 8677760, 8677766, 8677772, 8677778, 8677784								
Acetylene	51.2	50.91	51.2	49.46	99	97	61-148	3	20
Ethane	59.2	60.11	59.2	60.15	102	102	85-115	0	20
Ethene	60.8	61.41	60.8	61.6	101	101	83-115	0	20
Methane	59.8	62.43	59.8	62.85	104	105	85-115	1	20
	mg/l	mg/l	mg/l	mg/l					
Batch number: 163107050004A	Sample number(s): 8677725-8677728, 8677731-8677732								
Arsenic	0.0100	0.00981			98		85-115		
Copper	0.0500	0.0473			95		85-115		

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/21/2016 10:53

Group Number: 1728650

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 163107050021A	Sample number(s): 8677733-8677734,8677737-8677740,8677743-8677746								
Arsenic	0.0100	0.0106			106		85-115		
Copper	0.0500	0.0506			101		85-115		
Batch number: 163107050022A	Sample number(s): 8677749-8677752,8677755-8677758,8677761-8677762								
Arsenic	0.0100	0.00971			97		85-115		
Copper	0.0500	0.0520			104		85-115		
Batch number: 163107050023A	Sample number(s): 8677763-8677764,8677767-8677770,8677773-8677776								
Arsenic	0.0100	0.0100			100		85-115		
Copper	0.0500	0.0486			97		85-115		
Batch number: 163107050028A	Sample number(s): 8677779-8677782								
Arsenic	0.0100	0.00971			97		85-115		
Copper	0.0500	0.0495			99		85-115		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16308987131B	Sample number(s): 8677723								
Nitrate Nitrogen	0.750	0.746			100		90-110		
Batch number: 16312667602B	Sample number(s): 8677723,8677729,8677735,8677741,8677747								
Total Organic Carbon	25	25.07			100		91-113		
Batch number: 16312667603A	Sample number(s): 8677753,8677759,8677765,8677771,8677777								
Total Organic Carbon	25	25.37			101		91-113		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16319120131B	Sample number(s): 8677724,8677730								
Sulfate	7.50	7.36			98		90-110		
Batch number: 16320972601A	Sample number(s): 8677736,8677742,8677748,8677754,8677760,8677766,8677772,8677778								
Sulfate	7.50	7.47			100		90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: H163132AA	Sample number(s): 8677759,8677765,8677771,8677777,8677783 UNSPK: P679867									
cis-1,2-Dichloroethene	0.130	5.00	5.41	5.00	5.61	106	110	80-120	4	30
Tetrachloroethene	0.2 U	5.00	5.37	5.00	5.56	107	111	80-120	3	30
Trichloroethene	0.2 U	5.00	5.51	5.00	5.75	110	115	80-120	4	30
Vinyl Chloride	0.628	5.00	5.01	5.00	5.23	88	92	62-128	4	30

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/21/2016 10:53

Group Number: 1728650

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 163107050004A	Sample number(s): 8677725-8677728,8677731-8677732 UNSPK: P677180									
Arsenic	0.000785	0.0100	0.0111			103		70-130		
Copper	0.0357	0.0500	0.0861			101		70-130		
Batch number: 163107050021A	Sample number(s): 8677733-8677734,8677737-8677740,8677743-8677746 UNSPK: 8677733, P677733									
Arsenic	0.000474	0.0100	0.0103			99		70-130		
Copper	0.00282	0.0500	0.0515			97		70-130		
Batch number: 163107050022A	Sample number(s): 8677749-8677752,8677755-8677758,8677761-8677762 UNSPK: 8677749, P677749									
Arsenic	0.00977	0.0100	0.0202			104		70-130		
Copper	0.000490	0.0500	0.0535			106		70-130		
Batch number: 163107050023A	Sample number(s): 8677763-8677764,8677767-8677770,8677773-8677776 UNSPK: 8677763, P677763									
Arsenic	0.00389	0.0100	0.0138			99		70-130		
Copper	0.00034 U	0.0500	0.0495			99		70-130		
Batch number: 163107050028A	Sample number(s): 8677779-8677782 UNSPK: P679889									
Arsenic	0.00168	0.0100	0.0118			101		70-130		
Copper	0.00034 U	0.0500	0.0497			99		70-130		
Batch number: 16308987131B	Sample number(s): 8677723 UNSPK: P677430									
Nitrate Nitrogen	10.16	5.00	14.87			94		90-110		
Batch number: 16312667602B	Sample number(s): 8677723,8677729,8677735,8677741,8677747 UNSPK: P672367									
Total Organic Carbon	1.37	10	8.69			73*		91-113		
Batch number: 16312667603A	Sample number(s): 8677753,8677759,8677765,8677771,8677777 UNSPK: P678131									
Total Organic Carbon	2.30	10	7.13			48*		91-113		
Batch number: 16319120131B	Sample number(s): 8677724,8677730 UNSPK: P672283									
Sulfate	7.34	50	57.12			100		90-110		
Batch number: 16320972601A	Sample number(s): 8677736,8677742,8677748,8677754,8677760,8677766,8677772,8677778 UNSPK: P678783									
Sulfate	0.30 U	10	10.48			105		90-110		

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/21/2016 10:53

Group Number: 1728650

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 163107050004A	Sample number(s): 8677725-8677728,8677731-8677732 BKG: P677180			
Arsenic	0.000785	0.000757	4 (1)	20
Copper	0.0357	0.0374	5	20
Batch number: 163107050021A	Sample number(s): 8677733-8677734,8677737-8677740,8677743-8677746 BKG: 8677733, P677733			
Arsenic	0.000474	0.000405	16 (1)	20
Copper	0.00282	0.00282	0 (1)	20
Batch number: 163107050022A	Sample number(s): 8677749-8677752,8677755-8677758,8677761-8677762 BKG: 8677749, P677749			
Arsenic	0.00977	0.0100	3 (1)	20
Copper	0.000490	0.000705	36* (1)	20
Batch number: 163107050023A	Sample number(s): 8677763-8677764,8677767-8677770,8677773-8677776 BKG: 8677763, P677763			
Arsenic	0.00389	0.00370	5 (1)	20
Copper	0.00034 U	0.00034 U	0 (1)	20
Batch number: 163107050028A	Sample number(s): 8677779-8677782 BKG: P679889			
Arsenic	0.00168	0.00190	12 (1)	20
Copper	0.00034 U	0.00034 U	0 (1)	20
	mg/l	mg/l		
Batch number: 16308987131B	Sample number(s): 8677723 BKG: P677430			
Nitrate Nitrogen	10.16	10.04	1	15
Batch number: 16312667602B	Sample number(s): 8677723,8677729,8677735,8677741,8677747 BKG: P672367			
Total Organic Carbon	1.37	1.37	0 (1)	3
Batch number: 16312667603A	Sample number(s): 8677753,8677759,8677765,8677771,8677777 BKG: P678131			
Total Organic Carbon	2.30	2.21	4* (1)	3
	mg/l	mg/l		
Batch number: 16319120131B	Sample number(s): 8677724,8677730 BKG: P672283			
Sulfate	7.34	6.95	5 (1)	15
Batch number: 16320972601A	Sample number(s): 8677736,8677742,8677748,8677754,8677760,8677766,8677772,8677778 BKG: P678783			
Sulfate	0.30 U	0.30 U	0 (1)	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/21/2016 10:53

Group Number: 1728650

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260C VC, TCE, PCE, cis1,2-DCE
Batch number: H163124AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8677723	99	106	99	95
8677729	100	105	98	95
8677735	98	106	101	95
8677741	101	107	99	96
8677747	100	106	98	95
8677753	100	103	98	97
Blank	98	106	98	95
LCS	101	106	98	99
LCSD	97	102	99	100
Limits:	77-114	74-113	77-110	78-110

Analysis Name: 8260C VC, TCE, PCE, cis1,2-DCE
Batch number: H163132AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8677759	98	103	97	94
8677765	103	107	97	98
8677771	101	107	96	96
8677777	99	104	96	96
8677783	101	113	96	98
Blank	102	109	96	97
LCS	101	106	96	100
MS	99	107	99	102
MSD	98	106	98	102
Limits:	77-114	74-113	77-110	78-110

Analysis Name: AMEE by RSK-175
Batch number: 163090014A

	Propene
8677736	86
8677736DL	97
8677742	90
8677742DL	95
8677748	92
8677748DL	96
8677754	90
8677754DL	93
8677760	96
8677760DL	100
8677766	95
8677766DL	93
8677772	86
8677772DL	97
8677778	88

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/21/2016 10:53

Group Number: 1728650

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Propene
8677778DL	97
8677784	104
Blank	105
LCS	107
LCSD	106
Limits:	44-123

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Boeing Chain of Custody



Lancaster Laboratories

Acct. # 13019

Group # 178650

For Eurofins Lancaster Laboratories use only. Sample # 867723-84

Please print. Instructions on reverse side correspond.

1 Client Information		2 Sample Identification			3 Collected			4 Analyses Requested			5 Remarks/Comments	
Site Location:	Tukwila, WA	Sample Identification	Date	Time	Matrix	No. of Containers	AMFC (RSK SOP-175 Mod)	Sulfate (300.0)	Nitrate (300.0)	TOTAL TOSSOLV (200.8)*	AS + Cu (200.8)	Short Hold Nitrate *Dissolved Metals volumes have been field filtered.
Site Project:	Boeing Developmental Center	BDC-05-04-161102	11/2/16	1230	AQ	1	X	X	X	X	X	
Site Program#:	SWMU-17/0025217-099.039	BDC-05-05-161102	11/2/16	1242	AQ	1	X	X	X	X	X	
Boeing PM:	Lindsey Mahrt	BDC-05-02-161102	11/2/16	1316	AQ	1	X	X	X	X	X	
Consultant Contact:	Chris Kimmel	BDC-05-07-161102	11/2/16	1332	AQ	1	X	X	X	X	X	
Report To:	Lindsey Mahrt, Chris Kimmel	BDC-05-09-161102	11/2/16	1351	AQ	1	X	X	X	X	X	
Invoice To:	<input checked="" type="checkbox"/> Boeing EHS <input type="checkbox"/> Other (specify):	BDC-05-10-161102	11/2/16	1432	AQ	1	X	X	X	X	X	
Sampler:	Stephanie Renardy, Seavani Huerta-Aula # of Coolers: 1	BDC-05-18-161102	11/2/16	1440	AQ	1	X	X	X	X	X	
		BDC-05-11-161102	11/2/16	1515	AQ	1	X	X	X	X	X	
		BDC-05-21-161102	11/2/16	1541	AQ	1	X	X	X	X	X	
		BDC-DUP3-161102	11/2/16	1601	AQ	1	X	X	X	X	X	
		TRIP BLANKS	-	-	AQ	2	X	X	X	X	X	

6 Turnaround Time Requested (please circle)	Relinquished by:	Date/Time	Received by:	Date/Time
Standard	SAM	11/2/16 1700		
72 hour				
48 hour				
5 day				
4 day				
24 hour				

Relinquished by commercial carrier (circle):
 UPS FedEx Other: _____

Temperature upon Receipt: 0.7°C
 Custody Seals Intact?: Yes No

1728650

Kay Hower

From: Stephanie Renando <SRenando@landauinc.com>
Sent: Friday, November 04, 2016 1:41 PM
To: Kay Hower; Chris Kimmel
Subject: RE: Acknowledgement(1728650, Boeing_DC:SWMU-17 s-ann, 11/03/2016 09:30:00)
Attachments: SWMU-17 COC_A_REV1_11.4.16.pdf

Kay,

It looks like trip blanks have been analyzed for RSK-175 during previous events at DC. I was not aware of this but since it is already what was in place, let's go ahead and run the blanks for AMEE (RSK-175) (See revised COC attached). Will you have enough volume with just the 2 VOA's that were submitted?

Stephanie Renando
Landau Associates

Ext. 199
Direct: (425) 329-0252

From: Kay Hower [mailto:KayHower@eurofinsus.com]
Sent: Friday, November 04, 2016 8:31 AM
To: Chris Kimmel <CKimmel@landauinc.com>
Cc: Stephanie Renando <SRenando@landauinc.com>
Subject: Acknowledgement(1728650, Boeing_DC:SWMU-17 s-ann, 11/03/2016 09:30:00)

Hi Chris,

The trip blank is marked for all analyses. We have entered for 8260C and dissolved gases (AMEE). Please confirm.

Thanks,
Kay

Notify us [here](#) to report this email as spam.

Boeing Chain of Custody



Lancaster Laboratories

For Eurofins Lancaster Laboratories use only
 Group # _____ Acct. # _____
 Sample # _____
 Please print. Instructions on reverse side correspond.

