



February 12, 2016

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

Attn: Byung Maeng

Transmitted via email to: *BMAE461@ecy.wa.gov*

**Re: October 2015 Semiannual Groundwater Monitoring Report
Boeing Developmental Center, Tukwila, Washington
Project No. 0025093.115.012**

Dear Byung:

This letter and attached data constitutes the semiannual letter report for groundwater monitoring at The Boeing Company Developmental Center in Tukwila, Washington. This report covers the period following the April 2015 semiannual sampling event (and corresponding report) through the semiannual event in October 2015. This report 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 Units (SWMU)-20 and SWMU-17, and Area of Concern (AOC)-05. All other SWMUs and AOCs identified in the 1994 Resource Conservation Recovery Act Facility Assessment have been excluded from further investigation based on determinations that they do not pose a threat to human health or the environment.

Groundwater monitoring during the reporting period was performed in October 2015 at SWMU-20; and in July and October 2015 at SWMU-17 and AOC-05 wells. 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 compounds (VOCs) concentrations trend charts are provided for key constituents present in SWMU-20. A well location figure and cumulative data tables are provided for SWMU-17. Included for AOC-05 are a well location figure; 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, *in situ* anaerobic bioremediation continued treatment of tetrachloroethene (PCE), trichloroethene (TCE), and breakdown products, following the prior electron donor injection performed in August 2008. Groundwater monitoring results indicate that enhanced treatment was waning, despite sulfate-reducing to methanogenic aquifer redox conditions continuing at all four source zone monitoring wells (MW-6A, MW-6B, MW-9A, and MW-22A). Evidence of waning

biotreatment include total organic carbon (TOC) concentrations declined to near-baseline concentrations at MW-6A and MW-6B, and degradation end products (ethene or ethane) present only at MW-9A (see SWMU-20 Cleanup Action Summary – Source Zone table). At all source zone wells, PCE and TCE remained below reporting limits; cDCE concentrations were less than 1 microgram per liter ($\mu\text{g/L}$), well below the proposed CUL (134 $\mu\text{g/L}$); and VC detections were below the proposed CUL (2.4 $\mu\text{g/L}$), with the exception of MW-6A (2.5 $\mu\text{g/L}$). Following the successful source zone bioremediation that resulted from donor injection to source-zone wells, remaining PCE and TCE detections were present at wells located crossgradient [north (MW-13A and MW-17A) and south (MW-11A)] or upgradient (east; MW-16A) (see SWMU-20 Non-Source Zone Wells Summary table). PCE was less than the proposed CUL (5.3 $\mu\text{g/L}$) at all wells and TCE detections exceeded the proposed CUL (1.4 $\mu\text{g/L}$) at only two wells (MW-16A [1.5 $\mu\text{g/L}$] and MW-17A [2.6 $\mu\text{g/L}$]). cDCE and VC detections at all non-source zone wells were at or below their respective proposed CULs of 134 and 2.4 $\mu\text{g/L}$. To enhance treatment conditions at wells where contaminant concentrations remain at or near the proposed CULs, Boeing implemented an electron donor injection in October and November 2015, following the October 2015 semiannual monitoring event. The donor injection work was performed in accordance with the September 10, 2015 work plan addendum. Semiannual monitoring will continue in SWMU-20 to evaluate potential source zone rebound and trends at upgradient and crossgradient wells, per the Ecology-approved monitoring reduction program that was implemented during the April 2015 sampling event.

At SWMU-17, groundwater monitoring results from July and October 2015 show that *in situ* anaerobic bioremediation continued to be enhanced following the August 2011 electron donor injection, as evidenced by PCE, TCE, and cDCE concentrations below the proposed cleanup levels at all wells; ethene/ethane production at 15 of the 17 wells where analyzed; and sulfate-reducing to methanogenic aquifer redox conditions. Final chlorinated breakdown product VC was present at only two wells (BDC-05-16 [2.8 $\mu\text{g/L}$] and BDC-05-21 [4.1 $\mu\text{g/L}$]) above the proposed CUL (2.4 $\mu\text{g/L}$) in October, down from 8 wells above the CUL at the end of the last reporting period in April 2015. Non-toxic end products ethene and ethane were predominant on a molar basis over PCE, TCE, cDCE, and VC at 14 of the 15 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 (3 to 32 milligrams per liter [mg/L]). Quarterly and semiannual monitoring will continue for evaluation of treatment progress. Additional donor injection within SWMU-17 is not necessary at this time.

At AOC-05, nitrate available for *in situ* anaerobic bioremediation of TPH-G and BTEX became depleted. The last (ninth) injection of nitrate electron acceptor solution took place (at well BDC-103 only) in November 2013. At downgradient wells BDC-101 and BDC-102, and at previously impacted well BDC-104, TPH-G and BTEX remained below reporting limits. However, at BDC-103, contaminant concentrations exceeded the proposed CULs for TPH-G (October only), benzene (July and October),

ethylbenzene (July and October), and total xylenes (October only), while toluene was detected below the proposed CUL. Nitrate was not detected in October and an additional nitrate injection, which is planned for March 2016, will be needed for continued biotreatment. Nitrate monitoring was also performed at the two nearest downgradient wells and at four wells located farther downgradient. Nitrate concentrations were above the 10 mg/L action level at downgradient well BDC-101 (July only) and BDC-102 (July and October). 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 (425-778-0907) 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

CLJ/tam

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Enclosures: Developmental Center Groundwater Monitoring – October 2015
 SWMU-20 Data Tables, Maps, and Trend Charts
 SWMU-17 Data Tables and Map
 AOC-05 Data Table, Trend Charts, and Map
 Groundwater Contour Map and Elevation Table
 Groundwater Sample Collection Forms and Analytical Data (DVD)

cc: James Bet, Boeing EHS Remediation (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
OCTOBER 2015***

**DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
OCTOBER 2015**

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
OCTOBER 2015

Sample Name:	DC-MW-6A	DC-MW-6B	DC-MW-9A	DC-MW-10C	DC-MW-11A	DC-MW-13A	MW-13A-Dup	DC-MW-13C	DC-MW-14C	DC-MW-15C
Lab SDG:	1604790	1604790	1604790	1604790	1604790	1604790	1604790	1604790	1604790	1604790
Lab Sample ID:	8109393	8109395	8109397	8109400	8109399	8109401	8109408	8109402	8109405	8109404
Sample Date:	10/26/2015	10/26/2015	10/26/2015	10/26/2015	10/26/2015	10/27/2015	10/27/2015	10/27/2015	10/27/2015	10/27/2015
Test ID: VOA SW8260C (µg/L)										
Acetone	5.0 U									
Acrolein	25 U									
Acrylonitrile	5.0 U									
Benzene	0.2 U									
Bromobenzene	0.5 U									
Bromochloromethane	0.5 U									
Bromodichloromethane	0.5 U									
Bromoform	0.5 U									
Bromomethane	0.5 U									
2-Butanone	5.0 U									
n-Butylbenzene	0.5 U									
sec-Butylbenzene	0.5 U									
tert-Butylbenzene	0.5 U									
Carbon Disulfide	0.5 U									
Carbon Tetrachloride	0.2 U									
Chlorobenzene	0.5 U									
Chloroethane	0.5 U									
Chloroform	0.2 U	2.3	2.4	0.2 U	0.2 U					
Chloromethane	0.5 U									
2-Chlorotoluene	0.5 U									
4-Chlorotoluene	0.5 U									
1,2-Dibromo-3-chloropropane	0.5 U									
Dibromochloromethane	0.5 U									
Dibromomethane	0.5 U									
trans-1,4-Dichloro-2-butene	5.0 U									
1,2-Dichlorobenzene	0.5 U									
1,3-Dichlorobenzene	0.5 U									
1,4-Dichlorobenzene	0.5 U									
1,1-Dichloroethane	0.5 U									
1,2-Dichloroethane	0.2 U									
1,1-Dichloroethene	0.2 U									
cis-1,2-Dichloroethene	0.2	0.2 U	0.2 U	1.0	19	0.2 U	0.2 U	0.2 U	0.2 U	0.5
trans-1,2-Dichloroethene	0.2 U	0.2 U	0.4	0.2 U	0.8	0.2 U	0.2 U	0.2	0.2 U	0.3
1,2-Dichloropropane	0.5 U									
1,3-Dichloropropane	0.5 U									
2,2-Dichloropropane	0.5 U									
1,1-Dichloropropene	0.5 U									
cis-1,3-Dichloropropene	0.2 U									
trans-1,3-Dichloropropene	0.2 U									
Ethylbenzene	0.5 U									
Ethylene Dibromide	0.5 U									
Hexachlorobutadiene	0.5 U									
2-Hexanone	5.0 U									
Isopropylbenzene	0.5 U									
4-Isopropyltoluene	0.5 U									
Methyl Iodide	0.5 U									

SWMU-20 VOA/CONVENTIONALS DATA
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
OCTOBER 2015

Sample Name:	DC-MW-6A	DC-MW-6B	DC-MW-9A	DC-MW-10C	DC-MW-11A	DC-MW-13A	MW-13A-Dup	DC-MW-13C	DC-MW-14C	DC-MW-15C
Lab SDG:	1604790	1604790	1604790	1604790	1604790	1604790	1604790	1604790	1604790	1604790
Lab Sample ID:	8109393	8109395	8109397	8109400	8109399	8109401	8109408	8109402	8109405	8109404
Sample Date:	10/26/2015	10/26/2015	10/26/2015	10/26/2015	10/26/2015	10/27/2015	10/27/2015	10/27/2015	10/27/2015	10/27/2015
4-Methyl-2-Pentanone (MIBK)	5.0 U									
Methylene Chloride	0.5 U									
Naphthalene	0.5 UJ	0.5 UJ	1.8 J	0.5 UJ						
n-Propylbenzene	0.5 U									
Styrene	0.5 U									
1,1,1,2-Tetrachloroethane	0.5 U									
1,1,2,2-Tetrachloroethane	0.2 U									
Tetrachloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2	1.5	1.6	0.2 U	0.2 U	0.2 U
Toluene	0.2 U									
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5 U									
1,2,3-Trichlorobenzene	0.5 UJ									
1,2,4-Trichlorobenzene	0.5 U	0.5 UJ								
1,1,1-Trichloroethane	0.5 U									
1,1,2-Trichloroethane	0.2 U									
Trichloroethene	0.2 U	0.2 U	0.2 U	0.2 U	0.2	0.3	0.3	0.2 U	0.2 U	0.2 U
Trichlorofluoromethane	0.5 U									
1,2,3-Trichloropropane	1.0 U									
1,2,4-Trimethylbenzene	0.5 U									
1,3,5-Trimethylbenzene	0.5 U									
Vinyl Acetate	0.5 U									
Vinyl Chloride	2.5	1.0	0.2 U	1.1	0.4	0.2 U	0.2 U	0.2	0.2 U	2.0
m,p-Xylene	0.5 U									
o-Xylene	0.5 U									
NATURAL ATTENUATION PARAMETERS										
Method Modified RSK175 (µg/L)										
Methane	410	1900	21000							
Ethane	1.0 U	1.0 U	49							
Ethene	1.0 U	1.0 U	1.0 U							
Conventional Parameters										
Nitrate (mg/L) (EPA 300.0)										
Sulfate (mg/L) (EPA 300.0)	19.7	2.0	0.57 J							
Total Organic Carbon (mg/L) (SM5310C)	6.5	4.9	21.7							

SWMU-20 VOA/CONVENTIONALS DATA
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
OCTOBER 2015

Sample Name:	DC-MW-16A	DC-MW-16C	DC-MW17A	DC-MW-20C	DC-MW-22A	TRIP BLANK
Lab SDG:	1604790	1604790	1604790	1604790	1604790	1604790
Lab Sample ID:	8109391	8109392	8109390	8109403	8109406	8109409
Sample Date:	10/26/2015	10/26/2015	10/26/2015	10/27/2015	10/27/2015	10/27/2015
Test ID: VOA SW8260C (µg/L)						
Acetone	5.0 U					
Acrolein	25 U	25 U	25 U	25 UJ	25 UJ	25 U
Acrylonitrile	5.0 U					
Benzene	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U
Bromobenzene	0.5 U					
Bromochloromethane	0.5 U					
Bromodichloromethane	0.5 U					
Bromoform	0.5 U					
Bromomethane	0.5 U					
2-Butanone	5.0 U					
n-Butylbenzene	0.5 U					
sec-Butylbenzene	0.5 U					
tert-Butylbenzene	0.5 U					
Carbon Disulfide	0.5 U					
Carbon Tetrachloride	0.2 U					
Chlorobenzene	0.5 U					
Chloroethane	0.5 U					
Chloroform	0.2 U					
Chloromethane	0.5 UJ	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U
2-Chlorotoluene	0.5 U					
4-Chlorotoluene	0.5 U					
1,2-Dibromo-3-chloropropane	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
Dibromochloromethane	0.5 U					
Dibromomethane	0.5 U					
trans-1,4-Dichloro-2-butene	5.0 UJ	5.0 U				
1,2-Dichlorobenzene	0.5 U					
1,3-Dichlorobenzene	0.5 U					
1,4-Dichlorobenzene	0.5 U					
1,1-Dichloroethane	0.5 U					
1,2-Dichloroethane	0.2 U					
1,1-Dichloroethene	0.2 U					
cis-1,2-Dichloroethene	0.3	2.7	1.1	1.0	0.5	0.2 U
trans-1,2-Dichloroethene	0.2 U	0.2	0.2 U	0.2 U	0.2 U	0.2 U
1,2-Dichloropropane	0.5 U					
1,3-Dichloropropane	0.5 U					
2,2-Dichloropropane	0.5 U					
1,1-Dichloropropene	0.5 U					
cis-1,3-Dichloropropene	0.2 U					
trans-1,3-Dichloropropene	0.2 U					
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	1.8	0.5 U
Ethylene Dibromide	0.5 U					
Hexachlorobutadiene	0.5 U					
2-Hexanone	5.0 U					
Isopropylbenzene	0.5 U					
4-Isopropyltoluene	0.5 U					
Methyl Iodide	0.5 U					

SWMU-20 VOA/CONVENTIONALS DATA
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
OCTOBER 2015

Sample Name:	DC-MW-16A	DC-MW-16C	DC-MW17A	DC-MW-20C	DC-MW-22A	TRIP BLANK
Lab SDG:	1604790	1604790	1604790	1604790	1604790	1604790
Lab Sample ID:	8109391	8109392	8109390	8109403	8109406	8109409
Sample Date:	10/26/2015	10/26/2015	10/26/2015	10/27/2015	10/27/2015	10/27/2015
4-Methyl-2-Pentanone (MIBK)	5.0 U					
Methylene Chloride	0.5 U					
Naphthalene	0.5 UJ	0.5 UJ	0.5 UJ	0.5 UJ	4.7 J	0.5 U
n-Propylbenzene	0.5 U					
Styrene	0.5 U					
1,1,1,2-Tetrachloroethane	0.5 U					
1,1,2,2-Tetrachloroethane	0.2 U					
Tetrachloroethene	1.5	0.2 U	3.4	0.2 U	0.2 U	0.2 U
Toluene	0.2 U	0.2 U	0.2 U	0.2 U	0.5	0.2 U
1,1,2-Trichloro-1,2,2-trifluoroethane	0.5 U					
1,2,3-Trichlorobenzene	0.5 UJ	0.5 U				
1,2,4-Trichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
1,1,1-Trichloroethane	0.5 U					
1,1,2-Trichloroethane	0.2 U					
Trichloroethene	1.5	0.2 U	2.6	0.2 U	0.2 U	0.2 U
Trichlorofluoromethane	0.5 U					
1,2,3-Trichloropropane	1.0 U					
1,2,4-Trimethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.6	0.5 U
1,3,5-Trimethylbenzene	0.5 U					
Vinyl Acetate	0.5 U					
Vinyl Chloride	0.2 U	1.1	0.2 U	0.9	1.5	0.2 U
m,p-Xylene	0.5 U	0.5 U	0.5 U	0.5 U	0.8	0.5 U
o-Xylene	0.5 U	0.5 U	0.5 U	0.5 U	2.7	0.5 U
NATURAL ATTENUATION PARAMETERS						
Method Modified RSK175 (µg/L)						
Methane					3500	
Ethane					1.0 U	
Ethene					1.0 U	
Conventional Parameters						
Nitrate (mg/L) (EPA 300.0)						
Sulfate (mg/L) (EPA 300.0)					2.6	
Total Organic Carbon (mg/L) (SM5310C)					16.7	

µg/L = micrograms per liter

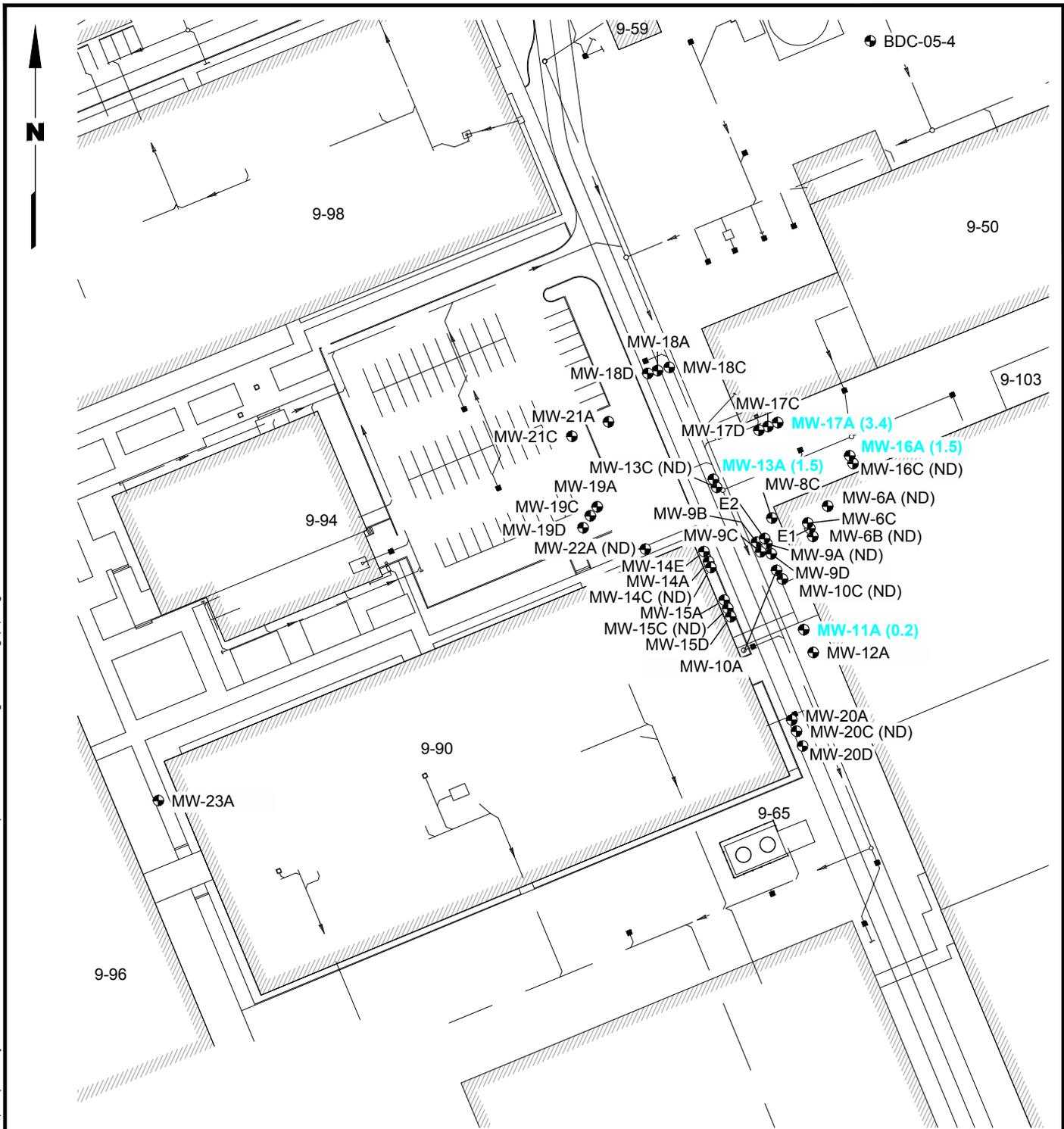
mg/L = milligrams per liter

EPA = U.S. 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.



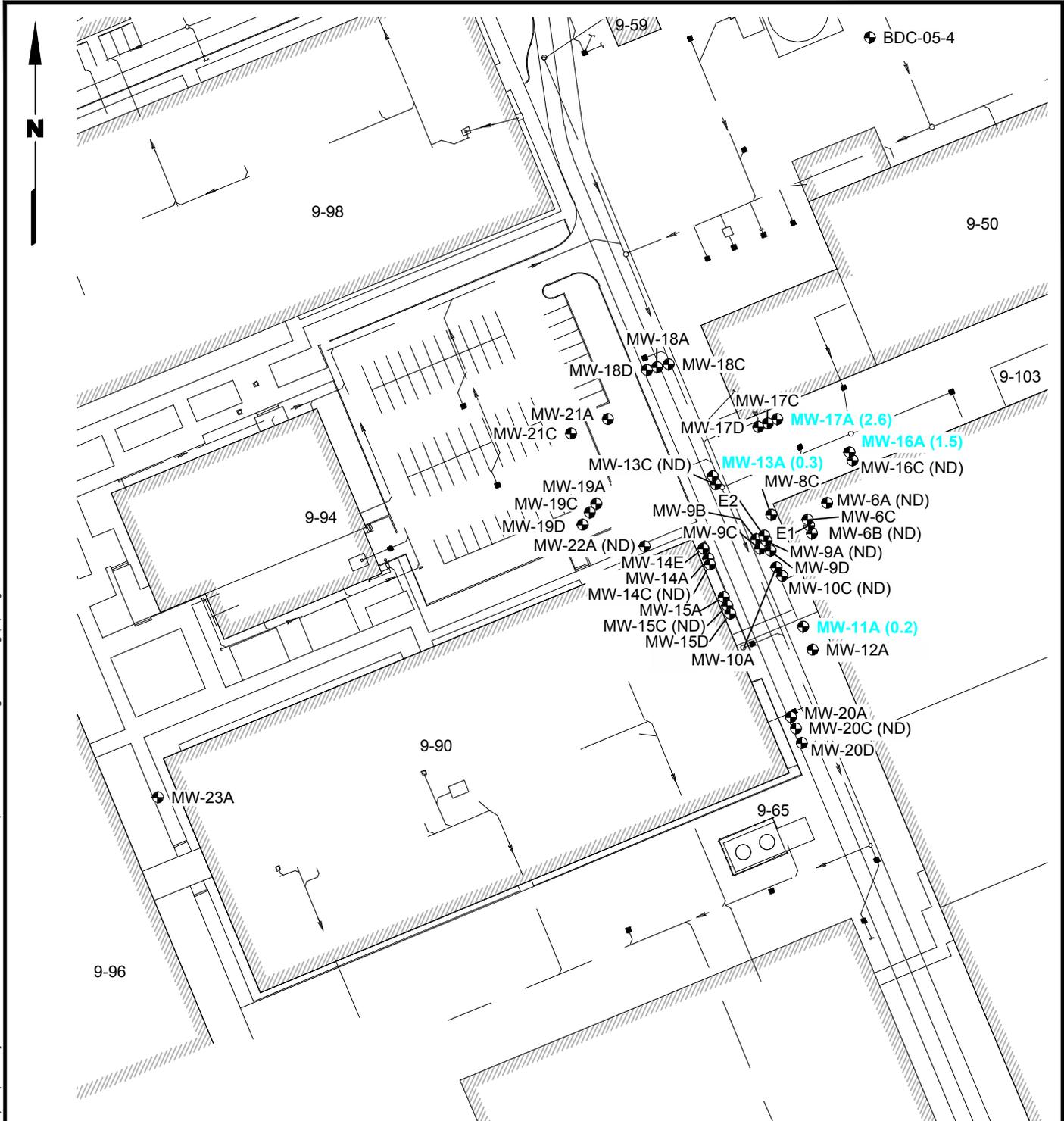
Legend

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



Boeing Developmental Center Tukwila, Washington	SWMU-20 Tetrachloroethene October 2015 Groundwater Concentrations	Figure 1
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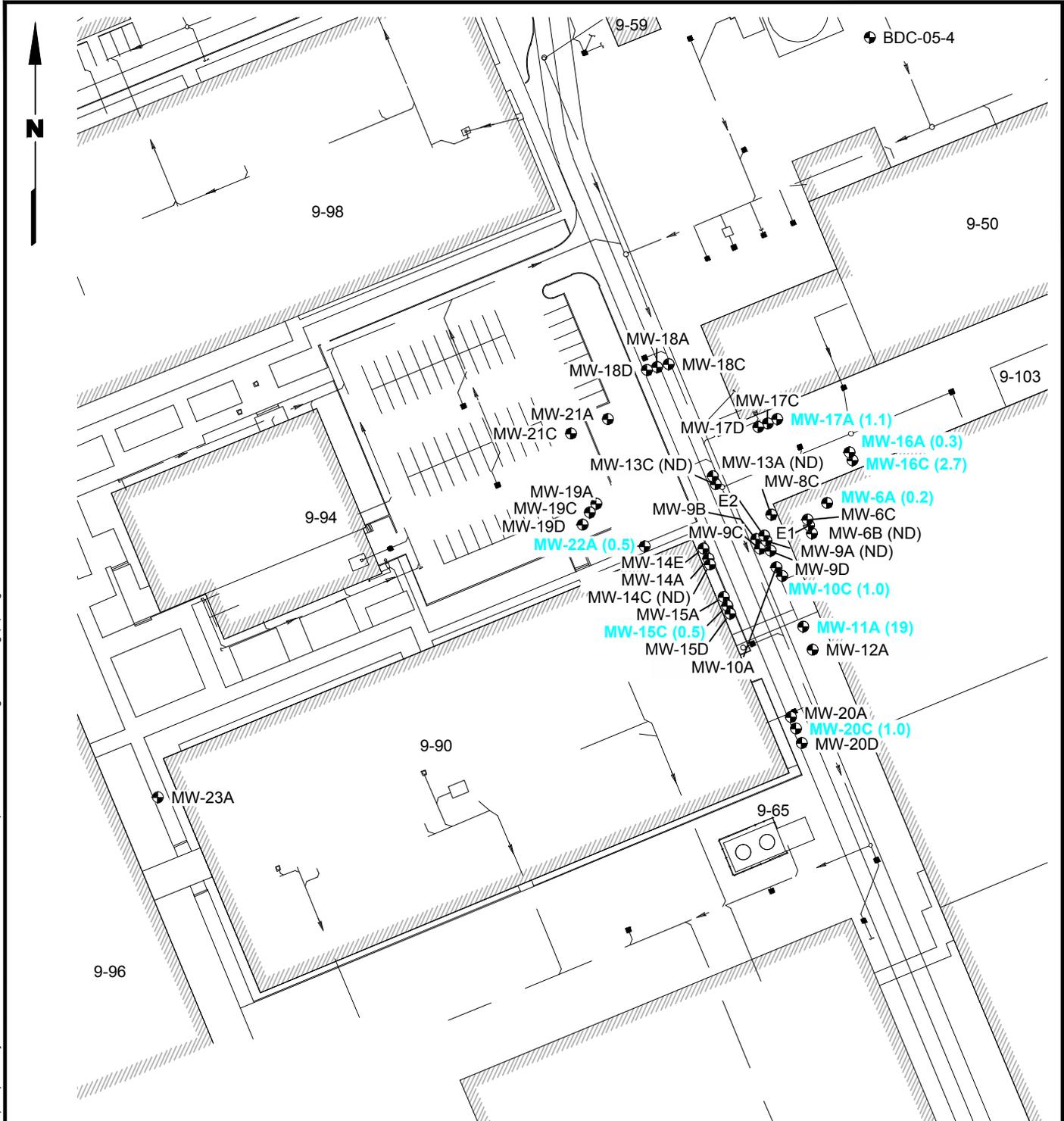


Legend

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



Boeing Developmental Center Tukwila, Washington	SWMU-20 Trichloroethene October 2015 Groundwater Concentrations	Figure 2
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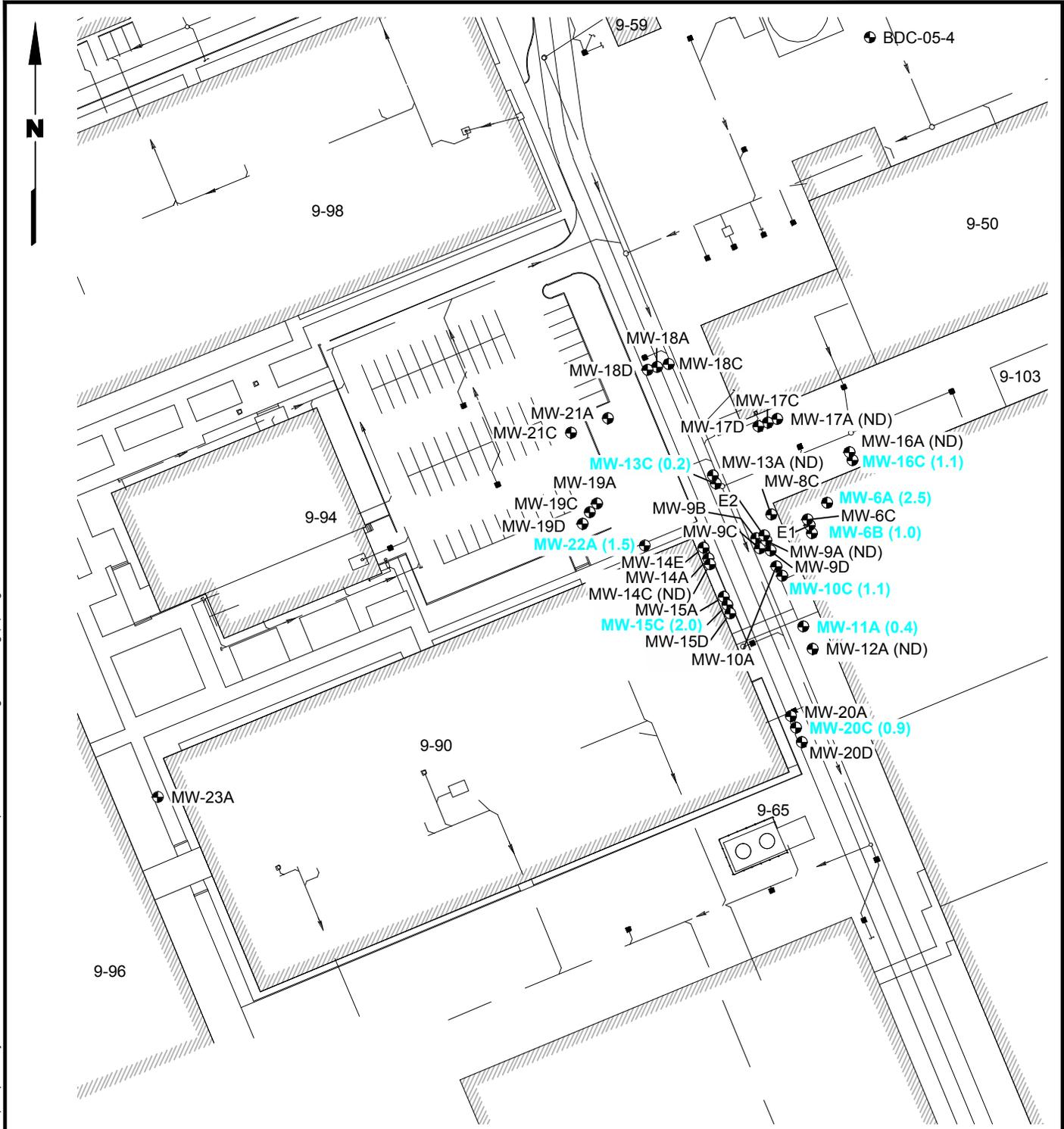


Legend

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



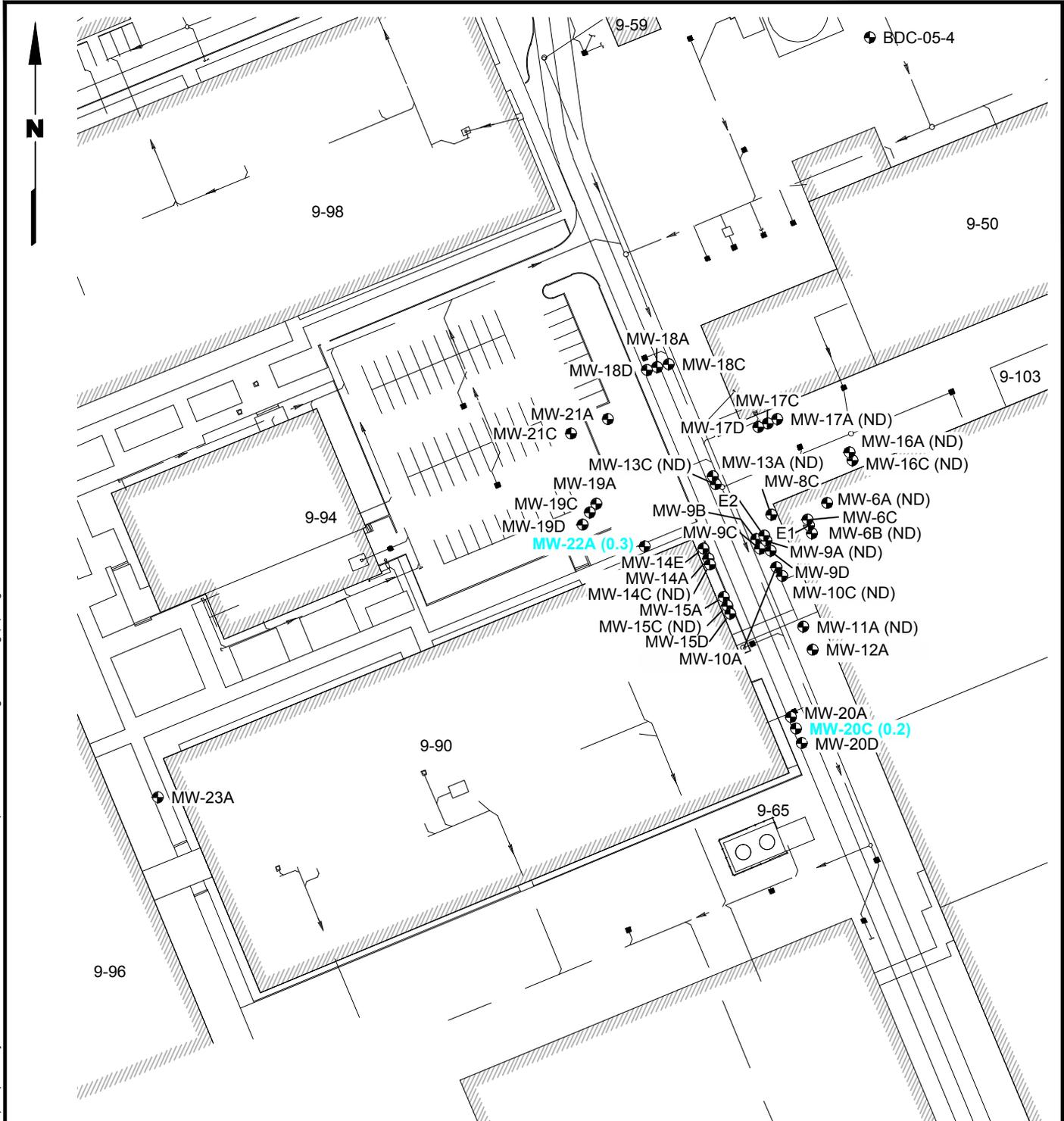
Boeing Developmental Center Tukwila, Washington	SWMU-20 Cis-1,2-Dichloroethene October 2015 Groundwater Concentrations	Figure 3
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- Legend**
-  Monitoring Well Location
 - (ND) Vinyl Chloride Not Detected at 0.2 µg/L Detection Limit
 - (2.5) Vinyl Chloride Groundwater Concentration in µg/L



Boeing Developmental Center Tukwila, Washington	SWMU-20 Vinyl Chloride October 2015 Groundwater Concentrations	Figure 4
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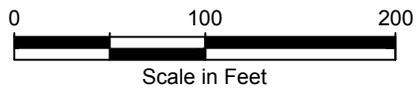
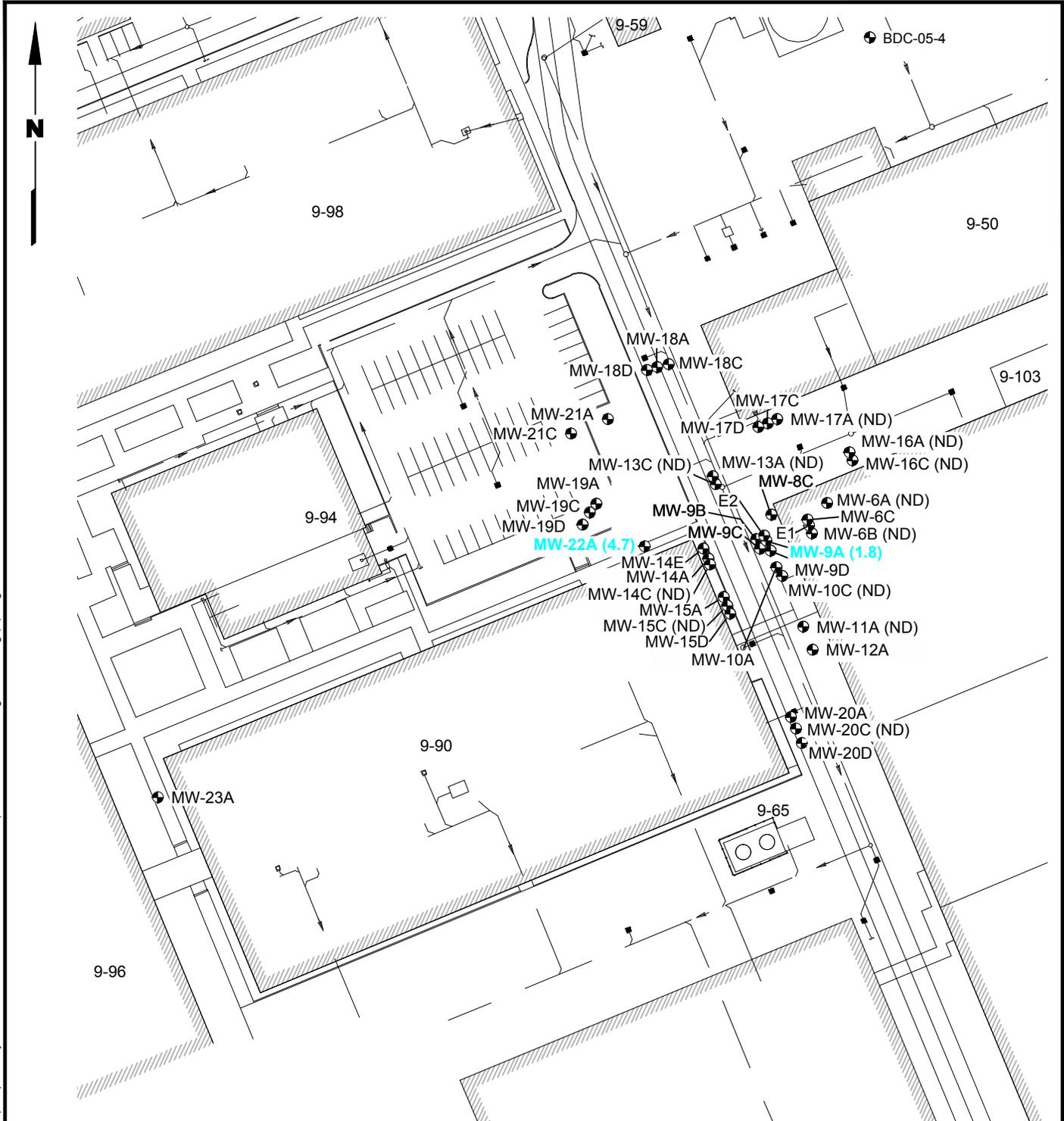
Legend

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



Boeing Developmental Center Tukwila, Washington	SWMU-20 Benzene October 2015 Groundwater Concentrations	Figure 5
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Legend

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



Boeing Developmental Center
Tukwila, Washington

**SWMU-20 Naphthalene
October 2015
Groundwater Concentrations**

Figure
6

**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	<3.00	<5.00	<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	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	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	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	<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	<5.00	<5.00	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	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	<5.00	<5.00	<5.00	nt	<5.00	nt	nt	<5.00
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	<1.00	nt	<1.00	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	nt	<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	nt	<1.00	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	<1.00	nt	<1.00	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	<1.00	nt	<1.00	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		<1.00	<1.00	<1.00	<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	<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
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
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
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
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
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
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
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
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
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
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
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
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	<0.1	<0.2	<0.5	<0.2	<0.2	<0.2	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
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
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
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
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	<1.0	<0.2	<2.0	<5.0	<2.0	<2.0	<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
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	<1.00
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		<1.00	<1.00	<1.00	<1.00	<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
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
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
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
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
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
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
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
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
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
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
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
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	<1.0	<0.2	<1.0	<0.2	<0.5	<0.2	<0.2	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
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
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
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
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
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
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
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
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
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
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	<1.0	<0.2	<2.0	<5.0	<2.0	<2.0	<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
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
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
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
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	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	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	<1.00	<1.00	<1.00	<3.0	<5.0	<1.00	nt	<1.00	nt	nt	<1.00
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	<1.00
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	<1.00	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	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
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	<1.00	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	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
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	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
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	<1.00	<1.00	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	<1.00	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	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
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	<1.00	<1.00	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	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	nt	<1.00	nt	nt	<1.00
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	<1.00	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	<1.00	<1.00	<1.00	<1.00	<1.00	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	<1.00	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	<1.00	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	<1.00	<1.00	<1.00	1.7	<1.00	<1.00	nt	<1.00	nt	nt	<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	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	<1.00	nt	nt	<1.00	nt	<1.00
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	<1.00	<1.00	<1.00	<1.00	1	<1.00	nt	<1.00	nt	nt	<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	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	<1.00	<1.00	<1.00	1.5	<1.00	1.3	<1.00	1.09	1.1	<1.00	1.3	2.1	1.6	1.4	nt	1.7	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		<1.00	<1.00	<1.00	<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	<1.00	<1.00	<1.00	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	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	<1.00	<1.00

**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
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
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	<1.0	<0.2	0.5	<0.2	<0.5	<0.2	<0.2	<0.2	<0.2	<0.2
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
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
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
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
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
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	<1.0	<0.2	<0.2	0.5	<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	<1.0	<0.2	<2.0	<2.0	<2.0	<1.0	<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
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
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
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
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
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
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
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
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
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	<1.0	<1.0	<1.0	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	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	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	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	<1.00	nt	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	<1.00	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	<1.00	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	nt	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	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	<1.0	<1.0	nt	nt							
21C	nt	<1.00	<1.0	<1.0	<1.0	nt	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	
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	
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	
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	
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	
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	
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	
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	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	
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	<2.0	<1.0	0.2	0.3	0.2
14A	<10	<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	
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	
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	
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	
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	
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	3.1	1.2	1.3	1.2	1.1	
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	
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	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	
20D	nt																									
21A	nt																									
21C	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	
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**

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	<1.00	<15	<20	<20	<3.0	<5.0	<10	<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	nt	<1.0	nt	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	<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	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	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	<1.00	nt	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	<1.00	nt	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	nt	nt	nt	nt	nt	nt	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	1.1	<1.00	<1.00	nt	<1.0	nt	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	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	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	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
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
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
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
08C	nt	<1.0	nt	<1.0	nt	<5.0	nt	<3.0	<5.0	<5.0	<1.0	<3.0	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
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
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
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
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
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
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
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	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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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	
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
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
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
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
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

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	<1.00	1.4	<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	nt	<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	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	<5.0	
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	7.4	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	nt	<5.0	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	<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	1.1	<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
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	<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	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
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
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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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	nt										
08C	nt	82	nt	910	nt	440	nt	500	540	180	1100	62	65	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
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											
09C	29	12	5.1	<5.0	<5.0	14	18	5.5	<5.0	6.7	<5.0	56	69	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											
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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.5	<0.5	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
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	<0.5	<0.5	<0.5	<5.0	<5.0	<5.0	<5.0	<0.5	<0.5	<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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<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
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
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	<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											
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
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
15D	nt	<5.0	nt	<5.0	nt	<2.5	nt	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	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
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
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	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
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
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
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
18C	nt	<5.0	nt	<5.0	nt	<0.5	nt	0.6	<5.0	<0.5	86	47	<5.0	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
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											
19C	nt	<5.0	nt	<5.0	nt	0.5	nt	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	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
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
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
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
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
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
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
23A	100	<5.0	45	69	140	9.0	26	36	6.1	5.3	<5.0	9.8	<5.0	nt											

µg/L = micrograms per liter

nd = Not Detected.

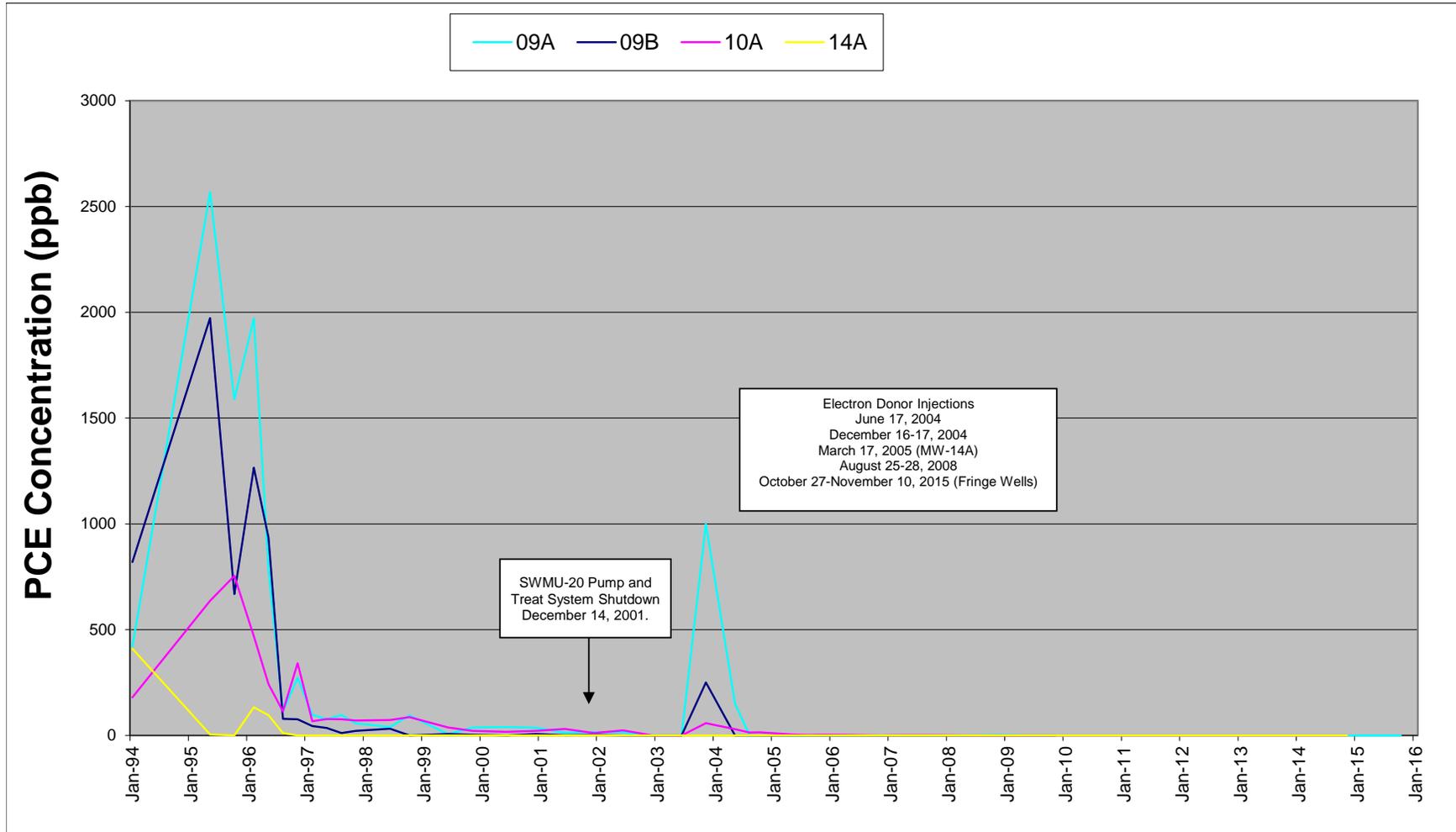
nt = Not Tested.

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

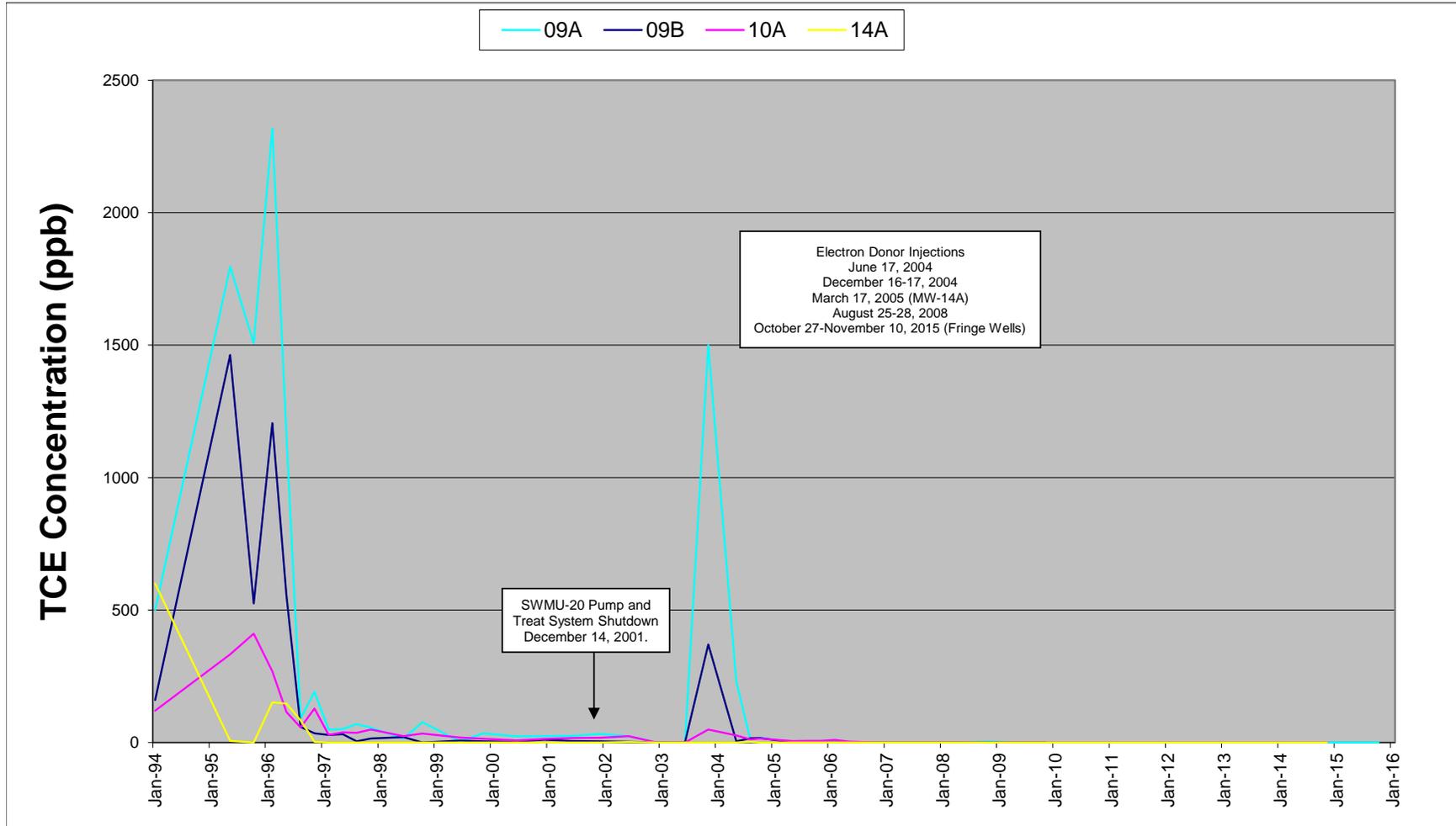
E = Estimated concentration calculated for an analyte response above the valid instruction calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Bold = Detected compound.

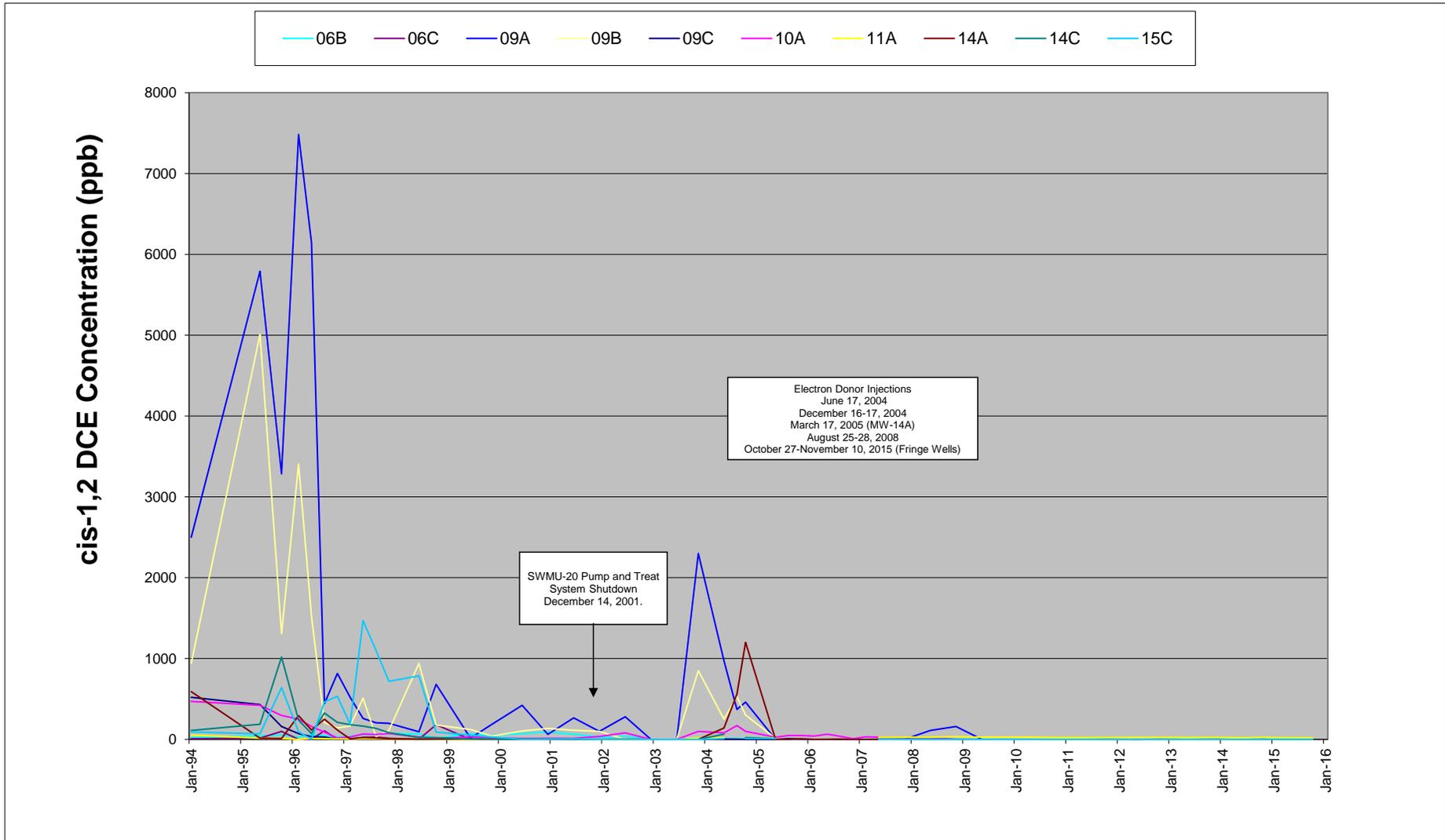
DEVELOPMENTAL CENTER WELLS TETRACHLOROETHENE CONCENTRATIONS (Wells with PCE Historically Detected over 50 ppb)



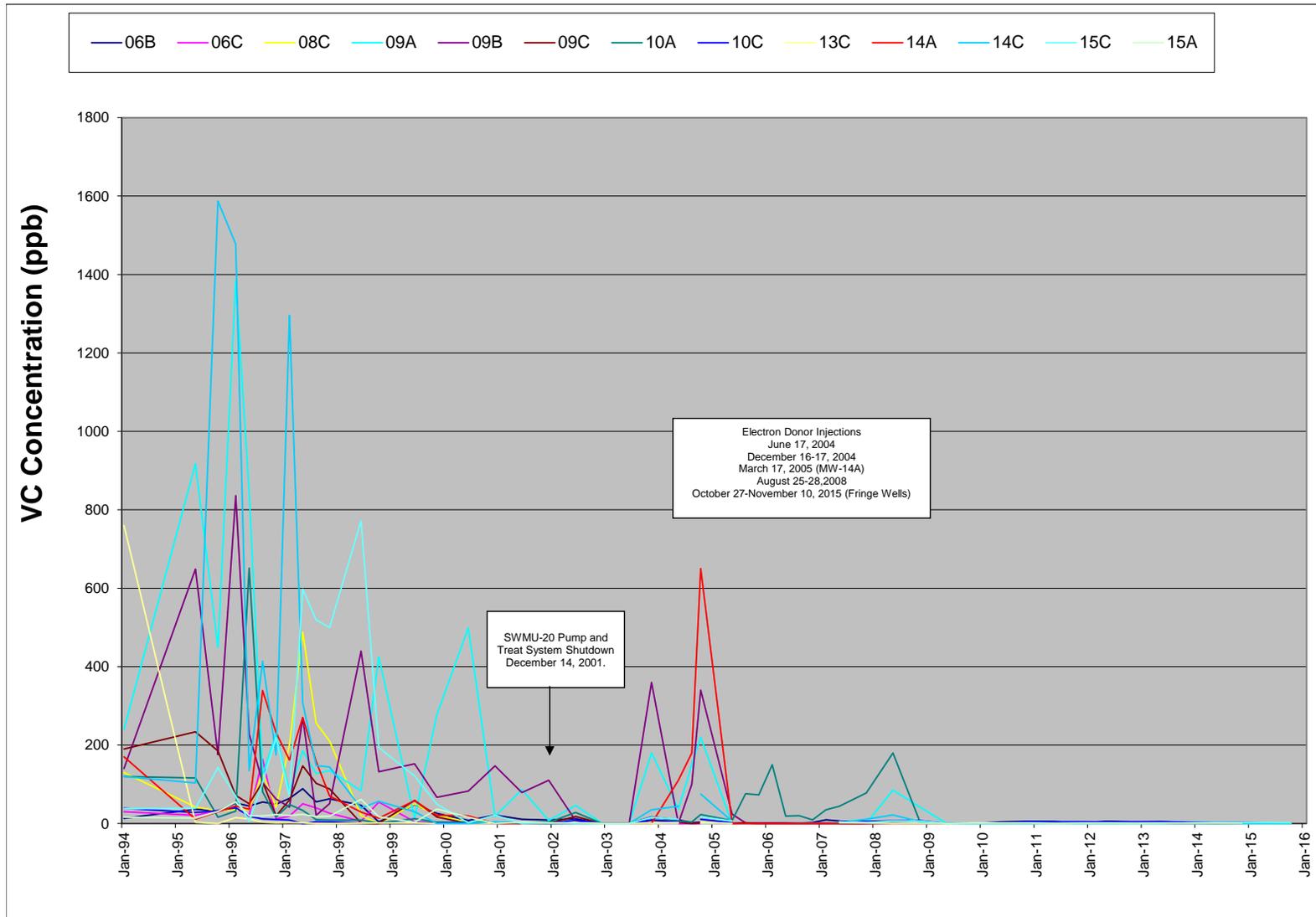
DEVELOPMENTAL CENTER WELLS TRICHLOROETHENE CONCENTRATIONS (Wells with TCE Historically Detected over 50 ppb)



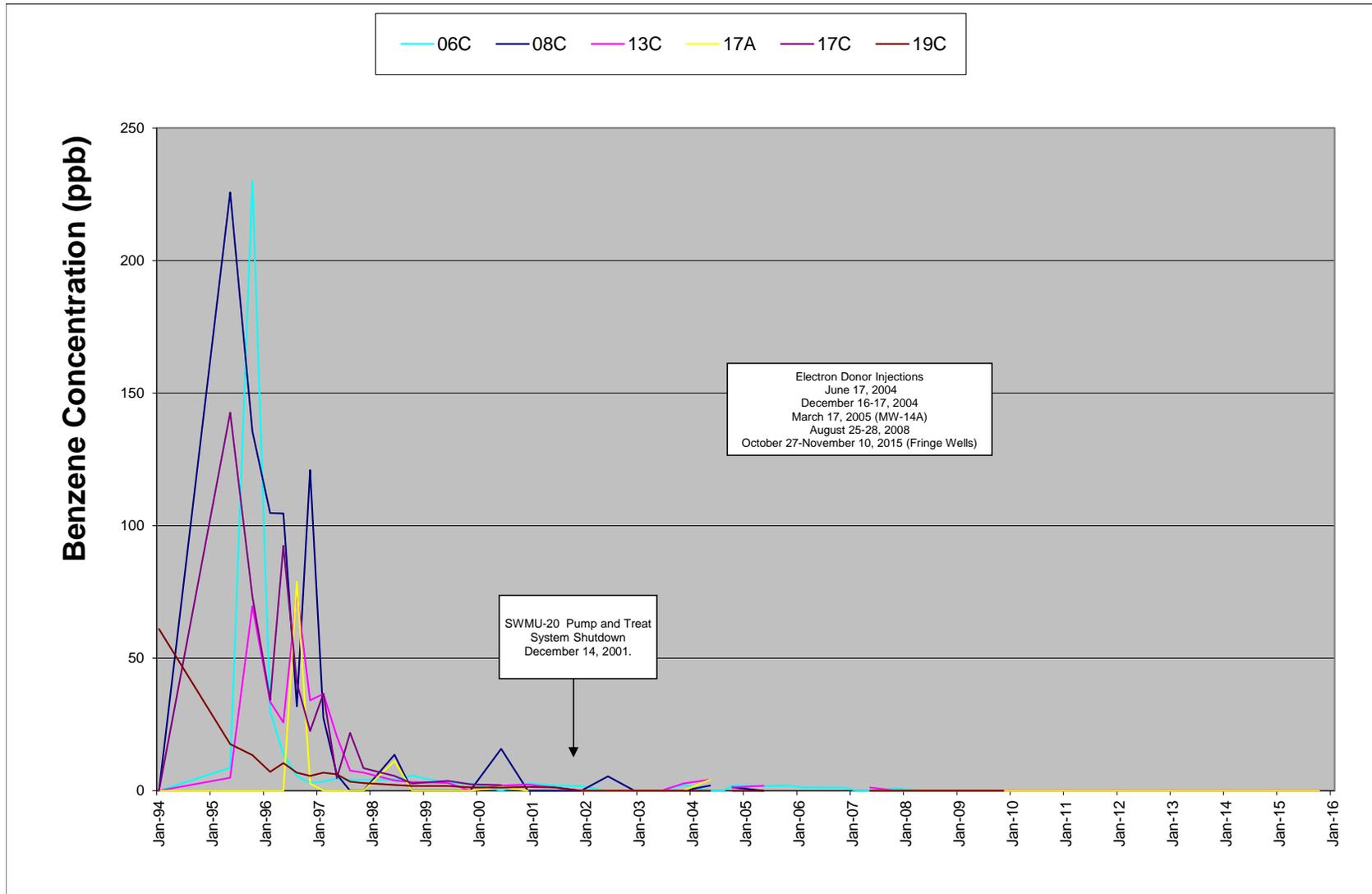
DEVELOPMENTAL CENTER WELLS CIS-1,2 DICHLOROETHENE CONCENTRATIONS (Wells with cis-1,2 DCE Historically Detected over 50 ppb)



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	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	1.7	<1.0	<1.1	<1.2	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	<0.2	<0.2	0.2	2.5	<1.0	<1.0	0.17	-66	0.8	19.7	410	6.6	6.5	---
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	96.8	---
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	1.8	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	Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (ug/L)	pH	TOC (mg/L)	
						5.3 (ug/L)	1.4 (ug/L)	134 (ug/L)	2.4 (ug/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	---
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	1.1	<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			<1.0	<1.0	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	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)	---	---								
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	<0.2	<0.2	<0.2	<0.2	<1.0	49	0.10	-38	1.0	0.57	21000	6.3	21.7	---
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	Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (ug/L)	pH	TOC (mg/L)	
						5.3 (ug/L)	1.4 (ug/L)	134 (ug/L)	2.4 (ug/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	22.3	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	<11	<12	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 electrolic 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	<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	---

**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	Proposed Groundwater Cleanup Levels (d)						DO (mg/L)	ORP (mV)	Iron II (mg/L)	Sulfate (mg/L)	Methane (ug/L)	pH	TOC (mg/L)		
						5.3 (ug/L)	1.4 (ug/L)	134 (ug/L)	2.4 (ug/L)	---	---									
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	---	
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	

**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	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)	---	---								
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	---
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	---
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	---

**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	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	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	---
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	---

cDCE = cis-1,2-Dichloroethene
 DO = Dissolved Oxygen
 µg/L = micrograms pr liter
 mg/L = milligrams per liter
 mV = millivolts
 NA = Not analyzed
 ORP = Oxidation Reduction Potential

PCE = Tetrachloroethene
 TCE = Trichloroethene
 TOC = Total Organic Carbon
 VC = Vinyl Chloride
 Box = Exceedance of proposed CUL
 Bold = Detect

(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)
 (b) Conducted at Well MW-14A only.
 (c) MW-06A installed June 2004.

