

**2015 Annual Report
SWMU-17 Remedial Action
Enhanced Anaerobic Bioremediation
Boeing Developmental Center**

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Prepared for

**The Boeing Company
Seattle, Washington**



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1.0 INTRODUCTION

This document presents a 2015 annual report for the anaerobic bioremediation remedial action performed at Solid Waste Management Unit (SWMU)-17 of The Boeing Company's (Boeing) Developmental Center (DC) in Tukwila, Washington (Figure 1). The DC is a regulated facility under the Resource Conservation and Recovery Act (RCRA) with a facility identification number of WAD-09363-9946. The Washington State Department of Ecology (Ecology) is authorized by the US Environmental Protection Agency (EPA) to implement RCRA corrective action through its Model Toxics Control Act (MTCA) regulations. Boeing is performing remedial actions at the DC under Ecology's voluntary cleanup program (VCP).

Remedial action at SWMU-17 is performed to enhance reductive dechlorination of tetrachloroethene (PCE) and trichloroethene (TCE) present in groundwater and their breakdown products. The primary reductive dechlorination breakdown products of PCE and TCE are cis-1,2-dichloroethene (cDCE) and vinyl chloride (VC). SWMU-17 wells and site features are shown on Figure 2. Anaerobic bioremediation remedial action was performed in general accordance with the SWMU-17 Remedial Action Work Plan (Work Plan; LAI 2011).

This fourth annual report following the start of the SWMU-17 remedial action in 2011 summarizes the remedial action activities and results for calendar year 2015. Activities during this reporting period consisted of performance monitoring and data evaluation. No additional electron donor injection has been required since the initial injection event in 2011.

1.1 Background

SWMU-17 (Figure 2) comprises the general area of a former 67-gallon sump and associated 4,000-gallon steel underground storage tank (UST; designated DC 05) located west of Building 9-64. Waste oil generated by hydraulic testing shops, automotive maintenance shops, and various other operations at the DC was discharged to the sump, which flowed into the UST. Periodically, waste oil was pumped from the UST for offsite treatment and disposal (SAIC 1994). The sump and UST were installed in 1957 and removed in late March or early April 1986 (LAI 1987).

Following removal of the sump and UST, and initial phases of the investigation (LAI 2004), groundwater monitoring has focused on chlorinated volatile organic compounds (CVOCs) and selected metals (copper and arsenic). CVOCs of interest included PCE, TCE, and reductive dechlorination breakdown products cDCE and VC. Initially, preliminary screening levels (LAI 2002) were exceeded for PCE and intermittently for dissolved metals (copper only) and total metals (both copper and arsenic), with total metals concentrations historically higher than dissolved concentrations. Through May 2008, prior to bioremediation pilot testing, the highest concentrations of PCE and TCE were detected at wells BDC-05-02 and BDC 05-07 (LAI 2008). Groundwater concentrations of PCE ranged from approximately 5 to 33 micrograms per liter ($\mu\text{g/L}$) at BDC-05-07 and BDC-05-02; TCE at these two wells ranged from 7 to 45 $\mu\text{g/L}$. Preliminary screening levels for total and dissolved copper and total arsenic

were exceeded in groundwater at multiple wells. Cumulative data for these constituents are presented for SWMU 17 wells in Table 1. Proposed cleanup levels (CULs), developed for the DC in 2013 (LAI 2013b) were lower than initial screening levels, with the exception of CULs for arsenic and copper, which increased. Proposed CULs are presented for comparison to data in Table 1.

Bioremediation pilot testing, consisting of electron donor injection to enhance biological degradation of PCE and TCE, was conducted October 2008 through February 2010. Water amended with electron donor substrates, nutrients, and ferrous sulfate was injected to well BDC 05 02. Ferrous sulfate was included in the injection solution to stimulate removal of dissolved copper and arsenic from groundwater and abiotic degradation of PCE and TCE through reaction with formed iron sulfides. The resulting biodegradation substantially reduced PCE and TCE at the injected well and, with time, at the nearest downgradient well. The effectiveness of ferrous sulfate addition was inconclusive. Details of the pilot test can be found in the Pilot Test Report (LAI 2010b) and the subsequent Response to Ecology Comments (LAI 2010a)

To further characterize the SWMU-17 plume, groundwater was sampled from 67 additional direct-push borings in 2010 and 2011, resulting in characterization of the horizontal and vertical extents of contamination (LAI 2011). Results from the deeper borings confirmed that contamination is restricted to the shallow interval. Iso-concentration contours representing SWMU-17 concentrations of PCE and/or TCE prior to full-scale treatment are presented on Figure 3. Both PCE and TCE are parent products targeted for remediation. cDCE and VC, anaerobic biodegradation end products of PCE and TCE, were also detected. Further details on plume characterization and evaluation of contaminant distribution were provided in the Work Plan (LAI 2011).

1.2 Remedial Approach

Anaerobic bioremediation at SWMU-17 is accomplished through stimulation of micro-organisms present in the aquifer to enhance biodegradation of chloroethenes. Vegetable oil and ethyl lactate (electron donor substrates) were injected throughout the higher-concentration core of the plume to stimulate biotic reductive dechlorination of PCE and TCE (electron acceptors).

Reductive dechlorination of PCE and TCE occurs through microbially mediated (biotic) reactions whereby micro-organisms obtain energy through oxidation-reduction (redox) reactions. Electron donors (hydrogen, fatty acids, etc.) are used by microbes together with various electron acceptors (oxygen, nitrate, manganese [IV], ferric iron, sulfate, and carbon dioxide). These redox reactions can be compared to the process whereby humans obtain energy through consumption of food (electron donor) and oxygen (electron acceptor). Bacteria obtain the greatest energy yield by using oxygen as an acceptor, as it is highly oxidized and, therefore, can be reduced easily and to a large degree. When oxygen is depleted in an uncontaminated aquifer, bacteria sequentially use the less oxidized electron acceptors in the following order: nitrate; manganese (IV); iron (III) (i.e., ferric iron); sulfate; and carbon dioxide.

Chloroethenes can also be used as electron acceptors by specific micro-organisms and degraded to harmless end products. Through biodegradation, chloride ions present on the chlorinated hydrocarbon molecule are replaced with hydrogen (electron donor), resulting in the formation of successively less chlorinated molecules. By this process, PCE and TCE are degraded to less chlorinated breakdown products, cDCE and VC, and then to innocuous end products ethene and ethane. PCE is the most oxidized electron acceptor in groundwater systems after oxygen and, therefore, can be reduced as soon as oxygen is depleted (Vogel et al. 1987a). TCE, cDCE, and VC, however, require successively more reducing aquifer conditions for degradation. TCE can be degraded under iron-reducing conditions (Chapelle 1996); cDCE can be degraded under sulfate-reducing to carbon dioxide (CO₂)-reducing (i.e., methanogenic) conditions (Chapelle 1996, Vogel et al. 1987b); and VC can be degraded only under highly reducing methanogenic conditions (Ballapragada et al. 1997, Freedman and Gossett 1989, Maymo-Gatell et al. 1995, Vogel and McCarthy 1985).

Reductive dechlorination is enhanced through injection of electron donor substrates (e.g., vegetable oil and lactate) as a food source for the bacteria. Electron donor substrates are injected into the contaminated aquifer where a consortium of indigenous bacteria first ferment the substrate to volatile fatty acids and hydrogen and then use these fermentation products as donor for reduction of natural electron acceptors and chloroethenes. Depletion of natural electron acceptors (e.g., oxygen, iron, sulfate, CO₂) creates the highly reducing aquifer conditions (sulfate-reducing to methanogenic conditions) required for complete reductive dechlorination of PCE and breakdown products. Hydrogen is the required electron donor for the primary cDCE and VC degraders (i.e., Dehalococcoides [DHC] strains) that degrade these PCE breakdown products to harmless, non-chlorinated end products. Other anaerobic dechlorinating organisms are typically common and widespread, and utilize fatty acids or hydrogen as electron donor.

1.3 Data Evaluation Considerations

Evaluation of results requires consideration of whether data is from injection wells (IWs) or monitoring wells (MWs). These well types are identified in Table 1 and are identified by different symbols on Figures 2 and 3. Characteristics of these two groups of wells are as follows:

- **IWs:** Generally located within the high-concentration core of the PCE/TCE plume. Due to higher initial concentrations of PCE and TCE, biodegradation to breakdown products and end products is most apparent. Because these wells were used for injection, TOC concentrations (indicative of electron donor) are likely to be higher and persist for longer than at nearby MWs. Similarly, enhanced aquifer redox conditions are likely to develop sooner and persist for longer than in the rest of the aquifer.
- **MWs:** Groundwater data from MWs provide insight to the downgradient and crossgradient extent of treatment effects, including distribution of total organic carbon (TOC), enhanced redox conditions, and dechlorination breakdown products and end products. An understanding of the MW locations relative to the plume and to IWs is also important for evaluation of the data, as follows:

- MW BDC-05-19 is within the core of the contaminant plume. Similar to the IWs, higher initial concentrations of PCE and TCE make biodegradation to breakdown products and end products more apparent at this well.
- Other MWs are at the fringes of the plume, both downgradient (BDC-05-20) and crossgradient (BDC-05-03, BDC-05-04, BDC-05-08, BDC-05-18, BDC-05-21, BDC 05 22, and BDC-05-24), and an additional well is far downgradient (BDC-05-23). Changes in concentrations of PCE, TCE, and breakdown products at these wells may not be generally apparent due to low initial concentrations of PCE and TCE. Some of these wells have shown post-injection increases in TOC concentrations and/or changes in redox conditions, indicating the extent of treatment effects.
- An additional MW is located upgradient of the plume (BDC-05-05). This well is sampled for continued evaluation of background conditions and is unaffected by bioremediation.

2.0 SUMMARY OF PREVIOUS WORK

This section briefly summarizes remedial action activities that took place during the previous three reporting periods (June 2011 through December 2013), as documented in previous reports (LAI 2013a, 2014, 2016). Field activities and data findings are summarized below.

2.1 Field Activities

Prior field activities consisted of installation of IWs and MWs, electron donor injection, and groundwater monitoring.

Sixteen additional groundwater wells (BDC-05-09 through BDC-05-24) were installed July 5 through July 11, 2011. This supplemented 6 existing wells (BDC-05-02 through BDC-05-05, BDC 05 07, and BDC-05-08) for a total of 22 SWMU-17 wells utilized for the remedial action. Well locations are presented on Figure 2.

Electron donor solution was injected into 11 wells from August 15-18, 2011. Each of the 11 wells (BDC-05-02, BDC-05-07, and BDC-05-09 through BDC-05-17) was injected with approximately 5,600 gallons of donor injection fluid, consisting of approximately 5,300 gallons of potable water from an onsite hydrant, 6 drums (320 gallons) of LactOil™ donor substrate, and 2 lbs of yeast extract. A total of 66,800 gallons was injected. LactOil is a combination donor substrate containing both soluble (fast-release) ethyl lactate and insoluble (slow-release) soybean oil.

Baseline sampling was performed in July 2011, followed by ongoing post-injection sampling which consists of two semiannual sampling events and two quarterly sampling events each year. Semiannual sampling events were conducted in May and November each year, beginning with November 2011, and involved sampling 22 wells. Quarterly sampling events were conducted in February and August/September each year, beginning with February 2012, and involved sampling 10 wells. Samples were analyzed for target contaminants and breakdown products (PCE, TCE, cDCE, and VC); non-toxic end products (ethene and ethane); parameters indicative of aquifer redox conditions (dissolved oxygen [DO], oxidation-reduction potential [ORP], nitrate, ferrous iron, sulfate, and methane); TOC and pH indicative of electron donor; and total and dissolved copper and arsenic. In accordance with the Work Plan, laboratory analysis of methane/ethane/ethene/acetylene (MEEA) was performed at select wells. Nitrate, which was consistently not detected, was determined to not be useful for evaluation of aquifer redox conditions at the site, and nitrate analysis was discontinued beginning in May 2012. MEEA was added to additional wells BDC-05-03, BDC-05-21, and BDC-05-24 beginning with the May 2013 semiannual sampling event to improve treatment progress evaluation.

2.2 Summary of Findings

This section briefly summarizes prior findings to provide context for discussion of results from the current reporting period (Section 4.0). Findings through November 2014 demonstrated substantial treatment in the first 39 months following donor injection.

Baseline data showed conditions conducive to limited biodegradation of PCE and TCE. The highest baseline concentrations of PCE and TCE were 39 µg/L (BDC-05-10) and 28 µg/L (BDC-05-15), respectively. cDCE, the first reductive dechlorination sequential breakdown product, was commonly detected (ranged 0.2 to 45 µg/L), but VC and end products ethene and ethane were below reporting limits. Baseline aquifer redox conditions were variable, with more highly reducing conditions (sulfate-reducing to methanogenic) occurring at source zone wells BDC-05-02 and BDC-05-07 due to prior pilot testing, and predominantly mild to moderately reducing conditions (nitrate to iron-reducing) occurring elsewhere in the plume. TOC concentrations were below 10 milligrams per liter (mg/L) at most wells, which is the threshold generally considered to represent sufficient electron donor to support substantial reductive dechlorination (Major et al. 2003).

Post-injection monitoring through November 2014 indicated that bioremediation had been substantially enhanced due to electron donor injection. Monitoring data provided “direct evidence” of biodegradation of PCE, TCE, and breakdown products at 16 of 22 monitored wells; these wells consisted of the 11 IWs and 5 downgradient or crossgradient MWs. Bioremediation was substantially enhanced at the farthest downgradient well (BDC-05-23 at 170 ft downgradient) and up to 30 ft crossgradient of IWs at monitoring well BDC-05-21. Five additional MWs showed “some evidence” of enhanced bioremediation consisting of elevated TOC or a change in concentrations of PCE, TCE, or breakdown products, but not both indicators; “some evidence” of bioremediation occurred at MWs located up to 48 ft crossgradient (BDC-05-22) of IWs. Only BDC-05-05, which is upgradient of the injection and not expected to be affected, showed no evidence of enhanced bioremediation. A summary of more specific findings is as follows:

- **TOC:** TOC concentrations were enhanced for bioremediation throughout the core of the contaminant plume and many of the crossgradient and downgradient monitoring wells. TOC at IWs ranged from 550 to 5,360 mg/L during the November 2011 sampling event conducted 2.5 months after donor injection. As of November 2014 (39 months post-injection), TOC had decreased substantially at all IWs (7 to 52 mg/L), but remained above baseline concentrations at all IWs except BDC-05-09. TOC remained above baseline (16 to 40 mg/L) at three (BDC-05-08, BDC-05-19, BDC-05-20) of the five downgradient and crossgradient wells that have exhibited “direct evidence” of enhanced bioremediation. TOC increases at wells with “some evidence” were short-lived and not sustained.
- **Redox Conditions:** Highly reducing aquifer redox conditions required for complete reductive dechlorination of PCE, TCE, and breakdown products were achieved throughout the core of the plume, as indicated by decreasing concentrations of sulfate and increasing concentrations of methane in all IWs through November 2014. Highly reducing conditions were also achieved at downgradient and crossgradient wells exhibiting “direct evidence” of enhanced

bioremediation. At other MWs, redox changes were minor (e.g., decreasing DO, increased ferrous iron) or short-lived (e.g., a brief decrease in sulfate followed by a rebound to baseline levels).

- Reductive Dechlorination: Reductive dechlorination was enhanced at all SWMU-17 wells with the exception of upgradient well BDC-05-05. As of November 2014, PCE and TCE remained below their proposed CULs (5.3 and 1.4 µg/L, respectively; LAI 2013a) at all wells. Concentrations of PCE and TCE at BDC-05-10, which had the highest baseline concentration of PCE and the second highest concentration of TCE, had decreased to less than the reporting limit (0.2 µg/L), representing a concentration reduction of more than 99 percent. Increases in one or more breakdown products (cDCE and VC) or end products (ethene and ethane) were observed at all IWs. After peaking, cDCE concentrations decreased and have remained below proposed CULs since November 2012. VC concentrations were elevated above proposed CULs at 12 wells as of November 2014. Complete reductive dechlorination was evidenced by innocuous end product ethene detected at 15 of 17 wells in November 2014. Evaluation of results on a molar basis indicated a steady shift from a predominance of chlorinated ethenes (PCE, TCE, cDCE, and VC) to non-chlorinated end products (ethene and /or ethane) at all wells that had significant baseline PCE and TCE concentrations.
- Concentrations of arsenic and copper increased at many SWMU-17 wells following the August 2011 injection, consistent with results observed during bioremediation pilot testing. However, from November 2012 through November 2014, total and dissolved copper concentrations remained below the proposed CUL of 0.008 mg/L at all 22 wells. As of November 2014, total and dissolved arsenic remained above the proposed CUL of 0.008 mg/L at 16 of 22 sampled wells; one less than were above the proposed CUL in November 2013. Solubilization of reduced arsenic (along with manganese and iron) is a localized and temporary phenomenon that occurs within the portion of the aquifer that has been artificially reduced through donor amendment. Once the injected donor has been consumed and natural conditions are re-established, these metals should return to the less soluble forms that existed prior to donor amendment (Solutions-EIS 2006, Suthersan et al. 2003) and results.

3.0 2015 ACTIVITIES AND RESULTS

2015 activities consisted of quarterly and semiannual performance monitoring. Quarterly monitoring was performed at 10 wells, including 3 representative IWs (BDC-05-02, BDC-05-12, and BDC-05-16); 3 MWs located near the core of the plume (BDC-05-18 through BDC-05-20); and 4 downgradient and crossgradient monitoring wells (BDC-05-21 through BDC-05-24). Semiannual sampling was performed at all 22 wells, and included collection of groundwater elevations.

As indicated in Table 2, samples were analyzed for target contaminants and breakdown products (PCE, TCE, cDCE, and VC); non-toxic end products (ethene and ethane); parameters indicative of aquifer redox conditions (DO, ORP, ferrous iron, sulfate, and methane); and TOC and pH indicative of electron donor. In accordance with the Work Plan, laboratory analysis of MEEA was performed at select wells. In addition, metals analysis for total and dissolved copper and arsenic was performed during semiannual monitoring. Laboratory analysis was performed by Eurofins Lancaster Laboratories Environmental (LLI). Parameters DO, ORP, ferrous iron, and pH were measured in the field. Groundwater monitoring data are presented in Table 1. Laboratory reports for the reporting period are presented in Appendix A.

Groundwater elevations were measured during the April and October 2015 semiannual sampling events. As expected from previous data, results show generally west-southwesterly groundwater flow, with a north and south component near the head to middle portion of the plume. These groundwater flow directions are consistent with contaminant distribution in the aquifer. Groundwater elevation contours for April and October 2015 are presented on Figures 4 and 5. Cumulative groundwater elevation data for SWMU-17 wells are presented in Appendix B.

4.0 DISCUSSION OF 2015 RESULTS

This section presents discussion and interpretation of data collected during 2015 post-injection performance monitoring. As of the October 2015 sampling event, all wells were below proposed CULs for PCE, TCE, and cDCE, while only 2 of 22 wells were above the CUL for VC. Groundwater monitoring results show that *in situ* anaerobic bioremediation continues to be enhanced, despite declining TOC concentrations. Results indicate enhanced aquifer redox conditions and enhanced reductive dechlorination. Complete reductive dechlorination is occurring, as indicated by detection of end products ethene and/or ethane, at the majority of IWs and MWs where analyzed. At most wells where ethene and/or ethane were detected, these innocuous end products have become predominant over the chlorinated ethenes (i.e., there is more ethene/ethane on a molar basis than PCE, TCE, cDCE, or VC), demonstrating an ongoing trend away from the toxic parent and breakdown products to non-toxic end products. October 2015 data was collected 50 months following the August 2011 electron donor injection.

Monitoring results, including volatile organic compound (VOC) molar fractions, are summarized in a cumulative data table (Table 1), presented on various figures and appendices, and discussed further in the following sections. Figures 6 through 14 show VOC concentrations over time at representative wells: BDC-05-02 and BDC 05 07 (source zone IWs); BDC 05-9, BDC-05-10 and BDC-05-16 (plume IWs); BDC-05-19 (MWs between IWs in the core of the plume); BDC-05-20 and BDC-05-21 (MWs at downgradient edge of the plume); and BDC-05-23 (far downgradient monitoring well). Time plots for molar concentrations of VOCs and breakdown products for the representative wells are presented in Appendix C. Time plots of redox parameters (methane and sulfate) and TOC for representative wells are presented in Appendix D.

4.1 Treatment Condition Categories

As described in previous reports (LAI 2013a, 2014, 2016), SWMU-17 wells can be separated into three categories based on evidence of enhanced conditions for bioremediation. Wells are divided into these categories based on 2015 data, as described below and as shown on Figure 15.

1. **“Direct Evidence:”** 16 wells show “direct evidence” of enhanced bioremediation. In order for a well to be classified as showing “direct evidence” each enhanced bioremediation indicator must have been demonstrated at the well for a sustained period of time after the injection. These indicators consist of the following aquifer developments: 1) TOC above baseline, 2) reduced aquifer redox conditions, and 3) changed concentrations of PCE, TCE, cDCE, VC, and/or ethene/ethane. The wells that meet these criteria consist of:
 - All eleven IWs: BDC-05-02, BDC-05-07, BDC-05-09 through BDC-05-17
 - Five MWs:
 - BDC-05-08 (24 ft crossgradient of IWs BDC-05-12 and BDC-05-13)
 - BDC-05-19 (10 ft downgradient of IW BDC-05-12)
 - BDC-05-20 (31 ft downgradient of IW BDC-05-17)

- BDC-05-21 (30 ft crossgradient of IW BDC-05-17)
 - BDC-05-23 (farthest downgradient well at 170 ft downgradient of IW BDC-05-17).
2. **“Some Evidence:”** Five MWs show “some evidence” of enhanced bioremediation. Evidence at these wells consist primarily of changes in VOC concentrations without substantial or sustained changes in TOC compared to baseline; sustained aquifer redox changes have been apparent at some of these wells. The wells in this category are considered to be on the fringes of the biotreatment area with VOC concentration reduction resulting from upgradient or nearby treatment. VOCs were below proposed CULs for the entire reporting period at BDC-05-03, BDC-05-04, and BDC-05-22. TCE was previously above the CUL at all of following wells, except BDC-05-04.
- BDC-05-03 (17 ft downgradient of IW BDC-05-11)
 - BDC-05-04 (22 ft crossgradient of IW BDC-05-07)
 - BDC-05-18 (12 ft crossgradient of IW BDC-05-10)
 - BDC-05-22 (48 ft crossgradient of IW BDC-05-17)
 - BDC-05-24 (18 ft crossgradient of IW BDC-05-14).
3. **No Evidence:** The only well showing no evidence of enhanced bioremediation is upgradient MW BDC-05-05, which is not expected to be affected by donor injection.

Based on this categorization of monitoring results, there is “direct evidence” that bioremediation has been substantially enhanced at IWs and at MWs located up to 170 ft downgradient (BDC-05-23) and 30 ft crossgradient (BDC-05-21) of IWs. “Some evidence” of bioremediation occurs at all remaining wells with the exception of the upgradient MW BDC-05-05. The data demonstrates enhanced bioremediation has been sustained from the 2011 injection through 2015.

4.2 TOC and Redox Conditions

Monitoring results indicate aquifer TOC and redox conditions have been enhanced throughout the core of the contaminant plume and at many of the crossgradient and downgradient monitoring wells following the August 2011 injection. These results indicate conditions conducive to continued enhanced bioremediation of PCE/TCE and breakdown products.

Due to the August 2011 injection, TOC increased from low baseline levels at all IWs to a range of 550 to 5,360 milligrams per liter (mg/L). As of October 2015, TOC has declined to near baseline at the five eastern IWs near the head of the plume (BDC-05-02, BDC-05-07, BDC-05-09, BDC-05-10, BDC-05-11), while it remains greater than 10 mg/L (11 to 32 mg/L) at the six western IWs (BDC-05-12 through BDC-05-17).

TOC at two of the five MWs showing “direct evidence” (BDC-05-19 [29 mg/L], BDC-05-20 [11 mg/L]) remains adequate for continued enhanced bioremediation. However, TOC at BDC-05-08, BDC-05-21

and BDC-05-23, the other three wells showing “direct evidence,” has fallen to near baseline concentrations. Historic TOC increases at wells with “some evidence” were short-lived and have not been sustained.

Highly reducing conditions required for reductive dechlorination persist throughout the core of the plume, as indicated by generally low concentrations of sulfate and elevated concentrations of methane in all IWs through October 2015. Highly reducing conditions have also been achieved at all monitoring wells showing “direct evidence” of enhanced bioremediation (Section 4.1). Highly reducing conditions also occur at three wells showing “some evidence” (BDC-05-03, BDC-05-04, and BDC-05-22) of enhanced bioremediation; enhanced redox is indicated by decreases in sulfate and/or increases in methane. At other downgradient and crossgradient MWs, redox changes have been minor (e.g., decreased DO or increased ferrous iron) or short-lived (e.g., a brief decrease in sulfate followed by a rebound to baseline levels).

4.3 Reductive Dechlorination of VOCs

Enhanced reductive dechlorination following the August 2011 donor injection has resulted in substantially decreased PCE/TCE concentrations, conversion to intermediary breakdown products cDCE and VC, and conversion to end products ethene and ethane. Reductive dechlorination has resulted in concentration reduction at all SWMU-17 wells with the exception of upgradient well BDC-05-05, which is outside the treatment area.

During 2015, PCE remained below the proposed CUL (5.3 µg/L) at all wells, and TCE was below the proposed CUL (1.4 µg/L) at all wells with one exception (BDC-05-18). At BDC-05-18, TCE increased above the proposed CUL in April, but declined below it again in July and October. At well BDC-05-10, which had the highest baseline concentration of PCE and the second highest TCE concentration, PCE and TCE have remained persistently less than the detection limit from May 2012 through 2015; this represents a concentration reduction of greater than 99 percent. October 2015 PCE/TCE concentrations in groundwater are presented on Figure 16 for comparison to baseline PCE/TCE iso-concentration contours (Figure 3).

Reductive dechlorination has resulted in temporary increases in breakdown products cDCE and VC. After reaching a maximum concentration of 250 µg/L at well BDC-05-09 in May 2012, cDCE concentrations have remained below the proposed CUL (134 µg/L) at all wells since November 2012. The maximum cDCE detection in 2015 was 5.5 µg/L at crossgradient well BDC-05-22 in July. The maximum concentration of VC was 8.3 µg/L at IW BDC-05-09 in April and 10 wells had VC above the proposed CUL (2.4 µg/L) during the reporting period. However, VC concentrations were above the proposed CUL at only 2 wells (BDC-05-16 and BDC-05-21) as of October 2015; a substantial decline from 12 wells exceeding the proposed CUL in November 2014. Ethene and/or ethane were also detected at all wells where VC exceeded the proposed CUL during the reporting period, except at BDC-05-23 where ethene/ethane is not analyzed. November VC concentrations in groundwater are

presented on Figure 17, with an iso-concentration contour showing wells where VC is greater than the proposed CUL.

Complete reductive dechlorination is evidenced by widespread occurrence of innocuous end products ethene and ethane. One or both of these compounds were detected at 16 of the 17 wells where analyzed in 2015. Neither were detected at BDC-05-18.

The progress of dechlorination can also be evaluated based on the prevalence of parent products, breakdown products, and end products. Reductive dechlorination progresses sequentially from parent products PCE and TCE, to breakdown products cDCE and VC, to non-toxic end products ethene and ethane. This is because bacteria prefer to degrade PCE over TCE, TCE over cDCE, and cDCE over VC due to more energy being obtained from reduction of the more chlorinated (i.e., more oxidized) compounds. As a result of this sequential degradation, the concentrations of parent, breakdown, and end products each peak sequentially as treatment progresses. Given this succession of chlorinated ethene conversion to innocuous end products, it is expected that there will be a decrease in total chlorinated ethenes concentrations (micromoles per liter [$\mu\text{moles/L}$]) over time. Total chlorinated ethenes is the molar sum of PCE+TCE+cDCE+VC. A decrease in the concentration of total chlorinated ethenes or a continued low concentration trend, as observed at all SMWU-17 wells, demonstrates the progression of effective treatment, not just conversion to a less-chlorinated breakdown product (e.g., TCE to VC). Decreasing concentrations of total chlorinated ethenes reflects the final conversion step from VC to non-chlorinated end products ethene and ethane. Total chlorinated ethenes are tabulated in Table 1 and are shown on time plots for representative wells in Appendix C. Figure 18 presents a generalized sequence of parent, breakdown, and end products that result from reductive dechlorination over time, from PCE to ethene/ethane, documenting the progression of dechlorination at the site over time.