1 Client Information		2 Sample Identification		3 Collected		4 Analyses Requested		5 Remarks/Comments	
Site Location: <u>Fort Pitt</u> Site Project: <u>82600</u> Site Program#: <u>SWMU-17-0025217-099-02</u> Boeing PM: <u>L. K. Kimmel</u> Consultant Contact: <u>L. K. Kimmel</u> Report To: <u>L. K. Kimmel</u> Invoice To: <input checked="" type="checkbox"/> Boeing EHS <input type="checkbox"/> Other (specify): Sampler: <u>John Reynolds</u> Analytical Aids # of Coolers: <u>1</u>		No. of Containers Matrix		Date Time		VOC's (82600) AMF (ASK-F75M) <input checked="" type="checkbox"/> TOC (SM-100) <input checked="" type="checkbox"/> Sulfate (30.0) <input checked="" type="checkbox"/> Nitrate (30.0) <input checked="" type="checkbox"/> TMT (20.0) <input checked="" type="checkbox"/> AST (20.0) <input checked="" type="checkbox"/>		Nitrate *Decoded Nitrate Volume have been field filtered.	
BDC-05-04-110102	AG	12/30	AG						
BDC-05-05-110102	AG	12/28	AG						
BDC-05-02-110102	AG	12/10	AG						
BDC-05-07-110102	AG	13/32	AG						
BDC-05-09-110102	AG	13/31	AG						
BDC-05-10-110102	AG	14/32	AG						
BDC-05-18-110102	AG	14/10	AG						
BDC-05-11-110102	AG	15/5	AG						
BDC-05-21-110102	AG	15/4	AG						
BDC-DUPS-110102	AG	1/2/10	AG						
TRIP BLANKS	AG	-	AG						
6 Turnaround Time Requested (please circle)		Standard		5 day		4 day		72 hour	
Date needed:		72 hour		48 hour		24 hour			
Relinquished by:		Date/Time		Date/Time		Date/Time		Date/Time	
Relinquished by:		Date/Time		Date/Time		Date/Time		Date/Time	
Relinquished by:		Date/Time		Date/Time		Date/Time		Date/Time	
Relinquished by commercial carrier (circle):		UPS		FedEx		Other		Temperature upon Receipt: _____ C	
Custody Seals Intact?		Yes		No		Yes		No	

The white copy should accompany samples to Eurofins Lancaster Laboratories. The yellow copy should be retained by the client.
 Eurofins Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 717-856-2300
 Issued by Dept. 40 Management 7069 02

Client: Boeing

Boeing Developmental Center

Delivery and Receipt Information

Delivery Method:	<u>UPS</u>	Arrival Timestamp:	<u>11/03/2016 9:30</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</u>
State/Province of Origin:	<u>WA</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by William Richardson (12178) at 10:54 on 11/03/2016

Samples Chilled Details: Boeing Developmental Center

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.7	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	none detected
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...
- W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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ANALYTICAL RESULTS

Prepared by:

Prepared for:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Report Date: November 29, 2016

Project: Boeing_DC:SWMU-17 s-ann

Submittal Date: 11/04/2016

Group Number: 1729222

State of Sample Origin: WA

<u>Client Sample Description</u>	Lancaster Labs <u>(LL) #</u>
BDC-05-23-161103 Water	8679819
BDC-05-23-161103 Water	8679820
BDC-05-23-161103 Total Metals Water	8679821
BDC-05-23-161103 Total Metals Water	8679822
BDC-05-23-161103 Dissolved Metals Water	8679823
BDC-05-23-161103 Dissolved Metals Water	8679824
BDC-05-03-161103 Water	8679825
BDC-05-03-161103 Water	8679826
BDC-05-03-161103 Total Metals Water	8679827
BDC-05-03-161103 Total Metals Water	8679828
BDC-05-03-161103 Dissolved Metals Water	8679829
BDC-05-03-161103 Dissolved Metals Water	8679830
BDC-05-22-161103 Water	8679831
BDC-05-22-161103 Water	8679832
BDC-05-22-161103 Total Metals Water	8679833
BDC-05-22-161103 Total Metals Water	8679834
BDC-05-22-161103 Dissolved Metals Water	8679835
BDC-05-22-161103 Dissolved Metals Water	8679836
BDC-05-20-161103 Water	8679837
BDC-05-20-161103 Water	8679838
BDC-05-20-161103 Total Metals Water	8679839
BDC-05-20-161103 Total Metals Water	8679840
BDC-05-20-161103 Dissolved Metals Water	8679841
BDC-05-20-161103 Dissolved Metals Water	8679842
BDC-05-12-161103 Water	8679843
BDC-05-12-161103 Water	8679844
BDC-05-12-161103 Total Metals Water	8679845
BDC-05-12-161103 Total Metals Water	8679846
BDC-05-12-161103 Dissolved Metals Water	8679847
BDC-05-12-161103 Dissolved Metals Water	8679848
BDC-05-19-161103 Water	8679849
BDC-05-19-161103 Water	8679850

BDC-05-19-161103 Total Metals Water	8679851
BDC-05-19-161103 Total Metals Water	8679852
BDC-05-19-161103 Dissolved Metals Water	8679853
BDC-05-19-161103 Dissolved Metals Water	8679854
BDC-05-17-161103 Water	8679855
BDC-05-17-161103 Water	8679856
BDC-05-17-161103 Total Metals Water	8679857
BDC-05-17-161103 Total Metals Water	8679858
BDC-05-17-161103 Dissolved Metals Water	8679859
BDC-05-17-161103 Dissolved Metals Water	8679860
BDC-05-08-161103 Water	8679861
BDC-05-08-161103 Water	8679862
BDC-05-16-161103 Water	8679867
BDC-05-16-161103 Water	8679868
BDC-05-16-161103 Total Metals Water	8679869
BDC-05-16-161103 Total Metals Water	8679870
BDC-05-16-161103 Dissolved Metals Water	8679871
BDC-05-16-161103 Dissolved Metals Water	8679872
BDC-05-13-161103 Water	8679873
BDC-05-13-161103 Water	8679874
BDC-05-13-161103 Total Metals Water	8679875
BDC-05-13-161103 Total Metals Water	8679876
BDC-05-13-161103 Dissolved Metals Water	8679877
BDC-05-13-161103 Dissolved Metals Water	8679878
BDC-05-15-161103 Water	8679879
BDC-05-15-161103 Water	8679880
BDC-05-15-161103 Total Metals Water	8679881
BDC-05-15-161103 Total Metals Water	8679882
BDC-05-15-161103 Dissolved Metals Water	8679883
BDC-05-15-161103 Dissolved Metals Water	8679884
BDC-05-24-161103 Water	8679885
BDC-05-24-161103 Water	8679886
BDC-05-24-161103 Total Metals Water	8679887
BDC-05-24-161103 Total Metals Water	8679888
BDC-05-24-161103 Dissolved Metals Water	8679889
BDC-05-24-161103 Dissolved Metals Water	8679890
BDC-05-14-161103 Water	8679891
BDC-05-14-161103 Water	8679892
BDC-05-14-161103 Total Metals Water	8679893
BDC-05-14-161103 Total Metals Water	8679894
BDC-05-14-161103 Dissolved Metals Water	8679895
BDC-05-14-161103 Dissolved Metals Water	8679896
Trip Blank Water	8679897

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To The Boeing Company
Electronic Copy To Landau

Attn: Lindsey E. Mahrt
Attn: Chris Kimmel

Respectfully Submitted,



Kay Hower

(510) 672-3979

Project Name: Boeing_DC:SWMU-17 s-ann
LL Group #: 1729222

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:**RSKSOP-175 modified, GC Miscellaneous**

Batch #: 163120012A (Sample number(s): 8679826, 8679838, 8679844, 8679850, 8679856, 8679868, 8679874, 8679880, 8679886, 8679892 UNSPK: P678783)

The recovery(ies) for the following analyte(s) in the MS and/or MSD was outside the acceptance window: Methane

EPA 200.8 rev 5.4, Metals

Batch #: 163107050027A (Sample number(s): 8679877-8679878, 8679881-8679884, 8679887-8679888 UNSPK: 8679877 BKG: 8679877)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper

EPA 200.8 rev 5.4, Metals Dissolved

Batch #: 163107050027A (Sample number(s): 8679877-8679878, 8679881-8679884, 8679887-8679888 UNSPK: 8679877 BKG: 8679877)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper

SM 5310 C-2000, Wet Chemistry

Batch #: 16312667605B (Sample number(s): 8679819, 8679825, 8679831, 8679837 UNSPK: P678013 BKG: P678013)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Total Organic Carbon

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Organic Carbon

Sample Description: BDC-05-23-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679819
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5231

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	3.7	ug/l 0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.5	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	7.4	mg/l 1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 00:28	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 00:28	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667605B	11/08/2016 06:20	Drew M Gerhart	1

Sample Description: BDC-05-23-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679820
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:06 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

D5232

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 4.2	mg/l 0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 18:33	Alexandria M Lanager	1

Sample Description: BDC-05-23-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679821
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:06 by SR

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Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0030	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 13:56	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-23-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679822
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:06 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0233	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 14:05	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-23-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679823
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:06 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 14:07	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-23-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679824
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:06 by SR The Boeing Company
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Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0226	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 14:09	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-03-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679825
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:22 by SR

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Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

DC531

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	1.4	0.2	1
11996	Trichloroethene	79-01-6	0.3	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	2.3	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 00:48	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 00:48	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667605B	11/08/2016 06:33	Drew M Gerhart	1

Sample Description: BDC-05-03-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679826
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:22 by SR

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MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

DC532

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	310	3.0	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	7.7	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 15:43	Johanna C Kennedy	1
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 18:49	Alexandria M Lanager	1

Sample Description: BDC-05-03-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679827
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:22 by SR

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Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 14:15	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-03-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679828
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:22 by SR

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Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0065	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 14:16	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-03-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679829
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:22 by SR

The Boeing Company
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MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 14:18	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-03-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679830
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:22 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0058	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 14:20	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-22-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679831
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:46 by SR

The Boeing Company
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MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5221

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	7.0	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.3	0.2	1
11996	Vinyl Chloride	75-01-4	0.8	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	5.7	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 01:08	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 01:08	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667605B	11/08/2016 07:01	Drew M Gerhart	1

Sample Description: BDC-05-22-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679832
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:46 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

D5222

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 0.57 J	mg/l 0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 19:04	Alexandria M Lanager	1

Sample Description: BDC-05-22-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679833
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:46 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 14:22	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-22-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679834
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:46 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0249	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050024A	11/19/2016 14:24	Scott P Cuff	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050024	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-22-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679835
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:46 by SR

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
06033	Metals Dissolved Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0039	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:11	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-22-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679836
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 09:46 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0253	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:20	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-20-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679837
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5201

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	1.4	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	14.1	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 01:29	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 01:29	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667605B	11/08/2016 07:15	Drew M Gerhart	1

Sample Description: BDC-05-20-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679838
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

D5202

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	2.5 J		1.0	1
07105	Ethene	74-85-1	5.2		1.0	1
07105	Methane	74-82-8	7,200 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	50 U		50	50
07105	Ethane	74-84-0	50 U		50	50
07105	Ethene	74-85-1	50 U		50	50
07105	Methane	74-82-8	8,900		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 16:00	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 11:54	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 19:20	Alexandria M Lanager	1

Sample Description: BDC-05-20-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679839
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:22	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-20-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679840
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0273	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:24	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-20-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679841
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:29	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-20-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679842
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0275	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:31	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-12-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679843
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:22 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5121

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	10.6	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 01:49	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 01:49	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667606A	11/08/2016 08:34	Drew M Gerhart	1

Sample Description: BDC-05-12-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679844
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:22 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

D5122

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	2.8 J	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	10,000 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	50 U	50	50
07105	Ethane	74-84-0	50 U	50	50
07105	Ethene	74-85-1	50 U	50	50
07105	Methane	74-82-8	12,000	150	50
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 16:17	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 12:09	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 19:36	Alexandria M Lanager	1

Sample Description: BDC-05-12-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679845
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:22 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:33	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-12-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679846
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:22 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0156	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:35	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-12-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679847
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:22 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:36	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-12-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679848
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 10:22 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0143	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050025A	11/19/2016 16:38	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050025	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-19-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679849
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5191

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	12.9	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 02:10	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 02:10	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667606A	11/08/2016 08:48	Drew M Gerhart	1

Sample Description: BDC-05-19-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679850
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

D5192

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	15,000 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	100 U	100	100
07105	Ethane	74-84-0	100 U	100	100
07105	Ethene	74-85-1	100 U	100	100
07105	Methane	74-82-8	18,000	300	100
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 J	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 16:34	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 12:25	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 19:52	Alexandria M Lanager	1

Sample Description: BDC-05-19-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679851
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:02 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 00:59	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-19-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679852
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0117	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 01:01	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-19-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679853
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:02 by SR

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PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 01:03	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-19-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679854
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0104	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 01:08	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-17-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679855
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:26 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5171

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.9	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	19.9	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 02:30	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 02:30	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667606A	11/08/2016 09:01	Drew M Gerhart	1

Sample Description: BDC-05-17-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679856
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:26 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

D5172

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	7.6		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	15,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	200 U		200	200
07105	Ethane	74-84-0	200 U		200	200
07105	Ethene	74-85-1	200 U		200	200
07105	Methane	74-82-8	19,000		600	200
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 16:51	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 12:40	Johanna C Kennedy	200
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 20:39	Alexandria M Lanager	1

Sample Description: BDC-05-17-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679857
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:26 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 01:09	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-17-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679858
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:26 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0405	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 01:11	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-17-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679859
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:26 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 01:13	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-17-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679860
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 11:26 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0350	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 01:15	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-08-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679861
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:12 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