6/17/2004 for elapsed time relative to injection
 12/16/2004 for elapsed time relative to injection
 3/17/2005 for elapsed time relative to injection
 8/25/2008 for elapsed time relative to injection

(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	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	<0.2	<0.2	1.0	1.1

**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	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-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
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

**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	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
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-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-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

**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	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
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-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
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

**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	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
MW-15C	10/27/2015	4149	3967		2619	<0.2	<0.2	0.5	2.0
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	1.5	1.5	0.3	<0.2
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

**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	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
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	<0.2	<0.2	2.7	1.1
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	3.4	2.6	1.1	<0.2
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

**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	5.3 PCE (µg/L)	1.4 TCE (µg/L)	134 cDCE (µg/L)	2.4 VC (µg/L)
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
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	<0.2	<0.2	1.0	0.9

(a) Injections occurred on:

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

6/17/2004

for elapsed time relative to injection

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

12/16/2004

for elapsed time relative to injection

3/17/05 (14A)

3/17/2005

for elapsed time relative to injection

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

8/25/2008

for elapsed time relative to injection

(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).

cDCE = cis-1,2-Dichloroethene

µg/L = micrograms per liter

PCE = Tetrachloroethene

TCE = Trichloroethene

VC = Vinyl Chloride

Bold = Detect

Box = Exceedance of proposed CUL

DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
OCTOBER 2015

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
JULY AND OCTOBER 2015**

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-05-9-Dup	BDC-05-10	BDC-05-11	BDC-05-12	BDC-05-12-Dup	BDC-05-12	BDC-05-13	BDC-05-14	BDC-05-15	BDC-05-16	BDC-05-16
LLI SDG:	1578669	1605434	1605434	1605434	1605434	1605434	1605434	1605434	1605434	1605434	1605434	1578669	1578669	1605434	1605434	1605434	1605434	1578669	1605434
LLI Sample ID:	7974676	8113197	8113167	8113203	8113209	8113191	8113161	8113185	8113215	8113179	8113173	7974688	7974690	8113155	8113143	8113137	8113125	7974678	8113119
Sample Date:	7/20/2015	10/28/2015	10/28/2015	10/28/2015	10/28/2015	10/28/2015	10/28/2015	10/28/2015	10/28/2015	10/28/2015	10/28/2015	7/21/2015	7/21/2015	10/28/2015	10/28/2015	10/28/2015	10/28/2015	7/21/2015	10/27/2015
Test ID: VOA SW8260C (µg/L)																			
Vinyl Chloride	0.7	0.4	0.3	0.7	0.2 U	1.9	0.5	2.1	2.1	0.7	1.5	0.7	0.7	0.9	1.1	1.4	0.7	1.7	2.8
cis-1,2-Dichloroethene	0.7	0.6	0.2 U	3.6	0.2 U	1.0	0.3	0.3	0.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.3	0.2 U	0.2 U	0.2 U
Trichloroethene	1.4	0.2 U	0.4	0.2 U	0.9	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Tetrachloroethene	1.8	0.8	0.6	0.2 U	0.4	0.4	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Test ID: Total Metals (mg/L)																			
Arsenic (EPA 200.8)		0.0017 J	0.0118	0.0078	0.00058 J	0.0044	0.0107	0.0079	0.0071	0.0210	0.0181			0.0336	0.0199	0.0145	0.0527		0.0471
Copper (EPA 200.8)		0.0056	0.0088	0.0020 U	0.0020 U	0.0024	0.0022	0.0020 U	0.0020 U	0.0020 U	0.0020 U			0.0026	0.0020 U	0.0020 U	0.0020 U		0.0020 U
Test ID: Dissolved Metals (mg/L)																			
Arsenic (EPA 200.8)		0.0021	0.0062	0.0070	0.00040 U	0.0043	0.0083	0.0082	0.0076	0.0186	0.0167			0.0325	0.0188	0.0134	0.0409 J		0.0437
Copper (EPA 200.8)		0.0020 U	0.0021	0.0020 U	0.0020 U	0.0020 U			0.0020 U	0.0020 U	0.0020 U	0.0020 U		0.0020 U					
Test ID: Conventional (mg/L)																			
Sulfate (EPA 300.0)	9.5	0.70 J	1.2	1.3	13.2	0.41 J	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.30 U	0.46 J	0.30 U	0.30 U	0.30 U
Total Organic Carbon (SM5310C)	15.3	3.8	6.5	6.1	1.0 U	5.4	8.8	2.5	2.5	7.8 J	7.4	15.2	14.6	29.0	10.8	21.0	22.2 J	28.9	28.9
Test ID: Dissolved Gases; Mod RSK-175 (µg/L)																			
Methane	8000	9200	5900			3700		5300	5200	7400	15000	18000	18000	14000	6100	12000	17000	22000	19000
Ethane	11	1.0 U	1.1 J			1.2 J		2.0 J	1.8 J	3.2 J	2.1 J	3.1 J	3.1 J	2.6 J	1.0 J	2.4 J	6.0	6.3	5.5
Ethene	1.0 U	1.0 U	1.0 U			1.8 J		1.0 U	1.0 U	1.0 U	1.8 J	1.0 U	1.0 U	1.0 U	1.0 U	1.1 J	1.2 J	1.4 J	1.0 J
Acetylene	1.0 U	1.0 U	1.0 U			1.0 U		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

**SWMU-17 VOA/METALS/CONVENTIONALS DATA
DEVELOPMENTAL CENTER GROUNDWATER MONITORING
JULY AND OCTOBER 2015**

Sample Name:	BDC-05-17	BDC-05-18	BDC-05-18	BDC-05-19	BDC-05-19	BDC-05-20	BDC-05-20	BDC-05-21	BDC-05-21	BDC-05-22	BDC-05-22	BDC-05-23	BDC-05-23	BDC-05-24	BDC-05-24	Trip Blank	Trip Blank
LLI SDG:	1605434	1578669	1605434	1578669	1605434	1578669	1605434	1578669	1605434	1578669	1605434	1578669	1605434	1578669	1605434	1578669	1605434
LLI Sample ID:	8113107	7974671	8113089	7974686	8113149	7974680	8113101	7974672	8113095	7974682	8113113	7974674	8113083	7974684	8113131	7974692	8113221
Sample Date:	10/27/2015	7/20/2015	10/27/2015	7/21/2015	10/28/2015	7/21/2015	10/27/2015	7/20/2015	10/27/2015	7/21/2015	10/27/2015	7/20/2015	10/27/2015	7/21/2015	10/28/2015	6/25/2015	10/28/2015
Test ID: VOA SW8260C (µg/L)																	
Vinyl Chloride	1.6	0.2 U	0.2 U	1.5	1.0	2.7	2.0	3.0	4.1	0.2 U	0.2 U	2.7	1.6	3.9	1.3	0.2 U	0.2 U
cis-1,2-Dichloroethene	0.2	1.4	2.4	0.2 U	0.2 U	0.2	0.2 U	0.8	0.5	5.5	4.5	1.5	2.1	1.3	0.7	0.2 U	0.2 U
Trichloroethene	0.2 U	1.0	1.3	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.7	0.6	0.2 U	0.2 U	0.3	0.5	0.2 U	0.2 U
Tetrachloroethene	0.2 U	0.4	0.7	0.2 U	0.2 U	0.2 U	0.2 U										
Test ID: Total Metals (mg/L)																	
Arsenic (EPA 200.8)	0.0365		0.0141		0.0336		0.0277		0.0091		0.0298		0.0212		0.0030		
Copper (EPA 200.8)	0.0020 U		0.0055		0.0039		0.0020 U										
Test ID: Dissolved Metals (mg/L)																	
Arsenic (EPA 200.8)	0.0361		0.0013 J		0.0270		0.0284		0.0109		0.0268		0.0200		0.0039		
Copper (EPA 200.8)	0.0020 U																
Test ID: Conventional (mg/L)																	
Sulfate (EPA 300.0)	0.30 U	2.8	3.1	0.30 U	0.30 U	0.30 U	0.30 U	0.55 J	0.49 J	4.4	4.2	0.30 U	0.46 J	6.2	5.1		
Total Organic Carbon (SM5310C)	32.0	1.0 U	1.0 U	20.3	28.8	14.2	10.6	4.5	5.7	6.1	6.9	7.1	7.9 J	2.2	2.9		
Test ID: Dissolved Gases; Mod RSK-175 (µg/L)																	
Methane	21000	290	1700	21000	19000	17000	11000	6800	3000					450	1400		
Ethane	4.5 J	1.0 U	1.0 U	2.2 J	3.3 J	3.0 J	1.1 J	1.0 U	1.0 U					1.0 U	1.0 U		
Ethene	1.0 J	1.0 U	1.0 U	1.6 J	1.0 U	4.5 J	1.5 J	2.7 J	2.1 J					1.0 U	1.0 U		
Acetylene	1.0 U	1.0 U	1.0 U					1.0 U	1.0 U								

µg/L = micrograms per liter.
 mg/L = milligrams per liter.
 EPA = U.S. 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		Comments	Volatile Organic Compounds - Molar Fraction (b,c)						Max Molar Fraction							
				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					
Proposed Groundwater Cleanup Levels (a)				5.3	1.4	134	2.4	NA	NA	NA	0.008	0.008	0.008	0.008																					
BDC-05-23	11/10/2014		1180	<0.2	0.3	3.9	1.0				0.023	0.021	<0.002	<0.002	0.10		1.6	1.9		-122	10.1	6.40													
BDC-05-23	1/21/2015		1252	<0.2	<0.2	2.8	1.7								0.13		1.4	0.66		-144	9.5	6.49													
BDC-05-23	4/27/2015		1348	<0.2	<0.2	2.9	2.4				0.022	0.021	<0.002	<0.002	0.19		1.6	0.74		-114	7.5	6.40													
BDC-05-23	7/20/2015		1432	<0.2	<0.2	1.5	2.7								0.22		0.9	<0.30		-84	7.1	6.40													
BDC-05-23	10/27/2015		1432	<0.2	<0.2	2.1	1.6				0.021	0.020	<0.002	<0.002	0.18		1.4	0.46		-55	7.9	6.64													
BDC-05-24	7/31/2011		-18	<1.0	<1.0	1.6	1.6	<1.1	<1.2	<1.1	0.003	0.003	<0.002	<0.002	1.67	<0.1	2.0	1.1	7.6	-7	10.0	7.06													
(MW 18 ft XG)	11/1/2011		75	<1.0	2.0	4.0	2.2				0.002	0.002	<0.002	<0.002	1.50	<0.1	1.6	0.3		-2.6	8.1	7.06													
	2/19/2012		185	<0.2	0.2	0.7	0.8								0.31	<0.5	1.8	<1.5		63	9.8	6.55													
BDC-05-24	5/6/2012		262	<0.2	1.3	2.8	1.0				0.006	0.004	<0.002	<0.002	0.03			0.9		73	9.1	6.60													
BDC-05-24	9/5/2012		384	<0.2	1.2	4.0	0.9				0.08				0.08		2.0	<0.3		67	7.4	6.67													
BDC-05-24	11/15/2012		455	<0.5	<0.5	1.2	<0.5				0.002	0.003	<0.002	<0.002	0.13		1.0	<0.3		-1.7	10.7	6.94													
BDC-05-24	2/25/2013		557	<0.2	0.7	5.1	1.9	1.1	<1.2	<1.0					0.10		1.5	1.1	9.1	87	7.2	6.72													
BDC-05-24	5/22/2013		643	<0.2	0.8	7.6	2.1				0.004	0.003	<0.002	<0.002	0.58		1.4	0.82		-272	7.4	7.54													
BDC-05-24	8/28/2013		741	<0.2	0.5	4.4	1.6	<1.0	1.8	<1.0					0.78		1.4	0.47	11.0	-321	8.6	6.57													
BDC-05-24	11/13/2013		818	<0.2	0.4	3.3	1.4	<1.0	1.4	<1.0	0.003	0.003	<0.002	<0.002	2.43		1.3	1.4	11.0	-219	8.7	6.54													
BDC-05-24	2/12/2014		909	<0.2	0.2	1.7	0.6	1.1	3.0	<1.0					2.72		2.0	0.81	11.0	-211	7.1	6.76													
BDC-05-24	5/12/2014		998	<0.2	0.3	4.8	1.6	1.0	2.3	<1.0	0.003	0.002	<0.002	<0.002	2.58		1.2	0.87	10.0	-196	8.2	6.75													
BDC-05-24	8/6/2014		1084	<0.2	0.2	2.8	1.8	3.6	2.3	<1.0					4.02		1.0	0.36	9.6	-167	9.5	7.33													
BDC-05-24	11/10/2014		1180	<0.2	<0.2	6.2	12	2.0	<1.0	<1.0	0.001	0.001	<0.002	<0.002	0.05		1.2	1.8	0.97	-86	4.2	6.52													
BDC-05-24	1/21/2015		1252	<0.2	0.4	2.1	1.6	2.5	<1.0	<1.0					0.14		2.0	2.3	5.4	-65	3.8	6.31													
BDC-05-24	4/27/2015		1348	<0.2	0.5	0.9	2.5	2.5	<1.0	<1.0	0.003	0.003	<0.002	<0.002	0.08		0.8	0.97	3.2	-27	3.2	6.22													
BDC-05-24	7/21/2015		1433	<0.2	0.3	1.3	3.9	<1.0	<1.0	<1.0					0.09		1.8	6.2	0.45	-23	2.2	6.27													
BDC-05-24	10/28/2015		1433	<0.2	0.5	0.7	1.3	<1.0	<1.0	<1.0	0.003	0.004	<0.002	<0.002	0.47		1.0	5.1	1.4	-3.1	2.9	6.54													
As = arsenic				µg/L = micrograms pr liter						Tot = total				= not analyzed																					
c DCE = cis-1,2-Dichloroethene				mg/L = milligrams per liter						TOC = total organic carbon				= highlights the predominant ethene																					
Cu = copper				MW = monitoring well						UG = upgradient; distance from nearest injection well				Box = Exceedance of Proposed Cleanup Level																					
Dis = dissolved				NA = not applicable, not available						VC = vinyl chloride																									
DG = downgradient; distance from nearest injection well				ORP = oxidation reduction potential						XG = crossgradient; distance from nearest injection well																									
DO = dissolved oxygen				PCE = tetrachloroethene																															
IW = injection well				TCE = trichloroethene																															
(a) Proposed Cleanup Standards and Comparison to Site Data, Boeing Developmental Center, Tukwila, Washington (Landau Associates, 5/7/13).																																			
(b) Calculated by dividing the concentration in groundwater by the molecular weight of the compound. Reporting limits for non-detect results replaced with zero.																																			
Injection Dates:																																			
10/28/2008		Pilot Injection: BDC-05-02 only																																	
8/18/2011		Full Injection #1: BDC-05-02, BDC-05-07, and BDC-05-09 through BDC-05-17; performed 8/15/11-8/18/11																																	

LANDAU ASSOCIATES, INC. | G:\Projects\025\087015\020\Semianual GW Report October 2015\Figure 7.dwg (A) "Figure 7" 2/11/2016



- Legend**
- (Red) New Monitoring Well
 - (Black) Existing Monitoring Well
 - (Red) New Injection Wells
 - (Black) Existing Injection Wells
 - (Grey) 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 (May 2009)
 - SWMU-17 Solid Waste Management Unit

Note

1. 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
OCTOBER 2015***

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	Volatile Organic Compounds (all units in ug/L)						Aquifer Redox Conditions						Donor Indicators		Comments							
		BDC-103	BDC-103	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103	BDC-103	BDC-103	BDC-103	BDC-103	TPH-G	Benzene	Toluene	Ethylbenzene	m,p-Xylene	o-Xylene	Xylenes	DO	Nitrate	Nitrite	Iron II	Sulfate	Methane		ORP	TOC	pH
Proposed Groundwater Cleanup Levels (a)													0.8	2.0	1294	1.7	NA	NA	1546											
BDC-101	6/11/2001												3.0	11.9	<1.0	113.1			109.2											
BDC-101	9/4/2001												5.0	7.13	10.7	50.4			53.8											
BDC-101	12/3/2001												6.5	95	1.6	750			650											
BDC-101	3/13/2002												<0.25	1.4	<1.0	4.4			<1.0											
BDC-101	4/29/2002	-8											<0.25	<1.0	<1.0	2.2	<1.0	<1.0	<1.0											
BDC-101	6/3/2002	27											<0.25	1.0	<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	<1.0											
BDC-101	8/1/2002	86											<0.25	3.1	<1.0	2.4	<1.0	<1.0	<1.0											
BDC-101	12/2/2002	209											0.61	4.3	<1.0	21	27	6.4	33.4											
BDC-101	3/10/2003	307											<0.25	1.0	<1.0	4.5	3.2	<1.0	3.2											
BDC-101	6/3/2003	392											<0.25	<1.0	<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	35	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	<1.0											
BDC-101	10/18/2004	895											0.64	10	<1.0	15	43	<1.0	43											
BDC-101	5/10/2005	1099											<0.25	<1.0	<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	42	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	<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	72	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	<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	<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	<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	<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	<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	<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	<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	<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	<1.0	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	<1.0	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	<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	<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	<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	<1.0	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	<1.0	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	<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	<1.0	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	16	1.37	11.3	<0.1	0-0.2	36.7		124			6.53	Very faint iron measurement
BDC-101	2/17/2010	2843	1126	722	603	475	245	112					<0.25	<1.0	<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	<1.0	3.20	20.7	<0.1	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	<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	<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	<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	<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	<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	<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			<0.25	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	0.88	13.8	<0.10	0.0	36.0		154			6.97	
BDC-101	11/13/2012	3843	2126	1722	1603	1475	1245	1112	783	273	21		<0.25	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	0.41	10.3	<0.10	0.0	40.4		150			6.90	
BDC-101	2/20/2013	3942	2225	1821	1702	1574	1344	1211	882	372	120		<0.25	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	2.55	21.3	<0.10	0.2	68.0		73			6.83	
BDC-101	5/20/2013	4031	2314	1910	1791	1663	1433	1300	971	209			<0.25	<1.0	<1.0	<1.0	<2.0	<1.0	<2.0	3.35	17	<0.10	0.0	52.9		-190			6.72	
BDC-101	8/28/2013	4131	2414	2010	1891	1763	1533	1400	1071	561	309	-76	<0.25	<1.0	<1.0	<1.0	<2.0	<1.0	<2.											

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

Well	Date	ORC	Pilot	Full Scale	Full Scale	Full Scale	Full Scale	Full Scale	Elapsed Time from Injection (days)	Volatile Organic Compounds (all units in ug/L)						Aquifer Redox Conditions						Donor Indicators		Comments																		
		BDC-103	BDC-103	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103	BDC-103	BDC-103	BDC-103		BDC-103	TPH-G (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	m,p-Xylene (ug/L)	o-Xylene (ug/L)	Xylenes (ug/L)	DO (mg/L)	Nitrate (mg-N/L)	Nitrite (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (ug/L)		ORP (mV)	TOC (mg/L)	pH											
Proposed Groundwater Cleanup Levels (a)														0.8	2.0	1294	1.7	NA	NA	1546																						
BDC-102	6/11/2001													0.55	5.33	<1.0	<1.0			<1.0																						
BDC-102	9/4/2001													0.38	1.61	1.89	<1.0			1.87																						
BDC-102	12/3/2001													1.6	3.7	<1.0	<1.0			3.49																						
BDC-102	3/13/2002													0.50	1.3	<1.0	<1.0			<1.0																						
BDC-102	4/29/2002	-8												0.33	2.6	<1.0	<1.0	1.1	<1.0	1.1																						
BDC-102	6/3/2002	27												<0.25	4.4	<1.0	<1.0	<1.0	<1.0	<1.0																						
BDC-102	7/1/2002	55												0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0																						
BDC-102	8/1/2002	86												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0																						
BDC-102	12/2/2002	209												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0																						
BDC-102	3/10/2003	307												0.26	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0																						
BDC-102	6/3/2003	392												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0																						
BDC-102	11/19/2003	561												0.99	120	<1.0	8.5	<1.0	<1.0	<1.0	0.38	0.19	0.011	5.5	46	1100	122.2															
BDC-102	4/28/2004	722												0.40	10	<1.0	<1.0	3.0	<1.0	3.0																						
BDC-102	10/18/2004	895												0.33	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0																						
BDC-102	5/10/2005	1099												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0																						
BDC-102	11/10/2005	1283												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.82	4.4			34.0			122	18.4														
BDC-102	5/15/2006	1469												<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	2.21	4.72	0.175	2.2	35.7			-11															
BDC-102	11/20/2006	1658	-59											<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	1.25	<0.250	<0.250	2.2	9.2			163															
BDC-102	2/20/2007	1750	33											<0.25	5.8	<1.0	<1.0	<1.0	<1.0	0.47	0.749	0.027	3.0	25.3			-145				6.54											
BDC-102	3/19/2007	1777	60											<0.25	18	<1.0	<1.0	32	<1.0	32	0.88	0.938	0.072	3.0	31.0			-98				6.67										
BDC-102	4/24/2007	1813	96											0.53	6.1	<1.0	3.1	100	<1.0	100	1.20	1.94	0.051	2.8	40.4			-93				6.51										
BDC-102	5/17/2007	1836	119											<0.25	1.8	<1.0	<1.0	7.4	<1.0	7.4	0.84	2.78	0.108	2.6	33.9			286				6.52										
BDC-102	11/26/2007	2029	312											<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	3.29	1.03	0.247	3.0	55.7			46															
BDC-102	2/18/2008	2113	396	-8										<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	2.51	3.91	0.054	2.8	42.8			431					5.97										
BDC-102	3/27/2008	2151	434	30										<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	1.85	1.3	<0.10	2.5	17.9			233															
BDC-102	5/15/2008	2200	483	79	-40									<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	2.40	3.0	<0.10	3.5	19.2			-115					6.56										
BDC-102	7/16/2008	2262	545	141	22									<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	2.46	2.5	<0.10	3.2	13.7			-312					6.67										
BDC-102	9/15/2008	2323	606	202	83	-45								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	1.22	4.28	0.056	3.0	31.6			191															
BDC-102	11/20/2008	2389	672	268	149	21								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.70	0.40	<0.10	2.0	5.6			-70					6.69										
BDC-102	1/16/2009	2446	729	325	206	78								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.00	<0.100	0.200	2.5	8.3			-235					6.70										
BDC-102	2/11/2009	2472	755	351	232	104								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	1.65	2.4	<0.1	3.0	20.4			-70					6.61										
BDC-102	3/9/2009	2498	781	377	258	130								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.00	0.9	<0.1	3.0	8.7			-46					6.65										
BDC-102	4/16/2009	2536	819	415	296	168								<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.30	0.6	<0.1	3.0	8.3			-7					6.66										
BDC-102	5/14/2009	2564	847	443	324	196	-34							<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.29	0.9	<0.1	3.4	9.8			-35					6.78										
BDC-102	7/17/2009	2628	911	507	388	260	30							<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.66	4.9	<0.1	2.2	28.6			-11					6.46										
BDC-102	9/9/2009	2682	965	561	442	314	84	-49						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.91	0.4	<0.1	2.7	5.5			2.8					6.66										
BDC-102	11/12/2009	2746	1029	625	506	378	148	15						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.93	0.2	<0.1	3.2	2.4			-42.0					6.49										
BDC-102	2/17/2010	2843	1126	722	603	475	245	112						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	0.90	3.4	0.2	2.8	17.2			892					6.56										
BDC-102	5/17/2010	2932	1215	811	692	564	334	201						<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	1.35	8.4	<1.0	3.0	30.1			440					6.61										
BDC-102	8/16/2010	3023	1306	902	783	655	425	292	-37					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	1.61	8.9	<0.1	3.0	27.8			82					6.60										
BDC-102	11/8/2010	3107	1390	986	867	739	509	376	47					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	2.34	0.4	<0.1	2.0	6.9			45					7.09										
BDC-102	2/16/2011	3207	1490	1086	967	839	609	476	147					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	3.68	3.5	<0.1	2.2	43.3			399					6.88										
BDC-102	5/3/2011	3283	1566	1162	1043	915	685	552	223					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	1.60	12.1	<0.1	2.0	32.4			40					6.70										
BDC-102	8/1/2011	3373	1656	1252	1133	1005	775	642	313					<0.25	<1.0	<1.0	<1.0	<1.0	<1.0	7.01	13.6	<0.1	2.1	28.7			11	</														

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

Well	Date	ORC	Pilot	Full Scale	Full Scale	Full Scale	Full Scale	Elapsed Time from Injection (days)	Volatile Organic Compounds (all units in ug/L)						Aquifer Redox Conditions						Donor Indicators		Comments																			
		BDC-103	BDC-103	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103/104	BDC-103	BDC-103	BDC-103		BDC-103	TPH-G (mg/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	m,p-Xylene (ug/L)	o-Xylene (ug/L)	Xylenes (ug/L)	DO (mg/L)	Nitrate (mg-N/L)	Nitrite (mg-N/L)	Iron II (mg/L)	Sulfate (mg/L)	Methane (ug/L)		ORP (mV)	TOC (mg/L)	pH											
Proposed Groundwater Cleanup Levels (a)														0.8	2.0	1294	1.7	NA	NA	1546																						
BDC-103	6/11/2001													177	875	12,010	1,985			11,430																						
BDC-103	9/4/2001													123	494	3,760	419			2,636																						
BDC-103 (b)	12/3/2001													120	5,100	2,300,000	10,000			3,400,000																						
BDC-103	3/13/2002													200	1,700	17,000	4,900			26,400																						
BDC-103	4/29/2002	-8												200	980	16,000	5,400	20,000	7,000	27,000																						
BDC-103	6/3/2002	27												200	960	17,000	5,100	20,000	7,100	27,100																						
BDC-103	7/1/2002	55												240	1,300	16,000	5,200	20,000	6,800	26,800																						
BDC-103	8/1/2002	86												270	4,600	18,000	5,200	19,000	6,600	25,600																						
BDC-103	12/2/2002	209												250	1,400	15,000	5,000	22,000	6,900	28,900																						
BDC-103	3/10/2003	307												180	780	13,000	5,200	20,000	6,700	26,700																						
BDC-103	6/3/2003	392												220	900	10,000	5,000	20,000	6,600	26,600																						
BDC-103	11/19/2003	561												180	850	8,300	4,500	18,000	5,500	23,500	0.38	0.012	0.011	5.5	53	630	-75.9															
BDC-103	4/28/2004	722												160	1,600	6,600	3,900	16,000	5,100	21,100																						
BDC-103	10/18/2004	895												140	2,100	5,500	3,700	15,000	4,400	19,400																						
BDC-103	5/10/2005	1099												110	2,200	5,500	3,800	14,000	3,200	17,200																						
BDC-103	11/10/2005	1283												90	2,200	3,500	3,700	12,000	2,500	15,000	0.72	<1.0			11.9			147	15.4													
BDC-103	5/15/2006	1469												84	1,600	3,800	3,100	10,000	2,200	12,000	0.92	<0.010	0.054	3.5				106														
BDC-103	11/20/2006	1658	-59											51	2,000	730	2,200	3,900	1,000	4,900	1.23	<0.10	<0.10	2.4	28.3			202														
BDC-103	2/20/2007	1750	33											26	460	420	140	3,600	1,600	5,200	0.31	60.8	11.1	0.5	99.2			109				6.54										
BDC-103	3/19/2007	1777	60											30	490	88	130	3,500	1,700	5,200	0.63	27.9	8.28	0.4	141			4				6.79										
BDC-103	4/24/2007	1813	96											36	820	440	220	3500	1800	5300	0.84	7.54	3.56	2.4	59.2			-14				6.70										
BDC-103	5/17/2007	1836	119											77	1,400	4,300	1,100	8,300	3,200	11,500	0.61	0.138	0.079	3.6	169			244				6.82										
BDC-103	11/26/2007	2029	312											190	3,300	21,000	4,000	11,000	4,900	15,900	3.37	0.063	0.049	3.6	49.1			-118														
BDC-103	2/18/2008	2113	396	-8										66	1,100	2,600	700	7,500	1,900	9,400	2.06	7.75	0.134	2.8	163			552				5.97										
BDC-103	3/27/2008	2151	434	30										84	1,500	1,900	1,100	9,700	3,000	12,700	1.60	54.1	18	4.0	115.0			182														
BDC-103	5/15/2008	2200	483	79	-40									91	2,700	4,400	1,400	11,000	3,600	14,600	1.38	<0.10	<0.10	3.2	192			-138				7.11										
BDC-103	7/16/2008	2262	545	141	22									79	1,800	440	490	10,000	3,100	13,100	1.61	56.1	16.6	2.8	149			-226				6.72										
BDC-103	9/15/2008	2323	606	202	83	-45								110	2,300	7,600	1,500	10,000	3,600	13,600	0.48	0.330	0.218	3.2	218			189														
BDC-103	11/20/2008	2389	672	268	149	21								47	1,200	260	110	7,000	2,100	9,100	0.21	152	12.5	2.0	120			-1.2				6.66										
BDC-103	1/16/2009	2446	729	325	206	78								11	190	220	12	1,000	480	1,480	0.24	193	2.32	0.6	62.5			-181				6.19										
BDC-103	2/11/2009	2472	755	351	232	104								36	820	510	<100	2,900	1,500	4,400	1.66	82.0	6.7	0.8	178			-65				6.69										
BDC-103	3/9/2009	2498	781	377	258	130								27	1100	440	18	2,400	1,200	3,600	0	47.3	2.4	0.4	192			17				6.80										
BDC-103	4/16/2009	2536	819	415	296	168								30	710	310	<50	2,700	1,200	3,900	0.95	64.8	5.6	0.2-0.4	194			62				6.77										
BDC-103	5/14/2009	2564	847	443	324	196	-34							30	680	320	20	2,400	1,500	3,900	0.48	49.8	4.8	0.8	222			20				6.85										
BDC-103	7/17/2009	2628	911	507	388	260	30							19	410	280	32	630	1,000	1,630	2.60	26.6	2.0	1.0	104			29				6.98										
BDC-103	9/9/2009	2682	965	561	442	314	84	-49						21	620	270	83	700	1200	1,900	0.88	<0.1	<0.1	2.5	134			2.8				7.01										
BDC-103	11/12/2009	2746	1029	625	506	378	148	15						24	340	140	27	1,800	1,200	3,000	1.42	94.1	7.7	0.4	71.7			117				6.11										
BDC-103	2/17/2010	2843	1126	722	603	475	245	112						0.73	10	<1.0	<1.0	3.1	22	25	1.45	123	1.1	0.0	60.3			939				6.22										
BDC-103	5/17/2010	2932	1215	811	692	564	334	201						3.1	79	44	5.2	60	86	146	1.56	67.9	2.6	0.4	71.6			436				6.63										
BDC-103	8/16/2010	3023	1306	902	783	655	425	292	-37					8.0	740	380	110	420	320	740	2.24	2.4	0.1	2.0	72.5			184				6.96										
BDC-103	11/8/2010	3107	1390	986	867	739	509	376	47					6.3	240	11	1.7	180	540	720	7.46	55.8	1.5	0.0	123			199				7.05										
BDC-103	2/16/2011	3207	1490	1086	967	839	609	476	147					0.28	4.6	<1.0	<1.0	<1.0	5.4	5.4	5.18	133	0.6		74.6			508				6.52										
BDC-103	5/3/2011	3283	1566	1162	1043	915	685	552	223					<0.25	9.1	<1.0	<1.0	<1.0	2.2	2.2	2.15	140	0.2	0.0	74.4			393				6.35										

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

Well	Date	ORC	Pilot	Full Scale	Full Scale	Full Scale	Full Scale	Full Scale	Volatile Organic Compounds (all units in ug/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	Elapsed Time from Injection (days)	TPH-G (mg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	m,p-Xylene (µg/L)	o-Xylene (µg/L)	Total Xylenes (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
Proposed Groundwater Cleanup Levels (a)													0.8	2.0	1294	1.7	NA	NA	1546											
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 J	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	<1.0	<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	<1.0	<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	<1.0	<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	<1.0	<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		<0.25	<1.0	6.5	372	<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	<1.0	<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	<1.0	<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	<1.0	<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			

TPH-G = total petroleum hydrocarbon-gasoline	Injection dates	
DO = dissolved oxygen	5/7/2002	ORC
µg/L = micrograms pr liter	1/18/2007	Pilot -scale nitrate
mg/L = milligrams per liter	2/26/2008	1st full scale injection
mV = millivolts	6/24/2008	2nd full scale injection
NA = not analyzed	10/30/2008	3rd full scale injection
NA = not applicable, not available	6/17/2009	4th full scale injection (start ammonium phosphate, 1/3 ammonium nitrate dose to both wells)
ORP = oxidation reduction potential	10/28/2009	5th full scale injection (103 full dose, 104 half dose)
TOC = total organic carbon	9/22/2010	6th full scale injection (103 only full dose)
	2/14/2012	7th full scale injection (103 only full dose)
	10/23/2012	8th full scale injection (103 only 1.5x volume dose)
	11/12/2013	9th full scale injection (103 only 1.5x volume dose)

(a) Proposed Cleanup Standards and Comparison to Site Data, Boeing Developmental Center, Tukwila, Washington (Landau Associates, 5/7/13).
(b) BTEX data questionable for this event. Concentrations inconsistent with TPH-G data for indicated event and BTEX data from other events.

2/19/12 = LU 1290767, 1291164

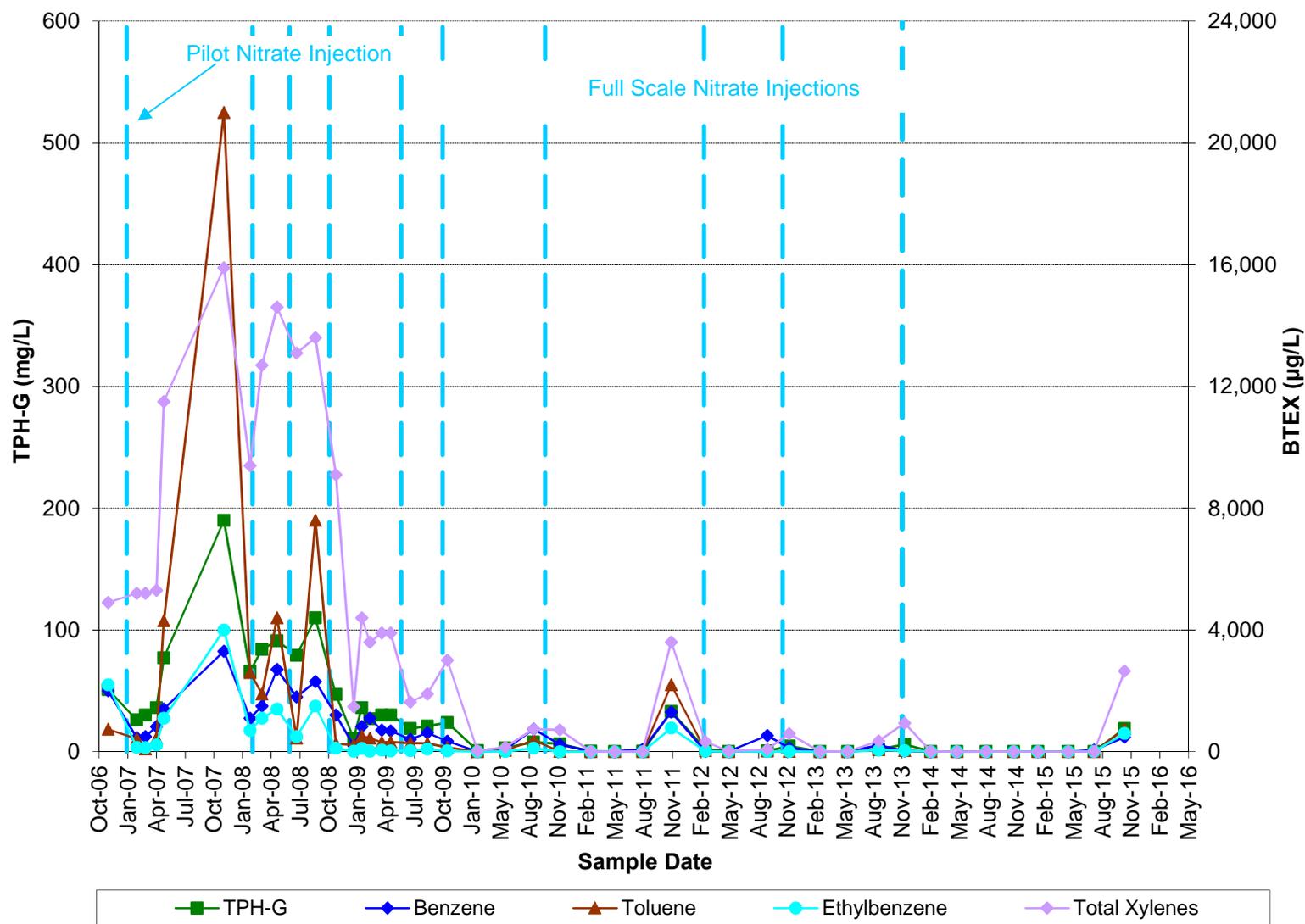
NITRATE CONCENTRATIONS AT DOWNGRADIENT MONITORING LOCATIONS
AOC-05 ANAEROBIC BIOREMEDIATION REMEDIAL ACTION
BOEING DEVELOPMENTAL CENTER

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-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-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

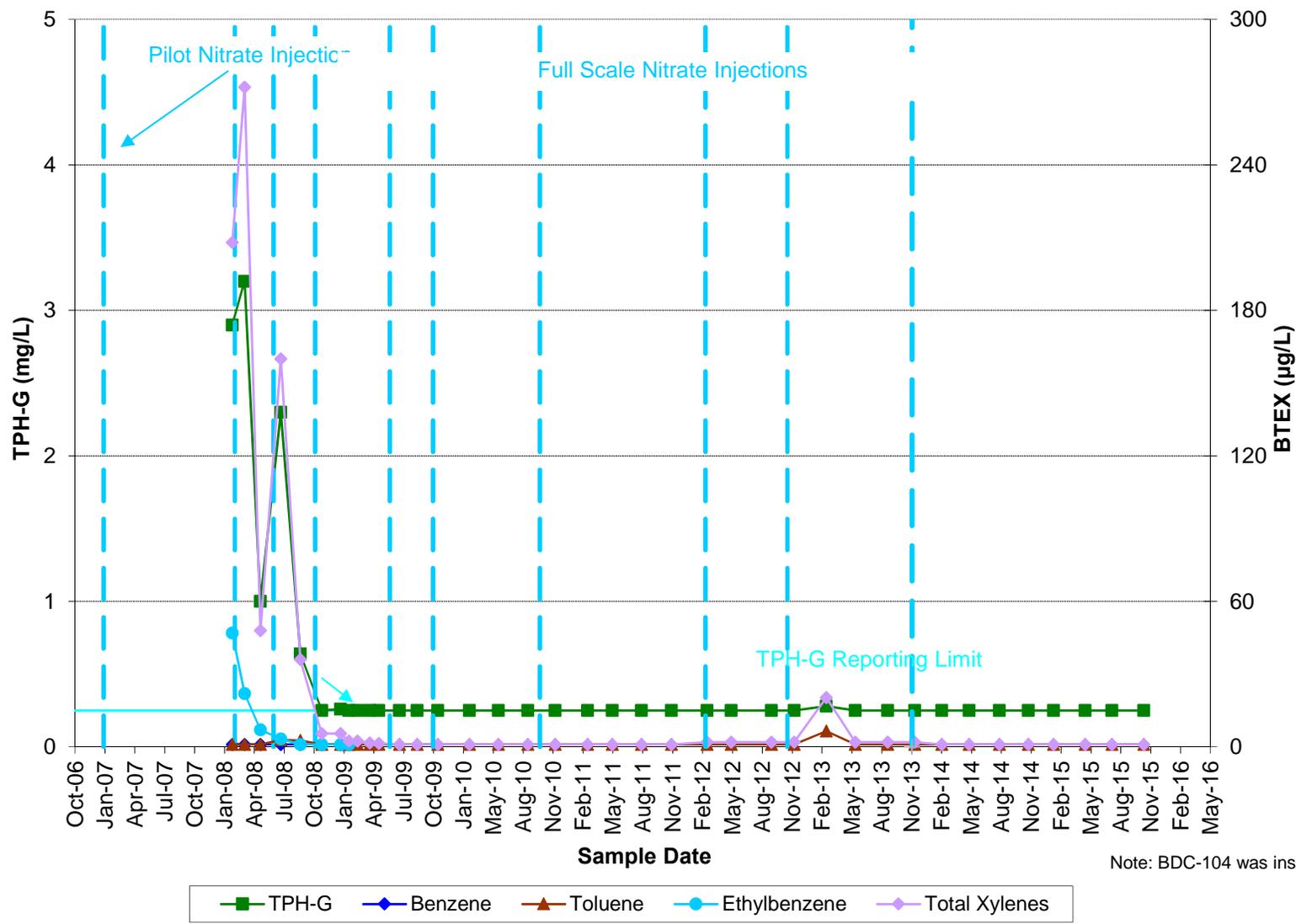
**NITRATE CONCENTRATIONS AT DOWNGRAIDENT MONITORING LOCATIONS
AOC-05 ANAEROBIC BIOREMEDIATION REMEDIAL ACTION
BOEING DEVELOPMENTAL CENTER**

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
DO = dissolved oxygen									
mg/L = milligrams per liter									
mg/NL = mg/L as nitrogen									
mV = millivolt									
ORP = oxidation reduction potential									
= not analyzed									

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

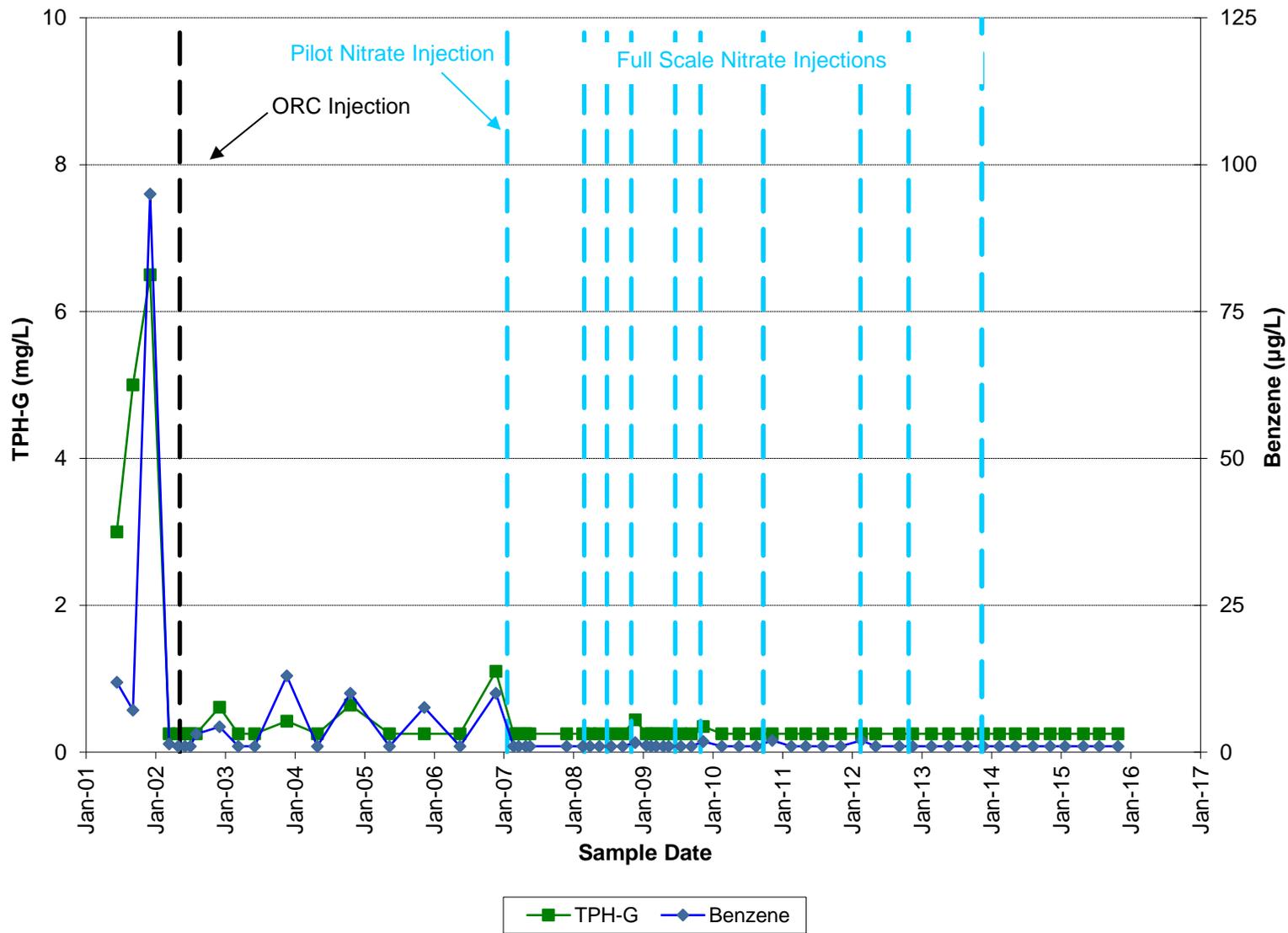


BDC-104 TPH-G and BTEX Concentrations Beginning with 2007 Pilot Testing

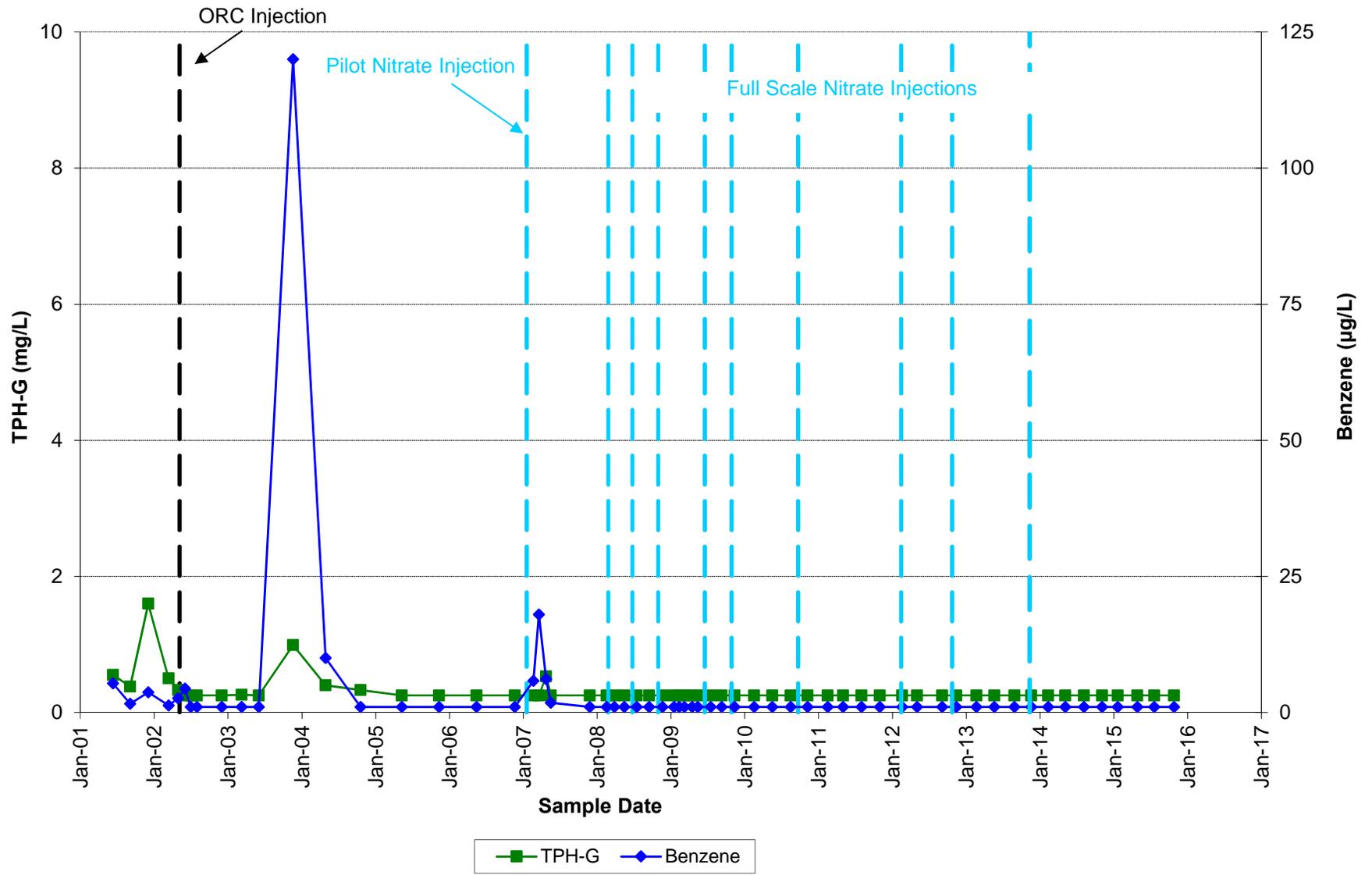


Note: BDC-104 was installed February 2008

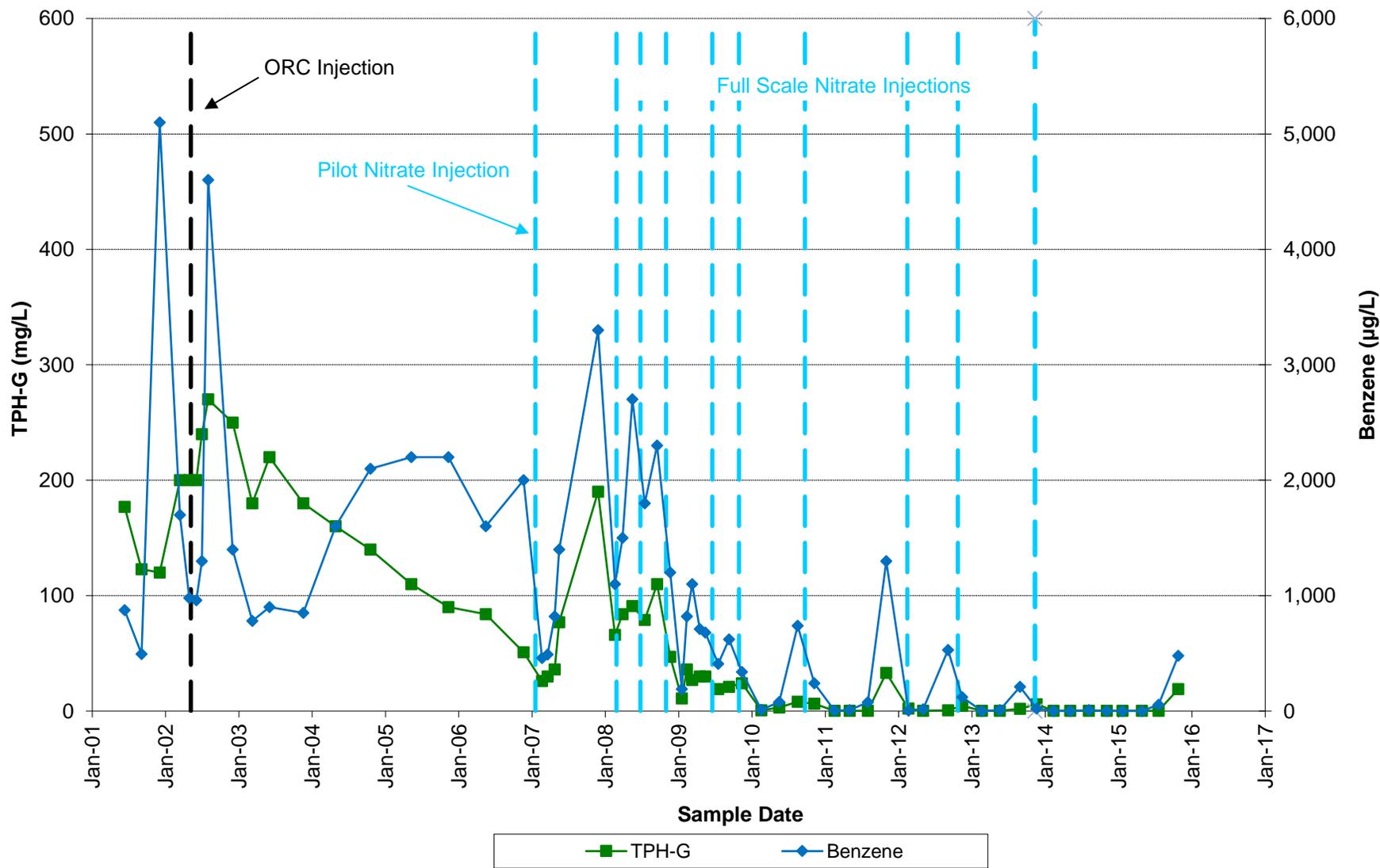
BDC-101 TPH-G and Benzene Concentrations Since 2001