October 2015 data indicate the site is largely ethene/ethane predominant. Ethene/ethane predominance means that ethene+ethane constitutes a higher percentage of the CVOCs + end products than do the chlorinated ethenes (PCE, TCE, cDCE, or VC). As of October 2015, ethene/ethane was predominant at most SWMU-17 wells (14 of 17 where ethene/ethane was analyzed). The 2015 data continues an ongoing trend of most wells exhibiting ethene/ethane predominance since 2013. The predominant compound is highlighted in Table 1 for each sampling event.

In summary, as of October 2015, PCE, TCE, and cDCE concentrations are below proposed CULs at all 22 wells. VC is below the proposed CUL at 20 of the 22 wells. Detection of ethene and/or ethane at 16 of the 17 wells where analyzed in 2015 confirms continued complete reductive dechlorination to these non-toxic end products.

4.4 Copper and Arsenic

Concentrations of copper and arsenic increased at many SWMU-17 wells following the August 2011 injection. These results are consistent with observations during bioremediation pilot testing. Time

plots for total copper and arsenic are presented for injection wells and monitoring wells in Appendix E.

Since November 2012, total and dissolved copper concentrations have remained below the proposed CUL (0.008 mg/L) at every well, except for BDC-05-03, where it was detected at 0.009 mg/L in October 2015, just above the proposed CUL. Total and/or dissolved copper concentrations increased and then decreased at all IWs and at MWs BDC-05-19 and BDC-05-21 after the August 2011 injection. The highest total copper detection post-injection was 0.032 mg/L at the core of the plume (MW BDC-05-19) in May 2012. Copper concentrations also increased during the 2008 pilot test, but were short-lived, followed by a returning to baseline conditions (LAI 2010b).

As of October 2015, total and dissolved arsenic concentrations remained above the proposed CUL of 0.008 mg/L at 16 of 22 sampled wells, compared to 16 above the CUL in November 2014. The highest October 2015 concentration was a total arsenic result of 0.053 mg/L at well BDC-05-15. At two of the 16 wells with October 2015 concentrations above the proposed CUL, concentrations have fluctuated above and below the proposed CUL since the August 2011 injection, while concentrations at the remaining 14 wells have been consistently above the proposed CUL since injection. Reducing conditions cause olubilization of naturally occurring arsenic (along with manganese and iron) as a localized and temporary phenomenon within the portion of the aquifer that has been artificially reduced through donor amendment. Once the injected donor has been consumed and natural conditions are re-established, these metals should precipitate as the less soluble forms that existed prior to donor amendment (Solutions-EIS 2006, Suthersan et al. 2003).

5.0 PLANNED ACTIONS AND SCHEDULE

Planned actions for 2016 consist of continued quarterly (January and July) and semiannual (April and October) monitoring events. Aquifer redox conditions remain conducive to continued treatment and 2015 data continues to show complete dechlorination to ethene/ethane. Additional injections of electron donor are not planned at this time. Monitoring will continue as indicated in the Table 2 monitoring matrix.

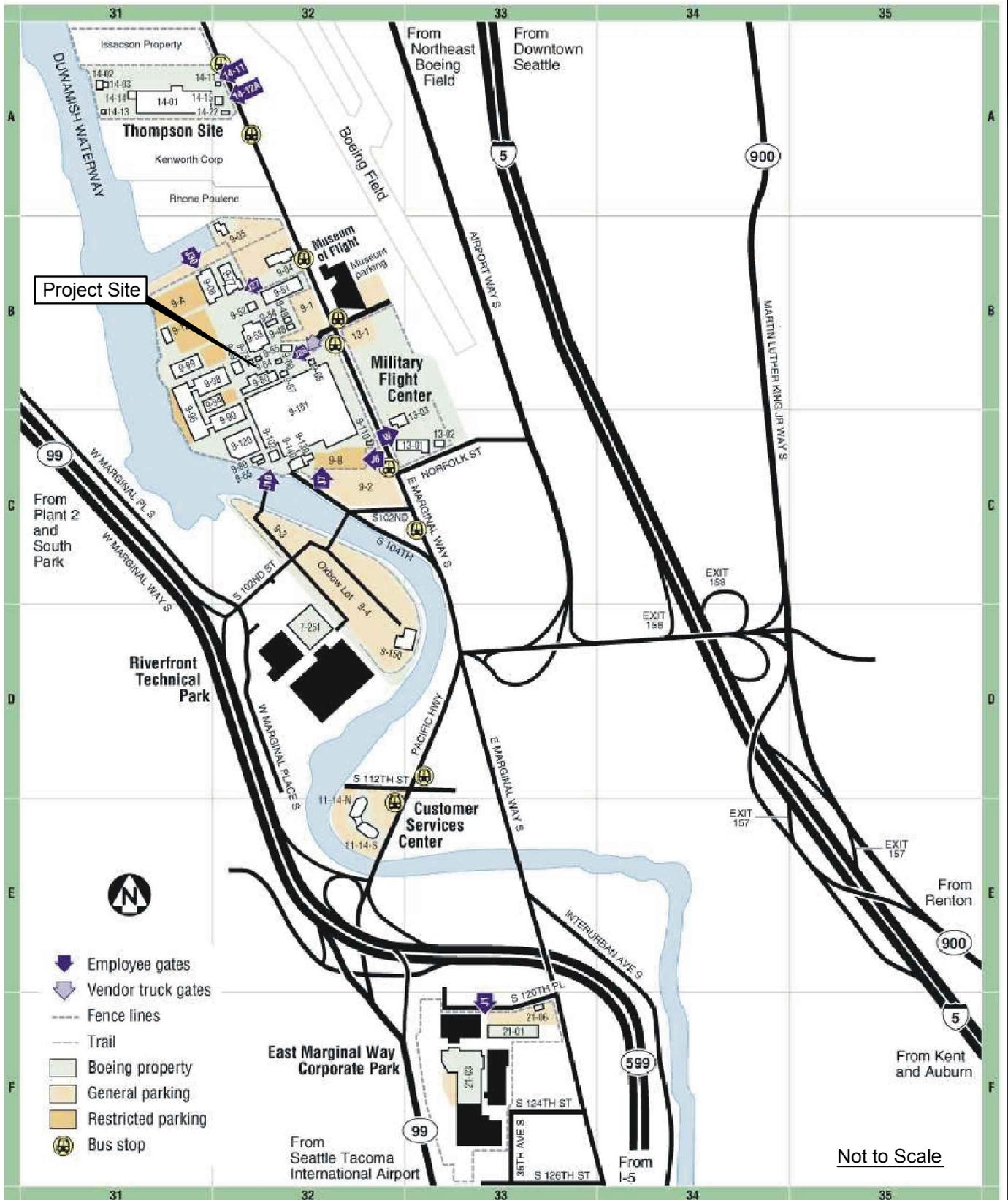
6.0 USE OF REPORT

This annual evaluation report has been prepared for the exclusive use of The Boeing Company for specific application to the Boeing Developmental Center. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau Associates. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau Associates, shall be at the user's sole risk. Landau Associates warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. We make no other warranty, either express or implied.

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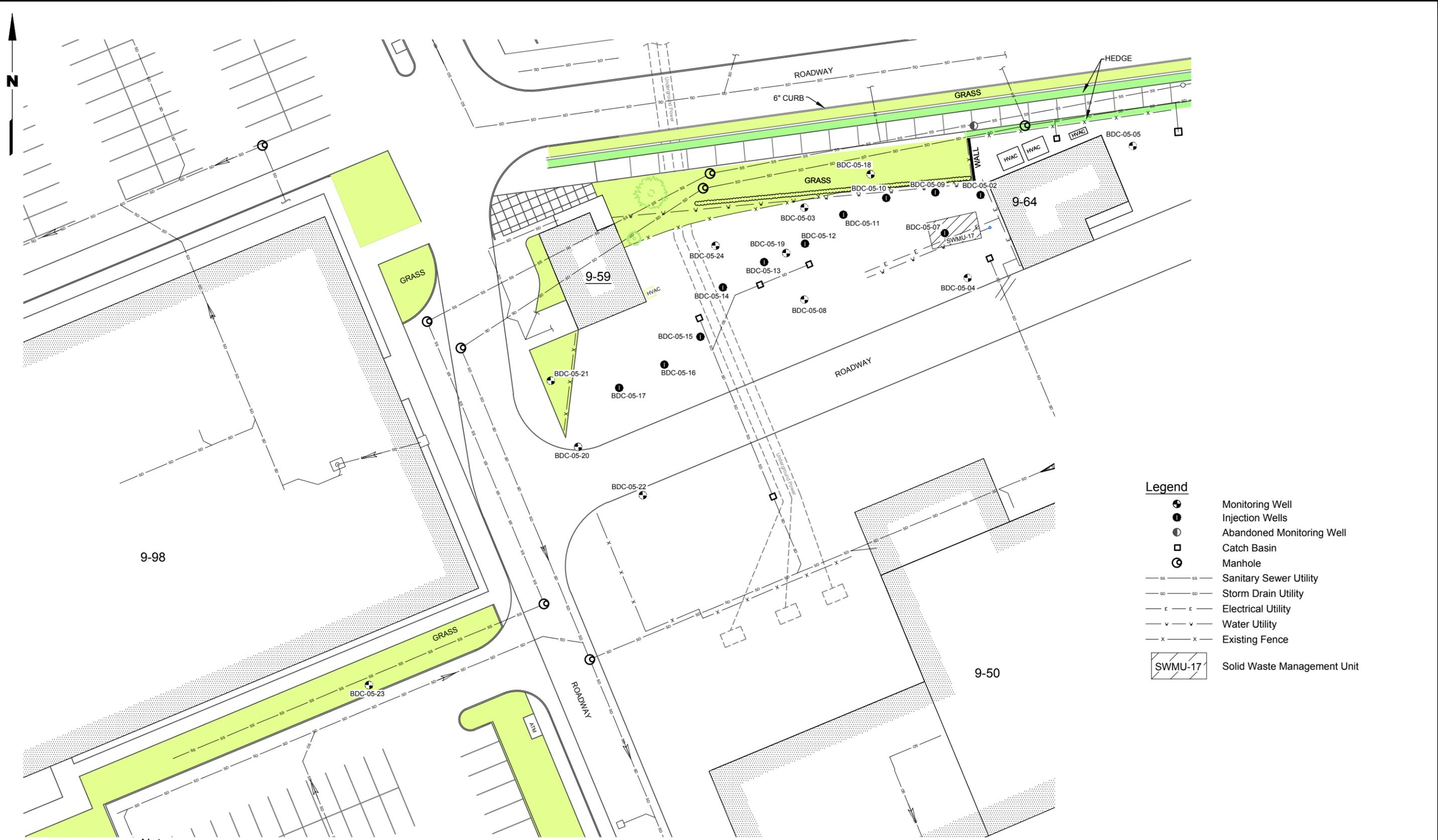
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Map Provided by Boeing, March 2000

<p>Boeing Developmental Center Tukwila, Washington</p>	<p>Vicinity Map</p>	<p>Figure 1</p>
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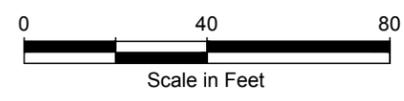


Legend

	Monitoring Well
	Injection Wells
	Abandoned Monitoring Well
	Catch Basin
	Manhole
	Sanitary Sewer Utility
	Storm Drain Utility
	Electrical Utility
	Water Utility
	Existing Fence
	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.

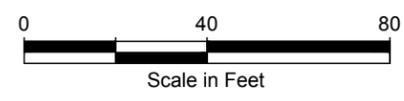


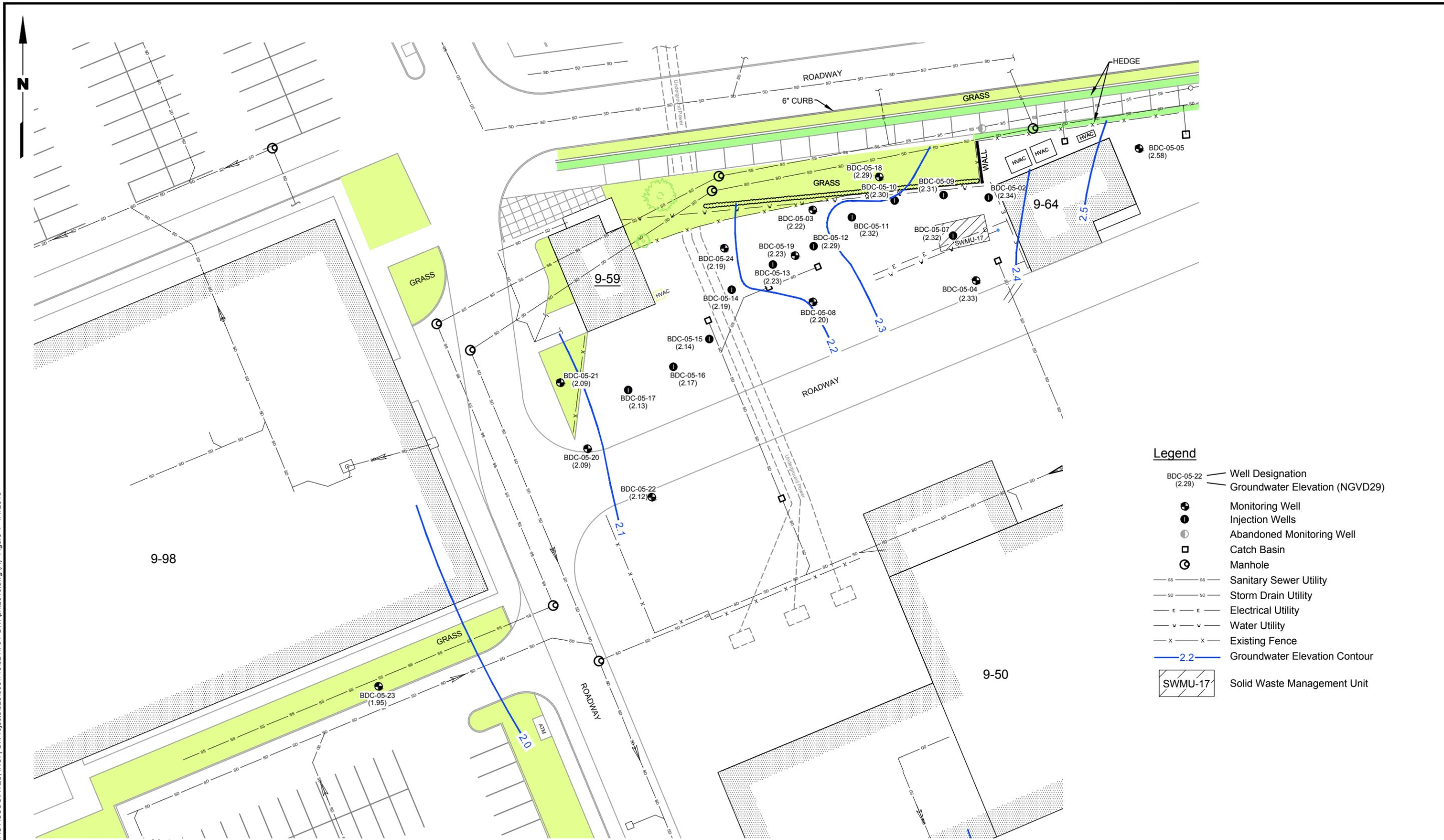


- Legend**
- Monitoring Well
 - Injection Wells
 - Abandoned Monitoring Well
 - Catch Basin
 - Manhole
 - Sanitary Sewer Utility
 - Storm Drain Utility
 - Electrical Utility
 - Water Utility
 - Existing Fence
 - Iso-Concentration Contours for PCE and/or TCE (µg/L) (Based on Monitoring Well and Direct-Push Sample Results)
 - Solid Waste Management Unit

Note

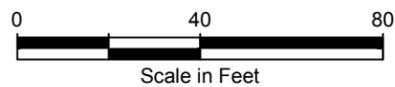
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Note

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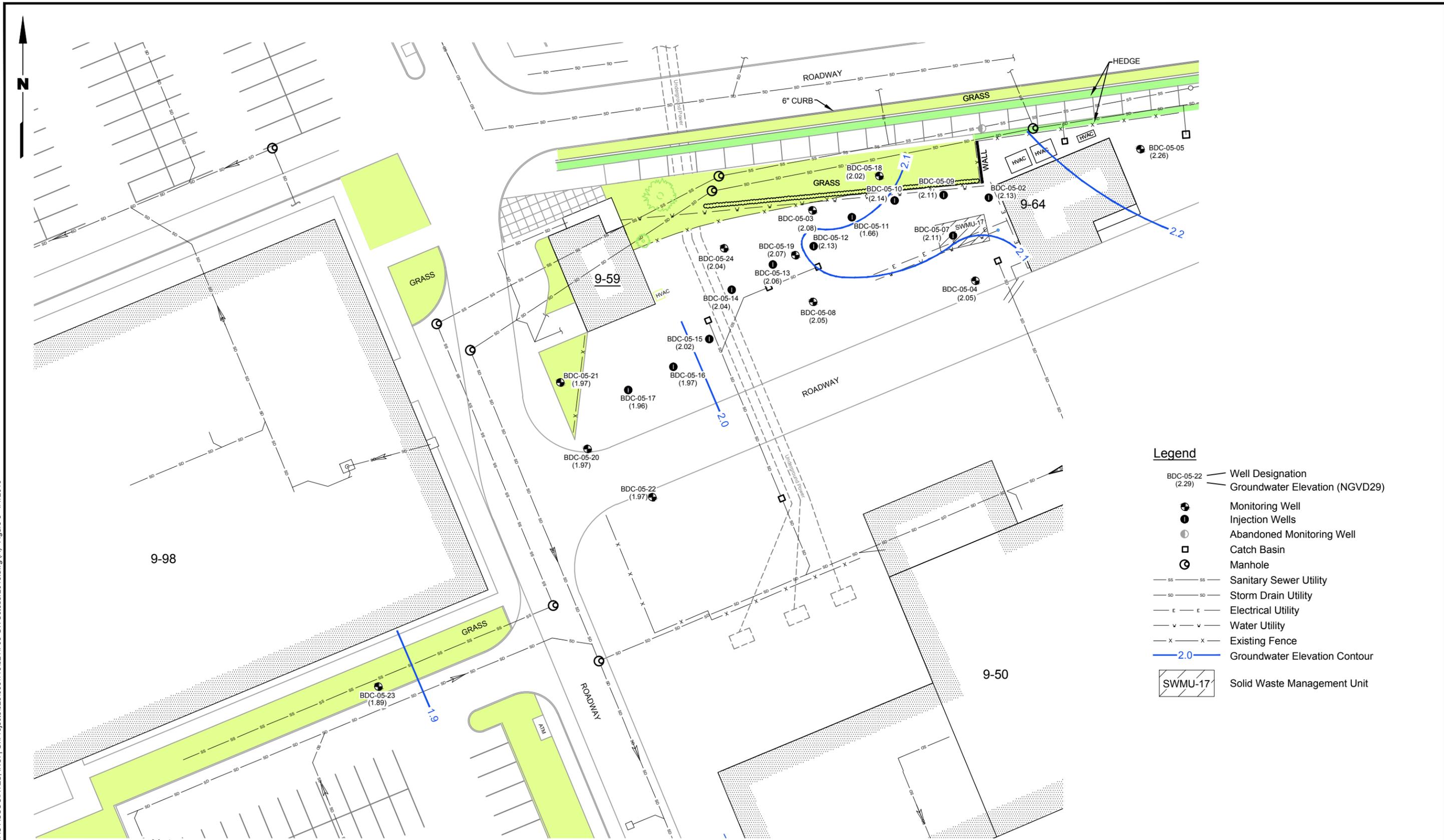


Boeing Developmental Center
Tukwila, Washington

Groundwater Elevations
April 2015

Figure
4

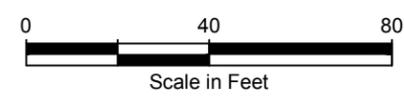




- Legend**
- BDC-05-22 (2.29) — Well Designation
 - Groundwater Elevation (NGVD29)
 - Monitoring Well
 - Injection Wells
 - Abandoned Monitoring Well
 - Catch Basin
 - ⊙ Manhole
 - SS — Sanitary Sewer Utility
 - SD — Storm Drain Utility
 - E — Electrical Utility
 - W — Water Utility
 - X — Existing Fence
 - 2.0 — Groundwater Elevation Contour
 - SWMU-17 Solid Waste Management Unit

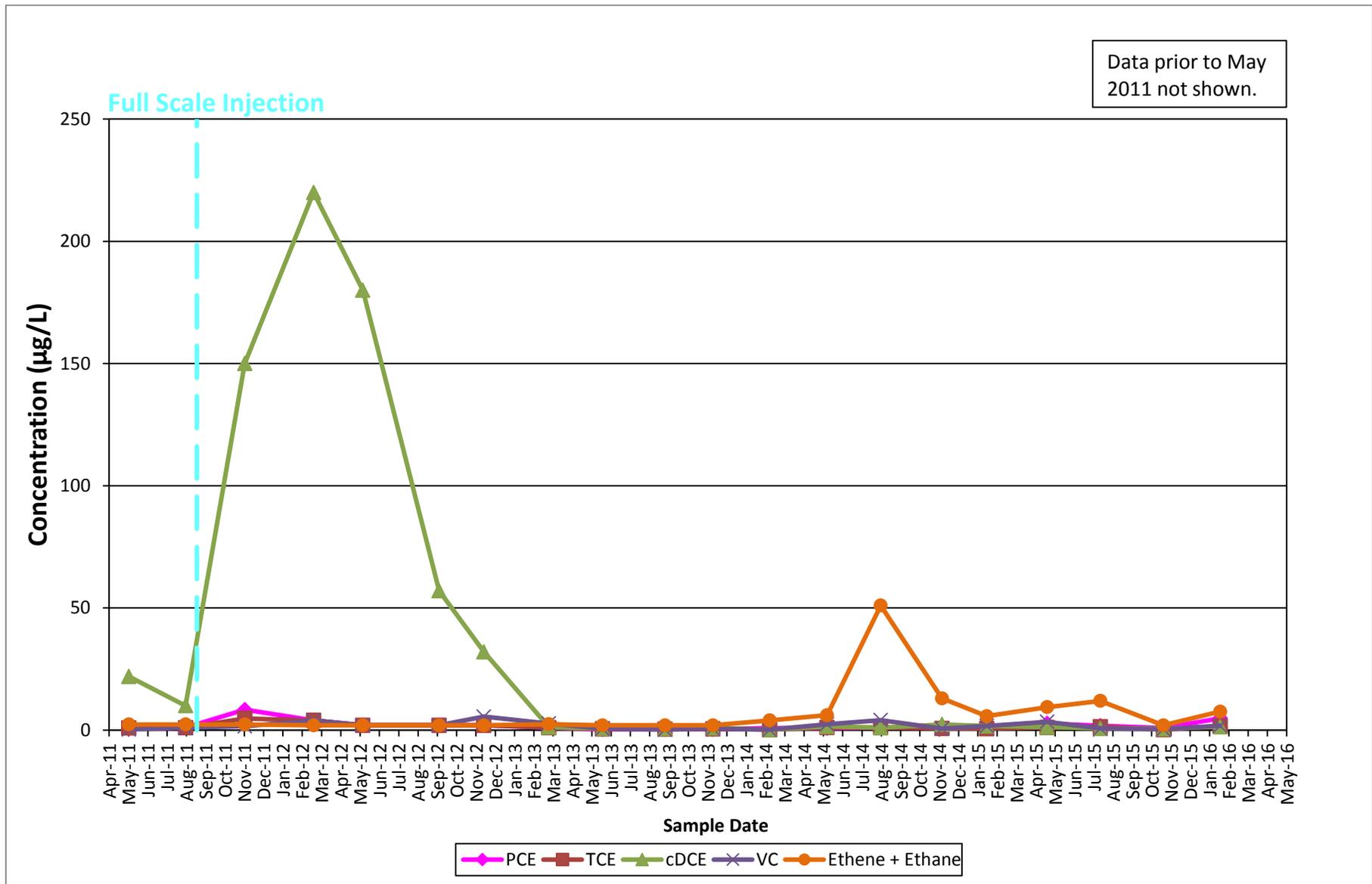
Note

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



Boeing Developmental Center Tukwila, Washington	Groundwater Elevations October 2015	Figure 5
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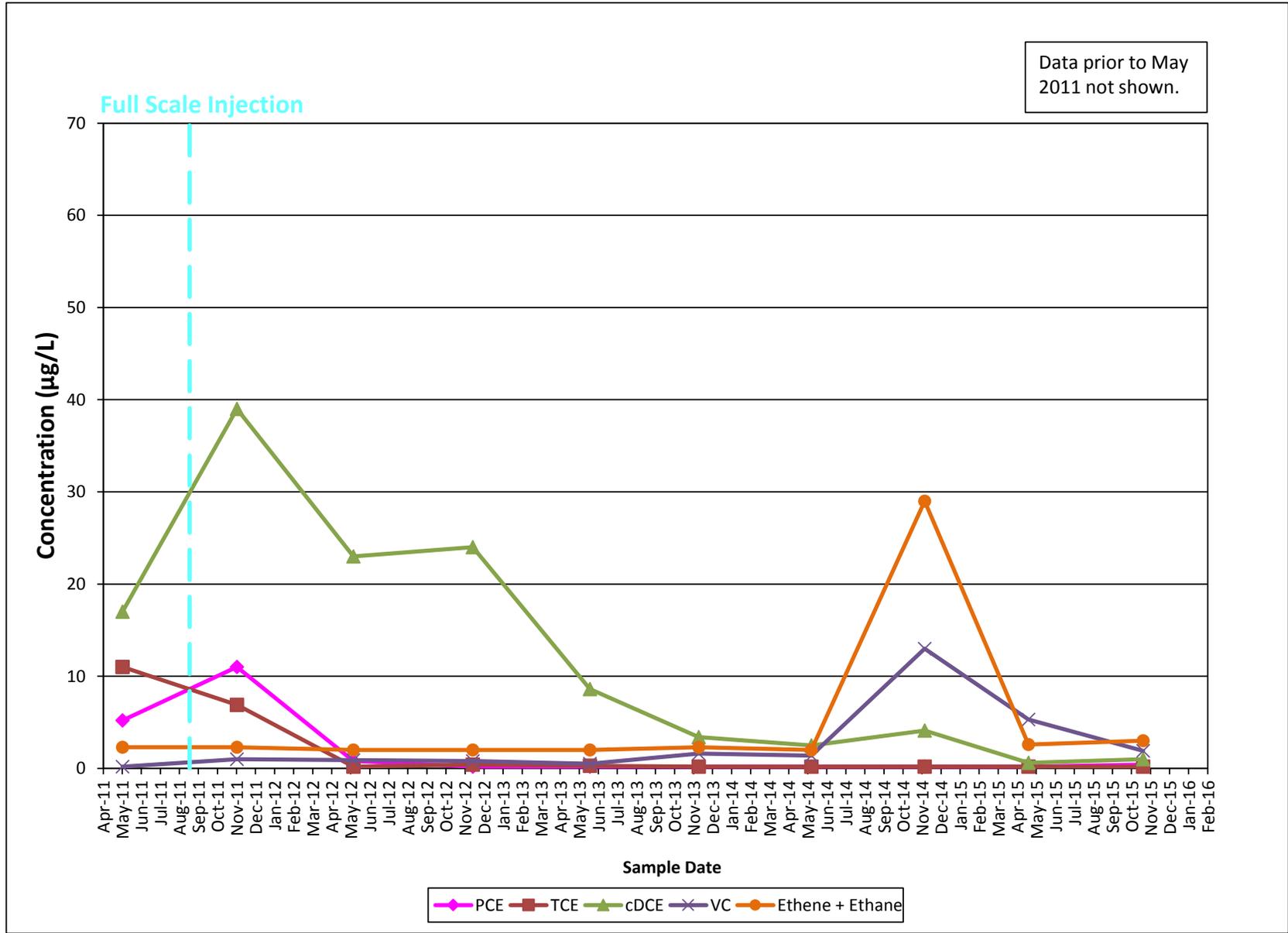