DC581

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.5	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	4.7	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 02:51	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 02:51	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667606A	11/08/2016 09:29	Drew M Gerhart	1

Sample Description: BDC-05-08-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679862
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:12 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

DC582

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 0.30 U	mg/l 0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16320972602A	11/15/2016 20:55	Alexandria M Lanager	1

Sample Description: BDC-05-16-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679867
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:16 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5161

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.6	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	13.0	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/08/2016 22:05	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/08/2016 22:05	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667606A	11/08/2016 07:54	Drew M Gerhart	1

Sample Description: BDC-05-16-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679868
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:16 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

D5162

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0	U	1.0	1
07105	Ethane	74-84-0	6.9		1.0	1
07105	Ethene	74-85-1	1.0	U	1.0	1
07105	Methane	74-82-8	10,000	E	3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	100	U	100	100
07105	Ethane	74-84-0	100	U	100	100
07105	Ethene	74-85-1	100	U	100	100
07105	Methane	74-82-8	13,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30	U	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 17:25	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 12:55	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16320972601B	11/15/2016 16:11	Alexandria M Lanager	1

Sample Description: BDC-05-16-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679869
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:16 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

D5163

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 01:16	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-16-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679870
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:16 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5164

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0224	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163207050004A	11/17/2016 04:22	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163207050004	11/16/2016 06:11	James L Mertz	1

Sample Description: BDC-05-16-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679871
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:16 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5165

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 17:22	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-16-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679872
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:16 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

D5166

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0207	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163207050004A	11/17/2016 04:06	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163207050004	11/16/2016 06:11	James L Mertz	1

Sample Description: BDC-05-13-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679873
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:52 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5131

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	1.0	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	12.2	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 03:11	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 03:11	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667606A	11/08/2016 09:42	Drew M Gerhart	1

Sample Description: BDC-05-13-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679874
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:52 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5132

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	2.3 J		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	12,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	100 U		100	100
07105	Ethane	74-84-0	100 U		100	100
07105	Ethene	74-85-1	100 U		100	100
07105	Methane	74-82-8	15,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 17:41	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 13:11	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16320972602A	11/15/2016 21:42	Alexandria M Lanager	1

Sample Description: BDC-05-13-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679875
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:52 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050026A	11/21/2016 00:51	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050026	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-13-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679876
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:52 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0231	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163207050004A	11/17/2016 04:18	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163207050004	11/16/2016 06:11	James L Mertz	1

Sample Description: BDC-05-13-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679877
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:52 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050027A	11/18/2016 18:03	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050027	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-13-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679878
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 12:52 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0198	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050027A	11/18/2016 18:11	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050027	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-15-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679879
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 13:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5151

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	ug/l 0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	22.5	mg/l 1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 03:31	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 03:31	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667606A	11/08/2016 09:55	Drew M Gerhart	1

Sample Description: BDC-05-15-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679880
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 13:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

D5152

CAT No.	Analysis Name	CAS Number	Result		Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0	U	1.0	1
07105	Ethane	74-84-0	9.4		1.0	1
07105	Ethene	74-85-1	1.0	U	1.0	1
07105	Methane	74-82-8	11,000	E	3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	100	U	100	100
07105	Ethane	74-84-0	100	U	100	100
07105	Ethene	74-85-1	100	U	100	100
07105	Methane	74-82-8	15,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30	U	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 17:58	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 13:26	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16320972602A	11/15/2016 21:58	Alexandria M Lanager	1

Sample Description: BDC-05-15-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679881
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 13:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050027A	11/18/2016 18:13	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050027	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-15-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679882
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 13:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0471	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050027A	11/18/2016 18:14	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050027	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-15-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679883
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 13:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
	Metals Dissolved	EPA 200.8 rev 5.4	mg/l	mg/l	
06033	Copper	7440-50-8	0.0021	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050027A	11/18/2016 18:20	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050027	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-15-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679884
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 13:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0441	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050027A	11/18/2016 18:21	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050027	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-24-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679885
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5241

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.7	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2	0.2	1
11996	Vinyl Chloride	75-01-4	0.8	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	4.9	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 03:51	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 03:51	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667606A	11/08/2016 10:09	Drew M Gerhart	1

Sample Description: BDC-05-24-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679886
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

D5242

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	1.3 J		1.0	1
07105	Ethene	74-85-1	1.9 J		1.0	1
07105	Methane	74-82-8	9,100 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	50 U		50	50
07105	Ethane	74-84-0	50 U		50	50
07105	Ethene	74-85-1	50 U		50	50
07105	Methane	74-82-8	12,000		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.80 J		0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 18:15	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 13:41	Johanna C Kennedy	50
00228	Sulfate	EPA 300.0	1	16320972602A	11/15/2016 22:13	Alexandria M Lanager	1

Sample Description: BDC-05-24-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679887
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:02 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050027A	11/18/2016 18:23	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050027	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-24-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679888
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0020	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050027A	11/18/2016 18:25	Patrick J Engle	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050027	11/08/2016 16:20	JoElla L Rice	1

Sample Description: BDC-05-24-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679889
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 16:56	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-24-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679890
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:02 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0019 J	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 17:15	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-14-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679891
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:11 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

D5141

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	16.0	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/09/2016 04:12	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/09/2016 04:12	Matthew S Krause	1
00273	Total Organic Carbon	SM 5310 C-2000	1	16312667606A	11/08/2016 10:22	Drew M Gerhart	1

Sample Description: BDC-05-14-161103 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679892
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:11 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00
Reported: 11/29/2016 12:49

D5142

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l	ug/l	
07105	Acetylene	74-86-2	1.0 U	1.0	1
07105	Ethane	74-84-0	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	12,000 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	100 U	100	100
07105	Ethane	74-84-0	100 U	100	100
07105	Ethene	74-85-1	100 U	100	100
07105	Methane	74-82-8	17,000	300	100
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07105	AMEE by RSK-175	RSKSOP-175 modified	1	163120012A	11/07/2016 18:32	Johanna C Kennedy	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	163120012A	11/08/2016 14:12	Johanna C Kennedy	100
00228	Sulfate	EPA 300.0	1	16320972602A	11/15/2016 22:29	Alexandria M Lanager	1

Sample Description: BDC-05-14-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679893
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:11 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals	EPA 200.8 rev 5.4		mg/l	mg/l	
06033	Copper	7440-50-8	0.0020 U	0.0020	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 17:17	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-14-161103 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679894
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:11 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0073	0.00040	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 17:18	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-14-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679895
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:11 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Metals Dissolved					
06033	Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0020 U	mg/l 0.0020	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06033	Copper	EPA 200.8 rev 5.4	1	163107050028A	11/18/2016 17:20	Sarah L Burt	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163107050028	11/08/2016 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-14-161103 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679896
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016 14:11 by SR The Boeing Company
PO Box 3707
Submitted: 11/04/2016 10:00 MC 1W-12
Reported: 11/29/2016 12:49 Seattle WA 98124

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0074	mg/l 0.00040	1

Sample Comments

State of Washington Lab Certification No. C457
This sample was field filtered for dissolved metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06025	Arsenic	EPA 200.8 rev 5.4	1	163207050004A	11/17/2016 04:20	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	163207050004	11/16/2016 06:11	James L Mertz	1

Sample Description: Trip Blank Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8679897
LL Group # 1729222
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 11/03/2016

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/04/2016 10:00

Reported: 11/29/2016 12:49

TB-DC

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163132AA	11/08/2016 21:45	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H163132AA	11/08/2016 21:45	Matthew S Krause	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/29/2016 12:49

Group Number: 1729222

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ
	ug/l	ug/l
Batch number: H163132AA	Sample number(s): 8679819, 8679825, 8679831, 8679837, 8679843, 8679849, 8679855, 8679861, 8679867, 8679873, 8679879, 8679885, 8679891, 8679897	
cis-1,2-Dichloroethene	0.2 U	0.2
Tetrachloroethene	0.2 U	0.2
Trichloroethene	0.2 U	0.2
Vinyl Chloride	0.2 U	0.2
Analysis Name	Result	MDL
	ug/l	ug/l
Batch number: 163120012A	Sample number(s): 8679826, 8679838, 8679844, 8679850, 8679856, 8679868, 8679874, 8679880, 8679886, 8679892	
Acetylene	1.0 U	1.0
Ethane	1.0 U	1.0
Ethene	1.0 U	1.0
Methane	3.0 U	3.0
	mg/l	mg/l
Batch number: 163107050024A	Sample number(s): 8679821-8679824, 8679827-8679830, 8679833-8679834	
Arsenic	0.00040 U	0.00040
Copper	0.00021 U	0.00021
Batch number: 163107050025A	Sample number(s): 8679835-8679836, 8679839-8679842, 8679845-8679848	
Arsenic	0.00040 U	0.00040
Copper	0.00021 U	0.00021
Batch number: 163107050026A	Sample number(s): 8679851-8679854, 8679857-8679860, 8679869, 8679875	
Arsenic	0.00040 U	0.00040
Copper	0.00034 U	0.00034
Batch number: 163107050027A	Sample number(s): 8679877-8679878, 8679881-8679884, 8679887-8679888	
Arsenic	0.00040 U	0.00040
Copper	0.00034 U	0.00034
Batch number: 163107050028A	Sample number(s): 8679871, 8679889-8679890, 8679893-8679895	
Arsenic	0.00040 U	0.00040
Copper	0.00034 U	0.00034
Batch number: 163207050004A	Sample number(s): 8679870, 8679872, 8679876, 8679896	
Arsenic	0.00040 U	0.00040
Analysis Name	Result	LOQ
	mg/l	mg/l

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/29/2016 12:49

Group Number: 1729222

Method Blank (continued)

Analysis Name	Result	LOQ
	mg/l	mg/l
Batch number: 16312667605B	Sample number(s): 8679819,8679825,8679831,8679837	
Total Organic Carbon	1.0 U	1.0
Batch number: 16312667606A	Sample number(s):	
	8679843,8679849,8679855,8679861,8679867,8679873,8679879,8679885,8679891	
Total Organic Carbon	1.0 U	1.0

Analysis Name	Result	MDL
	mg/l	mg/l
Batch number: 16320972601B	Sample number(s): 8679820,8679826,8679832,8679838,8679844,8679850,8679856,8679868	
Sulfate	0.30 U	0.30
Batch number: 16320972602A	Sample number(s): 8679862,8679874,8679880,8679886,8679892	
Sulfate	0.30 U	0.30

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: H163132AA	Sample number(s): 8679819,8679825,8679831,8679837,8679843,8679849,8679855,8679861,8679867,8679873,8679879,8679885,8679891,8679897								
cis-1,2-Dichloroethene	5.00	4.79			96		80-120		
Tetrachloroethene	5.00	4.52			90		80-120		
Trichloroethene	5.00	4.87			97		80-120		
Vinyl Chloride	5.00	3.71			74		62-128		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 163120012A	Sample number(s): 8679826,8679838,8679844,8679850,8679856,8679868,8679874,8679880,8679886,8679892								
Acetylene	51.2	52.34			102		61-148		
Ethane	59.2	60.47			102		85-115		
Ethene	60.8	62.26			102		83-115		
Methane	59.8	63.51			106		85-115		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 163107050024A	Sample number(s): 8679821-8679824,8679827-8679830,8679833-8679834								
Arsenic	0.0100	0.00997			100		85-115		
Copper	0.0500	0.0492			98		85-115		
Batch number: 163107050025A	Sample number(s): 8679835-8679836,8679839-8679842,8679845-8679848								
Arsenic	0.0100	0.00961			96		85-115		
Copper	0.0500	0.0488			98		85-115		
Batch number: 163107050026A	Sample number(s): 8679851-8679854,8679857-8679860,8679869,8679875								

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/29/2016 12:49

Group Number: 1729222

LCS/LCSD (continued)

Analysis Name	LCS Spike Added mg/l	LCS Conc mg/l	LCSD Spike Added mg/l	LCSD Conc mg/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Arsenic	0.0100	0.0108			108		85-115		
Copper	0.0500	0.0481			96		85-115		
Batch number: 163107050027A	Sample number(s): 8679877-8679878,8679881-8679884,8679887-8679888								
Arsenic	0.0100	0.0102			102		85-115		
Copper	0.0500	0.0499			100		85-115		
Batch number: 163107050028A	Sample number(s): 8679871,8679889-8679890,8679893-8679895								
Arsenic	0.0100	0.00971			97		85-115		
Copper	0.0500	0.0495			99		85-115		
Batch number: 163207050004A	Sample number(s): 8679870,8679872,8679876,8679896								
Arsenic	0.0100	0.0105			105		85-115		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16312667605B	Sample number(s): 8679819,8679825,8679831,8679837								
Total Organic Carbon	25	26.75			107		91-113		
Batch number: 16312667606A	Sample number(s): 8679843,8679849,8679855,8679861,8679867,8679873,8679879,8679885,8679891								
Total Organic Carbon	25	26.53			106		91-113		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16320972601B	Sample number(s): 8679820,8679826,8679832,8679838,8679844,8679850,8679856,8679868								
Sulfate	7.50	7.47			100		90-110		
Batch number: 16320972602A	Sample number(s): 8679862,8679874,8679880,8679886,8679892								
Sulfate	7.50	7.51			100		90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: H163132AA	Sample number(s): 8679819,8679825,8679831,8679837,8679843,8679849,8679855,8679861,8679867,8679873,8679879,8679885,8679891,8679897 UNSPK: 8679867									
cis-1,2-Dichloroethene	0.130	5.00	5.41	5.00	5.61	106	110	80-120	4	30
Tetrachloroethene	0.2 U	5.00	5.37	5.00	5.56	107	111	80-120	3	30
Trichloroethene	0.2 U	5.00	5.51	5.00	5.75	110	115	80-120	4	30
Vinyl Chloride	0.628	5.00	5.01	5.00	5.23	88	92	62-128	4	30
	ug/l	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/29/2016 12:49