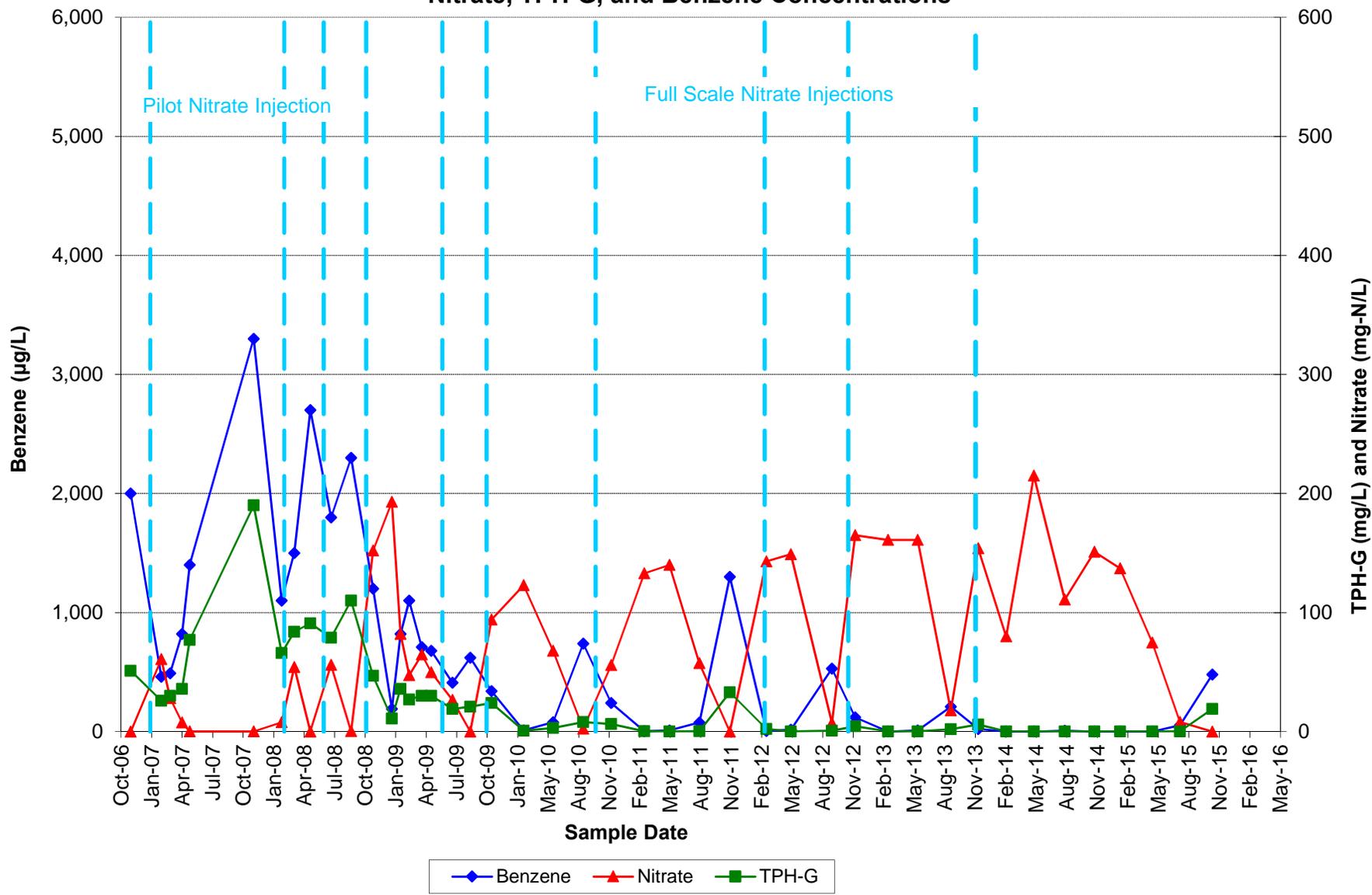
BDC-102 TPH-G and Benzene Concentrations Since 2001



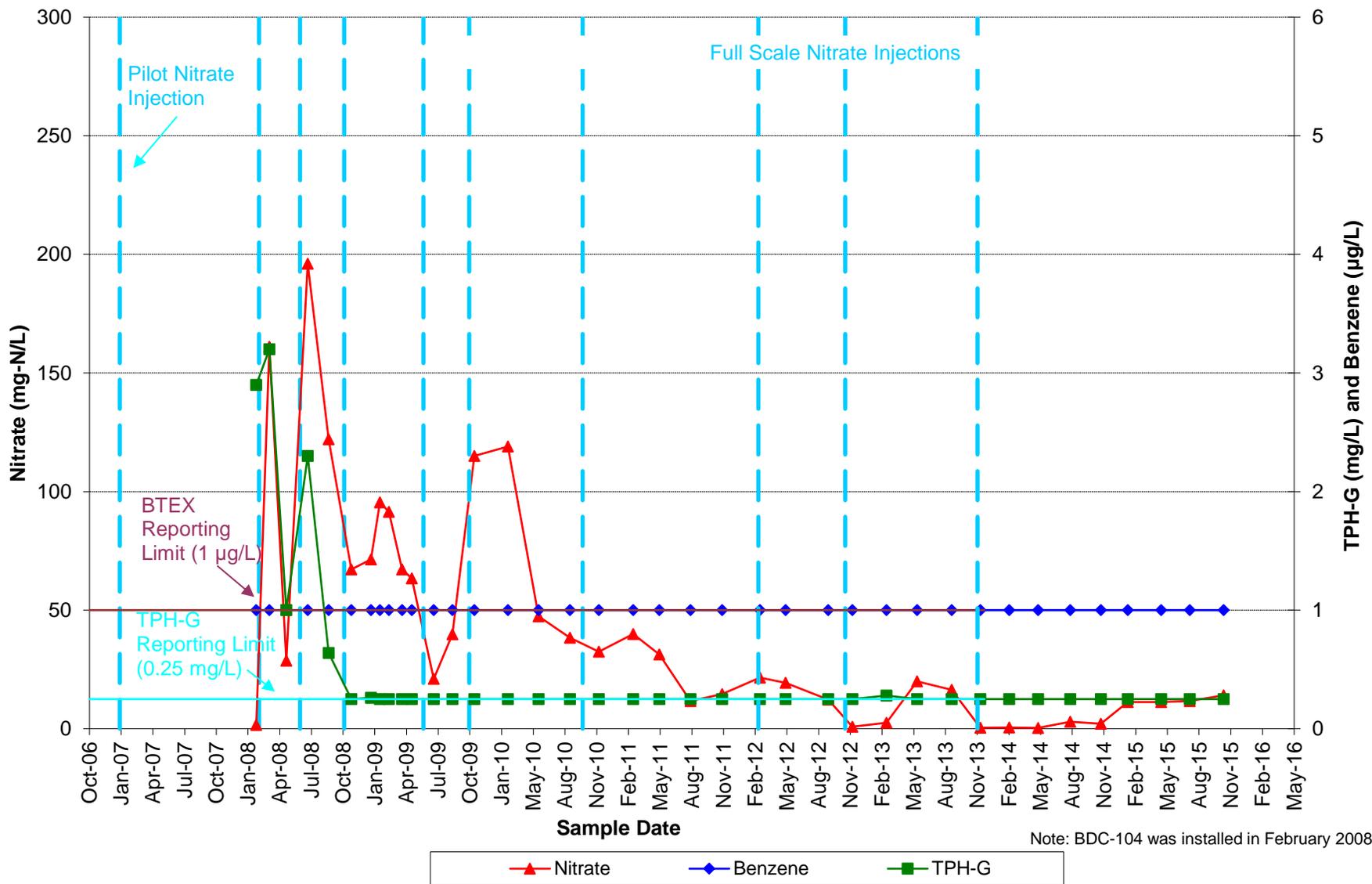
BDC-103 TPH-G and Benzene Concentrations Since 2001



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

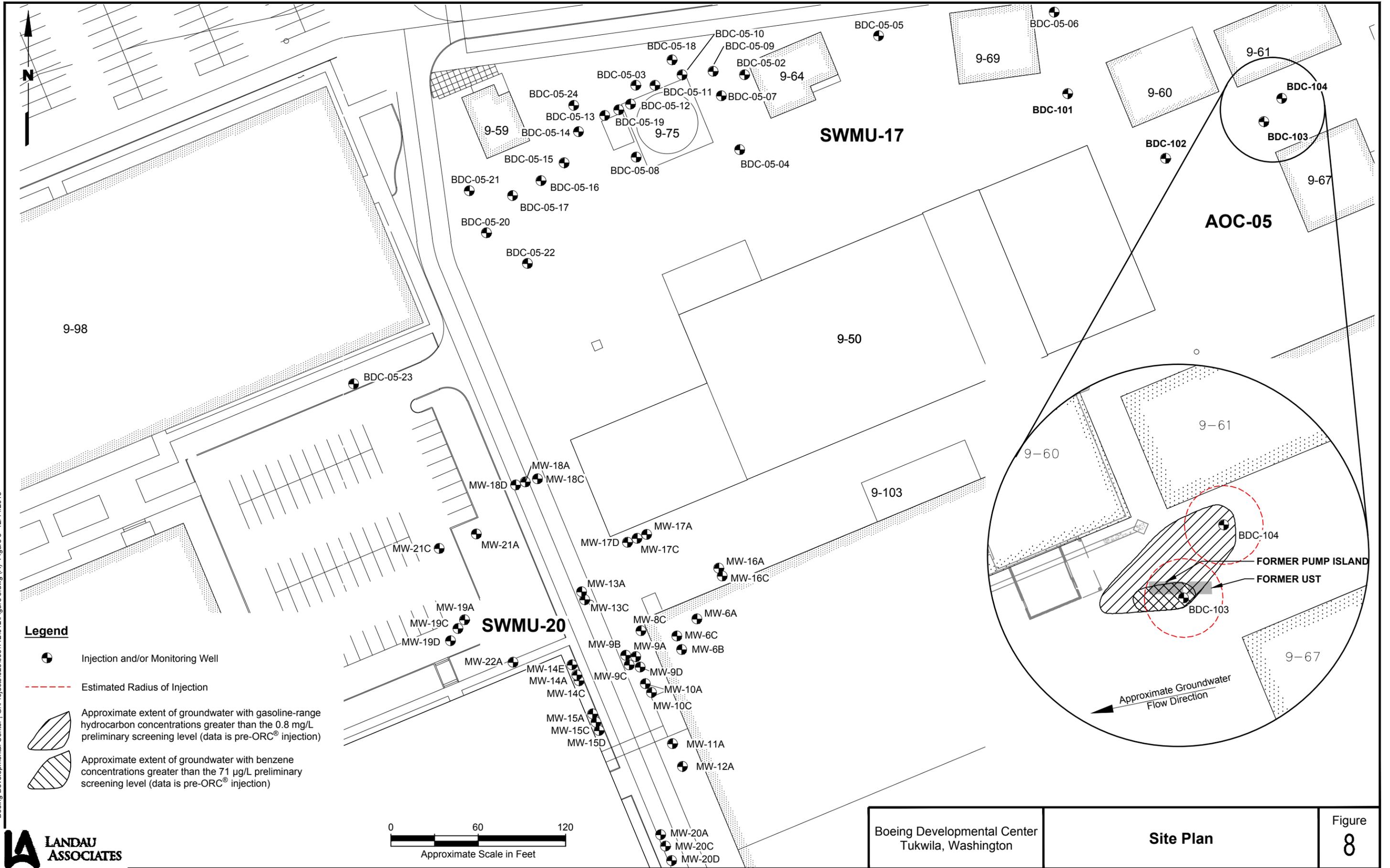


BDC-104 Nitrate, TPH-G, and Benzene Concentrations



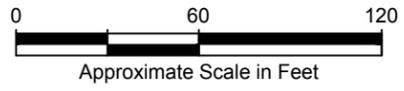
Note: BDC-104 was installed in February 2008

Boeing Developmental Center | G:\Projects\025093112\012\Figure 8.dwg (A) Figure 8" 12/14/2015



Legend

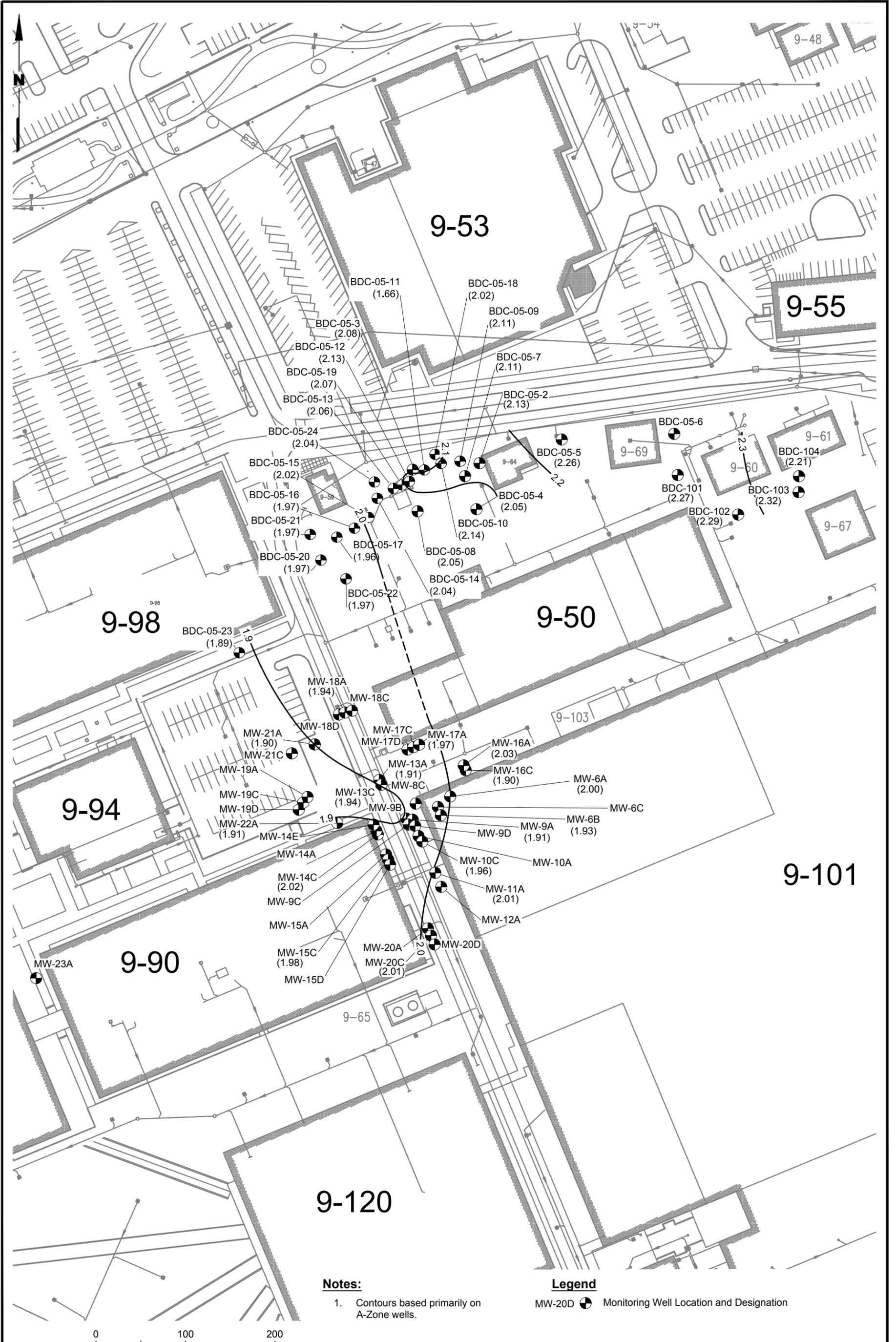
-  Injection and/or Monitoring Well
-  Estimated Radius of Injection
-  Approximate extent of groundwater with gasoline-range hydrocarbon concentrations greater than the 0.8 mg/L preliminary screening level (data is pre-ORC® injection)
-  Approximate extent of groundwater with benzene concentrations greater than the 71 µg/L preliminary screening level (data is pre-ORC® injection)



***DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
OCTOBER 2015***

GROUNDWATER ELEVATION INFORMATION

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

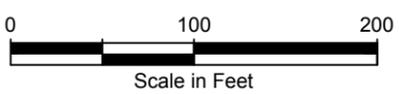


Notes:

1. Contours based primarily on A-Zone wells.

Legend

MW-20D Monitoring Well Location and Designation



**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	October 2015		July 2015		April 2015		January 2015		November 2014		August 2014		May 2014	
			Depth to Water	Water Elevation												
9-101-bldg.	MW-6A	24.25	12.80	2.00			12.65	2.15			12.22	2.58			12.10	2.70
9-101-bldg.	MW-6B	27.20	13.16	1.93			13.02	2.07			12.58	2.51			14.44	0.65
9-101-bldg.	MW-6C	40.55														
9-101-bldg.	MW-8C	40.20														
9-101-bldg.	MW-9A	21.30	12.83	1.91			12.64	2.10			12.18	2.56			12.07	2.67
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
9-101-bldg.	MW-10C	40.40	12.66	1.96			12.57	2.05			12.06	2.56			11.91	2.71
9-101-bldg.	MW-11A	19.90	12.87	2.01			12.74	2.14			12.31	2.57			12.10	2.78
9-101-bldg.	MW-12A	20.20									12.38	2.45			12.17	2.66
9-101-bldg.	MW-13A	19.37	12.23	1.91			12.19	1.95			11.71	2.43			11.62	2.52
9-101-bldg.	MW-13C	35.62	12.08	1.94			12.07	1.95			11.59	2.43			11.49	2.53
9-101-bldg.	MW-14A	19.00									11.93	2.44			11.85	2.52
9-101-bldg.	MW-14C	33.30	11.95	2.02			11.95	2.02			11.54	2.43			11.49	2.48
9-101-bldg.	MW-14E	82.10														
9-101-bldg.	MW-15A	20.70									11.77	2.40			11.72	2.45
9-101-bldg.	MW-15C	34.35	12.19	1.98			12.29	1.88			11.70	2.47			11.71	2.46
9-101-bldg.	MW-15D	51.80														
9-101-bldg.	MW-16A	20.55	12.96	2.03			12.85	2.14			12.40	2.59			12.22	2.77
9-101-bldg.	MW-16C	38.30	13.14	1.90			13.02	2.02			12.58	2.46			12.32	2.72
9-101-bldg.	MW-17A	19.00	12.83	1.97			12.67	2.13			12.25	2.55			12.11	2.69
9-101-bldg.	MW-17C	35.00														
9-101-bldg.	MW-17D	52.50														
9-101-bldg.	MW-18A	20.02	12.36	1.94			12.26	2.04			11.86	2.44			11.70	2.60
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	12.14	2.01			12.19	1.96			11.61	2.54			11.58	2.57
9-101-bldg.	MW-20D	50.15														
9-101-bldg.	MW-22A	19.20	12.34	1.91			12.33	1.92			11.96	2.29			11.90	2.35
9-101-bldg.	MW-23A	19.50														
9-101/9-50 bldg.	MW-21A	19.90	12.55	1.90			12.48	1.97			12.06	2.39			11.90	2.55
9-101/9-50 bldg.	MW-21C	34.00														
9-64-bldg.	BDC-05-02	25.35	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
9-64-bldg.	BDC-05-03	25.47	12.33	2.08			12.19	2.22			11.79	2.62			11.76	2.65
9-64-bldg.	BDC-05-04	25.36	12.54	2.05			12.26	2.33			11.95	2.64			11.93	2.66
9-64-bldg.	BDC-05-05	24.18	12.18	2.26			11.86	2.58			11.53	2.91			11.47	2.97
9-64-bldg.	BDC-05-07	25.30	11.88	2.11			11.67	2.32			11.37	2.62			11.29	2.70
9-64-bldg.	BDC-05-08	26.75	12.62	2.05			12.47	2.20			12.10	2.57			12.07	2.60
9-64-bldg.	BDC-05-09	24.55	12.30	2.11			12.10	2.31			11.79	2.62			11.71	2.70
9-64-bldg.	BDC-05-10	24.57	12.27	2.14			12.11	2.30			11.72	2.69			11.70	2.71
9-64-bldg.	BDC-05-11	24.85	12.99	1.66			12.33	2.32			11.93	2.72			11.91	2.74
9-64-bldg.	BDC-05-12	24.87	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
9-64-bldg.	BDC-05-13	24.78	12.37	2.06			12.20	2.23			11.85	2.58			11.86	2.57
9-64-bldg.	BDC-05-14	24.85	12.18	2.04			12.03	2.19			11.70	2.52			11.68	2.54
9-64-bldg.	BDC-05-15	24.48	11.95	2.02			11.83	2.14			11.47	2.50			11.42	2.55
9-64-bldg.	BDC-05-16	24.89	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
9-64-bldg.	BDC-05-17	24.82	12.29	1.96			12.12	2.13			11.86	2.39			11.83	2.42
9-64-bldg.	BDC-05-18	24.69	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
9-64-bldg.	BDC-05-19	24.85	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
9-64-bldg.	BDC-05-20	24.80	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
9-64-bldg.	BDC-05-21	24.86	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

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	October 2015		July 2015		April 2015		January 2015		November 2014		August 2014		May 2014	
			Depth to Water	Water Elevation												
9-64-bldg.	BDC-05-22	25.07	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
9-64-bldg.	BDC-05-23	25.10	12.57	1.89	12.85	1.61	12.51	1.95	11.98	2.48	12.27	2.19	12.81	1.65	12.36	2.10
9-64-bldg.	BDC-05-24	24.73	12.15	2.04	12.21	1.98	12.00	2.19	11.43	2.76	11.65	2.54	12.12	2.07	11.64	2.55
9-60 bldg.	BDC-101	18.42	12.20	2.27	12.12	2.35	11.75	2.72	11.22	3.25	11.44	3.03	12.08	2.39	11.22	3.25
9-60 bldg.	BDC-102	18.83	11.98	2.29	11.94	2.33	11.57	2.70	11.01	3.26	11.20	3.07	11.87	2.40	10.97	3.30
9-60 bldg.	BDC-103	18.51	12.02	2.32	11.94	2.40	11.49	2.85	10.93	3.41	11.01	3.33	11.88	2.46	10.85	3.49
9-60 bldg.	BDC-104	18.90	11.95	2.21	11.75	2.41	11.23	2.93	10.74	3.42	10.88	3.28	11.67	2.49	10.66	3.50
9-52-bldg.	952MW-1	17.40														
9-52-bldg.	952MW-2	17.54														
9-52-bldg.	952MW-3	17.95														
9-52-bldg. (west)	MW-5	27.43														
9-04-bldg. (north)	MW-2	26.98														
9-04-bldg. (north)	MW-7	18.50														
9-04-bldg. (north)	MW-8	18.50														
9-04-bldg. (north)	MW-9	18.50														

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	Feb 2014		Nov 2013		August 2013		May 2013		Feb 2013		Nov 2012		May 2012	
			Depth to Water	Water Elevation												
9-101-bldg.	MW-6A	24.25			12.82	1.98			12.92	1.88			12.82	1.98	12.61	2.19
9-101-bldg.	MW-6B	27.20			13.16	1.93			13.27	1.82			13.17	1.92	12.96	2.13
9-101-bldg.	MW-6C	40.55														
9-101-bldg.	MW-8C	40.20														
9-101-bldg.	MW-9A	21.30			12.88	1.86			12.80	1.94			12.83	1.91	12.54	2.20
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			12.81	1.88			12.72	1.97			12.77	1.92	12.55	2.14
9-101-bldg.	MW-10C	40.40			12.73	1.89			12.65	1.97			12.70	1.92	12.49	2.13
9-101-bldg.	MW-11A	19.90			12.89	1.99			12.84	2.04			12.19	2.69	12.65	2.23
9-101-bldg.	MW-12A	20.20			12.98	1.85			12.88	1.95			13.01	1.82	12.70	2.13
9-101-bldg.	MW-13A	19.37			12.37	1.77			12.36	1.78			12.27	1.87	12.20	1.94
9-101-bldg.	MW-13C	35.62			12.23	1.79			12.22	1.80			12.11	1.91	12.06	1.96
9-101-bldg.	MW-14A	19.00			12.59	1.78			12.65	1.72			12.53	1.84	12.46	1.91
9-101-bldg.	MW-14C	33.30			12.17	1.80			12.25	1.72			12.07	1.90	12.09	1.88
9-101-bldg.	MW-14E	82.10														
9-101-bldg.	MW-15A	20.70			12.44	1.73			12.48	1.69			12.34	1.83	12.16	2.01
9-101-bldg.	MW-15C	34.35			12.42	1.75			12.54	1.63			12.27	1.90	12.36	1.81
9-101-bldg.	MW-15D	51.80														
9-101-bldg.	MW-16A	20.55			13.06	1.93			13.07	1.92			13.02	1.97	12.81	2.18
9-101-bldg.	MW-16C	38.30			13.24	1.80			13.25	1.79			13.17	1.87	13.01	2.03
9-101-bldg.	MW-17A	19.00			12.90	1.90			12.98	1.82			12.78	2.02	12.26	2.54
9-101-bldg.	MW-17C	35.00														
9-101-bldg.	MW-17D	52.50														
9-101-bldg.	MW-18A	20.02			12.23	2.07			12.58	1.72			12.39	1.91	11.90	2.40
9-101-bldg.	MW-18C	34.55														
9-101-bldg.	MW-18D	52.85														
9-101-bldg.	MW-19A	16.86						10.74	1.49							
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			12.40	1.75			12.50	1.65			12.22	1.93	12.18	1.97
9-101-bldg.	MW-20D	50.15														
9-101-bldg.	MW-22A	19.20			12.42	1.83			12.72	1.53			12.42	1.83	12.35	1.90
9-101-bldg.	MW-23A	19.50														
9-101/9-50 bldg.	MW-21A	19.90			12.39	2.06			12.80	1.65			12.60	1.85	12.13	2.32
9-101/9-50 bldg.	MW-21C	34.00														
9-64-bldg.	BDC-05-02	25.35	12.21	2.20	12.36	2.05	12.47	1.94	12.29	2.12	12.19	2.22	12.31	2.10	11.81	2.60
9-64-bldg.	BDC-05-03	25.47			12.43	1.98			12.36	2.05			12.36	2.05	11.95	2.46
9-64-bldg.	BDC-05-04	25.36			12.51	2.08			12.17	2.42			12.52	2.07	12.05	2.54
9-64-bldg.	BDC-05-05	24.18			12.15	2.29			12.13	2.31			13.40	1.04	11.65	2.79
9-64-bldg.	BDC-05-07	25.30			11.96	2.03			11.92	2.07			11.97	2.02	11.40	2.59
9-64-bldg.	BDC-05-08	26.75			12.72	1.95			12.64	2.03			12.64	2.03	12.28	2.39
9-64-bldg.	BDC-05-09	24.55			12.37	2.04			12.31	2.10			12.36	2.05	11.90	2.51
9-64-bldg.	BDC-05-10	24.57			12.36	2.05			12.31	2.10			12.30	2.11	11.95	2.46
9-64-bldg.	BDC-05-11	24.85			12.59	2.06			12.51	2.14			12.55	2.10	12.13	2.52
9-64-bldg.	BDC-05-12	24.87	12.53	2.19	12.88	1.84	12.78	1.94	12.61	2.11	12.53	2.19	12.66	2.06	12.24	2.48
9-64-bldg.	BDC-05-13	24.78			12.44	1.99			12.40	2.03			12.44	1.99	12.02	2.41
9-64-bldg.	BDC-05-14	24.85			12.25	1.97			12.21	2.01			12.29	1.93	11.83	2.39
9-64-bldg.	BDC-05-15	24.48			12.04	1.93			12.07	1.90			11.97	2.00	11.63	2.34
9-64-bldg.	BDC-05-16	24.89	12.00	2.07	12.16	1.91	12.25	1.82	12.19	1.88	12.04	2.03	12.09	1.98	11.78	2.29
9-64-bldg.	BDC-05-17	24.82			12.34	1.91			12.30	1.95			12.27	1.98	11.65	2.60
9-64-bldg.	BDC-05-18	24.69	11.62	2.17	11.71	2.08	11.90	1.89	11.72	2.07	11.63	2.16	11.75	2.04	11.34	2.45
9-64-bldg.	BDC-05-19	24.85	12.43	2.13	12.58	1.98	12.68	1.88	12.52	2.04	12.44	2.12	12.60	1.96	12.15	2.41
9-64-bldg.	BDC-05-20	24.80	12.28	2.06	12.46	1.88	12.55	1.79	12.38	1.96	12.41	1.93	12.44	1.90	12.08	2.26
9-64-bldg.	BDC-05-21	24.86	12.15	2.04	12.30	1.89	12.42	1.77	12.26	1.93	12.25	1.94	12.30	1.89	11.94	2.25

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	Feb 2014		Nov 2013		August 2013		May 2013		Feb 2013		Nov 2012		May 2012	
			Depth to Water	Water Elevation												
9-64-bldg.	BDC-05-22	25.07	12.08	2.08	12.25	1.91	12.38	1.78	12.22	1.94	12.18	1.98	12.24	1.92	11.87	2.29
9-64-bldg.	BDC-05-23	25.10	12.51	1.95	12.74	1.72	12.83	1.63	12.70	1.76	12.56	1.90	12.74	1.72	12.39	2.07
9-64-bldg.	BDC-05-24	24.73	12.04	2.15	12.22	1.97	12.34	1.85	12.19	2.00	12.09	2.10	12.20	1.99	11.82	2.37
9-60 bldg.	BDC-101	18.42	11.97	2.50	11.99	2.48	12.27	2.20	11.99	2.48	11.77	2.70	12.20	2.27	11.32	3.15
9-60 bldg.	BDC-102	18.83	11.73	2.54	11.75	2.52	12.04	2.23	11.79	2.48	11.55	2.72	11.93	2.34	11.13	3.14
9-60 bldg.	BDC-103	18.51	11.75	2.59	11.66	2.68	12.06	2.28	11.71	2.63	11.43	2.91	11.88	2.46	11.09	3.25
9-60 bldg.	BDC-104	18.90	11.45	2.71	11.51	2.65	11.87	2.29	11.51	2.65	11.24	2.92	11.78	2.38	10.93	3.23
9-52-bldg.	952MW-1	17.40														
9-52-bldg.	952MW-2	17.54														
9-52-bldg.	952MW-3	17.95														
9-52-bldg. (west)	MW-5	27.43														
9-04-bldg. (north)	MW-2	26.98														
9-04-bldg. (north)	MW-7	18.50														
9-04-bldg. (north)	MW-8	18.50														
9-04-bldg. (north)	MW-9	18.50														

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	Nov 2011		July 2011		May 2011		Nov 2010		May 2010		Nov 2009		May 2009		Nov 2008		May 2008		
			Depth to Water	Water Elevation																	
9-101-bldg.	MW-6A	24.25	12.99	1.81			12.50	2.30	12.70	2.10	12.69	2.11	12.42	2.38	12.73	2.07	12.79	2.01	12.87	1.93	
9-101-bldg.	MW-6B	27.20	13.29	1.80			12.81	2.28	13.06	2.03	13.04	2.05	12.73	2.36	13.08	2.01	13.12	1.97	13.21	1.88	
9-101-bldg.	MW-6C	40.55											12.72	2.35	13.05	2.02	13.06	2.01	13.13	1.94	
9-101-bldg.	MW-8C	40.20											12.70	2.22	13.01	1.91	12.88	2.04	13.16	1.76	
9-101-bldg.	MW-9A	21.30	13.03	1.71			12.53	2.21	12.65	2.09	12.65	2.09	12.43	2.31	12.77	1.97	12.69	2.05	12.93	1.81	
9-101-bldg.	MW-9B	26.90											12.30	2.29	12.64	1.95	12.68	1.91	12.75	1.84	
9-101-bldg.	MW-9C	38.80											12.40	2.26	12.67	1.99	12.66	2.00	12.82	1.84	
9-101-bldg.	MW-9D	56.00											12.43	2.23	12.79	1.87	12.78	1.88	12.90	1.76	
9-101-bldg.	MW-10A	20.20	12.97	1.72			12.47	2.22	12.64	2.05	12.62	2.07	12.46	2.23	12.65	2.04	12.68	2.01	12.89	1.80	
9-101-bldg.	MW-10C	40.40	12.90	1.72			12.38	2.24	12.55	2.07	12.53	2.09	12.41	2.21	12.60	2.02	12.62	2.00	12.78	1.84	
9-101-bldg.	MW-11A	19.90	13.03	1.85			12.62	2.26	12.59	2.29	12.69	2.19	12.52	2.36	12.81	2.07	12.81	2.07	13.16	1.72	
9-101-bldg.	MW-12A	20.20	13.23	1.60			12.71	2.12	12.68	2.15	12.73	2.10	12.56	2.27	12.96	1.87	12.91	1.92	13.22	1.61	
9-101-bldg.	MW-13A	19.37	12.66	1.48			12.11	2.03	12.08	2.06	12.14	2.00	11.89	2.25	12.29	1.85	12.25	1.89	12.62	1.52	
9-101-bldg.	MW-13C	35.62	12.52	1.50			11.94	2.08	11.92	2.10	12.02	2.00	11.71	2.31	12.14	1.88	12.12	1.90	12.46	1.56	
9-101-bldg.	MW-14A	19.00	12.71	1.66			12.16	2.21	12.22	2.15	12.39	1.98	12.10	2.27	12.50	1.87	12.50	1.87	12.64	1.73	
9-101-bldg.	MW-14C	33.30	12.20	1.77			12.78	1.19	11.82	2.15	12.00	1.97	11.65	2.32	12.20	1.77	12.08	1.89	12.14	1.83	
9-101-bldg.	MW-14E	82.10											7.20	6.98	7.55	6.63	7.51	6.67	8.07	6.11	
9-101-bldg.	MW-15A	20.70	12.51	1.66			11.87	2.30	12.12	2.05	12.22	1.95	11.89	2.28	12.44	1.73	12.31	1.86	12.35	1.82	
9-101-bldg.	MW-15C	34.35	12.44	1.73			11.49	2.68	12.00	2.17	12.17	2.00	11.85	2.32	12.46	1.71	12.23	1.94	12.50	1.67	
9-101-bldg.	MW-15D	51.80											12.02	2.39	12.78	1.63	12.47	1.94	12.68	1.73	
9-101-bldg.	MW-16A	20.55	13.19	1.80			12.67	2.32	12.84	2.15	12.88	2.11	12.68	2.31	12.98	2.01	12.95	2.04	13.17	1.82	
9-101-bldg.	MW-16C	38.30	13.33	1.71			12.84	2.20	13.02	2.02	13.04	2.00	12.63	2.41	13.12	1.92	13.13	1.91	13.34	1.70	
9-101-bldg.	MW-17A	19.00	12.73	2.07	12.84	1.96	12.45	2.35	12.65	2.15	12.63	2.17	12.55	2.25	12.75	2.05	12.80	2.00	13.07	1.73	
9-101-bldg.	MW-17C	35.00																			
9-101-bldg.	MW-17D	52.50																			
9-101-bldg.	MW-18A	20.02	12.84	1.46	12.43	1.87	12.14	2.16	12.22	2.08	12.25	2.05	12.21	2.09	12.42	1.88	12.37	1.93	12.72	1.58	
9-101-bldg.	MW-18C	34.55											12.36	2.27	12.66	1.97	12.67	1.96	12.98	1.65	
9-101-bldg.	MW-18D	52.85																			
9-101-bldg.	MW-19A	16.86											10.11	2.12	10.49	1.74	10.47	1.76	10.49	1.74	
9-101-bldg.	MW-19C	33.92											9.98	2.25	10.44	1.79	10.33	1.90	10.41	1.82	
9-101-bldg.	MW-19D	51.86																			
9-101-bldg.	MW-20A	19.34											12.37	1.94	12.56	1.75	12.69	1.62	12.60	1.71	
9-101-bldg.	MW-20C	35.32	12.76	1.39			12.27	1.88	11.87	2.28	12.06	2.09	11.70	2.45	12.15	2.00	12.13	2.02	12.50	1.65	
9-101-bldg.	MW-20D	50.15																			
9-101-bldg.	MW-22A	19.20	12.52	1.73			12.14	2.11	12.40	1.85	12.30	1.95	12.04	2.21	12.57	1.68	12.35	1.90	12.50	1.75	
9-101-bldg.	MW-23A	19.50											11.86	2.41	13.27	1.00	12.67	1.60	12.67	1.60	
9-101/9-50 bldg.	MW-21A	19.90	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	12.63	1.78	12.35	2.06	11.81	2.60	12.10	2.31	12.14	2.27	12.05	2.36	12.19	2.22	12.20	2.21	12.28	2.09	
9-64-bldg.	BDC-05-03	25.47	12.77	1.64			11.94	2.47	12.21	2.20	12.24	2.17	12.11	2.30	12.29	2.12	12.28	2.13	12.47	1.94	
9-64-bldg.	BDC-05-04	25.36	12.82	1.77			12.03	2.56	12.30	2.29	12.33	2.26	12.22	2.37	12.40	2.19	12.35	2.24	12.58	2.01	
9-64-bldg.	BDC-05-05	24.18	12.50	1.94			11.61	2.83	11.95	2.49	11.97	2.47	11.89	2.55	12.02	2.42	12.00	2.44	12.18	2.26	
9-64-bldg.	BDC-05-07	25.30	12.23	1.76			11.42	2.57	11.95	2.04	11.75	2.24	11.95	2.04	11.82	2.17	11.80	2.19	12.02	1.97	
9-64-bldg.	BDC-05-08	26.75	13.02	1.65			12.20	2.47	12.49	2.18	12.51	2.16	12.39	2.28	12.79	1.88	12.57	2.10			
9-64-bldg.	BDC-05-09	24.55	12.68	1.73	12.27	2.13															
9-64-bldg.	BDC-05-10	24.57	12.74	1.67	12.27	2.14															
9-64-bldg.	BDC-05-11	24.85	12.92	1.73	12.60	2.05															
9-64-bldg.	BDC-05-12	24.87	13.00	1.72	12.57	2.15															
9-64-bldg.	BDC-05-13	24.78	12.78	1.65	12.35	2.08															
9-64-bldg.	BDC-05-14	24.85	12.55	1.67	12.23	1.99															
9-64-bldg.	BDC-05-15	24.48	12.34	1.63	11.95	2.02															
9-64-bldg.	BDC-05-16	24.89	12.44	1.63	12.05	2.02															
9-64-bldg.	BDC-05-17	24.82	12.60	1.65	12.27	1.98															
9-64-bldg.	BDC-05-18	24.69	12.10	1.69	11.84	1.95															
9-64-bldg.	BDC-05-19	24.85	12.90	1.66	12.59	1.97															
9-64-bldg.	BDC-05-20	24.80	12.75	1.59	12.47	1.87															
9-64-bldg.	BDC-05-21	24.86	12.59	1.60	12.34	1.85															

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	Nov 2011		July 2011		May 2011		Nov 2010		May 2010		Nov 2009		May 2009		Nov 2008		May 2008	
			Depth to Water	Water Elevation																
9-64-bldg.	BDC-05-22	25.07	12.54	1.62	12.27	1.89														
9-64-bldg.	BDC-05-23	25.10	13.08	1.38	12.79	1.67														
9-64-bldg.	BDC-05-24	24.73	12.59	1.60	12.28	1.91														
9-60 bldg.	BDC-101	18.42	12.46	2.01	12.16	2.31	11.48	2.99	11.92	2.55	11.82	2.65	11.82	2.65	11.89	2.58	11.95	2.52	12.29	2.18
9-60 bldg.	BDC-102	18.83	12.16	2.11	11.92	2.35	11.20	3.07	11.67	2.60	11.57	2.70	11.58	2.69	11.64	2.63	11.67	2.60	12.08	2.19
9-60 bldg.	BDC-103	18.51	12.20	2.14	11.90	2.44	10.96	3.38	11.63	2.71	11.54	2.80	11.55	2.79	11.61	2.73	11.68	2.66	12.02	2.32
9-60 bldg.	BDC-104	18.90	12.00	2.16	11.72	2.44	10.97	3.19	11.45	2.71	11.32	2.84	11.36	2.80	11.40	2.76	11.51	2.65	11.84	2.32
9-52-bldg.	952MW-1	17.40																		
9-52-bldg.	952MW-2	17.54																		
9-52-bldg.	952MW-3	17.95																		
9-52-bldg. (west)	MW-5	27.43																		
9-04-bldg. (north)	MW-2	26.98																		
9-04-bldg. (north)	MW-7	18.50																		
9-04-bldg. (north)	MW-8	18.50																		
9-04-bldg. (north)	MW-9	18.50																		

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	Nov 2007		May 2007		February 2007		Nov 2006		Aug 2006		May 2006		February 2006		November 2005		August 2005	
			Depth to Water	Water Elevation																
9-101-bldg.	MW-6A	24.25	13.08	1.72	12.97	1.83	12.42	2.38	12.30	2.50	13.16	1.64	12.77	2.03	12.42	2.38	12.80	2.00	13.02	1.78
9-101-bldg.	MW-6B	27.20	13.46	1.63	13.32	1.77	12.75	2.34	12.67	2.42	13.50	1.59	13.09	2.00	12.75	2.34	13.15	1.94	13.35	1.74
9-101-bldg.	MW-6C	40.55	13.41	1.66	13.27	1.80	12.69	2.38	12.65	2.42	13.41	1.66	13.07	2.00	12.71	2.36	13.14	1.93	13.32	1.75
9-101-bldg.	MW-8C	40.20	13.28	1.64	13.00	1.92			12.21	2.71			13.18	1.74			13.00	1.92		
9-101-bldg.	MW-9A	21.30	13.07	1.67	12.90	1.84	12.36	2.38	12.12	2.62	13.05	1.69	13.00	1.74	12.37	2.37	12.73	2.01	13.08	1.66
9-101-bldg.	MW-9B	26.90	12.91	1.68	12.71	1.88	12.19	2.40	11.95	2.64	12.87	1.72	13.81	0.78	12.19	2.40	12.69	1.90	12.90	1.69
9-101-bldg.	MW-9C	38.80	13.02	1.64	12.81	1.85	12.20	2.46	12.05	2.61	13.01	1.65	12.91	1.75	12.26	2.40	12.69	1.97	12.93	1.73
9-101-bldg.	MW-9D	56.00	13.56	1.10	12.88	1.78			12.30	2.36			13.15	1.51			12.90	1.76		
9-101-bldg.	MW-10A	20.20	13.05	1.64	12.72	1.97	12.35	2.34	12.06	2.63	12.88	1.81	12.98	1.71	11.93	2.76	12.73	1.96	12.85	1.84
9-101-bldg.	MW-10C	40.40	12.96	1.66	12.77	1.85			11.99	2.63			12.88	1.74			12.63	1.99		
9-101-bldg.	MW-11A	19.90	13.16	1.72	12.96	1.92			11.85	3.03			12.80	2.08			12.92	1.96		
9-101-bldg.	MW-12A	20.20	13.24	1.59	13.00	1.83			11.89	2.94			12.97	1.86			12.98	1.85		
9-101-bldg.	MW-13A	19.37	12.42	1.72	12.33	1.81			11.50	2.64			12.48	1.66			12.26	1.88		
9-101-bldg.	MW-13C	35.62	12.29	1.73	12.20	1.82			11.35	2.67			12.33	1.69			12.10	1.92		
9-101-bldg.	MW-14A	19.00	12.55	1.82	12.73	1.64	12.03	2.34	11.46	2.91	12.83	1.54	12.59	1.78	11.95	2.42	12.39	1.98	12.56	1.81
9-101-bldg.	MW-14C	33.30	12.00	1.97	12.32	1.65			11.72	2.25			12.26	1.71			12.13	1.84		
9-101-bldg.	MW-14E	82.10	6.83	7.35	7.59	6.59			6.71	7.47			8.78	5.40			7.87	6.31		
9-101-bldg.	MW-15A	20.70	12.24	1.93	12.52	1.65			11.93	2.24			12.05	2.12			12.42	1.75		
9-101-bldg.	MW-15C	34.35	12.30	1.87	12.55	1.62			11.91	2.26			12.37	1.80			12.50	1.67		
9-101-bldg.	MW-15D	51.80	12.53	1.88	12.76	1.65			12.14	2.27			12.52	1.89			12.63	1.78		
9-101-bldg.	MW-16A	20.55	12.53	2.46	13.11	1.88			12.05	2.94			13.04	1.95			13.05	1.94		
9-101-bldg.	MW-16C	38.30	13.33	1.71	13.23	1.81			12.22	2.82			13.23	1.81			13.22	1.82		
9-101-bldg.	MW-17A	19.00	13.00	1.80	12.80	2.00			12.04	2.76			12.85	1.95			12.74	2.30		
9-101-bldg.	MW-17C	35.00															12.83	2.21		
9-101-bldg.	MW-17D	52.50															12.82	2.22		
9-101-bldg.	MW-18A	20.02	12.46	1.84	12.45	1.85			11.57	2.73			12.43	1.87			12.44	1.86		
9-101-bldg.	MW-18C	34.55	12.88	1.75	12.74	1.89			11.85	2.78			12.70	1.93			12.72	1.91		
9-101-bldg.	MW-18D	52.85															12.42	2.21		
9-101-bldg.	MW-19A	16.86	10.68	1.55	10.55	1.68	9.92	2.31	9.59	2.64	10.77	1.46	10.44	1.79	10.22	2.01	10.43	1.80	10.70	1.53
9-101-bldg.	MW-19C	33.92	10.59	1.64	10.50	1.73			9.50	2.73			10.32	1.91			10.36	1.87		
9-101-bldg.	MW-19D	51.86															10.69	1.54		
9-101-bldg.	MW-20A	19.34	12.76	1.55	12.30	2.01			12.10	2.21			12.09	2.22			12.68	1.63		
9-101-bldg.	MW-20C	35.32	12.39	1.76	12.28	1.87			11.67	2.48			12.05	2.10			12.30	1.85		
9-101-bldg.	MW-20D	50.15															12.66	1.49		
9-101-bldg.	MW-22A	19.20	12.25	2.00	12.64	1.61	11.90	2.35	12.11	2.14	12.77	1.48	12.41	1.84	12.25	2.00	12.55	1.70	12.81	1.44
9-101-bldg.	MW-23A	19.50	12.83	1.44	12.90	1.37	12.03	2.24	13.02	1.25	12.94	1.33	12.49	1.78	12.44	1.83	12.78	1.49	13.73	0.54
9-101/9-50 bldg.	MW-21A	19.90											12.68	1.77						
9-101/9-50 bldg.	MW-21C	34.00																		
9-64-bldg.	BDC-05-02	25.35	12.31	2.06	12.23	2.14			11.53	2.84			12.21	2.16			12.21	2.16		
9-64-bldg.	BDC-05-03	25.47	12.51	1.90	12.45	1.96			11.75	2.66			12.40	2.01			12.43	1.98		
9-64-bldg.	BDC-05-04	25.36	12.57	2.02	12.54	2.05			11.85	2.74			12.54	2.05			12.52	2.07		
9-64-bldg.	BDC-05-05	24.18	12.30	2.14	12.07	2.37			11.51	2.93			12.16	2.28			12.16	2.28		
9-64-bldg.	BDC-05-07	25.30	12.03	1.96	11.96	2.03			11.27	2.72			11.94	2.05			11.96	2.03		
9-64-bldg.	BDC-05-08	26.75																		
9-64-bldg.	BDC-05-09	24.55																		
9-64-bldg.	BDC-05-10	24.57																		
9-64-bldg.	BDC-05-11	24.85																		
9-64-bldg.	BDC-05-12	24.87																		
9-64-bldg.	BDC-05-13	24.78																		
9-64-bldg.	BDC-05-14	24.85																		
9-64-bldg.	BDC-05-15	24.48																		
9-64-bldg.	BDC-05-16	24.89																		
9-64-bldg.	BDC-05-17	24.82																		
9-64-bldg.	BDC-05-18	24.69																		
9-64-bldg.	BDC-05-19	24.85																		
9-64-bldg.	BDC-05-20	24.80																		
9-64-bldg.	BDC-05-21	24.86																		

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	Nov 2007		May 2007		February 2007		Nov 2006		Aug 2006		May 2006		February 2006		November 2005		August 2005	
			Depth to Water	Water Elevation																
9-64-bldg.	BDC-05-22	25.07																		
9-64-bldg.	BDC-05-23	25.10																		
9-64-bldg.	BDC-05-24	24.73																		
9-60 bldg.	BDC-101	18.42	12.22	2.25	12.13	2.34			11.42	3.05			12.07	2.40			11.91	2.56		
9-60 bldg.	BDC-102	18.83	11.86	2.41	11.89	2.38			11.13	3.14			11.85	2.42			11.79	2.48		
9-60 bldg.	BDC-103	18.51	11.93	2.41	11.87	2.47			11.10	3.24			11.78	2.56			11.81	2.53		
9-60 bldg.	BDC-104	18.90																		
9-52-bldg.	952MW-1	17.40																		
9-52-bldg.	952MW-2	17.54																		
9-52-bldg.	952MW-3	17.95																		
9-52-bldg. (west)	MW-5	27.43																		
9-04-bldg. (north)	MW-2	26.98																		
9-04-bldg. (north)	MW-7	18.50																		
9-04-bldg. (north)	MW-8	18.50																		
9-04-bldg. (north)	MW-9	18.50																		

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	May 2005		February 2005		October 2004		August 2004		May 2004		November 2003		June 2003		December 2002		June 2002		December 2001	
			Depth to Water	Water Elevation																		
9-101-bldg.	MW-6A	24.25	12.52	2.28	12.68	2.12	12.90	1.90	13.06	1.74												
9-101-bldg.	MW-6B	27.20	12.88	2.21	12.97	2.12	13.25	1.84	13.40	1.69	13.00	1.83	12.88	1.95	13.30	1.53	13.01	1.82	13.21	1.62	12.45	2.38
9-101-bldg.	MW-6C	40.55	12.87	2.20	12.90	2.17	13.18	1.89	13.37	1.70	13.14	1.85	13.03	1.96	13.44	1.55	13.16	1.83	13.36	1.63	12.60	2.39
9-101-bldg.	MW-8C	40.20	12.64	2.28			12.91	2.01			13.11	1.81	13.11	1.81	13.39	1.53	13.19	1.73	13.27	1.65	12.89	2.03
9-101-bldg.	MW-9A	21.30	12.53	2.21	12.51	2.23	12.92	1.82	13.05	1.69	12.82	1.82	12.78	1.86	13.00	1.64	12.90	1.74	12.94	1.70	12.69	1.95
9-101-bldg.	MW-9B	26.90	12.17	2.42	10.80	3.79	12.76	1.83	12.90	1.69	12.77	1.95	12.82	1.90	13.08	1.64	12.96	1.76	13.00	1.72	12.82	1.90
9-101-bldg.	MW-9C	38.80	12.55	2.11	12.46	2.20	12.87	1.79	13.01	1.65	12.85	1.83	12.77	1.91	13.09	1.59	12.90	1.78	12.94	1.74	12.61	2.07
9-101-bldg.	MW-9D	56.00	12.90	1.76			13.92	0.74			12.92	1.74	13.04	1.62	13.39	1.27	13.17	1.49	13.20	1.46	12.25	2.41
9-101-bldg.	MW-10A	20.20	12.52	2.17	12.58	2.11	12.95	1.74	13.05	1.64	12.93	1.76	12.83	1.86	13.08	1.61	13.03	1.66	12.94	1.75	12.52	2.17
9-101-bldg.	MW-10C	40.40	12.45	2.17			12.74	1.88			12.80	1.82	12.71	1.91	12.97	1.65	12.90	1.72	12.84	1.78	12.32	2.30
9-101-bldg.	MW-11A	19.90	12.42	2.46			12.78	2.10			13.12	1.76	12.91	1.97	13.14	1.74	13.13	1.75	12.97	1.91	12.28	2.60
9-101-bldg.	MW-12A	20.20	12.58	2.25			12.86	1.97			13.21	1.62	13.00	1.83	13.23	1.60	13.20	1.63	13.03	1.80	12.33	2.50
9-101-bldg.	MW-13A	19.37	11.97	2.17			12.35	1.79			12.47	1.67	12.18	1.96	12.49	1.65	12.38	1.76	12.50	1.64	11.92	2.22
9-101-bldg.	MW-13C	35.62	11.78	2.24			12.19	1.83			12.35	1.67	12.02	2.00	12.30	1.72	12.22	1.80	12.31	1.71	11.45	2.57
9-101-bldg.	MW-14A	19.00	12.35	2.02	12.38	2.09	12.60	1.87	12.94	1.53	12.71	1.76	12.57	1.90	12.91	1.56	12.70	1.77	12.85	1.62	12.16	2.31
9-101-bldg.	MW-14C	33.30	11.84	2.13			12.09	1.88			12.16	1.81	12.07	1.90	12.43	1.54	12.18	1.79	12.33	1.64	11.60	2.37
9-101-bldg.	MW-14E	82.10	7.29	6.89			7.58	6.60			6.94	7.24	7.26	6.92	8.56	5.62	7.69	6.49	7.64	6.54	6.10	8.08
9-101-bldg.	MW-15A	20.70	11.74	2.43			12.17	2.00			12.67	1.50	12.36	1.81	12.57	1.60	12.55	1.62	12.52	1.65	11.82	2.35
9-101-bldg.	MW-15C	34.35	12.02	2.15			12.31	1.86			12.72	1.45	12.37	1.80	12.56	1.61	12.47	1.70	12.50	1.67	11.73	2.44
9-101-bldg.	MW-15D	51.80	12.20	2.21			12.56	1.85			12.88	1.53	12.64	1.77	12.41	2.00	12.80	1.61	13.02	1.39	11.90	2.51
9-101-bldg.	MW-16A	20.55	12.67	2.32			12.97	2.02			13.19	1.80	12.96	2.03	13.35	1.64	13.03	1.96	13.02	1.97	12.45	2.54
9-101-bldg.	MW-16C	38.30	12.83	2.21			13.15	1.89			13.38	1.66	13.15	1.89	13.51	1.53	13.33	1.71	13.29	1.75	12.62	2.42
9-101-bldg.	MW-17A	19.00					12.81	1.99			13.05	1.75	12.83	1.97	13.10	1.70	12.99	1.81	13.07	1.73	12.34	2.46
9-101-bldg.	MW-17C	35.00					12.80	2.05			13.11	1.74										
9-101-bldg.	MW-17D	52.50					12.97	1.90			13.20	1.67										
9-101-bldg.	MW-18A	20.02	12.11	2.19			12.43	1.87			12.57	1.73	12.36	1.94							11.82	2.48
9-101-bldg.	MW-18C	34.55	12.36	2.27			12.75	1.88			12.84	1.79	12.62	2.01	12.89	1.74	12.82	1.81	12.92	1.71		
9-101-bldg.	MW-18D	52.85					12.42	1.84			12.60	1.66										
9-101-bldg.	MW-19A	16.86	10.22	2.01	10.19	2.04	10.54	1.69			10.85	1.38	10.39	1.84							9.93	2.30
9-101-bldg.	MW-19C	33.92	10.22	2.01			10.43	1.80			10.22	2.01	10.31	1.92	10.55	1.68	10.41	1.82	10.71	1.52		
9-101-bldg.	MW-19D	51.86					10.67	1.56			10.86	1.37										
9-101-bldg.	MW-20A	19.34	12.33	1.98			12.75	1.56			12.73	1.58	12.58	1.73							12.20	2.11
9-101-bldg.	MW-20C	35.32	11.90	2.25			12.39	1.76			12.66	1.49	12.24	1.91	12.48	1.67	12.26	1.89	12.55	1.60		
9-101-bldg.	MW-20D	50.15					12.80	1.63			13.17	1.26										
9-101-bldg.	MW-22A	19.20	12.38	1.87																		
9-101-bldg.	MW-23A	19.50	13.55	0.72																		
9-101/9-50 bldg.	MW-21A	19.90															12.79	1.66	12.74	1.71	12.05	2.40
9-101/9-50 bldg.	MW-21C	34.00															10.53	1.67	10.52	1.68	9.87	2.33
9-64-bldg.	BDC-05-02	25.35	11.86	2.51			12.40	1.97			12.24	2.13	12.08	2.29	12.47	1.90	12.40	1.97	12.25	2.12	11.45	2.92
9-64-bldg.	BDC-05-03	25.47	12.07	2.34			12.60	1.81			12.46	1.95	12.28	2.13	12.66	1.75	12.60	1.81	12.47	1.94	11.70	2.71
9-64-bldg.	BDC-05-04	25.36	12.17	2.42			12.72	1.87			12.55	2.04	12.40	2.19	12.80	1.79	12.71	1.88	12.57	2.02	11.78	2.81
9-64-bldg.	BDC-05-05	24.18	11.87	2.57			12.41	2.03			12.12	2.32	12.13	2.31	12.51	1.93	12.42	2.02	12.22	2.22	11.38	3.06
9-64-bldg.	BDC-05-07	25.30	11.59	2.40			12.14	1.85			11.97	2.02	11.81	2.18	12.18	1.81	12.11	1.88	12.02	1.97	11.18	2.81
9-64-bldg.	BDC-05-08	26.75																				
9-64-bldg.	BDC-05-09	24.55																				
9-64-bldg.	BDC-05-10	24.57																				
9-64-bldg.	BDC-05-11	24.85																				
9-64-bldg.	BDC-05-12	24.87																				
9-64-bldg.	BDC-05-13	24.78																				
9-64-bldg.	BDC-05-14	24.85																				
9-64-bldg.	BDC-05-15	24.48																				
9-64-bldg.	BDC-05-16	24.89																				
9-64-bldg.	BDC-05-17	24.82																				
9-64-bldg.	BDC-05-18	24.69																				
9-64-bldg.	BDC-05-19	24.85																				
9-64-bldg.	BDC-05-20	24.80																				
9-64-bldg.	BDC-05-21	24.86																				

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	May 2005		February 2005		October 2004		August 2004		May 2004		November 2003		June 2003		December 2002		June 2002		December 2001	
			Depth to Water	Water Elevation																		
9-64-bldg.	BDC-05-22	25.07																				
9-64-bldg.	BDC-05-23	25.10																				
9-64-bldg.	BDC-05-24	24.73																				
9-60 bldg.	BDC-101	18.42	11.73	2.74			12.31	2.16			12.04	2.43	12.08	2.39	12.43	2.04	12.34	2.13	12.07	2.40	11.29	3.18
9-60 bldg.	BDC-102	18.83	11.53	2.74			11.97	2.30			11.84	2.43	11.82	2.45	12.24	2.03	12.14	2.13	11.82	2.45	11.05	3.22
9-60 bldg.	BDC-103	18.51	11.50	2.84			12.08	2.26			11.79	2.55	11.72	2.62	12.27	2.07	12.15	2.19	11.81	2.53	11.03	3.31
9-60 bldg.	BDC-104	18.90																				
9-52-bldg.	952MW-1	17.40																	11.10	2.38	10.21	3.27
9-52-bldg.	952MW-2	17.54																	11.37	2.63	10.46	3.54
9-52-bldg.	952MW-3	17.95																	11.40	2.36	10.52	3.24
9-52-bldg. (west)	MW-5	27.43																				
9-04-bldg. (north)	MW-2	26.98									9.96	2.71	9.78	2.89								
9-04-bldg. (north)	MW-7	18.50									10.90	2.79	10.72	2.97							9.96	3.73
9-04-bldg. (north)	MW-8	18.50									11.10	2.82	10.88	3.04							10.08	3.84
9-04-bldg. (north)	MW-9	18.50									11.03		10.84								10.08	

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	June 2001		December 2000		June 2000		November 1999	
			Depth to Water	Water Elevation						
9-101-bldg.	MW-6A	24.25								
9-101-bldg.	MW-6B	27.20	13.50	1.33	13.55	1.28	13.01	1.82	13.33	1.50
9-101-bldg.	MW-6C	40.55	13.67	1.32	13.70	1.29	13.15	1.84	13.50	1.49
9-101-bldg.	MW-8C	40.20	13.85	1.07	13.71	1.21	13.13	1.79	13.79	1.13
9-101-bldg.	MW-9A	21.30	13.76	0.88	13.72	0.92	12.78	1.86	13.67	0.97
9-101-bldg.	MW-9B	26.90	13.90	0.82	13.82	0.90	12.81	1.91	13.90	0.82
9-101-bldg.	MW-9C	38.80	13.64	1.04	13.57	1.11	12.75	1.93	13.60	1.08
9-101-bldg.	MW-9D	56.00	13.15	1.51	13.03	1.63	12.74	1.92	13.00	1.66
9-101-bldg.	MW-10A	20.20	13.52	1.17	13.62	1.07	12.84	1.85	13.50	1.19
9-101-bldg.	MW-10C	40.40	13.37	1.25	13.40	1.22	12.74	1.88	13.29	1.33
9-101-bldg.	MW-11A	19.90	13.35	1.53	13.52	1.36	12.91	1.97	13.20	1.68
9-101-bldg.	MW-12A	20.20	13.35	1.48	13.50	1.33	13.02	1.81	13.21	1.62
9-101-bldg.	MW-13A	19.37	12.59	1.55	12.76	1.38	12.50	1.64	12.33	1.81
9-101-bldg.	MW-13C	35.62	12.43	1.59	12.69	1.33	12.37	1.65	12.21	1.81
9-101-bldg.	MW-14A	19.00	13.00	1.47	12.98	1.49	12.70	1.77	12.78	1.69
9-101-bldg.	MW-14C	33.30	12.59	1.38	12.49	1.48	12.17	1.80	12.35	1.62
9-101-bldg.	MW-14E	82.10	7.83	6.35	7.44	6.74	7.45	6.73	7.90	6.28
9-101-bldg.	MW-15A	20.70	12.66	1.51	12.82	1.35	12.40	1.77	12.35	1.82
9-101-bldg.	MW-15C	34.35	12.80	1.37	12.77	1.40	12.36	1.81	12.49	1.68
9-101-bldg.	MW-15D	51.80	12.88	1.53	12.90	1.51	12.59	1.82	12.44	1.97
9-101-bldg.	MW-16A	20.55	13.55	1.44	13.50	1.49	13.19	1.80	13.34	1.65
9-101-bldg.	MW-16C	38.30	13.77	1.27	13.67	1.37	13.36	1.68	13.52	1.52
9-101-bldg.	MW-17A	19.00			13.32	1.48	13.05	1.75	13.03	1.77
9-101-bldg.	MW-17C	35.00	13.25	1.60			13.10	1.75	13.05	1.80
9-101-bldg.	MW-17D	52.50	13.20	1.67			13.25	1.62	12.82	2.05
9-101-bldg.	MW-18A	20.02	12.61	1.69	12.84	1.46	12.55	1.75	12.38	1.92
9-101-bldg.	MW-18C	34.55	12.87	1.76	13.12	1.51	12.83	1.80	12.61	2.02
9-101-bldg.	MW-18D	52.85	12.58	1.68	12.85	1.41	12.52	1.74	12.33	1.93
9-101-bldg.	MW-19A	16.86	10.62	1.61	10.93	1.30	10.68	1.55	10.42	1.81
9-101-bldg.	MW-19C	33.92	10.55	1.68	10.89	1.34	10.65	1.58	10.35	1.88
9-101-bldg.	MW-19D	51.86	11.00	1.23	10.90	1.33	10.71	1.52	11.05	1.18
9-101-bldg.	MW-20A	19.34	12.60	1.71	12.89	1.42	12.44	1.87	12.75	1.56
9-101-bldg.	MW-20C	35.32	12.50	1.65	12.69	1.46	12.16	1.99	12.44	1.71
9-101-bldg.	MW-20D	50.15	12.83	1.60	12.87	1.56	12.41	2.02	12.66	1.77
9-101-bldg.	MW-22A	19.20								
9-101-bldg.	MW-23A	19.50								
9-101/9-50 bldg.	MW-21A	19.90	12.77	1.68	13.04	1.41	12.93	1.52	12.50	1.95
9-101/9-50 bldg.	MW-21C	34.00	10.50	1.70						
9-64-bldg.	BDC-05-02	25.35	12.38	1.99	12.56	1.81	12.37	2.00	12.03	2.34
9-64-bldg.	BDC-05-03	25.47	12.56	1.85	12.82	1.59	12.56	1.85	12.33	2.08
9-64-bldg.	BDC-05-04	25.36	12.69	1.90	12.86	1.73	12.65	1.94	12.33	2.26
9-64-bldg.	BDC-05-05	24.18	12.37	2.07	12.53	1.91	12.36	2.08	11.96	2.48
9-64-bldg.	BDC-05-07	25.30	12.10	1.89	12.28	1.71	12.08	1.91	11.72	2.27
9-64-bldg.	BDC-05-08	26.75								
9-64-bldg.	BDC-05-09	24.55								
9-64-bldg.	BDC-05-10	24.57								
9-64-bldg.	BDC-05-11	24.85								
9-64-bldg.	BDC-05-12	24.87								
9-64-bldg.	BDC-05-13	24.78								
9-64-bldg.	BDC-05-14	24.85								
9-64-bldg.	BDC-05-15	24.48								
9-64-bldg.	BDC-05-16	24.89								
9-64-bldg.	BDC-05-17	24.82								
9-64-bldg.	BDC-05-18	24.69								
9-64-bldg.	BDC-05-19	24.85								
9-64-bldg.	BDC-05-20	24.80								
9-64-bldg.	BDC-05-21	24.86								

**DEVELOPMENTAL CENTER
CUMULATIVE WATER LEVEL MEASUREMENTS**

Well Location / Bldg.	Well ID No.	Well Depth	June 2001		December 2000		June 2000		November 1999	
			Depth to Water	Water Elevation						
9-64-bldg.	BDC-05-22	25.07								
9-64-bldg.	BDC-05-23	25.10								
9-64-bldg.	BDC-05-24	24.73								
9-60 bldg.	BDC-101	18.42	12.30	2.17						
9-60 bldg.	BDC-102	18.83	12.06	2.21						
9-60 bldg.	BDC-103	18.51	12.04	2.30						
9-60 bldg.	BDC-104	18.90								
9-52-bldg.	952MW-1	17.40	11.25	2.23	11.50	1.98			10.97	2.51
9-52-bldg.	952MW-2	17.54	11.48	2.52	11.76	2.24			11.25	2.75
9-52-bldg.	952MW-3	17.95	11.55	2.21	11.85	1.91			11.28	2.48
9-52-bldg. (west)	MW-5	27.43							10.53	2.42
9-04-bldg. (north)	MW-2	26.98	10.03	2.64			10.19	2.48	9.53	3.14
9-04-bldg. (north)	MW-7	18.50	11.05	2.64						
9-04-bldg. (north)	MW-8	18.50	11.23	2.69						
9-04-bldg. (north)	MW-9	18.50	11.23	-11.23						

Notes:

Depth to Water measurements taken from top of well casing

Top of casing elevation altered in wells MW-6B, MW-6C, MW-9A, MW-9B, and MW-9C by installation of threaded fitting on 6/19/2004.