Boeing Developmental Center
Tukwila, Washington

Source Zone Injection Well
BDC-05-02 VOCs

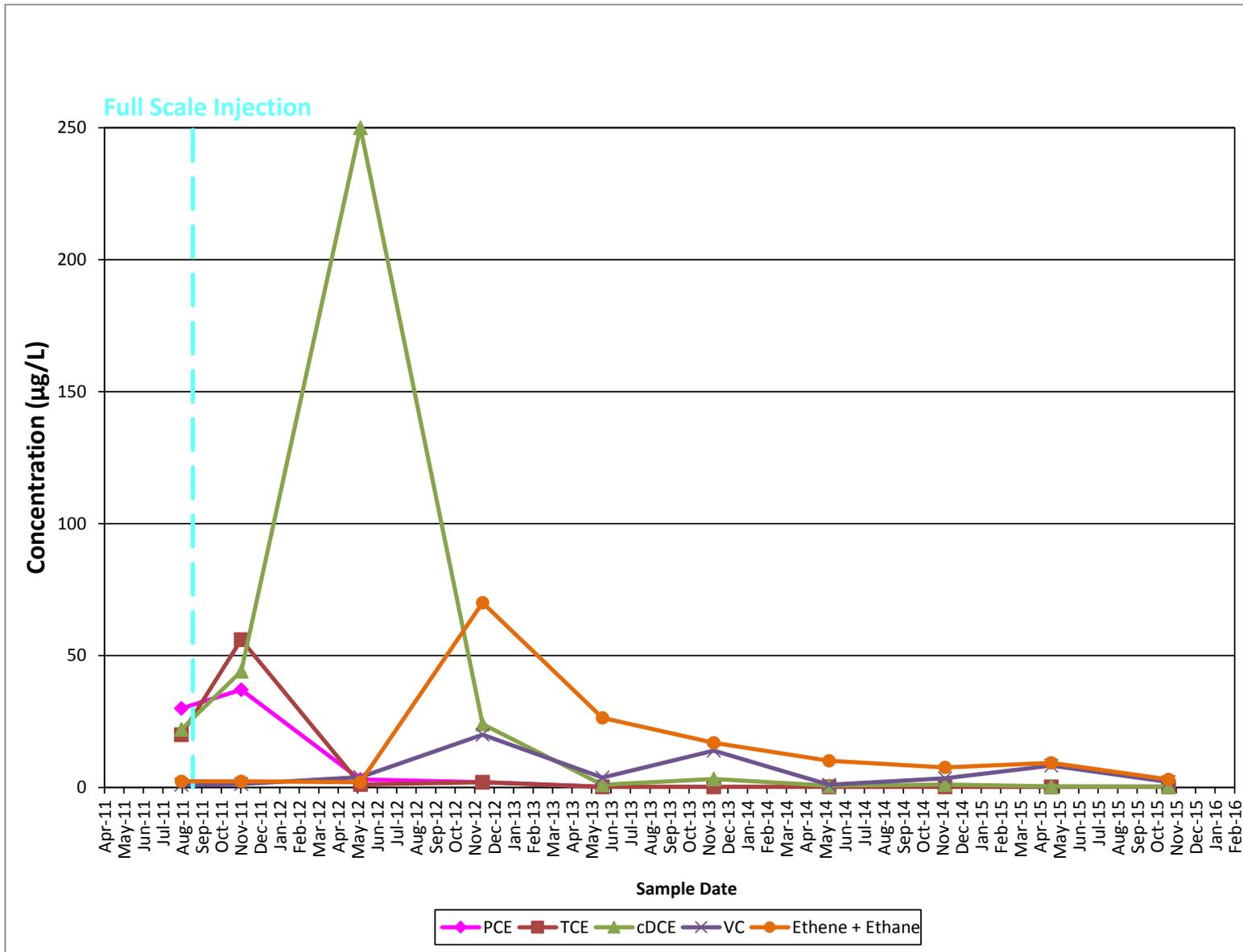
Figure
6

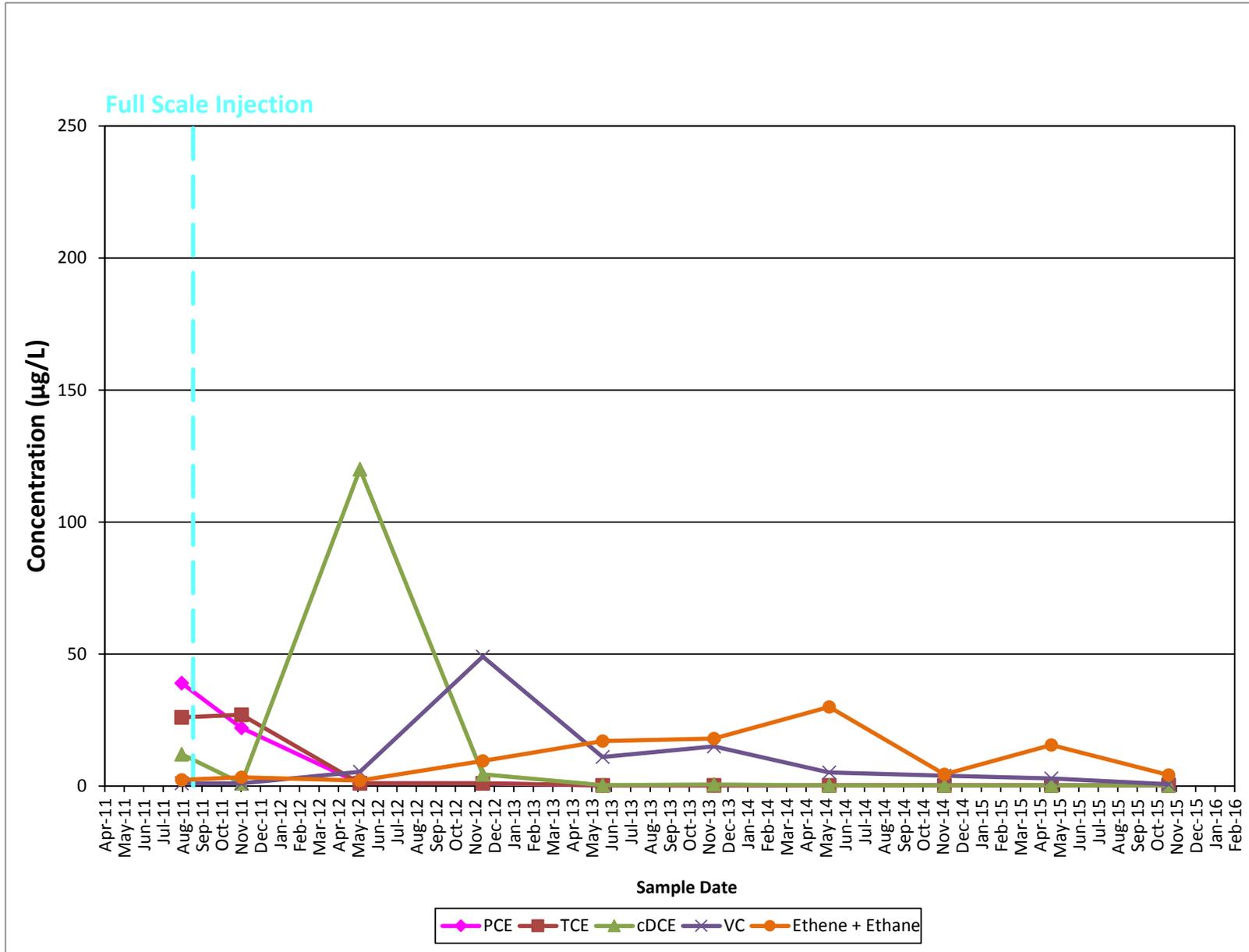


Boeing Developmental Center
Tukwila, Washington

**Source Zone Injection Well
BDC-05-07 VOCs**

Figure
7

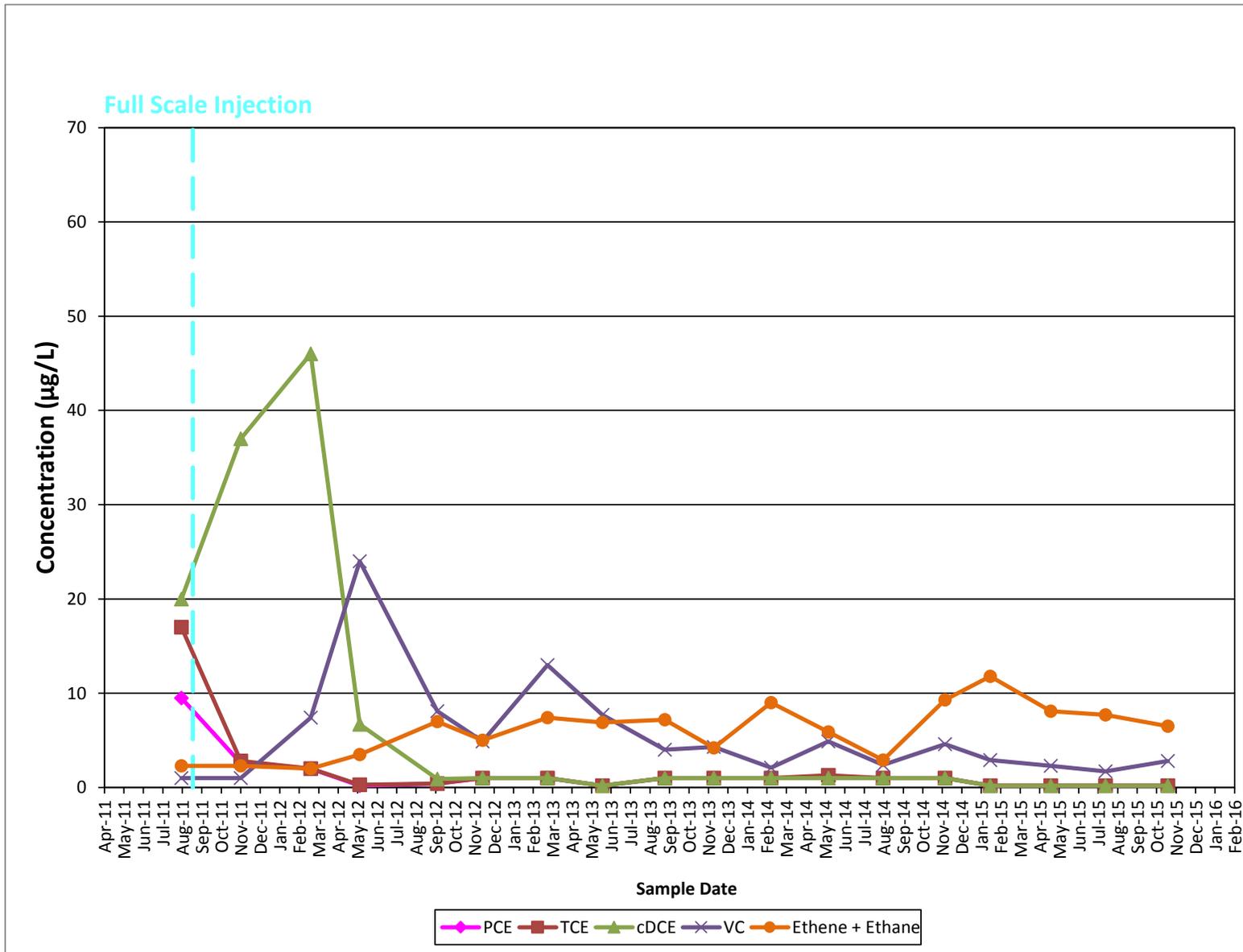




Boeing Developmental Center
Tukwila, Washington

**Plume Injection Well
BDC-05-10 VOCs**

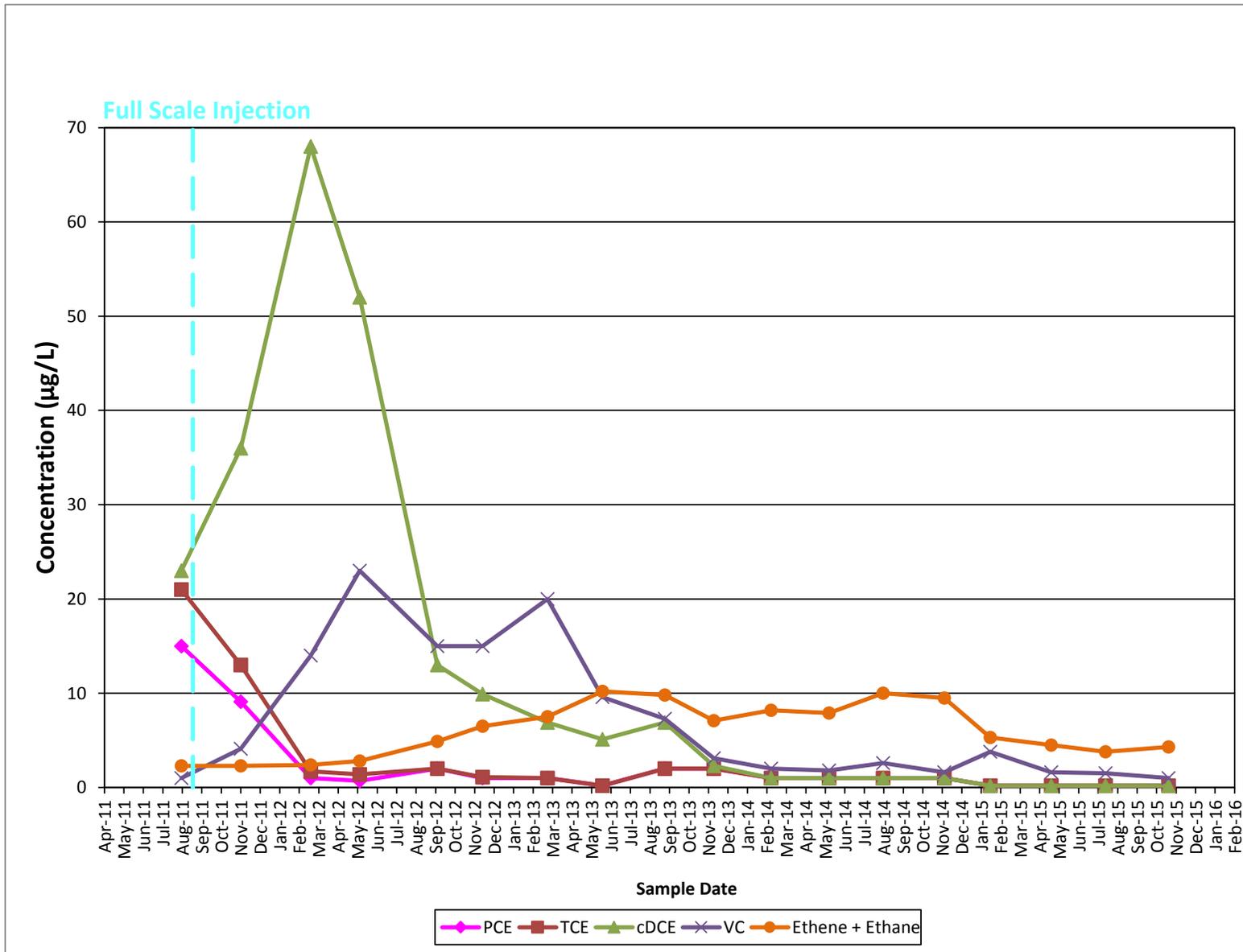
Figure
9



Boeing Developmental Center
Tukwila, Washington

Plume Injection Well
BDC-05-16 VOCs

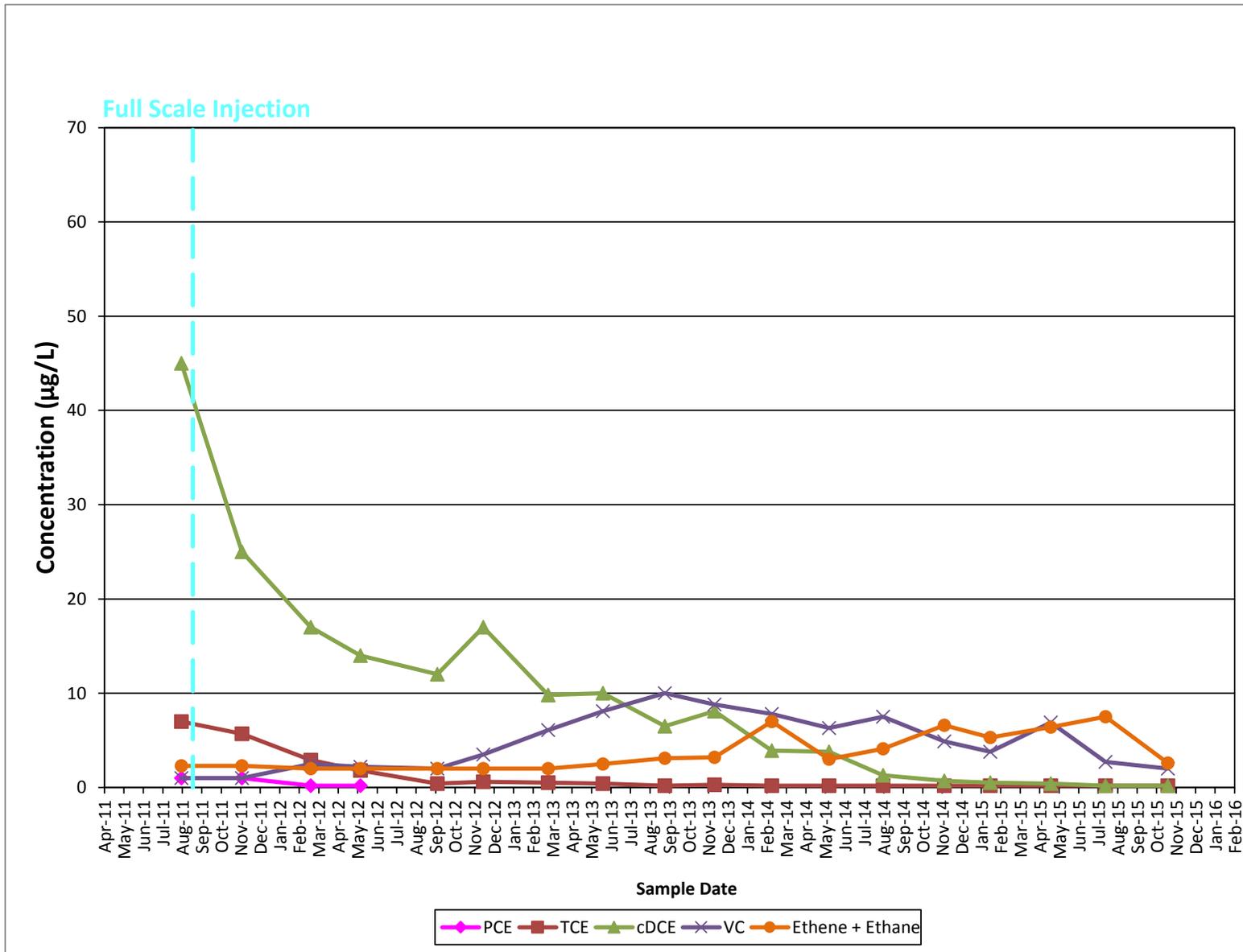
Figure
10



Boeing Developmental Center
Tukwila, Washington

**Monitoring Well
BDC-05-19 VOCs**

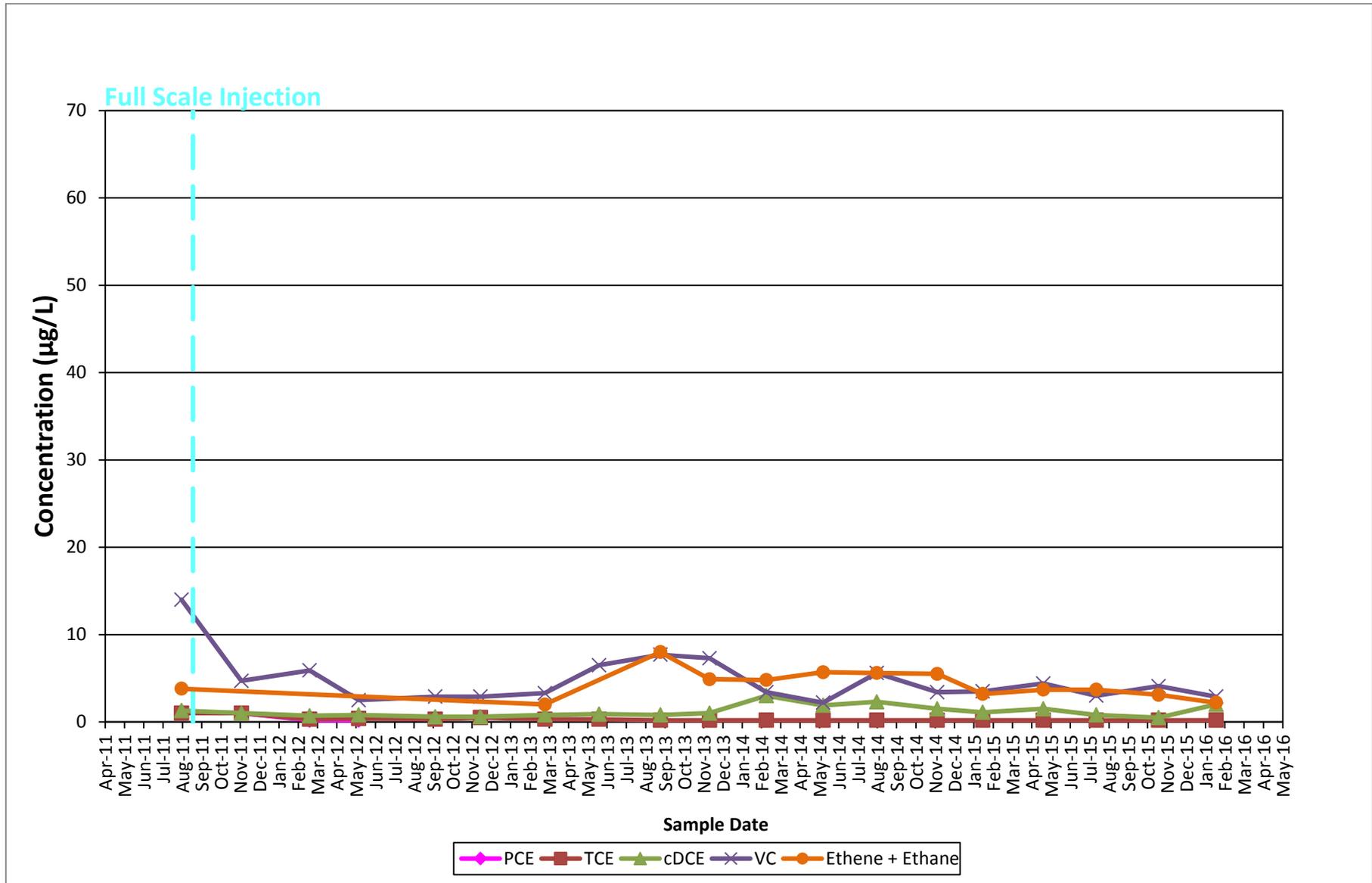
Figure
11

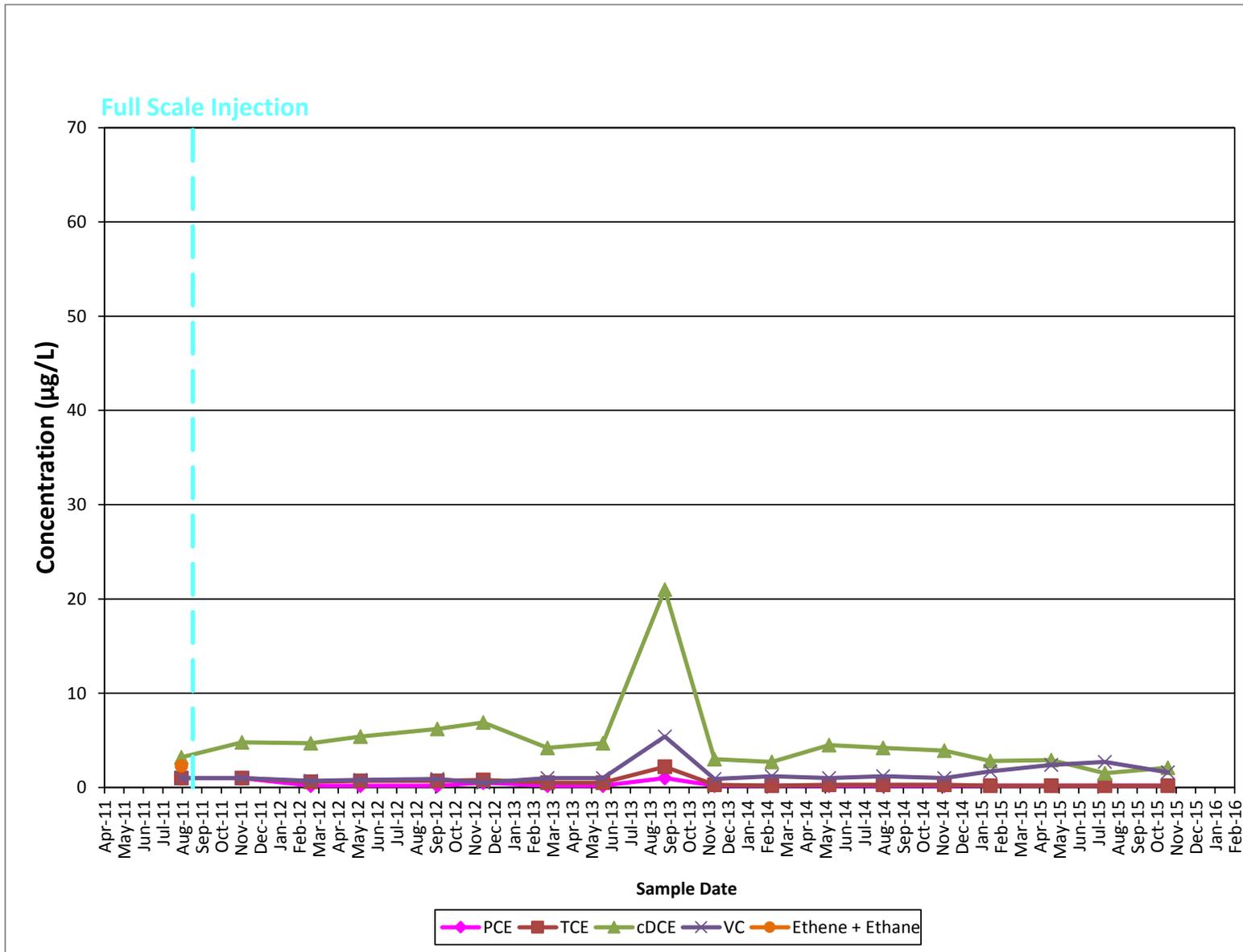


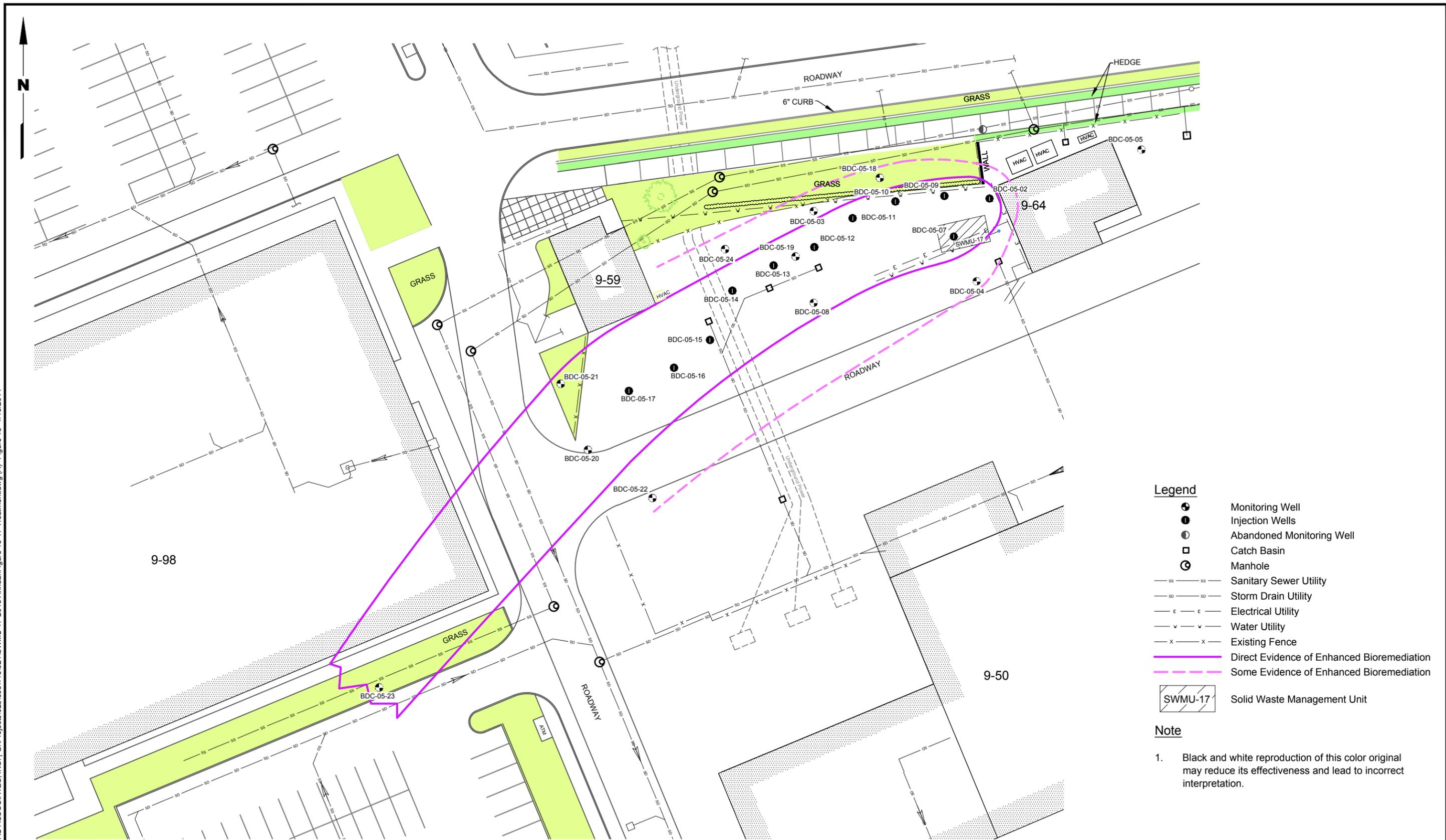
Boeing Developmental Center
Tukwila, Washington