Group Number: 1729222

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 163120012A	Sample number(s): 8679826, 8679838, 8679844, 8679850, 8679856, 8679868, 8679874, 8679880, 8679886, 8679892 UNSPK: P678783									
Acetylene	1.0 U	51.2	44.46	51.2	48.91	87	96	61-148	10	20
Ethane	121.71	59.2	168.34	59.2	183.47	79	104	74-131	9	30
Ethene	1.0 U	60.8	61.66	60.8	68.73	101	113	72-133	11	30
Methane	17384.59	59.8	16286.57	59.8	17443.8	-1835	99 (2)	73-125	7	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 163107050024A	Sample number(s): 8679821-8679824, 8679827-8679830, 8679833-8679834 UNSPK: 8679821, P679821									
Arsenic	0.0240	0.0100	0.0351			110		70-130		
Copper	0.00301	0.0500	0.0558			105		70-130		
Batch number: 163107050025A	Sample number(s): 8679835-8679836, 8679839-8679842, 8679845-8679848 UNSPK: 8679835, P679835									
Arsenic	0.0252	0.0100	0.0331			79		70-130		
Copper	0.00392	0.0500	0.0497			92		70-130		
Batch number: 163107050026A	Sample number(s): 8679851-8679854, 8679857-8679860, 8679869, 8679875 UNSPK: 8679875, P679875									
Arsenic	0.0234	0.0100	0.0338			104		70-130		
Copper	0.00034 U	0.0500	0.0469			94		70-130		
Batch number: 163107050027A	Sample number(s): 8679877-8679878, 8679881-8679884, 8679887-8679888 UNSPK: 8679877, P679877									
Arsenic	0.0209	0.0100	0.0314			105		70-130		
Copper	0.00034 U	0.0500	0.0506			101		70-130		
Batch number: 163107050028A	Sample number(s): 8679871, 8679889-8679890, 8679893-8679895 UNSPK: 8679889, P679889									
Arsenic	0.00168	0.0100	0.0118			101		70-130		
Copper	0.00034 U	0.0500	0.0497			99		70-130		
Batch number: 163207050004A	Sample number(s): 8679870, 8679872, 8679876, 8679896 UNSPK: 8679872									
Arsenic	0.0207	0.0100	0.0313			106		70-130		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16312667605B	Sample number(s): 8679819, 8679825, 8679831, 8679837 UNSPK: P678013									
Total Organic Carbon	1.05	10	12.47			114*		91-113		
Batch number: 16312667606A	Sample number(s): 8679843, 8679849, 8679855, 8679861, 8679867, 8679873, 8679879, 8679885, 8679891 UNSPK: 8679867									
Total Organic Carbon	13	10	24.1			111		91-113		
	mg/l	mg/l	mg/l	mg/l	mg/l					

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/29/2016 12:49

Group Number: 1729222

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc mg/l	MS Spike Added mg/l	MS Conc mg/l	MSD Spike Added mg/l	MSD Conc mg/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16320972601B	Sample number(s): 8679820, 8679826, 8679832, 8679838, 8679844, 8679850, 8679856, 8679868									
Sulfate	0.30 U	10	10.28			103		90-110		
Batch number: 16320972602A	Sample number(s): 8679862, 8679874, 8679880, 8679886, 8679892 UNSPK: 8679862									
Sulfate	0.30 U	10	10.53			105		90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 163107050024A	Sample number(s): 8679821-8679824, 8679827-8679830, 8679833-8679834 BKG: 8679821, P679821			
Arsenic	0.0240	0.0250	4	20
Copper	0.00301	0.00289	4 (1)	20
Batch number: 163107050025A	Sample number(s): 8679835-8679836, 8679839-8679842, 8679845-8679848 BKG: 8679835, P679835			
Arsenic	0.0252	0.0251	0	20
Copper	0.00392	0.00404	3 (1)	20
Batch number: 163107050026A	Sample number(s): 8679851-8679854, 8679857-8679860, 8679869, 8679875 BKG: 8679875, P679875			
Arsenic	0.0234	0.0250	7	20
Copper	0.00034 U	0.00034 U	0 (1)	20
Batch number: 163107050027A	Sample number(s): 8679877-8679878, 8679881-8679884, 8679887-8679888 BKG: 8679877, P679877			
Arsenic	0.0209	0.0212	1	20
Copper	0.00034 U	0.000393	200* (1)	20
Batch number: 163107050028A	Sample number(s): 8679871, 8679889-8679890, 8679893-8679895 BKG: 8679889, P679889			
Arsenic	0.00168	0.00190	12 (1)	20
Copper	0.00034 U	0.00034 U	0 (1)	20
Batch number: 163207050004A	Sample number(s): 8679870, 8679872, 8679876, 8679896 BKG: 8679872			
Arsenic	0.0207	0.0204	2	20
Batch number: 16312667605B	Sample number(s): 8679819, 8679825, 8679831, 8679837 BKG: P678013			
Total Organic Carbon	1.05	0.882	17* (1)	3

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/29/2016 12:49

Group Number: 1729222

Laboratory Duplicate (continued)

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 16312667606A	Sample number(s): 8679843, 8679849, 8679855, 8679861, 8679867, 8679873, 8679879, 8679885, 8679891 BKG: 8679867			
Total Organic Carbon	13	13.36	3	3
	mg/l	mg/l		
Batch number: 16320972601B	Sample number(s): 8679820, 8679826, 8679832, 8679838, 8679844, 8679850, 8679856, 8679868 BKG: 8679868			
Sulfate	0.30 U	0.30 U	0 (1)	15
Batch number: 16320972602A	Sample number(s): 8679862, 8679874, 8679880, 8679886, 8679892 BKG: 8679862			
Sulfate	0.30 U	0.30 U	0 (1)	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260C VC, TCE, PCE, cis1,2-DCE
Batch number: H163132AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8679819	101	107	97	97
8679825	98	106	100	96
8679831	101	107	96	96
8679837	99	103	98	95
8679843	101	103	98	96
8679849	99	106	98	97
8679855	100	106	98	95
8679861	102	107	96	96
8679867	100	107	98	97
8679873	100	105	99	97
8679879	102	104	96	97
8679885	102	104	98	96
8679891	101	106	97	98
8679897	99	104	98	96
Blank	102	109	96	97
LCS	101	106	96	100
MS	99	107	99	102
MSD	98	106	98	102
Limits:	77-114	74-113	77-110	78-110

Analysis Name: AMEE by RSK-175
Batch number: 163120012A

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/29/2016 12:49

Group Number: 1729222

Surrogate Quality Control (continued)

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: AMEE by RSK-175
Batch number: 163120012A

	Propene
8679826	84
8679838	80
8679838DL	95
8679844	84
8679844DL	96
8679850	87
8679850DL	90
8679856	83
8679856DL	91
8679868	78
8679868DL	95
8679874	88
8679874DL	97
8679880	73
8679880DL	93
8679886	88
8679886DL	94
8679892	76
8679892DL	93
Blank	108
LCS	108
MS	78
MSD	87

Limits: 44-123

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Boeing Chain of Custody



Lancaster Laboratories

Acct. # 13419 Group # 17922 Sample # 279810-97
 For Lancaster Laboratories use only. Please print. Instructions on reverse side correspond.

1 Client Information		2 Sample Identification		3 Collected		4 Analyses Requested		5 Remarks/Comments	
Site Location: <u>Tukwila WA</u> Site Project: <u>Boeing Developmental Center</u> Site Program#: <u>SIUMV-17/025217.099.039</u> Boeing PM: <u>Lindsey Mahrt</u> Consultant Contact: <u>Chris Kimmel</u> Report To: <u>Lindsey Mahrt, Chris Kimmel</u> Invoice To: <input checked="" type="checkbox"/> Boeing EHS <input type="checkbox"/> Other (specify): Sampler: <u>Stephanie Renard, Javani Huet-Avila</u> # of Coolers: <u>2</u>		Matrix: <u>AG</u> No. of Containers: <u>9</u>		Date	Time	AMFE (RISKOP-175MOD)	TRC(SMS310)	Sulfate (300.0)	Total and Dissolved As + Cu (200.8)
BDC-05-23-161103	11/3/16	906	AG	X	X	X	X	X	Dissolved metals volumes have been field filtered
BDC-05-03-161103	11/3/16	922	AG	X	X	X	X	X	
BDC-05-22-161103	11/3/16	946	AG	X	X	X	X	X	
BDC-05-20-161103	11/3/16	1021	AG	X	X	X	X	X	
BDC-05-12-161103	11/3/16	1022	AG	X	X	X	X	X	
BDC-05-19-161103	11/3/16	1102	AG	X	X	X	X	X	
BDC-05-17-161103	11/3/16	1126	AG	X	X	X	X	X	
BDC-05-08-161103	11/3/16	1212	AG	X	X	X	X	X	
BDC-05-16-161103	11/3/16	1216	AG	X	X	X	X	X	
BDC-05-13-161103	11/3/16	1252	AG	X	X	X	X	X	
BDC-05-15-161103	11/3/16	1321	AG	X	X	X	X	X	
BDC-05-24-161103	11/3/16	1402	AG	X	X	X	X	X	
BDC-05-14-161103	11/3/16	1411	AG	X	X	X	X	X	
TRIP BLANKS	-	-	AG	X	X	X	X	X	MS/MSD

6 Turnaround Time Requested (please circle)
 Standard 72 hour
 5 day
 48 hour
 4 day
 24 hour
 Date needed: _____

Relinquished by: S. Mahrt Date/Time: 11/3/16 1530
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____
 Relinquished by commercial carrier (circle): UPS FedEx Other: _____
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____
 Received by: [Signature] Date/Time: 11/4/16 1000
 Temperature upon Receipt: 2-5-2-6C
 Custody Seals Intact?: Yes No

Client: Boeing

Delivery and Receipt Information

Delivery Method: UPS Arrival Timestamp: 11/04/2016 10:00
 Number of Packages: 2 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	N/A
Samples Chilled:	Yes	Total Trip Blank Qty:	4
Paperwork Enclosed:	Yes	Trip Blank Type:	HCl
Samples Intact:	No	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Ayesha Ahmad (10877) at 11:29 on 11/04/2016

Samples Chilled Details

Thermometer Types: *DT = Digital (Temp. Bottle)* *IR = Infrared (Surface Temp)* All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	8013596-IR	2.6	IR	Wet	Y	Loose/Bag	N
2	8013596-IR	2.5	IR	Wet	Y	Loose/Bag	N

Samples Not Intact Details

Sample ID on Label	Bottle Code	Bottle Quantity	Container Salvageable?	Comments
BDC-05-16-161103	40 ml glass vial (GC/MS) - HCl	5	N	
BDC-05-16-161103	40 ml amber vial - H3PO4	4	N	

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	none detected
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...
- W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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AOC-5

(Groundwater Sample Collection Forms and Analytical Data)

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 1005
 Sample Number: BDC-101- 160809 Weather: OVERCAST
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.3 Time: 948 Flow through cell vol. _____ GW Meter No.(s) 2
 Begin Purge: Date/Time: 8/ 9 /16 @ 950 End Purge: Date/Time: 8/ 9 /16 @ 1000 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
953	17.81	432	3.25	6.44	20.7				
956	18.29	426	3.14	6.38	30.8				
959	18.32	422	2.96	6.36	38.6				
1002									
1005									
1008									

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR YELLOW TINT NONS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	18.3	421	2.94	6.36	39.5				
2	18.32	421	2.88	6.36	40.2				
3	18.32	421	2.88	6.36	41				
4	18.32	421	2.86	6.35	41.6				
Average:	18.3	421.0	2.9	6.4	40.6	#DIV/0!	#DIV/0!	#DIV/0!	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
5	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: DSB Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/ 9 /2016 @ 940
 Sample Number: BDC-102- 160809 Weather: OVERCAST
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 12.07 Time: 913 Flow through cell vol. _____ GW Meter No.(s) 2
 Begin Purge: Date/Time: 8/ 9 /16 @ 914 End Purge: Date/Time: 8/ 9 /16 @ 935 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>917</u>	<u>17.56</u>	<u>660</u>	<u>1.7</u>	<u>6.08</u>	<u>53.4</u>				
<u>920</u>	<u>17.65</u>	<u>661</u>	<u>4</u>	<u>6.08</u>	<u>52.8</u>				
<u>923</u>	<u>17.25</u>	<u>727</u>	<u>4.23</u>	<u>6.15</u>	<u>27.9</u>				
<u>926</u>	<u>16.56</u>	<u>674</u>	<u>0.8</u>	<u>6.09</u>	<u>-38.4</u>				
<u>929</u>	<u>16.48</u>	<u>656</u>	<u>0.46</u>	<u>6.12</u>	<u>-59.9</u>				
<u>932</u>	<u>16.45</u>	<u>643</u>	<u>0.33</u>	<u>6.17</u>	<u>-75.6</u>				
<u>935</u>									