Top of casing elevation was lowered in well MW-14A by 0.10 ft on 3/17/2005; resurveyed 9/9/05.

Top of casing elevation at wells MS-22A and MW-23A measured 9/9/05.

BDC05-02 was modified in October 2008 for utilization as an injection well. Elevation changed from 14.37 to 14.41 ft; total depth changed from 25.35 to 25.27.

***DEVELOPMENTAL CENTER
GROUNDWATER MONITORING
OCTOBER 2015***

GROUNDWATER SAMPLE COLLECTION FORMS

ANALYTICAL DATA

(DVD)

SWMU-20

(Groundwater Sample Collection Forms and Analytical Data)

BOEING Groundwater Sample Collection Form

42nd Sample event

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056

Event: 4th Quarter 2015 Labor Salco# 1007645

SAMPLE ID: DC-MW-06A-151026 (vymmdk)

Date Collected: Oct. 25, 2015 COC Time: 1130

Collector: Charles Hardy

Well Information

Well I. D.: MW-6a Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) ⁴⁰ (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.25 (ft.) historical or measured

Present Water Level: 12.80 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.25 ft. - 12.80 ft. = 11.45 ft x 0.658 Liters/ft. = 7.53 Liters

Purge Rate: 3.25 l. + 23 min. = 0.133 Liters/minute

Begin Purge: 1107 time

End Purge: 1130 time

Volume Purged: 3.05 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Purge water disposal to: 55-gal drum. Storage tank treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity ^{+/- 3%}	D. O. (mg/l) ^{+/- 10%}	pH ^{+/- 0.10 unit}	ORP mV ^{Others (w/1, nu's)}	Observations
1109	= 150 ml	19.3	261	3.37	6.63	0.3	
1111	= 400	19.2	281	1.65	6.65	-16.1	
1113	= 600	19.2	288	0.80	6.65	-29	
1115	= 900	19.2	295 ³⁰⁴	0.56	6.64	-39	
1117	= 1.15	19.2	299 ³⁰²	0.46	6.63	-46	
1119	= 1.45	19.2	304 ³¹³	0.95	6.63	-52	
1121	= 1.7	19.2	311	0.40	6.61	-56	
1123	= 2.05	19.2	314	0.28	6.60	-59	
1125	= 2.2	19.2	317	0.22	6.59	-61	
1127	= 2.6	19.2	319 ^{OK}	0.22	6.58	-63	
1129	= 2.9	19.2	320	0.18	6.58	-65	
1130	= 3.05	19.2	320	0.17	6.58	-66	

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input checked="" type="checkbox"/> No	4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Ethene, Ethane, Methane 8310 modfy (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	Total Organic Carbon Method 9060, (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Glass	none	<input checked="" type="checkbox"/> No	Sulfate IC E300 (LLI code 55)
0	- mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	

Comments: Hach Kit Fe++ 0.8 mg/L

Signature: C.H. Hardy

Date: Oct 26 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056

Event: 4th Quarter 2015 Labor Salco# 1007645

42nd Sample event

SAMPLE ID: DC-MW-6B-15-1026 (vymmdl)

Collector: Charles Hardy

Date Collected: Oct. 26, 2015 COC Time: 1205

Well Information

Well I. D.: MW-15 B 6 B Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 10 (Sch.) Material: PVC, Stainless Steel, Other FGRP fiberglass

Total Depth of Well: 27.2 (ft.) historical or measured

Present Water Level: 13.16 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 27.2 ft. 13.16 ft. = 14.04 ft x 0.776 Liters/ft. = 10.90 Liters

Purge Rate: 2.7 l. + 20 min. = 0.135 Liters/minute

Begin Purge: 1145 time

End Purge: 1205 time

Volume Purged: 2.7 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Purge water disposal to: 55-gal drum. Storage tank

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/l, ntu's)	Observations
1147	= 100 ml	19.9	187	3.05	6.78	-39		
1149	= 350	19.9	172	2.09	6.82	-38		
1151	= 550	19.8	155	1.63	6.78	-38		
1153	= 800 ml	19.8	142	1.54	6.75	-38		
1155	= 1.15	19.7	135	1.26	6.71	-37		
1157	= 1.45	19.7	131	1.17	6.68	-38		
1159	= 1.75	19.7	130	1.10	6.66	-38		
1201	= 2.05	19.7	130	1.07	6.64	-39		
1203	= 2.35	19.7	130	1.04	6.64	-39		
1205	= 2.7	19.6	132	0.99	6.62	-39		
=								
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Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input checked="" type="checkbox"/> No	4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Ethene, Ethane, Methane 8310 modify (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	Total Organic Carbon Method 9060, (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Glass	none	<input checked="" type="checkbox"/> No	Sulfate IC E300 (LLI code 55)
0	ml	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	

Comments: Hach Kit Fe++ 1.0 mg/l

Signature: C.H. Hardy

Date: Oct 26

2015

Continued on Back

BOEING Groundwater Sample Collection Form

42nd Sample event

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056

Event: 4th Quarter 2015 labor Salco#1007645

SAMPLE ID: DC-MW-9A-151026 (yyymmdd)

Date Collected: Oct 26, 2015 COC Time: 1245

Collector: Charles Hanly

Well Information

Well I. D.: MW-9A Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 10 (Sch.) Material: PVC, Stainless Steel, Other FGRP Fiberglass

Total Depth of Well: 21.30 (ft.) historical or measured

Present Water Level: 12.83 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 21.30 ft - 12.83 ft = 8.47 ft x 0.776 Liters/ft = 6.57 Liters

Purge Rate: 2.05 l. + 15 min. = 0.177 Liters/minute

Begin Purge: 1230 time

End Purge: 1245 time

Volume Purged: 2.65 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Purge water disposal to: 55-gal drum, Storage tank, treatment system, ground, other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D.O. (mg/l)	+/- 0.10 unit pH	ORP mV Others (w/l nit's)	Observations
1232	100 mL	18.7	432	0.62	6.20	1.5	
1234	600	18.7	425	0.49	6.20	-6.9	
1236	1.05 L	18.7	413	0.18	6.23	-17.8	
1238	1	18.7	404	0.13	6.26	-25	
1240	1.7	18.7	402	0.12	6.27	-29	
1242	2.1	18.7	399	0.12	6.29	-33	
1244	2.45	18.7	397	0.11	6.30	-36	
1245	2.65	18.7	397	0.10	6.30	-38	
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene, HDPE, PVC, Teflon, Stainless Steel, Other _____

Decontamination: N/A dedicated system, Alconox Wash, Tap Rinse, D.I. Rinse, Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input checked="" type="checkbox"/> No	4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Ethene, Ethane, Methane 8310 modfy (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H3PO4	<input checked="" type="checkbox"/> No	Total Organic Carbon Method 9060, (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Glass	none	<input checked="" type="checkbox"/> No	Sulfate IC E300 (LLI code 55)
0	_____ mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	_____

Comments: Hach Kit Fe++ 1.0 mg/L

Signature: CH Hanly

Date: Oct 26 2015

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BOEING Groundwater Sample Collection Form

42nd Sample event

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056

Event: 4th Quarter 2015 Labor Salco# 1007645

SAMPLE I D: DC-MW-11A-151026 (symmold)

Date Collected: Oct. / Nov. 26, 2015 COC Time: 1440

Collector: Charles Hanly

Well Information

Well I. D.: MW-11A Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 19.90 (ft.) historical or measured

Present Water Level: 12.87 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 19.90 ft - 12.87 ft = 7.03 ft x 658 Liters/ft = 4.63 Liters

Purge Rate: 2.15 l. + 13 min. = 0.165 Liters/minute

Begin Purge: 2:27 14:27 time

End Purge: 1440 time

Volume Purged: 2.15 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Purge water disposal to: 55-gal drum, Storage tank, treatment system, ground, other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D.O. (mg/l)	+/- 0.10 unit pH	ORP mV Others (w/l ,ntu's)	Observations
11:29	100 mL	18.9	1051	9.8	6.93	2.1	
11:31	500 mL	19.0	1045	1.28	6.54	-15.1	
11:33	850 mL	19.1	1040	0.78	6.58	-23.	
11:35	1.2 L	19.2	1042	0.53	6.61	-29	
11:37	1.6	19.3	1039	0.39	6.62	-33	
12:39							
12:40	2.15	19.3	1032	0.27	6.64	-37	
12:45							
12:45							

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Blender, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>3</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>HCl</u>	<input checked="" type="checkbox"/> No	<u>4-VOC's R260 V.C. TCE, PCE, cDCE (LLI code 38)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>Ethene, Ethane, Methane 8310 modfy (LLI code 57)</u>
<u>1</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>H3PO4</u>	<input type="checkbox"/> No	<u>Total Organic Carbon Method 9060, (LLI code 91)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	<u>Sulfate E300 (LLI code 55)</u>
<u>0</u>	<u>mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	

Comments: Hach Kit Fe++

Signature: C.H. Hanly

Date: Oct 26 2015

Continued on Back

BOEING Groundwater Sample Collection Form

42nd Sample event

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056
 Event: 4th Quarter 2015 Labor Salco#1007645
 SAMPLE ID: DC-MW-10c-151026 (yyymmdd)
 Date Collected: Oct. 26, 2015 COC Time: 1510

Collector: Charles Hardy

Well Information

Well I. D.: MW-10c Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 40.40 (ft.) historical or measured
 Present Water Level: 12.66 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 40.40 ft - 12.66 ft = 27.74 ft x 0.658 Liters/ft = 18.25 Liters
 Purge Rate: 3.0 l. + 75 min. = 0.206 Liters/minute

Begin Purge: 1455 time
 End Purge: 1510 time
 Volume Purged: 3.0 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Purge water disposal to: 55-gal drum. Storage tank treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity +/- 3%	D. O. (mg/l) +/- 10%	pH +/- 0.10 unit	ORP mV Others (w/l, ntu's)	Observations
1457	= Full	17.8	354	3.05	7.00	-31.	
1459	= 600	18.1	362	0.61	6.70	-15.7	
1501	= 950	18.0	369	0.49	6.65	-14.2	
1503	= 1.35	18.1	373	0.42	6.62	-14.7	
1505	= 1.8	18.1	373	0.37	6.62	-16.4	
1507	= 2.25	18.1	373	0.34	6.62	-18	
1509	= 2.7	18.1	371	0.31	6.62	-19	
1510	= 3.0	18.1	370	0.31	6.62	-19	
1513	=						
1515	=						

Sample Collection Information

Sample Collected with: disposable Boiler, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>3</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>HCl</u>	<input checked="" type="checkbox"/> No	<u>4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)</u>
<u>1</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>HCl</u>	<input type="checkbox"/> No	<u>Ethene, Ethane, Methane 8310 modfy (LLI code 57)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>H3PO4</u>	<input type="checkbox"/> No	<u>Total Organic Carbon Method 9060. (LLI code 91)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	<u>Sulfate IC 300 (LLI code 55)</u>
<u>0</u>	<u> mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	

Comments: Hach Kit Fe++

Signature: CH Hardy Date: Oct 26, 2015 Continued on Back

BOEING Groundwater Sample Collection Form

DUP

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056
 Event: 4th Quarter 2015 Labor Salco# 1007645
 SAMPLE ID: DC-MW-13A-151027 (yyymmdd)
 Date Collected: Oct. 27, 2015 COC Time: 6:15

42nd Sample event

Collector: Clarks Hanly

Well Information

Well I. D.: MW-13A Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 19.37 (ft.) historical or measured
 Present Water Level: 12.23 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 19.37 ft. - 12.23 ft. = 7.14 ft x 0.658 Liters/ft = 4.69 Liters
 Purge Rate: 5.65 l. + 25 min. = 0.168 Liters/minute
 Begin Purge: 5:48 time
 End Purge: 6:15 time
 Volume Purged: 3.65 Liters
 Purge water disposal to: 55-gal drum. Storage tank treatment system ground other _____

Casing Diameter	10s	Sch 40	Sch 80
1"		0.170	0.140
2"	0.776	0.658	0.579
2.5"		0.942	0.833
4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D. O. (mg/l)	pH	ORP mV	Others (w/ ,ntu's)	Observations
5:50	100 mL	17.5	350	1.24	7.05	41		
5:52	500 mL	18.4	228	0.76	7.39	54		
5:54	800 mL	18.3	199	0.60	7.23	63		
5:56	1.2 L	18.2	161	0.61	7.07	73		
5:58	1.55 L	18.1	157	0.53	6.90	82		
6:00	1.9 L	18.1	156	0.60	6.85	83		
6:02	2.25 L	18.1	157	0.66	6.80	83		
6:04	2.6 L	18.2	158	0.54	6.74	86		
6:06	2.9 L	18.3	160	0.38	6.69	85		
6:08	3.3 L	18.1	157	0.33	6.66	84		
6:10	3.65 L	18.1	155	0.28	6.53	89		
6:12	4.0 L	18.1	155	0.24	6.54	87		
6:14	4.4 L	18.3	158	0.24	6.52	86		
6:15	4.55 L	18.2	159	0.24	6.56	85		

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input checked="" type="checkbox"/> No	4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)
2	40 mL	<input type="checkbox"/> Glass	HCl	<input type="checkbox"/> No	Ethene, Ethane, Methane 8310 modify (LLI code 57)
2	40 mL	<input type="checkbox"/> Glass	H ₃ PO ₄	<input type="checkbox"/> No	Total Organic Carbon Method 9060, (LLI code 91)
2	40 mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	Sulfate IC E300 (LLI code 55)
0	mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	

Comments: High Kit Fe++

Signature: C.H. Hanly

C.H. Hanly

Date: Oct 27 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056
 Event: 4th Quarter 2015 Labor Salco# 1007645
 SAMPLE ID: DC-MW-13c-151027 (vymnidd)
 Date Collected: Oct. / Nov. 27, 2015 COC Time: 6:35

42nd Sample event

Collector: Charles Hardy

Well Information

Well I. D.: MW-13c Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 35.62 (ft.) historical or measured
 Present Water Level: 17.03 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 35.62 ft. - 12.03 ft. = 23.59 ft x 0.658 Liters/ft. = 15.49 Liters
 Purge Rate: 2.15 l. + 13 min. = 0.165 Liters/minute

Begin Purge: 6:22 time

End Purge: 6:35 time

Volume Purged: _____ Liters

Purge water disposal to: 55-gal drum, Storage tank

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D.O. (mg/l)	pH	ORP mV	Others (w/ lntu's)	Observations
<u>6:24</u>	<u>100 ml</u>	<u>17.2</u>	<u>535</u>	<u>0.53</u>	<u>6.11</u>	<u>65</u>		
<u>6:26</u>	<u>550 ml</u>	<u>17.1</u>	<u>598</u>	<u>0.20</u>	<u>6.51</u>	<u>21</u>		
<u>6:28</u>	<u>900 ml</u>	<u>17.1</u>	<u>600</u>	<u>0.15</u>	<u>6.55</u>	<u>1.8</u>		
<u>6:30</u>	<u>1.25</u>	<u>17.0</u>	<u>601</u>	<u>0.13</u>	<u>6.57</u>	<u>-10.8</u>		
<u>6:32</u>	<u>1.8</u>	<u>17.0</u>	<u>599</u>	<u>0.12</u>	<u>6.59</u>	<u>-21</u>		
<u>6:34</u>								
<u>6:35</u>	<u>2.15</u>	<u>17.0</u>	<u>596</u>	<u>0.12</u>	<u>6.59</u>	<u>-27</u>		
<u>6:38</u>								
<u>6:40</u>								
<u>6:42</u>								
<u>6:44</u>								
<u>6</u>								

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>3</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>HCl</u>	<input checked="" type="checkbox"/> No	<u>4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>HCl</u>	<input type="checkbox"/> No	<u>Ethene, Ethane, Methane 8310 modify (LLI code 57)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>H3PO4</u>	<input type="checkbox"/> No	<u>Total Organic Carbon Method 9060, (LLI code 91)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	<u>Sulfate 1E E300 (LLI code 55)</u>
<u>0</u>	<u>mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	

Comments: Hach Kit Fe++

Signature: C.H. Hardy

Date: _____ 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056
 Event: 4th Quarter 2015 Labor Salcn# 1007645
 SAMPLE ID: DC-MW-14c-151027 (yyymmdd)
 Date Collected: Oct. 27, 2015 COC Time: _____

42nd Sample event

Collector: Charles Hardy

Well Information

Well I. D.: MW-14c Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (Inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 33.3 (ft.) historical or measured
 Present Water Level: 11.95 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 33.3 ft. 11.95 ft. = 21.65 ft. $\times \phi 6.58$ Liters/ft. = 14.18 Liters
 Purge Rate: 2.95 l. + 19 min. = 0.155 Liters/minute

Begin Purge: 7:51 time

End Purge: 8:10 time

Volume Purged: 2.95 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Purge water disposal to: 55-gal drum, Storage tank treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D.O. (mg/l)	pH	ORP mV	Others (w/l. nu's)	Observations
753	200 mL	18.9	587	0.43	6.63	-74.3		
755	600	19.2	563	0.21	6.62	-20.7		
757	900	19.1	561	0.13	6.62	-26		
759	1.25 L	19.1	541	0.11	6.26	-8.8		
801	1.55	19.1	529	0.11	6.52	-25.5		
803	1.85	19.1	516	0.09	6.44	-23.5		
805	2.2	19.1	507	0.08	6.44	-25.5		
807	2.5	19.1	507	0.08	6.42	-26.4		
809	2.8	19.1	505	0.07	6.43	-27		
81	2.95	19.1	503	0.08	6.42	-28		
"	"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"	"

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input type="checkbox"/> No	4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)
2	40 mL	<input type="checkbox"/> Glass	HCl	<input type="checkbox"/> No	Ethene, Ethane, Methane 8310 modify (LLI code 57)
2	40 mL	<input type="checkbox"/> Glass	H ₃ PO ₄	<input type="checkbox"/> No	Total Organic Carbon Method 9060, (LLI code 91)
2	40 mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	Sulfate TC E300 (LLI code 55)
0	mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	

Comments: Haach Kit Fe++

Signature: C.H. Hardy

Date: Oct 27 2015

Continued on Back

BOEING Groundwater Sample Collection Form

42nd Sample event

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056
 Event: 4th Quarter 2015 labor Salco#1007645
 SAMPLE ID: DC-MW-15c-151027 (yyymmdd)
 Date Collected: Oct. / Nov. 27, 2015 COC Time: 735

Collector: Charles Hardy

Well Information

Well I. D.: MW-15c Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 34.35 (ft.) historical or measured
 Present Water Level: 12.19 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 34.35 ft. - 12.19 ft. = 22.16 ft x ϕ 6.58 Liters/ft = 14.58 Liters
 Purge Rate: 2.95 l. + 13 min. = ϕ 2.27 Liters/minute

Begin Purge: 722 time

End Purge: 735 time

Volume Purged: 2.95 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Purge water disposal to: 55-gal drum. Storage tank treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D. O. (mg/l)	pH	ORP mV	Observations
724	= 200 ml	21.6	354	1.60	6.91	-13.3	
726	= 750	20.6	344	0.39	6.90	-25.8	
728	= 1.2 L	20.5	341	0.31	6.90	-36.	
730	= 1.7 L	20.7	341	0.22	6.87	-43	
732	= 2.2	20.5	337	0.16	6.87	-49	
734	= 2.65	20.4	333	0.14	6.86	-57	
735	= 2.95	20.5	331	0.11	6.84	-59	
"							
"							
"							
"							
"							
"							
"							
"							
"							
"							
"							

Sample Collection Information

Sample Collected with: disposable Baller, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input checked="" type="checkbox"/> No	4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)
2	40 mL	<input type="checkbox"/> Glass	HCl	<input type="checkbox"/> No	Ethene, Ethane, Methane 8310 mod/v (LLI code 57)
2	40 mL	<input type="checkbox"/> Glass	H ₃ PO ₄	<input type="checkbox"/> No	Total Organic Carbon Method 9060, (LLI code 91)
2	40 mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	Sulfate IC E300 (LLI code 55)
0	mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	

Comments: Haeh Kit Fe++
 Signature: C.H. Hardy

Date: Oct 27, 2015 Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056

Event: 4th Quarter 2015

Labor Salco# 1007645

42nd Sample event

SAMPLE ID: DC-MW-16A-151026 (vymmd)

Collector: Charles Hanly

Date Collected: Oct. 26, 2015 COC Time: _____

Well Information 16A

Well I. D.: MW-16A Well Condition: Secure? Yes No; Describe Condition: NEW LOCK

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 20.55 (ft.) historical or measured

Present Water Level: 12.96 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 20.55 ft - 12.96 ft = 7.59 ft x 0.658 Liters/ft = 4.99 Liters

Purge Rate: 3.25 l. + 18 min. = 0.181 Liters/minute

Begin Purge: 957 time

End Purge: 1015 time

Volume Purged: 3.25 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"	1"		0.170	0.140
2"	2"	0.776	0.658	0.579
2.5"	2.5"		0.942	0.833
4"	4"	2.995	2.502	2.260

Purge water disposal to: 55-gal drum, Storage tank treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity +/- 3%	D. O. (mg/l) +/- 10%	pH +/- 0.10 unit	ORP mV	Others (w/1 .nu's)	Observations
959	= 200 mL	17.0	333	1.09	6.99	-9.8		
1001	= 600	17.8	277 ²⁶⁶	0.61	6.78	+2.4		
1003	= 950	17.9	271 ²⁶³	0.31	6.78	+3.4		
1005	= 1.35 L	17.9	266 ²⁵⁸	0.26	6.78	+3.2		
1007	= 1.7	17.9	259 ²⁵¹	0.22	6.76	+4.7		
1009	= 2.1 L	17.9	257	0.17	6.73	+6.4		
1011	= 2.5 L	18.0	254	0.15	6.72	6.2		
1013	= 2.9	18.0	253 ^{OK}	0.14	6.71	6.3		
1015	= 3.25	18.0	253	0.14	6.69	6.7		
"								
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Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>3</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>HCl</u>	<input checked="" type="checkbox"/> No	<u>4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>HCl</u>	<input type="checkbox"/> No	<u>Ethene, Ethane, Methane 8310 modify (LLI code 57)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>H3PO4</u>	<input type="checkbox"/> No	<u>Total Organic Carbon Method 9060, (LLI code 91)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	<u>Sulfate IC E300 (LLI code 55)</u>
<u>0</u>	<u>mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	

Comments: Hach Kit Fe++

Signature: C.H. Hanly

Date: Oct 26 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056
 Event: 4th Quarter 2015 Labor Salco# 1007645
 SAMPLE ID: DC-MW-16C-151026 (vymnadd)
 Date Collected: Oct. / Nov. 26, 2015 COC Time: 1048

42nd Sample event

Collector: Charles Hanly

Well Information

Well I. D.: MW-16C Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 38.3 (ft.) historical or measured
 Present Water Level: 13.14 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 38.3 ft. - 13.14 ft. = 25.16 ft x 0.658 Liters/ft = 16.56 Liters
 Purge Rate: 3.7 l. + 4 min. = 0.926 Liters/minute

Begin Purge: 1024 time

End Purge: 1045 time

Volume Purged: 3.7 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Purge water disposal to: 55-gal drum, Storage tank, treatment system, ground, other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D. O. (mg/l)	pH	ORP mV	Others (w/l, nu's)	Observations
1026	200 mL	16.7	306	1.50	6.65	4		
1028	600	16.9	316	0.73	6.56	-3.8		
1030	950	17.0	311	0.70	6.54	-10.4		
1032	1.35	17.0	301	0.70	6.53	-16.5		
1034	1.7	17.0	288	0.64	6.54	-21		
1036	2.1	17.0	273	0.59	6.55	-24		
1038	2.45	17.0	266	0.51	6.55	-27		
1040	2.8	17.0	263	0.46	6.53	-29		
1042	3.15	17.0	264	0.42	6.53	-31		
1044	3.5	17.1	265	0.39	6.53	-33		
1045	3.7	17.1	267	0.37	6.53	-34		
"	"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"	"

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene, HDPE, PVC, Teflon, Stainless Steel, Other _____
 Decontamination: N/A dedicated system, Alconox Wash, Tap Rinse, D.I. Rinse, Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input checked="" type="checkbox"/> No	4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)
2	40 mL	<input type="checkbox"/> Glass	HCl	<input type="checkbox"/> No	Ethene, Ethane, Methane 8310 modify (LLI code 57)
2	40 mL	<input type="checkbox"/> Glass	H3PO4	<input type="checkbox"/> No	Total Organic Carbon Method 9060, (LLI code 91)
2	40 mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	Sulfate IC E300 (LLI code 55)
0	mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	

Comments: Hoch Kit Fe++

Signature: C.H. Hanly

Date: Oct 26 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056
 Event: 4th Quarter 2015 Labor Salco#1007645
 SAMPLE ID: DC-MW-17A-151026 (yyymmdd)
 Date Collected: Oct. / Nov. 26, 2015 COC Time: 9:40

42nd Sample event

Collector: Charles Hardy

Well Information

Well I. D.: MW-17A Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 19.0 (ft.) historical or measured
 Present Water Level: 12.33 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 19.0 ft - 12.33 ft = 6.67 ft x 0.658 Liters/ft = 4.06 Liters
 Purge Rate: _____ l + _____ min. = _____ Liters/minute

Begin Purge: 9:26 time

End Purge: 9:41 time

Volume Purged: _____ Liters

Purge water disposal to: 55-gal drum, Storage tank treatment system ground other _____

Casing Volume	Diameter	10s	Sch 40	Sch 80
1"	1"		0.170	0.140
2"	2"	0.776	0.658	0.579
2.5"	2.5"		0.942	0.833
4"	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity +/- 3%	D. O. (mg/l) +/- 10%	pH +/- 0.10 unit	ORP mV Others (w/ .mu's)	Observations
9:28	= 100 ml	17.9	1365	0.78	6.36	9.7	
9:30	= 450 ml	18.8	1426	0.30	6.43	-0.2	
9:32	= 750	18.9	1442	0.20	6.48	-5.7	
9:34	= 1.05 L	18.8	1449	0.17	6.50	-8.3	
9:36	= 1.35 L	18.8	1452	0.20	6.52	-10.1	
9:38	= 1.65	18.8	1465	0.18	6.53	-11.7	
9:40	= 1.95	18.9	1467	0.17	6.54	-11.5	
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"

Sample Collection Information

Sample Collected with: disposable Baller, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input type="checkbox"/> No	4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)
2	40 mL	<input type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Ethene, Ethane, Methane 8310 modify (LLI code 57)
2	40 mL	<input type="checkbox"/> Glass	H3PO4	<input type="checkbox"/> No	Total Organic Carbon Method 9060, (LLI code 91)
2	40 mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	Sulfate IC E300 (LLI code 55)
0	mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	

Comments: Hach Kit Fe++

Signature: C.H. Hardy

Date: OCT 26 2015

Continued on Back

BOEING Groundwater Sample Collection Form

42nd Sample event

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056

Event: 4th Quarter 2015 Labor Salco# 1007645

SAMPLE ID: DC-MW-20c-151027 (yvnmdd)

Date Collected: Oct. / Nov. 27, 2015 COC Time: 705

Collector: Charles Hanly

Well Information

Well I. D.: MW-20c Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 35.32 (ft.) historical or measured

Present Water Level: 12.14 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 35.32 ft - 12.14 ft = 23.18 ft x 0.658 Liters/ft = 15.25 Liters

Purge Rate: 2.3 l. + 14 min. = 0.164 Liters/minute

Begin Purge: 651 time

End Purge: 705 time

Volume Purged: 2.3 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Purge water disposal to: 55-gal drum, Storage tank treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D. O. (mg/l)	pH	ORP mV	Others (w/l. nu's)	Observations
<u>653</u>	<u>150 ml</u>	<u>17.5</u>	<u>593</u>	<u>0.84</u>	<u>6.67</u>	<u>-0.7</u>		
<u>655</u>	<u>500 ml</u>	<u>17.9</u>	<u>628</u>	<u>0.63</u>	<u>6.67</u>	<u>-14.6</u>		
<u>657</u>	<u>900</u>	<u>17.9</u>	<u>650</u>	<u>0.39</u>	<u>6.70</u>	<u>-23.9</u>		
<u>659</u>	<u>1.25 L</u>	<u>17.9</u>	<u>653</u>	<u>0.18</u>	<u>6.71</u> ✓	<u>-29.6</u>		
<u>701</u>	<u>1.6 L</u>	<u>17.9</u>	<u>654</u>	<u>0.13</u>	<u>6.70</u> ✓	<u>-33</u>		
<u>703</u>	<u>1.95</u>	<u>17.9</u>	<u>655</u>	<u>0.12</u>	<u>6.69</u> ✓	<u>-36</u>		
<u>705</u>	<u>2.3</u>	<u>17.9</u>	<u>655</u> ✓	<u>0.11</u>	<u>6.69</u>	<u>-38</u>		
<u>707</u>								
<u>709</u>								
<u>711</u>								
<u>713</u>								
<u>715</u>								

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>3</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>HCl</u>	<input type="checkbox"/> No	<u>4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>HCl</u>	<input type="checkbox"/> No	<u>Ethene, Ethane, Methane 8310 modfy (LLI code 57)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>H3PO4</u>	<input type="checkbox"/> No	<u>Total Organic Carbon Method 9060, (LLI code 91)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	<u>Sulfate IC E300 (LLI code 55)</u>
<u>0</u>	<u> mL</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	

Comments: Haach Kit Fe++

Signature: C.H. Hanly

Date: 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-101 SWMU-20 CWA#7KX056

Event: 4th Quarter 2015 Labor Salco# 1007645

42nd Sample event

SAMPLE I D: DC-MW. 22A - 15/027 (vymdd)

Collector: Charles Hardy

Date Collected: Oct. / Nov. 27, 2015 COC Time: 8:55

Well Information

Well I. D.: MW- 22A Well Condition: Secure? Yes No: Describe Condition: _____

Info. : Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 19.20 (ft.) historical or measured

Present Water Level: 12.34 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 19.20 ft - 12.34 ft = 6.86 ft x 0.652 Liters/ft = 4.57 Liters

Purge Rate: 6.3 l. + 21 min. = 0.300 Liters/minute

Begin Purge: 8:34 time

End Purge: 3:55 time

Volume Purged: 6.3 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Purge water disposal to: 55-gal drum, Storage tank, treatment system, ground, other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/l, ntu's)	Observations
836	500 ml	16.9	552	0.46	6.49	-13		
838	1.0 L	17.1	575	0.25	6.46	-21		
840	1.65	17.0	561	0.15	6.51	-35		
842	2.35	17.2	555	0.11	6.53	-44		
844	2.85	17.3	547	0.09	6.54	-50		
846	3.5	17.3	536	0.08	6.56	-54		
848	4.1	17.3	527	0.08	6.55	-57		
850	4.75	17.3	516	0.07	6.55	-59		
852	5.4	17.3	509	0.07	6.54	-61		
854	6.0	17.4	505	0.02	6.55	-63		
855	6.3	17.4	503	0.07	6.55	-64		

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene, HDPE, PVC, Teflon, Stainless Steel, Other _____

Decontamination: N/A dedicated system, Alconox Wash, Tap Rinse, D.I. Rinse, Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input checked="" type="checkbox"/> No	4-VOC's 8260 V.C. TCE, PCE, cDCE (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	HCl	<input checked="" type="checkbox"/> No	Ethene, Ethane, Methane 8310 modfy (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H3PO4	<input checked="" type="checkbox"/> No	Total Organic Carbon Method 9060, (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Glass	none	<input checked="" type="checkbox"/> No	Sulfate IC E300 (LLI code 55)
0	mL	<input type="checkbox"/> Glass	none	<input type="checkbox"/> No	

Comments: 1 Nach Kit Fe++ 7.0 mg/L

Signature: C.H. Hardy

Date: Oct 27 2015

Continued on Back



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 178003
Order Date: 09/22/2015
Page 1 of 2
Standard Frm#: 148643

Client: 13419
The Boeing Company
Boeing_DC: SWMU-20 s-ann

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

Do not overfill or rinse out any vials for TOC - Preservative will be lost.

Group: 1

Number of Sample Locations: 15

One complete set of bottles listed below must be filled for each of the 15 sample location(s).

<u>Sample Description</u>	<u>QC Type</u>
MW-06a Water	
MW-06b Water	
MW-09a Water	
MW-10c Water	
MW-11a Water	
MW-13c Water	
MW-13a Water	
MW-14c Water	
MW-15c Water	
MW-16a Water	
MW-16c Water	
MW-17a Water	
MW-20c Water	
MW-22a Water	
MW-DUP Water	

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
3	38	40 ml glass vial (GC/MS)	HCl	8260C Boeing 69	14 days

Group: 2

Number of Sample Locations: 4

One complete set of bottles listed below must be filled for each of the 4 sample location(s).

<u>Sample Description</u>	<u>QC Type</u>
MW-06a Water	
MW-06b Water	
MW-09a Water	
MW-22a Water	

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
2	55	40 ml glass vial	None	Sulfate	28 days
2	57	40 ml glass vial	HCl	Volatile Headspace Hydrocarbon	14 days
2	91	40 ml amber vial	H3PO4	Total Organic Carbon	28 days

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 x1198

Date Needed:

10/13/2015

Pack By:

10/12/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 178003
Order Date: 09/22/2015
Page 2 of 2
Standard Frm#: 148643

Client: 13419
The Boeing Company
Boeing_DC: SWMU-20 s-ann

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

Do not overfill or rinse out any vials for TOC - Preservative will be lost.

Group: 3

Number of Sample Locations: 2	
<u>Sample Description</u> Trip Blank Water	<u>QC Type</u> Trip Blank

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
2	38	40 ml glass vial (GC/MS)	HCl	8260C Boeing 69	14 days

Sample Acceptance Policy

Samples must be submitted in a manner that meets the criteria listed below. If these criteria are not met, the laboratory will contact the client to discuss how to proceed with testing. If the client decides to proceed with testing, a comment describing the variation will appear on the analytical report.

- Documentation must be complete and include: sample identification, the location, date and time of collection, collector's name or initials, preservation type, sample type, required analyses, and any special remarks concerning the sample.
- Proper sample labeling must include unique identification on a durable (water resistant) label using indelible ink.
- Samples must be collected in appropriate containers with sufficient volume to perform tests. The laboratory will provide appropriate bottleware.
- Samples must be shipped promptly to meet specified holding times with adequate packing materials to prevent damage during shipment and adequate wet ice to meet method temperature requirements (0-6°C, not frozen).

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 x1198

Date Needed:

10/13/2015

Pack By:

10/12/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request

BOTTLE REQUEST FORM

Prepared by: Charles 'Duffy' Hardy Project Name: Boeing_DC: SWMU-20 s-ann
 Client: Boeing EHS Sampling Frequency: Semi-annual May, & Nov.
 Contact: Jim Bet (Boeing) / Clint Jacob (Landau) Sampling Date: ~October 26rd-30th, 2015
 Ship To: Charles 'Duffy' Hardy (206-290-6572) Need By Date: Oct. 20, 2015
Boeing @ Western Processing Superfund April, October, 2015
20015 72nd Ave South
Kent, WA 98032
Semi-annual May, & Nov.

of coolers: As needed Labels?: Provide loose labels
 Trip Blanks?: 2 sets, two shipments Boxed?: No

No. Of Samples	Analysis Requested	Sample Matrix	Bottle Size	No. Bottles Per Sample	Preservative
10	VOC's EPA 8260 38	Water	40-mL VOA	3	HCl
3	Dissolved Gases (methane, ethane, ethene) by RSK-175 5, 7	Water	40-mL VOA	2	HCl
3	Total Organic Carbon 91	Water	amber 40-mL	2	H ₃ PO ₄
3	Sulfate IC E300 55	Water	40-mL	2	None
Comments: VOC's Boeing list TM LAI dated 3-13-2015 sample reduction VoC bottle labels Mw-06a, -06b, -10c, -13c, -15c, -16a, -16c, -17a, -22a, & Mw-dup MNA bottle labels Mw-06a, -06b, -22a					

**TABLE 2
 BIOREMEDIATION GROUNDWATER MONITORING MATRIX
 (REVISED 4/8/15 PER ECOLOGY COMMENTS ON SAMPLING REDUCTION)
 BOEING DEVELOPMENTAL CENTER SMWU-20**

	Semiannual
Source Wells	
MW-6A	(a)
MW-6B	(a)
MW-9A	(a)
MW-22A	(a)
Non-Source Wells	
MW-10C	(b)
MW-11A	(b)
MW-13A	(b)
MW-13C	(b)
MW-14C	(b)
MW-15C	(b)
MW-16A	(b)
MW-16C	(b)
MW-17A	(b)
MW-20C	(b)

(a) Laboratory Parameters (method): Volatile Organic Compounds (VOCs) Short List (8260) - tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), vinyl chloride (VC), total organic carbon (TOC; SM5310C), sulfate (E300), Methane/Ethane/Ethene (RSK-175).

Field Parameters: Fe2; pH, dissolved oxygen (DO), oxygen reduction potential (ORP).

(b) Laboratory Parameters (method): VOCs Short List (8260) PCE, TCE, cDCE, VC

Hardy, Charles H

From: Clint Jacob <CJacob@landauinc.com>
Sent: Monday, September 14, 2015 1:15 PM
To: Hardy, Charles H
Subject: RE: Lancaster Dev Ctr BottleOrder.xlsx
Attachments: DC SWMU-20 Revised Monitoring Matrix 4-8-2015.xlsx

Thanks for catching that. Looks correct. Attached is a table clarifying which wells are sampled for what, since Ecology did not let us drop all the wells we wanted to.

Clint

From: Hardy, Charles H [<mailto:charles.h.hardy@boeing.com>]
Sent: Monday, September 14, 2015 1:00 PM
To: Kay Hower (kayhower@eurofinsus.com) <kayhower@eurofinsus.com>
Cc: Clint Jacob <CJacob@landauinc.com>
Subject: Lancaster Dev Ctr BottleOrder.xlsx

SWMU-20 bottle order corroded
Added 5 sets of VOC and 1 set of MNA analysis back in (deletion was not approved by Ecology)
duf

ANALYTICAL RESULTS

Prepared by:

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

Prepared for:

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

November 16, 2015

Project: Boeing_DC: SWMU-20 s-ann

Submittal Date: 10/29/2015

Group Number: 1604790

State of Sample Origin: WA

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
MW-17A-151026 Water	8109390
MW-16A-151026 Water	8109391
MW-16C-151026 Water	8109392
MW-06A-151026 Water	8109393
MW-06A-151026 Water	8109394
MW-06B-151026 Water	8109395
MW-06B-151026 Water	8109396
MW09A-151026 Water	8109397
MW09A-151026 Water	8109398
MW-11A-151026 Water	8109399
MW-10C-151026 Water	8109400
MW-13A-151027 Water	8109401
MW-13C-151027 Water	8109402
MW-20C-151027 Water	8109403
MW-15C-151027 Water	8109404
MW-14C-151027 Water	8109405
MW-22A-151027 Water	8109406
MW-22A-151027 Water	8109407
MW-DUP-151027 Water	8109408
Trip Blank Water	8109409

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

Attn: Paul Yount

ELECTRONIC COPY TO	The Boeing Company	Attn: Nancy Ballew
ELECTRONIC COPY TO	The Boeing Company	Attn: Jim Bet
ELECTRONIC COPY TO	Landau	Attn: Clint Jacob
ELECTRONIC COPY TO	Landau Associates	Attn: Terry McGourty
ELECTRONIC COPY TO	Landau Associates	Attn: Anne Halvorsen

Respectfully Submitted,



Kay Hower
Manager

(510) 672-3979

Project Name: Boeing_DC: SWMU-20 s-ann
LL Group #: 1604790

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:

SW-846 8260C, GC/MS Volatiles

Sample #s: 8109397

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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
1,2,3-Trichlorobenzene	-30%

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 associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated:

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

Analyte	Response (%Drift)
Naphthalene	-30%

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

Sample #s: 8109390, 8109391, 8109392, 8109393, 8109395, 8109399, 8109400, 8109409

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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
Naphthalene	-30%
1,2,3-Trichlorobenzene	-30%

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

Sample #s: 8109406

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	-38%
trans-1,4-Dichloro-2-Butene	-22%
1,2-Dibromo-3-Chloropropane	-26%
1,2,4-Trichlorobenzene	-24%
1,2,3-Trichlorobenzene	-34%

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 associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated:

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

Analyte	Response (%Drift)
Naphthalene	-32%

Sample #s: 8109401, 8109402, 8109403, 8109404, 8109405, 8109408

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	-38%
trans-1,4-Dichloro-2-Butene	-22%
1,2-Dibromo-3-Chloropropane	-26%
1,2,4-Trichlorobenzene	-24%
Naphthalene	-32%
1,2,3-Trichlorobenzene	-34%

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.

Batch #: H153103AA (Sample number(s): 8109390-8109393, 8109395, 8109397, 8109399-8109400, 8109409)

The recovery(ies) for the following analyte(s) in the LCS and/or LCSD were below the acceptance window: 1,2,3-Trichlorobenzene

RSKSOP-175 modified, GC Miscellaneous

Batch #: 153090019A (Sample number(s): 8109407 UNSPK: 8109407)

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

Sample Description: MW-17A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109390
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 09:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2017A

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	1.1	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

Sample Description: MW-17A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109390
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 09:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2017A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	3.4	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	2.6	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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
Naphthalene	-30%
1,2,3-Trichlorobenzene	-30%

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

General 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.

REVISED

Sample Description: MW-17A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109390
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 09:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2017A

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	H153103AA	11/06/2015 16:45	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153103AA	11/06/2015 16:45	Kerri E Legerlotz	1

Sample Description: MW-16A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109391
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 10:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2016A

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	0.3	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

Sample Description: MW-16A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109391
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 10:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2016A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	1.5	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	1.5	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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
Naphthalene	-30%
1,2,3-Trichlorobenzene	-30%

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

General 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.

REVISED

Sample Description: MW-16A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109391
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 10:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2016A

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	H153103AA	11/06/2015 17:06	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153103AA	11/06/2015 17:06	Kerri E Legerlotz	1

Sample Description: MW-16C-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109392
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 10:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2016C

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	2.7	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
11996	n-Propylbenzene	103-65-1	0.5 U	0.5	1
11996	Styrene	100-42-5	0.5 U	0.5	1

Sample Description: MW-16C-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109392
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 10:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2016C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	1.1	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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
Naphthalene	-30%
1,2,3-Trichlorobenzene	-30%

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

General 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.

REVISED

Sample Description: MW-16C-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109392
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 10:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2016C

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	H153103AA	11/06/2015 17:28	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153103AA	11/06/2015 17:28	Kerri E Legerlotz	1

Sample Description: MW-06A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109393
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 11:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2006A

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	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

Sample Description: MW-06A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109393
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 11:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2006A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	2.5	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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
Naphthalene	-30%
1,2,3-Trichlorobenzene	-30%

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

Wet Chemistry	SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	6.5	1.0

Sample Description: MW-06A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109393
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 11:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2006A

General 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	H153103AA	11/06/2015 17:49	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153103AA	11/06/2015 17:49	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049502B	11/12/2015 09:30	James S Mathiot	1

REVISED

Sample Description: MW-06A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109394
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 11:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

06A--

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	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	410	3.0	1
Wet Chemistry					
		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	19.7	0.60	2

General 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	153080015A	11/05/2015 15:34	Christine E Dolman	1
00228	Sulfate	EPA 300.0	1	15304667901B	11/02/2015 23:39	Clinton M Wilson	2

Sample Description: MW-06B-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109395
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 12:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2006B

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
11996	Styrene	100-42-5	0.5 U	0.5	1

Sample Description: MW-06B-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109395
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 12:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2006B

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	1	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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
Naphthalene	-30%
1,2,3-Trichlorobenzene	-30%

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

Wet Chemistry	SM 5310 C-2000	mg/l	mg/l
00273 Total Organic Carbon	n.a.	4.9	1.0

REVISED

Sample Description: MW-06B-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109395
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 12:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2006B

General 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	H153103AA	11/06/2015 18:11	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153103AA	11/06/2015 18:11	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049502B	11/12/2015 10:14	James S Mathiot	1

REVISED

Sample Description: MW-06B-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109396
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 12:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

06B--

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	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	1,600 E	3.0	1
Trial ID: DL					
07105	Ethane	74-84-0	10 U	10	10
07105	Ethene	74-85-1	10 U	10	10
07105	Methane	74-82-8	1,900	30	10
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	2.0	0.30	1

General 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	153080015A	11/05/2015 15:51	Christine E Dolman	1
07105	MEE by RSK-175	RSKSOP-175 modified	2-DL	153080015A	11/06/2015 11:24	Christine E Dolman	10
00228	Sulfate	EPA 300.0	1	15304667901A	10/31/2015 12:36	Drew M Gerhart	1

Sample Description: MW09A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109397
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2009A

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	1.8	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

Sample Description: MW09A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109397
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2009A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
1,2,3-Trichlorobenzene	-30%

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 associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated:

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

Analyte	Response (%Drift)
Naphthalene	-30%

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard

Sample Description: MW09A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109397
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2009A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
	deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene				
	Wet Chemistry	SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	21.7	1.0	1

General 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	H153103AA	11/06/2015 18:32	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153103AA	11/06/2015 18:32	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049502B	11/12/2015 10:28	James S Mathiot	1

Sample Description: MW09A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109398
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

09A--

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	49	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	Ethane	74-84-0	100 U	100	100
07105	Ethene	74-85-1	100 U	100	100
07105	Methane	74-82-8	21,000	300	100
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.57 J	0.30	1

General 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	153080015A	11/05/2015 16:08	Christine E Dolman	1
07105	MEE by RSK-175	RSKSOP-175 modified	2-DL	153080015A	11/06/2015 11:41	Christine E Dolman	100
00228	Sulfate	EPA 300.0	1	15304667901A	10/31/2015 12:50	Drew M Gerhart	1

Sample Description: MW-11A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109399
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 14:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2011A

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	19	0.2	1
11996	trans-1,2-Dichloroethene	156-60-5	0.8	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

Sample Description: MW-11A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109399
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 14:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2011A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	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	0.4	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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
Naphthalene	-30%
1,2,3-Trichlorobenzene	-30%

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

General 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.

REVISED

Sample Description: MW-11A-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109399
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 14:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2011A

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	H153103AA	11/06/2015 18:54	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153103AA	11/06/2015 18:54	Kerri E Legerlotz	1

Sample Description: MW-10C-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109400
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 15:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2010C

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	1.0	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

Sample Description: MW-10C-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109400
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 15:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2010C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	1.1	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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
Naphthalene	-30%
1,2,3-Trichlorobenzene	-30%

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

General 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.

REVISED

Sample Description: MW-10C-151026 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109400
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/26/2015 15:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2010C

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	H153103AA	11/06/2015 19:15	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153103AA	11/06/2015 19:15	Kerri E Legerlotz	1

Sample Description: MW-13A-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109401
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 06:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2013A

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	2.3	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
11996	Styrene	100-42-5	0.5 U	0.5	1

REVISED

Sample Description: MW-13A-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109401
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 06:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2013A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	1.5	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	0.3	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	0.2 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)
Acrolein	-38%
trans-1,4-Dichloro-2-Butene	-22%
1,2-Dibromo-3-Chloropropane	-26%
1,2,4-Trichlorobenzene	-24%
Naphthalene	-32%
1,2,3-Trichlorobenzene	-34%

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.

General 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	H153141AA	11/10/2015 12:30	Kerri E Legerlotz	1

REVISED

Sample Description: MW-13A-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109401
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 06:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2013A

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 12:30	Kerri E Legerlotz	1

Sample Description: MW-13C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109402
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 06:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2013C

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	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

REVISED

Sample Description: MW-13C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109402
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 06:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2013C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	-38%
trans-1,4-Dichloro-2-Butene	-22%
1,2-Dibromo-3-Chloropropane	-26%
1,2,4-Trichlorobenzene	-24%
Naphthalene	-32%
1,2,3-Trichlorobenzene	-34%

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.

General 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	H153141AA	11/10/2015 12:51	Kerri E Legerlotz	1

REVISED

Sample Description: MW-13C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109402
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 06:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2013C

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 12:51	Kerri E Legerlotz	1

Sample Description: MW-20C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109403
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 07:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2020C

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	1.0	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

REVISED

Sample Description: MW-20C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109403
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 07:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2020C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	0.9	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	-38%
trans-1,4-Dichloro-2-Butene	-22%
1,2-Dibromo-3-Chloropropane	-26%
1,2,4-Trichlorobenzene	-24%
Naphthalene	-32%
1,2,3-Trichlorobenzene	-34%

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.

General 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	H153141AA	11/10/2015 13:12	Kerri E Legerlotz	1

REVISED

Sample Description: MW-20C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109403
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 07:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2020C

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 13:12	Kerri E Legerlotz	1

Sample Description: MW-15C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109404
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 07:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2015C

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	0.5	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
11996	Styrene	100-42-5	0.5 U	0.5	1

REVISED

Sample Description: MW-15C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109404
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 07:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2015C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	2.0	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	-38%
trans-1,4-Dichloro-2-Butene	-22%
1,2-Dibromo-3-Chloropropane	-26%
1,2,4-Trichlorobenzene	-24%
Naphthalene	-32%
1,2,3-Trichlorobenzene	-34%

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.

General 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	H153141AA	11/10/2015 13:34	Kerri E Legerlotz	1

REVISED

Sample Description: MW-15C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109404
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 07:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2015C

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 13:34	Kerri E Legerlotz	1

Sample Description: MW-14C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109405
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 08:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2014C

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
11996	Styrene	100-42-5	0.5 U	0.5	1

Sample Description: MW-14C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109405
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 08:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25
Reported: 11/16/2015 14:35

2014C

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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)
Acrolein	-38%
trans-1,4-Dichloro-2-Butene	-22%
1,2-Dibromo-3-Chloropropane	-26%
1,2,4-Trichlorobenzene	-24%
Naphthalene	-32%
1,2,3-Trichlorobenzene	-34%

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.

General 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	H153141AA	11/10/2015 13:55	Kerri E Legerlotz	1

REVISED

Sample Description: MW-14C-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109405
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 08:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2014C

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 13:55	Kerri E Legerlotz	1

Sample Description: MW-22A-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109406
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 08:55 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2022A

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	1.8	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	4.7	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

Sample Description: **MW-22A-151027 Water**
Boeing_DC: **SWMU-20 s-ann**

LL Sample # **WW 8109406**
LL Group # **1604790**
Account # **13419**

Project Name: **Boeing_DC: SWMU-20 s-ann**

Collected: 10/27/2015 08:55 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2022A

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	0.2 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	0.6	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	1.5	0.2	1
11996	m,p-Xylene	179601-23-1	0.8	0.5	1
11996	o-Xylene	95-47-6	2.7	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	-38%
trans-1,4-Dichloro-2-Butene	-22%
1,2-Dibromo-3-Chloropropane	-26%
1,2,4-Trichlorobenzene	-24%
1,2,3-Trichlorobenzene	-34%

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 associated sample(s) is considered to be estimated. Therefore the result for the following analyte(s) is estimated:

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

Analyte	Response (%Drift)
Naphthalene	-32%

Wet Chemistry	SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	16.7	1.0

Sample Description: MW-22A-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109406
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 08:55 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

2022A

General 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	H153141AA	11/10/2015 14:17	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 14:17	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049502B	11/12/2015 10:43	James S Mathiot	1

Sample Description: MW-22A-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109407
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 08:55 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

22A--

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	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	2,300 E	3.0	1
Trial ID: DL					
07105	Ethane	74-84-0	20 U	20	20
07105	Ethene	74-85-1	20 U	20	20
07105	Methane	74-82-8	3,500	60	20
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	2.6	0.30	1

General 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	153090019A	11/06/2015 14:57	Christine E Dolman	1
07105	MEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 12:58	Christine E Dolman	20
00228	Sulfate	EPA 300.0	1	15304667901A	10/31/2015 13:05	Drew M Gerhart	1

Sample Description: MW-DUP-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109408
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

20DUP

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	2.4	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
11996	Styrene	100-42-5	0.5 U	0.5	1

REVISED

Sample Description: MW-DUP-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109408
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

20DUP

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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	1.6	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	0.3	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	0.2 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)
Acrolein	-38%
trans-1,4-Dichloro-2-Butene	-22%
1,2-Dibromo-3-Chloropropane	-26%
1,2,4-Trichlorobenzene	-24%
Naphthalene	-32%
1,2,3-Trichlorobenzene	-34%

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.

General 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	H153141AA	11/10/2015 14:38	Kerri E Legerlotz	1

REVISED

Sample Description: MW-DUP-151027 Water
Boeing_DC: SWMU-20 s-ann

LL Sample # WW 8109408
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 10/27/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

20DUP

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 14:38	Kerri E Legerlotz	1

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

LL Sample # WW 8109409
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 09/03/2015

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

20-TB

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
11996	Styrene	100-42-5	0.5 U	0.5	1

REVISED

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

LL Sample # WW 8109409
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 09/03/2015

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

20-TB

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
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%
4-Methyl-2-pentanone	27%
2-Hexanone	25%
trans-1,4-Dichloro-2-butene	-21%
Naphthalene	-30%
1,2,3-Trichlorobenzene	-30%

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 LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the NELAC Standards. The following analytes are accepted based on this allowance: 1,2,3-Trichlorobenzene

General 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.