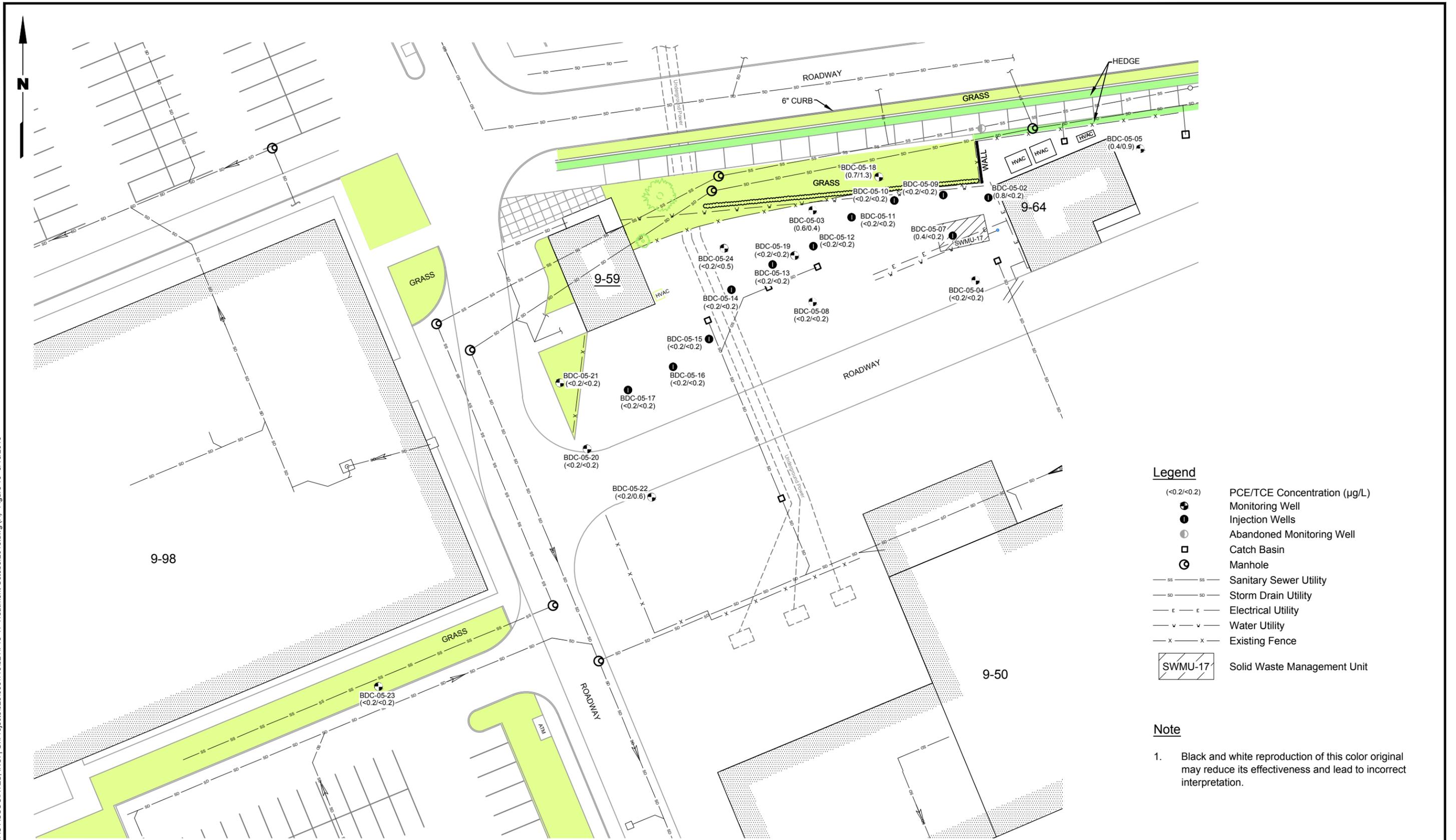
**Monitoring Well
BDC-05-20 VOCs**

Figure
12







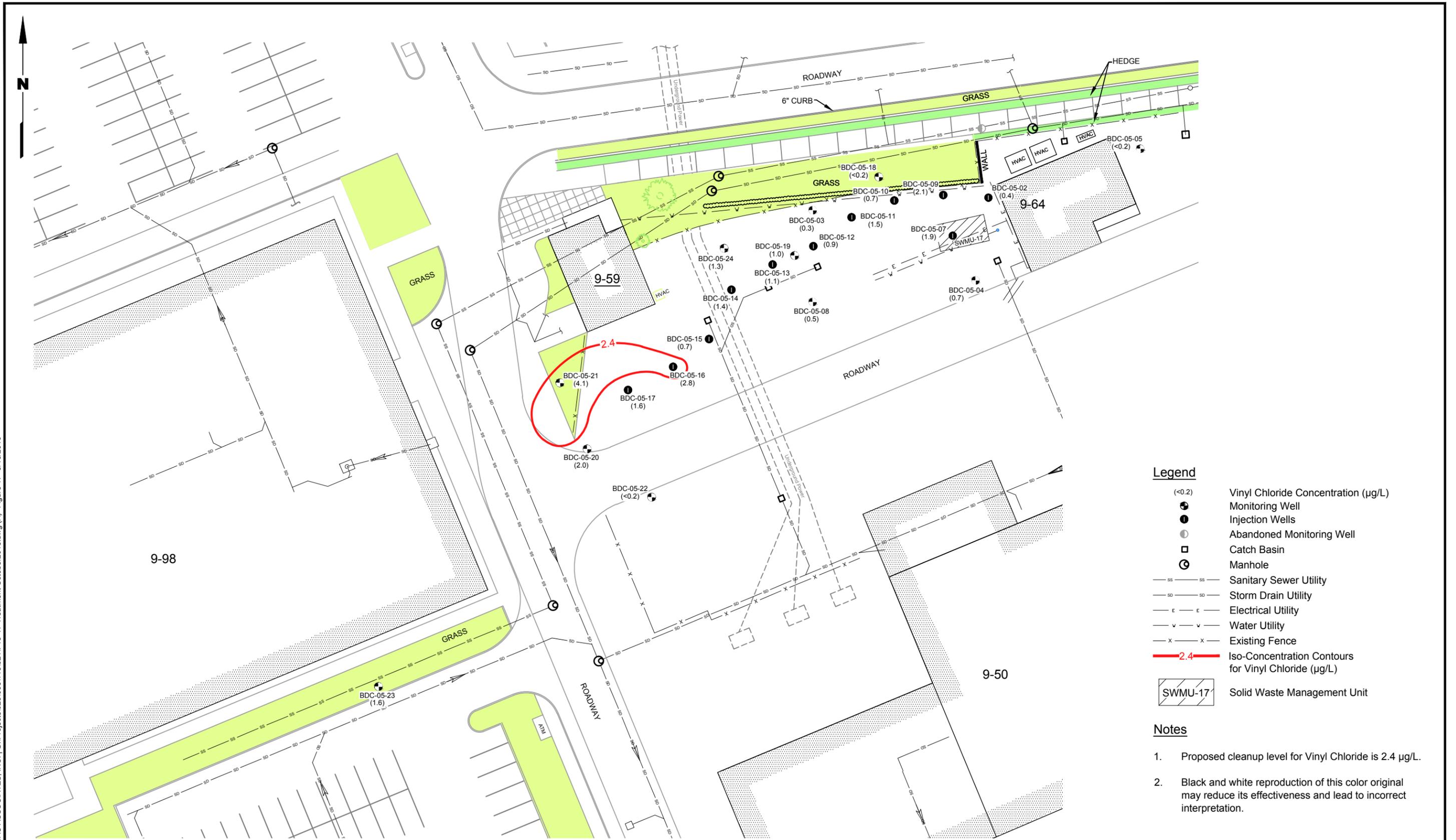


Boeing Developmental Center
Tukwila, Washington

PCE/TCE in Groundwater
October 2015

Figure
16

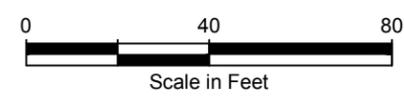
LANDAU ASSOCIATES, INC. | G:\Projects\025093115\021F15-17_Treatment October2015.dwg (A) Figure 17-3/10/2016

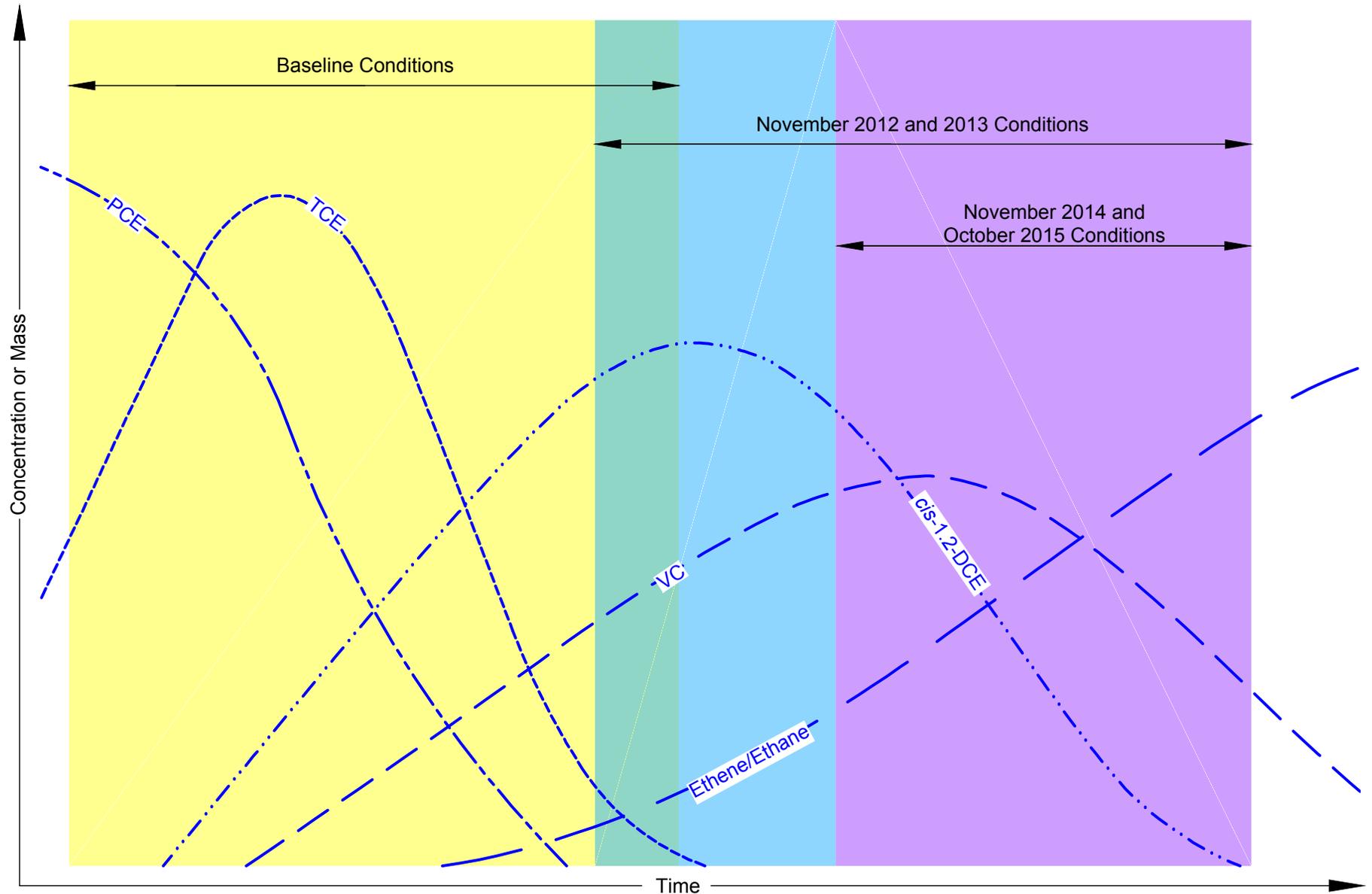


Legend

- (<0.2) Vinyl Chloride Concentration (µg/L)
- Monitoring Well
- Injection Wells
- Abandoned Monitoring Well
- Catch Basin
- ⊙ Manhole
- ss — ss — Sanitary Sewer Utility
- sd — sd — Storm Drain Utility
- e — e — Electrical Utility
- v — v — Water Utility
- x — x — Existing Fence
- 2.4 — Iso-Concentration Contours for Vinyl Chloride (µg/L)
- SWMU-17 Solid Waste Management Unit

- Notes**
- Proposed cleanup level for Vinyl Chloride is 2.4 µg/L.
 - Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.





Note

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

Adapted from: ITRC, 1999

Boeing Development Center
Tukwila, Washington

**Stages of Treatment
Progression**

Figure
18



TABLE 2
BIOREMEDIATION GROUNDWATER MONITORING MATRIX (REVISED 5/2013)
BOEING DEVELOPMENTAL CENTER SMWU-17

	Quarterly	Semiannual	Explanation
Injection Wells			
02	(a) (b)	(a) (b) (c)	head of plume
07		(a) (b) (c)	location of former UST
09		(a) (b) (c)	core of plume
10		(a) (b) (c)	core of plume
11		(a) (b) (c)	core of plume
12	(a) (b)	(a) (b) (c)	core of plume
13		(a) (b) (c)	core of plume
14		(a) (b) (c)	core of plume
15		(a) (b) (c)	core of plume
16	(a) (b)	(a) (b) (c)	core of plume
17		(a) (b) (c)	core of plume
Monitoring Wells			
03		(a) (b) (c)	downgradient
04		(a) (c)	crossgradient
05		(a) (c)	upgradient
08		(a) (c)	crossgradient
18	(a) (b)	(a) (b) (c)	crossgradient
19	(a) (b)	(a) (b) (c)	downgradient
20	(a) (b)	(a) (b) (c)	downgradient
21	(a) (b)	(a) (b) (c)	crossgradient
22	(a)	(a) (c)	crossgradient
23	(a)	(a) (c)	downgradient
24	(a) (b)	(a) (b) (c)	crossgradient

UST = underground storage tank

- (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).
Field Parameters: Fe²⁺; pH, dissolved oxygen (DO), oxygen reduction potential (ORP), temperature.
- (b) Laboratory Parameters (method): Methane/Ethane/Ethene/Acetylene (RSK-175).
- (c) Laboratory Parameters (method): total (nonfiltered) and dissolved (field filtered) copper (3010A) and arsenic (200.8 ICP-MS).

NOTE: Changes to original monitoring matrix are shown in red.

Laboratory Reports

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

February 03, 2015

Project: Boeing_DC:SWMU-17 qrt

Submittal Date: 01/23/2015

Group Number: 1533426

State of Sample Origin: WA

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
BDC-05-18-150121 Water	7749102
BDC-05-18-150121 Water	7749103
BDC-05-21-150121 Water	7749104
BDC-05-21-150121 Water	7749105
BDC-05-20-150121 Water	7749106
BDC-05-20-150121 Water	7749107
BDC-05-22-150121 Water	7749108
BDC-05-22-150121 Water	7749109
BDC-05-23-150121 Water	7749110
BDC-05-23-150121 Water	7749111
BDC-05-24-150121 Water	7749112
BDC-05-24-150121 Water	7749113
BDC-05-DUP-150121 Water	7749114
BDC-05-DUP-150121 Water	7749115
BDC-05-19-150121 Water	7749116
BDC-05-19-150121 Water	7749117
BDC-05-12-150121 Water	7749118
BDC-05-12-150121 Water	7749119
BDC-05-02-150121 Water	7749120
BDC-05-02-150121 Water	7749121
BDC-05-16-150121 Water	7749122
BDC-05-16-150121 Water	7749123
TRIP BLANK Water	7749124

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

Respectfully Submitted,



Kay Hower
Manager

(510) 232-8894

Project Name: Boeing_DC:SWMU-17 qrt
LL Group #: 1533426

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 #: 150300013A (Sample number(s): 7749103, 7749105, 7749107, 7749113, 7749115, 7749117, 7749119, 7749121, 7749123 UNSPK: P748736)

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

EPA 300.0, Wet Chemistry

Batch #: 15024667901A (Sample number(s): 7749103, 7749105, 7749107, 7749109, 7749111, 7749113, 7749115, 7749117, 7749119, 7749121 UNSPK: 7749103 BKG: 7749103)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Sulfate

Batch #: 15024667901B (Sample number(s): 7749123 UNSPK: 7749123 BKG: 7749123)

The recovery(ies) for the following analyte(s) in the MS was outside the acceptance window: Sulfate

Sample Description: BDC-05-18-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749102
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 09:20 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD518

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C			ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	1.5	0.2	1
11996	Tetrachloroethene	127-18-4	0.9	0.2	1
11996	Trichloroethene	79-01-6	1.1	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.	1.2	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	H150293AA	01/29/2015 15:46	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 15:46	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 04:09	James S Mathiot	1

Sample Description: BDC-05-18-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749103
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 09:20 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV518

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method	Detection Limit	Dilution Factor
GC Miscellaneous			RSKSOP-175 modified		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	1,500 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	1,800		30	10
Wet Chemistry			EPA 300.0		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	AMEE by RSK-175	RSKSOP-175 modified	1	150300013A	01/30/2015 18:24	Nicholas R Rossi	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	150300013A	02/02/2015 17:45	Nicholas R Rossi	10
00228	Sulfate	EPA 300.0	1	15024667901A	01/24/2015 10:42	Clinton M Wilson	1

Sample Description: BDC-05-21-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749104
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 09:55 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD521

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C			ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	1.1	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	3.5	0.2	1
Wet Chemistry SM 5310 C-2000			mg/l	mg/l	
00273	Total Organic Carbon	n.a.	6.3	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	H150293AA	01/29/2015 16:07	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 16:07	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 04:54	James S Mathiot	1

Sample Description: BDC-05-21-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749105
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 09:55 by CH

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Seattle WA 98124

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV521

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	2.2 J		1.0	1
07105	Methane	74-82-8	1,400 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	1,800		30	10
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.97 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	150300013A	01/30/2015 18:42	Nicholas R Rossi	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	150300013A	02/02/2015 18:04	Nicholas R Rossi	10
00228	Sulfate	EPA 300.0	1	15024667901A	01/24/2015 11:25	Clinton M Wilson	1

Sample Description: BDC-05-20-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749106
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 10:25 by CH

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Seattle WA 98124

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD520

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C			ug/l	ug/l	
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	3.8	0.2	1
Wet Chemistry SM 5310 C-2000			mg/l	mg/l	
00273	Total Organic Carbon	n.a.	13.8	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	H150293AA	01/29/2015 16:28	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 16:28	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 05:09	James S Mathiot	1

Sample Description: BDC-05-20-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749107
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 10:25 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV520

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC Miscellaneous			RSKSOP-175 modified		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	2.7	J	1.0	1
07105	Methane	74-82-8	11,000	E	3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	100	U	100	100
07105	Ethane	74-84-0	100	U	100	100
07105	Ethene	74-85-1	100	U	100	100
07105	Methane	74-82-8	13,000		300	100
Wet Chemistry			EPA 300.0		mg/l	
00228	Sulfate	14808-79-8	0.59	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	150300013A	01/30/2015 19:01	Nicholas R Rossi	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	150300013A	02/02/2015 18:22	Nicholas R Rossi	100
00228	Sulfate	EPA 300.0	1	15024667901A	01/24/2015 11:39	Clinton M Wilson	1

Sample Description: BDC-05-22-150121 Water
Boeing_DC:SWMU-17 grt

LL Sample # WW 7749108
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 grt

Collected: 01/21/2015 11:05 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD522

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C			ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	4.2	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			mg/l	mg/l	
00273	Total Organic Carbon	n.a.	7.3	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	H150293AA	01/29/2015 16:49	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 16:49	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 05:24	James S Mathiot	1

Sample Description: BDC-05-22-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749109
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 11:05 by CH

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Seattle WA 98124

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV522

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 1.2	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	15024667901A	01/24/2015 11:53	Clinton M Wilson	1

Sample Description: BDC-05-23-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749110
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 11:35 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD523

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C			ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	2.8	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	1.7	0.2	1
Wet Chemistry SM 5310 C-2000			mg/l	mg/l	
00273	Total Organic Carbon	n.a.	9.5	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	H150293AA	01/29/2015 17:10	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 17:10	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 05:39	James S Mathiot	1

Sample Description: BDC-05-23-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749111
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 11:35 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV523

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 0.66 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	15024667901A	01/24/2015 12:07	Clinton M Wilson	1

Sample Description: BDC-05-24-150121 Water
Boeing_DC:SWMU-17 grt

LL Sample # WW 7749112
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 grt

Collected: 01/21/2015 12:10 by CH

The Boeing Company
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Seattle WA 98124

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD524

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	2.1	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.4	0.2	1
11996	Vinyl Chloride	75-01-4	1.6	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	H150293AA	01/29/2015 17:31	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 17:31	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 05:55	James S Mathiot	1

Sample Description: BDC-05-24-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749113
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 12:10 by CH

The Boeing Company
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Seattle WA 98124

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV524

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	2.5 J		1.0	1
07105	Methane	74-82-8	4,100 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	5,400		60	20
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	2.3		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	150300013A	01/30/2015 19:19	Nicholas R Rossi	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	150300013A	02/02/2015 19:00	Nicholas R Rossi	20
00228	Sulfate	EPA 300.0	1	15024667901A	01/24/2015 12:50	Clinton M Wilson	1

Sample Description: BDC-05-DUP-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749114
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD5FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	2.0	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.4	0.2	1
11996	Vinyl Chloride	75-01-4	1.5	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	3.6	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	H150293AA	01/29/2015 17:53	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 17:53	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 06:26	James S Mathiot	1

Sample Description: BDC-05-DUP-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749115
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 by CH

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Seattle WA 98124

Submitted: 01/23/2015 09:10
Reported: 02/03/2015 18:11

BV5FD

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	2.6 J		1.0	1
07105	Methane	74-82-8	4,300 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	5,500		60	20
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	2.4		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	150300013A	01/30/2015 19:37	Nicholas R Rossi	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	150300013A	02/02/2015 19:18	Nicholas R Rossi	20
00228	Sulfate	EPA 300.0	1	15024667901A	01/24/2015 13:04	Clinton M Wilson	1

Sample Description: BDC-05-19-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749116
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 13:55 by CH

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Seattle WA 98124

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD519

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	3.8	0.2	1
Wet Chemistry SM 5310 C-2000			mg/l	mg/l	
00273	Total Organic Carbon	n.a.	31.4	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	H150293AA	01/29/2015 14:21	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 14:21	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 06:41	James S Mathiot	1

Sample Description: BDC-05-19-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749117
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 13:55 by CH

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Seattle WA 98124

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV519

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC Miscellaneous			RSKSOP-175 modified		ug/l	
07105	Acetylene	74-86-2	1.0	U	1.0	1
07105	Ethane	74-84-0	4.0	J	1.0	1
07105	Ethene	74-85-1	1.3	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	18,000		300	100
Wet Chemistry			EPA 300.0		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	150300013A	01/30/2015 19:56	Nicholas R Rossi	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	150300013A	02/02/2015 19:37	Nicholas R Rossi	100
00228	Sulfate	EPA 300.0	1	15024667901A	01/24/2015 13:18	Clinton M Wilson	1

Sample Description: BDC-05-12-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749118
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 14:25 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD512

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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.	22.6	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	H150293AA	01/29/2015 14:42	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 14:42	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 06:56	James S Mathiot	1

Sample Description: BDC-05-12-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749119
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 14:25 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV512

CAT No.	Analysis Name	CAS Number	As Received Result		As Received Method Detection Limit	Dilution Factor
GC Miscellaneous			RSKSOP-175 modified		ug/l	
07105	Acetylene	74-86-2	1.0	U	1.0	1
07105	Ethane	74-84-0	5.0		1.0	1
07105	Ethene	74-85-1	1.5	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	17,000		300	100
Wet Chemistry			EPA 300.0		mg/l	
00228	Sulfate	14808-79-8	0.45	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	150300013A	01/30/2015 20:14	Nicholas R Rossi	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	150300013A	02/02/2015 19:55	Nicholas R Rossi	100
00228	Sulfate	EPA 300.0	1	15024667901A	01/24/2015 13:32	Clinton M Wilson	1

Sample Description: BDC-05-02-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749120
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 14:55 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD502

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C			ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	1.7	0.2	1
11996	Tetrachloroethene	127-18-4	1.2	0.2	1
11996	Trichloroethene	79-01-6	0.6	0.2	1
11996	Vinyl Chloride	75-01-4	1.7	0.2	1
Wet Chemistry SM 5310 C-2000			mg/l	mg/l	
00273	Total Organic Carbon	n.a.	40.0	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	H150293AA	01/29/2015 15:03	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 15:03	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501A	01/29/2015 07:11	James S Mathiot	1