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): YELLOW TINT CLEAR NONS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
<u>1</u>	<u>16.43</u>	<u>642</u>	<u>0.32</u>	<u>6.18</u>	<u>-77.4</u>				
<u>2</u>	<u>16.44</u>	<u>642</u>	<u>0.32</u>	<u>6.18</u>	<u>-78.4</u>				
<u>3</u>	<u>16.44</u>	<u>641</u>	<u>0.32</u>	<u>6.18</u>	<u>-79.2</u>				
<u>4</u>	<u>16.45</u>	<u>641</u>	<u>0.31</u>	<u>6.19</u>	<u>-79.9</u>				
Average:	<u>16.4</u>	<u>641.5</u>	<u>0.3</u>	<u>6.2</u>	<u>-78.7</u>	<u>#DIV/0!</u>	<u>#DIV/0!</u>	<u>#DIV/0!</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
<u>5</u>	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
<u>2</u>	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: DSB Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Regional GW Monitoring - Dev. Center Project Number: 0025217.099.039
 Event: August Quarterly Date/Time: 8/9 /2016 @ 835
 Sample Number: BDC-104- 160809 Weather: OVERCASTT
 Landau Representative: SAR/DSB/JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.89 Time: 810 Flow through cell vol. _____ GW Meter No.(s) 2
 Begin Purge: Date/Time: 8/9 /16 @ 814 End Purge: Date/Time: 8/9 /16 @ 832 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other decant station (9-60 bldg)

Time	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>817</u>	<u>17.32</u>	<u>291</u>	<u>0.67</u>	<u>6.46</u>	<u>-36.1</u>				
<u>820</u>	<u>17.59</u>	<u>290</u>	<u>0.79</u>	<u>6.39</u>	<u>-49.7</u>				
<u>823</u>	<u>17.88</u>	<u>289</u>	<u>0.98</u>	<u>6.41</u>	<u>-49.7</u>				
<u>826</u>	<u>17.68</u>	<u>284</u>	<u>1.36</u>	<u>6.39</u>	<u>-39.3</u>				
<u>829</u>	<u>17.62</u>	<u>283</u>	<u>1.42</u>	<u>6.34</u>	<u>-33.3</u>				
<u>832</u>	<u>17.64</u>	<u>281</u>	<u>1.49</u>	<u>6.3</u>	<u>-28</u>				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERI
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): GREY HIGH TURBIDITY NONS

Replicate	Temp (°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
<u>1</u>	<u>17.65</u>	<u>280</u>	<u>1.53</u>	<u>6.3</u>	<u>-27.9</u>				
<u>2</u>	<u>17.67</u>	<u>280</u>	<u>1.56</u>	<u>6.3</u>	<u>-27.7</u>				
<u>3</u>	<u>17.68</u>	<u>280</u>	<u>1.55</u>	<u>6.3</u>	<u>-26.6</u>				
<u>4</u>	<u>17.67</u>	<u>280</u>	<u>1.56</u>	<u>6.29</u>	<u>-26.4</u>				
Average:	<u>17.7</u>	<u>280.0</u>	<u>1.6</u>	<u>6.3</u>	<u>-27.2</u>	<u>#DIV/0!</u>	<u>#DIV/0!</u>	<u>#DIV/0!</u>	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
<u>5</u>	VOC's (8260C) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
<u>2</u>	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing (38) short list)
	others

Duplicate Sample No(s): _____ MS/MSD location _____
 Comments: _____
 Signature: DSB Date: 8/9/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 01 /2016 @ 1336
 Sample Number: BDC-101- 161101 Weather: 60S', PARTLY SUNNY
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.55 Time: 1309 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 01 /2016 @ 1310 End Purge: Date/Time: 11/ 01 /2016 @ 1331 Gallons Purged: 0.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1313	16.9	366	1.9	6.6	49.6		11.55		
1316	16.9	326	1.3	6.49	54.4		11.55		
1319	16.9	293	0.82	6.44	56.3		11.55		
1322	16.9	282	0.71	6.44	56.5				
1325	16.9	278	0.64	6.41	58.3				
1328	17	278	0.7	6.44	56.8				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type DED BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	16.9	278	0.69	6.46	57.9				
2	16.9	278	0.69	6.45	58				
3	16.9	278	0.69	6.44	58				
4	16.9	277	0.71	6.43	57.8				
Average:	16.9	277.8	0.7	6.4	57.9	#DIV/0!	11.55		

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
5	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/1/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 01 /2016 @ 1406
 Sample Number: BDC-102- 161101 Weather: 60'S, PARTLY SUNNY
 Landau Representative: JHA

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.32 Time: 1338 Flow through cell vol. _____ GW Meter No.(s) HERON 1
 Begin Purge: Date/Time: 11/ 01 /2016 @ 1340 End Purge: Date/Time: 11/ 01 /2016 @ 1402 Gallons Purged: 0.5
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow through cell	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft		
1343	16.8	602	1.24	6.29	-6.9		11.32		
1346	16.6	599	0.92	6.27	-34.5		11.32		
1349	16.6	600	0.89	6.35	-54		11.32		
1352	16.6	600	0.87	6.42	-64.2				
1355	16.6	600	0.73	6.47	-70.8				
1358	16.6	599	0.61	6.52	-76.7				
1400	16.6	598	0.57	6.53	-79.6				

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type DED BLADDER
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, SLIGHT YELLOWISH TINIT, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
1	16.6	598	0.57	6.54	-80.2				
2	16.6	598	0.56	6.54	-80.5				
3	16.6	598	0.55	6.54	-80.9				
4	16.6	598	0.55	6.54	-81.4				
Average:	16.6	598.0	0.6	6.5	-80.8	#DIV/0!	11.32		

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
5	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: JHA Date: 11/1/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 1 /2016 @ 1342
 Sample Number: BDC-103- 161101 Weather: 60'S, SUNNY, WET
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.39 Time: 1114 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 1/2016 13.15 End Purge: Date/Time: 11/ 1 /2016 @ 1338 Gallons Purged: ~1.25
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/ Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1318</u>	<u>16.31</u>	<u>960</u>	<u>0.17</u>	<u>6.68</u>	<u>-188.4</u>	<u>-</u>	<u>11.43</u>	<u><0.25</u>	
<u>1321</u>	<u>16.44</u>	<u>872</u>	<u>0.22</u>	<u>6.67</u>	<u>-180.9</u>	<u>-</u>	<u>-</u>	<u><0.25</u>	
<u>1324</u>	<u>16.37</u>	<u>893</u>	<u>0.26</u>	<u>6.67</u>	<u>-187.5</u>	<u>-</u>	<u>11.45</u>	<u><0.50</u>	
<u>1327</u>	<u>16.31</u>	<u>870</u>	<u>0.32</u>	<u>6.69</u>	<u>-185</u>	<u>-</u>	<u>-</u>	<u><0.50</u>	<u>WAITING ON DO</u>
<u>1330</u>	<u>16.31</u>	<u>848</u>	<u>0.23</u>	<u>6.69</u>	<u>-182.7</u>	<u>-</u>	<u>11.57</u>	<u><0.75</u>	
<u>1333</u>	<u>16.5</u>	<u>840</u>	<u>0.17</u>	<u>6.7</u>	<u>-183.9</u>	<u>-</u>	<u>-</u>	<u><0.75</u>	
<u>1336</u>	<u>16.5</u>	<u>838</u>	<u>0.16</u>	<u>6.7</u>	<u>-183.7</u>	<u>-</u>	<u>-</u>	<u><1</u>	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): _____

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/ Observations
<u>1</u>	<u>16.54</u>	<u>838</u>	<u>0.16</u>	<u>6.7</u>	<u>-183.2</u>				
<u>2</u>	<u>16.56</u>	<u>837</u>	<u>0.17</u>	<u>6.7</u>	<u>-183</u>				
<u>3</u>	<u>16.52</u>	<u>835</u>	<u>0.7</u>	<u>6.7</u>	<u>-182.7</u>				
<u>4</u>	<u>16.47</u>	<u>834</u>	<u>0.16</u>	<u>6.7</u>	<u>-182.8</u>				
Average:	<u>16.5</u>	<u>836.0</u>	<u>0.3</u>	<u>6.7</u>	<u>-182.9</u>	<u>#DIV/0!</u>			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
5	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): BDC-DUP2-1611 @ 1202
 Comments: Duplicate location
 Signature: SAR Date: 11.1.16

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 1/2016 @ 1202
 Sample Number: BDC-DUP2 1611 Weather: 60'S, SUNNY, PART CLOUDS
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.39 Time: 1314 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ /2016 End Purge: Date/Time: 11/ /2016 Gallons Purged: _____
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits								>= 1 flow	
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	through cell	

SEE BDC-103 SCF FOR PURGE DATA

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): _____

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	16.64	836	0.16	6.7	-183.5				
2	16.49	836	0.15	6.71	-183.6				
3	16.45	835	0.15	6.71	-183.6				
4	16.43	834	0.14	6.71	-183.6				
Average:	16.5	835.3	0.2	6.7	-183.6	#DIV/0!			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
5	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: Duplicate to BDC-103-1611 @ 1342
 Signature: SAR Date: 11/1/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 1 /2016 @1442
 Sample Number: BDC-104 161101 Weather: 50-60, CLOUDY
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.03 Time: 1410 Flow through cell vol. _____ GW Meter No.(s) 2-HERO N
 Begin Purge: Date/Time: 11/ 1 /2016 @ 1412 End Purge: Date/Time: 11/ 1 /2016 @ 1435 Gallons Purged: 1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
<u>1415</u>	<u>16.62</u>	<u>214</u>	<u>0.29</u>	<u>6.87</u>	<u>-59.4</u>	<u>-</u>	<u>11.087</u>	<u><0.25</u>	
<u>1418</u>	<u>16.66</u>	<u>199</u>	<u>0.23</u>	<u>6.68</u>	<u>-92.7</u>	<u>-</u>	<u>-</u>	<u><0.25</u>	
<u>1421</u>	<u>16.68</u>	<u>165</u>	<u>0.43</u>	<u>6.67</u>	<u>-86.3</u>	<u>-</u>	<u>11.1</u>	<u><0.50</u>	
<u>1424</u>	<u>16.76</u>	<u>135</u>	<u>0.86</u>	<u>6.63</u>	<u>-52.7</u>	<u>-</u>	<u>-</u>	<u><0.50</u>	
<u>1427</u>	<u>16.86</u>	<u>128</u>	<u>0.93</u>	<u>6.58</u>	<u>-26.9</u>	<u>-</u>	<u>11.11</u>	<u><0.75</u>	
<u>1430</u>	<u>16.84</u>	<u>125</u>	<u>0.95</u>	<u>6.55</u>	<u>-18.4</u>	<u>-</u>	<u>-</u>	<u><0.75</u>	
<u>1433</u>	<u>16.83</u>	<u>127</u>	<u>0.89</u>	<u>6.5</u>	<u>-12</u>	<u>-</u>	<u>11.12</u>	<u><1.0</u>	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO/NS

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
<u>1</u>	<u>16.84</u>	<u>126</u>	<u>0.9</u>	<u>6.49</u>	<u>-10.7</u>				
<u>2</u>	<u>16.82</u>	<u>126</u>	<u>0.91</u>	<u>6.49</u>	<u>-10</u>				
<u>3</u>	<u>16.8</u>	<u>125</u>	<u>0.92</u>	<u>6.48</u>	<u>-9.5</u>				
<u>4</u>	<u>16.79</u>	<u>126</u>	<u>0.92</u>	<u>6.48</u>	<u>-9</u>				
Average:	<u>16.8</u>	<u>125.8</u>	<u>0.9</u>	<u>6.5</u>	<u>-9.8</u>	<u>#DIV/0!</u>			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
5	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	others

Duplicate Sample No(s): _____
 Comments: _____
 Signature: SAR Date: 11/1/2016

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 1/2016 @ 1127
 Sample Number: MW-18A- 161101 Weather: 50'S, RAIN
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.68 Time: 1057 Flow through cell vol. _____ GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 1 /2016 @1058 End Purge: Date/Time: 11/ 1 /2016 @ 1122 Gallons Purged: ~1
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1101	15.75	677	0.26	6.71	-56.1	-	-	<0.25	
1104	16.03	467	0.22	6.7	-32.2	-	11.68	<0.25	
1107	16.29	427	0.22	6.65	-18.7	-	-	<0.50	
1110	16.47	418	0.23	6.61	-17.2	-	11.68	<0.50	
1113	16.53	423	0.27	6.59	-11.4	-	-	<0.75	
1116	16.52	424	0.31	6.56	-11.2	-	11.68	<0.75	
1119	16.46	424	0.26	6.55	-9.4	-	-	<1	

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN, SMALL AMOUNT OF REDISH BRO'