REVISED

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

LL Sample # WW 8109409
LL Group # 1604790
Account # 13419

Project Name: Boeing_DC: SWMU-20 s-ann

Collected: 09/03/2015

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/29/2015 09:25

Reported: 11/16/2015 14:35

20-TB

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	H153103AA	11/06/2015 16:24	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153103AA	11/06/2015 16:24	Kerri E Legerlotz	1

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/16/2015 14:35

Group Number: 1604790

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.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>	
Batch number: H153103AA	Sample number(s): 8109390-8109393, 8109395, 8109397, 8109399-8109400, 8109409								
Acetone	5.0	U	5.0	ug/l	89	90	55-136	2	30
Acrolein	25	U	25.	ug/l	70	68	37-125	3	30
Acrylonitrile	5.0	U	5.0	ug/l	87	90	63-141	3	30
Benzene	0.2	U	0.2	ug/l	94	91	80-120	3	30
Bromobenzene	0.5	U	0.5	ug/l	94	94	80-120	0	30
Bromochloromethane	0.5	U	0.5	ug/l	92	89	80-125	3	30
Bromodichloromethane	0.5	U	0.5	ug/l	90	87	80-120	4	30
Bromoform	0.5	U	0.5	ug/l	89	86	64-134	4	30
Bromomethane	0.5	U	0.5	ug/l	95	91	71-126	4	30
2-Butanone	5.0	U	5.0	ug/l	88	90	66-135	2	30
n-Butylbenzene	0.5	U	0.5	ug/l	90	88	80-120	2	30
sec-Butylbenzene	0.5	U	0.5	ug/l	93	91	80-120	2	30
tert-Butylbenzene	0.5	U	0.5	ug/l	90	88	80-120	2	30
Carbon Disulfide	0.5	U	0.5	ug/l	88	82	70-128	8	30
Carbon Tetrachloride	0.2	U	0.2	ug/l	87	82	79-129	6	30
Chlorobenzene	0.5	U	0.5	ug/l	91	88	80-120	2	30
Chloroethane	0.5	U	0.5	ug/l	93	88	71-122	6	30
Chloroform	0.2	U	0.2	ug/l	91	86	80-120	6	30
Chloromethane	0.5	U	0.5	ug/l	93	90	63-121	4	30
2-Chlorotoluene	0.5	U	0.5	ug/l	90	88	80-120	2	30
4-Chlorotoluene	0.5	U	0.5	ug/l	91	89	80-120	2	30
1,2-Dibromo-3-chloropropane	0.5	U	0.5	ug/l	69	80	54-147	16	30
Dibromochloromethane	0.5	U	0.5	ug/l	90	88	80-126	3	30
Dibromomethane	0.5	U	0.5	ug/l	93	91	80-122	2	30
trans-1,4-Dichloro-2-butene	5.0	U	5.0	ug/l	67	68	14-166	2	30
1,2-Dichlorobenzene	0.5	U	0.5	ug/l	86	87	80-120	2	30
1,3-Dichlorobenzene	0.5	U	0.5	ug/l	88	89	80-120	1	30
1,4-Dichlorobenzene	0.5	U	0.5	ug/l	90	91	80-120	1	30
1,1-Dichloroethane	0.5	U	0.5	ug/l	92	87	80-120	5	30
1,2-Dichloroethane	0.2	U	0.2	ug/l	97	95	80-125	1	30
1,1-Dichloroethene	0.2	U	0.2	ug/l	93	85	80-120	10	30
cis-1,2-Dichloroethene	0.2	U	0.2	ug/l	92	88	80-120	4	30
trans-1,2-Dichloroethene	0.2	U	0.2	ug/l	95	87	80-120	8	30
1,2-Dichloropropane	0.5	U	0.5	ug/l	99	96	80-120	2	30
1,3-Dichloropropane	0.5	U	0.5	ug/l	95	94	80-120	1	30
2,2-Dichloropropane	0.5	U	0.5	ug/l	85	82	77-127	4	30
1,1-Dichloropropene	0.5	U	0.5	ug/l	89	85	80-120	5	30
cis-1,3-Dichloropropene	0.2	U	0.2	ug/l	94	94	80-124	1	30
trans-1,3-Dichloropropene	0.2	U	0.2	ug/l	92	89	76-132	3	30
Ethylbenzene	0.5	U	0.5	ug/l	90	85	80-120	6	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.

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/16/2015 14:35

Group Number: 1604790

Analysis Name	Blank		Blank		Report	LCS	LCS D	LCS/LCS D	RPD	RPD
	Result	U	LOQ	U	Units	%REC	%REC	Limits	Max	Max
Ethylene dibromide	0.5	U	0.5	U	ug/l	95	93	80-120	2	30
Hexachlorobutadiene	0.5	U	0.5	U	ug/l	79	80	74-123	1	30
2-Hexanone	5.0	U	5.0	U	ug/l	88	91	71-138	3	30
Isopropylbenzene	0.5	U	0.5	U	ug/l	90	84	80-120	6	30
4-Isopropyltoluene	0.5	U	0.5	U	ug/l	90	88	80-120	2	30
Methyl Iodide	0.5	U	0.5	U	ug/l	92	89	72-127	4	30
4-Methyl-2-pentanone	5.0	U	5.0	U	ug/l	90	90	73-135	0	30
Methylene Chloride	0.5	U	0.5	U	ug/l	93	91	80-120	3	30
Naphthalene	0.5	U	0.5	U	ug/l	62	69	59-136	11	30
n-Propylbenzene	0.5	U	0.5	U	ug/l	94	92	79-121	3	30
Styrene	0.5	U	0.5	U	ug/l	91	88	80-122	3	30
1,1,1,2-Tetrachloroethane	0.5	U	0.5	U	ug/l	86	83	80-120	3	30
1,1,2,2-Tetrachloroethane	0.2	U	0.2	U	ug/l	88	92	80-120	5	30
Tetrachloroethene	0.2	U	0.2	U	ug/l	92	85	80-120	8	30
Toluene	0.2	U	0.2	U	ug/l	92	86	80-120	6	30
112Trichloro122Trifluoroethane	0.5	U	0.5	U	ug/l	96	89	75-120	8	30
1,2,3-Trichlorobenzene	0.5	U	0.5	U	ug/l	59*	68	64-124	14	30
1,2,4-Trichlorobenzene	0.5	U	0.5	U	ug/l	71	75	70-123	6	30
1,1,1-Trichloroethane	0.5	U	0.5	U	ug/l	87	82	80-120	6	30
1,1,2-Trichloroethane	0.2	U	0.2	U	ug/l	98	92	80-120	6	30
Trichloroethene	0.2	U	0.2	U	ug/l	94	88	80-120	6	30
Trichlorofluoromethane	0.5	U	0.5	U	ug/l	94	89	69-133	6	30
1,2,3-Trichloropropane	1.0	U	1.0	U	ug/l	100	99	80-120	1	30
1,2,4-Trimethylbenzene	0.5	U	0.5	U	ug/l	88	88	80-120	0	30
1,3,5-Trimethylbenzene	0.5	U	0.5	U	ug/l	90	89	80-120	2	30
Vinyl Acetate	0.5	U	0.5	U	ug/l	103	105	10-183	2	30
Vinyl Chloride	0.2	U	0.2	U	ug/l	100	95	71-123	5	30
m,p-Xylene	0.5	U	0.5	U	ug/l	92	86	80-120	6	30
o-Xylene	0.5	U	0.5	U	ug/l	86	82	80-120	5	30

Batch number: H153141AA

Sample number(s): 8109401-8109406, 8109408

Acetone	5.0	U	5.0	U	ug/l	85	88	55-136	4	30
Acrolein	25	U	25	U	ug/l	68	68	37-125	1	30
Acrylonitrile	5.0	U	5.0	U	ug/l	90	86	63-141	4	30
Benzene	0.2	U	0.2	U	ug/l	99	92	80-120	7	30
Bromobenzene	0.5	U	0.5	U	ug/l	100	98	80-120	2	30
Bromochloromethane	0.5	U	0.5	U	ug/l	94	87	80-125	8	30
Bromodichloromethane	0.5	U	0.5	U	ug/l	100	94	80-120	6	30
Bromoform	0.5	U	0.5	U	ug/l	97	90	64-134	7	30
Bromomethane	0.5	U	0.5	U	ug/l	96	88	71-126	8	30
2-Butanone	5.0	U	5.0	U	ug/l	90	89	66-135	0	30
n-Butylbenzene	0.5	U	0.5	U	ug/l	99	94	80-120	5	30
sec-Butylbenzene	0.5	U	0.5	U	ug/l	101	96	80-120	5	30
tert-Butylbenzene	0.5	U	0.5	U	ug/l	100	97	80-120	2	30
Carbon Disulfide	0.5	U	0.5	U	ug/l	79	74	70-128	7	30
Carbon Tetrachloride	0.2	U	0.2	U	ug/l	91	85	79-129	8	30
Chlorobenzene	0.5	U	0.5	U	ug/l	98	93	80-120	5	30
Chloroethane	0.5	U	0.5	U	ug/l	94	87	71-122	7	30
Chloroform	0.2	U	0.2	U	ug/l	97	91	80-120	7	30
Chloromethane	0.5	U	0.5	U	ug/l	90	83	63-121	9	30
2-Chlorotoluene	0.5	U	0.5	U	ug/l	100	93	80-120	7	30
4-Chlorotoluene	0.5	U	0.5	U	ug/l	99	94	80-120	5	30
1,2-Dibromo-3-chloropropane	0.5	U	0.5	U	ug/l	78	78	54-147	0	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.

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/16/2015 14:35

Group Number: 1604790

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Dibromochloromethane	0.5 U	0.5	ug/l	97	95	80-126	3	30
Dibromomethane	0.5 U	0.5	ug/l	100	96	80-122	4	30
trans-1,4-Dichloro-2-butene	5.0 U	5.0	ug/l	76	77	14-166	0	30
1,2-Dichlorobenzene	0.5 U	0.5	ug/l	93	90	80-120	4	30
1,3-Dichlorobenzene	0.5 U	0.5	ug/l	96	93	80-120	4	30
1,4-Dichlorobenzene	0.5 U	0.5	ug/l	96	95	80-120	2	30
1,1-Dichloroethane	0.5 U	0.5	ug/l	96	91	80-120	5	30
1,2-Dichloroethane	0.2 U	0.2	ug/l	106	99	80-125	7	30
1,1-Dichloroethene	0.2 U	0.2	ug/l	88	80	80-120	9	30
cis-1,2-Dichloroethene	0.2 U	0.2	ug/l	96	88	80-120	8	30
trans-1,2-Dichloroethene	0.2 U	0.2	ug/l	92	86	80-120	6	30
1,2-Dichloropropane	0.5 U	0.5	ug/l	110	102	80-120	8	30
1,3-Dichloropropane	0.5 U	0.5	ug/l	104	100	80-120	4	30
2,2-Dichloropropane	0.5 U	0.5	ug/l	92	85	77-127	8	30
1,1-Dichloropropene	0.5 U	0.5	ug/l	96	86	80-120	10	30
cis-1,3-Dichloropropene	0.2 U	0.2	ug/l	107	102	80-124	5	30
trans-1,3-Dichloropropene	0.2 U	0.2	ug/l	103	100	76-132	3	30
Ethylbenzene	0.5 U	0.5	ug/l	98	91	80-120	7	30
Ethylene dibromide	0.5 U	0.5	ug/l	105	103	80-120	2	30
Hexachlorobutadiene	0.5 U	0.5	ug/l	87	84	74-123	3	30
2-Hexanone	5.0 U	5.0	ug/l	95	92	71-138	3	30
Isopropylbenzene	0.5 U	0.5	ug/l	97	90	80-120	7	30
4-Isopropyltoluene	0.5 U	0.5	ug/l	98	94	80-120	5	30
Methyl Iodide	0.5 U	0.5	ug/l	86	82	72-127	5	30
4-Methyl-2-pentanone	5.0 U	5.0	ug/l	95	92	73-135	3	30
Methylene Chloride	0.5 U	0.5	ug/l	95	89	80-120	6	30
Naphthalene	0.5 U	0.5	ug/l	73	76	59-136	4	30
n-Propylbenzene	0.5 U	0.5	ug/l	103	97	79-121	6	30
Styrene	0.5 U	0.5	ug/l	98	94	80-122	5	30
1,1,1,2-Tetrachloroethane	0.5 U	0.5	ug/l	95	90	80-120	6	30
1,1,2,2-Tetrachloroethane	0.2 U	0.2	ug/l	99	98	80-120	1	30
Tetrachloroethene	0.2 U	0.2	ug/l	96	89	80-120	8	30
Toluene	0.2 U	0.2	ug/l	96	90	80-120	6	30
1,1,2,2-Trichloroethane	0.5 U	0.5	ug/l	93	84	75-120	10	30
1,2,3-Trichlorobenzene	0.5 U	0.5	ug/l	71	74	64-124	4	30
1,2,4-Trichlorobenzene	0.5 U	0.5	ug/l	79	82	70-123	4	30
1,1,1-Trichloroethane	0.5 U	0.5	ug/l	91	85	80-120	8	30
1,1,2-Trichloroethane	0.2 U	0.2	ug/l	102	97	80-120	5	30
Trichloroethene	0.2 U	0.2	ug/l	99	93	80-120	6	30
Trichlorofluoromethane	0.5 U	0.5	ug/l	91	82	69-133	11	30
1,2,3-Trichloropropane	1.0 U	1.0	ug/l	104	102	80-120	2	30
1,2,4-Trimethylbenzene	0.5 U	0.5	ug/l	98	93	80-120	5	30
1,3,5-Trimethylbenzene	0.5 U	0.5	ug/l	99	94	80-120	5	30
Vinyl Acetate	0.5 U	0.5	ug/l	110	110	10-183	0	30
Vinyl Chloride	0.2 U	0.2	ug/l	94	88	71-123	7	30
m,p-Xylene	0.5 U	0.5	ug/l	96	91	80-120	5	30
o-Xylene	0.5 U	0.5	ug/l	93	87	80-120	7	30

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
----------------------	---------------------	------------------	---------------------	-----------------	------------------	------------------------	------------	----------------

Batch number: 153080015A

Sample number(s): 8109394,8109396,8109398

*- 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.

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/16/2015 14:35

Group Number: 1604790

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Ethane	1.0 U	1.0	ug/l	113		85-115		
Ethene	1.0 U	1.0	ug/l	113		83-115		
Methane	3.0 U	3.0	ug/l	111		85-115		

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 153090019A Sample number(s): 8109407								
Ethane	1.0 U	1.0	ug/l	100		85-115		
Ethene	1.0 U	1.0	ug/l	99		83-115		
Methane	3.0 U	3.0	ug/l	104		85-115		

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15316049502B Sample number(s): 8109393,8109395,8109397,8109406								
Total Organic Carbon	1.0 U	1.0	mg/l	93		91-113		

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15304667901A Sample number(s): 8109396,8109398,8109407								
Sulfate	0.30 U	0.30	mg/l	103		90-110		
Batch number: 15304667901B Sample number(s): 8109394								
Sulfate	0.30 U	0.30	mg/l	103		90-110		

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 153080015A Sample number(s): 8109394,8109396,8109398 UNSPK: P107190									
Ethane	101	98	85-115	3	20				
Ethene	103	100	83-115	3	20				
Methane	101	98	85-115	3	20				
Batch number: 153090019A Sample number(s): 8109407 UNSPK: 8109407									
Ethane	90	87	85-115	3	20				
Ethene	103	99	83-115	3	20				
Methane	680 (2)	530 (2)	85-115	3	20				
Batch number: 15316049502B Sample number(s): 8109393,8109395,8109397,8109406 UNSPK: 8109393 BKG: 8109393									
Total Organic Carbon	94		91-113			6.5	6.5	1	3
Batch number: 15304667901A Sample number(s): 8109396,8109398,8109407 UNSPK: P112956 BKG: P112956									
Sulfate	110		90-110			36.5	35.8	2	15
Batch number: 15304667901B Sample number(s): 8109394 UNSPK: P103425 BKG: P103425									

*- 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.

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/16/2015 14:35

Group Number: 1604790

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u>	<u>RPD</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup</u> <u>RPD</u> <u>Max</u>
Sulfate	99		90-110			4.2	J 4.0	J 6 (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: H153103AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8109390	96	106	97	92
8109391	96	105	95	90
8109392	97	107	96	91
8109393	97	106	96	91
8109395	98	109	96	90
8109397	98	107	98	92
8109399	96	106	96	92
8109400	97	105	96	91
8109409	97	106	97	90
Blank	98	108	96	92
LCS	98	106	97	94
LCSD	97	108	96	93
Limits:	77-114	74-113	77-110	78-110

Analysis Name: 8260C Boeing 69

Batch number: H153141AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8109401	97	107	96	95
8109402	96	106	95	95
8109403	96	106	96	95
8109404	96	109	95	94
8109405	96	113	96	95
8109406	97	106	96	96
8109408	97	107	96	94
Blank	98	110	96	95
LCS	98	107	96	96
LCSD	97	108	97	95
Limits:	77-114	74-113	77-110	78-110

Analysis Name: MEE by RSK-175

Batch number: 153080015A

	Propene
8109394	94
8109396	98
8109396	103

*- 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.

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/16/2015 14:35

Group Number: 1604790

Surrogate Quality Control

DL	
8109398	90
8109398	109
DL	
Blank	108
LCS	120
MS	100
MSD	99

Limits: 44-123

Analysis Name: MEE by RSK-175
Batch number: 153090019A

Propene

8109407	81
8109407	103
DL	
Blank	103
LCS	105
MS	80
MSD	78

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 # 1604770

For Eurofins Lancaster Laboratories use only
Sample # 8109390-409

Please print. Instructions on reverse side correspond.

1 # 13419 Client Information
 Site Location: BOEING TUKWILA, WA
 Site Project: DEV. CTR.
 Site Program/ #: SKMU-20
 Boeing PM: JAMES BET
 Consultant Contact: LANDAU CLINT JACOB
 Report To: LANDAU ANNE HALVORSEN
 Invoice To: Boeing EHS Other (specify):
 Sampler: CHARLES HARRY # of Coolers: 1

Sample Identification	Collected		Matrix	No. of Containers	Analyses Requested				Remarks/Comments
	Date	Time			38	57	91	55	
DE-MW-17A-151026	10-26-2015	940	Ag	3	X				TRIP BLANKS INCL. 9-3-2015
DE-MW-16A-151026	10-26-2015	1015	Ag	3	X				
DE-MW-16C-151026	10-26-2015	1045	Ag	3	X				
MW-06A-151026	10-26-2015	1130	Ag	9	X				
MW-06B-151026	10-26-2015	1205	Ag	9	X				
MW-09A-151026	10-26-2015	1245	Ag	9	X				
MW-11A-151026	10-26-2015	1440	Ag	3	X				
MW-10C-151026	10-26-2015	1510	Ag	3	X				
MW-13A-151027	10-27-2015	6105	Ag	3	X				
MW-13C-151027	10-27-2015	635	Ag	3	X				
MW-20C-151027	10-27-2015	705	Ag	3	X				
MW-15C-151027	10-27-2015	735	Ag	3	X				
MW-14C-151027	10-27-2015	810	Ag	3	X				
MW-22A-151027	10-27-2015	855	Ag	9	X				
MW-DUP-151027	10-27-2015	-	Ag	3	X				

4 Relinquished by: CHARLES HARRY Date/Time: 10/28/2015 5:00 AM
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____
 Relinquished by commercial carrier (circle): L.L. COURICK
 UPS FedEx Other: _____
 Temperature upon Receipt: 2.1 °C
 Custody Seals Intact?: Yes No

6 Turnaround Time Requested (please circle)
 Standard 72 hour 48 hour 5 day 4 day 24 hour
 Date needed: _____

Client: BOEING

BOEING TUKWILA WA

Delivery and Receipt Information

Delivery Method:	<u>SeaTac</u>	Arrival Timestamp:	<u>10/29/2015 9:25</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:	HCL
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Corey Eshleman (3647) at 10:23 on 10/29/2015

Samples Chilled Details: BOEING TUKWILA WA

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

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	DT121	2.1	DT	Wet	Y	Bagged	N

1604790

Part # 156297-435812038 10/28 909 22274009

SHIP DATE: 28OCT15
ACT WT: 40.90 LB
GPD: OFFC1621
DIMS: 24x14x13 IN
BILL-SENDER

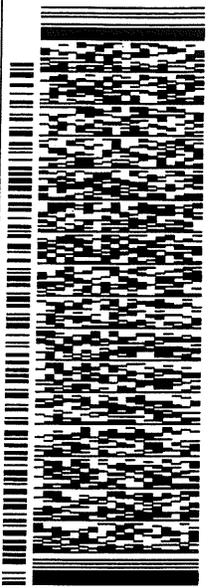
ORIGIN ID:SEAA

UNITED STATES US

TO **SAMPLE RECEIVING**
LANCASTER LABORATORIES
2425 NEW HOLLAND PIKE

LANCASTER PA 17601

(717) 656-2300
INV. P.O. REF: DEPT:



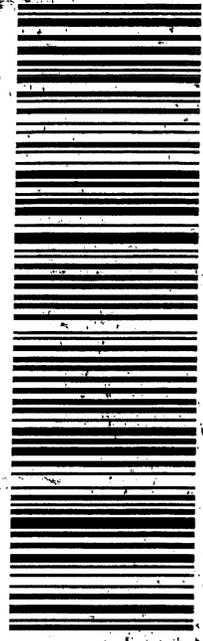
FedEx Express **E**

THU - 29 OCT 10:30A
PRIORITY OVERNIGHT

TRK# **8047 1334 0443**
0667

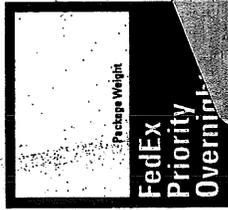
XH LNSA

17601
PA-US MDT



FedEx Expanded Billable Stamp
Express
Use only for shipments within the U.S.
Saturday delivery available.

1 From
ORDER: 00798300



10:30
0443
9229

Release Signature
For nonresidential deliveries.
Employee Number
Other
Total Charges

Sign within this area. Please do not remove.
By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

2 To **SHIPMENT WILL NOT BE ACCEPTED IF ADDRESS BELOW IS ALTERED.**

SAMPLE RECEIVING
EUROFINS LANCASTER LABS
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601
(717) 656-2300

M-10091 Rev. 3/10

NONREDEEMABLE
Please see the back of the receipt for important terms and conditions.

Shipments tendered on Friday are delivered on Saturday to most locations.



Form ID
0667

There is an official watermark on this document. Hold at an angle to view.

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.

SWMU-17

(Groundwater Sample Collection Forms and Analytical Data)

Boeing Chain of Custody



For Eurofins Lancaster Laboratories use only
 Accl. # _____ Group # _____
 Sample # _____
 Please print. Instructions on reverse side correspond.

1 Client Information

Site Location: B0E1N6
 Site Project: DEV. CTR
 Site Program#: DC. SWMU-17
 Boeing PM: JAMES BET
 Consultant Contact: LANDAU
 Report To: LANDAU
 Invoice To: Boeing EHS Other (specify): _____
 Sampler: CHARLES HARDY # of Coolers: 1

2 Sample Identification

Sample Identification	Collected		Matrix	No. of Containers
	Date	Time		
BDC-05-18-150720	7-20-2015	1105	A9	9
BDC-05-21-150720	7-20-2015	1135	A9	9
BDC-05-23-150720	7-20-2015	1205	A9	9
BDC-05-07-150720	7-20-2015	1410	A9	9
BDC-05-16-150721	7-21-2015	0620	A9	9
BDC-05-20-150721	7-21-2015	0645	A9	9
BDC-05-22-150721	7-21-2015	0715	A9	9
BDC-05-24-150721	7-21-2015	0740	A9	9
BDC-05-19-150721	7-21-2015	0810	A9	9
BDC-05-12-150721	7-21-2015	0835	A9	9
BDC-05-DUP-150721	7-21-2015	—	A9	9
TRIP BLANKS	6-25-2015		A9	4

3 Collected Date: _____ Time: _____ Matrix: _____ No. of Containers: _____

4 Analyses Requested

Analyses Requested	38	57	91	55	Remarks/Comments
SHORT BOEING LIST VOC 8260	X				
H VOC'S VC, PCB, TCS, PCB'S	X				
METHANE ETYANE ETYENE, ACETYLENE	X				
TOTAL METALS (COOP)	X				
PHYSICAL METALS (COOP)	X				
SEM ANNUAL ONLY					

5 Relinquished by: CHARLES HARDY Date/Time: 7/21/2015 1200 Received by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____ Received by: _____ Date/Time: _____
 Relinquished by commercial carrier (circle): L.F. COURIER Temperature upon Receipt: _____ °C
 UPS FedEx Other: _____ Custody Seals Intact?: Yes No

6 Turnaround Time Requested (please circle) Standard
 72 hour 48 hour 24 hour 4 day
 Date needed: _____

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 3rd Quarter 2015 Labor alco#1007645

50th Sample event

SAMPLE ID: B DC-05-02-150720 (vymnkd)

Date Collected: July/Aug. 20, 2015 COC Time: 1416

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-02 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 25.35 (ft.) historical or measured

Present Water Level: 12.30 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 25.35 ft - 12.30 ft = 13.05 ft x 2.502 Liters/ft = 32.65 Liters

Purge Rate: 3.9 l. + 29 min. = _____ Liters/minute

Begin Purge: 13:41 time

End Purge: 1410 time

Volume Purged: 3.9 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size &	2"	0.776	0.658	0.579
Schedule	2.5"		0.942	0.833
(Liters/ft)	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
13:43	0.500	18.2	632	1.08	6.78	-76	
13:45	1.1	17.7	533	0.88	6.66	-77	
13:47	1.75	17.5	460	0.67	6.44	-66	
13:49	2.75	17.0	406	0.50	6.32	-58	
13:51	3.1	17.7	394	0.53	6.29	-57	
13:53	3.6	17.6	381	0.38	6.30	-56	
13:55	4.25	17.6	371	0.31	6.26	-54	
13:57	4.85	17.5	359	0.27	6.30	-57	
13:59	5.5	17.5	349	0.23	6.32	-57	
14:01	6.1	17.6	342	0.22	6.29	-58	
14:03	6.7	17.7	333	0.21	6.33	-62	
14:05	7.4	17.7	325	0.19	6.34	-63	
14:07	8.0	17.7	318	0.16	6.32	-63	
14:09	8.6	17.6	315	0.17	6.37	-67	
14:10	8.9	17.7	308	0.15	6.36	-67	

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	VOC 8260 PCE, TCE, cis-&trans-1,2-DCF, 1,1-DCF & V.C.
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene
2	40 mL	<input checked="" type="checkbox"/> Glass	H3PO4	<input type="checkbox"/> No	TOCs
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input type="checkbox"/> No	Sulfate
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input type="checkbox"/> No	Total Metals (post inj. Cu & As)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input type="checkbox"/> Yes	Dissolved Metals (same as Total)

* Comments: Hach field test Fe++ = 1.9 mg/L

Signature: C. Hardy

Date: July 20 2015

Continued on Back

BOEING Groundwater Sample Collection Form

PVP

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM
 Event: 3rd Quarter 2015 labor alco#1007645
 SAMPLE ID: BDC-05-12-150721 (yymmdd)
 Date Collected: July/Aug 21, 2015 COC Time: 835

50th Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-02-12 Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 24.87 (ft.) historical or measured)
 Present Water Level: 12.63 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 24.87 ft - 12.63 ft = 12.24 ft x 0.658 Liters/ft = 8.05 Liters
 Purge Rate: 3.0 l. + 75 min. = _____ Liters/minute

Begin Purge: 820 time

End Purge: 835 time

Volume Purged: 3.0 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
<u>822</u>	=						
<u>824</u>	<u>250 ml</u>	<u>16.8</u>	<u>269</u>	<u>0.10</u>	<u>6.35</u>	<u>-25</u>	
<u>827</u>	<u>1.1</u>	<u>16.5</u>	<u>267</u>	<u>0.09</u>	<u>6.28</u>	<u>-30</u>	
<u>828</u>	<u>1.5</u>	<u>16.5</u>	<u>268</u>	<u>0.10</u>	<u>6.27</u>	<u>-33</u>	
<u>830</u>	<u>1.7</u>	<u>16.5</u>	<u>268</u>	<u>0.09</u>	<u>6.28</u>	<u>-36</u>	
<u>832</u>	<u>2.2</u>	<u>16.4</u>	<u>266</u>	<u>0.09</u>	<u>6.28</u>	<u>-39</u>	
<u>834</u>	<u>2.75</u>	<u>16.4</u>	<u>264</u>	<u>0.17</u>	<u>6.28</u>	<u>-42</u>	
<u>835</u>	<u>3.0</u>	<u>16.5</u>	<u>263</u>	<u>0.12</u>	<u>6.25</u>	<u>-41</u>	
<u>837</u>	=						
<u>840</u>	=						
=							
=							
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>3</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>VOC 8260 PCE, TCE, cis-&trans-1,2-DCE, 1,1-DCE, & V.C.</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>Methane, Ethane, Ethene, Acetylene</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H3PO4</u>	<input type="checkbox"/> No	<u>TOCs</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>none</u>	<input type="checkbox"/> No	<u>Sulfate</u>
<u>1</u>	<u>250 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>NaN O3</u>	<input type="checkbox"/> No	<u>Total Metals (post inj. Cu & As)</u>
<u>1</u>	<u>250 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>NaN O3</u>	<input type="checkbox"/> Yes	<u>Dissolved Metals (same as Total)</u>

Comments: Hach field test Fe++ = 1.4 mg/L

Signature: C.H. Hardy

Date: July 21, 2015

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BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 3rd Quarter 2015 labor alco#1007645

50th Sample event

SAMPLE ID: BDC-05-16-150721 (yvmmkd)

Collector: Charles Hardy

Date Collected: July/Aug. 21, 2015 COC Time: 6:20

Well Information

Well I. D.: BDC-05-16 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.89 (ft.) historical or measured

Present Water Level: 12.10 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.89 ft 12.010 ft = 12.79 ft x 0.658 Liters/ft = 8.42 Liters

Purge Rate: 6.15 l. + 22 min. = 0.279 Liters/minute

Begin Purge: 5:58 time

End Purge: 6:20 time

Volume Purged: 6.15 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size &	2"	0.776	0.658	0.579
Schedule	2.5"		0.942	0.833
(Liters/ft)	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
6:00	500ml	16.6	643	2.48	6.80	-37	
6:02	1.0L	16.5	617	1.37	6.49	-33	
6:04	1.6	16.4	601	1.02	6.36	-35	
6:06	2.2L	16.4	591	1.00	6.29	-38	
6:08	2.75	16.3	585	0.64	6.27	-44	
6:10	3.3	16.3	576	0.46	6.26	-49	
6:12	3.95	16.2	569	0.41	6.26	-53	
6:14	4.5	16.2	565	0.38	6.25	-56	
6:16	5.05	16.2	558	0.33	6.28	-60	
6:18	5.6	16.3	554	0.30	6.29	-64	
6:20	6.15	16.2	545	0.26	6.30	-67	

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis- & trans-1,2-DCE, 1,1-DCE, & V.C.
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total)

Comments: Hach field test Fe++ = 2.0 mg/L

Signature: @ N. Hardy

Date: July 21 2015

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BOEING Groundwater Sample Collection Form

50th Sample event

Project Site: Dev. Ctr. Area: SWMU 17_CWA#7KDVCREM

Event: 3rd Quarter 2015 labor alco#1007645

SAMPLE I D: BDC-05-18-150770 (synnumid)

Date Collected: July/Aug. 20, 2015 COC Time: 1105

Collector: Clarks Hardy

Well Information

Well I. D.: BDC-05-18 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.69 (ft.) historical or measured

Present Water Level: 11.75 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.69 ft - 11.75 ft = 12.94 ft x 0.658 Liters/ft = 8.51 Liters

Purge Rate: _____ l. + 18 min. = _____ Liters/minute

Begin Purge: 10:47 time

End Purge: 1105 time

Volume Purged: _____ Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"	1"		0.170	0.140
2"	2"	0.776	0.658	0.579
2.5"	2.5"		0.942	0.833
4"	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1049	= 2.50	20.3	72	1.16	6.78	21	
1051	= 9.00	19.5	67	1.03	6.72	21	
1053	= 1.75	19.6	67	0.75	6.54	26	
1055	= 2.3	19.8	68	0.71	6.40	32	
1057	= 2.9	19.8	68	0.62	6.35	31	
1059	= 3.6	19.7	67	0.56	6.34	28	
1104	= 4.3	19.6	67	0.55	6.30	28	
1105	= 5.1	19.8	67	0.50	6.27	28	
1105	= 5.7	19.8	67	0.45	6.30	26	
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-&trans-1,2-DCE, 1,1-DCE, & V.C.
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate
1	250 mL	<input type="checkbox"/> Plastic	NNO ₃	<input type="checkbox"/> No	Total Metals (post inj. Cu & As)
1	250 mL	<input type="checkbox"/> Plastic	NNO ₃	<input type="checkbox"/> Yes	Dissolved Metals (same as Total)

Comments: Hach field test Fe++ = 0.6 mg/L

Signature: C. Hardy

Date: July 20 2015

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BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17_CWA#7KDVCREM
 Event: 3rd Quarter 2015 labor alco#1007645
 SAMPLE ID: BDC-05-19-150721 (yyymmdd)
 Date Collected: July/Aug. 21, 2015 COC Time: 8:10

50th Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-19 Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 24.85 (ft.) historical or measured
 Present Water Level: 12.53 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 24.85 ft - 12.53 ft = 12.32 ft x 0.658 Liters/ft = 8.11 Liters
 Purge Rate: 4.06 l. + 18 min. = 0.225 Liters/minute

Begin Purge: 7:52 time

End Purge: 8:10 time

Volume Purged: 4.0 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

treatment system ground other

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. P. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
7:54	= 2.00 mL	16.4	308	0.14	6.23	-10	
7:56	= 7.50	16.4	310	0.09	6.21	-17	
7:58	= 1.25 L	16.4	310	0.08	6.20	-22	
8:00	= 1.8	16.4	298	0.08	6.22	-26	
8:02	= 2.2	16.4	297	0.10	6.22	-29	
8:04	= 2.6	16.4	295	0.14	6.22	-35	
8:06	= 3.05	16.4	290	0.11	6.27	-37	
8:08	= 3.55	16.4	289	0.12	6.26	-39	0/2
8:10	= 4.05	16.4	284	0.10	6.26	-41	

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis- & trans-1,2-DCF, 1,1-DCF, & V.C.
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total)

* Comments: Hach field test Fe⁺⁺ = 1.2 mg/L

Signature: C. Hardy

Date: JULY 21, 2015

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BOEING Groundwater Sample Collection Form

50th Sample event

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 3rd Quarter 2015 labor alco# 1007645

SAMPLE I.D.: BDC-05-20-1507 20 (yymmdd)

Date Collected: July/Aug. 21, 2015 COC Time: _____

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-20 Well Condition: Secure? Yes No; Describe Condition: WATER IN MONUMENT Flust

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.80 (ft.) historical or measured

Present Water Level: 12.42 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.80 ft - 12.42 ft = 12.38 ft x 0.658 Liters/ft = 8.15 Liters

Purge Rate: 3.05 l. + 12 min. = 0.254 Liters/minute

Begin Purge: 6:33 time

End Purge: 6:45 time

Volume Purged: 3.05 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D. P. (mg/l)	pH	ORP (mV)	Other (waterlevel, turb)
6:35	= 400 ml	17.5	398	0.24	6.65	-43	
6:37	= 950	17.5	395	0.21	6.62	-46	
6:39	= 1.4 l	17.5	393	0.16	6.60	-50	
6:41	= 2.0	17.5	391	0.14	6.57	-53	OK
6:43	= 2.6	17.6	391	0.13	6.53	-55	
6:45	= 3.05	17.6	391	0.12	6.55	-59	
6:47	=						
6:49	=						
6:5	=						
=							
=							
=							
=							
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-&trans-1,2-DCE, 1,1-DCE, & V.C.
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total)

Comments: Hach field test Fe⁺⁺ = 1.3 mg/L

Signature: C. Hardy

Date: July 21 2015

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BOEING Groundwater Sample Collection Form

50th Sample event

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 3rd Quarter 2015 labor alco#1007645

SAMPLE ID: BDC-05-21-150720 (vymmkd)

Date Collected: July/Aug. 20, 2015 COC Time: 1135

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-21 Well Condition: Secure? Yes No: Describe Condition mon flood 1P11get, N

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other

Total Depth of Well: 24.86 (ft.) historical or measured

Present Water Level: 12.24 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.86 ft - 12.24 ft = 12.62 ft x 0.658 Liters/ft = 8.30 Liters

Purge Rate: 4.3 l. + 19 min. = 0.253 Liters/minute

Begin Purge: 11:18 time

End Purge: 1135 time

Volume Purged: 4.3 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

treatment system ground other

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1120	= 1.50	21.9	226	0.91	6.47	-52	
1122	= 7.00	19.9	206	0.20	6.49	-71	
1124	= 1.3	19.7	207	0.17	6.45	-76	
1126	= 1.9	19.6	215	0.17	6.44	-79	
1128	= 2.4	19.6	220	0.21	6.44	-80	
1130	= 3.0	19.5	222	0.20	6.42	-81	
1132	= 3.95	19.6	225	0.19	6.42	-83	
1134	= 4.1	19.5	227	0.17	6.41	-84	
1135	= 4.3	19.5	227	0.17	6.41	-84	

Sample Collection Information

Sample Collected with: disposable Baller, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other

Sample Description: (color, turbidity, odor, sheen, etc):

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-&trans-1,2-DCE, 1,1-DCE, & V.C.
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene
2	40 mL	<input checked="" type="checkbox"/> Glass	H3PO4	<input checked="" type="checkbox"/> No	TOCs
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total)

*Comments: Hach field test Fe++ = 1.2 mg/L

Signature: C. Hardy

Date: Jul, 20, 2015

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BOEING Groundwater Sample Collection Form

50th Sample event

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 3rd Quarter 2015 labor alco# 1007645

SAMPLE ID: B DC-05-22-150721 (vymvld)

Date Collected: July/Aug. 21, 2015 COC Time: 715

Collector: Charles Hanly

Well Information

Well I. D.: BDC-05-22 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 25.70 (ft.) historical or measured

Present Water Level: 12.24 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 25.70 ft - 12.24 ft = 13.42 ft x 0.658 Liters/ft = 8.82 Liters

Purge Rate: 3.8 l. + 16 min. = 0.2375 Liters/minute

Begin Purge: 659 time

End Purge: 715 time

Volume Purged: _____ Liters

Purge water disposal to: 55-gal drum, storage tank

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
701	= 2.50	16.4	314	0.57	6.49	-23	
703	= 7.50	16.3	310	0.23	6.39	-26	
705	= 1.2 L	16.3	304	0.12	6.34	-30	
707	= 1.65	16.2	298	0.14	6.32	-33	
709	= 2.3	16.3	295	0.12	6.32	-37	
711	= 2.8	16.3	294	0.11	6.34	-40	
713	= 3.3	16.3	293	0.16	6.35	-44	
715	= 3.8	16.3	293	0.12	6.38	-47	

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis- & trans-1,2-DCE, 1,1-DCE, & V.C.
2	40 mL	<input type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene
2	40 mL	<input checked="" type="checkbox"/> Glass	H3PO4	<input checked="" type="checkbox"/> No	TOCs
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate
X	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As)
X	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total)

* Comments: Hach field test Fe++ = 1.0 mg/L

Signature: Charles Hanly

Date: July 21 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 3rd Quarter 2015 labor alco#1007645

50th Sample event

SAMPLE ID: BDC-05-23-150720 (yyymmdd)

Collector: Charles Hardy

Date Collected: July/Aug. 20, 2015 COC Time: 1205

Well Information

Well I. D.: BDC-05-23 Well Condition: Secure? Yes No; Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 25.10 (ft.) historical or measured

Present Water Level: 25.1235 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 25.10 ft - 12.85 ft = 12.25 ft x 0.658 Liters/ft = 8.06 Liters

Purge Rate: 4.5 l. + 17 min. = 0.264 Liters/minute

Begin Purge: 1148 time

End Purge: 1205 time

Volume Purged: 4.5 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"	1"		0.170	0.140
2"	2"	0.776	0.658	0.579
2.5"	2.5"		0.942	0.833
4"	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D. O. (mg/l)	pH	ORP (mV)	Other (waterlevel, turb)
1154	0.1	13.0	396	1.16	6.44	-58	
1152	4.00	16.5	376	0.37	6.43	-61	
1154	1.0	16.4	373	0.25	6.41	-68	
1156	1.8	16.3	372	0.25	6.41	-74	
1158	2.25	16.4	373	0.22	6.41	-75	
1200	3.0	16.4	374	0.21	6.41	-79	
1202	3.5	16.3	372	0.19	6.40	-81	
1204	4.1	16.3	376	0.19	6.40	-83	
1205	4.5	16.3	375	0.22	6.40	-84	
=							
=							
=							
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-&trans-1,2-DCE, 1,1-DCE, & V.C.
2	40 mL	<input type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total)

* Comments: Hach field test Fe⁺⁺ = 0.9 mg/L

Signature: Charles Hardy

Date: July 20 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM
 Event: 3rd Quarter 2015 labor alco#1007645
 SAMPLE I D: B DC-05-24-150721 (vymmskl)
 Date Collected: July/Aug. 21, 2015 COC Time: 740

50th Sample event

Collector: Charles Harly

Well Information

Well I. D.: BDC-05-24 Well Condition: Secure? Yes No; Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 24.73 (ft.) historical or measured
 Present Water Level: 12.2 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 24.73 ft - 12.4 ft = 12.52 ft x 0.658 Liters/ft = 8.24 Liters
 Purge Rate: 2.85 l. + 16 min. = 0.178 Liters/minute

Begin Purge: 725 time
 End Purge: 740 time
 Volume Purged: 2.85 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D. O. (mg/l)	pH	ORP (mV)	Other (waterlevel, turb)
727	= 200 mL	16.2	188	0.57	6.50	-24	
729	= 600	16.1	176	0.21	6.28	-13	
731	= 1.0 L	16.1	166	0.12	6.25	-14	
733	= 1.4 L	16.1	164	0.11	6.24	-16	
735	= 1.8	16.1	161	0.10	6.26	-19	
738	= 2.4	16.0	157	0.09	6.27	-22	
739	= 2.6	16.0	156	0.10	6.27	-22	
740	= 2.85	16.0	155	0.09	6.27	-23	
=							
=							
=							
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Butler, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-&trans-1,2-DCE, 1,1-DCE, & V.C.
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total)

*Comments: Hach field test Fe⁺⁺ = 1.8 mg/L

Signature: C. N. Nung

Date: July 21 2015

Continued on Back



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 173795
Order Date: 06/24/2015
Page 1 of 2
Standard Frm#: 154723

Client: 13419
The Boeing Company
Boeing_DC:SWMU-17 qrt

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

Do not overfill or rinse out any vials for TOC - Preservative will be lost.

Group: 1

Number of Sample Locations: 9

One complete set of bottles listed below must be filled for each of the 9 sample location(s).

<u>Sample Description</u>	<u>QC Type</u>
BDC-05-02 Water	
BDC-05-12 Water	
BDC-05-16 Water	
BDC-05-18 Water	
BDC-05-19 Water	
BDC-05-20 Water	
BDC-05-21 Water	
BDC-05-24 Water	
DUP Water	

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
3	38	40 ml glass vial (GC/MS)	HCl	VC, PCE, TCE, cDCE	14 days
2	55	40 ml glass vial	None	Sulfate	28 days
2	57	40 ml glass vial	HCl	AMEE by RSK-175	14 days
2	91	40 ml amber vial	H3PO4	Total Organic Carbon	28 days

Group: 2

Number of Sample Locations: 2

One complete set of bottles listed below must be filled for each of the 2 sample location(s).

<u>Sample Description</u>	<u>QC Type</u>
BDC-05-22 Water	
BDC-05-23 Water	

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
3	38	40 ml glass vial (GC/MS)	HCl	VC, PCE, TCE, cDCE	14 days
2	55	40 ml glass vial	None	Sulfate	28 days
2	91	40 ml amber vial	H3PO4	Total Organic Carbon	28 days

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 xCA

Date Needed:

07/17/2015

Pack By:

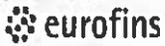
07/16/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 173795
Order Date: 06/24/2015
Page 2 of 2
Standard Frm#: 154723

Client: 13419
The Boeing Company
Boeing_DC:SWMU-17 qrt

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

Do not overfill or rinse out any vials for TOC - Preservative will be lost.

Group: 3

Number of Sample Locations: 2						
<u>Sample Description</u>					<u>QC Type</u>	
Trip Blank Water					Trip Blank	
Count	Code	Description	Preservative	Analysis Name	Hold Time	
2	38	40 ml glass vial (GC/MS)	HCl	VC, PCE, TCE, cDCE	14 days	
2	57	40 ml glass vial	HCl	AMEE by RSK-175	14 days	

Sample Acceptance Policy

Samples must be submitted in a manner that meets the criteria listed below. If these criteria are not met, the laboratory will contact the client to discuss how to proceed with testing. If the client decides to proceed with testing, a comment describing the variation will appear on the analytical report.

- Documentation must be complete and include: sample identification, the location, date and time of collection, collector's name or initials, preservation type, sample type, required analyses, and any special remarks concerning the sample.
- Proper sample labeling must include unique identification on a durable (water resistant) label using indelible ink.
- Samples must be collected in appropriate containers with sufficient volume to perform tests. The laboratory will provide appropriate bottleware.
- Samples must be shipped promptly to meet specified holding times with adequate packing materials to prevent damage during shipment and adequate wet ice to meet method temperature requirements (0-6°C, not frozen).

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 xCA

Date Needed:

07/17/2015

Pack By:

07/16/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request

Boeing Chain of Custody

PAGE 1 of 2

For Eurofins Lancaster Laboratories use only
 Sample # _____
 Group # _____
 Please print. Instructions on reverse side correspond.

Acct. # _____
 Client Information
 TUKWILA, WA

Site Location: **BOEING**
 Site Project: **DEV. CTR.**
 Site Program#: **SWMU-17**
 Boeing PM: **JAMES BET**
 Consultant Contact: **LANDAU** **CLINT JACOB**
 Report To: **LANDAU** **ANNE HALVORSEN**
 Invoice To: Boeing EHS Other (specify):
 Sampler: **CHARLES HARDY** # of Coolers: _____

Analyses Requested

38	91	55	08	08
V.C. PCB			AS	AS
H-VOL, B20		SULFATE	TOTAL METALS CU	DISORDERED METALS CU
	TOC			LEAD, IRON, RC

Remarks/Comments

Sample Identification	Collected		Matrix	No. of Containers
	Date	Time		
BPC-05-23-151027	10-27-15	950	A9	9
BPC-05-18-151027	10-27-15	1045	A9	11
BPC-05-21-151027	10-27-15	1130	A9	11
BPC-05-20-151027	10-27-15	1220	A9	11
BPC-05-17-151027	10-27-15	1300	A9	11
BPC-05-22-151027	10-27-15	1335	A9	9
BPC-05-16-151027	10-27-15	1415	A9	11+2
BPC-05-15-151028	10-28-15	615	A9	11
BPC-05-24-151028	10-28-15	650	A9	11
BPC-05-14-151028	10-28-15	725	A9	11
BPC-05-13-151028	10-28-15	805	A9	11
BPC-05-19-151028	10-28-15	835	A9	11
BPC-05-12-151028	10-28-15	905	A9	11
BPC-05-08-151028	10-28-15	945	A9	9
BPC-05-03-151028	10-28-15	1030	A9	11

4	57	91	55	08	08
METHANE, ETHANE, ETHENE, ACETYLENE				AS	AS
		TOC	SULFATE	TOTAL METALS CU	DISORDERED METALS CU
					LEAD, IRON, RC

Refrigerated by: **CHARLES HARDY** Date/Time: **10-29-2015**

Refrigerated by: _____ Date/Time: _____

Refrigerated by: _____ Date/Time: _____

Temperature upon Receipt: _____ °C

Custody Seals Intact? Yes No

UPS FedEx Other: **K-L-I COURIER**

Turnaround Time Requested (please circle): **Standard**

5 day 4 day
 48 hour 24 hour

Date needed: _____

Boeing Chain of Custody



Lancaster Laboratories

For Eurofins Lancaster Laboratories use only
Group # _____ Sample # _____
Please print. Instructions on reverse side correspond.

Acct. # _____
Page 2 of 2

1 # 13419 Client Information
 Site Location: BOEING TUKWILA, WA
 Site Project: DEV. CTR
 Site Program#: SKMD-17 51ST EVENT
 Boeing PM: JAMES BET
 Consultant Contact: LANDAU CLINT JACOB
 Report To: LANDAU ANNE HALVORSEN
 Invoice To: Boeing EHS Other (specify):
 Sampler: CHARLES HARRY # of Coolers: _____

2 Sample Identification	3 Collected		Matrix	No. of Containers	4 Analyses Requested				5 Remarks/Comments
	Date	Time			38	57	91	55	
BDC-05-11-15-1028	10-28-2015	1105	A9	11	X	X	X	X	LLI PORT DC
BDC-05-10-15-1028	10-28-15	1140	A9	11	X	X	X	X	DISPOSABLE METALS Cu AS
BDC-05-09-15-1028	10-28-15	1215	A9	11	X	X	X	X	DISPOSABLE METALS Cu AS
BDC-05-07-15-1028	10-28-15	1245	A9	11	X	X	X	X	DISPOSABLE METALS Cu AS
BDC-05-02-15-1028	10-28-15	1320	A9	11	X	X	X	X	DISPOSABLE METALS Cu AS
BDC-05-04-15-1028	10-28-15	1350	A9	9	X	X	X	X	DISPOSABLE METALS Cu AS
BDC-05-05-15-1028	10-28-15	1420	A9	9+2	X	X	X	X	DISPOSABLE METALS Cu AS
BDC-05-DUP-15-1028	10-28-15	-	A9	11	X	X	X	X	DISPOSABLE METALS Cu AS
TRIP BLANKS	9-3-2015		A9	2					

6 Turnaround Time Requested (please circle)
 Standard 5 day 4 day
 72 hour 48 hour 24 hour
 Date needed: _____

Reinforced by: CHARLES HARRY Date: 10-29-2015
 Received by: _____ Date/Time: _____
 Reinfirmed by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____
 Reinfirmed by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____
 Temperature upon Receipt: _____ °C
 Custody Seals Intact?: Yes No

BOEING Groundwater Sample Collection Form

51st Sample event

Project Site: Dev. Ctr. Area: SWMU 17_CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco# 1007645

SAMPLE ID: B DC-05-02-151023 (yyymmdd)

Date Collected: Oct./Nov., 23, 2015 COC Time: 1320

Collector: Charles Hardy

Well Information

Well I. D.: B DC-05-02 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 4 (Inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 25.35 (ft.) historical or measured

Present Water Level: 12.28 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 25.35 ft. - 12.28 ft. = 13.07 ft x 2.502 Liters/ft. = 32.70 Liters

Purge Rate: 3.35 l. + 16 min. = 0.209 Liters/minute

Begin Purge: 1304 time

End Purge: 1320 time

Volume Purged: 3.35 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1306	= 250 ml	15.4	266	0.97	6.38	1.6	
1308	= 7100	15.4	278	0.55	6.30	2.9	
1310	= 1.2 L	15.3	281	0.40	6.28	2.0	
1312	= 1.6	15.3	281	0.38	6.27	0.5	
1314	= 2.05	15.3	282	0.40	6.27	-0.9	
1316	= 2.5	15.4	282	0.34	6.28	-2.9	
1318	= 2.9	15.3	281	0.27	6.29	-4.2	
1320	= 3.35	15.3	281	0.21	6.29	-5.7	
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: *Hach field test Fe++ = 0.8 mg/L

Signature: Charles Hardy

Date: Oct 23, 2015

Continued on Back

(11)

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco# 1007645

51st Sample event

SAMPLE ID: BDC-05-03-15 1028 (yyymmdd)

Collector: Charles Hardy

Date Collected: Oct. / Nov. 28, 2015 COC Time: 1030

Well Information

Well I. D.: BDC-05-03 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 25.47 (ft.) historical or measured

Present Water Level: 17.33 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 25.47 ft - 12.33 ft = 13.14 ft x 0.658 Liters/ft = 8.65 Liters

Purge Rate: 2.3 l. + 22 min. = 0.105 Liters/minute

Begin Purge: 1008 time

End Purge: 1030 time

Volume Purged: 2.3 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1010	= 100 mL	16.1	273	0.58	6.43	-11	
1012	= 450 mL	16.3	298 ²³⁷	0.26	6.49	-16.6	
1014	= 750 mL	16.5	277 ²⁶²	0.28	6.51	-16.7	
1016	= 1.05 L	16.4	266	0.24	6.50	-15.3	
1018	= 1.25	16.3	259 ³¹	0.18	6.48	-14.1	
1020	= 1.4	15.9	275 ²³⁷	0.18	6.45	-13	
1022	= 1.5	15.9	240	0.15	6.41	-10.5	
1024	= 1.7	16.1	236	0.14	6.33	-6.1	
1026	= 1.9	16.3	231	0.12	6.33	-6.8	
1028	= 2.1						
1030	= 2.3	16.4	241	0.09	6.40	-13	

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC R260, PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.0 mg/L

Signature: C. Hardy

Date: Oct 28 2015

2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco# 1007645

51" Sample event

SAMPLE ID: BDC-05-04-15 1028 (vymgdd)

Collector: Charles Hardy

Date Collected: Oct. / Nov. 28, 2015 COC Time: 1350

Well Information

Well I. D.: BDC-05-04 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 25.36 (ft.) historical or measured

Present Water Level: 12.59 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 25.36 ft - 12.59 ft = 12.77 ft x 2.502 Liters/ft = 31.95 Liters

Purge Rate: 1.8 l. + 17 min. = 0.156 Liters/minute

Begin Purge: 1338 time

End Purge: 1350 time

Volume Purged: 1.8 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1340	= 200ml	15.4	309	1.46	6.38	-1.4	
1342	= 500	15.4	337	0.73	6.35	-2.5	
1344	= 800	15.4	344	0.55	6.37	-1.4	
1346	= 1.1 L	15.4	346	0.50	6.39		
1348	= 1.5	15.4	345	0.46	6.42	-2.3	
1350	= 1.8	15.5	395	0.43	6.94	-2.6	
1352	=						
1354	=						
135	=						

Sample Collection Information

Sample Collected with: disposable Baller, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

9

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.4 mg/L

Signature: C. Hardy

Date: Oct 28 2015

Continued on Back

BOEING Groundwater Sample Collection Form

51st Sample event

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco# 1007645

SAMPLE ID: BDC-05-05-15102B (vvmmdd)

Date Collected: Oct. / Nov., 23, 2015 COC Time: 1420

Collector: Clark Harley

Well Information

Well I. D.: BDC-05-05 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.18 (ft.) historical or measured

Present Water Level: 12.18 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.18 ft / 12.18 ft = 12.0⁰ ft x 2.5⁰ Liters/ft = 30.0 Liters

Purge Rate: 2.7 l. + 15 min. = 0.180 Liters/minute

Begin Purge: 1405 time

End Purge: 1420 time

Volume Purged: 2.7 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D. O. (mg/l)	pH	ORP (mV)	Other (waterlevel, turb)
1407	= 200 ml	15.5	237	6.57	6.61	-1.7	
1409	= 800	15.5	223	6.98	6.49	-2.7	
1411	= 1.05	15.5	222	6.94	6.46	-5.0	
1413	= 1.6	15.4	220	6.85	6.43	-2.9	
1415	= 1.8	15.4	220	6.84	6.42	-2.0	
1417	= 2.15	15.9	219	6.83	6.40	-1.0	
1419	= 2.5	15.5	219	6.85	6.39	-2.4	
1420	= 2.7	15.5	218	6.81	6.39	0	
=							
=							
=							
=							
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 0.3 me/L very slight chlu

Signature: C. N. Harley

Date: Oct 23 2015

Continued on Back

BOEING Groundwater Sample Collection Form

51" Sample event

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco#1007645

SAMPLE ID: B DC-05- 07- 15 /028 (yymmdd)

Date Collected: Oct. / Nov., 28, 2015 COC Time: 1245

Collector: Charles Hardy

Well Information

Well I. D.: 1300-05-07 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 25.30 (ft.) historical or measured

Present Water Level: 11.88 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 25.30 ft - 11.38 ft = 13.92 ft x 0.658 Liters/ft = 33.57 Liters

Purge Rate: 2.9 l. + 12 min. = 0.250 Liters/minute 2.502

Begin Purge: 12:33 time

End Purge: 12:45 time

Volume Purged: 2.4 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O ₂ (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1235	= 2.00 ml	15.8	222	0.40	6.29	9.3	
1237	= 7.00	15.7	224	0.15	6.29	3.0	
1239	= 1.1 L	15.8	225	0.12	6.28	-0.8	
1241	= 1.55	15.8	224	0.12	6.28	-4.5	
1243	= 2.0	15.9	225	0.15	6.29	-6.9	
1245	= 2.4	15.8	226	0.17	6.30	-9.4	
1247	=						
1249	=						
125	=						
	=						
	=						
	=						
	=						
	=						
	=						
	=						
	=						

Sample Collection Information

Sample Collected with: disposable Baller, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & VC (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comment: Hach field test Fe⁺⁺ = 1.0 mg/L

Signature: C. N. Hardy

Date: Oct 28 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco#1007645

51st Sample event

SAMPLE ID: B DC-05-08-151028 (vymml(d))

Collector: Charles Hardy

Date Collected: Oct. 28, 2015 COC Time: 9:45

Well Information

Well I. D.: BDC-05-08 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 26.75 (ft.) historical or measured

Present Water Level: 12.62 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 26.75 ft - 12.62 ft = 14.13 ft x 0.658 Liters/ft = 9.36 Liters

Purge Rate: 3.35 l. + 12 min. = 0.186 Liters/minute

Begin Purge: 9:27 time

End Purge: 9:45 time

Volume Purged: 3.35 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Diameter	10s	Sch 40	Sch 80
1"		0.170	0.140
2"	0.776	0.658	0.579
2.5"		0.942	0.833
4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D.O. (mg/l)	pH	ORP (mV)	Other (waterlevel, turb)
9:29	150ml	15.5	234	0.17	6.97	-15	
9:31	600+	15.9	219	0.09	6.94	-18	
9:33	1.05	15.3	202	0.07	6.93	-20	
9:35	1.42	15.4	197	0.06	6.92	-21	
9:37	1.8	15.5	195	0.06	6.91	-23	
9:39	2.25	15.5	192	0.06	6.93	-25	
9:41	2.6	15.5	191	0.06	6.94	-27	ok
9:43	3.0	15.5	191	0.06	6.95	-29	
9:45	3.35	15.5	191	0.06	6.97	-31	

Sample Collection Information

Sample Collected with: disposable Buller, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCF, & V.C (LLI code 38)
2	40 mL	<input type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe = 1.0 mg/L

Signature: C. Hardy

Date: Oct 28 2015

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BOEING Groundwater Sample ^{pur} Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco#1007645

SAMPLE ID: B DC-05-09-15 102B (vymmdl)

Date Collected: Oct. / Nov. 23, 2015 COC Time: 12:15

51" Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-09 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.55 (ft.) historical or measured

Present Water Level: 12.30 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.55 ft. - 12.30 ft = 12.25 ft x 0.658 Liters/ft = 8.06 Liters

Purge Rate: 3.2 l. + 16 min. 0.200 Liters/minute

Begin Purge: 11:59 time

End Purge: 12:15 time

Volume Purged: 3.2 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity ^{+/- 3%}	D. P. (mg/l) ^{+/- 10%}	pH ^{+/- 0.10 unit}	ORP (mV)	Other (waterlevel, turb)
1201	= 2.00	16.8	122	0.30	6.30	9.9	
1203	= 6.50	16.9	122	0.11	6.29	3.7	
1205	= 1.05	16.8	123	0.10	6.33	4.9	
1207	= 1.52	16.8	123	0.09	6.37	2.9	
1209	= 1.9	16.7	125	0.09	6.33	0	
1211	= 2.35	16.8	125	0.12	6.35	-1.5	
1213	= 2.8	16.7	126	0.15	6.36	-3.7	
1215	= 3.2	16.8	126	0.15	6.36	-5.3	
=							
=							
=							
=							
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H3PO4	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> No	Total Metals (post ini. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.0 mg/L

Signature: C. Hardy

Date: Oct 23, 2015

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2x
11
12

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Arca: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco#1007645

51st Sample event

SAMPLE ID: B DC-05-10-15/023 (vymund)

Collector: Charles Hanly

Date Collected: Oct./Nov., 23, 2015 COC Time: 1140

Well Information

Well I. D.: B02-05-10 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.57 (ft.) historical or measured

Present Water Level: 12.27 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.57 ft - 12.27 ft = 12.30 ft x 0.653 Liters/ft = 8.09 Liters

Purge Rate: 3.5 l. + 17 min. = 0.205 Liters/minute

Begin Purge: 1123 time

End Purge: 1140 time

Volume Purged: 3.5 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D.O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1125	= 200 mL	17.0	147	0.49	6.40	5.0	
1127	= 700	17.2	143 ¹³⁸	0.17	6.38	0.4	
1129	= 1.1	17.2	140 ¹³⁶	0.14	6.43	-5.4	
1131	= 1.55	17.1	137	0.16	6.45	-8.3	
1133	= 2.0	17.2	134	0.16	6.45	-10.9	
1135	= 2.6	17.0	131	0.16	6.46	-13.8	
1137	= 2.85	17.0	129	0.18	6.44	-13.4	
1139	= 3.25	17.1	128	0.18	6.43	-13.9	
1140	= 3.5	17.1	129	0.17	6.42	-14.0	
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=