Sample Description: BDC-05-02-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749121
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 14:55 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV502

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	4.7 J		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	9,300 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	12,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	8.9		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	150300013A	01/30/2015 20:51	Nicholas R Rossi	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	150300013A	02/02/2015 20:14	Nicholas R Rossi	100
00228	Sulfate	EPA 300.0	1	15024667901A	01/24/2015 13:47	Clinton M Wilson	1

Sample Description: BDC-05-16-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749122
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 15:30 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD516

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	2.9	0.2	1
Wet Chemistry SM 5310 C-2000			mg/l	mg/l	
00273	Total Organic Carbon	n.a.	33.6	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	H150293AA	01/29/2015 15:24	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 15:24	Jason M Long	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15029049501B	01/29/2015 07:27	James S Mathiot	1

Sample Description: BDC-05-16-150121 Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749123
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/21/2015 15:30 by CH

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BV516

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	6.1	1.0	1
07105	Ethene	74-85-1	5.7	1.0	1
07105	Methane	74-82-8	18,000 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	0.70 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	150300013A	01/30/2015 21:09	Nicholas R Rossi	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	150300013A	02/02/2015 20:32	Nicholas R Rossi	100
00228	Sulfate	EPA 300.0	1	15024667901B	01/24/2015 14:01	Clinton M Wilson	1

Sample Description: TRIP BLANK Water
Boeing_DC:SWMU-17 qrt

LL Sample # WW 7749124
LL Group # 1533426
Account # 13419

Project Name: Boeing_DC:SWMU-17 qrt

Collected: 01/15/2015

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

Submitted: 01/23/2015 09:10

Reported: 02/03/2015 18:11

BD5TB

CAT No.	Analysis Name	CAS Number	As Received Result	As Received 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	H150293AA	01/29/2015 14:01	Jason M Long	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H150293AA	01/29/2015 14:01	Jason M Long	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 02/03/15 at 06:11 PM

Group Number: 1533426

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: H150293AA	Sample number(s): 7749102, 7749104, 7749106, 7749108, 7749110, 7749112, 7749114, 7749116, 7749118, 7749120, 7749122, 7749124							
cis-1,2-Dichloroethene	0.2 U	0.2	ug/l	102	101	80-120	1	30
Tetrachloroethene	0.2 U	0.2	ug/l	102	101	80-120	0	30
Trichloroethene	0.2 U	0.2	ug/l	99	98	80-120	1	30
Vinyl Chloride	0.2 U	0.2	ug/l	78	77	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: 150300013A	Sample number(s): 7749103, 7749105, 7749107, 7749113, 7749115, 7749117, 7749119, 7749121, 7749123							
Acetylene	1.0 U	1.0	ug/l	121		75-125		
Ethane	1.0 U	1.0	ug/l	97		80-120		
Ethene	1.0 U	1.0	ug/l	97		80-120		
Methane	3.0 U	3.0	ug/l	99		80-120		

<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: 15029049501A	Sample number(s): 7749102, 7749104, 7749106, 7749108, 7749110, 7749112, 7749114, 7749116, 7749118, 7749120							
Total Organic Carbon	1.0 U	1.0	mg/l	102		91-113		
Batch number: 15029049501B	Sample number(s): 7749122							
Total Organic Carbon	1.0 U	1.0	mg/l	102		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: 15024667901A	Sample number(s): 7749103, 7749105, 7749107, 7749109, 7749111, 7749113, 7749115, 7749117, 7749119, 7749121							
Sulfate	0.30 U	0.30	mg/l	97	93	90-110	4	20
Batch number: 15024667901B	Sample number(s): 7749123							
Sulfate	0.30 U	0.30	mg/l	97	93	90-110	4	20

*- 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: 02/03/15 at 06:11 PM

Group Number: 1533426

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: 150300013A	Sample number(s): 7749103, 7749105, 7749107, 7749113, 7749115, 7749117, 7749119, 7749121, 7749123 UNSPK: P748736								
Acetylene	98	98	75-125	0	20				
Ethane	78	73	34-153	3	20				
Ethene	124	131	35-162	6	20				
Methane	-2822 (2)	-7424 (2)	35-157	20	20				
Batch number: 15029049501A	Sample number(s): 7749102, 7749104, 7749106, 7749108, 7749110, 7749112, 7749114, 7749116, 7749118, 7749120 UNSPK: 7749102 BKG: 7749102								
Total Organic Carbon	106		63-142			1.2	1.1	3 (1)	4
Batch number: 15029049501B	Sample number(s): 7749122 UNSPK: 7749122 BKG: 7749122								
Total Organic Carbon	91		63-142			33.6	33.8	0	4
Batch number: 15024667901A	Sample number(s): 7749103, 7749105, 7749107, 7749109, 7749111, 7749113, 7749115, 7749117, 7749119, 7749121 UNSPK: 7749103 BKG: 7749103								
Sulfate	82*		90-110			2.0	1.8	8 (1)	20
Batch number: 15024667901B	Sample number(s): 7749123 UNSPK: 7749123 BKG: 7749123								
Sulfate	78*		90-110			0.70	J 0.68	J 4 (1)	20

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: H150293AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7749102	104	103	96	93
7749104	106	103	97	94
7749106	104	104	96	95
7749108	104	102	96	92
7749110	105	101	97	93
7749112	106	107	96	93
7749114	106	105	96	92
7749116	104	104	95	94
7749118	103	102	97	95
7749120	103	101	96	94
7749122	105	104	96	94
7749124	103	103	97	94
Blank	102	103	95	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.

Quality Control Summary

Client Name: The Boeing Company
Reported: 02/03/15 at 06:11 PM

Group Number: 1533426

Surrogate Quality Control

LCS	101	99	97	100
LCSD	101	98	98	99
Limits:	77-114	74-113	77-110	78-110

Analysis Name: AMEE by RSK-175
Batch number: 150300013A

Propene

7749103	81
7749103	90
DL	
7749105	78
7749105	88
DL	
7749107	75
7749107	92
DL	
7749113	82
7749113	94
DL	
7749115	81
7749115	91
DL	
7749117	74
7749117	89
DL	
7749119	80
7749119	90
DL	
7749121	72
7749121	88
DL	
7749123	69
7749123	92
DL	
Blank	97
LCS	101
MS	56
MSD	66
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.

Client: Boeing
Delivery and Receipt Information

Delivery Method:	<u>Fed Ex</u>	Arrival Timestamp:	<u>01/23/2015 9:10</u>
Number of Packages:	<u>1</u>	Number of Projects:	<u>1</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 Brandy Barclay (2299) at 11:37 on 01/23/2015

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	DT146	0.8	DT	Wet	Y	Bagged	N

G#1533426

Do Not Lift Using This Tag

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1 From
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Package Weight

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Release Signature For nonresidential deliveries.	For FedEx Use Only	
	Employee Number	Base Charges
→ Sign within this area. Please do not remove.	Other	Total Charges
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.*

M-10091 Rev. 3/10

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LANCASTER LABORATORIES
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601
(717) 656-2300

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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.



8986 2518 7142

Form ID
0667

RT **729**
FZ
1 10:30
7142
01.23

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.

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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

May 08, 2015

Project: Boeing_DC:SWMU-17 s-ann

Submittal Date: 04/29/2015

Group Number: 1557098

State of Sample Origin: WA

<u>Client Sample Description</u>	<u>Lancaster Labs (LL) #</u>
BDC-05-17-150426 Water	7866177
BDC-05-17-150426 Water	7866178
BDC-05-17-150426 Total Metals Water	7866179
BDC-05-17-150426 Total Metals Water	7866180
BDC-05-17-150426 Dissolved Metals Water	7866181
BDC-05-17-150426 Dissolved Metals Water	7866182
BDC-05-16-150426 Water	7866183
BDC-05-16-150426 Water	7866184
BDC-05-16-150426 Total Metals Water	7866185
BDC-05-16-150426 Total Metals Water	7866186
BDC-05-16-150426 Dissolved Metals Water	7866187
BDC-05-16-150426 Dissolved Metals Water	7866188
BDC-05-18-150426 Water	7866189
BDC-05-18-150426 Water	7866190
BDC-05-18-150426 Total Metals Water	7866191
BDC-05-18-150426 Total Metals Water	7866192
BDC-05-18-150426 Dissolved Metals Water	7866193
BDC-05-18-150426 Dissolved Metals Water	7866194
BDC-05-20-150426 Water	7866195
BDC-05-20-150426 Water	7866196
BDC-05-20-150426 Total Metals Water	7866197
BDC-05-20-150426 Total Metals Water	7866198
BDC-05-20-150426 Dissolved Metals Water	7866199
BDC-05-20-150426 Dissolved Metals Water	7866200
BDC-05-21-150427 Water	7866201
BDC-05-21-150427 Water	7866202
BDC-05-21-150427 Total Metals Water	7866203
BDC-05-21-150427 Total Metals Water	7866204
BDC-05-21-150427 Dissolved Metals Water	7866205
BDC-05-21-150427 Dissolved Metals Water	7866206
BDC-05-22-150427 Water	7866207
BDC-05-22-150427 Water	7866208
BDC-05-22-150427 Total Metals Water	7866209

BDC-05-22-150427 Total Metals Water	7866210
BDC-05-22-150427 Dissolved Metals Water	7866211
BDC-05-22-150427 Dissolved Metals Water	7866212
BDC-05-23-150427 Water	7866213
BDC-05-23-150427 Water	7866214
BDC-05-23-150427 Total Metals Water	7866215
BDC-05-23-150427 Total Metals Water	7866216
BDC-05-23-150427 Dissolved Metals Water	7866217
BDC-05-23-150427 Dissolved Metals Water	7866218
BDC-05-24-150427 Water	7866219
BDC-05-24-150427 Water	7866220
BDC-05-24-150427 Total Metals Water	7866221
BDC-05-24-150427 Total Metals Water	7866222
BDC-05-24-150427 Dissolved Metals Water	7866223
BDC-05-24-150427 Dissolved Metals Water	7866224
BDC-05-14-150427 Water	7866225
BDC-05-14-150427 Water	7866226
BDC-05-14-150427 Total Metals Water	7866227
BDC-05-14-150427 Total Metals Water	7866228
BDC-05-14-150427 Dissolved Metals Water	7866229
BDC-05-14-150427 Dissolved Metals Water	7866230
BDC-05-13-150427 Water	7866231
BDC-05-13-150427 Water	7866232
BDC-05-13-150427 Total Metals Water	7866233
BDC-05-13-150427 Total Metals Water	7866234
BDC-05-13-150427 Dissolved Metals Water	7866235
BDC-05-13-150427 Dissolved Metals Water	7866236
BDC-05-19-150427 Water	7866237
BDC-05-19-150427 Water	7866238
BDC-05-19-150427 Total Metals Water	7866239
BDC-05-19-150427 Total Metals Water	7866240
BDC-05-19-150427 Dissolved Metals Water	7866241
BDC-05-19-150427 Dissolved Metals Water	7866242
BDC-05-15-150427 Water	7866243
BDC-05-15-150427 Water	7866244
BDC-05-15-150427 Total Metals Water	7866245
BDC-05-15-150427 Total Metals Water	7866246
BDC-05-15-150427 Dissolved Metals Water	7866247
BDC-05-15-150427 Dissolved Metals Water	7866248
BDC-05-12-150427 Water	7866249
BDC-05-12-150427 Water	7866250
BDC-05-12-150427 Total Metals Water	7866251
BDC-05-12-150427 Total Metals Water	7866252
BDC-05-12-150427 Dissolved Metals Water	7866253
BDC-05-12-150427 Dissolved Metals Water	7866254
BDC-05-11-150427 Water	7866255
BDC-05-11-150427 Water	7866256
BDC-05-11-150427 Total Metals Water	7866257
BDC-05-11-150427 Total Metals Water	7866258
BDC-05-11-150427 Dissolved Metals Water	7866259
BDC-05-11-150427 Dissolved Metals Water	7866260
BDC-DUPI-150427 Water	7866261

BDC-DUP1-150427 Water	7866262
BDC-DUP1-150427 Total Metals Water	7866263
BDC-DUP1-150427 Total Metals Water	7866264
BDC-DUP1-150427 Dissolved Metals Water	7866265
BDC-DUP1-150427 Dissolved Metals Water	7866266
BDC-05-10-150427 Water	7866267
BDC-05-10-150427 Water	7866268
BDC-05-10-150427 Total Metals Water	7866269
BDC-05-10-150427 Total Metals Water	7866270
BDC-05-10-150427 Dissolved Metals Water	7866271
BDC-05-10-150427 Dissolved Metals Water	7866272
BDC-05-09-150427 Water	7866273
BDC-05-09-150427 Water	7866274
BDC-05-09-150427 Total Metals Water	7866275
BDC-05-09-150427 Total Metals Water	7866276
BDC-05-09-150427 Dissolved Metals Water	7866277
BDC-05-09-150427 Dissolved Metals Water	7866278
BDC-05-08-150427 Water	7866279
BDC-05-08-150427 Water	7866280
BDC-05-08-150427 Total Metals Water	7866281
BDC-05-08-150427 Total Metals Water	7866282
BDC-05-08-150427 Dissolved Metals Water	7866283
BDC-05-08-150427 Dissolved Metals Water	7866284
BDC-05-03-150427 Water	7866285
BDC-05-03-150427 Water	7866286
BDC-05-03-150427 Total Metals Water	7866287
BDC-05-03-150427 Total Metals Water	7866288
BDC-05-03-150427 Dissolved Metals Water	7866289
BDC-05-03-150427 Dissolved Metals Water	7866290
BDC-05-07-150427 Water	7866291
BDC-05-07-150427 Water	7866292
BDC-05-07-150427 Total Metals Water	7866293
BDC-05-07-150427 Total Metals Water	7866294
BDC-05-07-150427 Dissolved Metals Water	7866295
BDC-05-07-150427 Dissolved Metals Water	7866296
BDC-05-02-150427 Water	7866297
BDC-05-02-150427 Water	7866298
BDC-05-02-150427 Total Metals Water	7866299
BDC-05-02-150427 Total Metals Water	7866300
BDC-05-02-150427 Dissolved Metals Water	7866301
BDC-05-02-150427 Dissolved Metals Water	7866302
BDC-05-04-150427 Water	7866303
BDC-05-04-150427 Water	7866304
BDC-05-04-150427 Total Metals Water	7866305
BDC-05-04-150427 Total Metals Water	7866306
BDC-05-04-150427 Dissolved Metals Water	7866307
BDC-05-04-150427 Dissolved Metals Water	7866308
BDC-05-05-150427 Water	7866309
BDC-05-05-150427 Water	7866310
BDC-05-05-150427 Total Metals Water	7866311
BDC-05-05-150427 Total Metals Water	7866312
BDC-05-05-150427 Dissolved Metals Water	7866313

BDC-05-05-150427 Dissolved Metals Water	7866314
BDC-DUP2-150427 Water	7866315
BDC-DUP2-150427 Water	7866316
BDC-DUP2-150427 Total Metals Water	7866317
BDC-DUP2-150427 Total Metals Water	7866318
BDC-DUP2-150427 Dissolved Metals Water	7866319
BDC-DUP2-150427 Dissolved Metals Water	7866320
Trip Blank Water	7866321

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 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 #: 1557098

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 #: 151210020A (Sample number(s): 7866178, 7866184, 7866190, 7866196, 7866202, 7866220, 7866226, 7866232, 7866238, 7866244, 7866250, 7866256, 7866262, 7866268, 7866274, 7866286, 7866292, 7866298, 7866316 UNSPK: 7866190)

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

Batch #: 151240002A (Sample number(s): 7866321 UNSPK: P869032)

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 #: 151197050008A (Sample number(s): 7866193-7866194, 7866197-7866200, 7866203-7866206 UNSPK: 7866193 BKG: 7866193)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper

EPA 200.8 rev 5.4, Metals Dissolved

Batch #: 151197050008A (Sample number(s): 7866193-7866194, 7866197-7866200, 7866203-7866206 UNSPK: 7866193 BKG: 7866193)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Copper

SM 5310 C-2000, Wet Chemistry

Batch #: 15120049503B (Sample number(s): 7866177, 7866183, 7866189, 7866195, 7866201, 7866207 UNSPK: P866013 BKG: P866013)

The duplicate RPD for the following analyte(s) exceeded the acceptance window: Total Organic Carbon

Sample Description: BDC-05-17-150426 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866177
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 15:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-17

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	1.5	0.2	1
Wet Chemistry SM 5310 C-2000					
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	H151202AA	04/30/2015 12:25	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 12:25	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049503B	04/30/2015 10:09	James S Mathiot	1

Sample Description: BDC-05-17-150426 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866178
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 15:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0517S

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	2.7 J		1.0	1
07105	Methane	74-82-8	19,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	200 U		200	200
07105	Ethane	74-84-0	200 U		200	200
07105	Ethene	74-85-1	200 U		200	200
07105	Methane	74-82-8	21,000		600	200
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	151210020A	05/01/2015 14:49	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 11:36	Tracy A Cole	200
00228	Sulfate	EPA 300.0	1	15119987602A	04/30/2015 01:08	Clinton M Wilson	1

Sample Description: BDC-05-17-150426 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866179
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 15:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0040	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	151197050007A	05/04/2015 04:12	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-17-150426 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866180
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 15:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0391	0.00082	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	151197050007A	05/04/2015 04:20	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-17-150426 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866181
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 15:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151197050007A	05/04/2015 04:22	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-17-150426 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866182
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 15:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0323	mg/l 0.00082	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	151197050007A	05/04/2015 04:24	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-16-150426 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866183
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-16

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	2.3	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	23.8	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	H151202AA	04/30/2015 12:46	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 12:46	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049503B	04/30/2015 10:24	James S Mathiot	1

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Sample Description: BDC-05-16-150426 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866184
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0516S

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	5.7		1.0	1
07105	Ethene	74-85-1	2.4 J		1.0	1
07105	Methane	74-82-8	19,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	200 U		200	200
07105	Ethane	74-84-0	200 U		200	200
07105	Ethene	74-85-1	200 U		200	200
07105	Methane	74-82-8	22,000		600	200
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	151210020A	05/01/2015 15:05	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 11:53	Tracy A Cole	200
00228	Sulfate	EPA 300.0	1	15119987602A	04/30/2015 01:24	Clinton M Wilson	1

Sample Description: BDC-05-16-150426 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866185
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151197050007A	05/04/2015 04:29	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-16-150426 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866186
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0478	0.00082	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	151197050007A	05/04/2015 04:30	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-16-150426 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866187
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151197050007A	05/04/2015 04:32	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-16-150426 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866188
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0458	mg/l 0.00082	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	151197050007A	05/04/2015 04:34	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-18-150426 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866189
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-18

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	0.2	1
11996	Tetrachloroethene	127-18-4	0.8	0.2	1
11996	Trichloroethene	79-01-6	2.0	0.2	1
11996	Vinyl Chloride	75-01-4	0.3	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	4.1	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	H151202AA	04/30/2015 13:08	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 13:08	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049503B	04/30/2015 10:39	James S Mathiot	1

Sample Description: BDC-05-18-150426 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866190
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0518S

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	940 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	5.0 U	5.0	5
07105	Ethane	74-84-0	5.0 U	5.0	5
07105	Ethene	74-85-1	5.0 U	5.0	5
07105	Methane	74-82-8	950	15	5
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	3.6	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	AMEE by RSK-175	RSKSOP-175 modified	1	151210020A	05/01/2015 15:22	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 12:10	Tracy A Cole	5
00228	Sulfate	EPA 300.0	1	15119987602A	04/29/2015 23:46	Clinton M Wilson	1

Sample Description: BDC-05-18-150426 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866191
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0027	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	151197050007A	05/04/2015 04:35	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-18-150426 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866192
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:55 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0272	0.00082	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	151197050007A	05/04/2015 04:37	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050007	04/30/2015 10:23	James L Mertz	1

Sample Description: BDC-05-18-150426 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866193
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151197050008A	05/04/2015 15:18	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-18-150426 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866194
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 16:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0038	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	151197050008A	05/04/2015 15:26	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-20-150426 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866195
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 17:25 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-20

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	0.4	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	6.9	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	11.4	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	H151202AA	04/30/2015 13:29	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 13:29	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049503B	04/30/2015 11:11	James S Mathiot	1

Sample Description: BDC-05-20-150426 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866196
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 17:25 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0520S

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	1.6 J		1.0	1
07105	Ethene	74-85-1	4.8 J		1.0	1
07105	Methane	74-82-8	13,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	200 U		200	200
07105	Ethane	74-84-0	200 U		200	200
07105	Ethene	74-85-1	200 U		200	200
07105	Methane	74-82-8	14,000		600	200
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	151210020A	05/01/2015 16:13	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 12:26	Tracy A Cole	200
00228	Sulfate	EPA 300.0	1	15119987602A	04/30/2015 01:40	Clinton M Wilson	1

Sample Description: BDC-05-20-150426 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866197
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 17:25 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151197050008A	05/04/2015 15:28	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-20-150426 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866198
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 17:25 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0276	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	151197050008A	05/04/2015 15:30	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-20-150426 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866199
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 17:25 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151197050008A	05/04/2015 15:35	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-20-150426 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866200
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/26/2015 17:25 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0230	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	151197050008A	05/04/2015 15:37	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-21-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866201
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-21

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	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	4.4	0.2	1
Wet Chemistry SM 5310 C-2000					
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	H151202AA	04/30/2015 13:50	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 13:50	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049503B	04/30/2015 11:26	James S Mathiot	1

Sample Description: BDC-05-21-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866202
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0521S

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	4,400 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	4,800	300	100
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	1.9	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	151210020A	05/01/2015 16:30	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 12:43	Tracy A Cole	100
00228	Sulfate	EPA 300.0	1	15119987602A	04/30/2015 01:57	Clinton M Wilson	1

Sample Description: BDC-05-21-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866203
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151197050008A	05/04/2015 15:39	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-21-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866204
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0129	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	151197050008A	05/04/2015 15:41	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-21-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866205
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151197050008A	05/04/2015 15:42	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-21-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866206
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Metals Dissolved Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0111	mg/l 0.00040	1

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	151197050008A	05/04/2015 15:44	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151197050008	04/30/2015 10:29	James L Mertz	1

Sample Description: BDC-05-22-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866207
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-22

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	4.2	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	0.2 U	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	5.2	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	H151202AA	04/30/2015 14:12	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 14:12	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049503B	04/30/2015 11:42	James S Mathiot	1

Sample Description: BDC-05-22-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866208
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0522S

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	15119987602A	04/30/2015 02:13	Clinton M Wilson	1

Sample Description: BDC-05-22-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866209
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0037	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	151207050003A	05/04/2015 15:12	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-22-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866210
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0252	mg/l 0.00082	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	151207050003A	05/04/2015 15:20	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-22-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 786211
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050003A	05/04/2015 15:22	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-22-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866212
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 05:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0263	mg/l 0.00082	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	151207050003A	05/04/2015 15:23	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-23-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866213
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-23

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	2.9	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	2.4	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	7.5	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	H151202AA	04/30/2015 14:33	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 14:33	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 12:27	James S Mathiot	1

Sample Description: BDC-05-23-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866214
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0523S

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 0.74 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	15119987602A	04/30/2015 02:29	Clinton M Wilson	1

Sample Description: BDC-05-23-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866215
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050003A	05/04/2015 15:28	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-23-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866216
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0216	0.00082	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	151207050003A	05/04/2015 15:30	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-23-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 786217
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050003A	05/04/2015 15:32	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-23-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866218
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0209	mg/l 0.00082	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	151207050003A	05/04/2015 15:33	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-24-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866219
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:50 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-24

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	0.9	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	2.5	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	3.2	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	H151202AA	04/30/2015 14:54	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 14:54	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 13:13	James S Mathiot	1

Sample Description: BDC-05-24-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866220
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:50 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0524S

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	2.5 J	1.0	1
07105	Methane	74-82-8	2,800 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	50 U	50	50
07105	Ethane	74-84-0	50 U	50	50
07105	Ethene	74-85-1	50 U	50	50
07105	Methane	74-82-8	3,200	150	50
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	0.97 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	151210020A	05/01/2015 16:46	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 13:00	Tracy A Cole	50
00228	Sulfate	EPA 300.0	1	15119987602A	04/30/2015 02:45	Clinton M Wilson	1

Sample Description: BDC-05-24-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866221
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:50 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050003A	05/04/2015 15:35	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-24-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866222
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:50 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0028	0.00082	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	151207050003A	05/04/2015 15:37	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050003	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-24-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866223
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:50 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050004A	05/04/2015 14:08	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-24-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866224
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 06:50 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0028	mg/l 0.00082	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	151207050004A	05/04/2015 14:16	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-14-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866225
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 07:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-14

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	0.4	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.	18.9	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	H151202AA	04/30/2015 15:16	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 15:16	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 13:28	James S Mathiot	1

Sample Description: BDC-05-14-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866226
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 07:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0514S

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	9,800 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	11,000		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	1.8		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	151210020A	05/01/2015 17:20	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 13:17	Tracy A Cole	100
00228	Sulfate	EPA 300.0	1	15119987602A	04/30/2015 03:02	Clinton M Wilson	1

Sample Description: BDC-05-14-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866227
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 07:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050004A	05/04/2015 14:18	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-14-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866228
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 07:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0182	0.00082	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	151207050004A	05/04/2015 14:20	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-14-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866229
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 07:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050004A	05/04/2015 14:25	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-14-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866230
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 07:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0153	mg/l 0.00082	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	151207050004A	05/04/2015 14:27	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-13-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866231
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:00 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-13

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	1.9	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	8.9	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	H151202AA	04/30/2015 15:37	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 15:37	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 17:21	James S Mathiot	1

Sample Description: BDC-05-13-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866232
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:00 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0513S

CAT No.	Analysis Name	CAS Number	Result	Method	Detection Limit	Dilution Factor
GC Miscellaneous		RSKSOP-175 modified	ug/l		ug/l	
07105	Acetylene	74-86-2	1.0 U		1.0	1
07105	Ethane	74-84-0	1.6 J		1.0	1
07105	Ethene	74-85-1	2.5 J		1.0	1
07105	Methane	74-82-8	11,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	200 U		200	200
07105	Ethane	74-84-0	200 U		200	200
07105	Ethene	74-85-1	200 U		200	200
07105	Methane	74-82-8	12,000		600	200
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	151210020A	05/01/2015 17:37	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 13:34	Tracy A Cole	200
00228	Sulfate	EPA 300.0	1	15119987602A	04/30/2015 03:18	Clinton M Wilson	1

Sample Description: BDC-05-13-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866233
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:00 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050004A	05/04/2015 14:29	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

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Sample Description: BDC-05-13-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866234
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:00 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0193	0.00082	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	151207050004A	05/04/2015 14:30	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-13-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866235
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:00 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050004A	05/04/2015 14:32	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-13-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866236
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:00 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0183	mg/l 0.00082	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	151207050004A	05/04/2015 14:34	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050004	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-19-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866237
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-19

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	1.6	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	20.1	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	H151202AA	04/30/2015 15:59	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 15:59	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 17:36	James S Mathiot	1

Sample Description: BDC-05-19-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866238
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0519S

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	3.5 J		1.0	1
07105	Ethene	74-85-1	1.0 U		1.0	1
07105	Methane	74-82-8	16,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	200 U		200	200
07105	Ethane	74-84-0	200 U		200	200
07105	Ethene	74-85-1	200 U		200	200
07105	Methane	74-82-8	19,000		600	200
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	151210020A	05/01/2015 17:54	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 13:51	Tracy A Cole	200
00228	Sulfate	EPA 300.0	1	15119987602B	04/30/2015 04:56	Clinton M Wilson	1