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	16.48	425	0.26	6.54	-8.6				
2	16.47	426	0.26	6.54	-8.5				
3	16.48	426	0.25	6.54	-8.5				
4	16.49	426	0.25	6.54	-8.2				
Average:	16.5	425.8	0.3	6.5	-8.5	#DIV/0!		0.40 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): _____
 Comments: DO DIDN'T FULLY STABILIZED, PURGED FOR 21 MINUTES, THEN SAMPLED
 Signature: SAR Date: 11.1.16

Groundwater Low-Flow Sample Collection Form

Project Name: Developmental Center Project Number: 0025217.099.039
 Event: Quarterly November 2016 Date/Time: 11/ 1/2016 @ 1220
 Sample Number: MW-21A- 161101 Weather: 50'S, RAIN
 Landau Representative: SAR

WATER LEVEL/WELL/PURGE DATA

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: _____
 DTW Before Purging (ft) 11.85 Time: 1153 Flow through cell vol. GW Meter No.(s) 2-HERON
 Begin Purge: Date/Time: 11/ 1/2016 @ 1155 End Purge: Date/Time: 11/ 1 /2016 @ 1216 Gallons Purged: ~0.75
 Purge water disposed to: 55-gal Drum Storage Tank Ground Other _____

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Internal Purge Volume (gal)	Comments/Observations
Purge Goals: Stabilization of Parameters for three consecutive readings within the following limits									
	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 units	+/- 10 mV	+/- 10%	< 0.3 ft	>= 1 flow through cell	
1156	15.62	251	1.61	6	23.9	-	11.88	<0.25	
1159	15.21	248	1.7	5.86	38.5	-	-	<0.25	
1202	15.53	249	2.04	5.77	55.7	-	11.88	<0.50	
1205	15.64	248	1.83	5.77	64.4	-	-	<0.50	
1208	15.72	246	1.79	5.78	71.3	-	11.88	<0.75	
1211	15.68	244	1.78	5.79	75.3	-	-	<0.75	WAITING ON ORF
1214	15.67	244	1.72	5.79	78.3	-	11.89	<1	STABLE

SAMPLE COLLECTION DATA

Sample Collected With: Bailer Pump/Pump Type PERISTALTIC
 Made of: Stainless Steel PVC Teflon Polyethylene Other Dedicated
 Decon Procedure: Alconox Wash Tap Rinse DI Water Dedicated
 (By Numerical Order) Other _____
 Sample Description (color, turbidity, odor, sheen, etc.): CLEAR, COLORLESS, NO ODOR, NO SHEEN WITH DARK GRAY FIND SAND

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Ferrous iron (Fe II)	Comments/Observations
1	15.7	244	1.71	5.79	78.1				
2	15.7	244	1.7	5.79	78.1				
3	15.7	244	1.71	5.79	78				
4	15.7	244	1.7	5.79	77.8				
Average:	15.7	244.0	1.7	5.8	78.0	#DIV/0!		0.20 mg/L	

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
	(8260) (8010) (8020) (NWTPH-G) (NWTPH-Gx) (BTEX) WA <input type="checkbox"/> OR <input type="checkbox"/>
	(8270) (PAH) (NWTPH-D) (NWTPH-Dx) (TPH-HCID) (8081) (8141) (Oil & Grease) WA <input type="checkbox"/> OR <input type="checkbox"/>
2	(pH) (Conductivity) (TDS) (TSS) (BOD) (Turbidity) (Alkalinity) (HCO3/CO3) (Cl) (SO4) (NO3) (NO2) (F)
	(COD) (TOC) (Total PO4) (Total Kiedahl Nitrogen) (NH3) (NO3/NO2)
	(Total Cyanide) (WAD Cyanide) (Free Cyanide)
	(Total Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na)
	(Dissolved Metals) (As) (Sb) (Ba) (Be) (Ca) (Cd) (Co) (Cr) (Cu) (Fe) (Pb) (Mg) (Mn) (Ni) (Ag) (Se) (Tl) (V) (Zn) (Hg) (K) (Na) (Hardness) (Silic)
	VOC (Boeing short list)
	Methane Ethane Ethene Acetylene
	Ferrous Iron test
	others

Duplicate Sample No(s): MSMSD location
 Comments: _____
 Signature: SAR Date: 11.1.16

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Report Date: August 19, 2016

Project: Boeing_DC:AOC-5

Submittal Date: 08/11/2016

Group Number: 1694012

State of Sample Origin: WA

Client Sample Description

	Lancaster Labs (LL) #
BDC-103-160809 Water	8522365
BDC-103-160809 Water	8522366
BDC-104-160809 Water	8522367
BDC-104-160809 Water	8522368
BDC-102-160809 Water	8522369
BDC-102-160809 Water	8522370
BDC-101-160809 Water	8522371
BDC-101-160809 Water	8522372
BDC-DUP1-160809 Water	8522373
BDC-DUP1-160809 Water	8522374
Trip Blank Water	8522375

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>.

Electronic Copy To The Boeing Company
Electronic Copy To Landau

Attn: Lindsey E. Mahrt
Attn: Chris Kimmel

Respectfully Submitted,



Kay Hower

(510) 672-3979

Project Name: Boeing_DC:AOC-5
LL Group #: 1694012

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:**EPA 300.0, Wet Chemistry**

Sample #s: 8522365, 8522365, 8522367, 8522367, 8522369, 8522369, 8522371, 8522371, 8522373, 8522373

The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.

Batch #: 16225667901A (Sample number(s): 8522365, 8522367, 8522369, 8522371, 8522373 UNSPK: 8522367 BKG: 8522367)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Nitrite Nitrogen

Sample Description: BDC-103-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522365
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 08:30 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30
Reported: 08/19/2016 14:25

DC103

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles					
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,700	250	1
GC Volatiles					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	56	1.0	1
02102	Ethylbenzene	100-41-4	42	1.0	1
02102	Toluene	108-88-3	4.9	1.0	1
02102	m,p-Xylene	179601-23-1	210	1.0	1
02102	o-Xylene	95-47-6	51	1.0	1
Wet Chemistry					
	EPA 300.0		mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	0.10 U	0.10	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16229B94A	08/17/2016 23:48	Marie D Beamenderfer	1
02102	8021B BTEX Water	SW-846 8021B	1	16229B94A	08/17/2016 23:48	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16229B94A	08/17/2016 23:48	Marie D Beamenderfer	1
00368	Nitrate Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 09:49	Drew M Gerhart	1
01506	Nitrite Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 09:49	Drew M Gerhart	1

Sample Description: BDC-103-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522366
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 08:30 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/19/2016 14:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 31.1	mg/l 3.0	10

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 05:05	Alexandria M Lanager	10

Sample Description: BDC-104-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522367
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 08:35 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30
Reported: 08/19/2016 14:25

DC104

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles					
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	1.0 U	1.0	1
02102	Ethylbenzene	100-41-4	1.0 U	1.0	1
02102	Toluene	108-88-3	1.0 U	1.0	1
02102	m,p-Xylene	179601-23-1	1.0 U	1.0	1
02102	o-Xylene	95-47-6	1.0 U	1.0	1
Wet Chemistry					
	EPA 300.0		mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	8.1	0.50	5
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16229B94A	08/17/2016 21:40	Marie D Beamenderfer	1
02102	8021B BTEX Water	SW-846 8021B	1	16229B94A	08/17/2016 21:40	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16229B94A	08/17/2016 21:40	Marie D Beamenderfer	1
00368	Nitrate Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 10:52	Drew M Gerhart	5
01506	Nitrite Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 10:04	Drew M Gerhart	1

Sample Description: BDC-104-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522368
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 08:35 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/19/2016 14:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 42.2	mg/l 3.0	10

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 04:21	Alexandria M Lanager	10

Sample Description: BDC-102-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522369
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 09:40 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30
Reported: 08/19/2016 14:25

DC102

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles					
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	1.0 U	1.0	1
02102	Ethylbenzene	100-41-4	1.0 U	1.0	1
02102	Toluene	108-88-3	1.0 U	1.0	1
02102	m,p-Xylene	179601-23-1	1.0 U	1.0	1
02102	o-Xylene	95-47-6	1.0 U	1.0	1
Wet Chemistry					
	EPA 300.0		mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	14.0	1.0	10
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16229B94A	08/18/2016 00:14	Marie D Beamenderfer	1
02102	8021B BTEX Water	SW-846 8021B	1	16229B94A	08/18/2016 00:14	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16229B94A	08/18/2016 00:14	Marie D Beamenderfer	1
00368	Nitrate Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 11:07	Drew M Gerhart	10
01506	Nitrite Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 10:19	Drew M Gerhart	1

Sample Description: BDC-102-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522370
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 09:40 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/19/2016 14:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 42.6	mg/l 3.0	10

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 05:49	Alexandria M Lanager	10

Sample Description: BDC-101-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522371
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 10:05 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30
Reported: 08/19/2016 14:25

DC101

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles					
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	1.0 U	1.0	1
02102	Ethylbenzene	100-41-4	1.0 U	1.0	1
02102	Toluene	108-88-3	1.0 U	1.0	1
02102	m,p-Xylene	179601-23-1	1.0 U	1.0	1
02102	o-Xylene	95-47-6	1.0 U	1.0	1
Wet Chemistry					
	EPA 300.0		mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	16.1	1.0	10
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16229B94A	08/18/2016 00:40	Marie D Beamenderfer	1
02102	8021B BTEX Water	SW-846 8021B	1	16229B94A	08/18/2016 00:40	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16229B94A	08/18/2016 00:40	Marie D Beamenderfer	1
00368	Nitrate Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 11:22	Drew M Gerhart	10
01506	Nitrite Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 10:33	Drew M Gerhart	1

Sample Description: BDC-101-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522372
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 10:05 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/19/2016 14:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 45.8	mg/l 3.0	10

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 06:04	Alexandria M Lanager	10

Sample Description: BDC-DUP1-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522373
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 08:00 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30
Reported: 08/19/2016 14:25

DCFD1

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles					
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	1,700	250	1
GC Volatiles					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	58	1.0	1
02102	Ethylbenzene	100-41-4	43	1.0	1
02102	Toluene	108-88-3	4.7	1.0	1
02102	m,p-Xylene	179601-23-1	210	1.0	1
02102	o-Xylene	95-47-6	52	1.0	1
Wet Chemistry					
	EPA 300.0		mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	0.10 U	0.10	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1
	The holding time was not met. The sample was submitted to the laboratory with insufficient time remaining in the holding time.				

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16229B94A	08/18/2016 01:05	Marie D Beamenderfer	1
02102	8021B BTEX Water	SW-846 8021B	1	16229B94A	08/18/2016 01:05	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16229B94A	08/18/2016 01:05	Marie D Beamenderfer	1
00368	Nitrate Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 09:34	Drew M Gerhart	1
01506	Nitrite Nitrogen	EPA 300.0	1	16225667901A	08/12/2016 09:34	Drew M Gerhart	1

Sample Description: BDC-DUP1-160809 Water
Boeing_DC: AOC-5

LL Sample # WW 8522374
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016 08:00 by DB

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/19/2016 14:25

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 30.7	mg/l 3.0	10

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16228972901B	08/16/2016 06:19	Alexandria M Lanager	10

Sample Description: Trip Blank Water
Boeing_DC: AOC-5

LL Sample # WW 8522375
LL Group # 1694012
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 08/09/2016

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 08/11/2016 09:30

Reported: 08/19/2016 14:25

DC-TB

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles		ECY 97-602	NWTPH-Gx	ug/l	ug/l
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	1.0 U	1.0	1
02102	Ethylbenzene	100-41-4	1.0 U	1.0	1
02102	Toluene	108-88-3	1.0 U	1.0	1
02102	m,p-Xylene	179601-23-1	1.0 U	1.0	1
02102	o-Xylene	95-47-6	1.0 U	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16229B94A	08/17/2016 21:14	Marie D Beamenderfer	1
02102	8021B BTEX Water	SW-846 8021B	1	16229B94A	08/17/2016 21:14	Marie D Beamenderfer	1
01146	GC VOA Water Prep	SW-846 5030B	1	16229B94A	08/17/2016 21:14	Marie D Beamenderfer	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/19/2016 14:25

Group Number: 1694012

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ
	ug/l	ug/l
Batch number: 16229B94A	Sample number(s):	8522365, 8522367, 8522369, 8522371, 8522373, 8522375
Benzene	1.0 U	1.0
Ethylbenzene	1.0 U	1.0
NWTPH-Gx water C7-C12	250 U	250
Toluene	1.0 U	1.0
m,p-Xylene	1.0 U	1.0
o-Xylene	1.0 U	1.0
	mg/l	mg/l
Batch number: 16225667901A	Sample number(s):	8522365, 8522367, 8522369, 8522371, 8522373
Nitrate Nitrogen	0.10 U	0.10
Nitrite Nitrogen	0.10 U	0.10

Analysis Name	Result	MDL
	mg/l	mg/l
Batch number: 16228972901B	Sample number(s):	8522366, 8522368, 8522370, 8522372, 8522374
Sulfate	0.30 U	0.30