Sample Collection Information

Sample Collected with: disposable Bulber, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

(1)

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C. (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.0 mg/L

Signature: C. Hanly

Date: Oct 23 2015 Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM
 Event: 4th Quarter 2015 labor alco#1007645
 SAMPLE ID: BDC-05-11-151028 (yymmdd)
 Date Collected: Oct 28, 2015 COC Time: 1105

51st Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-11 Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 24.85 (ft.) historical or measured
 Present Water Level: 12.49 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 24.85 ft - 12.49 ft = 12.36 ft x 0.658 Liters/ft = 8.13 Liters
 Purge Rate: 2.5 l. + 12 min. = 0.208 Liters/minute

Begin Purge: 1053 time
 End Purge: 1105 time
 Volume Purged: 2.5 Liters

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"	1"		0.170	0.140
2.5"	2"	0.776	0.658	0.579
4"	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
<u>1056</u>	<u>450</u>	<u>17.2</u>	<u>124</u>	<u>0.41</u>	<u>6.54</u>	<u>-4.3</u>	
<u>1057</u>	<u>700</u>	<u>17.3</u>	<u>124</u>	<u>0.28</u>	<u>6.54</u>	<u>-6.6</u>	
<u>1059</u>	<u>1,114</u>	<u>17.2</u>	<u>125</u>	<u>0.14</u>	<u>6.56</u>	<u>-10.8</u>	
<u>1101</u>	<u>1,552</u>	<u>17.2</u>	<u>125</u>	<u>0.09</u>	<u>6.53</u>	<u>-12.9</u>	
<u>1103</u>	<u>2.0</u>	<u>17.1</u>	<u>126</u>	<u>0.11</u>	<u>6.53</u>	<u>-14</u>	
<u>1105</u>	<u>2.5</u>	<u>17.0</u>	<u>126</u>	<u>0.11</u>	<u>6.52</u>	<u>-16</u>	
<u>1107</u>							
<u>1109</u>							
<u>1111</u>							
<u>1113</u>							
<u>1115</u>							

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

(11)

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>3</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input checked="" type="checkbox"/> No	<u>VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input checked="" type="checkbox"/> No	<u>Methane, Ethane, Ethene, Acetylene (LLI code 57)</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H3PO4</u>	<input checked="" type="checkbox"/> No	<u>TOCs (LLI code 91)</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>none</u>	<input checked="" type="checkbox"/> No	<u>Sulfate (LLI code 55)</u>
<u>1</u>	<u>250 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>N N O3</u>	<input checked="" type="checkbox"/> No	<u>Total Metals (post inj. Cu & As) (LLI code 08)</u>
<u>1</u>	<u>250 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>N N O3</u>	<input checked="" type="checkbox"/> Yes	<u>Dissolved Metals (same as Total) (LLI code 08)</u>

Comments: Hach field test Fe++ = 0.6 mg/L

Signature: Charles Hardy

Date: Oct 28 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015

labor alco#1007645

51st Sample event

SAMPLE I D: B DC-05--12-151028 (yyymmdd)

Collector: Charles Hardy

Date Collected: Oct. 28, 2015 COC Time: 905

Well Information

Well I. D.: BDC-05-12 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.87 (ft.) historical or measured

Present Water Level: 12.59 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.87 ft - 12.59 ft = 12.28 ft x 0.653 Liters/ft = 8.03 Liters

Purge Rate: 3.2 l. + 16 min. = 0.200 Liters/minute

Begin Purge: 349 time

End Purge: 905 time

Volume Purged: 3.2 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
(Liters/ft)	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
351	= 150 mL	16.5	356	0.43	6.33	-2.2	
353	= 650	16.6	373	0.17	6.35	-9.9	
355	= 1.1 L	16.6	379	0.12	6.41	-16.8	
357	= 1.55	16.5	382	0.08	6.42	-22	
359	= 2.0	16.6	383	0.08	6.42	-25	
901	= 2.4	16.5	383	0.08	6.41	-26	
903	= 2.8	16.5	382	0.07	6.40	-27	
905	= 3.2	16.6	382	0.08	6.40	-28	
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.4 mg/L

Signature: C. Hardy

Date: Oct 28 2015

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BOEING Groundwater Sample Collection Form

51st Sample event

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco# 1007645

SAMPLE ID: B DC-05-13-151028 (yyymmdd)

Date Collected: Oct. ~~Nov.~~ 28, 2015 COC Time: 805

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-13 Well Condition: Secure Yes No: Describe Condition: Flashed

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other

Total Depth of Well: 24.78 (ft.) historical or measured

Present Water Level: 12.37 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.78 ft - 12.37 ft = 12.41 ft x 0.658 Liters/ft = 8.17 Liters

Purge Rate: 3.2 l. + 16 min. = 3200 Liters/minute

Begin Purge: 749 time

End Purge: 805 time

Volume Purged: 3.2 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size &	2"	0.776	0.658	0.579
Schedule	2.5"		0.942	0.833
(Liters/ft)	4"	2.995	2.502	2.260

treatment system ground other

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (*F or *C)	+/- 3% Conductivity	+/- 10% D.O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
751	= 250 mL	17.6	214	0.24	6.58	-4.2	
753	= 700	17.6	210	0.12	6.62	-14.5	
755	= 1.1 L	17.4	(208)	0.12	6.63	-20.9	
757	= 1.55	17.2	204	0.11	6.63	-25	
759	= 2.0	17.1	204 ✓	0.131	6.61 ✓	-22	
801	= 2.4	17.1	204 ✓	0.18	6.57 ✓	-29.7	
803	= 2.85	16.9	204	0.22	6.55	-31	
805	= 3.2	16.9	204	0.20	6.54	-32	
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other

Sample Description: (color, turbidity, odor, sheen, etc):

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260, PCE, TCE, cis-DCE, & V.C. (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: *Hach field test Fe++ = 1.2 mg/L

Signature: Charles Hardy

Date: Oct 28 2015

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BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco# 1007645

SAMPLE ID: B DC-05-14-15/028 (vymmdk)

Date Collected: Oct. / Nov., 28, 2015 COC Time: 725

51st Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-14 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.85 (ft.) historical or measured

Present Water Level: 12.18 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.85 ft - 12.18 ft = 12.67 ft x 0.658 Liters/ft = 8.34 Liters

Purge Rate: 3.25 l. + 17 min. = 0.191 Liters/minute

Begin Purge: 708 time

End Purge: 725 time

Volume Purged: 3.25 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
710	= 200 ml	16.1	357	0.39	6.38	15.6	
712	= 600 ml	16.2	376	0.19	6.39	2.8	
714	= 1.0 L	16.3	380	0.33	6.45	-8.2	
716	= 1.4	16.3	377	0.40	6.47	-14.3	
718	= 1.85	16.4	378	0.26	6.47	-18	
720	= 2.25	16.4	376	0.16	6.48	-22	
722	= 2.65	16.4	370	0.13	6.48	-25	
724	= 3.05	16.4	366	0.11	6.48	-27	
725	= 3.25	16.3	364	0.11	6.47	-28	
728	=						
730	=						
	=						
	=						
	=						
	=						

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H3PO4	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.0 mg/L

Signature: C. N. Hardy

Date: Oct 28 2015

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BOEING Groundwater Sample Collection Form

51st Sample event

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco# 1007645

SAMPLE ID: B DC-05-- 15- 151028 (vymmlld)

Date Collected: Oct./Nov., 28, 2015 COC Time: 615

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-15 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.48 (ft.) historical or measured

Present Water Level: 11.95 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.48 ft. 11.95 ft. = 12.53 ft. x 0.53 Liters/ft. = _____ Liters

Purge Rate: 3.8 l. + 22 min. = 0.173 Liters/minute

Begin Purge: 5:53 time

End Purge: 6:15 time

Volume Purged: 3.8 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. Q. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
5:55	= 100 mL	16.3	5.91	0.69	7.24	+2.6	
5:57	= 500	16.5	499	0.41	6.99	-1.3	
5:59	= 850	16.5	485	0.61	6.88	-3.7	
6:01	= 1.2 h	16.4	478	0.65	6.80	-15.2	
6:03	= 1.55	16.4	452 ⁴³⁸	0.60	6.75	-20	
6:05	= 1.95	16.4	442 ⁴²⁹	0.35	6.72	-25	
6:07	= 2.35	16.4	435	0.25	6.68	-29	
6:09	= 2.7	16.3	427	0.21	6.66 ⁰¹²	-32	
6:11	= 3.1	16.4	423	0.20	6.65	-36	
6:13	= 3.4	16.5	427	0.17	6.63	-38	
6:15	= 3.8	16.5	425	0.16	6.64	-41	
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C. (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 35)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: * Hach field test Fe++ = 1.2 mg/L

Signature: C. N. Hardy

Date: Oct 28, 2015

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BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco#1007645

51st Sample event

SAMPLE ID: B DC-05-16-151027 (yymmdd)

Collector: Charles Hardy

Date Collected: Oct. / Nov. 27, 2015 COC Time: 1415

Well Information

Well I. D.: BDC-05-16 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.89 (ft.) historical or measured

Present Water Level: 12.10 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.89 ft - 12.10 ft = 12.79 ft x 0.658 Liters/ft = 8.41 Liters

Purge Rate: 4.5 l. + 19 min. = 0.237 Liters/minute

Begin Purge: 1356 time

End Purge: 1415 time

Volume Purged: 4.5 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D.O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1358	= 250 mL	16.9	514	0.39	6.37	-18.7	
1400	= 800	16.7	516	0.13	6.37	-26	
1402	= 1.4	16.8	521	0.08	6.36	-31	
1404	= 1.9	16.7	525	0.07	6.36	-34	
1406	= 2.35	16.7	541	0.07	6.37	-31	
1408	= 2.75	16.7	541	0.07	6.37	-38	
1410	= 3.3	16.7	541	0.07	6.38	-41	
1412	= 3.7	16.7	541	0.06	6.39	-43	
1414	= 4.2	16.7	540	0.05	6.41	-45	
1415	= 4.5	16.6	539	0.06	6.41	-45	

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260, PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.2 mg/L

Signature: Charles Hardy

Date: 2015

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BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco#1007645

51st Sample event

SAMPLE ID: BDC-05-17-15/027 (yyymmdd)

Collector: Charles Hardy

Date Collected: Oct / Nov 27, 2015 COC Time: 1300

Well Information

Well I. D.: BDC-05-17 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.82 (ft.) historical or measured

Present Water Level: 12.29 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.82 ft - 12.29 ft = 12.53 ft x 0.658 Liters/ft = 8.24 Liters

Purge Rate: 3.15 l + 17 min = 0.185 Liters/minute

Begin Purge: 1243 time

End Purge: 1300 time

Volume Purged: 3.15 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1245	= 200 ml	17.3	700	0.59	6.26	-8.2	
1247	= 550	17.2	712	0.44	6.28	-19	
1249	= 1.0 L	17.2	713	0.59	6.31	-27	
1251	= 1.4	17.1	715 ✓	0.28	6.33 ✓	-33	
1253	= 1.8	17.1	715 ✓	0.19	6.34 ✓	-37	
1255	= 2.2	17.0	716 ✓	0.15	6.35 ✓	-40	
1257	= 2.55	17.2	718	0.13	6.36	-43	
1259	= 2.95	17.0	719	0.11	6.38	-46	
1300	= 3.15	17.0	718	0.12	6.38	-47	
1303	=						
1305	=						
	=						
	=						
	=						
	=						

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H3PO4	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: *Hach field test Fe++ = 1.5 mg/L

Signature: C. Hardy

Date: Oct 27 2015

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BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM
 Event: 4th Quarter 2015 labor alco#1007645
 SAMPLE ID: BDC-05-18-151027 (yyymmdd)
 Date Collected: Oct. 27, 2015 COC Time: 1045

51st Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-18 Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 24.69 (ft.) historical or measured
 Present Water Level: 11.77 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 24.69 ft - 11.77 ft = 12.92 ft x 0.650 Liters/ft = 8.50 Liters
 Purge Rate: 4.0 l. + 23 min. = 0.174 Liters/minute

Begin Purge: 10:22 time

End Purge: 10:45 time

Volume Purged: 4.0 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1029	100 mL	15.0	122	2.59	6.96	-23	
1026	500 mL	15.7	113	2.03	6.78	-10.9	
1028	850	16.5	111	1.83	6.75	-3.1	
1030	1.25	16.7	111	1.63	6.72	+2.8	
1032	1.6	16.7	110	1.43	6.68	8.1	
1035	2.15	16.7	111	1.15	6.61	13.2	
1036	2.35	16.7	111	1.07	6.59	14.2	
1038	2.75	16.8	112	0.95	6.55	16.7	
1040	3.1	16.5	114	0.88	6.51	18.7	
1042	3.45	16.6	114	0.82	6.47	21	
1044	3.8	16.6	114	0.75	6.44	22	
1045	4.0	16.7	115	0.73	6.43	22	

Sample Collection Information

Sample Collected with: disposable Bulfer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C. (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 0.2 mg/L very slight

Signature: C. Hardy

Date: OCT 27 2015

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11

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM
 Event: 4th Quarter 2015 labor alco#1007645
 SAMPLE ID: BDC-05-19-151028 (yyymmdd)
 Date Collected: Oct. 28, 2015 COC Time: 835

51st Sample event

Collector: Charles Harby

Well Information

Well I. D.: BDC-05-19 Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 24.85 (ft.) historical or measured
 Present Water Level: 12.49 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 24.85 ft - 12.49 ft = 12.36 ft x 0.53 Liters/ft = 6.13 Liters
 Purge Rate: 2.6 l. + 13 min. = 0.20 Liters/minute

Begin Purge: 8:22 time
 End Purge: 8:35 time
 Volume Purged: 2.6 Liters
 Purge water disposal to: 55-gal drum, storage tank treatment system ground other

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D.O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
329	150 mL	16.4	327	0.41	6.28	2.8	
326	700 mL	16.4	336	0.18	6.28	-3.9	
328	1.1 L	16.4	337	0.15	6.29	-8.2	
330	1.55	16.5	336	0.10	6.31	-12.5	
332	1.95	16.4	332	0.09	6.34	-16.9	
334	2.4	16.5	324	0.09	6.35	-13	
336	2.6	16.5	322	0.07	6.35	-19	
338							
340							
342							
344							
346							

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>3</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input checked="" type="checkbox"/> No	<u>VOC 8260 PCE TCE cis-DCE & V.C (LLI code 38)</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input checked="" type="checkbox"/> No	<u>Methane, Ethane, Ethene, Acetylene (LLI code 57)</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H3PO4</u>	<input checked="" type="checkbox"/> No	<u>TOCs (LLI code 91)</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>none</u>	<input checked="" type="checkbox"/> No	<u>Sulfate (LLI code 55)</u>
<u>1</u>	<u>250 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>N N O3</u>	<input checked="" type="checkbox"/> No	<u>Total Metals (post inj. Cu & As) (LLI code 08)</u>
<u>1</u>	<u>250 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>N N O3</u>	<input checked="" type="checkbox"/> Yes	<u>Dissolved Metals (same as Total) (LLI code 08)</u>

Comments: Each field test Fe++ = 0.6 mg/L

Signature: Charles Harby Date: Oct 28 2015 Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco#1007645

SAMPLE ID: BDC-05-20-15/027 (symmld)

Date Collected: Oct./Nov. 27, 2015 COC Time: 1220

51st Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-20 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.80 (ft.) historical or measured

Present Water Level: 12.37 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.80 ft. 12.37 ft. = 12.43 ft x 603 Liters/ft = 8.18 Liters

Purge Rate: 2.6 l. + 15 min. = 0.173 Liters/minute

Begin Purge: 1205 time

End Purge: 1220 time

Volume Purged: 2.6 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D.O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1207	150 mL	18.3	351	0.97	6.33	-1.6	
1209	530	18.2	349	0.19	6.37	-11.8	
1211	950	18.3	348	0.17	6.42	-20.5	
1213	1.3	18.2	346	0.20	6.45	-25	
1215	1.65	18.2	344	0.32	6.46	-29	
1217	2.05	18.2	345	0.43	6.45	-31	
1219	2.4	18.3	346	0.31	6.46	-34	
1220	2.6	18.2	346	0.23	6.47	-35	
1222							
1225							

Sample Collection Information

Sample Collected with: disposable Builer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.4 mg/L

Signature: C. Hardy

Date: Oct 27 2015

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BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco# 1007645

51st Sample event

SAMPLE ID: BDC-05-21-151027 (symm/d)

Collector: Charles Hardy

Date Collected: Oct./Nov. 27, 2015 COC Time: 1130

Well Information

Well I. D.: BDC-05-21 Well Condition: Secure? Yes No: Describe Condition: S

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.86 (ft.) historical or measured

Present Water Level: 12.22 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.86 ft - 12.22 ft = 12.64 ft x 0.658 Liters/ft = 8.32 Liters

Purge Rate: 4.1 l. + 23 min. = 0.178 Liters/minute

Begin Purge: 1107 time

End Purge: 1130 time

Volume Purged: 4.1 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size &	2"	0.776	0.658	0.579
Schedule	2.5"		0.942	0.833
(Liters/ft)	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. P. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1109	= 150 ml	20.6	211	0.39	6.40	14	
1111	= 500	20.3	211	0.22	6.54	-7.9	
1113	= 900 ml	20.0	212	0.22	6.57	-21	
1115	= 1.3	20.1	215	0.22	6.59	-28	
1117	= 1.65	20.1	(219 x 22)	0.17	6.60	-34	
1119	= 2.0 L	20.0	222	0.15	6.59	-37	
1121	= 2.9	20.1	228	0.13	6.58	-40	
1123	= 2.8	19.9	230	0.12	6.56	-42	
1125	= 3.1	19.9	231	0.11	6.55	-42	
1127	= 3.5	19.9	233	0.10	6.53	-43	OK
1129	= 3.9	19.9	234	0.09	6.52	-45	
1130	= 4.1	19.9	234	0.08	6.53	-46	

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C. (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H3PO4	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O3	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 2.0 mg/L

Signature: C. Hardy

Date: Oct 27, 2015

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BOEING Groundwater Sample Collection Form

51st Sample event

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco#1007645

SAMPLE I D: BDC-05-22-151027 (vymnkld)

Date Collected: Oct. / Nov. 27, 2015 COC Time: 1335

Collector: Charles Hanly

Well Information

Well I. D.: BDC-05-22 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 25.07 (ft.) historical or measured

Present Water Level: 12.19 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 25.07 ft - 12.19 ft = 12.88 ft x 0.658 Liters/ft = 8.48 Liters

Purge Rate: 3.25 l. + 17 min. = 0.191 Liters/minute

Begin Purge: 1318 time

End Purge: 1335 time

Volume Purged: 3.25 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
1320	= 200 ml	18.0	377	0.72	6.83	-45	
1322	= 600	17.6	359	0.29	6.77	-45	
1324	= 950	17.6	353	0.25	6.72	-45	
1326	= 1.4	17.5	345	0.19	6.66	-45	
1328	= 1.8	17.6	342	0.15	6.62	-45	
1330	= 2.2	17.7	341	0.13	6.60	-46	
1332	= 2.7	17.6	334	0.10	6.60	-48	
1334	=						
1335	= 3.25	17.5	337	0.09	6.59	-50	
1338	=						
1340	=						
	=						
	=						
	=						

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>3</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input checked="" type="checkbox"/> No	<u>VOC 8260 PCF, TCE, cis-DCE, & V.C. (LLI code 38)</u>
<u>2</u>	<u>40 mL</u>	<input type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>Methane, Ethane, Ethene, Acetylene (LLI code 57)</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Glass	<u>H3PO4</u>	<input checked="" type="checkbox"/> No	<u>TOCs (LLI code 91)</u>
<u>2</u>	<u>40 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>none</u>	<input checked="" type="checkbox"/> No	<u>Sulfate (LLI code 55)</u>
<u>1</u>	<u>250 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>N N O3</u>	<input checked="" type="checkbox"/> No	<u>Total Metals (post inj. Cu & As) (LLI code 08)</u>
<u>1</u>	<u>250 mL</u>	<input checked="" type="checkbox"/> Plastic	<u>N N O3</u>	<input checked="" type="checkbox"/> Yes	<u>Dissolved Metals (same as Total) (LLI code 08)</u>

Comments: *Hach field test Fe++ = 1.0 mg/L

Signature: C. Hanly

Date: Oct 27 2015

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BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco#1007645

51st Sample event

SAMPLE I.D.: B DC-05-23-151027 (yymmdd)

Collector: Charles Hardy

Date Collected: Oct. / Nov., 27, 2015 COC Time: 950

Well Information

Well I. D.: BDC-05-23 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2.2 (inches) (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 25.10 (ft.) historical or measured

Present Water Level: 12.57 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 25.10 ft - 12.57 ft = 12.53 ft x 0.653 Liters/ft = 8.24 Liters

Purge Rate: 2.2 l. + 15 min. = 0.147 Liters/minute

Begin Purge: 935 time

End Purge: 950 time

Volume Purged: 2.2 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
937	= 100 mL	14.8 (C)	378	1.74	6.60	-32	
939	= 450	15.3	378	0.54	6.55	-35	
941	= 750	15.5	379	0.36	6.59	-41	
943	= 1.05 L	15.5	381	0.29	6.62	-41	
945	= 1.35	15.6	382	0.24	6.64	-50	
947	= 1.65	15.6	383	0.21	6.65	-53	
949	= 2.0	15.5	383	0.18	6.65	-55	
950	= 2.2	15.5	383	0.18	6.64	-55	
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"

Sample Collection Information

Sample Collected with: disposable Baller, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C (LLI code 38)
2	40 mL	<input type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.4 mg/L

Signature: C. Hardy

Date: _____ 2015

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BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: SWMU 17 CWA#7KDVCREM

Event: 4th Quarter 2015 labor alco# 1007645

51st Sample event

SAMPLE ID: BDC-05-24-151023 (ymmdd)

Collector: Charles Hardy

Date Collected: Oct. 28, 2015 COC Time: 6:50

Well Information

Well I. D.: BDC-05-24 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 24.73 (ft.) historical or measured

Present Water Level: 12.15 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 24.73 ft - 12.17 ft = 12.58 ft x 0.63 Liters/ft = 8.28 Liters

Purge Rate: 2.4 l. + 1.1 min. = 0.17 Liters/minute

Begin Purge: 6:36 time

End Purge: 6:50 time

Volume Purged: 2.4 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Vulume	1"		0.170	0.140
by Size &	2"	0.776	0.658	0.579
Schedule	2.5"		0.942	0.833
(Liters/ft)	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP (mV)	Other (waterlevel, turb)
638	= 150 mL	16.0	172	1.30	6.82	-6.	
640	= 500 mL	16.3	165	0.80	6.67	-1.1	
642	= 900	16.3	163	0.72	6.67	-2.4	
644	= 1.25	16.3	161	0.67	6.63	-2.7	
646	= 1.65	16.3	160	0.63	6.60	-2.6	
648	= 2.0	16.3	160	0.54	6.57	-2.8	
650	= 2.4	16.3	160	0.47	6.54	-3.1	
652	"						
654	"						
6	"						
658	"						
700	"						
"	"						
"	"						

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
3	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	VOC 8260 PCE, TCE, cis-DCE, & V.C. (LLI code 38)
2	40 mL	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	Methane, Ethane, Ethene, Acetylene (LLI code 57)
2	40 mL	<input checked="" type="checkbox"/> Glass	H ₃ PO ₄	<input checked="" type="checkbox"/> No	TOCs (LLI code 91)
2	40 mL	<input checked="" type="checkbox"/> Plastic	none	<input checked="" type="checkbox"/> No	Sulfate (LLI code 55)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> No	Total Metals (post inj. Cu & As) (LLI code 08)
1	250 mL	<input checked="" type="checkbox"/> Plastic	N N O ₃	<input checked="" type="checkbox"/> Yes	Dissolved Metals (same as Total) (LLI code 08)

Comments: Hach field test Fe++ = 1.0 mg/L

Signature: C. Hardy

Date: 2015

Continued on Back

ANALYTICAL RESULTS

Prepared by:

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

Prepared for:

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

August 05, 2015

Project: Boeing_DC:SWMU-17 qrt

Submittal Date: 07/22/2015

Group Number: 1578669

State of Sample Origin: WA

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
BDC-05-18-150720 Water	7974670
BDC-05-18-150720 Water	7974671
BDC-05-21-150720 Water	7974672
BDC-05-21-150720 Water	7974673
BDC-05-23-150720 Water	7974674
BDC-05-23-150720 Water	7974675
BDC-05-02-150720 Water	7974676
BDC-05-02-150720 Water	7974677
BDC-05-16-150721 Water	7974678
BDC-05-16-150721 Water	7974679
BDC-05-20-150721 Water	7974680
BDC-05-20-150721 Water	7974681
BDC-05-22-150721 Water	7974682
BDC-05-22-150721 Water	7974683
BDC-05-24-150721 Water	7974684
BDC-05-24-150721 Water	7974685
BDC-05-19-150721 Water	7974686
BDC-05-19-150721 Water	7974687
BDC-05-12-150721 Water	7974688
BDC-05-12-150721 Water	7974689
BDC-05-DUP-150721 Water	7974690
BDC-05-DUP-150721 Water	7974691
Trip Blanks Water	7974692

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	Attn: Paul Yount
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ELECTRONIC COPY TO	Landau	Attn: Clint Jacob
ELECTRONIC COPY TO	Landau Associates	Attn: Terry McGourty
ELECTRONIC COPY TO	Landau Associates	Attn: Anne Halvorsen

Respectfully Submitted,



Kay Hower
Manager

(510) 672-3979

Project Name: Boeing_DC:SWMU-17 qrt
LL Group #: 1578669

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:**SM 5310 C-2000, Wet Chemistry**

Batch #: 15210049501B (Sample number(s): 7974682, 7974684, 7974686, 7974688, 7974690 UNSPK: P976002 BKG: P976002)

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-05-18-150720 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974670
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/20/2015 11:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

18---

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	290	3.0	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	2.8	0.30	1

General 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	152080002A	07/27/2015 15:26	Kristen N Brandt	1
00228	Sulfate	EPA 300.0	1	15203667121B	07/22/2015 22:42	Drew M Gerhart	1

Sample Description: BDC-05-18-150720 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974671
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/20/2015 11:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

18--2

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	1.4	0.2	1
11996	Tetrachloroethene	127-18-4	0.4	0.2	1
11996	Trichloroethene	79-01-6	1.0	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

General 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	H152071AA	07/26/2015 14:23	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 14:23	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501A	07/29/2015 04:46	James S Mathiot	1

Sample Description: BDC-05-21-150720 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974672
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/20/2015 11:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

21---

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	0.8	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	3.0	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	4.5	1.0	1

General 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	H152071AA	07/26/2015 14:44	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 14:44	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501A	07/29/2015 05:31	James S Mathiot	1

Sample Description: BDC-05-21-150720 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974673
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/20/2015 11:35 by CH

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Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

21--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	1.0 U		1.0	1
07105	Ethene	74-85-1	2.7 J		1.0	1
07105	Methane	74-82-8	6,000 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	6,800		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.55 J		0.30	1

General 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	152080002A	07/27/2015 16:17	Kristen N Brandt	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	152080002A	07/28/2015 10:27	Kristen N Brandt	50
00228	Sulfate	EPA 300.0	1	15203667151A	07/23/2015 04:17	Drew M Gerhart	1

Sample Description: BDC-05-23-150720 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974674
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/20/2015 12:05 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

23---

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	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	2.7	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	7.1	1.0	1

General 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	H152071AA	07/26/2015 15:06	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 15:06	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501A	07/29/2015 06:04	James S Mathiot	1

REVISED

Sample Description: BDC-05-23-150720 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974675
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/20/2015 12:05 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

23--2

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Sulfate	14808-79-8	0.30 U	0.30	1

General 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	15203667151A	07/23/2015 05:06	Drew M Gerhart	1

REVISED

Sample Description: BDC-05-02-150720 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974676
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/20/2015 14:10 by CH

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Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

02---

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	0.7	0.2	1
11996	Tetrachloroethene	127-18-4	1.8	0.2	1
11996	Trichloroethene	79-01-6	1.4	0.2	1
11996	Vinyl Chloride	75-01-4	0.7	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	15.3	1.0	1

General 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	H152071AA	07/26/2015 15:27	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 15:27	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501A	07/29/2015 06:19	James S Mathiot	1

Sample Description: BDC-05-02-150720 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974677
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/20/2015 14:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

02--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	11	1.0	1
07105	Ethene	74-85-1	1.0 U	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	8,000	150	50
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	9.5	0.30	1

General 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	152080002A	07/27/2015 16:34	Kristen N Brandt	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	152080002A	07/28/2015 10:44	Kristen N Brandt	50
00228	Sulfate	EPA 300.0	1	15203667151A	07/23/2015 05:22	Drew M Gerhart	1

REVISED

Sample Description: BDC-05-16-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974678
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 06:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

-16--

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C 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	1.7	0.2	1
Wet Chemistry SM 5310 C-2000 mg/l					
00273	Total Organic Carbon	n.a.	28.9	1.0	1

General 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	H152071AA	07/26/2015 15:49	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 15:49	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501A	07/29/2015 06:34	James S Mathiot	1

Sample Description: BDC-05-16-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974679
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 06:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

-16-2

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	6.3	1.0	1
07105	Ethene	74-85-1	1.4 J	1.0	1
07105	Methane	74-82-8	19,000 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	22,000	300	100
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

General 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	152080002A	07/27/2015 16:51	Kristen N Brandt	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	152080002A	07/28/2015 11:01	Kristen N Brandt	100
00228	Sulfate	EPA 300.0	1	15203667151A	07/23/2015 05:38	Drew M Gerhart	1

Sample Description: BDC-05-20-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974680
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 06:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

20---

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	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	2.7	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	14.2	1.0	1

General 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	H152071AA	07/26/2015 16:10	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 16:10	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501A	07/29/2015 06:50	James S Mathiot	1

Sample Description: BDC-05-20-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974681
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 06:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

20--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	3.0 J		1.0	1
07105	Ethene	74-85-1	4.5 J		1.0	1
07105	Methane	74-82-8	14,000 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

General 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	152080002A	07/27/2015 17:07	Kristen N Brandt	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	152080002A	07/28/2015 11:18	Kristen N Brandt	100
00228	Sulfate	EPA 300.0	1	15203667151A	07/23/2015 05:54	Drew M Gerhart	1

Sample Description: BDC-05-22-150721 Water
Boeing_DC:SWMU-17 grt

LL Sample # WW 7974682
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 grt

Collected: 07/21/2015 07:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

-22--

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	5.5	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	0.2 U	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	6.1	1.0	1

General 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	H152071AA	07/26/2015 16:32	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 16:32	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501B	07/29/2015 07:05	James S Mathiot	1

REVISED

Sample Description: BDC-05-22-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974683
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 07:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

-22-2

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 4.4	mg/l 0.30	1

General 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	15203667601A	07/22/2015 21:08	Drew M Gerhart	1

REVISED

Sample Description: BDC-05-24-150721 Water
Boeing_DC:SWMU-17 grt

LL Sample # WW 7974684
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 grt

Collected: 07/21/2015 07:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

24---

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	1.3	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	3.9	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	2.2	1.0	1

General 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	H152071AA	07/26/2015 16:53	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 16:53	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501B	07/29/2015 07:20	James S Mathiot	1

REVISED

Sample Description: BDC-05-24-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974685
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 07:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

24--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	1.0 U	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	450	3.0	1
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	6.2	0.30	1

General 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	152080002A	07/27/2015 17:41	Kristen N Brandt	1
00228	Sulfate	EPA 300.0	1	15203667601A	07/22/2015 21:24	Drew M Gerhart	1

REVISED

Sample Description: BDC-05-19-150721 Water
Boeing_DC:SWMU-17 grt

LL Sample # WW 7974686
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 grt

Collected: 07/21/2015 08:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

19---

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C 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	1.5	0.2	1
Wet Chemistry SM 5310 C-2000 mg/l					
00273	Total Organic Carbon	n.a.	20.3	1.0	1

General 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	H152071AA	07/26/2015 17:14	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 17:14	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501B	07/29/2015 07:36	James S Mathiot	1

Sample Description: BDC-05-19-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974687
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 08:10 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

19--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	2.2 J		1.0	1
07105	Ethene	74-85-1	1.6 J		1.0	1
07105	Methane	74-82-8	14,000 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	21,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

General 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	152080002A	07/27/2015 17:58	Kristen N Brandt	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	152080002A	07/28/2015 11:35	Kristen N Brandt	100
00228	Sulfate	EPA 300.0	1	15203667601A	07/22/2015 21:41	Drew M Gerhart	1

Sample Description: BDC-05-12-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974688
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 08:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

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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	0.7	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	15.2	1.0	1

General 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	H152071AA	07/26/2015 17:35	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 17:35	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501B	07/29/2015 07:51	James S Mathiot	1

Sample Description: BDC-05-12-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974689
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 08:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

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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	3.1 J		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	14,000 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 U		0.30	1

General 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	152080002A	07/27/2015 18:15	Kristen N Brandt	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	152080002A	07/28/2015 11:51	Kristen N Brandt	100
00228	Sulfate	EPA 300.0	1	15203667601A	07/22/2015 21:57	Drew M Gerhart	1

REVISED

Sample Description: BDC-05-DUP-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974690
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

-FD--

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	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	0.7	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	14.6	1.0	1

General 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	H152071AA	07/26/2015 17:56	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 17:56	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15210049501B	07/29/2015 08:06	James S Mathiot	1

Sample Description: BDC-05-DUP-150721 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974691
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 07/21/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

-FD-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	3.1 J		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	14,000 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 U		0.30	1

General 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	152080002A	07/27/2015 18:31	Kristen N Brandt	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	152080002A	07/28/2015 12:08	Kristen N Brandt	100
00228	Sulfate	EPA 300.0	1	15203667601A	07/22/2015 22:13	Drew M Gerhart	1

REVISED

Sample Description: Trip Blanks Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7974692
LL Group # 1578669
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 06/25/2015

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/22/2015 09:25

Reported: 08/05/2015 15:23

TB-17

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

General 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	H152071AA	07/26/2015 14:02	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H152071AA	07/26/2015 14:02	Kerri E Legerlotz	1

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/05/2015 15:23

Group Number: 1578669

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.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: H152071AA	Sample number(s): 7974671-7974672, 7974674, 7974676, 7974678, 7974680, 7974682, 7974684, 7974686, 7974688, 7974690, 7974692							
cis-1,2-Dichloroethene	0.2 U	0.2	ug/l	98	98	80-120	0	30
Tetrachloroethene	0.2 U	0.2	ug/l	106	104	80-120	2	30
Trichloroethene	0.2 U	0.2	ug/l	103	100	80-120	3	30
Vinyl Chloride	0.2 U	0.2	ug/l	91	90	59-124	2	30

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 152080002A	Sample number(s): 7974670, 7974673, 7974677, 7974679, 7974681, 7974685, 7974687, 7974689, 7974691							
Acetylene	1.0 U	1.0	ug/l	94		79-126		
Ethane	1.0 U	1.0	ug/l	101		85-115		
Ethene	1.0 U	1.0	ug/l	100		83-115		
Methane	3.0 U	3.0	ug/l	103		85-115		

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15210049501A	Sample number(s): 7974671-7974672, 7974674, 7974676, 7974678, 7974680							
Total Organic Carbon	1.0 U	1.0	mg/l	99		91-113		
Batch number: 15210049501B	Sample number(s): 7974682, 7974684, 7974686, 7974688, 7974690							
Total Organic Carbon	1.0 U	1.0	mg/l	99		91-113		

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15203667121B	Sample number(s): 7974670							
Sulfate	0.30 U	0.30	mg/l	94	95	90-110	0	20
Batch number: 15203667151A	Sample number(s): 7974673, 7974675, 7974677, 7974679, 7974681							
Sulfate	0.30 U	0.30	mg/l	96		90-110		
Batch number: 15203667601A	Sample number(s): 7974683, 7974685, 7974687, 7974689, 7974691							
Sulfate	0.30 U	0.30	mg/l	96		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.

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/05/2015 15:23

Group Number: 1578669

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 152080002A	Sample number(s): 7974670, 7974673, 7974677, 7974679, 7974681, 7974685, 7974687, 7974689, 7974691 UNSPK: 7974670								
Acetylene	85	83	38-121	2	20				
Ethane	92	93	53-122	0	20				
Ethene	92	93	35-162	0	20				
Methane	79 (2)	83 (2)	46-129	1	20				
Batch number: 15210049501A	Sample number(s): 7974671-7974672, 7974674, 7974676, 7974678, 7974680 UNSPK: 7974671 BKG: 7974671								
Total Organic Carbon	105		91-113			1.0 U	1.0 U	0 (1)	3
Batch number: 15210049501B	Sample number(s): 7974682, 7974684, 7974686, 7974688, 7974690 UNSPK: P976002 BKG: P976002								
Total Organic Carbon	147 (2)		91-113			60.7	63.1	4*	3
Batch number: 15203667121B	Sample number(s): 7974670 UNSPK: P973566 BKG: P973566								
Sulfate	100		90-110			10.2	10.2	0 (1)	15
Batch number: 15203667151A	Sample number(s): 7974673, 7974675, 7974677, 7974679, 7974681 UNSPK: P973708 BKG: P973708								
Sulfate	99		90-110			108	110	2	15
Batch number: 15203667601A	Sample number(s): 7974683, 7974685, 7974687, 7974689, 7974691 UNSPK: P975172 BKG: P975172								
Sulfate	103		90-110			45.0	45.3	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: H152071AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7974671	98	100	97	91
7974672	99	100	97	90
7974674	100	100	97	91
7974676	100	101	97	91
7974678	100	99	97	91
7974680	98	98	98	92
7974682	99	99	97	90
7974684	99	98	97	90
7974686	99	97	98	93
7974688	100	99	97	91
7974690	100	99	96	91
7974692	98	97	97	91

*- 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.

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/05/2015 15:23

Group Number: 1578669

Surrogate Quality Control

Blank	98	100	98	91
LCS	96	95	99	96
LCSD	96	100	98	94
Limits:	77-114	74-113	77-110	78-110

Analysis Name: AMEE by RSK-175

Batch number: 152080002A

Propene

7974670	91
7974673	89
7974673	101
DL	
7974677	82
7974677	99
DL	
7974679	77
7974679	99
DL	
7974681	81
7974681	101
DL	
7974685	83
7974687	79
7974687	100
DL	
7974689	80
7974689	98
DL	
7974691	80
7974691	101
DL	
Blank	95
LCS	97
MS	88
MSD	88
Limits:	47-116

*- 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.

Boeing Chain of Custody



Lancaster Laboratories

For Eurofins Lancaster Laboratories use only
 Acct. # 13419 Group # 157866 Sample # 7774670-92
 Please print. Instructions on reverse side correspond.

1 #13419 Client Information					4 Analyses Requested							5 Remarks/Comments	
Site Location: <u>BOEING</u>					38 SHOX BOEING VOC 8260 LIST VOC'S V.C, PCE, TCE, CPCE	57 METNANG ETNANG ETRENE, ACETYLENE	91 TOC	55 SUZFATG	Total Metals (CoPA)	Dissol. Metals (CoPA)	SEMI ANNUAL ONLY		
Site Project: <u>DEV. CTR</u>													
Site Program/#: <u>DC. SWMU-17</u>													
Boeing PM: <u>JAMES BET</u>													
Consultant Contact: <u>LANDAU</u>													
Report To: <u>LANDAU</u>													
Invoice To: <input checked="" type="checkbox"/> Boeing EHS <input type="checkbox"/> Other (specify): _____													
Sampler: <u>CHARLES HARDY</u> # of Coolers: <u>1</u>													
2 Sample Identification		3 Collected		3 Matrix	No. of Containers								
Date	Time												
<u>BDC-05-18-150720</u>	<u>7-20-2015</u>	<u>1105</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-21-150720</u>	<u>7-20-2015</u>	<u>1135</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-23-150720</u>	<u>7-20-2015</u>	<u>1205</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-02-150720</u>	<u>7-20-2015</u>	<u>1410</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-16-150721</u>	<u>7-21-2015</u>	<u>0620</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-20-150721</u>	<u>7-21-2015</u>	<u>0645</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-22-150721</u>	<u>7-21-2015</u>	<u>0715</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-24-150721</u>	<u>7-21-2015</u>	<u>0740</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-19-150721</u>	<u>7-21-2015</u>	<u>0810</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-12-150721</u>	<u>7-21-2015</u>	<u>0835</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>BDC-05-DUP-150721</u>	<u>7-21-2015</u>	<u>-</u>	<u>Ag</u>	<u>9</u>	X	X	X	X					
<u>TRIP BLANKS</u>		<u>6-25-2015</u>	<u>Ag</u>	<u>4</u>	X	X							
6 Turnaround Time Requested (please circle)					Relinquished by: <u>CHARLES HARDY</u> Date/Time: <u>7-21-2015 12:00</u>		Received by: <u>[Signature]</u> Date/Time: <u>7/21/15 12:00</u> (7)						
<input checked="" type="radio"/> Standard 5 day 4 day <input type="radio"/> 72 hour 48 hour 24 hour Date needed: _____					Relinquished by: <u>[Signature]</u> Date/Time: <u>7/21/2015</u>		Received by: _____ Date/Time: _____						
					Relinquished by commercial carrier (circle): <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input checked="" type="checkbox"/> <u>L.I. COURIER</u>		Temperature upon Receipt: <u>1</u> °C		Custody Seals Intact?: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				

Client: BOEING

13419 DEV. CTR

Delivery and Receipt Information

Delivery Method:	<u>SeaTac</u>	Arrival Timestamp:	<u>07/22/2015 9:25</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:	4
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 Corey Eshleman (3647) at 10:51 on 07/22/2015

Samples Chilled Details: 13419 DEV. CTR

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

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	DT146	1.7	DT	Wet	Y	Bagged	N

ORIGIN ID: SEAA

FedEx Express
Expanded Billable Stamp
Use only for shipments within the U.S.
Saturday delivery available.

1 From

ORDER: 00805887

Package Weight
FedEx
Priority
Overnight®

Release Signature
For nonresidential deliveries.

Signature area. Please do not remove.

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

For FedEx Use Only
Employee Number

Base Charges

Total Charges

Other

2 To

Shipment will not be accepted if address below is altered.

SAMPLE RECEIVING
LANCASTER LABORATORIES
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601
(717) 656-2300

M-10091 Rev. 3/10

NONREDEEMABLE
Please see the back of the receipt for important terms and conditions.

SATURDAY DELIVERY

Shipments tendered on Friday are delivered on Saturday to most locations.



Form ID
0667

8054 3010 3043

SHIP DATE: 21 JUL 15
ACTWT: 48.3 LB
CAD: /OFFC1601
DIMS: 24X13X13 IN
BILL SENDER

UNITED STATES US
TO **SAMPLE RECEIVING**
LANCASTER LABORATORIES
2425 NEW HOLLAND PIKE

LANCASTER, PA 17601
(717) 656-2300
PO:
REF:



TRK# 8054 3010 3043
0667

WED - 22 JUL 10:30A
PRIORITY OVERNIGHT

XH LNSA

17601
PA-US MDT



There is an official watermark on this document. Hold at an angle to view.

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, ISO17025) 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 9U4-26
Seattle WA 98124

November 17, 2015

Project: Boeing_DC:SWMU-17 s-ann

Submittal Date: 10/30/2015

Group Number: 1605434

State of Sample Origin: WA

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
BDC-05-23-151027 Water	8113083
BDC-05-23-151027 Water	8113084
BDC-05-23-151027 Total Metals Water	8113085
BDC-05-23-151027 Total Metals Water	8113086
BDC-05-23-151027 Dissolved Metals Water	8113087
BDC-05-23-151027 Dissolved Metals Water	8113088
BDC-05-18-151027 Water	8113089
BDC-05-18-151027 Water	8113090
BDC-05-18-151027 Total Metals Water	8113091
BDC-05-18-151027 Total Metals Water	8113092
BDC-05-18-151027 Dissolved Metals Water	8113093
BDC-05-18-151027 Dissolved Metals Water	8113094
BDC-05-21-151027 Water	8113095
BDC-05-21-151027 Water	8113096
BDC-05-21-151027 Total Metals Water	8113097
BDC-05-21-151027 Total Metals Water	8113098
BDC-05-21-151027 Dissolved Metals Water	8113099
BDC-05-21-151027 Dissolved Metals Water	8113100
BDC-05-20-151027 Water	8113101
BDC-05-20-151027 Water	8113102
BDC-05-20-151027 Total Metals Water	8113103
BDC-05-20-151027 Total Metals Water	8113104
BDC-05-20-151027 Dissolved Metals Water	8113105
BDC-05-20-151027 Dissolved Metals Water	8113106
BDC-05-17-151027 Water	8113107
BDC-05-17-151027 Water	8113108
BDC-05-17-151027 Total Metals Water	8113109
BDC-05-17-151027 Total Metals Water	8113110
BDC-05-17-151027 Dissolved Metals Water	8113111
BDC-05-17-151027 Dissolved Metals Water	8113112
BDC-05-22-151027 Water	8113113
BDC-05-22-151027 Water	8113114
BDC-05-22-151027 Total Metals Water	8113115

BDC-05-22-151027 Total Metals Water	8113116
BDC-05-22-151027 Dissolved Metals Water	8113117
BDC-05-22-151027 Dissolved Metals Water	8113118
BDC-05-16-151027 Water	8113119
BDC-05-16-151027 Water	8113120
BDC-05-16-151027 Total Metals Water	8113121
BDC-05-16-151027 Total Metals Water	8113122
BDC-05-16-151027 Dissolved Metals Water	8113123
BDC-05-16-151027 Dissolved Metals Water	8113124
BDC-05-15-151028 Water	8113125
BDC-05-15-151028 Water	8113126
BDC-05-15-151028 Total Metals Water	8113127
BDC-05-15-151028 Total Metals Water	8113128
BDC-05-15-151028 Dissolved Metals Water	8113129
BDC-05-15-151028 Dissolved Metals Water	8113130
BDC-05-24-151028 Water	8113131
BDC-05-24-151028 Water	8113132
BDC-05-24-151028 Total Metals Water	8113133
BDC-05-24-151028 Total Metals Water	8113134
BDC-05-24-151028 Dissolved Metals Water	8113135
BDC-05-24-151028 Dissolved Metals Water	8113136
BDC-05-14-151028 Water	8113137
BDC-05-14-151028 Water	8113138
BDC-05-14-151028 Total Metals Water	8113139
BDC-05-14-151028 Total Metals Water	8113140
BDC-05-14-151028 Dissolved Metals Water	8113141
BDC-05-14-151028 Dissolved Metals Water	8113142
BDC-05-13-151028 Water	8113143
BDC-05-13-151028 Water	8113144
BDC-05-13-151028 Total Metals Water	8113145
BDC-05-13-151028 Total Metals Water	8113146
BDC-05-13-151028 Dissolved Metals Water	8113147
BDC-05-13-151028 Dissolved Metals Water	8113148
BDC-05-19-151028 Water	8113149
BDC-05-19-151028 Water	8113150
BDC-05-19-151028 Total Metals Water	8113151
BDC-05-19-151028 Total Metals Water	8113152
BDC-05-19-151028 Dissolved Metals Water	8113153
BDC-05-19-151028 Dissolved Metals Water	8113154
BDC-05-12-151028 Water	8113155
BDC-05-12-151028 Water	8113156
BDC-05-12-151028 Total Metals Water	8113157
BDC-05-12-151028 Total Metals Water	8113158
BDC-05-12-151028 Dissolved Metals Water	8113159
BDC-05-12-151028 Dissolved Metals Water	8113160
BDC-05-08-151028 Water	8113161
BDC-05-08-151028 Water	8113162
BDC-05-08-151028 Total Metals Water	8113163
BDC-05-08-151028 Total Metals Water	8113164
BDC-05-08-151028 Dissolved Metals Water	8113165
BDC-05-08-151028 Dissolved Metals Water	8113166
BDC-05-03-151028 Water	8113167

BDC-05-03-151028 Water	8113168
BDC-05-03-151028 Total Metals Water	8113169
BDC-05-03-151028 Total Metals Water	8113170
BDC-05-03-151028 Dissolved Metals Water	8113171
BDC-05-03-151028 Dissolved Metals Water	8113172
BDC-05-11-151028 Water	8113173
BDC-05-11-151028 Water	8113174
BDC-05-11-151028 Total Metals Water	8113175
BDC-05-11-151028 Total Metals Water	8113176
BDC-05-11-151028 Dissolved Metals Water	8113177
BDC-05-11-151028 Dissolved Metals Water	8113178
BDC-05-10-151028 Water	8113179
BDC-05-10-151028 Water	8113180
BDC-05-10-151028 Total Metals Water	8113181
BDC-05-10-151028 Total Metals Water	8113182
BDC-05-10-151028 Dissolved Metals Water	8113183
BDC-05-10-151028 Dissolved Metals Water	8113184
BDC-05-09-151028 Water	8113185
BDC-05-09-151028 Water	8113186
BDC-05-09-151028 Total Metals Water	8113187
BDC-05-09-151028 Total Metals Water	8113188
BDC-05-09-151028 Dissolved Metals Water	8113189
BDC-05-09-151028 Dissolved Metals Water	8113190
BDC-05-07-151028 Water	8113191
BDC-05-07-151028 Water	8113192
BDC-05-07-151028 Total Metals Water	8113193
BDC-05-07-151028 Total Metals Water	8113194
BDC-05-07-151028 Dissolved Metals Water	8113195
BDC-05-07-151028 Dissolved Metals Water	8113196
BDC-05-02-151028 Water	8113197
BDC-05-02-151028 Water	8113198
BDC-05-02-151028 Total Metals Water	8113199
BDC-05-02-151028 Total Metals Water	8113200
BDC-05-02-151028 Dissolved Metals Water	8113201
BDC-05-02-151028 Dissolved Metals Water	8113202
BDC-05-04-151028 Water	8113203
BDC-05-04-151028 Water	8113204
BDC-05-04-151028 Total Metals Water	8113205
BDC-05-04-151028 Total Metals Water	8113206
BDC-05-04-151028 Dissolved Metals Water	8113207
BDC-05-04-151028 Dissolved Metals Water	8113208
BDC-05-05-151028 Water	8113209
BDC-05-05-151028 Water	8113210
BDC-05-05-151028 Total Metals Water	8113211
BDC-05-05-151028 Total Metals Water	8113212
BDC-05-05-151028 Dissolved Metals Water	8113213
BDC-05-05-151028 Dissolved Metals Water	8113214
BDC-05-DUP-151028 Water	8113215
BDC-05-DUP-151028 Water	8113216
BDC-05-DUP-151028 Total Metals Water	8113217
BDC-05-DUP-151028 Total Metals Water	8113218
BDC-05-DUP-151028 Dissolved Metals Water	8113219

BDC-05-DUP-151028 Dissolved Metals Water 8113220
TRIP BLANK Water 8113221

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	Attn: Paul Yount
ELECTRONIC COPY TO	The Boeing Company	Attn: Jim Bet
ELECTRONIC COPY TO	Landau	Attn: Clint Jacob
ELECTRONIC COPY TO	Landau Associates	Attn: Terry McGourty
ELECTRONIC COPY TO	Landau Associates	Attn: Anne Halvorsen

Respectfully Submitted,



Kay Hower
Manager

(510) 672-3979

Project Name: Boeing_DC:SWMU-17 s-ann
LL Group #: 1605434

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:**RSKSOP-175 modified, GC Miscellaneous**

Batch #: 153090019A (Sample number(s): 8113090, 8113096, 8113102, 8113108, 8113120, 8113126, 8113132, 8113138, 8113144, 8113150, 8113156, 8113168, 8113174, 8113180, 8113186, 8113192, 8113198, 8113216 UNSPK: P109407)

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 #: 153077050007A (Sample number(s): 8113130, 8113133-8113136, 8113139-8113142, 8113145 UNSPK: 8113130 BKG: 8113130)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Arsenic

Batch #: 153087050002A (Sample number(s): 8113146-8113148, 8113151-8113154, 8113157-8113159 UNSPK: 8113157 BKG: 8113157)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper

Batch #: 153107050002A (Sample number(s): 8113206-8113208, 8113211-8113214, 8113217-8113219 UNSPK: 8113213 BKG: 8113213)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic

EPA 200.8 rev 5.4, Metals Dissolved

Batch #: 153077050007A (Sample number(s): 8113130, 8113133-8113136, 8113139-8113142, 8113145 UNSPK: 8113130 BKG: 8113130)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Arsenic

Batch #: 153087050002A (Sample number(s): 8113146-8113148, 8113151-8113154, 8113157-8113159 UNSPK: 8113157 BKG: 8113157)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper

Batch #: 153107050002A (Sample number(s): 8113206-8113208, 8113211-8113214, 8113217-8113219 UNSPK: 8113213 BKG: 8113213)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Arsenic

SM 5310 C-2000, Wet Chemistry

Batch #: 15316049503A (Sample number(s): 8113083 UNSPK: 8113083 BKG: 8113083)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Organic Carbon

Batch #: 15317049502A (Sample number(s): 8113125, 8113131, 8113137, 8113143, 8113149, 8113155, 8113161, 8113167, 8113173 UNSPK: 8113125 BKG: 8113125)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Total Organic Carbon

Batch #: 15317049502B (Sample number(s): 8113179, 8113185, 8113191, 8113197, 8113203, 8113209, 8113215 UNSPK: 8113179 BKG: 8113179)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Total Organic Carbon

Sample Description: BDC-05-23-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113083
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 09:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC01

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	2.1	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	1.6	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	7.9	mg/l 1.0	1

General 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	H153141AA	11/10/2015 14:59	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 14:59	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049503A	11/12/2015 15:43	James S Mathiot	1

Sample Description: BDC-05-23-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113084
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 09:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC02

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 0.46 J	mg/l 0.30	1

General 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	15306987602A	11/03/2015 00:37	Clinton M Wilson	1

Sample Description: BDC-05-23-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113085
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 09:50 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050003A	11/09/2015 08:47	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-23-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113086
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 09:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0212	mg/l 0.00040	1

General 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	153077050003A	11/09/2015 08:56	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-23-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113087
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 09:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050003A	11/09/2015 08:57	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-23-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113088
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 09:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0200	mg/l 0.00040	1

General 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	153157050003A	11/17/2015 04:58	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050003	11/16/2015 10:56	Katlin N Cataldi	1

Sample Description: BDC-05-18-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113089
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 10:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC03

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	2.4	0.2	1
11996	Tetrachloroethene	127-18-4	0.7	0.2	1
11996	Trichloroethene	79-01-6	1.3	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.	1.0 U	1.0	1

General 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	H153141AA	11/10/2015 15:21	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 15:21	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049503B	11/12/2015 16:45	James S Mathiot	1

Sample Description: BDC-05-18-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113090
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 10:45 by CH

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Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC04

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	1,200 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	10 U		10	10
07105	Ethane	74-84-0	10 U		10	10
07105	Ethene	74-85-1	10 U		10	10
07105	Methane	74-82-8	1,700		30	10
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	3.1		0.30	1

General 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	153090019A	11/06/2015 15:56	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 13:16	Christine E Dolman	10
00228	Sulfate	EPA 300.0	1	15306987602A	11/03/2015 01:27	Clinton M Wilson	1

Sample Description: BDC-05-18-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113091
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 10:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0055	0.0020	1

General 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	153077050003A	11/09/2015 08:59	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-18-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113092
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 10:45 by CH

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Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0141	0.00040	1

General 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	153077050003A	11/09/2015 09:05	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-18-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113093
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 10:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050003A	11/09/2015 09:06	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-18-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113094
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 10:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0013 J	mg/l 0.00040	1

General 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	153077050003A	11/09/2015 09:08	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-21-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113095
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 11:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC05

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	0.5	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	4.1	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	5.7	1.0	1

General 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	H153141AA	11/10/2015 15:43	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 15:43	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049503B	11/12/2015 17:00	James S Mathiot	1

Sample Description: BDC-05-21-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113096
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 11:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC06

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	2.1 J		1.0	1
07105	Methane	74-82-8	2,100 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	3,000		60	20
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.49 J		0.30	1

General 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	153090019A	11/06/2015 16:14	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 13:34	Christine E Dolman	20
00228	Sulfate	EPA 300.0	1	15306987602A	11/03/2015 01:44	Clinton M Wilson	1

Sample Description: BDC-05-21-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113097
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 11:30 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050003A	11/09/2015 09:10	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-21-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113098
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 11:30 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0091	0.00040	1

General 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	153077050003A	11/09/2015 09:12	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-21-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113099
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 11:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050003A	11/09/2015 09:14	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050003	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-21-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113100
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 11:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0109	mg/l 0.00040	1

General 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	153077050005A	11/06/2015 05:17	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-20-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113101
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 12:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC07

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	2.0	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	10.6	1.0	1

General 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	H153141AA	11/10/2015 16:04	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 16:04	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049503B	11/12/2015 17:15	James S Mathiot	1

Sample Description: BDC-05-20-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113102
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 12:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC08

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	1.1 J	1.0	1
07105	Ethene	74-85-1	1.5 J	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	11,000	150	50
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

General 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	153090019A	11/06/2015 16:37	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 13:52	Christine E Dolman	50
00228	Sulfate	EPA 300.0	1	15306987602A	11/03/2015 02:01	Clinton M Wilson	1

Sample Description: BDC-05-20-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113103
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 12:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050005A	11/06/2015 05:26	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-20-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113104
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 12:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0277	0.00040	1

General 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	153077050005A	11/06/2015 05:28	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-20-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113105
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 12:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050005A	11/06/2015 05:29	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-20-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113106
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 12:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0284	mg/l 0.00040	1

General 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	153077050005A	11/06/2015 05:35	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-17-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113107
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:00 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC09

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	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.	32.0	1.0	1

General 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	H153141AA	11/10/2015 16:25	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 16:25	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049503B	11/12/2015 17:30	James S Mathiot	1

Sample Description: BDC-05-17-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113108
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:00 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC10

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	4.5 J		1.0	1
07105	Ethene	74-85-1	1.0 J		1.0	1
07105	Methane	74-82-8	16,000 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	21,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

General 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	153090019A	11/06/2015 16:55	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 14:10	Christine E Dolman	100
00228	Sulfate	EPA 300.0	1	15306987602A	11/03/2015 02:18	Clinton M Wilson	1

Sample Description: BDC-05-17-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113109
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:00 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050005A	11/06/2015 05:37	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-17-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113110
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:00 by CH

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Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0365	0.00040	1

General 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	153077050005A	11/06/2015 05:38	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-17-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113111
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:00 by CH

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Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050005A	11/06/2015 05:40	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-17-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113112
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:00 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0361	mg/l 0.00040	1

General 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	153077050005A	11/06/2015 05:42	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-22-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113113
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC11

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	4.5	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.6	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.	6.9	1.0	1

General 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	H153141AA	11/10/2015 16:47	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 16:47	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049503B	11/12/2015 17:45	James S Mathiot	1

Sample Description: BDC-05-22-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113114
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC12

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

General 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	15306987602A	11/03/2015 02:34	Clinton M Wilson	1

Sample Description: BDC-05-22-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113115
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:35 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050005A	11/06/2015 05:44	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050005	11/05/2015 11:45	James L Mertz	1

Sample Description: BDC-05-22-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113116
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0298	0.00040	1

General 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	153077050006A	11/09/2015 09:57	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	1530770500006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-22-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113117
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050006A	11/09/2015 10:06	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-22-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113118
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 13:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0268	mg/l 0.00040	1

General 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	153077050006A	11/09/2015 10:07	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-16-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113119
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 14:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC13

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	2.8	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	28.9	1.0	1

General 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	H153141AA	11/10/2015 17:08	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 17:08	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15316049503B	11/12/2015 18:00	James S Mathiot	1

Sample Description: BDC-05-16-151027 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113120
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 14:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC14

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	5.5		1.0	1
07105	Ethene	74-85-1	1.0 J		1.0	1
07105	Methane	74-82-8	14,000 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	0.30 U		0.30	1

General 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	153090019A	11/06/2015 17:13	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 14:28	Christine E Dolman	100
00228	Sulfate	EPA 300.0	1	15306987602A	11/03/2015 02:51	Clinton M Wilson	1

Sample Description: BDC-05-16-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113121
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 14:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050006A	11/09/2015 10:09	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-16-151027 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113122
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 14:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0471	mg/l 0.00040	1