Sample Description: BDC-05-19-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866239
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050005A	05/04/2015 12:35	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-19-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866240
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0313	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	151207050005A	05/04/2015 12:44	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-19-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866241
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050005A	05/04/2015 12:45	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-19-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866242
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 08:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0225	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	151207050005A	05/04/2015 12:47	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-15-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866243
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-15

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	1.9	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	25.6	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	H151202AA	04/30/2015 16:20	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 16:20	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 17:51	James S Mathiot	1

Sample Description: BDC-05-15-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866244
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0515S

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	5.1		1.0	1
07105	Ethene	74-85-1	3.2 J		1.0	1
07105	Methane	74-82-8	17,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	200 U		200	200
07105	Ethane	74-84-0	200 U		200	200
07105	Ethene	74-85-1	200 U		200	200
07105	Methane	74-82-8	18,000		600	200
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	151210020A	05/01/2015 18:10	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 14:07	Tracy A Cole	200
00228	Sulfate	EPA 300.0	1	15119987602B	04/30/2015 05:12	Clinton M Wilson	1

Sample Description: BDC-05-15-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866245
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050005A	05/04/2015 12:53	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-15-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866246
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
06025	Arsenic	7440-38-2	0.0555	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	151207050005A	05/04/2015 12:54	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-15-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866247
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050005A	05/04/2015 12:56	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-15-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866248
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0522	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	151207050005A	05/04/2015 12:58	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-12-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866249
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-12

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles		SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	0.2 U	0.2	1
11996	Trichloroethene	79-01-6	0.2 U	0.2	1
11996	Vinyl Chloride	75-01-4	1.4	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	13.2	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	H151202AA	04/30/2015 16:42	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 16:42	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 18:07	James S Mathiot	1

Sample Description: BDC-05-12-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866250
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0512S

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	1.2 J		1.0	1
07105	Methane	74-82-8	17,000 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	200 U		200	200
07105	Ethane	74-84-0	200 U		200	200
07105	Ethene	74-85-1	200 U		200	200
07105	Methane	74-82-8	21,000		600	200
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	151210020A	05/01/2015 18:27	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 14:41	Tracy A Cole	200
00228	Sulfate	EPA 300.0	1	15119987602B	04/30/2015 05:28	Clinton M Wilson	1

Sample Description: BDC-05-12-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866251
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050005A	05/04/2015 13:00	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-12-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866252
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0168	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	151207050005A	05/04/2015 13:01	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050005	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-12-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866253
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050006A	05/04/2015 16:16	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-12-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866254
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 09:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0170	mg/l 0.00082	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	151207050006A	05/04/2015 16:24	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-11-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866255
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:20 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-11

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	3.5	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	7.6	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	H151202AA	04/30/2015 17:03	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 17:03	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 18:22	James S Mathiot	1

Sample Description: BDC-05-11-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866256
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:20 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0511S

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	5,500 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	6,200		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.81 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	151210020A	05/01/2015 18:44	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 14:58	Tracy A Cole	100
00228	Sulfate	EPA 300.0	1	15119987602B	04/30/2015 05:44	Clinton M Wilson	1

Sample Description: BDC-05-11-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866257
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:20 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050006A	05/04/2015 16:26	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-11-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866258
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:20 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0186	mg/l 0.00082	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	151207050006A	05/04/2015 16:28	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-11-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866259
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:20 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050006A	05/04/2015 16:33	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-11-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866260
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:20 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0172	mg/l 0.00082	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	151207050006A	05/04/2015 16:34	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-DUP1-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866261
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05DU1

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	0.9	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	2.5	0.2	1
Wet Chemistry	SM 5310 C-2000		mg/l	mg/l	
00273	Total Organic Carbon	n.a.	3.0	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	H151202AA	04/30/2015 17:25	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 17:25	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 14:00	James S Mathiot	1

Sample Description: BDC-DUP1-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866262
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05D1S

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	2.8 J		1.0	1
07105	Methane	74-82-8	2,800 E		3.0	1
Trial ID: DL						
07105	Acetylene	74-86-2	50 U		50	50
07105	Ethane	74-84-0	50 U		50	50
07105	Ethene	74-85-1	50 U		50	50
07105	Methane	74-82-8	3,200		150	50
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.93 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	151210020A	05/01/2015 19:01	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 15:15	Tracy A Cole	50
00228	Sulfate	EPA 300.0	1	15119987602B	04/30/2015 06:01	Clinton M Wilson	1

Sample Description: BDC-DUP1-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866263
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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PO Box 3707 MC 9U4-26
Seattle WA 98124

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050006A	05/04/2015 16:36	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-DUP1-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866264
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0024	mg/l 0.00082	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	151207050006A	05/04/2015 16:38	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-DUP1-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866265
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

The Boeing Company
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Seattle WA 98124

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050006A	05/04/2015 16:39	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-DUP1-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866266
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.00082	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	151207050006A	05/04/2015 16:41	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050006	05/03/2015 22:00	Annamaria Kuhns	1

Sample Description: BDC-05-10-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866267
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-10

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	2.9	0.2	1
Wet Chemistry		SM 5310 C-2000	mg/l	mg/l	
00273	Total Organic Carbon	n.a.	10.3	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	H151202AA	04/30/2015 17:46	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 17:46	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504A	04/30/2015 14:16	James S Mathiot	1

Sample Description: BDC-05-10-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866268
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0510S

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	8.3		1.0	1
07105	Ethene	74-85-1	7.2		1.0	1
07105	Methane	74-82-8	13,000 E		3.0	1
Trial ID: REDL						
07105	Acetylene	74-86-2	200 U		200	200
07105	Ethane	74-84-0	200 U		200	200
07105	Ethene	74-85-1	200 U		200	200
07105	Methane	74-82-8	14,000		600	200
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	151210020A	05/01/2015 19:18	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-RED L	151210020A	05/05/2015 12:03	Tracy A Cole	200
00228	Sulfate	EPA 300.0	1	15119987602B	04/30/2015 06:17	Clinton M Wilson	1

Sample Description: BDC-05-10-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866269
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0034	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	151207050007A	05/05/2015 09:05	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-10-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866270
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0257	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	151207050007A	05/05/2015 09:13	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-10-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866271
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050007A	05/05/2015 09:15	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-10-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866272
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 10:55 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0244	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	151207050007A	05/05/2015 09:17	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-09-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866273
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 11:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-09

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	0.4	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	8.3	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	4.0	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	H151202AA	04/30/2015 18:07	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 18:07	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504B	04/30/2015 14:31	James S Mathiot	1

Sample Description: BDC-05-09-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866274
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 11:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0509S

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	4.3 J		1.0	1
07105	Ethene	74-85-1	5.0		1.0	1
07105	Methane	74-82-8	7,400 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	7,500		300	100
Wet Chemistry		EPA 300.0	mg/l		mg/l	
00228	Sulfate	14808-79-8	0.68 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	151210020A	05/01/2015 19:34	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 15:48	Tracy A Cole	100
00228	Sulfate	EPA 300.0	1	15119987602B	04/30/2015 06:33	Clinton M Wilson	1

Sample Description: BDC-05-09-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866275
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 11:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050007A	05/05/2015 09:22	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-09-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866276
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 11:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0074	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	151207050007A	05/05/2015 09:24	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-09-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866277
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 11:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050007A	05/05/2015 09:26	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-09-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866278
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 11:30 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0091	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	151207050007A	05/05/2015 09:28	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-08-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866279
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-08

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	2.3	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	9.4	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	H151202AA	04/30/2015 18:29	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 18:29	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504B	04/30/2015 15:17	James S Mathiot	1

Sample Description: BDC-05-08-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866280
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0508S

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	15119987602B	04/30/2015 07:22	Clinton M Wilson	1

Sample Description: BDC-05-08-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866281
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0042	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	151207050007A	05/05/2015 09:29	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-08-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866282
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0192	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	151207050007A	05/05/2015 09:31	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050007	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-08-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866283
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050008A	05/04/2015 17:18	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-08-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866284
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0106	mg/l 0.00082	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	151207050008A	05/04/2015 17:27	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-03-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866285
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-03

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS	Volatiles	SW-846 8260C	ug/l	ug/l	
11996	cis-1,2-Dichloroethene	156-59-2	0.2 U	0.2	1
11996	Tetrachloroethene	127-18-4	1.5	0.2	1
11996	Trichloroethene	79-01-6	0.4	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.	1.7	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	H151202AA	04/30/2015 18:50	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 18:50	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504B	04/30/2015 15:32	James S Mathiot	1

Sample Description: BDC-05-03-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866286
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0503S

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	710 E	3.0	1
Trial ID: DL					
07105	Acetylene	74-86-2	5.0 U	5.0	5
07105	Ethane	74-84-0	5.0 U	5.0	5
07105	Ethene	74-85-1	5.0 U	5.0	5
07105	Methane	74-82-8	740	15	5
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	4.1	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	151210020A	05/01/2015 19:51	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 16:05	Tracy A Cole	5
00228	Sulfate	EPA 300.0	1	15119987602B	04/30/2015 04:07	Clinton M Wilson	1

Sample Description: BDC-05-03-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866287
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0038	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	151207050008A	05/04/2015 17:28	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-03-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866288
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
Metals		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0020 J	0.00082	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	151207050008A	05/04/2015 17:30	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-03-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866289
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050008A	05/04/2015 17:35	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-03-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866290
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 12:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0026	mg/l 0.00082	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	151207050008A	05/04/2015 17:37	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-07-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866291
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-07

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
GC/MS Volatiles SW-846 8260C					
11996	cis-1,2-Dichloroethene	156-59-2	0.6	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	5.3	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	5.5	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	H151202AA	04/30/2015 19:12	Kerri E Legerlotz	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151202AA	04/30/2015 19:12	Kerri E Legerlotz	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504B	04/30/2015 15:47	James S Mathiot	1

Sample Description: BDC-05-07-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866292
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0507S

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	1.6 J	1.0	1
07105	Methane	74-82-8	3,400 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	3,500	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	151210020A	05/01/2015 20:41	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 16:22	Tracy A Cole	100
00228	Sulfate	EPA 300.0	1	15119987602B	04/30/2015 07:38	Clinton M Wilson	1

Sample Description: BDC-05-07-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866293
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050008A	05/04/2015 17:38	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-07-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866294
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0042	mg/l 0.00082	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	151207050008A	05/04/2015 17:40	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-07-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866295
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050008A	05/04/2015 17:42	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-07-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866296
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:05 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0047	mg/l 0.00082	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	151207050008A	05/04/2015 17:43	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050008	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-02-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866297
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-02

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	1.2	0.2	1
11996	Tetrachloroethene	127-18-4	2.7	0.2	1
11996	Trichloroethene	79-01-6	1.1	0.2	1
11996	Vinyl Chloride	75-01-4	3.4	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	15.9	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	H151203AA	05/01/2015 02:36	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151203AA	05/01/2015 02:36	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504B	04/30/2015 16:02	James S Mathiot	1

Sample Description: BDC-05-02-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866298
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0502S

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	6.4	1.0	1
07105	Ethene	74-85-1	3.0 J	1.0	1
07105	Methane	74-82-8	8,800 E	3.0	1
Trial ID: REDL					
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	9,800	300	100
Wet Chemistry		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	14.3	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	151210020A	05/01/2015 20:58	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-RED L	151210020A	05/05/2015 12:19	Tracy A Cole	100
00228	Sulfate	EPA 300.0	1	15119987601B	04/29/2015 19:09	Clinton M Wilson	1

Sample Description: BDC-05-02-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866299
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0037	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	151207050009A	05/05/2015 07:17	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-02-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866300
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0180	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	151207050009A	05/05/2015 07:25	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-02-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866301
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050009A	05/05/2015 07:27	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-02-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866302
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 13:35 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0112	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	151207050009A	05/05/2015 07:29	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-04-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866303
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-04

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	1.0	0.2	1
11996	Tetrachloroethene	127-18-4	1.0	0.2	1
11996	Trichloroethene	79-01-6	0.4	0.2	1
11996	Vinyl Chloride	75-01-4	0.2 U	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	2.7	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	H151203AA	05/01/2015 02:57	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151203AA	05/01/2015 02:57	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504B	04/30/2015 16:18	James S Mathiot	1

Sample Description: BDC-05-04-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866304
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0504S

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 16.3	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	15119987601B	04/30/2015 09:37	Clinton M Wilson	2

Sample Description: BDC-05-04-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866305
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0046	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	151207050009A	05/05/2015 07:34	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-04-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866306
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0039	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	151207050009A	05/05/2015 07:36	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-04-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866307
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

CAT No.	Analysis Name	CAS Number	Result	Limit of Quantitation	Dilution Factor
06033	Metals Dissolved Copper	EPA 200.8 rev 5.4 7440-50-8	mg/l 0.0028	mg/l 0.0020	1

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	151207050009A	05/05/2015 07:38	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-04-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866308
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:10 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050009A	05/05/2015 07:40	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-05-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866309
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-05

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	1	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	H151203AA	05/01/2015 03:19	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151203AA	05/01/2015 03:19	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504B	04/30/2015 16:50	James S Mathiot	1

Sample Description: BDC-05-05-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866310
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

0505S

CAT No.	Analysis Name	CAS Number	Result	Method Detection Limit	Dilution Factor
00228	Wet Chemistry Sulfate	EPA 300.0 14808-79-8	mg/l 16.1	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	15119987601B	04/30/2015 09:54	Clinton M Wilson	2

Sample Description: BDC-05-05-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866311
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050009A	05/05/2015 07:41	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-05-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866312
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.00063 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	151207050009A	05/05/2015 07:43	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050009	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-05-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866313
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050010A	05/05/2015 10:14	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050010	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-05-05-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866314
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 14:40 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.00092 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	151207050010A	05/05/2015 10:22	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050010	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-DUP2-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866315
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05DU2

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	1.2	0.2	1
11996	Tetrachloroethene	127-18-4	2.8	0.2	1
11996	Trichloroethene	79-01-6	1.2	0.2	1
11996	Vinyl Chloride	75-01-4	3.6	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	16.4	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	H151203AA	05/01/2015 03:40	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151203AA	05/01/2015 03:40	Kevin A Sposito	1
00273	Total Organic Carbon	SM 5310 C-2000	1	15120049504B	04/30/2015 17:05	James S Mathiot	1

Sample Description: BDC-DUP2-150427 Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866316
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05D2S

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	6.2	1.0	1
07105	Ethene	74-85-1	3.0 J	1.0	1
07105	Methane	74-82-8	8,800 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	11,000	300	100
Wet Chemistry					
		EPA 300.0	mg/l	mg/l	
00228	Sulfate	14808-79-8	12.2	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	151210020A	05/01/2015 21:15	Tracy A Cole	1
07105	AMEE by RSK-175	RSKSOP-175 modified	2-DL	151210020A	05/04/2015 16:56	Tracy A Cole	100
00228	Sulfate	EPA 300.0	1	15119987601B	04/29/2015 20:47	Clinton M Wilson	1

Sample Description: BDC-DUP2-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866317
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	0.0031	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	151207050010A	05/05/2015 10:24	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050010	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-DUP2-150427 Total Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866318
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0180	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	151207050010A	05/05/2015 10:26	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050010	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-DUP2-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866319
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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	151207050010A	05/05/2015 10:31	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050010	05/04/2015 07:19	James L Mertz	1

Sample Description: BDC-DUP2-150427 Dissolved Metals Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866320
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/27/2015 by CH

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

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 0.0105	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	151207050010A	05/05/2015 10:33	Choon Y Tian	1
07050	ICP/MS EPA-600 Digest	EPA 200.8 rev 5.4	1	151207050010	05/04/2015 07:19	James L Mertz	1

Sample Description: Trip Blank Water
Boeing_DC:SWMU-17 s-ann

LL Sample # WW 7866321
LL Group # 1557098
Account # 13419

Project Name: Boeing_DC:SWMU-17 s-ann

Collected: 04/01/2015

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

Submitted: 04/29/2015 09:10

Reported: 05/08/2015 22:20

05-TB

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	0.2 U	0.2	1
GC Miscellaneous RSKSOP-175 modified ug/l					
07105	Acetylene	74-86-2	5.0 U	5.0	1
07105	Ethane	74-84-0	5.0 U	5.0	1
07105	Ethene	74-85-1	5.0 U	5.0	1
07105	Methane	74-82-8	5.0 U	5.0	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	H151203AA	05/01/2015 02:14	Kevin A Sposito	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	H151203AA	05/01/2015 02:14	Kevin A Sposito	1
07105	AMEE by RSK-175	RSKSOP-175 modified	1	151240002A	05/04/2015 18:03	Tracy A Cole	1

Quality Control Summary

Client Name: The Boeing Company
Reported: 05/08/2015 22:20

Group Number: 1557098

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: H151202AA	Sample number(s): 7866177,7866183,7866189,7866195,7866201,7866207,7866213,7866219,7866225,7866231,7866237,7866243,7866249,7866255,7866261,7866267,7866273,7866279,7866285,7866291							
cis-1,2-Dichloroethene	0.2 U	0.2	ug/l	111	104	80-120	7	30
Tetrachloroethene	0.2 U	0.2	ug/l	111	105	80-120	5	30
Trichloroethene	0.2 U	0.2	ug/l	113	108	80-120	5	30
Vinyl Chloride	0.2 U	0.2	ug/l	98	92	59-124	6	30
Batch number: H151203AA	Sample number(s): 7866297,7866303,7866309,7866315,7866321							
cis-1,2-Dichloroethene	0.2 U	0.2	ug/l	105	103	80-120	2	30
Tetrachloroethene	0.2 U	0.2	ug/l	107	104	80-120	2	30
Trichloroethene	0.2 U	0.2	ug/l	108	106	80-120	2	30
Vinyl Chloride	0.2 U	0.2	ug/l	94	91	59-124	3	30
Batch number: 151240002A	Sample number(s): 7866321							
Acetylene	5.0 U	5.0	ug/l	96		79-126		
Ethane	5.0 U	5.0	ug/l	98		85-115		
Ethene	5.0 U	5.0	ug/l	98		83-115		
Methane	5.0 U	5.0	ug/l	103		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: 151210020A	Sample number(s): 7866178,7866184,7866190,7866196,7866202,7866220,7866226,7866232,7866238,7866244,7866250,7866256,7866262,7866268,7866274,7866286,7866292,7866298,7866316							
Acetylene	1.0 U	1.0	ug/l	96		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	103		85-115		
Batch number: 151197050007A	Sample number(s): 7866179-7866182,7866185-7866188,7866191-7866192							
Arsenic	0.00082 U	0.00082	mg/l	104		85-115		
Copper	0.00050 U	0.00050	mg/l	100		85-115		
Batch number: 151197050008A	Sample number(s): 7866193-7866194,7866197-7866200,7866203-7866206							
Arsenic	0.00040 U	0.00040	mg/l	101		85-115		
Copper	0.00050 U	0.00050	mg/l	105		85-115		
Batch number: 151207050003A	Sample number(s): 7866209-7866212,7866215-7866218,7866221-7866222							
Arsenic	0.00082 U	0.00082	mg/l	107		85-115		
Copper	0.00050 U	0.00050	mg/l	101		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.

Quality Control Summary

Client Name: The Boeing Company
Reported: 05/08/2015 22:20

Group Number: 1557098

<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: 151207050004A	Sample number(s): 7866223-7866224, 7866227-7866230, 7866233-7866236							
Arsenic	0.00082 U	0.00082	mg/l	101		85-115		
Copper	0.00050 U	0.00050	mg/l	104		85-115		
Batch number: 151207050005A	Sample number(s): 7866239-7866242, 7866245-7866248, 7866251-7866252							
Arsenic	0.00040 U	0.00040	mg/l	110		85-115		
Copper	0.00050 U	0.00050	mg/l	107		85-115		
Batch number: 151207050006A	Sample number(s): 7866253-7866254, 7866257-7866260, 7866263-7866266							
Arsenic	0.00082 U	0.00082	mg/l	105		85-115		
Copper	0.00050 U	0.00050	mg/l	100		85-115		
Batch number: 151207050007A	Sample number(s): 7866269-7866272, 7866275-7866278, 7866281-7866282							
Arsenic	0.00040 U	0.00040	mg/l	109		85-115		
Copper	0.00050 U	0.00050	mg/l	111		85-115		
Batch number: 151207050008A	Sample number(s): 7866283-7866284, 7866287-7866290, 7866293-7866296							
Arsenic	0.00082 U	0.00082	mg/l	106		85-115		
Copper	0.00050 U	0.00050	mg/l	100		85-115		
Batch number: 151207050009A	Sample number(s): 7866299-7866302, 7866305-7866308, 7866311-7866312							
Arsenic	0.00040 U	0.00040	mg/l	109		85-115		
Copper	0.00050 U	0.00050	mg/l	108		85-115		
Batch number: 151207050010A	Sample number(s): 7866313-7866314, 7866317-7866320							
Arsenic	0.00040 U	0.00040	mg/l	104		85-115		
Copper	0.00050 U	0.00050	mg/l	108		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: 15120049503B	Sample number(s): 7866177, 7866183, 7866189, 7866195, 7866201, 7866207							
Total Organic Carbon	1.0 U	1.0	mg/l	102		91-113		
Batch number: 15120049504A	Sample number(s): 7866213, 7866219, 7866225, 7866231, 7866237, 7866243, 7866249, 7866255, 7866261, 7866267							
Total Organic Carbon	1.0 U	1.0	mg/l	104		91-113		
Batch number: 15120049504B	Sample number(s): 7866273, 7866279, 7866285, 7866291, 7866297, 7866303, 7866309, 7866315							
Total Organic Carbon	1.0 U	1.0	mg/l	104		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: 15119987601B	Sample number(s): 7866298, 7866304, 7866310, 7866316							
Sulfate	0.30 U	0.30	mg/l	99	99	90-110	0	20
Batch number: 15119987602A	Sample number(s): 7866178, 7866184, 7866190, 7866196, 7866202, 7866208, 7866214, 7866220, 7866226, 7866232							

*- 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: 05/08/2015 22:20

Group Number: 1557098

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDI</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>
Sulfate	0.30 U	0.30	mg/l	100	100	90-110	0	20
Batch number: 15119987602B								
Sample number(s): 7866238, 7866244, 7866250, 7866256, 7866262, 7866268, 7866274, 7866280, 7866286, 7866292								
Sulfate	0.30 U	0.30	mg/l	100	100	90-110	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: 151240002A									
Sample number(s): 7866321 UNSPK: P869032									
Acetylene	83	79	38-121	5	20				
Ethane	89	81	53-122	6	20				
Ethene	109	102	35-162	7	20				
Methane	-2813 (2)	-5936 (2)	46-129	11	20				
Batch number: 151210020A									
Sample number(s): 7866178, 7866184, 7866190, 7866196, 7866202, 7866220, 7866226, 7866232, 7866238, 7866244, 7866250, 7866256, 7866262, 7866268, 7866274, 7866286, 7866292, 7866298, 7866316 UNSPK: 7866190									
Acetylene	90	92	38-121	3	20				
Ethane	96	96	53-122	0	20				
Ethene	97	97	35-162	1	20				
Methane	104 (2)	177 (2)	46-129	4	20				
Batch number: 151197050007A									
Sample number(s): 7866179-7866182, 7866185-7866188, 7866191-7866192 UNSPK: 7866179									
BKG: 7866179									
Arsenic	94 (2)		70-130			0.0421	0.0415	1	20
Copper	96		70-130			0.0040	0.0037	9 (1)	20
Batch number: 151197050008A									
Sample number(s): 7866193-7866194, 7866197-7866200, 7866203-7866206 UNSPK: 7866193									
BKG: 7866193									
Arsenic	87		70-130			0.0043	0.0043	2 (1)	20
Copper	93		70-130			0.00052 J	0.00050 U	200* (1)	20
Batch number: 151207050003A									
Sample number(s): 7866209-7866212, 7866215-7866218, 7866221-7866222 UNSPK: 7866209									
BKG: 7866209									
Arsenic	100		70-130			0.0253	0.0247	3	20
Copper	98		70-130			0.0037	0.0038	2 (1)	20
Batch number: 151207050004A									
Sample number(s): 7866223-7866224, 7866227-7866230, 7866233-7866236 UNSPK: 7866223									
BKG: 7866223									
Arsenic	106		70-130			0.0029	0.0024	18 (1)	20
Copper	102		70-130			0.00050 U	0.00050 U	0 (1)	20
Batch number: 151207050005A									
Sample number(s): 7866239-7866242, 7866245-7866248, 7866251-7866252 UNSPK: 7866239									
BKG: 7866239									
Arsenic	73		70-130			0.0310	0.0300	3	20

*- 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: 05/08/2015 22:20

Group Number: 1557098

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>
Copper	103		70-130			0.0055	0.0058	5 (1)	20
Batch number: 151207050006A	Sample number(s): 7866253-7866254,7866257-7866260,7866263-7866266 UNSPK: 7866253 BKG: 7866253								
Arsenic	97		70-130			0.0169	0.0168	1	20
Copper	99		70-130			0.00050 U	0.00050 U	0 (1)	20
Batch number: 151207050007A	Sample number(s): 7866269-7866272,7866275-7866278,7866281-7866282 UNSPK: 7866269 BKG: 7866269								
Arsenic	78		70-130			0.0271	0.0280	3	20
Copper	101		70-130			0.0034	0.0041	18 (1)	20
Batch number: 151207050008A	Sample number(s): 7866283-7866284,7866287-7866290,7866293-7866296 UNSPK: 7866283 BKG: 7866283								
Arsenic	97		70-130			0.0111	0.0113	1	20
Copper	98		70-130			0.00050 U	0.00050 U	0 (1)	20
Batch number: 151207050009A	Sample number(s): 7866299-7866302,7866305-7866308,7866311-7866312 UNSPK: 7866299 BKG: 7866299								
Arsenic	102		70-130			0.0188	0.0178	5	20
Copper	104		70-130			0.0037	0.0037	0 (1)	20
Batch number: 151207050010A	Sample number(s): 7866313-7866314,7866317-7866320 UNSPK: 7866313 BKG: 7866313								
Arsenic	113		70-130			0.00089 J	0.0010 J	11 (1)	20
Copper	115		70-130			0.0015 J	0.0015 J	1 (1)	20
Batch number: 15120049503B	Sample number(s): 7866177,7866183,7866189,7866195,7866201,7866207 UNSPK: P866013 BKG: P866013								
Total Organic Carbon	83		63-142			15.0	16.0	6*	4
Batch number: 15120049504A	Sample number(s): 7866213,7866219,7866225,7866231,7866237,7866243,7866249,7866255,7866261,7866267 UNSPK: 7866213 BKG: 7866213								
Total Organic Carbon	101		63-142			7.5	7.5	0	4
Batch number: 15120049504B	Sample number(s): 7866273,7866279,7866285,7866291,7866297,7866303,7866309,7866315 UNSPK: 7866273 BKG: 7866273								
Total Organic Carbon	102		63-142			4.0	4.0	1 (1)	4
Batch number: 15119987601B	Sample number(s): 7866298,7866304,7866310,7866316 UNSPK: 7866298 BKG: 7866298								
Sulfate	102		90-110			14.3	14.2	0	20
Batch number: 15119987602A	Sample number(s): 7866178,7866184,7866190,7866196,7866202,7866208,7866214,7866220,7866226,7866232 UNSPK: 7866190 BKG: 7866190								
Sulfate	98		90-110			3.6	3.6	0 (1)	20
Batch number: 15119987602B	Sample number(s): 7866238,7866244,7866250,7866256,7866262,7866268,7866274,7866280,7866286,7866292 UNSPK: 7866286 BKG: 7866286								
Sulfate	100		90-110			4.1	4.1	1 (1)	20

*- 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: 05/08/2015 22:20

Group Number: 1557098

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>
----------------------	--------------------------	---------------------------	--------------------------------	------------	--------------------------	---------------------------	---------------------------	--------------------------	------------------------------

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: H151202AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7866177	102	102	96	91
7866183	102	101	97	91
7866189	101	98	97	90
7866195	102	99	97	90
7866201	101	99	97	90
7866207	101	101	97	90
7866213	103	101	97	91
7866219	102	99	97	89
7866225	102	98	97	90
7866231	102	98	96	90
7866237	103	98	97	90
7866243	103	100	96	91
7866249	102	98	97	91
7866255	102	99	97	90
7866261	101	100	98	90
7866267	103	102	96	90
7866273	103	98	97	89
7866279	103	100	96	90
7866285	103	101	96	89
7866291	102	101	97	89
Blank	102	99	97	92
LCS	99	96	98	94
LCSD	99	99	98	95
Limits:	77-114	74-113	77-110	78-110

Analysis Name: 8260C VC, TCE, PCE, cis1,2-DCE
Batch number: H151203AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
7866297	100	99	96	92
7866303	101	100	96	91
7866309	101	100	95	90
7866315	101	99	96	91
7866321	101	101	96	92
Blank	101	99	98	92
LCS	100	97	99	95
LCSD	100	102	99	95
Limits:	77-114	74-113	77-110	78-110

Analysis Name: AMEE by RSK-175

*- 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: 05/08/2015 22:20

Group Number: 1557098

Surrogate Quality Control

Batch number: 151210020A

Propene

7866178	76
7866178	99
DL	
7866184	82
7866184	101
DL	
7866190	93
7866190	90
DL	
7866196	85
7866196	101
DL	
7866202	86
7866202	99
DL	
7866220	87
7866220	96
DL	
7866226	80
7866226	98
DL	
7866232	88
7866232	99
DL	
7866238	83
7866238	97
DL	
7866244	75
7866244	95
DL	
7866250	84
7866250	105
DL	
7866256	84
7866256	96
DL	
7866262	97
7866262	99
DL	
7866268	91
7866268	101
REDL	
7866274	96
7866274	99
DL	
7866286	87
7866286	90
DL	
7866292	89
7866292	97
DL	
7866298	82
7866298	104
REDL	

*- 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: 05/08/2015 22:20

Group Number: 1557098

Surrogate Quality Control

7866316	85
7866316	98
DL	
Blank	107
LCS	99
MS	94
MSD	96

Limits: 47-116

Analysis Name: AMEE by RSK-175
Batch number: 151240002A

Propene

7866321	83
Blank	100
LCS	102
MS	81
MSD	76

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.