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16229B94A	Sample number(s):	8522365, 8522367, 8522369, 8522371, 8522373, 8522375							
Benzene	20	17.39			87		80-120		
Ethylbenzene	20.1	16.79			84		80-120		
NWTPH-Gx water C7-C12	1100	1168.96			106		79-120		
Toluene	20.2	17.4			86		80-120		
m,p-Xylene	40.2	35.65			89		80-120		
o-Xylene	20	17.59			88		80-120		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16225667901A	Sample number(s):	8522365, 8522367, 8522369, 8522371, 8522373							
Nitrate Nitrogen	0.750	0.782			104		90-110		
Nitrite Nitrogen	0.750	0.765			102		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16228972901B	Sample number(s):	8522366, 8522368, 8522370, 8522372, 8522374							
Sulfate	7.50	7.52			100		90-110		

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/19/2016 14:25

Group Number: 1694012

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: 16229B94A	Sample number(s): 8522365,8522367,8522369,8522371,8522373,8522375 UNSPK: 8522367									
Benzene	1.0	U 20	22.07	20	21.78	110	109	80-120	1	30
Ethylbenzene	1.0	U 20.1	21.07	20.1	21.14	105	105	80-120	0	30
NWTPH-Gx water C7-C12	250	U 1100	1221.94	1100	1233.09	111	112	79-120	1	30
Toluene	1.0	U 20.2	21.74	20.2	21.59	108	107	80-120	1	30
m,p-Xylene	1.0	U 40.2	44.19	40.2	44.36	110	110	80-120	0	30
o-Xylene	1.0	U 20	20.75	20	20.82	104	104	80-120	0	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16225667901A	Sample number(s): 8522365,8522367,8522369,8522371,8522373 UNSPK: 8522367									
Nitrate Nitrogen	8.12	U 5.00	12.8			94		90-110		
Nitrite Nitrogen	0.10	U 1.00	0.872			87*		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16228972901B	Sample number(s): 8522366,8522368,8522370,8522372,8522374 UNSPK: 8522368									
Sulfate	42.25	U 100	141.77			100		90-110		

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 16225667901A	Sample number(s): 8522365,8522367,8522369,8522371,8522373 BKG: 8522367			
Nitrate Nitrogen	8.12	8.05	1	15
Nitrite Nitrogen	0.10 U	0.10 U	0 (1)	15
	mg/l	mg/l		
Batch number: 16228972901B	Sample number(s): 8522366,8522368,8522370,8522372,8522374 BKG: 8522368			
Sulfate	42.25	42.82	1 (1)	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8021B BTEX Water
Batch number: 16229B94A

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/19/2016 14:25

Group Number: 1694012

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

	Trifluorotoluene-P	Trifluorotoluene-F
8522365	84	88
8522367	88	82
8522369	89	82
8522371	88	82
8522373	89	83
8522375	87	95
Blank	87	103
LCS	86	91
MS	87	91
MSD	87	91
Limits:	51-120	63-135

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Client: Boeing

AOC-5

Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>08/11/2016 9:30</u>
Number of Packages:	<u>4</u>	Number of Projects:	<u>2</u>
State/Province of Origin:	<u>WA</u>		

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace \geq 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	2
Paperwork Enclosed:	Yes	Trip Blank Type:	HCI
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Cory Jeremiah (10469) at 18:31 on 08/11/2016

Samples Chilled Details: AOC-5

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	32170023	4.9	IR	Wet	Y	Bagged	N
4	32170023	5.1	IR	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

RL	Reporting Limit	BMQL	Below Minimum Quantitation Level
N.D.	none detected	MPN	Most Probable Number
TNTC	Too Numerous To Count	CP Units	cobalt-chloroplatinate units
IU	International Units	NTU	nephelometric turbidity units
umhos/cm	micromhos/cm	ng	nanogram(s)
C	degrees Celsius	F	degrees Fahrenheit
meq	milliequivalents	lb.	pound(s)
g	gram(s)	kg	kilogram(s)
µg	microgram(s)	mg	milligram(s)
mL	milliliter(s)	L	liter(s)
m³	cubic meter(s)	µL	microliter(s)
		pg/L	picogram/liter
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

This report shall not be reproduced except in full, without the written approval of the laboratory.

Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL, LLC BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL AND (B) WHETHER EUROFINS LANCASTER LABORATORIES ENVIRONMENTAL HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Report Date: November 18, 2016

Project: Boeing_DC:AOC-5

Submittal Date: 11/02/2016

Group Number: 1727669

State of Sample Origin: WA

Client Sample Description

	Lancaster Labs (LL) #
MW-18A-161101 Water	8673621
BDC-DUP2-161101 Water	8673622
BDC-DUP2-161101 Water	8673623
MW-21A-161101 Water	8673624
MW-17A-161101 Water	8673625
BDC-101-161101 Water	8673626
BDC-101-161101 Water	8673627
BDC-103-161101 Water	8673628
BDC-103-161101 Water	8673629
BDC-102-161101 Water	8673630
BDC-102-161101 Water	8673631
BDC-104-161101 Water	8673632
BDC-104-161101 Water	8673633
Trip Blank Water	8673634

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices. Our current scopes of accreditation can be viewed at <http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/>. To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To The Boeing Company
Electronic Copy To Landau

Attn: Lindsey E. Mahrt

Attn: Chris Kimmel

Respectfully Submitted,



Kay Hower

(510) 672-3979

Project Name: Boeing_DC:AOC-5
LL Group #: 1727669

General Comments:

See the Laboratory Sample Analysis Record section of the Analysis Report for the method references.

All QC met criteria unless otherwise noted in an Analysis Specific Comment below. Refer to the QC Summary for specific values and acceptance criteria.

Project specific QC samples are included in this data set

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Surrogate recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in an Analysis Specific Comment below.

The samples were received at the appropriate temperature and in accordance with the chain of custody unless otherwise noted.

Analysis Specific Comments:**SW-846 8260C, GC/MS Volatiles****Sample #s: 8673625**

A preserved vial was submitted for analysis. However, the pH at the time of analysis was 7.

Sample Description: MW-18A-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673621
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 11:27 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
00368	Nitrate Nitrogen	14797-55-8	0.10 U	0.10	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00368	Nitrate Nitrogen	EPA 300.0	1	16307120172B	11/02/2016 21:21	Hallie Burnett	1

Sample Description: BDC-DUP2-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673622
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 12:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25
Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles					
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	3,700	250	1
GC Volatiles					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	69	1.0	1
02102	Ethylbenzene	100-41-4	98	1.0	1
02102	Toluene	108-88-3	19	1.0	1
02102	m,p-Xylene	179601-23-1	310	1.0	1
02102	o-Xylene	95-47-6	140	1.0	1
Wet Chemistry					
	EPA 300.0		mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	0.10 U	0.10	1
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16308A53A	11/03/2016 21:38	Brett W Kenyon	1
02102	8021B BTEX Water	SW-846 8021B	1	16308A53A	11/03/2016 21:38	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16308A53A	11/03/2016 21:38	Brett W Kenyon	1
00368	Nitrate Nitrogen	EPA 300.0	1	16307120172B	11/02/2016 22:19	Hallie Burnett	1
01506	Nitrite Nitrogen	EPA 300.0	1	16307120172B	11/02/2016 22:19	Hallie Burnett	1

Sample Description: BDC-DUP2-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673623
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 12:02 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 0.61 J	mg/l 0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16319120171A	11/14/2016 13:05	Hallie Burnett	1

Sample Description: MW-21A-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673624
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 12:20 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

DC21A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
00368	Wet Chemistry Nitrate Nitrogen	EPA 300.0 14797-55-8	mg/l 0.10	mg/l 0.10	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00368	Nitrate Nitrogen	EPA 300.0	1	16307120172B	11/02/2016 19:39	Hallie Burnett	1

Sample Description: MW-17A-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673625
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 12:21 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

DC17A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	8.2	ug/1 0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.4	0.2	1
11996	Vinyl Chloride	75-01-4	0.8	0.2	1
A preserved vial was submitted for analysis. However, the pH at the time of analysis was 7.					
Wet Chemistry EPA 300.0					
00368	Nitrate Nitrogen	14797-55-8	0.10 U	mg/1 0.10	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163151AA	11/10/2016 18:02	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	H163151AA	11/10/2016 18:02	Kerri E Legerlotz	1
00368	Nitrate Nitrogen	EPA 300.0	1	16307120172B	11/02/2016 22:49	Hallie Burnett	1

Sample Description: BDC-101-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673626
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 13:36 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	1.0 U	1.0	1
02102	Ethylbenzene	100-41-4	1.0 U	1.0	1
02102	Toluene	108-88-3	1.0 U	1.0	1
02102	m,p-Xylene	179601-23-1	1.0 U	1.0	1
02102	o-Xylene	95-47-6	1.0 U	1.0	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	2.3	0.10	1
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16308A53A	11/03/2016 22:06	Brett W Kenyon	1
02102	8021B BTEX Water	SW-846 8021B	1	16308A53A	11/03/2016 22:06	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16308A53A	11/03/2016 22:06	Brett W Kenyon	1
00368	Nitrate Nitrogen	EPA 300.0	1	16307120172B	11/02/2016 23:18	Hallie Burnett	1
01506	Nitrite Nitrogen	EPA 300.0	1	16307120172B	11/02/2016 23:18	Hallie Burnett	1

Sample Description: BDC-101-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673627
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 13:36 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 20.0	mg/l 1.5	5

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16319120171A	11/15/2016 18:59	Alexandria M Lanager	5

Sample Description: BDC-103-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673628
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 13:42 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles					
	ECY 97-602 NWTPH-Gx		ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	4,500	250	1
GC Volatiles					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	83	1.0	1
02102	Ethylbenzene	100-41-4	120	1.0	1
02102	Toluene	108-88-3	24	1.0	1
02102	m,p-Xylene	179601-23-1	360	1.0	1
02102	o-Xylene	95-47-6	180	1.0	1
Wet Chemistry					
	EPA 300.0		mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	0.10 U	0.10	1
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16308A53A	11/03/2016 22:34	Brett W Kenyon	1
02102	8021B BTEX Water	SW-846 8021B	1	16308A53A	11/03/2016 22:34	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16308A53A	11/03/2016 22:34	Brett W Kenyon	1
00368	Nitrate Nitrogen	EPA 300.0	1	16307120172B	11/02/2016 23:47	Hallie Burnett	1
01506	Nitrite Nitrogen	EPA 300.0	1	16307120172B	11/02/2016 23:47	Hallie Burnett	1

Sample Description: BDC-103-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673629
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 13:42 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 0.68 J	mg/l 0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16319120171A	11/14/2016 13:34	Hallie Burnett	1

Sample Description: BDC-102-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673630
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 14:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	1.0 U	1.0	1
02102	Ethylbenzene	100-41-4	1.0 U	1.0	1
02102	Toluene	108-88-3	1.0 U	1.0	1
02102	m,p-Xylene	179601-23-1	1.0 U	1.0	1
02102	o-Xylene	95-47-6	1.0 U	1.0	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	0.10	0.10	1
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16308A53A	11/03/2016 23:02	Brett W Kenyon	1
02102	8021B BTEX Water	SW-846 8021B	1	16308A53A	11/03/2016 23:02	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16308A53A	11/03/2016 23:02	Brett W Kenyon	1
00368	Nitrate Nitrogen	EPA 300.0	1	16307120172B	11/03/2016 00:16	Hallie Burnett	1
01506	Nitrite Nitrogen	EPA 300.0	1	16307120172B	11/03/2016 00:16	Hallie Burnett	1

Sample Description: BDC-102-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673631
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 14:06 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 1.4	mg/l 0.30	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16319120171A	11/14/2016 14:18	Hallie Burnett	1

Sample Description: BDC-104-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673632
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 14:42 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles					
	ECY 97-602	NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles					
	SW-846	8021B	ug/l	ug/l	
02102	Benzene	71-43-2	1.0 U	1.0	1
02102	Ethylbenzene	100-41-4	1.0 U	1.0	1
02102	Toluene	108-88-3	1.0 U	1.0	1
02102	m,p-Xylene	179601-23-1	1.0 U	1.0	1
02102	o-Xylene	95-47-6	1.0 U	1.0	1
Wet Chemistry					
	EPA 300.0		mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	3.4	1.0	10
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
08274	NWTPH-Gx water C7-C12	ECY 97-602	1	16308A53A	11/03/2016 23:30	Brett W Kenyon	1
		NWTPH-Gx					
02102	8021B BTEX Water	SW-846 8021B	1	16308A53A	11/03/2016 23:30	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16308A53A	11/03/2016 23:30	Brett W Kenyon	1
00368	Nitrate Nitrogen	EPA 300.0	1	16307972601B	11/03/2016 03:41	Alexandria M Lanager	10
01506	Nitrite Nitrogen	EPA 300.0	1	16307972601B	11/03/2016 03:26	Alexandria M Lanager	1

Sample Description: BDC-104-161101 Water
Boeing_DC: AOC-5

LL Sample # WW 8673633
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016 14:42 by SR

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25

Reported: 11/18/2016 12:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 22.3	mg/l 1.5	5

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
00228	Sulfate	EPA 300.0	1	16319120171A	11/15/2016 19:13	Alexandria M Lanager	5

Sample Description: Trip Blank Water
Boeing_DC: AOC-5

LL Sample # WW 8673634
LL Group # 1727669
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 11/01/2016