General 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	153077050006A	11/09/2015 10:15	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-16-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113123
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 14:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050006A	11/09/2015 10:16	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-16-151027 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113124
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/27/2015 14:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0437	mg/l 0.00040	1

General 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	153077050006A	11/09/2015 10:18	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-15-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113125
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC15

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	0.7	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	22.2	1.0	1

General 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	H153141AA	11/10/2015 18:55	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 18:55	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502A	11/13/2015 06:33	James S Mathiot	1

Sample Description: BDC-05-15-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113126
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC16

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	6.0	1.0	1
07105	Ethene	74-85-1	1.2 J	1.0	1
07105	Methane	74-82-8	14,000 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

General 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	153090019A	11/06/2015 17:50	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 14:46	Christine E Dolman	100
00228	Sulfate	EPA 300.0	1	15306987602A	11/03/2015 03:08	Clinton M Wilson	1

Sample Description: BDC-05-15-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113127
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050006A	11/09/2015 10:20	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-15-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113128
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0527	0.00040	1

General 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	153077050006A	11/09/2015 10:22	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-15-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113129
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050006A	11/09/2015 10:24	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050006	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-15-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113130
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0409	mg/l 0.00040	1

General 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	153077050007A	11/09/2015 11:08	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-24-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113131
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC17

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	0.5	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.	2.9	1.0	1

General 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	H153141AA	11/10/2015 19:17	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153141AA	11/10/2015 19:17	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502A	11/13/2015 07:17	James S Mathiot	1

Sample Description: BDC-05-24-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113132
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC18

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	1,200 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	10 U	10	10
07105	Ethane	74-84-0	10 U	10	10
07105	Ethene	74-85-1	10 U	10	10
07105	Methane	74-82-8	1,400	30	10
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	5.1	0.30	1

General 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	153090019A	11/06/2015 18:08	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 15:05	Christine E Dolman	10
00228	Sulfate	EPA 300.0	1	15306987602A	11/03/2015 03:58	Clinton M Wilson	1

Sample Description: BDC-05-24-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113133
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050007A	11/09/2015 11:17	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-24-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113134
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0030	mg/l 0.00040	1

General 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	153077050007A	11/09/2015 11:19	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-24-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113135
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050007A	11/09/2015 11:21	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-24-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113136
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 06:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0039	mg/l 0.00040	1

General 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	153077050007A	11/09/2015 11:26	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-14-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113137
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 07:25 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC19

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	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					
00273	Total Organic Carbon	n.a.	21.0	1.0	1

General 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	H153142AA	11/11/2015 03:04	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/11/2015 03:04	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502A	11/13/2015 07:31	James S Mathiot	1

Sample Description: BDC-05-14-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113138
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 07:25 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC20

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	2.4 J		1.0	1
07105	Ethene	74-85-1	1.1 J		1.0	1
07105	Methane	74-82-8	8,100 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	0.46 J		0.30	1

General 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	153090019A	11/06/2015 18:26	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 15:59	Christine E Dolman	50
00228	Sulfate	EPA 300.0	1	15306987602A	11/03/2015 04:15	Clinton M Wilson	1

Sample Description: BDC-05-14-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113139
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 07:25 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050007A	11/09/2015 11:28	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-14-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113140
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 07:25 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0145	mg/l 0.00040	1

General 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	153077050007A	11/09/2015 11:30	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-14-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113141
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 07:25 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050007A	11/09/2015 11:31	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-14-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113142
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 07:25 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0134	mg/l 0.00040	1

General 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	153077050007A	11/09/2015 11:33	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-13-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113143
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC21

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	1.1	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	10.8	1.0	1

General 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	H153142AA	11/11/2015 02:43	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/11/2015 02:43	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502A	11/13/2015 07:46	James S Mathiot	1

Sample Description: BDC-05-13-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113144
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC22

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 J	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	3,900 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	6,100	60	20
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

General 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	153090019A	11/06/2015 18:45	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 16:16	Christine E Dolman	20
00228	Sulfate	EPA 300.0	2	15306987602B	11/04/2015 23:17	Clinton M Wilson	1

Sample Description: BDC-05-13-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113145
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153077050007A	11/09/2015 11:35	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153077050007	11/06/2015 08:12	Katlin N Cataldi	1

Sample Description: BDC-05-13-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113146
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0199	mg/l 0.00040	1

General 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	153087050002A	11/09/2015 05:27	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	1530870500002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-13-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113147
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050002A	11/09/2015 05:28	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-13-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113148
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0188	mg/l 0.00040	1

General 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	153087050002A	11/09/2015 05:30	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-19-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113149
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC23

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.	28.8	1.0	1

General 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	H153142AA	11/11/2015 02:21	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/11/2015 02:21	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502A	11/13/2015 08:01	James S Mathiot	1

Sample Description: BDC-05-19-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113150
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC24

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	3.3 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	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	0.30 U		0.30	1

General 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	153090019A	11/06/2015 19:03	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 16:35	Christine E Dolman	100
00228	Sulfate	EPA 300.0	1	15306987602B	11/03/2015 05:22	Clinton M Wilson	1

Sample Description: BDC-05-19-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113151
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0039	0.0020	1

General 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	153087050002A	11/09/2015 05:35	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-19-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113152
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0336	0.00040	1

General 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	153087050002A	11/09/2015 05:37	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-19-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113153
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050002A	11/09/2015 05:39	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-19-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113154
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 08:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0270	mg/l 0.00040	1

General 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	153087050002A	11/09/2015 05:41	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-12-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113155
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC25

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.	29.0	1.0	1

General 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	H153142AA	11/11/2015 02:00	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/11/2015 02:00	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502A	11/13/2015 08:32	James S Mathiot	1

Sample Description: BDC-05-12-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113156
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC26

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	2.6 J	1.0	1
07105	Ethene	74-85-1	1.0 U	1.0	1
07105	Methane	74-82-8	9,700 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	14,000	150	50
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.30 U	0.30	1

General 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	153090019A	11/06/2015 19:21	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 16:53	Christine E Dolman	50
00228	Sulfate	EPA 300.0	1	15306987602B	11/03/2015 05:39	Clinton M Wilson	1

Sample Description: BDC-05-12-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113157
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0026	0.0020	1

General 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	153087050002A	11/09/2015 05:18	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-12-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113158
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0336	mg/l 0.00040	1

General 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	153087050002A	11/09/2015 05:43	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-12-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113159
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050002A	11/09/2015 05:44	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050002	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-12-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113160
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0325	mg/l 0.00040	1

General 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	153087050003A	11/09/2015 07:46	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-08-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113161
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC27

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	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.	8.8	mg/l 1.0	1

General 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	H153142AA	11/11/2015 01:38	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/11/2015 01:38	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502A	11/13/2015 08:46	James S Mathiot	1

Sample Description: BDC-05-08-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113162
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC28

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Sulfate	14808-79-8	0.30 U	0.30	1

General 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	15306987602B	11/03/2015 05:55	Clinton M Wilson	1

Sample Description: BDC-05-08-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113163
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0022	0.0020	1

General 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	153087050003A	11/09/2015 07:48	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-08-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113164
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0107	0.00040	1

General 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	153087050003A	11/09/2015 07:49	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-08-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113165
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050003A	11/09/2015 07:55	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-08-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113166
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 09:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0083	mg/l 0.00040	1

General 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	153087050003A	11/09/2015 07:57	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-03-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113167
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 10:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC29

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	0.6	0.2	1
11996	Trichloroethene	79-01-6	0.4	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.	6.5	1.0	1

General 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	H153142AA	11/11/2015 01:17	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/11/2015 01:17	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502A	11/13/2015 09:01	James S Mathiot	1

Sample Description: BDC-05-03-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113168
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 10:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC30

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	1.1 J		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	4,500 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	5,900		60	20
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	1.2		0.30	1

General 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	153090019A	11/06/2015 19:39	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 17:10	Christine E Dolman	20
00228	Sulfate	EPA 300.0	1	15306987602B	11/03/2015 06:12	Clinton M Wilson	1

Sample Description: BDC-05-03-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113169
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 10:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0088	0.0020	1

General 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	153087050003A	11/09/2015 07:58	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-03-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113170
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 10:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0118	0.00040	1

General 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	2	153087050003A	11/09/2015 11:37	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-03-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113171
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 10:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0021	mg/l 0.0020	1

General 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	153087050003A	11/09/2015 08:00	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-03-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113172
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 10:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0062	mg/l 0.00040	1

General 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	153087050003A	11/09/2015 08:02	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-11-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113173
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC31

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	1.5	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	7.4	1.0	1

General 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	H153142AA	11/11/2015 00:55	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/11/2015 00:55	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502A	11/13/2015 09:16	James S Mathiot	1

Sample Description: BDC-05-11-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113174
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC32

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	2.1 J		1.0	1
07105	Ethene	74-85-1	1.8 J		1.0	1
07105	Methane	74-82-8	13,000 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

General 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	153090019A	11/06/2015 19:58	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 17:29	Christine E Dolman	100
00228	Sulfate	EPA 300.0	1	15306987602B	11/03/2015 06:29	Clinton M Wilson	1

Sample Description: BDC-05-11-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113175
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050003A	11/09/2015 08:04	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050003	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-11-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113176
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0181	mg/l 0.00040	1

General 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	153087050004A	11/09/2015 06:36	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-11-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113177
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050004A	11/09/2015 06:38	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-11-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113178
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0167	mg/l 0.00040	1

General 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	153087050004A	11/09/2015 06:40	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-10-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113179
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC33

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	0.7	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	7.8	1.0	1

General 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	H153142AA	11/11/2015 00:34	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/11/2015 00:34	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502B	11/13/2015 09:31	James S Mathiot	1

Sample Description: BDC-05-10-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113180
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC34

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	3.2 J		1.0	1
07105	Ethene	74-85-1	1.0 U		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	7,400		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

General 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	153090019A	11/06/2015 20:16	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 17:47	Christine E Dolman	50
00228	Sulfate	EPA 300.0	1	15306987602B	11/03/2015 07:19	Clinton M Wilson	1

Sample Description: BDC-05-10-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113181
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050004A	11/09/2015 06:27	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-10-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113182
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0210	mg/l 0.00040	1

General 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	153087050004A	11/09/2015 06:45	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-10-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113183
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050004A	11/09/2015 06:47	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-10-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113184
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 11:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0186	mg/l 0.00040	1

General 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	153087050004A	11/09/2015 06:49	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-09-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113185
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC35

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	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	2.1	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	2.5	1.0	1

General 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	H153142AA	11/11/2015 00:13	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/11/2015 00:13	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502B	11/13/2015 10:17	James S Mathiot	1

Sample Description: BDC-05-09-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113186
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC36

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	2.0 J		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	4,700 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	5,300		60	20
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

General 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	153090019A	11/06/2015 20:34	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 18:05	Christine E Dolman	20
00228	Sulfate	EPA 300.0	1	15306987602B	11/03/2015 07:36	Clinton M Wilson	1

Sample Description: BDC-05-09-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113187
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050004A	11/09/2015 06:50	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-09-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113188
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0079	0.00040	1

General 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	153087050004A	11/09/2015 06:52	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-09-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113189
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153087050004A	11/09/2015 06:54	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153087050004	11/06/2015 09:44	Katlin N Cataldi	1

Sample Description: BDC-05-09-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113190
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0082	mg/l 0.00040	1

General 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	153157050002A	11/17/2015 07:50	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-07-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113191
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC37

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	0.2	1
11996	Tetrachloroethene	127-18-4	0.4	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	1.9	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	5.4	1.0	1

General 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	H153142AA	11/10/2015 23:51	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/10/2015 23:51	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502B	11/13/2015 10:32	James S Mathiot	1

Sample Description: BDC-05-07-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113192
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC38

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	1.2 J		1.0	1
07105	Ethene	74-85-1	1.8 J		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	3,700		60	20
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.41 J		0.30	1

General 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	153090019A	11/06/2015 21:11	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 18:22	Christine E Dolman	20
00228	Sulfate	EPA 300.0	1	15306987602B	11/03/2015 07:53	Clinton M Wilson	1

Sample Description: BDC-05-07-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113193
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0024	0.0020	1

General 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	153157050002A	11/17/2015 07:51	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-07-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113194
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0044	mg/l 0.00040	1

General 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	153157050002A	11/17/2015 07:53	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-07-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113195
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153157050002A	11/17/2015 07:41	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-07-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113196
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 12:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0043	mg/l 0.00040	1

General 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	153157050002A	11/17/2015 07:58	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-02-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113197
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC39

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	0.6	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	0.4	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	3.8	1.0	1

General 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	H153142AA	11/10/2015 23:30	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/10/2015 23:30	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502B	11/13/2015 10:47	James S Mathiot	1

Sample Description: BDC-05-02-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113198
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC40

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	7,500 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	9,200		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.70 J		0.30	1

General 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	153090019A	11/06/2015 21:34	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 18:59	Christine E Dolman	50
00228	Sulfate	EPA 300.0	2	15306987602B	11/05/2015 13:29	Drew M Gerhart	1

Sample Description: BDC-05-02-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113199
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0056	0.0020	1

General 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	153157050002A	11/17/2015 08:00	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-02-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113200
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0017 J	0.00040	1

General 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	153157050002A	11/17/2015 08:01	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-02-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113201
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153157050002A	11/17/2015 08:03	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-02-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113202
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0021	mg/l 0.00040	1

General 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	153157050002A	11/17/2015 08:05	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-04-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113203
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC41

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	3.6	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	0.7	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	6.1	mg/l 1.0	1

General 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	H153142AA	11/10/2015 23:08	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/10/2015 23:08	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502B	11/13/2015 11:18	James S Mathiot	1

Sample Description: BDC-05-04-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113204
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC42

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 1.3	mg/l 0.30	1

General 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	2	15306987901A	11/04/2015 18:57	Clinton M Wilson	1

Sample Description: BDC-05-04-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113205
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153157050002A	11/17/2015 08:07	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153157050002	11/16/2015 10:08	Katlin N Cataldi	1

Sample Description: BDC-05-04-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113206
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.0078	0.00040	1

General 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	153107050002A	11/09/2015 04:15	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-04-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113207
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153107050002A	11/09/2015 04:17	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-04-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113208
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 13:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0070	mg/l 0.00040	1

General 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	153107050002A	11/09/2015 04:19	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-05-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113209
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 14:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC43

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	0.4	0.2	1
11996	Trichloroethene	79-01-6	0.9	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.	1.0 U	1.0	1

General 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	H153142AA	11/10/2015 22:47	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/10/2015 22:47	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502B	11/13/2015 11:33	James S Mathiot	1

Sample Description: BDC-05-05-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113210
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 14:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC44

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 13.2	mg/l 0.60	2

General 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	15306987901A	11/03/2015 02:51	Clinton M Wilson	2

Sample Description: BDC-05-05-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113211
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 14:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153107050002A	11/09/2015 04:24	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-05-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113212
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 14:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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	0.00058 J	0.00040	1

General 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	153107050002A	11/09/2015 04:26	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-05-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113213
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 14:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153107050002A	11/09/2015 04:06	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-05-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113214
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 14:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals Dissolved					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.00040 U	mg/l 0.00040	1

General 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	153107050002A	11/09/2015 04:28	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-DUP-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113215
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC45

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	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	2.1	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	2.5	mg/l 1.0	1

General 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	H153142AA	11/10/2015 22:25	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/10/2015 22:25	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15317049502B	11/13/2015 11:48	James S Mathiot	1

Sample Description: BDC-05-DUP-151028 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113216
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDC46

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	1.0 U		1.0	1
07105	Methane	74-82-8	4,200 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	5,200		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.30 U		0.30	1

General 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	153090019A	11/06/2015 21:52	Christine E Dolman	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	153090019A	11/09/2015 19:17	Christine E Dolman	50
00228	Sulfate	EPA 300.0	1	15306987901A	11/03/2015 03:05	Clinton M Wilson	1

Sample Description: BDC-05-DUP-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113217
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153107050002A	11/09/2015 04:29	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-DUP-151028 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113218
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0071	mg/l 0.00040	1

General 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	153107050002A	11/09/2015 04:31	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-DUP-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113219
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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

General 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	153107050002A	11/09/2015 04:33	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050002	11/08/2015 09:57	James L Mertz	1

Sample Description: BDC-05-DUP-151028 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113220
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 10/28/2015 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

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 0.0076	mg/l 0.00040	1

General 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	153107050004A	11/09/2015 06:35	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	153107050004	11/08/2015 08:29	James L Mertz	1

Sample Description: TRIP BLANK Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 8113221
LL Group # 1605434
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 09/03/2015

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/30/2015 18:53

Reported: 11/17/2015 10:45

BDCTB

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

General 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	H153142AA	11/10/2015 22:04	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H153142AA	11/10/2015 22:04	Kevin A Sposito	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/17/2015 10:45

Group Number: 1605434

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.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: H153141AA	Sample number(s): 8113083, 8113089, 8113095, 8113101, 8113107, 8113113, 8113119, 8113125, 8113131							
cis-1,2-Dichloroethene	0.2 U	0.2	ug/l	96	88	80-120	8	30
Tetrachloroethene	0.2 U	0.2	ug/l	96	89	80-120	8	30
Trichloroethene	0.2 U	0.2	ug/l	99	93	80-120	6	30
Vinyl Chloride	0.2 U	0.2	ug/l	94	88	71-123	7	30

Batch number: H153142AA	Sample number(s): 8113137, 8113143, 8113149, 8113155, 8113161, 8113167, 8113173, 8113179, 8113185, 8113191, 8113197, 8113203, 8113209, 8113215, 8113221							
cis-1,2-Dichloroethene	0.2 U	0.2	ug/l	91	91	80-120	1	30
Tetrachloroethene	0.2 U	0.2	ug/l	94	92	80-120	2	30
Trichloroethene	0.2 U	0.2	ug/l	96	95	80-120	1	30
Vinyl Chloride	0.2 U	0.2	ug/l	105	102	71-123	3	30

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 153090019A	Sample number(s): 8113090, 8113096, 8113102, 8113108, 8113120, 8113126, 8113132, 8113138, 8113144, 8113150, 8113156, 8113168, 8113174, 8113180, 8113186, 8113192, 8113198, 8113216							
Acetylene	1.0 U	1.0	ug/l	109		79-126		
Ethane	1.0 U	1.0	ug/l	100		85-115		
Ethene	1.0 U	1.0	ug/l	99		83-115		
Methane	3.0 U	3.0	ug/l	104		85-115		

Batch number: 153077050003A	Sample number(s): 8113085-8113087, 8113091-8113094, 8113097-8113099							
Arsenic	0.00040 U	0.00040	mg/l	106		85-115		
Copper	0.00040 U	0.00040	mg/l	102		85-115		

Batch number: 153077050005A	Sample number(s): 8113100, 8113103-8113106, 8113109-8113112, 8113115							
Arsenic	0.00040 U	0.00040	mg/l	98		85-115		
Copper	0.00040 U	0.00040	mg/l	93		85-115		

Batch number: 153077050006A	Sample number(s): 8113116-8113118, 8113121-8113124, 8113127-8113129							
Arsenic	0.00040 U	0.00040	mg/l	102		85-115		
Copper	0.00040 U	0.00040	mg/l	98		85-115		

Batch number: 153077050007A	Sample number(s): 8113130, 8113133-8113136, 8113139-8113142, 8113145							
Arsenic	0.00040 U	0.00040	mg/l	102		85-115		
Copper	0.00040 U	0.00040	mg/l	94		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: 11/17/2015 10:45

Group Number: 1605434

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 153087050002A	Sample number(s): 8113146-8113148,8113151-8113154,8113157-8113159							
Arsenic	0.00040 U	0.00040	mg/l	100		85-115		
Copper	0.00040 U	0.00040	mg/l	97		85-115		
Batch number: 153087050003A	Sample number(s): 8113160,8113163-8113166,8113169-8113172,8113175							
Arsenic	0.00040 U	0.00040	mg/l	102		85-115		
Copper	0.00040 U	0.00040	mg/l	100		85-115		
Batch number: 153087050004A	Sample number(s): 8113176-8113178,8113181-8113184,8113187-8113189							
Arsenic	0.00040 U	0.00040	mg/l	103		85-115		
Copper	0.00040 U	0.00040	mg/l	97		85-115		
Batch number: 153107050002A	Sample number(s): 8113206-8113208,8113211-8113214,8113217-8113219							
Arsenic	0.00040 U	0.00040	mg/l	98		85-115		
Copper	0.00040 U	0.00040	mg/l	94		85-115		
Batch number: 153107050004A	Sample number(s): 8113220							
Arsenic	0.00040 U	0.00040	mg/l	104		85-115		
Batch number: 153157050002A	Sample number(s): 8113190,8113193-8113196,8113199-8113202,8113205							
Arsenic	0.00040 U	0.00040	mg/l	108		85-115		
Copper	0.00040 U	0.00040	mg/l	109		85-115		
Batch number: 153157050003A	Sample number(s): 8113088							
Arsenic	0.00040 U	0.00040	mg/l	90		85-115		

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15316049503A	Sample number(s): 8113083							
Total Organic Carbon	1.0 U	1.0	mg/l	93		91-113		
Batch number: 15316049503B	Sample number(s): 8113089,8113095,8113101,8113107,8113113,8113119							
Total Organic Carbon	1.0 U	1.0	mg/l	93		91-113		
Batch number: 15317049502A	Sample number(s): 8113125,8113131,8113137,8113143,8113149,8113155,8113161,8113167,8113173							
Total Organic Carbon	1.0 U	1.0	mg/l	91		91-113		
Batch number: 15317049502B	Sample number(s): 8113179,8113185,8113191,8113197,8113203,8113209,8113215							
Total Organic Carbon	1.0 U	1.0	mg/l	91		91-113		

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15306987602A	Sample number(s): 8113084,8113090,8113096,8113102,8113108,8113114,8113120,8113126,8113132,8113138							
Sulfate	0.30 U	0.30	mg/l	101		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: 11/17/2015 10:45

Group Number: 1605434

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15306987602B	Sample number(s): 8113144, 8113150, 8113156, 8113162, 8113168, 8113174, 8113180, 8113186, 8113192, 8113198							
Sulfate	0.30 U	0.30	mg/l	101		90-110		
Batch number: 15306987901A	Sample number(s): 8113204, 8113210, 8113216							
Sulfate	0.30 U	0.30	mg/l	103		90-110		

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 153090019A	Sample number(s): 8113090, 8113096, 8113102, 8113108, 8113120, 8113126, 8113132, 8113138, 8113144, 8113150, 8113156, 8113168, 8113174, 8113180, 8113186, 8113192, 8113198 UNSPK: P109407								
Acetylene	97	94	79-126	3	20				
Ethane	90	87	85-115	3	20				
Ethene	103	99	83-115	3	20				
Methane	680 (2)	530 (2)	85-115	3	20				
Batch number: 153077050003A	Sample number(s): 8113085-8113087, 8113091-8113094, 8113097-8113099 UNSPK: 8113085 BKG: 8113085								
Arsenic	100		70-130			0.0200	0.0200	0	20
Copper	97		70-130			0.0010 J	0.00098 J	2 (1)	20
Batch number: 153077050005A	Sample number(s): 8113100, 8113103-8113106, 8113109-8113112, 8113115 UNSPK: 8113100 BKG: 8113100								
Arsenic	102		70-130			0.0109	0.0110	2	20
Copper	97		70-130			0.0011 J	0.0011 J	4 (1)	20
Batch number: 153077050006A	Sample number(s): 8113116-8113118, 8113121-8113124, 8113127-8113129 UNSPK: 8113116 BKG: 8113116								
Arsenic	92		70-130			0.0298	0.0286	4	20
Copper	94		70-130			0.00061 J	0.00054 J	12 (1)	20
Batch number: 153077050007A	Sample number(s): 8113130, 8113133-8113136, 8113139-8113142, 8113145 UNSPK: 8113130 BKG: 8113130								
Arsenic	151 (2)		70-130			0.0409	0.0417	2	20
Copper	99		70-130			0.00053 J	0.00062 J	15 (1)	20
Batch number: 153087050002A	Sample number(s): 8113146-8113148, 8113151-8113154, 8113157-8113159 UNSPK: 8113157 BKG: 8113157								
Arsenic	104		70-130			0.0327	0.0348	6	20
Copper	99		70-130			0.0026	0.0039	40* (1)	20
Batch number: 153087050003A	Sample number(s): 8113160, 8113163-8113166, 8113169-8113172, 8113175 UNSPK: 8113170 BKG: 8113170								

*- 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: 11/17/2015 10:45

Group Number: 1605434

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u>	<u>RPD</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup RPD</u> <u>Max</u>
Arsenic	107		70-130			0.0118	0.0120	2	20
Copper	98		70-130			0.0086	0.0088	2 (1)	20
Batch number: 153087050004A Sample number(s): 8113176-8113178,8113181-8113184,8113187-8113189 UNSPK: 8113181 BKG: 8113181									
Arsenic	103		70-130			0.0206	0.0205	1	20
Copper	101		70-130			0.0010 J	0.0011 J	10 (1)	20
Batch number: 153107050002A Sample number(s): 8113206-8113208,8113211-8113214,8113217-8113219 UNSPK: 8113213 BKG: 8113213									
Arsenic	102		70-130			0.00042 J	0.00040 U	200* (1)	20
Copper	90		70-130			0.0012 J	0.0012 J	2 (1)	20
Batch number: 153107050004A Sample number(s): 8113220 UNSPK: P121982 BKG: P121982									
Arsenic	97		70-130			0.0090	0.0102	12 (1)	20
Batch number: 153157050002A Sample number(s): 8113190,8113193-8113196,8113199-8113202,8113205 UNSPK: 8113195 BKG: 8113195									
Arsenic	106		70-130			0.0044	0.0043	3 (1)	20
Copper	107		70-130			0.00040 U	0.00040 U	0 (1)	20
Batch number: 153157050003A Sample number(s): 8113088 UNSPK: P126714 BKG: P126714									
Arsenic	113		70-130			0.0027	0.0025	9 (1)	20
Batch number: 15316049503A Sample number(s): 8113083 UNSPK: 8113083 BKG: 8113083									
Total Organic Carbon	92		91-113			7.9	7.6	4*	3
Batch number: 15316049503B Sample number(s): 8113089,8113095,8113101,8113107,8113113,8113119 UNSPK: P113358 BKG: P113358									
Total Organic Carbon	94		91-113			1.0 U	1.0 U	0 (1)	3
Batch number: 15317049502A Sample number(s): 8113125,8113131,8113137,8113143,8113149,8113155,8113161,8113167,8113173 UNSPK: 8113125 BKG: 8113125									
Total Organic Carbon	87*		91-113			22.2	21.9	1	3
Batch number: 15317049502B Sample number(s): 8113179,8113185,8113191,8113197,8113203,8113209,8113215 UNSPK: 8113179 BKG: 8113179									
Total Organic Carbon	67*		91-113			7.8	7.8	0	3
Batch number: 15306987602A Sample number(s): 8113084,8113090,8113096,8113102,8113108,8113114,8113120,8113126,8113132,8113138 UNSPK: 8113084 BKG: 8113084									
Sulfate	108		90-110			0.46 J	0.45 J	2 (1)	15
Batch number: 15306987602B Sample number(s): 8113144,8113150,8113156,8113162,8113168,8113174,8113180,8113186,8113192,8113198 UNSPK: 8113144 BKG: 8113144									
Sulfate	105		90-110			0.30 U	0.30 U	0 (1)	15

*- 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: 11/17/2015 10:45

Group Number: 1605434

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 15306987901A Sulfate			Sample number(s): 8113204,8113210,8113216 102 90-110			UNSPK: 221 BKG: 218	P113272 218	P113272 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: H153141AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8113083	98	107	96	95
8113089	97	106	97	96
8113095	96	105	94	94
8113101	97	102	96	93
8113107	99	107	95	95
8113113	98	108	96	93
8113119	97	108	94	93
8113125	98	105	96	95
8113131	98	107	94	93
Blank	98	110	96	95
LCS	98	107	96	96
LCSD	97	108	97	95
Limits:	77-114	74-113	77-110	78-110

Analysis Name: 8260C VC, TCE, PCE, cis1,2-DCE
Batch number: H153142AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
8113137	97	106	94	95
8113143	98	105	93	92
8113149	98	107	94	94
8113155	98	108	96	94
8113161	98	103	95	94
8113167	97	105	94	94
8113173	98	106	95	93
8113179	98	107	94	94
8113185	98	106	95	94
8113191	98	106	96	95
8113197	97	107	95	94
8113203	97	105	96	94
8113209	96	106	95	94
8113215	98	106	95	92
8113221	96	103	95	92
Blank	96	106	96	95
LCS	96	105	96	95

*- 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: 11/17/2015 10:45

Group Number: 1605434

Surrogate Quality Control

LCSD	99	106	96	94
Limits:	77-114	74-113	77-110	78-110

Analysis Name: AMEE by RSK-175
Batch number: 153090019A

	Propene
8113090	73
8113090	98
DL	
8113096	71
8113096	103
DL	
8113102	79
8113102	110
DL	
8113108	80
8113108	109
DL	
8113120	81
8113120	107
DL	
8113126	89
8113126	109
DL	
8113132	72
8113132	90
DL	
8113138	77
8113138	108
DL	
8113144	77
8113144	108
DL	
8113150	86
8113150	107
DL	
8113156	70
8113156	107
DL	
8113168	88
8113168	107
DL	
8113174	91
8113174	106
DL	
8113180	89
8113180	104
DL	
8113186	99
8113186	109
DL	
8113192	89
8113192	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: 11/17/2015 10:45

Group Number: 1605434

Surrogate Quality Control

DL	
8113198	90
8113198	105
DL	
8113216	90
8113216	102
DL	
Blank	103
LCS	105
MS	80
MSD	78
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

Act. # 13419 Group # 1005434 Sample # 8113083221 PAGE 1 of 2

For Eurofins Lancaster Laboratories-use only
 Please print. Instructions on reverse side correspond.

eurofins Lancaster Laboratories

1 Client Information		2 Sample Identification		3 Collected		4 Analyses Requested		5 Remarks/Comments						
Site Location: <u>BOEING</u> <u>TUKWILA, WA</u>		Sample Identification		Date	Time	Matrix	No. of Containers	38	57	91	55	08	08	7
Site Project: <u>DEY. CTR.</u>		Date		Time		Matrix	No. of Containers	V.C. PCB	METHANE, ETHANE, ETYENE, ACETYLENE	TOC	SULFATE	TOTAL METALS CU	AS	Received by:
Site Program#: <u>SWMU-17</u>		Time		Time		Matrix	No. of Containers	TCE, DCE					AS	Date/Time
Boeing PM: <u>JAMES BET</u>		Date		Time		Matrix	No. of Containers	BZCO					AS	Date/Time
Consultant Contact: <u>LANDAU</u> <u>CLINT JACOB</u>		Date		Time		Matrix	No. of Containers	PCB					AS	Date/Time
Report To: <u>LANDAU</u> <u>ANNE HALVORSEN</u>		Date		Time		Matrix	No. of Containers	PCB					AS	Date/Time
Invoice To: <input checked="" type="checkbox"/> Boeing EHS <input type="checkbox"/> Other (specify):		Date		Time		Matrix	No. of Containers	PCB					AS	Date/Time
Sampler: <u>CHARLES HAROY</u> # of Coolers: <u>5</u>		Date		Time		Matrix	No. of Containers	PCB					AS	Date/Time
BPC-05-23-151027		10-27-15	9:50	Ag	9			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-18-151027		10-27-15	10:45	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-21-151027		10-27-15	11:30	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-20-151027		10-27-15	12:20	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-17-151027		10-27-15	13:00	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-22-151027		10-27-15	13:35	Ag	9			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-16-151027		10-27-15	14:15	Ag	11+2			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-15-151028		10-28-15	6:15	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-24-151028		10-28-15	6:50	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-14-151028		10-28-15	7:25	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-13-151028		10-28-15	8:05	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-19-151028		10-28-15	8:35	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-12-151028		10-28-15	9:05	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-08-151028		10-28-15	9:45	Ag	9			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>
BPC-05-03-151028		10-28-15	10:30	Ag	11			X	X	X	X	X	X	Received by: <u>CHARLES HAROY</u> Date/Time: <u>10-29-2015 10:00 AM</u>

6 Turnaround Time Requested (please circle): Standard 5 day 48 hour 24 hour 4 day

Relinquished by: CHARLES HAROY Date/Time: 10-29-2015 10:00 AM

Relinquished by: CHARLES HAROY Date/Time: 10-29-2015 10:00 AM

Relinquished by commercial carrier (circle): A.L.I. COURIER

UPS FedEx Other: A.L.I. COURIER

Temperature upon Receipt: 0.2-1.2 °C

Custody Seals Intact?: Yes No

Date needed: _____

Issued by Dept. 40 Management 7063.02

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 717-656-2300

Boeing Chain of Custody



Lancaster Laboratories

Acct. # 13419 Group # 1605134 Sample # SL13053-221
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Page 2 of 2

1 # 13419 Client Information BOEING TUKWILA, WA
 Site Location: DEV. CTR
 Site Project: SKMD-17 51ST EVENT
 Site Program#: JAMES BET
 Boeing PM: LANDAU CLINT JACOB
 Consultant Contact: LANDAU ANNE HALVORSEN
 Report To: LANDAU ANNE HALVORSEN
 Invoice To: Boeing EHS Other (specify):
 Sampler: CHARLES HARDY # of Coolers: 5

2 Sample Identification	3 Collected		Matrix	No. of Containers	4 Analyses Requested								5 Remarks/Comments
	Date	Time			38	57	91	55	08	08			
BDC-05-11-15 1028	10-28-2015	1105	A9	11	X	X	X	X	X	X	X	X	LLI PART DC
BDC-05-10-15 1028	10-28-15	1140	A9	11	X	X	X	X	X	X	X	X	DISOLVED METALS Cu AS
BDC-05-09-15 1028	10-28-15	1215	A9	11	X	X	X	X	X	X	X	X	TOTAL METALS Cu AS
BDC-05-07-15 1028	10-28-15	1245	A9	11	X	X	X	X	X	X	X	X	
BDC-05-02-15 1028	10-28-15	1320	A9	11	X	X	X	X	X	X	X	X	
BDC-05-04-15 1028	10-28-15	1350	A9	9	X	X	X	X	X	X	X	X	
BDC-05-05-15 1028	10-28-15	1420	A9	9+2	X	X	X	X	X	X	X	X	
BDC-05-DUP-15 1028	10-28-15	-	A9	11	X	X	X	X	X	X	X	X	
TRIP BLANKS	9-3-2015		A9	2	X								

6 Turnaround Time Requested (please circle)
 Standard (circled) 5 day 4 day
 72 hour 48 hour 24 hour
 Date needed: _____

Relinquished by: CHARLES HARDY Date/Time: 10-29-2015 600 AM
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____
 Relinquished by commercial carrier (circle): A.I. COURICA
 UPS FedEx Other: _____
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: _____
 Received by: _____ Date/Time: 10/30/15 1653
 Temperature upon Receipt: 0.2-1.2 °C
 Custody Seals Intact?: Yes No

Client: Boeing

Delivery and Receipt Information

Delivery Method:	<u>SeaTac</u>	Arrival Timestamp:	<u>10/30/2015 18:53</u>
Number of Packages:	<u>5</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:	HCl
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Patrick Engle (3472) at 21:30 on 10/30/2015

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
2	DT121	0.4	DT	Wet	Y	Bagged	N
3	DT121	0.5	DT	Wet	Y	Bagged	N
4	DT121	0.5	DT	Wet	Y	Bagged	N
5	DT121	0.2	DT	Wet	Y	Bagged	N

SOUTHWEST AIRLINES

AIRBILL NUMBER

52637210084

PRINTED: 10/29/2015 10:57

LOT PIECE #	LOT TTL PIECES	LOT 01 WEIGHT
3	OF 5	200

FLIGHT DATE 10/29/15

BWI

SEA 2366 12:45

STN FLT ETD

RUSH

LOT AIRBILL
 AIRBILL NUMBER ID PIECE /D
 ID: 526-37210084-01-0003-G



SOUTHWEST AIRLINES

AIRBILL NUMBER

52637210084

PRINTED: 10/29/2015 10:57

LOT PIECE #	LOT TTL PIECES	LOT 01 WEIGHT
1	OF 5	200

FLIGHT DATE 10/29/15

BWI

SEA 2366 12:45

STN FLT ETD

RUSH

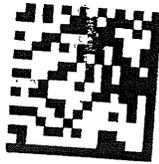
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 AIRBILL NUMBER ID PIECE /D
 ID: 526-37210084-01-0007-G



SOUTHWEST AIRLINES

AIRBILL NUMBER

52637210084



PRINTED: 10/29/2015 10:57

LOT PIECE #	LOT TTL PIECES	LOT 01 WEIGHT
5	OF 5	200

FLIGHT DATE 10/29/15

BWI

SEA	2366	12:45
STN	FLT	EID

RUSH

LOT AIRBILL
 AIRBILL NUMBER ID
 ID: 526-37210084-01-0005-G



SOUTHWEST AIRLINES

AIRBILL NUMBER

52637210084



PRINTED: 10/29/2015 10:57

LOT PIECE #	LOT TTL PIECES	LOT 01 WEIGHT
2	OF 5	200

FLIGHT DATE 10/29/15

BWI

SEA	2366	12:45
STN	FLT	EID

RUSH

LOT AIRBILL
 AIRBILL NUMBER ID
 ID: 526-37210084-01-0002-G



PRINTED: 10/29/2015 10:57

SOUTHWEST AIRLINES

AIRBILL NUMBER

52637210084



LOT PIECE #	LOT TTL PIECES	LOT 01 WEIGHT
4	OF 5	200

FLIGHT DATE	10/29/15
BWI	
SEA	2366 12:45
STN	FLT ETD

RUSH

LOT AIRBILL
AIRBILL NUMBER ID
ID: 526-37210084-01-0004-G

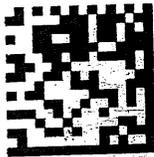


PRINTED: 10/29/2015 10:57

SOUTHWEST AIRLINES

AIRBILL NUMBER

52637210084



LOT PIECE #	LOT TTL PIECES	LOT 01 WEIGHT
1	OF 5	200

FLIGHT DATE 10/29/15

BWI

SEA 2366 12:45

STN FLT ETD

RUSH

LOT AIRBILL
 AIRBILL NUMBER ID
 ID: 526-37210084 01-0001-G



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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AOC-5

(Groundwater Sample Collection Forms and Analytical Data)

Boeing Chain of Custody



Lancaster Laboratories

For Eurofins Lancaster Laboratories use only
 Acct. # _____ Group # _____
 Sample # _____
 Please print. Instructions on reverse side correspond.

① #13419 Client Information
 Site Location: BOEING TUXWING/SEATTLE
 Site Project: DEV. CTP
 Site Program#: DC AOC-5
 Boeing PM: JAMES BET
 Consultant Contact: LANDAU
 Report To: LANDAU
 Boeing EHS Other (specify): _____ # of Coolers: 1
 Invoice To: CHARLES HARDY

② Sample Identification	③ Collected		Matrix	No. of Containers	④ Analyses Requested		⑤ Remarks/Comments
	Date	Time			2626	55	
BDC-101-150720	7.20.15	905	A _g	6	XXXX NMTPH-G	XXXX Sulfate, Nitrate	NITRITE - SHORT HOLDING TIME HBMS
BDC-102-150720	7.20.2015	935	A _g	6	XXXX BETX	XXXX Sulfate, Nitrate	
BDC-103-150720	7.20.2015	1000	A _g	6	XXXX	XXXX	
BDC-104-150720	7.20.2015	1030	A _g	6	XXXX	XXXX	
TRIP BANKS	6.25.2015	-	A _g	2	XXXX	XXXX	

⑥ Turnaround Time Requested (please circle)
 Standard 72 hour 5 day 48 hour 4 day 24 hour
 Date needed: _____

Relinquished by: [Signature] Date/Time: 7.20.2015 1300
 Relinquished by: _____ Date/Time: _____
 Relinquished by: _____ Date/Time: _____
 Relinquished by commercial carrier (circle): UPS Other: FAI COURIER
 Temperature upon Receipt: _____ °C
 Custody Seals Intact?: Yes No

BOEING Groundwater Sample Collection Form

60th Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5
 Event: 3rd Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM
 SAMPLE ID: BDC-101-150720 (yymmdd)
 Date Collected: July/Aug. 20, 2015 COC Time: 9:05

Collector: Charles Hardy

Well Information

Well I. D.: BDC-101 Well Condition: Secure? Yes No; Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 18.42 (ft.) historical or measured
 Present Water Level: 12.12 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 18.42 ft - 12.12 ft = 6.3 ft x 0.658 Liters/ft = 4.15 Liters
 Purge Rate: 3.6 l. + 22 min. = 0.130 Liters/minute

Begin Purge: 8:45 time
 End Purge: 9:05 time
 Volume Purged: 3.6 Liters 5/12

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"			0.170	0.140
2"		0.776	0.658	0.579
2.5"			0.942	0.833
4"		2.995	2.502	2.260

Purge water disposal to: 55-gal drum, storage tank treatment system ground other surface dump

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
8:47	= 150 mL	18.4	612	3.94	7.19	59	
8:49	= 700	17.3	545	2.31	6.75	89	
8:51	= 1.0	17.5	503	2.18	6.62	88	
8:53	= 1.3	17.6	487	2.27	6.50	91	
8:55	= 1.8	17.6	484	2.66	6.92	92	
8:57	= 2.15	17.7	479	2.58	6.37	92	
8:59	= 2.5	17.6	476	2.28	6.34	92	
9:01	= 2.85	17.5	473	2.09	6.32	91	
9:03	= 3.3	17.6	472	1.99	6.30	91	
9:05	= 3.6	17.5	469	1.96	6.30	96	
=							
=							
=							
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>6</u> 4	40 ml	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)
2	40 ml	<input checked="" type="checkbox"/> Glass c	none	<input type="checkbox"/> No	Nitrite, Nitrate & Sulfate (LLI code 55)
	500 ml	<input type="checkbox"/> HDPE Plastic	H ₂ SO ₄	<input type="checkbox"/> No	

* Comments: Hach Kit Fe++ Ø 2 maybe? Duplicate Sample No: _____

Signature: C.H. Hardy

Date: July 20 2015

Continued on Back

BOEING Groundwater Sample Collection Form

60th Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5

Event: 3rd Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: BDC-10 2-1507 20 (yyymmdd)

Date Collected: July/Aug. 20, 2015 COC Time: 935

Collector: Charles Hardy

Well Information

Well I. D.: BDC-102 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 30 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 18.83 (ft.) historical or measured

Present Water Level: 11.94 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 18.83 ft - 11.94 ft = 6.36 ft x 0.658 Liters/ft = 4.18 Liters

Purge Rate: 3.5 l. + 20 min. = 0.175 Liters/minute

Begin Purge: 915 time

End Purge: 935 time

Volume Purged: 3.5 Liters 5/10

Purge water disposal to: 55-gal drum, storage tank

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"	1"		0.170	0.140
2"	2"	0.776	0.658	0.579
2.5"	2.5"		0.942	0.833
4"	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
917	= 200 ml	17.6	745	1.34	6.34	96	
919	= 600	17.2	757 ⁷⁵⁴	0.79	6.21	40	
921	= 900	17.1	745 ⁷²²	0.79	6.20	-3	
923	= 1.3	17.1	716 ⁶⁹⁴	0.82	6.20	-27	
925	= 1.7	17.0	704 ⁶³²	0.62	6.19	-36	
928	= 2.25	16.9	691 ⁵⁷²	0.49	6.18	-44	
930	= 2.6	16.9	685	0.41	6.17	-47	
931	= 2.8	16.9	682	0.43	6.17	-49	
933	= 3.15	16.9	678	0.210	6.17	-52	
935	= 3.5	16.8	675	0.33	6.18	-54	

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>4</u>	<u>40 ml</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input checked="" type="checkbox"/> No	<u>NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)</u>
<u>2</u>	<u>40 ml</u>	<input checked="" type="checkbox"/> Glass c	<u>none</u>	<input checked="" type="checkbox"/> No	<u>Nitrite, Nitrate & Sulfate (LLI code 55)</u>
	<u>500 ml</u>	<input type="checkbox"/> HDPE Plastic	<u>H2SO4</u>	<input type="checkbox"/> No	

Duplicate Sample No: _____

* Comments: Hach Kit Fe++ 1.0 mg/l

Signature: C.H. Hardy

Date: July 20, 2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-60, AOC 5
 Event: 3rd Quarter 2015 (post Nitrate Inj) Labor # 7KDVCREM
 SAMPLE ID: BDC-10 3-1507 20 (yyymmdd)
 Date Collected: July/Aug. 20, 2015 COC Time: 1000

60th Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC- 103 Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 18.57 (ft.) historical or measured
 Present Water Level: 11.94 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 18.57 ft - 11.94 ft = 6.57 ft x 2.502 Liters/ft = 16.44 Liters
 Purge Rate: 3.25 l. + 13 min. = 0.250 Liters/minute

Begin Purge: 947 time
 End Purge: 1000 time
 Volume Purged: 3.25 Liters
 Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size &	2"	0.776	0.658	0.579
Schedule	2.5"		0.942	0.833
(Liters/ft)	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
949	= 5.11	19.5	2753	1.49	6.57	-15	
951	= 7.00	16.6	801	0.37	6.52	-21	
953	= 1.3	16.6	800	0.21	6.50	-22	
955	= 2.0	16.7	800	0.19	6.48	-21	
957	= 2.5	16.7	801	0.18	6.48	-22	
959	= 3.0	16.6	800	0.17	6.49	-22	
1000	= 3.25	16.6	800	0.18	6.48	-22	
1003	=						
1005	=						
1007	=						
1009	=						
1010	=						

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>4</u>	<u>40 ml</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input checked="" type="checkbox"/> No	<u>NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)</u>
<u>2</u>	<u>40 ml</u>	<input checked="" type="checkbox"/> Glass c	<u>none</u>	<input checked="" type="checkbox"/> No	<u>Nitrite, Nitrate & Sulfate (LLI code 55)</u>
	<u>500 ml</u>	<input type="checkbox"/> HDPE Plastic	<u>H2SO4</u>	<input type="checkbox"/> No	

*Comments: Hach Kit Fe++ 0.2 may be?

Signature: C.H. Hardy Date: July 20, 2015 Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-60, AOC 5
 Event: 3rd Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM
 SAMPLE ID: BDC-104-150720 (vynumdj)
 Date Collected: July/Aug. 20, 2015 COC Time: 1030

60th Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-104 Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 18.9 (ft.) historical or measured
 Present Water Level: 11.75 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 18.9 ft - 11.75 ft = 7.15 ft x 0.658 Liters/ft = 4.70 Liters
 Purge Rate: 5.65 l. + 25 min. = 0.225 Liters/minute

Begin Purge: 1010 time

End Purge: 1030 time

Volume Purged: 5.65 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter !"	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
1012	Full	17.6	372	1.10	7.24	-43	
1014	1.02	17.2	355	0.46	6.79	-15	
1016	1.45	17.5	354	0.44	6.66	-0.6	
1018	2.15	17.4	352	0.48	6.55	12	
1020	2.7	17.4	350	0.52	6.50	18	
1022	3.3	17.6	348	0.54	6.44	24	
1024	3.9	17.5	345	0.54	6.44	26	
1026	4.5	17.6	344	0.50	6.41	27	
1028	5.0	17.6	344	0.49	6.41	30	
1030	5.65	17.6	343	0.50	6.37	32	
=							
=							
=							
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
4	40 ml	<input checked="" type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)
2	40 ml	<input checked="" type="checkbox"/> Glass c	none	<input type="checkbox"/> No	Nitrite, Nitrate & Sulfate (LLI code 55)
	500 ml	<input type="checkbox"/> HDPE Plastic	H2SO4	<input type="checkbox"/> No	

Duplicate Sample No: _____

* Comments: Hach Kit Fe++ 1.0 mg/L

Signature: C.H. Hardy

Date: July 20 2015

Continued on Back



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 173794
Order Date: 06/24/2015
Page 1 of 2
Standard Frm#: 148383

Client: 13419
The Boeing Company
Boeing_DC:AOC-5

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

Group: 1

Number of Sample Locations: 4
One complete set of bottles listed below must be filled for each of the 4 sample location(s).

<u>Sample Description</u>	<u>QC Type</u>
BDC-101 Water	
BDC-102 Water	
BDC-103 Water	
BDC-104 Water	

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
4	26	40 ml glass vial	HCl	Method 8021 Water Master	14 days
				NWTPH-Gx water C7-C12	14 days
2	55	40 ml glass vial	None	Nitrate Nitrogen	48 hours
				Nitrite Nitrogen	48 hours
				Sulfate	28 days

Group: 2

Number of Sample Locations: 1

<u>Sample Description</u>	<u>QC Type</u>
Trip Blank Water	Trip Blank

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
2	26	40 ml glass vial	HCl	Method 8021 Water Master	14 days
				NWTPH-Gx water C7-C12	14 days

Sample Acceptance Policy

Samples must be submitted in a manner that meets the criteria listed below. If these criteria are not met, the laboratory will contact the client to discuss how to proceed with testing. If the client decides to proceed with testing, a comment describing the variation will appear on the analytical report.

- Documentation must be complete and include: sample identification, the location, date and time of collection, collector's name or initials, preservation type, sample type, required analyses, and any special remarks concerning the sample.
- Proper sample labeling must include unique identification on a durable (water resistant) label using indelible ink.
- Samples must be collected in appropriate containers with sufficient volume to perform tests. The laboratory will provide appropriate bottleware.
- Samples must be shipped promptly to meet specified holding times with adequate packing materials to prevent damage during shipment and adequate wet ice to meet method temperature requirements (0-6°C, not frozen).

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 xCA

Date Needed:

07/17/2015

Pack By:

07/16/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 173794
Order Date: 06/24/2015
Page 2 of 2
Standard Frm#: 148383

Client: 13419
The Boeing Company
Boeing_DC:AOC-5

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 xCA

Date Needed:

07/17/2015

Pack By:

07/16/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request

Boeing Chain of Custody



Lancaster Laboratories

For Eurofins Lancaster Laboratories use only
 Acc'l. # _____ Group # _____
 Sample # _____
 Please print. Instructions on reverse side correspond.

① **Client Information**
 Site Location: BOEING TUKWILA, WA.
 Site Project: DEVELOPMENT
 Site Program/ID: AOC-5 61st EVCJT
 Boeing PM: FAMES BRET
 Consultant Contact: LANDAU CLINT JACOB
 Report To: LANDAU ANNE HALVORSEN
 Invoice To: Boeing EHS Other (specify): _____
 Sampler: CHARLES HARRY # of Coolers: 1

Sample Identification	Collected		Matrix	No. of Containers
	Date	Time		
BDC-101-151026	10-26-2015	625	Aq	6
BDC-102-151026	10-26-2015	655	Aq	6
BDC-103-151026	10-26-2015	710	Aq	6
BDC-104-151026	10-26-2015	750	Aq	6
RDC-05-04-151026	10-26-2015	815	Aq	2
RDC-MW-21A-151026	10-26-2015	845	Aq	2
RDC-MW-18A-151026	10-26-2015	915	Aq	2
RDC-MW-17A-151026	10-26-2015	940	Aq	2
TRIP BLANK	9-3-2015	-	Aq	2

Sample Identification	Collected		Matrix	No. of Containers	Analyses Requested			Remarks/Comments
	Date	Time			ALI	COB	COB6	
BDC-101-151026	10-26-2015	625	Aq	6	26	26	55	SHORT HOLDING TIME (NITRATE)
BDC-102-151026	10-26-2015	655	Aq	6	X	X	X	
BDC-103-151026	10-26-2015	710	Aq	6	X	X	X	720 TIME
BDC-104-151026	10-26-2015	750	Aq	6	X	X	X	
RDC-05-04-151026	10-26-2015	815	Aq	2	X	X	X	
RDC-MW-21A-151026	10-26-2015	845	Aq	2	X	X	X	
RDC-MW-18A-151026	10-26-2015	915	Aq	2	X	X	X	
RDC-MW-17A-151026	10-26-2015	940	Aq	2	X	X	X	
TRIP BLANK	9-3-2015	-	Aq	2	X	X	X	

Turnaround Time Requested (please circle)	Relinquished by	Date/Time	Received by	Date/Time
Standard	CHARLES HARRY	10-26-2015 1315		
72 hour				
48 hour				
5 day				
4 day				

Date needed: _____
 Relinquished by commercial carrier (circle):
 UPS FedEx Other: UPS
 Temperature upon Receipt: _____ °C
 Custody Seals Intact? Yes No

BOEING Groundwater Sample Collection Form

61st Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: BDC-101-151026 (yyymmdd)

Date Collected: Oct./Nov., 26, 2015 COC Time: 625

Collector: Charles Hardy

Well Information

Well I. D.: BDC-101 Well Condition: Secure? Yes No; Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 18.42 (ft.) historical or measured

Present Water Level: 12.20 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 18.42 ft - 12.20 ft = 6.22 ft x 0.658 Liters/ft = 4.09 Liters

Purge Rate: 3.0 l. + 3.0 min. = 0.100 Liters/minute

Begin Purge: 6:05 time

End Purge: 625 time

Volume Purged: 3.0 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Diameter	1"	2"	2.5"	4"
Volume by Size & Schedule (Liters/ft)	0.170	0.776	0.942	2.995
Sch 40	0.140	0.658	0.833	2.502
Sch 80	0.140	0.579	0.833	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity	D. O. (mg/l)	pH	ORP mV	Others (w/level, turb.)
607	= 300 ml	17.6	497	2.35	7.12	72	
609	= 800	17.2	481	1.45	7.17	86	
611	= 800	17.1	457	1.26	7.03	90	
613	= 1.0 L	17.3	445	1.38	6.94	92	
615	= 1.35	17.6	431	1.35	6.88	92	
617	= 1.65	17.5	423	1.11	6.82	91	
619	= 2.0	17.5	414	0.96	6.75	91	
621	= 2.3	17.6	412	0.83	6.74	91	
623	= 2.6	17.1	403	0.71	6.70	91	
625	= 3.0	18.1	403	0.63	6.64	92	
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=

Sample Collection Information

Sample Collected with: disposable Buller, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
4	40 ml	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)
2	40 ml	<input checked="" type="checkbox"/> Glass c	none	<input checked="" type="checkbox"/> No	Nitrite, Nitrate & Sulfate (LLI code 55)
	500 ml	<input type="checkbox"/> HDPE Plastic	H ₂ SO ₄	<input type="checkbox"/> No	

Comments: * Hach Kit Fe++ 0 mg/L Duplicate Sample No: _____

Signature: C.H. Hardy Date: Oct 26 2015 Continued on Back

BOEING Groundwater Sample Collection Form

61st Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: BDC-10 2-151024 (yyymmdd)

Date Collected: Oct/Nov. 26, 2015 COC Time: 655

Collector: Charles Hardy

Well Information

Well I. D.: BDC-102 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 18.83 (ft.) historical or measured

Present Water Level: 11.93 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 18.83 ft - 11.93 ft = 6.85 ft x 0.653 Liters/ft = 4.51 Liters

Purge Rate: 2.35 l. + 16 min. = 1.178 Liters/minute

Begin Purge: 639 time

End Purge: 655 time

Volume Purged: 2.85 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size &	2"	0.776	0.658	0.579
Schedule	2.5"		0.942	0.833
(Liters/ft)	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
641	= 200 mL	16.8	654	1.09	6.39	113	
643	= 400	16.2	673	0.49	6.35	99	
645	= 650	16.5	661	0.38	6.33	51	
647	= 1.0 L	16.7	653	0.33	6.33	16.2	
649	= 1.4 L	16.9	649	0.31	6.36	-9	
651	= 1.95	17.0	635	0.28	6.40	-26	
653	= 2.4	16.9	628	0.25	6.41	-35	
655	= 2.85	17.0	619	0.23	6.41	-42	
657	=						
659	=						
7	=						
	=						
	=						
	=						
	=						

Sample Collection Information

Sample Collected with: disposable Builer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
4	40 ml	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)
2	40 ml	<input checked="" type="checkbox"/> Glass c	none	<input checked="" type="checkbox"/> No	Nitrite, Nitrate & Sulfate (LLI code 55)
	500 ml	<input type="checkbox"/> HDPE Plastic	H2SO4	<input type="checkbox"/> No	

Duplicate Sample No: _____

Comments: * Hach Kit Fe++ 1.0 mg/L

Signature: C.H. Hardy

Date: Oct 26, 2015

Continued on Back

BOEING Groundwater Sample Collection Form

61st Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: BDC-10,3-151026 (vymidd)

Date Collected: Oct./Nov., 26, 2015 COC Time: 720

Collector: Charles Hanly

Well Information

Well I. D.: BDC-104 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 18.51 (ft.) historical or measured

Present Water Level: 12.02 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 18.51 ft - 12.02 ft = 6.49 ft x 2.532 Liters/ft = 16.24 Liters

Purge Rate: 1.8 l. + 11 min. = 0.162 Liters/minute

Begin Purge: 709 time

End Purge: 720 time

Volume Purged: _____ Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
	1"		0.170	0.140
	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
711	= 200 ml	15.1	844	0.37	6.50	-37	
713	= 600 ml	15.4	872	0.27	6.50	-52	
715	= 950	15.2	885	0.18	6.53	-70	
717	= 1.3	15.4	890	0.12	6.56	-77	
719	= 1.65	15.6	894	0.12	6.59	-83	
720	= 1.8	15.5	895	0.11	6.61	-85	
722	=						
725	=						

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc.): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
4	40 ml	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)
2	40 ml	<input checked="" type="checkbox"/> Glass c	none	<input checked="" type="checkbox"/> No	Nitrite, Nitrate & Sulfate (LLI code 55)
	500 ml	<input type="checkbox"/> HDPE Plastic	H2SO4	<input type="checkbox"/> No	

Duplicate Sample No: _____

Comments: * Hach Kit Fe++ 1.0 mg/l

Signature: C.H. Hanly

Date: Oct 26, 2015

Continued on Back

BOEING Groundwater Sample Collection Form

61st Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: BDC-104-151026 (symmetric)

Date Collected: Oct/Nov, 26, 2015 COC Time: 75⁰

Collector: Charles Hardy

Well Information

Well I. D.: BDC-104 Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) ^{4.10} (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 18.90 (ft.) historical or measured

Present Water Level: 11.95 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 18.90 ft - 11.95 ft = 6.95 ft x 0.658 Liters/ft = 4.57 Liters

Purge Rate: 2.8 L/min = 0.175 Liters/minute

Begin Purge: 7:34 time

End Purge: 7:50 time

Volume Purged: 2.8 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Diameter	10s	Sch 40	Sch 80
1"		0.170	0.140
2"	0.776	0.658	0.579
2.5"		0.942	0.833
4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
736	= 200 ml	14.9	375	0.50	7.21	-30	
738	= 600	15.0	369	0.29	7.03	-23	
740	= 1.05 L	15.3	365	0.25	6.92	-16	
742	= 1.4	15.3	363	0.18	6.88	-13	
744	= 1.75	15.6	361	0.17	6.84	-9	
746	= 2.1	15.5	359	0.17	6.80	-7.1	
748	= 2.45	15.5	358	0.17	6.76	-4.1	
750	= 2.8	15.9	354	0.20	6.72	-2.0	
=							
=							
=							
=							
=							
=							
=							
=							

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>4</u>	<u>40 ml</u>	<input checked="" type="checkbox"/> Glass	<u>H-Cl</u>	<input checked="" type="checkbox"/> No	<u>NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)</u>
<u>2</u>	<u>40 ml</u>	<input checked="" type="checkbox"/> Glass c	<u>none</u>	<input checked="" type="checkbox"/> No	<u>Nitrite, Nitrate & Sulfate (LLI code 55)</u>
	<u>500 ml</u>	<input type="checkbox"/> HDPE Plastic	<u>H2SO4</u>	<input type="checkbox"/> No	

Duplicate Sample No: _____

Comments: Hach Kit Fe++ 1.0 mg/L

Signature: C.H. Hardy

Date: Oct 26 2015 Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-60, AOC 5 DOWNGRADIC
 Event: 4th Quarter 2015 (post Nitrate Ini) labor # 7KDVCREM
 SAMPLE ID: BDC-# 05-4-15 1026 (yyymmdd)
 Date Collected: Oct/Nov., 26, 2015 COC Time: 815

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-4 Well Condition: Secure? Yes No; Describe Condition: _____
 Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 25.36 (ft.) historical or measured
 Present Water Level: 12.54 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 25.36 ft - 12.54 ft = 12.82 ft x 2.502 Liters/ft = 32.08 Liters
 Purge Rate: 2.2 l. + 13 min. = 169 Liters/minute

Begin Purge: 802 time

End Purge: 815 time

Volume Purged: 2.2 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
804	= 200	14.8	381	0.35	6.52	-46	
806	= 600	14.9	384	0.18	6.52	-18	
808	= 950	15.0	385	0.13	6.54	-82	
810	= 1.3	14.9	383	0.10	6.57	-90	
812	= 1.65	14.9	381	0.09	6.60	-96	
814	= 2.0	14.9	380	0.09	6.60	-100	
815	= 2.2	15.0	379	0.08	6.60	-101	
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"

Sample Collection Information

Sample Collected with: disposable Bailler, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>1</u>	<u>40 ml</u>	<input type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>NWTPH-Gx & BETX (EPA 8021B) (LLI code 26)</u>
<u>2</u>	<u>40 ml</u>	<input type="checkbox"/> Glass	<u>none</u>	<input type="checkbox"/> No	<u>Nitrite (Nitrate) & Sulfate (LLI code 55)</u>
	<u>500 ml</u>	<input type="checkbox"/> HDPE Plastic	<u>H2SO4</u>	<input type="checkbox"/> No	

Comments: Hach Kit Fe++ 1.5 mg/L

Signature: C.H. Hardy Date: _____ 2015 Continued on Back

BOEING Groundwater Sample Collection Form

61" Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: #DC-10 Mw17a - 151076 (vymmsdd)

Date Collected: Oct/Nov, 26, 2015 COC Time: 940

Collector: Charles Hanly

Well Information

Well I. D.: #DC-Mw-17a Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 190 (ft.) historical or measured

Present Water Level: 12.33 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 190 ft - 12.33 ft = 177.67 ft x 0.658 Liters/ft = 116.88 Liters

Purge Rate: 1.95 L + _____ min. = _____ Liters/minute

Begin Purge: 926 time

End Purge: 940 time

Volume Purged: 1.95 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Diameter	10s	Sch 40	Sch 80
1"		0.170	0.140
2"	0.776	0.658	0.579
2.5"		0.942	0.833
4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D.O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
928	= 100 ml	17.9	1365	0.78	6.36	9.7	
930	= 450	18.8	1426	0.30	6.43	-0.2	
932	= 750	18.9	1442	0.20	6.48	-5.4	
934	= 1.05 L	18.8	1449	0.17	6.80	-8.3	
936	= 1.35	18.8	1452	0.20	6.52	-10.1	
938	= 1.65	18.8	1455	0.18	6.53	-11.1	
940	= 1.95	18.9	1457	0.17	6.54	-11.6	
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>1</u>	<u>40 ml</u>	<input type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>NWTRH Gx & DETX (EPA 8021B) (LLI code 26)</u>
<u>2</u>	<u>40 ml</u>	<input checked="" type="checkbox"/> Glass c	<u>none</u>	<input checked="" type="checkbox"/> No	<u>Nitrite/Nitrate & Sulfate (LLI code 55)</u>
_____	<u>500 ml</u>	<input type="checkbox"/> HDPE Plastic	<u>H2SO4</u>	<input type="checkbox"/> No	_____

Duplicate Sample No: _____

Comments: Hach Kit Fe++ 0 mg/L

Signature: C.H. Hanly

Date: Oct 26 2015

2015

Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-60, AOC 5 DOWNGRADG 47

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: BDC-10 Mw 18a-15-1026 (vynumdd)

Date Collected: Oct/Nov 26, 2015 COC Time: 915

61st Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-Mw 18a Well Condition: Secure? Yes No; Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 20.02 (ft.) historical or measured

Present Water Level: 12.36 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 20.02 ft - 12.76 ft = 7.66 ft x 0.652 Liters/ft = 5.34 Liters

Purge Rate: 2.2 l + 15 min. = 0.147 Liters/minute

Begin Purge: 9:00 time

End Purge: 9:15 time

Volume Purged: 2.2 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Diameter	10s	Sch 40	Sch 80
Volume by Size & Schedule (Liters/ft)	1"	0.170	0.140
	2"	0.776	0.658
	2.5"	0.942	0.833
	4"	2.995	2.502
		2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D.O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
9:02	= 150 mL	17.0	1172	0.85	6.00	27	
9:04	= 500	17.2	1174	0.21	6.21	6.6	
9:06	= 800	17.3	1187	0.15	6.27	0.8	
9:08	= 1.05	17.3	1200	0.13	6.30	-2.2	
9:10	= 1.42	17.3	1216	0.11	6.32	-4.3	
9:12	= 1.75	17.4	1239	0.11	6.35 ✓	-5.9	
9:14	= 2.05	17.3	1259	0.10	6.35 ✓	-6.8	
9:15	= 2.2	17.3	1259	0.10	6.35	-7.1	
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=
=	=	=	=	=	=	=	=

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>4</u>	<u>40 ml</u>	<input type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>NWTPM-Gx & BETX (EPA 8024B)(LLI code 26)</u>
<u>2</u>	<u>40 ml</u>	<input checked="" type="checkbox"/> Glass c	<u>none</u>	<input checked="" type="checkbox"/> No	<u>Nitrite, Nitrate & Sulfate (LLI code 55)</u>
_____	<u>500 ml</u>	<input type="checkbox"/> HDPE Plastic	<u>H2SO4</u>	<input type="checkbox"/> No	_____

Comments: * Hach Kit Fe++ 0.6 mg/L

Signature: CH Hardy Date: Oct 26 2015 Continued on Back

BOEING Groundwater Sample Collection Form

61st Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5 DOWN RAP 16 LT

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: ~~BDC-10~~ Mw-21A-15P25 (vymnckd)

Date Collected: Oct./Nov., 25, 2015 COC Time: 845

Collector: Charles Hanly

Well Information

Well I. D.: BDC-Mw21a Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 19.90 (ft.) historical or measured

Present Water Level: 12.55 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 19.90 ft 12.55 ft = 7.35 ft x 3.52 Liters/ft = 9.34 Liters

Purge Rate: 1.65 l + 13 min. = 0.127 Liters/minute 0052

Begin Purge: 8:34 time

End Purge: 8:45 time

Volume Purged: 1.65 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Volume by Size & Schedule (Liters/ft)	Diameter	10s	Sch 40	Sch 80
1"	1"		0.170	0.140
2"	2"	0.776	0.658	0.579
2.5"	2.5"		0.942	0.833
4"	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
836	= 100	15.2	253	1.14	6.42	-8.9	
838	= 550 mL	15.2	254	0.66	6.30	+1.6	
340	= 850 mL	15.4	258	0.43	6.24	+5.6	
842	= 1.15	15.3	260	0.33	6.21	7.4	
844	= 1.5 L	15.2	261	0.35	6.19	9.0	
845	= 1.65	15.3	263	0.33	6.16	10.3	
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"
"	"	"	"	"	"	"	"

Sample Collection Information

Sample Collected with: disposable Builer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>+</u>	<u>40 ml</u>	<input type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>NWTPH-G₁ & DETX TEPA #031B)(LLI code 26)</u>
<u>2</u>	<u>40 ml</u>	<input type="checkbox"/> Glass c	<u>none</u>	<input type="checkbox"/> No	<u>Nitrite, Nitrate & Sulfate (LLI code 55)</u>
	<u>500 ml</u>	<input type="checkbox"/> HDPE Plastic	<u>H2SO4</u>	<input type="checkbox"/> No	

Duplicate Sample No: _____

Comments: * Haech Kit Fe++ ∅

Signature: C.H. Hanly

Date: Oct 26 2015

Continued on Back



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 178000
Order Date: 09/22/2015
Page 1 of 2
Standard Frm#: 148383

Client: 13419
The Boeing Company
Boeing_DC:AOC-5

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

Group: 1

Number of Sample Locations: 4

One complete set of bottles listed below must be filled for each of the 4 sample location(s).