Client: BOEING

DEV CTR

Delivery and Receipt Information

Delivery Method: SeaTac Arrival Timestamp: 04/29/2015 9:10
 Number of Packages: 4 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:	6
Paperwork Enclosed:	Yes	Trip Blank Type:	hcl
Samples Intact:	Yes	Air Quality Samples Present:	No
Missing Samples:	No		
Extra Samples:	No		
Discrepancy in Container Qty on COC:	No		

Unpacked by Corey Eshleman (3647) at 11:20 on 04/29/2015

Samples Chilled Details: DEV CTR

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

Cooler #	Thermometer ID	Corrected Temp	Therm. Type	Ice Type	Ice Present?	Ice Container	Elevated Temp?
1	DT146	0.7	DT	Wet	Y	Bagged	N
2	DT146	0.4	DT	Wet	Y	Bagged	N
3	DT146	0.7	DT	Wet	Y	Bagged	N
4	DT146	0.7	DT	Wet	Y	Bagged	N

1557098

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Total Charges

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

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



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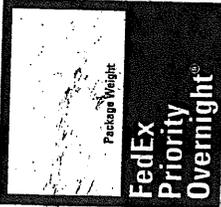
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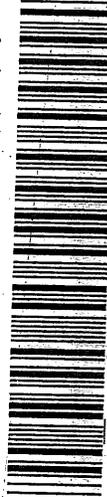
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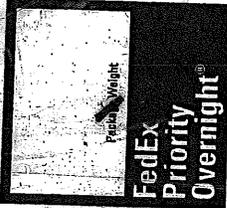
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Total Charges

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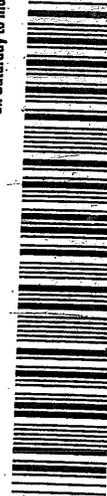
2 To Shipment will not be accepted if address below is altered.

M-10091 Rev. 3/70

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LANCASTER, PA 17601
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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 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
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-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

REVISED

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

REVISED

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

The Boeing Company
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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

REVISED

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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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	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	2.7	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	7.1	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	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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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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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	ug/l	ug/l	
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		mg/l	mg/l	
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

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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

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

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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

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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

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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	ug/l	ug/l	
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		mg/l	mg/l	
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

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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

REVISED

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

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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

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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

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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	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

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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

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

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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

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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

REVISED

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

REVISED

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

--122

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

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 (Coops)	Dissol. Metals (Coops)	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	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	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	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	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	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	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	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	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	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	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	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> Other: _____		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 ≥ 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

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Express
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Use only for shipments within the U.S.
Saturday delivery available.

1 From

ORDER: 00805887

Package Weight
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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

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



Part # 156297-435 RIT2 08/15/90 1512150303074

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
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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.

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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

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	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		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0212	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

The Boeing Company
PO Box 3707 MC 9U4-26
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

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	0.0141	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	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	4.1	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	5.7	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 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

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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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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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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
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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					
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
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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
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

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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	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

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	0.0365	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

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 05:40	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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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

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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	0.0298	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

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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 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

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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	0.0471	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	1530770500006	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

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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	0.0527	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					
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					
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

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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

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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	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

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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	0.0030	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	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	1.4	0.2	1
Wet Chemistry SM 5310 C-2000					
00273	Total Organic Carbon	n.a.	21.0	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 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

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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					
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	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		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0145	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		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0199	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	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 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
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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

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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

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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	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

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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	0.0336	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

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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					
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

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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		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 05:43	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	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	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

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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		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
	Metals Dissolved	EPA 200.8 rev 5.4	mg/l	mg/l	
06033	Copper	7440-50-8	0.0021	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
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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

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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					
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					
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 06:27	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		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0210	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
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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
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

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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	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

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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	0.0079	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

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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

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	1531570500002	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					
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	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					
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					
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	1531570500002	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
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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					
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	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
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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
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
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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

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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

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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

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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					
06025	Arsenic	EPA 200.8 rev 5.4 7440-38-2	mg/l 0.0078	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 04:15	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

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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

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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
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

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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					
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					
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

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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

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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

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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	0.00058 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

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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	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

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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 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

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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	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	11/10/2015 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

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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

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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					
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		EPA 200.8 rev 5.4	mg/l	mg/l	
06025	Arsenic	7440-38-2	0.0071	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 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						
Site Project: <u>DEY. CTR.</u>		BPC-05-23-151027		10-27-15	950	A9	9	38	91	55	08	08	
Site Program#: <u>SWMU-17</u>		BPC-05-18-151027		10-27-15	1045	A9	11	V.C. PCB					
Boeing PM: <u>JAMES BET</u>		BPC-05-21-151027		10-27-15	1130	A9	11	TCE, DCE					
Consultant Contact: <u>LANDAU</u> <u>CLINT JACOB</u>		BPC-05-20-151027		10-27-15	1220	A9	11	METHANE, ETHANE, ETHYLENE, ACETYLENE					
Report To: <u>LANDAU</u> <u>ANNE HALVORSEN</u>		BPC-05-17-151027		10-27-15	1300	A9	11						
Invoice To: <input checked="" type="checkbox"/> Boeing EHS <input type="checkbox"/> Other (specify):		BPC-05-22-151027		10-27-15	1335	A9	9						
Sampler: <u>CHARLES HARVEY</u> # of Coolers: <u>5</u>		BPC-05-16-151027		10-27-15	1415	A9	11						
		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						

6 Turnaround Time Requested (please circle): Standard

Relinquished by: CHARLES HARVEY Date/Time: 10-29-2015 10:00 AM

Received by: _____ Date/Time: _____

Relinquished by: _____ Date/Time: _____

Received by: _____ Date/Time: _____

Relinquished by commercial carrier (circle): A.L.I. COURIER

Temperature upon Receipt: 0.2-1.2 °C

Custody Seals Intact?: Yes No

Boeing Chain of Custody



Lancaster Laboratories

Acct. # 13419 Group # 1605134 Sample # SL13053-221

Page 2 of 2

For Eurofins Lancaster Laboratories, use only
Please print. Instructions on reverse side correspond.

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 ROAD 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 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: SeaTac Arrival Timestamp: 10/30/2015 18:53
 Number of Packages: 5 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:	HCI
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

CRUSH

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

CRUSH

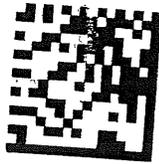
LOT AIRBILL
 AIRBILL NUMBER ID PIECE /D
 ID: 526-37210084-01-0007-G



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	EID

LOT AIRBILL
 AIRBILL NUMBER ID
 ID: 526-37210084-01-0004-G



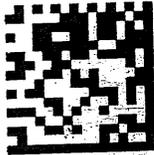
RUSH

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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Cumulative Groundwater Elevations

**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			12.90	1.90	13.06	1.74												
9-101-bldg.	MW-6B	27.20	12.88	2.21			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			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
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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

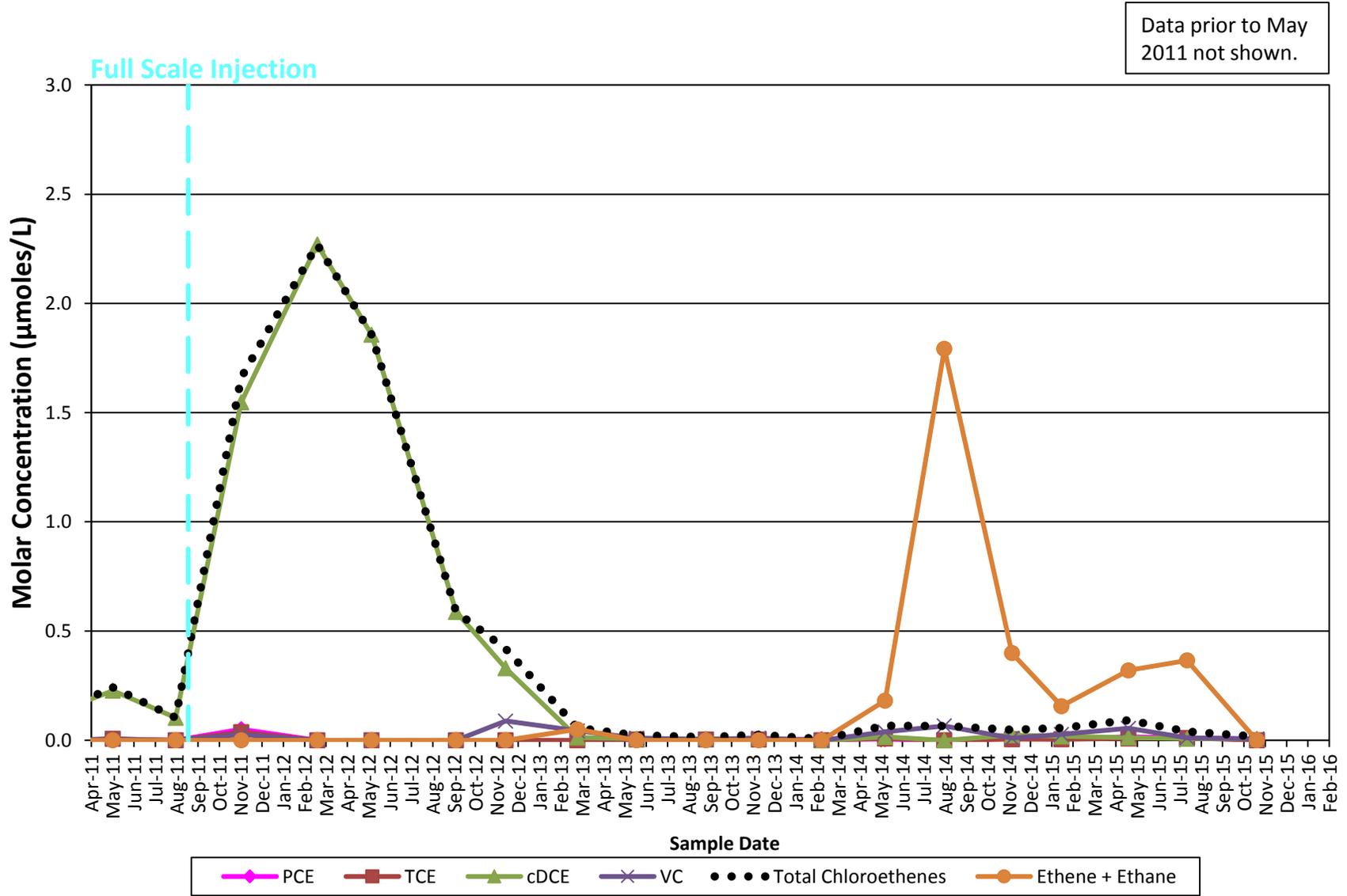
Top of casing elevation altered in wells MW-6B, MW-6C, MW-9A, MW-9B, and MW-9C by installation of threaded fitting on 6/19/2004.

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.

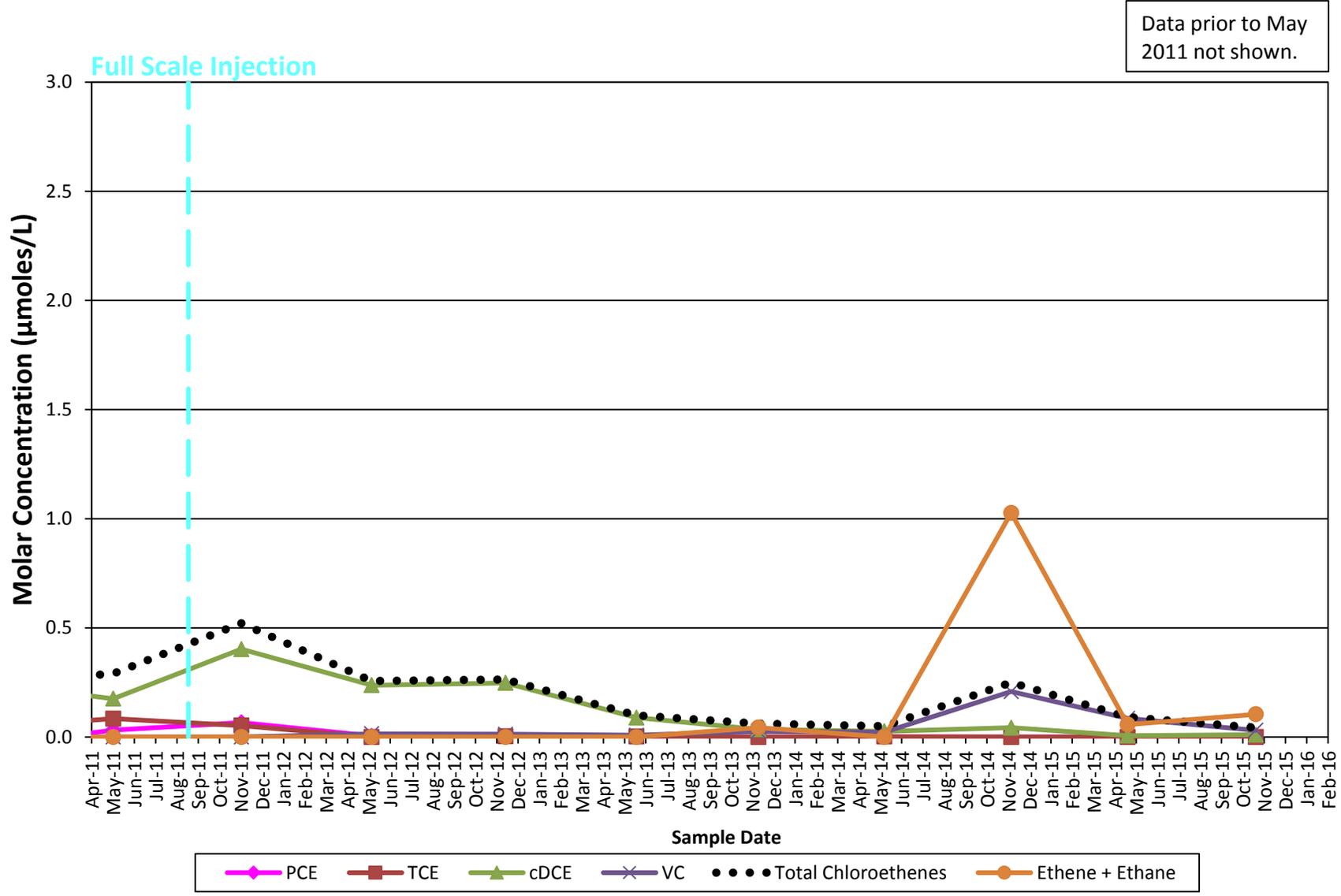
Time Plots – Molar Concentrations of VOCs and Breakdown Products



Boeing Developmental Center
Tukwila, Washington

Molar Equivalents
Source Zone Injection Well BDC-05-02 VOCs

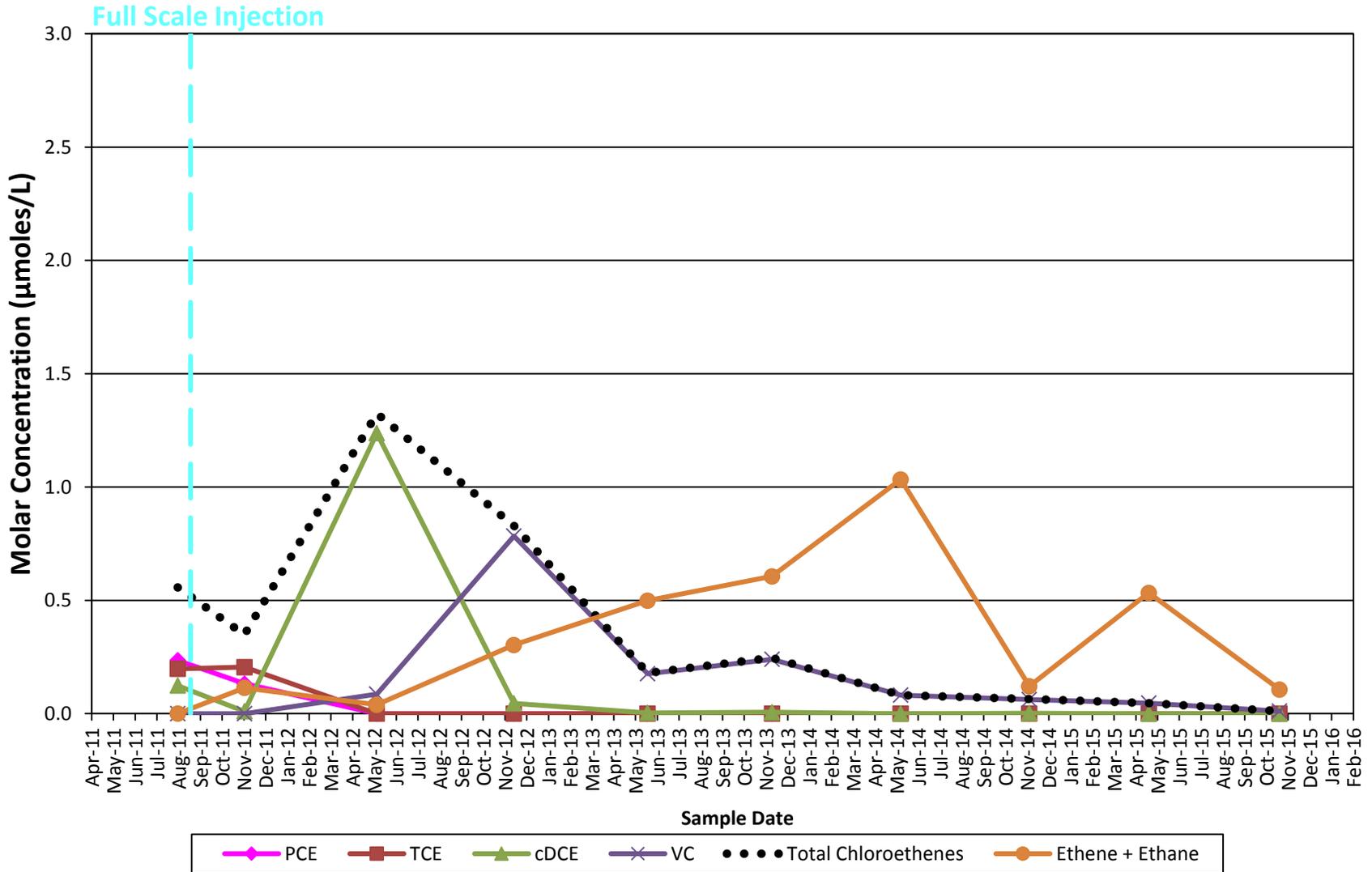
Figure
C-1



Boeing Developmental Center
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Molar Equivalents
Source Zone Injection Well BDC-05-07 VOCs