The Boeing Company
PO Box 3707
MC 1W-12
Seattle WA 98124

Submitted: 11/02/2016 09:25
Reported: 11/18/2016 12:20

DC-TB

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
GC Volatiles		ECY 97-602 NWTPH-Gx	ug/l	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles		SW-846 8021B	ug/l	ug/l	
02102	Benzene	71-43-2	1.0 U	1.0	1
02102	Ethylbenzene	100-41-4	1.0 U	1.0	1
02102	Toluene	108-88-3	1.0 U	1.0	1
02102	m,p-Xylene	179601-23-1	1.0 U	1.0	1
02102	o-Xylene	95-47-6	1.0 U	1.0	1

Sample Comments

State of Washington Lab Certification No. C457

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
11996	8260C VC, TCE, PCE, cis1,2-DCE	SW-846 8260C	1	H163124AA	11/08/2016 05:43	Matthew S Krause	1
01163	GC/MS VOA Water Prep	SW-846 5030C	1	H163124AA	11/08/2016 05:43	Matthew S Krause	1
08274	NWTPH-Gx water C7-C12	ECY 97-602 NWTPH-Gx	1	16308A53A	11/03/2016 15:09	Brett W Kenyon	1
02102	8021B BTEX Water	SW-846 8021B	1	16308A53A	11/03/2016 15:09	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	16308A53A	11/03/2016 15:09	Brett W Kenyon	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/18/2016 12:20

Group Number: 1727669

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

Method Blank

Analysis Name	Result	LOQ
	ug/l	ug/l
Batch number: H163124AA	Sample number(s): 8673634	
cis-1,2-Dichloroethene	0.2 U	0.2
Tetrachloroethene	0.2 U	0.2
Trichloroethene	0.2 U	0.2
Vinyl Chloride	0.2 U	0.2
Batch number: H163151AA	Sample number(s): 8673625	
cis-1,2-Dichloroethene	0.2 U	0.2
Tetrachloroethene	0.2 U	0.2
Trichloroethene	0.2 U	0.2
Vinyl Chloride	0.2 U	0.2
Batch number: 16308A53A	Sample number(s): 8673622, 8673626, 8673628, 8673630, 8673632, 8673634	
Benzene	1.0 U	1.0
Ethylbenzene	1.0 U	1.0
NWTPH-Gx water C7-C12	250 U	250
Toluene	1.0 U	1.0
m,p-Xylene	1.0 U	1.0
o-Xylene	1.0 U	1.0
	mg/l	mg/l
Batch number: 16307120172B	Sample number(s): 8673621-8673622, 8673624-8673626, 8673628, 8673630	
Nitrate Nitrogen	0.10 U	0.10
Nitrite Nitrogen	0.10 U	0.10
Batch number: 16307972601B	Sample number(s): 8673632	
Nitrate Nitrogen	0.10 U	0.10
Nitrite Nitrogen	0.10 U	0.10
Analysis Name	Result	MDL
	mg/l	mg/l
Batch number: 16319120171A	Sample number(s): 8673623, 8673627, 8673629, 8673631, 8673633	
Sulfate	0.30 U	0.30

LCS/LCSD

Analysis Name	LCS Spike Added	LCS Conc	LCSD Spike Added	LCSD Conc	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
	ug/l	ug/l	ug/l	ug/l					

*- Outside of specification

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/18/2016 12:20

Group Number: 1727669

LCS/LCSD

Analysis Name	LCS Spike Added ug/l	LCS Conc ug/l	LCSD Spike Added ug/l	LCSD Conc ug/l	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: H163124AA	Sample number(s): 8673634								
cis-1,2-Dichloroethene	5.00	4.78	5.00	4.71	96	94	80-120	1	30
Tetrachloroethene	5.00	4.63	5.00	4.69	93	94	80-120	1	30
Trichloroethene	5.00	4.90	5.00	4.84	98	97	80-120	1	30
Vinyl Chloride	5.00	3.83	5.00	3.70	77	74	62-128	4	30
Batch number: H163151AA	Sample number(s): 8673625								
cis-1,2-Dichloroethene	5.00	4.84			97		80-120		
Tetrachloroethene	5.00	4.43			89		80-120		
Trichloroethene	5.00	4.86			97		80-120		
Vinyl Chloride	5.00	3.66			73		62-128		
	ug/l	ug/l	ug/l	ug/l					
Batch number: 16308A53A	Sample number(s): 8673622,8673626,8673628,8673630,8673632,8673634								
Benzene	20	21.19	20	21.54	106	108	80-120	2	30
Ethylbenzene	20.1	19.41	20.1	19.8	97	99	80-120	2	30
NWTPH-Gx water C7-C12	1100	1025.37	1100	1037.05	93	94	79-120	1	30
Toluene	20.2	20.2	20.2	20.36	100	101	80-120	1	30
m,p-Xylene	40.2	41.78	40.2	42.41	104	105	80-120	1	30
o-Xylene	20	19.95	20	20.06	100	100	80-120	1	30
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16307120172B	Sample number(s): 8673621-8673622,8673624-8673626,8673628,8673630								
Nitrate Nitrogen	0.750	0.747			100		90-110		
Nitrite Nitrogen	0.750	0.722			96		90-110		
Batch number: 16307972601B	Sample number(s): 8673632								
Nitrate Nitrogen	0.750	0.759			101		90-110		
Nitrite Nitrogen	0.750	0.738			98		90-110		
	mg/l	mg/l	mg/l	mg/l					
Batch number: 16319120171A	Sample number(s): 8673623,8673627,8673629,8673631,8673633								
Sulfate	7.50	7.21			96		90-110		

MS/MSD

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Batch number: H163151AA	Sample number(s): 8673625 UNSPK: P678782									
cis-1,2-Dichloroethene	0.106	5.00	4.96	5.00	5.15	97	101	80-120	4	30
Tetrachloroethene	0.2 U	5.00	4.72	5.00	4.63	94	93	80-120	2	30

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/18/2016 12:20

Group Number: 1727669

MS/MSD (continued)

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike

Analysis Name	Unspiked Conc ug/l	MS Spike Added ug/l	MS Conc ug/l	MSD Spike Added ug/l	MSD Conc ug/l	MS %Rec	MSD %Rec	MS/MSD Limits	RPD	RPD Max
Trichloroethene	0.2	U 5.00	5.08	5.00	5.15	102	103	80-120	1	30
Vinyl Chloride	0.2	U 5.00	4.21	5.00	4.10	84	82	62-128	3	30
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16307120172B	Sample number(s): 8673621-8673622,8673624-8673626,8673628,8673630 UNSPK: 8673624, P673624									
Nitrate Nitrogen	0.104	1.00	1.10			99		90-110		
Nitrite Nitrogen	0.10	U 1.00	0.928			93		90-110		
Batch number: 16307972601B	Sample number(s): 8673632 UNSPK: P673958									
Nitrate Nitrogen	17.06	50	66.97			100		90-110		
Nitrite Nitrogen	0.50	U 5.00	4.81			96		90-110		
	mg/l	mg/l	mg/l	mg/l	mg/l					
Batch number: 16319120171A	Sample number(s): 8673623,8673627,8673629,8673631,8673633 UNSPK: P674595									
Sulfate	344.38	500	838.81	500	850.72	99	101	90-110	1	20

Laboratory Duplicate

Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	BKG Conc mg/l	DUP Conc mg/l	DUP RPD	DUP RPD Max
Batch number: 16307120172B	Sample number(s): 8673621-8673622,8673624-8673626,8673628,8673630 BKG: 8673624, P673624			
Nitrate Nitrogen	0.104	0.104	0 (1)	15
Nitrite Nitrogen	0.10	U 0.10	0 (1)	15
Batch number: 16307972601B	Sample number(s): 8673632 BKG: P673958			
Nitrate Nitrogen	17.06	17.91	5 (1)	15
Nitrite Nitrogen	0.50	U 0.50	0 (1)	15
	mg/l	mg/l		
Batch number: 16319120171A	Sample number(s): 8673623,8673627,8673629,8673631,8673633 BKG: P674595			
Sulfate	344.38	342.76	0	15

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/18/2016 12:20

Group Number: 1727669

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260C VC, TCE, PCE, cis1,2-DCE
Batch number: H163124AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8673634	100	107	99	96
Blank	98	106	98	95
LCS	101	106	98	99
LCSD	97	102	99	100
Limits:	77-114	74-113	77-110	78-110

Analysis Name: 8260C VC, TCE, PCE, cis1,2-DCE
Batch number: H163151AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8673625	96	106	99	103
Blank	99	104	100	97
LCS	99	101	97	100
MS	98	105	98	102
MSD	100	107	95	101
Limits:	77-114	74-113	77-110	78-110

Analysis Name: 8021B BTEX Water
Batch number: 16308A53A

	Trifluorotoluene-P	Trifluorotoluene-F
8673622	102	102
8673626	101	100
8673628	104	100
8673630	100	101
8673632	100	110
8673634	100	109
Blank	101	101
LCS	100	107
LCSD	100	108
Limits:	51-120	63-135

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

P##### is indicative of a Background or Unspiked sample that is batch matrix QC and was not performed using a sample from this submission group.

Boeing Chain of Custody



Lancaster Laboratories

Acct. # 13419 Group # 1727669 Sample # 8673621-34

For Eurofins Lancaster Laboratories use only
Please print. Instructions on reverse side correspond.

1 Client Information

Site Location: Tukwila, WA

Site Project: Boeing Developmental Center

Site Program#: AOC-S/0025217.099.039

Boeing PM: Lindsey Mahrt

Consultant Contact: Chris Kimmel

Report To: Lindsey Mahrt, Chris Kimmel

Invoice To: Boeing EFS Other (specify):

Sampler: Stephanie Renardo, Terany Huerta-Avila # of Coolers: 1

4 Analyses Requested

Sample Identification	Collected Date	Time	Matrix	No. of Containers
MW-18A-161101	11/1/16	1127	AQ	2
BDC-DUP2-161101	11/1/16	1102	AQ	7
MW-21A-161101	11/1/16	1220	AQ	6
MW-17A-161101	11/1/16	1221	AQ	5
BDC-101-161101	11/1/16	1336	AQ	7
BDC-103-161101	11/1/16	1342	AQ	7
BDC-102-161101	11/1/16	1406	AQ	7
BDC-104-161101	11/1/16	1442	AQ	7
TRIP BLANKS	—	—	AQ	6

5 Remarks/Comments

Short Hold

Nitrates

MSMSD

6 Turnaround Time Requested (please circle)

Standard (circled)

72 hour

5 day

48 hour

4 day

24 hour

Date needed: _____

Relinquished by: Stephanie Renardo

Relinquished by: _____

Relinquished by: _____

Relinquished by commercial carrier (circle):

UPS FedEx Other: _____

Temperature upon Receipt: 3 °C

Custody Seals Intact?: Yes No

Received by: _____ Date/Time: _____

Received by: _____ Date/Time: _____

Received by: _____ Date/Time: 11/2/16 0928

Client: Boeing

1727669

Delivery and Receipt Information

Delivery Method: UPS Arrival Timestamp: 11/02/2016 9:25
 Number of Packages: 1 Number of Projects: 1

Arrival Condition Summary

Shipping Container Sealed:	Yes	Sample IDs on COC match Containers:	Yes
Custody Seal Present:	Yes	Sample Date/Times match COC:	Yes
Custody Seal Intact:	Yes	VOA Vial Headspace ≥ 6mm:	No
Samples Chilled:	Yes	Total Trip Blank Qty:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Krista Abel (3058) at 09:48 on 11/02/2016

Samples Chilled Details

Thermometer Types: DT = Digital (Temp. Bottle) IR = Infrared (Surface Temp) All Temperatures in °C.

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	1.3	DT	Wet	Y	Bagged	N

Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

BMQL	Below Minimum Quantitation Level	mg	milligram(s)
C	degrees Celsius	mL	milliliter(s)
cfu	colony forming units	MPN	Most Probable Number
CP Units	cobalt-chloroplatinate units	N.D.	none detected
F	degrees Fahrenheit	ng	nanogram(s)
g	gram(s)	NTU	nephelometric turbidity units
IU	International Units	pg/L	picogram/liter
kg	kilogram(s)	RL	Reporting Limit
L	liter(s)	TNTC	Too Numerous To Count
lb.	pound(s)	µg	microgram(s)
m3	cubic meter(s)	µL	microliter(s)
meq	milliequivalents	umhos/cm	micromhos/cm
<	less than		
>	greater than		
ppm	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg) or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

Laboratory Data Qualifiers:

- B - Analyte detected in the blank
- C - Result confirmed by reanalysis
- E - Concentration exceeds the calibration range
- J (or G, I, X) - estimated value \geq the Method Detection Limit (MDL or DL) and $<$ the Limit of Quantitation (LOQ or RL)
- P - Concentration difference between the primary and confirmation column $>40\%$. The lower result is reported.
- U - Analyte was not detected at the value indicated
- V - Concentration difference between the primary and confirmation column $>100\%$. The reporting limit is raised due to this disparity and evident interference...
- W - The dissolved oxygen uptake for the unseeded blank is greater than 0.20 mg/L.

Additional Organic and Inorganic CLP qualifiers may be used with Form 1 reports as defined by the CLP methods. Qualifiers specific to Dioxin/Furans and PCB Congeners are detailed on the individual Analysis Report.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff.

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Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" are not performed within 15 minutes.

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