<u>Sample Description</u>	<u>QC Type</u>
BDC-101 Water	
BDC-102 Water	
BDC-103 Water	
BDC-104 Water	

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
4	26	40 ml glass vial	HCl	Method 8021 Water Master	14 days
2	55	40 ml glass vial	None	NWTPH-Gx water C7-C12	14 days
				Nitrate	48 hours
				Nitrite Nitrogen	48 hours
				Sulfate	28 days

Group: 2

Number of Sample Locations: 4

One complete set of bottles listed below must be filled for each of the 4 sample location(s).

<u>Sample Description</u>	<u>QC Type</u>
DC-MW-17a Water	
DC-MW-18a Water	
DC-MW-21a Water	
BDC-05-04 Water	

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
2	55	40 ml glass vial	None	Nitrate	48 hours
				Sulfate	28 days

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 x1198

Data Needed:

10/13/2015

Pack By:

10/12/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 178000
Order Date: 09/22/2015
Page 2 of 2
Standard Frm#: 148383

Client: 13419
The Boeing Company
Boeing_DC:AOC-5

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

Group: 3

Number of Sample Locations: 1	
<u>Sample Description</u> Trip Blank Water	<u>QC Type</u> Trip Blank

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
2	26	40 ml glass vial	HCl	Method 8021 Water Master	14 days
				NWTPH-Gx water C7-C12	14 days

Sample Acceptance Policy

Samples must be submitted in a manner that meets the criteria listed below. If these criteria are not met, the laboratory will contact the client to discuss how to proceed with testing. If the client decides to proceed with testing, a comment describing the variation will appear on the analytical report.

- Documentation must be complete and include: sample identification, the location, date and time of collection, collector's name or initials, preservation type, sample type, required analyses, and any special remarks concerning the sample.
- Proper sample labeling must include unique identification on a durable (water resistant) label using indelible ink.
- Samples must be collected in appropriate containers with sufficient volume to perform tests. The laboratory will provide appropriate bottleware.
- Samples must be shipped promptly to meet specified holding times with adequate packing materials to prevent damage during shipment and adequate wet ice to meet method temperature requirements (0-6°C, not frozen).

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 x1198

Date Needed:

10/13/2015

Pack By:

10/12/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request

BOTTLE REQUEST FORM

Prepared by: Charles 'Duffy' Hardy Project Name: Boeing_DC: AOC-5
 Client: Boeing EHS Sampling Frequency: Quarterly Feb. May, Aug. & Nov.
 Contact: Jim Bel (Boeing) / Clint Jacob (Landau) Sampling Date: -October 26rd-30th, 2015
 Ship To: Charles 'Duffy' Hardy (206-290-6572) Need By Date: Oct. 20, 2015
Boeing @ Western Processing Superfund
20015 72nd Ave South
Kent, WA 98032

of coolers: As needed
 Trip Blanks?: 1 set, one shipment

Labels?: Provide loose labels
 Boxed?: No

No. Of Samples	Analysis Requested	Sample Matrix	Bottle Size	No. Bottles Per Sample	Preservative
4	BETX EPA 8021 <i>26</i>	Water	40-mL VOA	2 ?	HCl
4	TPH as Gasoline NWTPI-Gx <i>26</i>	Water	40-mL VOA	2	HCl
4 qrtly	Sulfate, & Nitrate* IC E300 <i>55</i>	Water	40-mL	2	None
+4 semi-ann**	Sulfate & Nitrate* IC E300 <i>rs</i>	Water	40-mL	2	None
Comments: * Nitrate holding time is 48-hours for analysis Quarterly well list BDC-101, -102, -103, -104 February, May, August, & November **Semi-annual well list add DC-Mw-17a, Mw-18a, Mw-21a & BDC-05-04 (May & Nov.) Jan, April, July, Oct, 2015 Apr. & Oct					

ANALYTICAL RESULTS

Prepared by:

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

Prepared for:

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

July 25, 2015

Project: Boeing_DC:AOC-5

Submittal Date: 07/21/2015
Group Number: 1578316
State of Sample Origin: WA

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
BDC-101-150720 Water	7973052
BDC-102-150720 Water	7973053
BDC-103-150720 Water	7973054
BDC-104-150720 Water	7973055
Trip Blank Water	7973056

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	Attn: Paul Yount
ELECTRONIC COPY TO	The Boeing Company	Attn: Nancy Ballew
ELECTRONIC COPY TO	The Boeing Company	Attn: Jim Bet
ELECTRONIC COPY TO	Landau	Attn: Clint Jacob
ELECTRONIC COPY TO	Landau Associates	Attn: Terry McGourty
ELECTRONIC COPY TO	Landau Associates	Attn: Anne Halvorsen

Respectfully Submitted,



Kay Hower
Manager

(510) 672-3979

Project Name: Boeing_DC:AOC-5
LL Group #: 1578316

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:

No additional comments are necessary.

Sample Description: BDC-101-150720 Water
Boeing_DC: AOC-5

LL Sample # WW 7973052
LL Group # 1578316
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 07/20/2015 09:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/21/2015 12:00

Reported: 07/25/2015 10:11

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	19.7	1.0	10
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

General 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	15204A53A	07/23/2015 15:27	Jeremy C Giffin	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	15204A53A	07/23/2015 15:27	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	15204A53A	07/23/2015 15:27	Jeremy C Giffin	1
00368	Nitrate Nitrogen	EPA 300.0	1	15202667151A	07/21/2015 14:59	Drew M Gerhart	10
01506	Nitrite Nitrogen	EPA 300.0	1	15202667151A	07/21/2015 14:42	Drew M Gerhart	1

Sample Description: BDC-102-150720 Water
Boeing_DC: AOC-5

LL Sample # WW 7973053
LL Group # 1578316
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 07/20/2015 09:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/21/2015 12:00

Reported: 07/25/2015 10:11

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	15.5	1.0	10
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

General 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	15204A53A	07/23/2015 16:50	Jeremy C Giffin	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	15204A53A	07/23/2015 16:50	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	15204A53A	07/23/2015 16:50	Jeremy C Giffin	1
00368	Nitrate Nitrogen	EPA 300.0	1	15202667151A	07/21/2015 15:31	Drew M Gerhart	10
01506	Nitrite Nitrogen	EPA 300.0	1	15202667151A	07/21/2015 15:15	Drew M Gerhart	1

Sample Description: BDC-103-150720 Water
Boeing_DC: AOC-5

LL Sample # WW 7973054
LL Group # 1578316
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 07/20/2015 10:00 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/21/2015 12:00

Reported: 07/25/2015 10:11

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	54	1.0	1
02102	Ethylbenzene	100-41-4	3.7	1.0	1
02102	Toluene	108-88-3	1.0	1.0	1
02102	m,p-Xylene	179601-23-1	8.3	1.0	1
02102	o-Xylene	95-47-6	2.6	1.0	1
Wet Chemistry					
	EPA 300.0		mg/l	mg/l	
00368	Nitrate Nitrogen	14797-55-8	8.1	1.0	10
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

General 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	15204A53A	07/23/2015 14:31	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	15204A53A	07/23/2015 14:31	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	15204A53A	07/23/2015 14:31	Jeremy C Giffin	1
00368	Nitrate Nitrogen	EPA 300.0	1	15202667151A	07/21/2015 16:36	Drew M Gerhart	10
01506	Nitrite Nitrogen	EPA 300.0	1	15202667151A	07/21/2015 16:20	Drew M Gerhart	1

Sample Description: BDC-104-150720 Water
Boeing_DC: AOC-5

LL Sample # WW 7973055
LL Group # 1578316
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 07/20/2015 10:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/21/2015 12:00

Reported: 07/25/2015 10:11

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	11.7	1.0	10
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

General 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	15204A53A	07/23/2015 14:59	Jeremy C Giffin	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	15204A53A	07/23/2015 14:59	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	15204A53A	07/23/2015 14:59	Jeremy C Giffin	1
00368	Nitrate Nitrogen	EPA 300.0	1	15202667151A	07/21/2015 17:09	Drew M Gerhart	10
01506	Nitrite Nitrogen	EPA 300.0	1	15202667151A	07/21/2015 16:52	Drew M Gerhart	1

Sample Description: Trip Blank Water
Boeing_DC: AOC-5

LL Sample # WW 7973056
LL Group # 1578316
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 06/25/2015

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/21/2015 12:00

Reported: 07/25/2015 10:11

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles		ECY 97-602	NWTPH-Gx	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles		SW-846	8021B	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

General 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	15204A53A	07/23/2015 13:36	Jeremy C Giffin	1
02102	Method 8021 Water Master	SW-846 8021B	1	15204A53A	07/23/2015 13:36	Jeremy C Giffin	1
01146	GC VOA Water Prep	SW-846 5030B	1	15204A53A	07/23/2015 13:36	Jeremy C Giffin	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 07/25/2015 10:11

Group Number: 1578316

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.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15204A53A	Sample number(s): 7973052-7973056							
Benzene	1.0 U	1.0	ug/l	103		80-120		
Ethylbenzene	1.0 U	1.0	ug/l	100		80-120		
NWTPH-Gx water C7-C12	250 U	250.	ug/l	101		80-123		
Toluene	1.0 U	1.0	ug/l	101		80-120		
m,p-Xylene	1.0 U	1.0	ug/l	107		80-120		
o-Xylene	1.0 U	1.0	ug/l	102		80-120		
Batch number: 15202667151A	Sample number(s): 7973052-7973055							
Nitrate Nitrogen	0.10 U	0.10	mg/l	98	97	90-111	1	20
Nitrite Nitrogen	0.10 U	0.10	mg/l	97	97	90-111	0	20

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 15204A53A	Sample number(s): 7973052-7973056 UNSPK: 7973052, 7973053								
Benzene	108	108	84-126	0	30				
Ethylbenzene	106	107	80-133	0	30				
NWTPH-Gx water C7-C12	113	113	75-135	0	30				
Toluene	107	107	80-133	0	30				
m,p-Xylene	113	114	80-132	1	30				
o-Xylene	106	106	80-132	0	30				
Batch number: 15202667151A	Sample number(s): 7973052-7973055 UNSPK: P972807 BKG: P972807								
Nitrate Nitrogen	100		90-110			0.50 U	0.50 U	0 (1)	15
Nitrite Nitrogen	98		90-110			0.50 U	0.50 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: Method 8021 Water Master
Batch number: 15204A53A

*- 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.

Quality Control Summary

Client Name: The Boeing Company
Reported: 07/25/2015 10:11

Group Number: 1578316

Surrogate Quality Control

	Trifluorotoluene-P	Trifluorotoluene-F
7973052	100	109
7973053	100	116
7973054	101	112
7973055	101	109
7973056	101	114
Blank	100	111
LCS	101	113
MS	100	116
MSD	101	116
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.

Client: Boeing

Delivery and Receipt Information

Delivery Method: SeaTac Arrival Timestamp: 07/21/2015 12:00
 Number of Packages: 1 Number of Projects: 1
 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:	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 Brandy Barclay (2299) at 12:26 on 07/21/2015

Samples Chilled Details

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

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	DT131	1.8	DT	Wet	Y	Bagged	N

FedEx Express *Expanded Billable Stamp*
 Use only for shipments within the U.S.
 Saturday delivery available.

There is an artificial watermark on this document. Hold at an angle to view.

1 From
 ORDER: 00798300

 () _____

Package Weight

FedEx
Priority
Overnight®

<p>Release Signature For nonresidential deliveries.</p> <p>→ Sign within this area. Please do not remove.</p> <p><small>By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.</small></p>	<p style="text-align: center;">For FedEx Use Only</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-bottom: 1px solid black; text-align: center;">Employee Number</td> <td style="width: 50%; border-bottom: 1px solid black; text-align: center;">Base Charges</td> </tr> <tr> <td style="border-bottom: 1px solid black; text-align: center;">Other</td> <td style="border-bottom: 1px solid black; text-align: center;">Total Charges</td> </tr> </table>	Employee Number	Base Charges	Other	Total Charges
Employee Number	Base Charges				
Other	Total Charges				

2 To *Shipment will not be accepted if address below is altered.* M-10091 Rev. 3/10

SAMPLE RECEIVING
 EUROFINS LANCASTER LABS
 2425 NEW HOLLAND PIKE
 LANCASTER, PA 17601
 (717) 656-2300

NONREDEEMABLE
 Please see the back of the receipt for important terms and conditions.

SATURDAY DELIVERY

Shipments tendered on Friday are delivered on Saturday to most locations.



8047 1334 0579

Form ID
0667

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, ISO17025) 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 9U4-26
Seattle WA 98124

August 11, 2015

Project: Boeing_DC:AOC-5

Submittal Date: 07/21/2015
Group Number: 1583375
State of Sample Origin: WA

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
BDC-101-150720 Water	7999387
BDC-102-150720 Water	7999388
BDC-103-150720 Water	7999389
BDC-104-150720 Water	7999390

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	Attn: Paul Yount
ELECTRONIC COPY TO	The Boeing Company	Attn: Nancy Ballew
ELECTRONIC COPY TO	The Boeing Company	Attn: Jim Bet
ELECTRONIC COPY TO	Landau	Attn: Clint Jacob
ELECTRONIC COPY TO	Landau Associates	Attn: Terry McGourty
ELECTRONIC COPY TO	Landau Associates	Attn: Anne Halvorsen

Respectfully Submitted,



Kay Hower
Manager

(510) 672-3979

Project Name: Boeing_DC:AOC-5
LL Group #: 1583375

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:

No additional comments are necessary.

REVISED

Sample Description: BDC-101-150720 Water
Boeing_DC: AOC-5

LL Sample # WW 7999387
LL Group # 1583375
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 07/20/2015 09:05 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/21/2015 12:00

Reported: 08/11/2015 11:21

BC101

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 57.2	mg/l 3.0	10

General 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	15202667151A	07/21/2015 14:59	Drew M Gerhart	10

REVISED

Sample Description: BDC-102-150720 Water
Boeing_DC: AOC-5

LL Sample # WW 7999388
LL Group # 1583375
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 07/20/2015 09:35 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/21/2015 12:00

Reported: 08/11/2015 11:21

BC102

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 63.3	mg/l 3.0	10

General 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	15202667151A	07/21/2015 15:31	Drew M Gerhart	10

Sample Description: BDC-103-150720 Water
Boeing_DC: AOC-5

LL Sample # WW 7999389
LL Group # 1583375
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 07/20/2015 10:00 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/21/2015 12:00

Reported: 08/11/2015 11:21

BC103

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 70.9	mg/l 3.0	10

General 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	15202667151A	07/21/2015 16:36	Drew M Gerhart	10

REVISED

Sample Description: BDC-104-150720 Water
Boeing_DC: AOC-5

LL Sample # WW 7999390
LL Group # 1583375
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 07/20/2015 10:30 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 07/21/2015 12:00

Reported: 08/11/2015 11:21

BC104

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 74.4	mg/l 3.0	10

General 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	15202667151A	07/21/2015 17:09	Drew M Gerhart	10

REVISED

Quality Control Summary

Client Name: The Boeing Company
Reported: 08/11/2015 11:21

Group Number: 1583375

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.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15202667151A Sulfate	0.30	U 0.30	mg/l	99	98	90-110	1	20

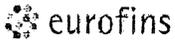
Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 15202667151A Sulfate	97		90-110			8.5	8.5	0 (1)	15

*- 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.



Lancaster Laboratories
Environmental

Sample Administration
Receipt Documentation Log

Doc Log ID: 88757

Group Number(s): ~~1578316~~ ^{And 81615}
1583375

Client: Boeing

Delivery and Receipt Information

Delivery Method: SeaTac Arrival Timestamp: 07/21/2015 12:00
 Number of Packages: 1 Number of Projects: 1
 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:	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 Brandy Barclay (2299) at 12:26 on 07/21/2015

Samples Chilled Details

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

<u>Cooler #</u>	<u>Thermometer ID</u>	<u>Corrected Temp</u>	<u>Therm. Type</u>	<u>Ice Type</u>	<u>Ice Present?</u>	<u>Ice Container</u>	<u>Elevated Temp?</u>
1	DT131	1.8	DT	Wet	Y	Bagged	N

FedEx *Expanded Billable Stamp*
 Express Use only for shipments within the U.S.
 Saturday delivery available.

There is an official watermark on this document. Hold at an angle to view.

1 From
 ORDER: 00798300

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Package Weight

FedEx
Priority
Overnight[®]

<p>Release Signature For nonresidential deliveries.</p> <p>→ Sign within this area. Please do not remove.</p> <p><small>By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.</small></p>	For FedEx Use Only	
	Employee Number	Base Charges
	Other	Total Charges

2 To *Shipment will not be accepted if address below is altered.* M-10091 Rev. 3/10

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 2425 NEW HOLLAND PIKE
 LANCASTER, PA 17601
 (717) 656-2300

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Shipments tendered on Friday are delivered on Saturday to most locations.



8047 1334 0579

Form ID
0667

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, ISO17025) 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 9U4-26
Seattle WA 98124

November 11, 2015

Project: Boeing_DC:AOC-5

Submittal Date: 10/27/2015

Group Number: 1603876

State of Sample Origin: WA

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
BDC-101-151026 Water	8105068
BDC-101-151026 Water	8105069
BDC-102-151026 Water	8105070
BDC-102-151026 Water	8105071
BDC-103-151026 Water	8105072
BDC-103-151026 Water	8105073
BDC-104-151026 Water	8105074
BDC-104-151026 Water	8105075
BDC-05-04-151026 Water	8105076
BDC-05-04-151026 Water	8105077
DC-MW-21a-151026 Water	8105078
DC-MW-21a-151026 Water	8105079
DC-MW-18A-151026 Water	8105080
DC-MW-18A-151026 Water	8105081
DC-MW-17A-151026 Water	8105082
DC-MW-17A-151026 Water	8105083
Trip Blank Water	8105084

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/>.

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ELECTRONIC	Landau Associates	Attn: Anne Halvorsen
COPY TO		

Respectfully Submitted,



Kay Hower
Manager

(510) 672-3979

Project Name: Boeing_DC:AOC-5
LL Group #: 1603876

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:

No additional comments are necessary.

Sample Description: BDC-101-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105068
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 06:25 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

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	8.8	1.0	10
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

General 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	15302A94A	10/31/2015 17:15	Brett W Kenyon	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	15302A94A	10/31/2015 17:15	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	15302A94A	10/31/2015 17:15	Brett W Kenyon	1
00368	Nitrate Nitrogen	EPA 300.0	1	15300667131A	10/27/2015 14:04	Drew M Gerhart	10
01506	Nitrite Nitrogen	EPA 300.0	1	15300667131A	10/27/2015 11:00	Drew M Gerhart	1

Sample Description: BDC-101-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105069
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 06:25 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 38.6	mg/l 1.5	5

General 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	15300667131B	10/27/2015 18:02	Drew M Gerhart	5

Sample Description: BDC-102-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105070
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 06:55 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

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	10.9	1.0	10
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

General 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	15302A94A	10/31/2015 18:32	Brett W Kenyon	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	15302A94A	10/31/2015 18:32	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	15302A94A	10/31/2015 18:32	Brett W Kenyon	1
00368	Nitrate Nitrogen	EPA 300.0	1	15300667131A	10/27/2015 14:19	Drew M Gerhart	10
01506	Nitrite Nitrogen	EPA 300.0	1	15300667131A	10/27/2015 11:15	Drew M Gerhart	1

Sample Description: BDC-102-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105071
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 06:55 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 47.5	mg/l 1.5	5

General 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	15300667131B	10/27/2015 18:17	Drew M Gerhart	5

Sample Description: BDC-103-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105072
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 07:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

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.	19,000	1,300	5
GC Volatiles					
	SW-846 8021B		ug/l	ug/l	
02102	Benzene	71-43-2	480	5.0	5
02102	Ethylbenzene	100-41-4	600	5.0	5
02102	Toluene	108-88-3	740	5.0	5
02102	m,p-Xylene	179601-23-1	1,800	5.0	5
02102	o-Xylene	95-47-6	850	5.0	5
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

General 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	15302A94B	11/02/2015 01:27	Brett W Kenyon	5
02102	Method 8021 Water Master	SW-846 8021B	1	15302A94B	11/02/2015 01:27	Brett W Kenyon	5
01146	GC VOA Water Prep	SW-846 5030B	1	15302A94B	11/02/2015 01:27	Brett W Kenyon	5
00368	Nitrate Nitrogen	EPA 300.0	1	15300667131A	10/27/2015 11:31	Drew M Gerhart	1
01506	Nitrite Nitrogen	EPA 300.0	1	15300667131A	10/27/2015 11:31	Drew M Gerhart	1

Sample Description: BDC-103-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105073
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 07:20 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 0.55 J	mg/l 0.30	1

General 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	15300667131B	10/27/2015 18:32	Drew M Gerhart	1

Sample Description: BDC-104-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105074
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 07:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

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	14.1	1.0	10
01506	Nitrite Nitrogen	14797-65-0	0.10 U	0.10	1

General 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	15302A94A	10/31/2015 21:05	Brett W Kenyon	1
		NWTPH-Gx					
02102	Method 8021 Water Master	SW-846 8021B	1	15302A94A	10/31/2015 21:05	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	15302A94A	10/31/2015 21:05	Brett W Kenyon	1
00368	Nitrate Nitrogen	EPA 300.0	1	15300667131A	10/27/2015 14:35	Drew M Gerhart	10
01506	Nitrite Nitrogen	EPA 300.0	1	15300667131A	10/27/2015 11:46	Drew M Gerhart	1

Sample Description: BDC-104-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105075
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 07:50 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 84.2	mg/l 3.0	10

General 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	15300667131B	10/27/2015 18:48	Drew M Gerhart	10

Sample Description: BDC-05-04-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105076
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 08:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
00368	Nitrate Nitrogen	14797-55-8	0.10 U	0.10	1

General 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	15300667131A	10/27/2015 12:01	Drew M Gerhart	1

Sample Description: BDC-05-04-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105077
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 08:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
Wet Chemistry					
00228	Sulfate	EPA 300.0 14808-79-8	mg/l 1.0 U	mg/l 1.0	1

General 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	15300667131B	10/27/2015 19:03	Drew M Gerhart	1

Sample Description: DC-MW-21a-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105078
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 08:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

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 0.11	mg/l 0.10	1

General 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	15300667131A	10/27/2015 12:17	Drew M Gerhart	1

Sample Description: DC-MW-21a-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105079
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 08:45 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 3.9	mg/l 0.30	1

General 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	15300667131B	10/27/2015 19:18	Drew M Gerhart	1

Sample Description: DC-MW-18A-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105080
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 09:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
00368	Nitrate Nitrogen	14797-55-8	0.10 U	0.10	1

General 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	15300667131A	10/27/2015 12:32	Drew M Gerhart	1

Sample Description: DC-MW-18A-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105081
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 09:15 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 23.4	mg/l 1.5	5

General 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	15300667131B	10/27/2015 19:34	Drew M Gerhart	5

Sample Description: DC-MW-17A-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105082
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 09:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

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 0.91	mg/l 0.10	1

General 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	15300667131A	10/27/2015 12:47	Drew M Gerhart	1

Sample Description: DC-MW-17A-151026 Water
Boeing_DC: AOC-5

LL Sample # WW 8105083
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 10/26/2015 09:40 by CH

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 29.0	mg/l 1.5	5

General 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	15300667131B	10/27/2015 19:49	Drew M Gerhart	5

Sample Description: Trip Blank Water
Boeing_DC: AOC-5

LL Sample # WW 8105084
LL Group # 1603876
Account # 13419

Project Name: Boeing_DC:AOC-5

Collected: 09/03/2015

The Boeing Company
PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 10/27/2015 09:25

Reported: 11/11/2015 15:50

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC Volatiles		ECY 97-602	NWTPH-Gx	ug/l	
08274	NWTPH-Gx water C7-C12	n.a.	250 U	250	1
GC Volatiles		SW-846	8021B	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

General 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	15302A94A	10/31/2015 21:31	Brett W Kenyon	1
02102	Method 8021 Water Master	SW-846 8021B	1	15302A94A	10/31/2015 21:31	Brett W Kenyon	1
01146	GC VOA Water Prep	SW-846 5030B	1	15302A94A	10/31/2015 21:31	Brett W Kenyon	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 11/11/2015 15:50

Group Number: 1603876

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.

Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15302A94A	Sample number(s): 8105068,8105070,8105074,8105084							
Benzene	1.0 U	1.0	ug/l	95		80-120		
Ethylbenzene	1.0 U	1.0	ug/l	98		80-120		
NWTPH-Gx water C7-C12	250 U	250.	ug/l	90		80-123		
Toluene	1.0 U	1.0	ug/l	100		80-120		
m,p-Xylene	1.0 U	1.0	ug/l	104		80-120		
o-Xylene	1.0 U	1.0	ug/l	100		80-120		
Batch number: 15302A94B	Sample number(s): 8105072							
Benzene	1.0 U	1.0	ug/l	95		80-120		
Ethylbenzene	1.0 U	1.0	ug/l	98		80-120		
NWTPH-Gx water C7-C12	250 U	250.	ug/l	90		80-123		
Toluene	1.0 U	1.0	ug/l	100		80-120		
m,p-Xylene	1.0 U	1.0	ug/l	104		80-120		
o-Xylene	1.0 U	1.0	ug/l	100		80-120		
Batch number: 15300667131A	Sample number(s): 8105068,8105070,8105072,8105074,8105076,8105078,8105080,8105082							
Nitrate Nitrogen	0.10 U	0.10	mg/l	95	95	90-110	1	20
Nitrite Nitrogen	0.10 U	0.10	mg/l	94	94	90-110	1	20
<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: 15300667131B	Sample number(s): 8105069,8105071,8105073,8105075,8105077,8105079,8105081,8105083							
Sulfate	0.30 U	0.30	mg/l	95	96	90-110	1	20

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: 15302A94A	Sample number(s): 8105068,8105070,8105074,8105084 UNSPK: 8105068, 8105070								
Benzene	103	100	80-120	3	30				
Ethylbenzene	105	102	80-120	3	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: 11/11/2015 15:50

Group Number: 1603876

Sample Matrix Quality Control

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

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u> <u>RPD</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup RPD</u> <u>Max</u>
NWTPH-Gx water C7-C12	94	96	80-123	3	30			
Toluene	107	104	80-120	3	30			
m,p-Xylene	110	107	80-120	2	30			
o-Xylene	104	101	80-120	3	30			
Batch number: 15302A94B	Sample number(s): 8105072 UNSPK: 8105068, 8105070							
Benzene	103	100	80-120	3	30			
Ethylbenzene	105	102	80-120	3	30			
NWTPH-Gx water C7-C12	94	96	80-123	3	30			
Toluene	107	104	80-120	3	30			
m,p-Xylene	110	107	80-120	2	30			
o-Xylene	104	101	80-120	3	30			
Batch number: 15300667131A	Sample number(s): 8105068,8105070,8105072,8105074,8105076,8105078,8105080,8105082 UNSPK: P105163 BKG: P105163							
Nitrate Nitrogen	101		90-110		0.50 U	0.50 U	0 (1)	15
Nitrite Nitrogen	98		90-110		0.50 U	0.50 U	0 (1)	15
Batch number: 15300667131B	Sample number(s): 8105069,8105071,8105073,8105075,8105077,8105079,8105081,8105083 UNSPK: P105171 BKG: P105171							
Sulfate	100		90-110		78.6	77.9	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: Method 8021 Water Master
Batch number: 15302A94A

	Trifluorotoluene-P	Trifluorotoluene-F
8105068	85	74
8105070	87	115
8105074	87	74
8105084	86	75
Blank	87	75
LCS	85	92
MS	85	93
MSD	85	95
Limits:	51-120	63-135

Analysis Name: Method 8021 Water Master
Batch number: 15302A94B

	Trifluorotoluene-P	Trifluorotoluene-F
8105072	81	82

*- 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: 11/11/2015 15:50

Group Number: 1603876

Surrogate Quality Control

Blank	88	76
LCS	85	92
MS	85	93
MSD	85	95
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

Delivery and Receipt Information

Delivery Method: SeaTac Arrival Timestamp: 10/27/2015 9:25
 Number of Packages: 1 Number of Projects: 1
 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:	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 Corey Eshleman (3647) at 09:58 on 10/27/2015

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	0.6	DT	Wet	Y	Bagged	N

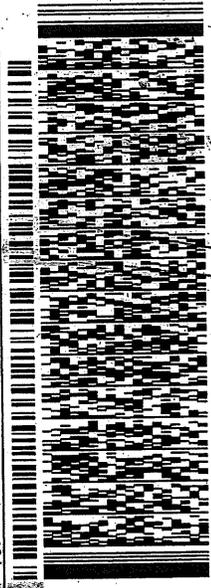
Part # 156297-435 11/12 06/15

DIMS: 22x10x7-4IN
BILL SENDER

UNITED STATES US
TO **SAMPLE RECEIVING**
LANCASTER LABS
2425 NEW HOLLAND PIKE

LANCASTER PA 17601
REF1
(717) 656-2300
PO:

DEPT:

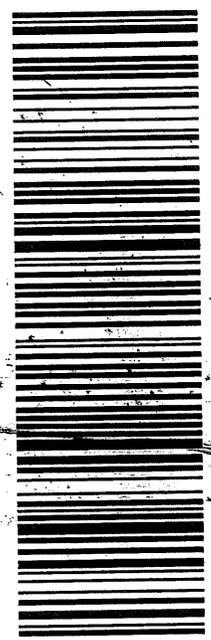


TUE - 27 OCT 10:30A
PRIORITY OVERNIGHT

TRK# **8054 3010 3937**
0667

XH LNSA

17601
PA-US MDT



FedEx Expanded Billable Stamp
Express
Use only for shipments within the U.S.
Saturday delivery available.

1 From
ORDER: 00805887

Package Weight
FedEx
Priority
Overnight

Release Signature For nonresidential deliveries.	For FedEx Use Only Start Charges		Total Charges
	Employee Number	Other	

2 To Shipments will not be accepted if address below is altered.

SAMPLE RECEIVING
LANCASTER LABORATORIES
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601
(717) 656-2300

NONREDEEMABLE
Please see the back of the receipt for important terms and conditions.

SATURDAY DELIVER
Shipments tendered on Friday are delivered on Saturday to most locations.



8054 3010 3937

Form ID
0667

805430103937

RUSH
SHORT
DEL

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-60, AOC 5
 Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM
 SAMPLE ID: BDC-101-151026 (yyymmdd)
 Date Collected: Oct./Nov., 26, 2015 COC Time: 625

61st Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-101 Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 18.42 (ft.) historical or measured
 Present Water Level: 12.20 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 18.42 ft - 12.20 ft = 6.22 ft x 0.658 Liters/ft = 4.09 Liters
 Purge Rate: 3.0 l. + 3.0 min. = 0.150 Liters/minute

Begin Purge: 6:05 time

End Purge: 625 time

Volume Purged: 3.0 Liters

Purge water disposal to: 55-gal drum, storage tank

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
607	= 300 ml	17.6	497	2.35	7.42	72	
609	= 800	17.2	481	1.45	7.17	86	
611	= 800	17.1	457	1.26	7.03	90	
613	= 1.0 L	17.3	445	1.38	6.94	92	
615	= 1.35	17.6	431	1.35	6.88	92	
617	= 1.65	17.5	423	1.11	6.82	91	
619	= 2.0	17.5	414	0.96	6.75	94	
621	= 2.3	17.6	412	0.83	6.74	91	
623	= 2.6	17.1	403	0.71	6.70	91	
625	= 3.0	18.1	403	0.63	6.64	92	
~							
~							
~							
~							
~							

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc.): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
4	40 ml	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)
2	40 ml	<input checked="" type="checkbox"/> Glass c	none	<input checked="" type="checkbox"/> No	Nitrite, Nitrate & Sulfate (LLI code 55)
	500 ml	<input type="checkbox"/> HDPE Plastic	H2SO4	<input type="checkbox"/> No	

Comments: * Hach Kit Fe++ Smoke

Duplicate Sample No: _____

Signature: C.H. Hardy

Date: Oct 26 2015

Continued on Back

BOEING Groundwater Sample Collection Form

61st Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: BDC-10 2-15 1024 (symmdd)

Date Collected: Oct/Nov. 26, 2015 COC Time: 655

Collector: Charles Hardy

Well Information

Well I. D.: BDC-102 Well Condition: Secure? Yes No; Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 18.83 (ft.) historical or measured

Present Water Level: 11.98 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 18.83 ft - 11.98 ft = 6.85 ft x 0.658 Liters/ft = 4.51 Liters

Purge Rate: 2.85 l. + 16 min. = 4.178 Liters/minute

Begin Purge: 639 time

End Purge: 655 time

Volume Purged: 2.85 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
<u>641</u>	<u>= 200 ml</u>	<u>16.8</u>	<u>657</u>	<u>1.09</u>	<u>6.39</u>	<u>113</u>	
<u>643</u>	<u>= 400</u>	<u>16.2</u>	<u>673</u>	<u>0.49</u>	<u>6.35</u>	<u>99</u>	
<u>645</u>	<u>= 650</u>	<u>16.5</u>	<u>661</u>	<u>0.38</u>	<u>6.33</u>	<u>57</u>	
<u>647</u>	<u>= 1.0 L</u>	<u>16.7</u>	<u>653</u>	<u>0.33</u>	<u>6.33</u>	<u>16.2</u>	
<u>649</u>	<u>= 1.4 L</u>	<u>16.9</u>	<u>649</u>	<u>0.31</u>	<u>6.36</u>	<u>-9</u>	
<u>651</u>	<u>= 1.95</u>	<u>17.0</u>	<u>635</u>	<u>0.28</u>	<u>6.40</u>	<u>-26</u>	
<u>653</u>	<u>= 2.4</u>	<u>16.9</u>	<u>628</u>	<u>0.25</u>	<u>6.41</u>	<u>-35</u>	
<u>655</u>	<u>= 2.85</u>	<u>17.0</u>	<u>619</u>	<u>0.23</u>	<u>6.41</u>	<u>-42</u>	
<u>657</u>	<u>=</u>						
<u>659</u>	<u>=</u>						
<u>1</u>	<u>=</u>						
<u>=</u>							
<u>=</u>							
<u>=</u>							
<u>=</u>							
<u>=</u>							

Sample Collection Information

Sample Collected with: disposable Bailor, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity 4 Size 40 ml Type Glass Preservative H-Cl Field Filtered No Laboratory Analysis Method NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)

2 40 ml Glass c none No Nitrite, Nitrate & Sulfate (LLI code 55)

500 ml HDPE Plastic H2SO4 No _____

Duplicate Sample No: _____

Comments: * Hach Kit Fe++ 1.0 mg/L

Signature: C.H. Hardy Date: Oct 26, 2015 Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-60, AOC 5
 Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM
 SAMPLE ID: BDC-10.3-151026 (yyymmdd)
 Date Collected: Oct./Nov., 26, 2015 COC Time: 720

61st Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-104 Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 13.51 (ft.) historical or measured
 Present Water Level: 12.02 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 13.51 ft - 12.02 ft = 6.99 ft x 2.552 Liters/ft = 16.24 Liters
 Purge Rate: 1.8 l. + 11 min. = 0.162 Liters/minute

Begin Purge: 709 time
 End Purge: 720 time

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Volume Purged: _____ Liters
 Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
711	= 200 ml	15.1	824	0.37	6.50	-37	
713	= 600 ml	15.4	872	0.27	6.50	-52	
715	= 950	15.2	885	0.18	6.53	-70	
717	= 1.3	15.4	890	0.12	6.56	-77	
719	= 1.65	15.6	894	0.12	6.59	-83	
720	= 1.8	15.5	895	0.11	6.61	-85	
722	=						
725	=						
	=						
	=						
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Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
4	40 ml	<input checked="" type="checkbox"/> Glass	H-Cl	<input checked="" type="checkbox"/> No	NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)
2	40 ml	<input checked="" type="checkbox"/> Glass c	none	<input checked="" type="checkbox"/> No	Nitrite, Nitrate & Sulfate (LLI code 55)
	500 ml	<input type="checkbox"/> HDPE Plastic	H2SO4	<input type="checkbox"/> No	

Comments: * Hach Kit Fe++ 1.0 mg/l
 Duplicate Sample No: _____

Signature: C.H. Hardy Date: Oct 26, 2015 Continued on Back

BOEING Groundwater Sample Collection Form

61st Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE I D: BDC-104-151026 (yyymmdd)

Date Collected: Oct/Nov, 26, 2015 COC Time: 7:30

Collector: Charles Hardy

Well Information

Well I. D.: BDC-104 Well Condition: Secure? Yes No; Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 18.90 (ft.) historical or measured

Present Water Level: 11.95 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 18.90 ft - 11.95 ft = 6.95 ft x 0.653 Liters/ft = 4.57 Liters

Purge Rate: 2.8 l. + 16 min. = 0.175 Liters/minute

Begin Purge: 7:34 time

End Purge: 7:50 time

Volume Purged: 2.8 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Diameter	10s	Sch 40	Sch 80
1"		0.170	0.140
2"	0.776	0.658	0.579
2.5"		0.942	0.833
4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity +/- 3%	D. O. (mg/l) +/- 10%	pH +/- 0.10 unit	ORP mV	Others (w/level, turb.)
736	= 200 ml	14.9	375	0.50	7.21	-30	
738	= 600	15.0	369	0.29	7.03	-23	
740	= 1.05 l	15.3	365	0.25	6.92	-16	
742	= 1.4	15.5	363	0.18	6.88	-13	
744	= 1.75	15.6	361	0.17	6.84	-9	
746	= 2.1	15.5	359	0.17	6.80	-7.1	
748	= 2.45	15.5	358	0.17	6.76	-4.1	
750	= 2.8	15.9	354	0.20	6.72	-2.0	
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Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity 4 Size 40 ml Type Glass Preservative H-Cl Field Filtered No Laboratory Analysis Method NWTPH-Gx & BETX (EPA 8021B)(LLI code 26)

2 40 ml Glass c none No Nitrite, Nitrate & Sulfate (LLI code 55)

500 ml HDPE Plastic H2SO4 No _____

Duplicate Sample No: _____

Comments: 1 Hach Kit Fe++ 1.0 mg/L

Signature: C.H. Hardy Date: Oct 26 2015 Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-60, AOC 5 DOWNGRADISK
 Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM
 SAMPLE I D: BDC-# 05-4-15 1026 (synmdd)
 Date Collected: Oct/Nov., 26, 2015 COC Time: 815

Collector: Charles Hardy

Well Information

Well I. D.: BDC-05-4 Well Condition: Secure? Yes No; Describe Condition: _____
 Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 25.36 (ft.) historical or measured
 Present Water Level: 12.54 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 25.36 ft. - 12.54 ft = 12.82 ft x 2.502 Liters/ft = 32.08 Liters
 Purge Rate: 2.2 l. + 13 min. = 169 Liters/minute

Begin Purge: 802 time

End Purge: 815 time

Volume Purged: 2.2 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing Diameter	10s	Sch 40	Sch 80
1"		0.170	0.140
2"	0.776	0.658	0.579
2.5"		0.942	0.833
4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	Conductivity +/- 3%	D. O. (mg/l) +/- 10%	pH +/- 0.10 unit	ORP mV	Others (w/level, turb.)
804 = 200		14.8	381	0.35	6.52	-46	
806 = 600		14.9	384	0.18	6.52	-18	
808 = 950		15.0	385	0.13	6.54	-82	
810 = 1.3		14.9	383	0.10	6.57	-90	
812 = 1.65		14.9	381	0.09	6.60	-96	
814 = 2.0		14.9	380	0.09	6.60	-100	
815 = 2.2		15.0	379	0.08	6.60	-101	
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Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>1</u>	<u>40 ml</u>	<input type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>NWTFH-Gx & BETX (EPA 8021B) (LLI code 26)</u>
<u>2</u>	<u>40 ml</u>	<input type="checkbox"/> Glass c	<u>none</u>	<input type="checkbox"/> No	<u>Nitrite (Nitrate) & Sulfate (LLI code 55)</u>
	<u>500 ml</u>	<input type="checkbox"/> HDPE Plastic	<u>H2SO4</u>	<input type="checkbox"/> No	

Comments: Hach Kit Fe++ 1.5 mg/L

Signature: C.H. Hardy Date: _____ 2015 Continued on Back

BOEING Groundwater Sample Collection Form

61st Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC 5

Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM

SAMPLE ID: BDC-10 Mw17a - 151026 (synmid)

Date Collected: Oct/Nov, 26, 2015 COC Time: 940

Collector: Charles Hardy

Well Information

Well I. D.: BDC-Mw-17a Well Condition: Secure? Yes No: Describe Condition: _____

Info.: Size: 2 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____

Total Depth of Well: 19.0 (ft.) historical or measured

Present Water Level: 12.23 (ft.) Measured from: Well Casing, or Protective Monument

Traditional Purge Volume Calc.: 19.0 ft - 12.23 ft = 6.77 ft x 0.658 Liters/ft = 4.06 Liters

Purge Rate: 1.95 l. + _____ min. = _____ Liters/minute

Begin Purge: 926 time

End Purge: 940 time

Volume Purged: 1.95 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule	2"	0.776	0.658	0.579
(Liters/ft)	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D/O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
928	= 100 ml	17.9	1365	0.78	6.36	9.7	
930	= 450	18.8	1426	0.30	6.43	-0.2	
932	= 750	18.9	1442	0.20	6.78	-5.4	
934	= 1.05 L	18.8	1449	0.17	6.80	-8.3	
936	= 1.35	18.8	1452	0.20	6.52	-10.1	
938	= 1.65	18.8	1455	0.18	6.53	-11.1	
940	= 1.95	18.9	1457	0.17	6.54	-11.6	
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Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump

Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____

Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____

Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity 1 Size 40 ml Type Glass HDPE Plastic Preservative H-Cl Field Filtered No Yes Laboratory Analysis Method NWTRP-Gx & BETX (EPA 8021B)(LLI code 26)

2 40 ml Glass c none No Nitrite (Nitrate) & Sulfate (LLI code 55)

500 ml HDPE Plastic H2SO4 No _____

Duplicate Sample No: _____

Comments: Hach Kit Fe++ 0 mg/l

Signature: C.H. Hardy Date: Oct 26, 2015 Continued on Back

Date: Oct 26, 2015 Continued on Back

BOEING Groundwater Sample Collection Form

Project Site: Dev. Ctr. Area: 9-60, AOC 5 DOWNGRADPG W
 Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM
 SAMPLE ID: BDC-10 Mw 18a-15-1026 (synmmdl)
 Date Collected: Oct./Nov., 26, 2015 COC Time: 9:15

61st Sample event

Collector: Charles Hardy

Well Information

Well I. D.: BDC-Mw-18a Well Condition: Secure? Yes No; Describe Condition: _____
 Info.: Size: 2 (inches) 40 (Sch.) Material PVC, Stainless Steel, Other _____
 Total Depth of Well: 20.02 (ft.) historical or measured
 Present Water Level: 12.36 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 20.02 ft - 12.36 ft = 7.66 ft x 0.652 Liters/ft = 5.34 Liters
 Purge Rate: 2.2 l. + 15 min. = 0.147 Liters/minute

Begin Purge: 9:00 time

End Purge: 9:15 time

Volume Purged: 2.2 Liters

Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size &	2"	0.776	0.658	0.579
Schedule	2.5"		0.942	0.833
(Liters/ft)	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F or °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
9:02	150 mL	17.0	1172	0.85	6.00	27	
9:04	500	17.2	1174	0.21	6.21	0.6	
9:06	800	17.3	1187	0.15	6.27	0.8	
9:08	1.05	17.3	1200	0.13	6.30	-2.2	
9:10	1.42	17.3	1216	0.11	6.32	-4.3	
9:12	1.75	17.4	1239	0.11	6.33	-5.9	
9:14	2.05	17.3	1254	0.10	6.35	-6.8	
9:15	2.2	17.3	1259	0.10	6.35	-7.1	

Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
<u>4</u>	<u>40 ml</u>	<input type="checkbox"/> Glass	<u>H-Cl</u>	<input type="checkbox"/> No	<u>NWTPH-GX & BETX (EPA 8021B) (LLI code 26)</u>
<u>2</u>	<u>40 ml</u>	<input checked="" type="checkbox"/> Glass c	<u>none</u>	<input checked="" type="checkbox"/> No	<u>Nitrite, Nitrate & Sulfate (LLI code 55)</u>
	<u>500 ml</u>	<input type="checkbox"/> HDPE Plastic	<u>H2SO4</u>	<input type="checkbox"/> No	

Comments: * Hach Kit Fe++ 0.6 mg/L

Signature: C.H Hardy Date: Oct 26 2015 Continued on Back

BOEING Groundwater Sample Collection Form

61st Sample event

Project Site: Dev. Ctr. Area: 9-60, AOC5 DOWNKRAP IGLT
 Event: 4th Quarter 2015 (post Nitrate Inj) labor # 7KDVCREM
 SAMPLE ID: ~~BDC-10~~ MW-21A-15P2 (symmdd)
 Date Collected: Oct./Nov., 26, 2015 COC Time: 845

Collector: Charles Hardy

Well Information

Well I. D.: BDC-MW21a Well Condition: Secure? Yes No: Describe Condition: _____
 Info.: Size: 4 (inches) 40 (Sch.) Material: PVC, Stainless Steel, Other _____
 Total Depth of Well: 19.90 (ft.) historical or measured
 Present Water Level: 12.55 (ft.) Measured from: Well Casing, or Protective Monument
 Traditional Purge Volume Calc.: 19.90 ft 12.55 ft = 7.35 ft x 3.52 Liters/ft = 4.34 Liters
 Purge Rate: 1.65 l. + 13 min. = 0.127 Liters/minute 0.052

Begin Purge: 8:34 time
 End Purge: 8:45 time
 Volume Purged: 1.65 Liters
 Purge water disposal to: 55-gal drum, storage tank treatment system ground other _____

Casing	Diameter	10s	Sch 40	Sch 80
Volume	1"		0.170	0.140
by Size & Schedule (Liters/ft)	2"	0.776	0.658	0.579
	2.5"		0.942	0.833
	4"	2.995	2.502	2.260

Recorded Parameters for Stabilization during Purging

Time	Vol. Purged	Temp. (°F of °C)	+/- 3% Conductivity	+/- 10% D. O. (mg/l)	+/- 0.10 unit pH	ORP mV	Others (w/level, turb.)
836	= 100	15.2	253	1.17	6.42	-8.9	
838	= 550 ml	15.2	254	0.66	6.30	+1.6	
840	= 850 ml	15.4	258	0.43	6.24	+5.6	
842	= 1.15	15.3	260	0.33	6.21	7.4	
844	= 1.5 L	15.2	261	0.35	6.19	9.0	
845	= 1.65	15.3	263	0.33	6.16	10.3	
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Sample Collection Information

Sample Collected with: disposable Bailer, Peristaltic, Bladder, Inertia Lift, or Elect. Submersible Pump
 Made of: Polyethylene HDPE PVC Teflon Stainless Steel Other _____
 Decontamination: N/A dedicated system Alconox Wash Tap Rinse D.I. Rinse Other _____
 Sample Description: (color, turbidity, odor, sheen, etc): _____

Quantity	Size	Type	Preservative	Field Filtered	Laboratory Analysis Method
+	40 ml	<input type="checkbox"/> Glass	H-Cl	<input type="checkbox"/> No	NWTPH-Gx & BETX (EPA 8021R)(LLI code 26)
2	40 ml	<input type="checkbox"/> Glass c	none	<input type="checkbox"/> No	Nitrite, Nitrate & Sulfate (LLI code 55)
	500 ml	<input type="checkbox"/> HDPE Plastic	H2SO4	<input type="checkbox"/> No	

Comments: * Hach Kit Fe++ 0.
 Duplicate Sample No: _____

Signature: C.H. Hardy C.H. Hardy Date: Oct 26 2015 Continued on Back



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 178000
Order Date: 09/22/2015
Page 1 of 2
Standard Frm#: 148383

Client: 13419
The Boeing Company
Boeing_DC:AOC-5

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

Group: 1

Number of Sample Locations: 4

One complete set of bottles listed below must be filled for each of the 4 sample location(s).

<u>Sample Description</u>	<u>QC Type</u>
BDC-101 Water	
BDC-102 Water	
BDC-103 Water	
BDC-104 Water	

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
4	26	40 ml glass vial	HCl	Method 8021 Water Master	14 days
				NWTPH-Gx water C7-C12	14 days
2	55	40 ml glass vial	None	Nitrate	48 hours
				Nitrite Nitrogen	48 hours
				Sulfate	28 days

Group: 2

Number of Sample Locations: 4

One complete set of bottles listed below must be filled for each of the 4 sample location(s).

<u>Sample Description</u>	<u>QC Type</u>
DC-MW-17a Water	
DC-MW-18a Water	
DC-MW-21a Water	
BDC-05-04 Water	

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
2	55	40 ml glass vial	None	Nitrate	48 hours
				Sulfate	28 days

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 x1198

Date Needed:

10/13/2015

Pack By:

10/12/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request



Lancaster Laboratories
Environmental

Sample Container Record



Order Number: 178000
Order Date: 09/22/2015
Page 2 of 2
Standard Frm#: 148383

Client: 13419
The Boeing Company
Boeing_DC:AOC-5

Ship To:
Boeing
Boeing@ Western Process. Sfund
20015 72nd Ave South
Kent, WA 98032
Attn: Charles 'Duffy' Hardy

Group: 3

Number of Sample Locations: 1

<u>Sample Description</u>	<u>QC Type</u>
Trip Blank Water	Trip Blank

<u>Count</u>	<u>Code</u>	<u>Description</u>	<u>Preservative</u>	<u>Analysis Name</u>	<u>Hold Time</u>
2	26	40 ml glass vial	HCl	Method 8021 Water Master	14 days
				NWTPH-Gx water C7-C12	14 days

Sample Acceptance Policy

Samples must be submitted in a manner that meets the criteria listed below. If these criteria are not met, the laboratory will contact the client to discuss how to proceed with testing. If the client decides to proceed with testing, a comment describing the variation will appear on the analytical report.

- Documentation must be complete and include: sample identification, the location, date and time of collection, collector's name or initials, preservation type, sample type, required analyses, and any special remarks concerning the sample.
- Proper sample labeling must include unique identification on a durable (water resistant) label using indelible ink.
- Samples must be collected in appropriate containers with sufficient volume to perform tests. The laboratory will provide appropriate bottleware.
- Samples must be shipped promptly to meet specified holding times with adequate packing materials to prevent damage during shipment and adequate wet ice to meet method temperature requirements (0-6°C, not frozen).

If you have any questions, please contact your Client Service Representative, Kay Hower, at (717)656-2300 x1198

Date Needed:

10/13/2015

Pack By:

10/12/2015

Shipping Method:

Lab Drop Off

This order is:

Per your Request

BOTTLE REQUEST FORM

Prepared by: Charles 'Duffy' Hardy Project Name: Boeing_DC: AOC-5
 Client: Boeing EHS Sampling Frequency: Quarterly Feb. May, Aug. & Nov.
 Contact: Jim Bet (Boeing) /Clint Jacob (Landau) Sampling Date: ~October 26rd-30th, 2015
 Ship To: Charles 'Duffy' Hardy (206-290-6572) Need By Date: Oct. 20, 2015
Boeing @ Western Processing Superfund
20015 72nd Ave South
Kent, WA 98032

of coolers: As needed Labels?: Provide loose labels
 Trip Blanks?: 1 set, one shipment Boxed?: No

No. Of Samples	Analysis Requested	Sample Matrix	Bottle Size	No. Bottles Per Sample	Preservative
4	BETX EPA 8021 <i>26</i>	Water	40-mL VOA	2 ?	HCl
4	TPH as Gasoline NWTPH-Gx <i>26</i>	Water	40-mL VOA	2	HCl
4 qrtly	Sulfate, & Nitrate* IC E300 <i>55</i>	Water	40-mL	2	None
+4 semi-ann**	Sulfate & Nitrate* IC E300 <i>55</i>	Water	40-mL	2	None
Comments: * Nitrate holding time is 48-hours for analysis Quarterly well list BDC-101, -102, -103, -104 February, May, August, & November Jan. April, July, Oct. 2015 **Semi-annual well list add DC-Mw-17a, Mw-18a, Mw-21a & BDC-05-04 (May & Nov.) Apr. & Oct					

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.

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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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