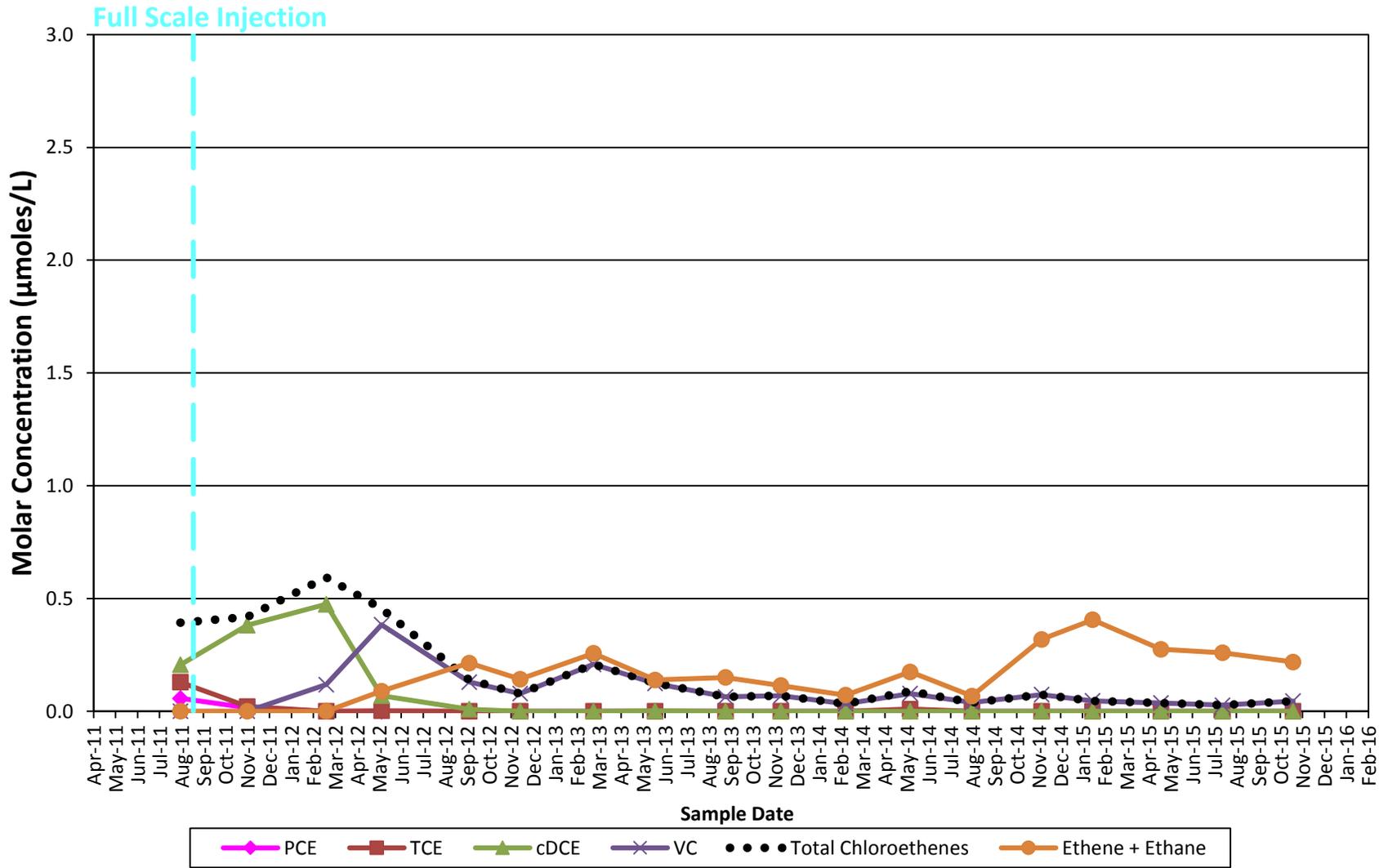
Figure
C-2



Boeing Developmental Center
Tukwila, Washington

**Molar Equivalents
Plume Injection Well BDC-05-10 VOCs**

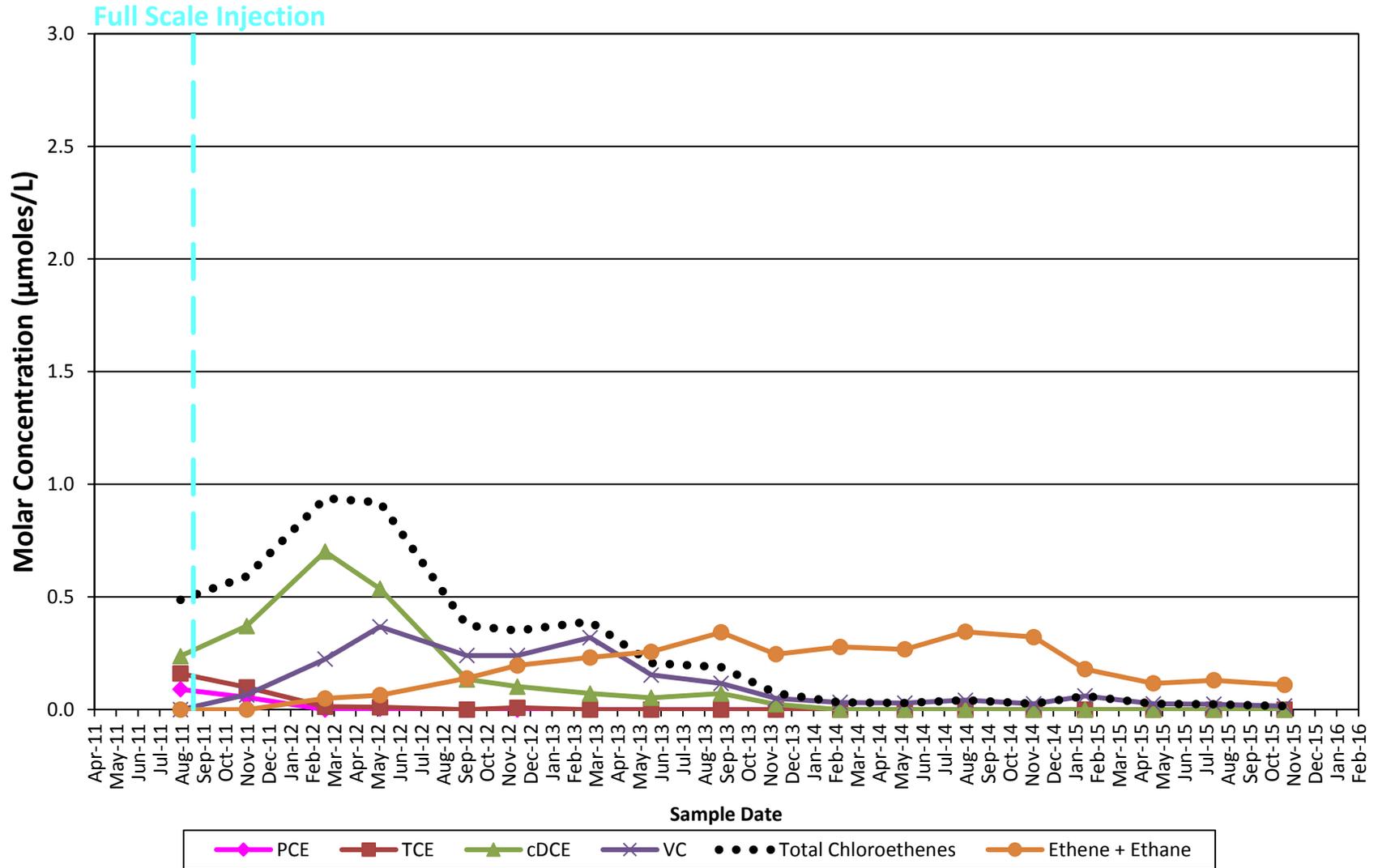
Figure
C-4



Boeing Developmental Center
Tukwila, Washington

**Molar Equivalents
Plume Injection Well BDC-05-16 VOCs**

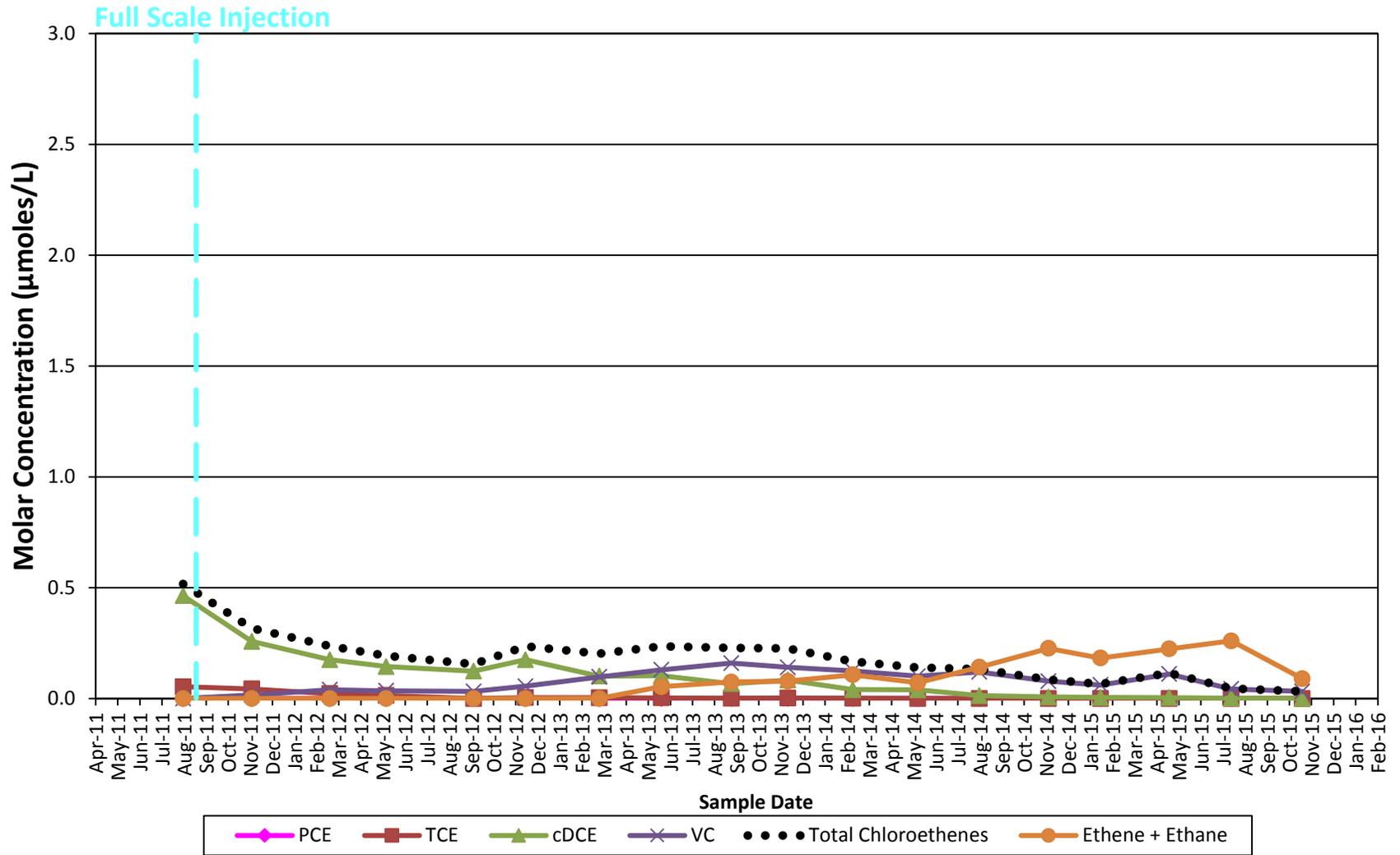
Figure
C-5



Boeing Developmental Center
Tukwila, Washington

**Molar Equivalents
Monitoring Well BDC-05-19 VOCs**

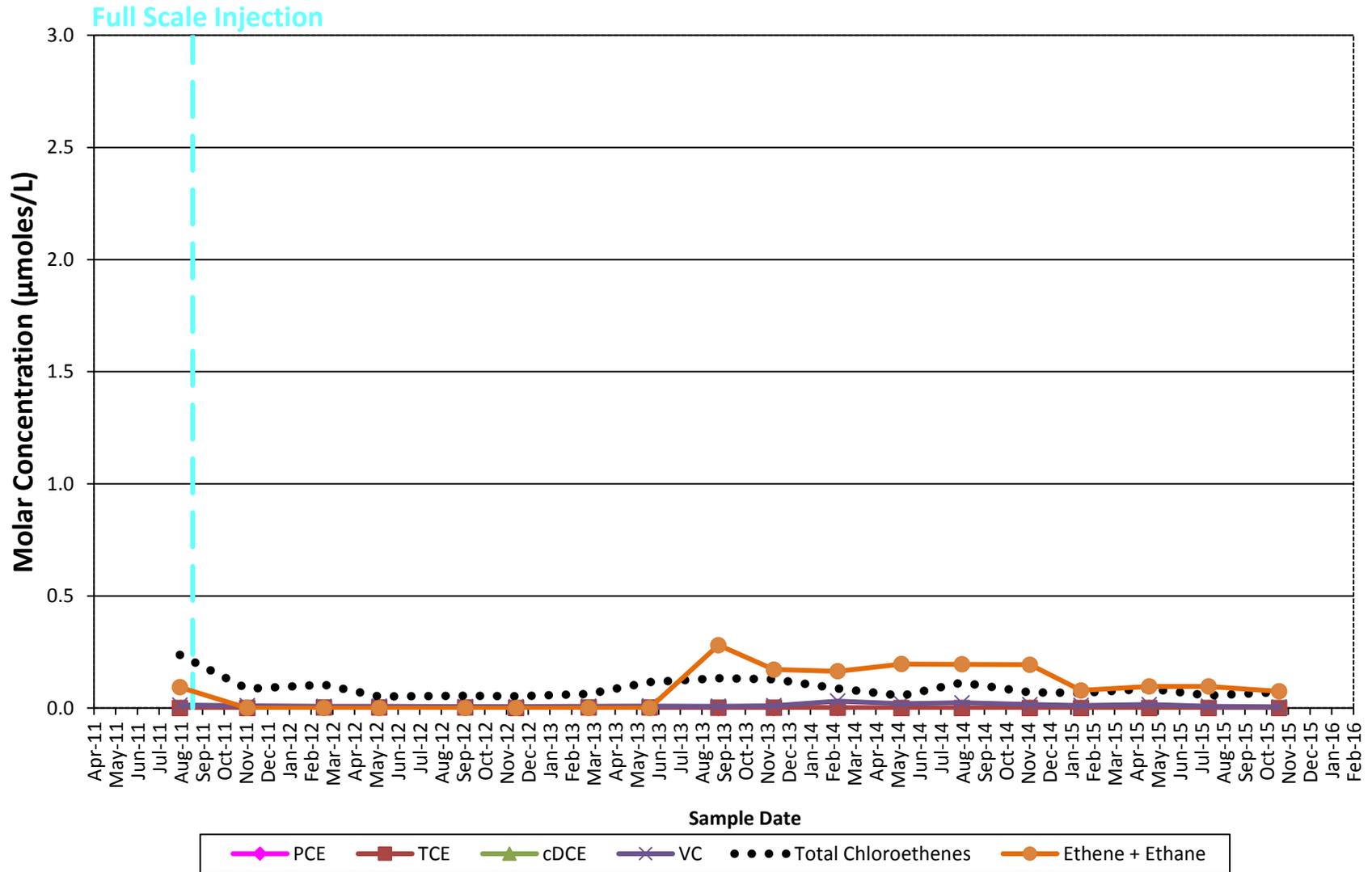
Figure
C-6



Boeing Developmental Center
Tukwila, Washington

**Molar Equivalents
Monitoring Well BDC-05-20 VOCs**

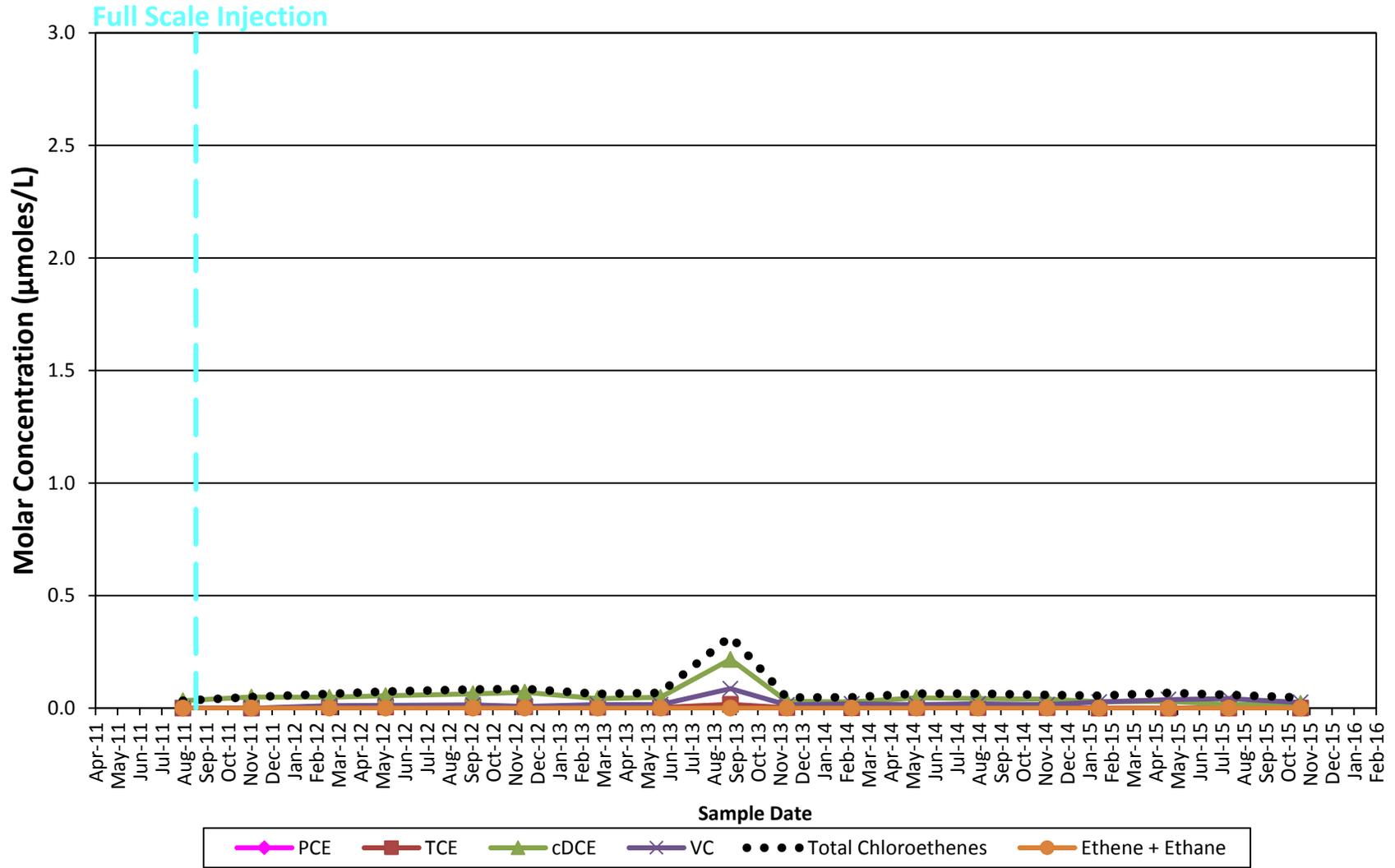
Figure
C-7



Boeing Developmental Center
Tukwila, Washington

**Molar Equivalents
Monitoring Well BDC-05-21 VOCs**

Figure
C-8

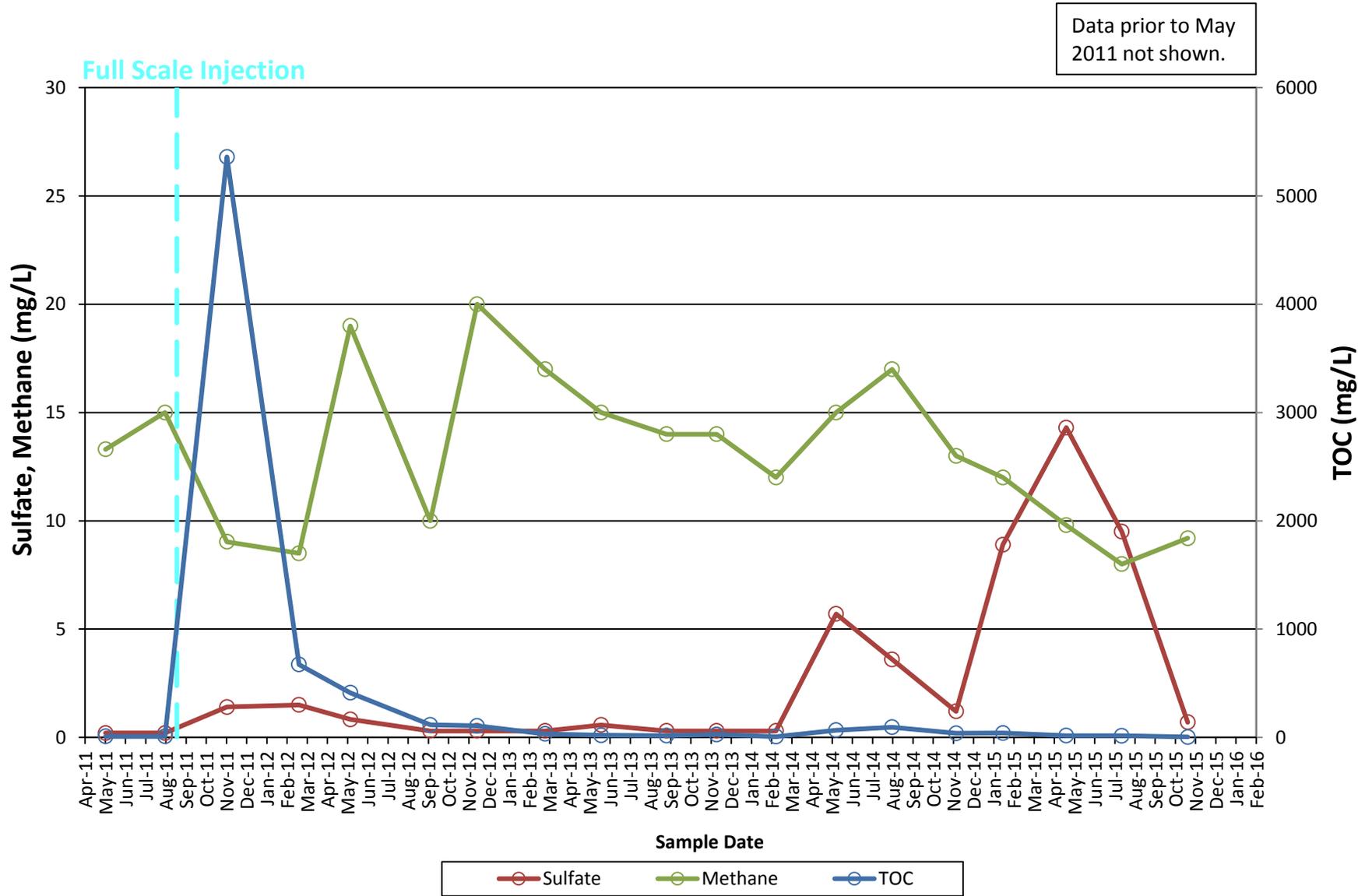


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**Molar Equivalents
Monitoring Well BDC-05-23 VOCs**

Figure
C-9

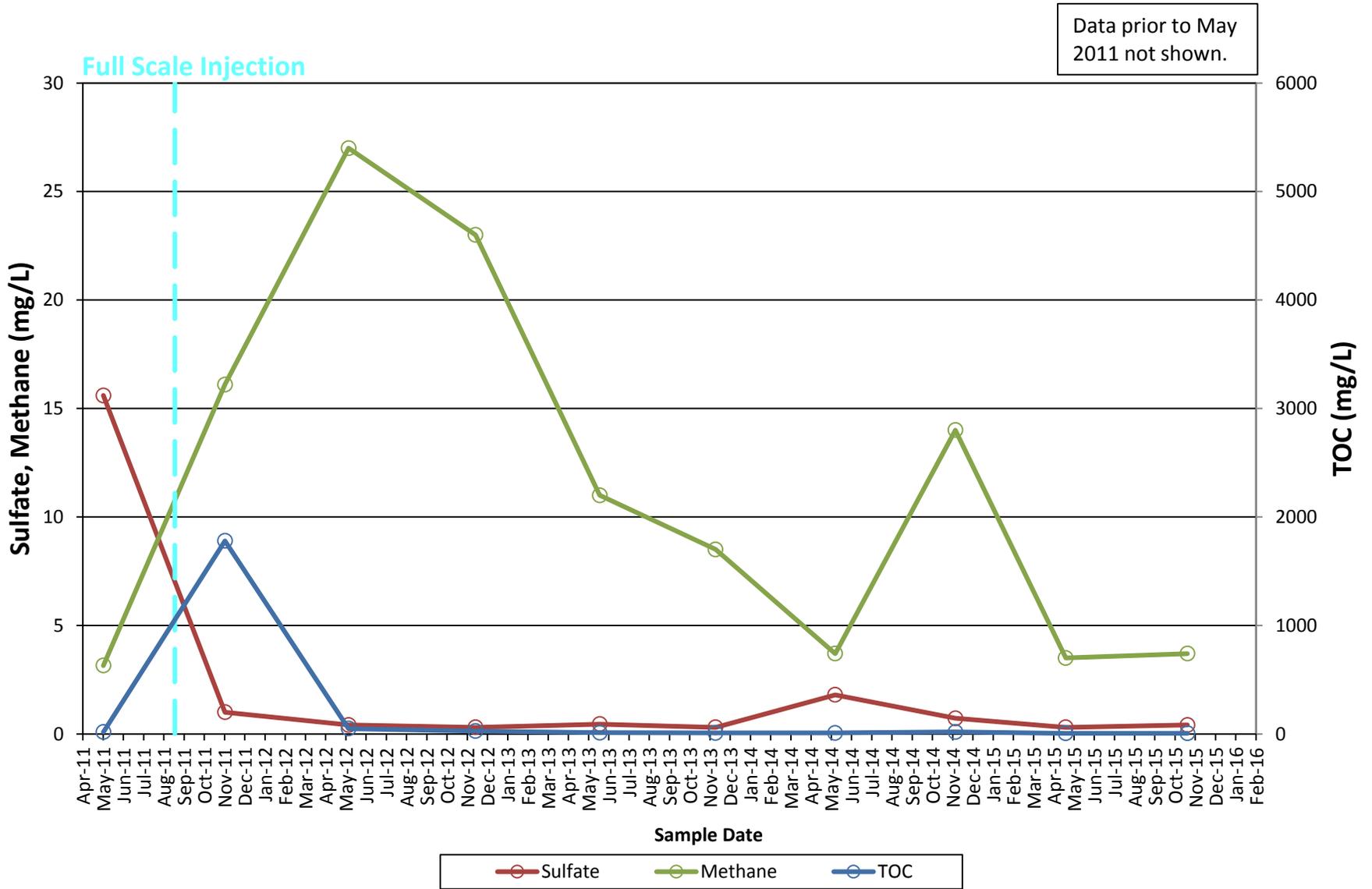
Time Plots – Aquifer Redox Parameters and TOC



Boeing Developmental Center
Tukwila, Washington

Redox and TOC
Source Zone Injection Well BDC-05-02

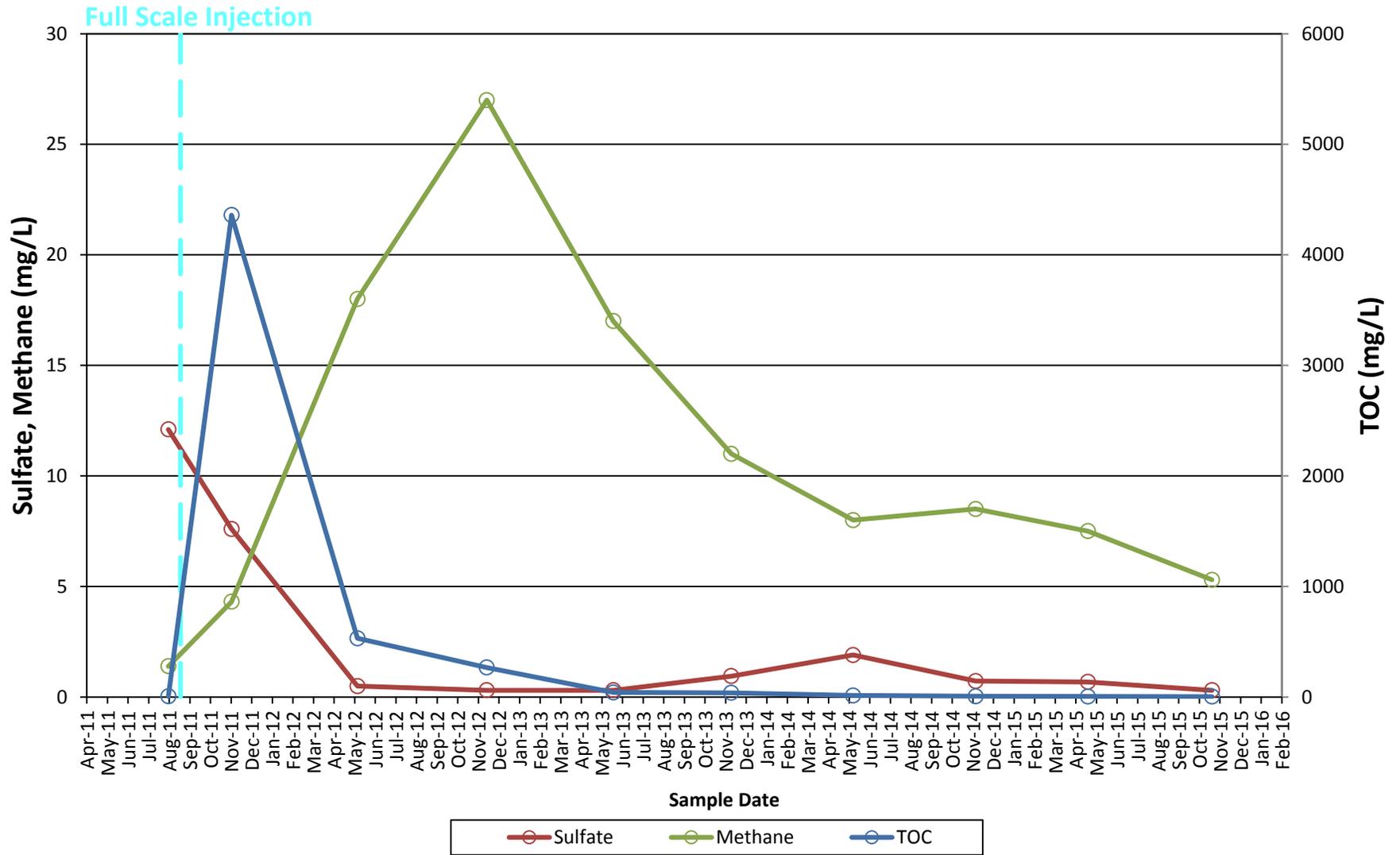
Figure
D-1



Boeing Developmental Center
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Redox and TOC
Source Zone Injection Well BDC-05-07

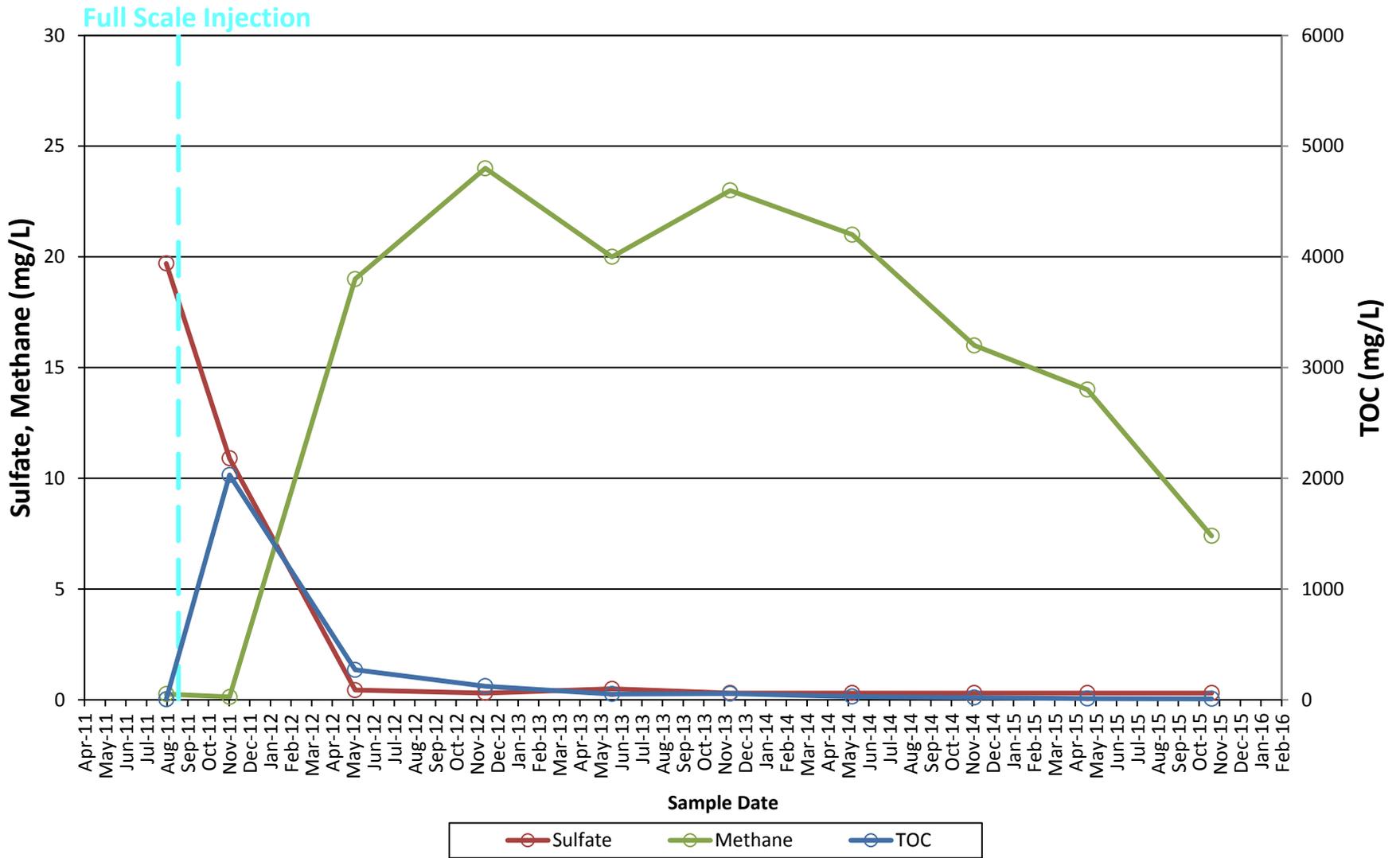
Figure
D-2



Boeing Developmental Center
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**Redox and TOC
Plume Injection Well BDC-05-09**

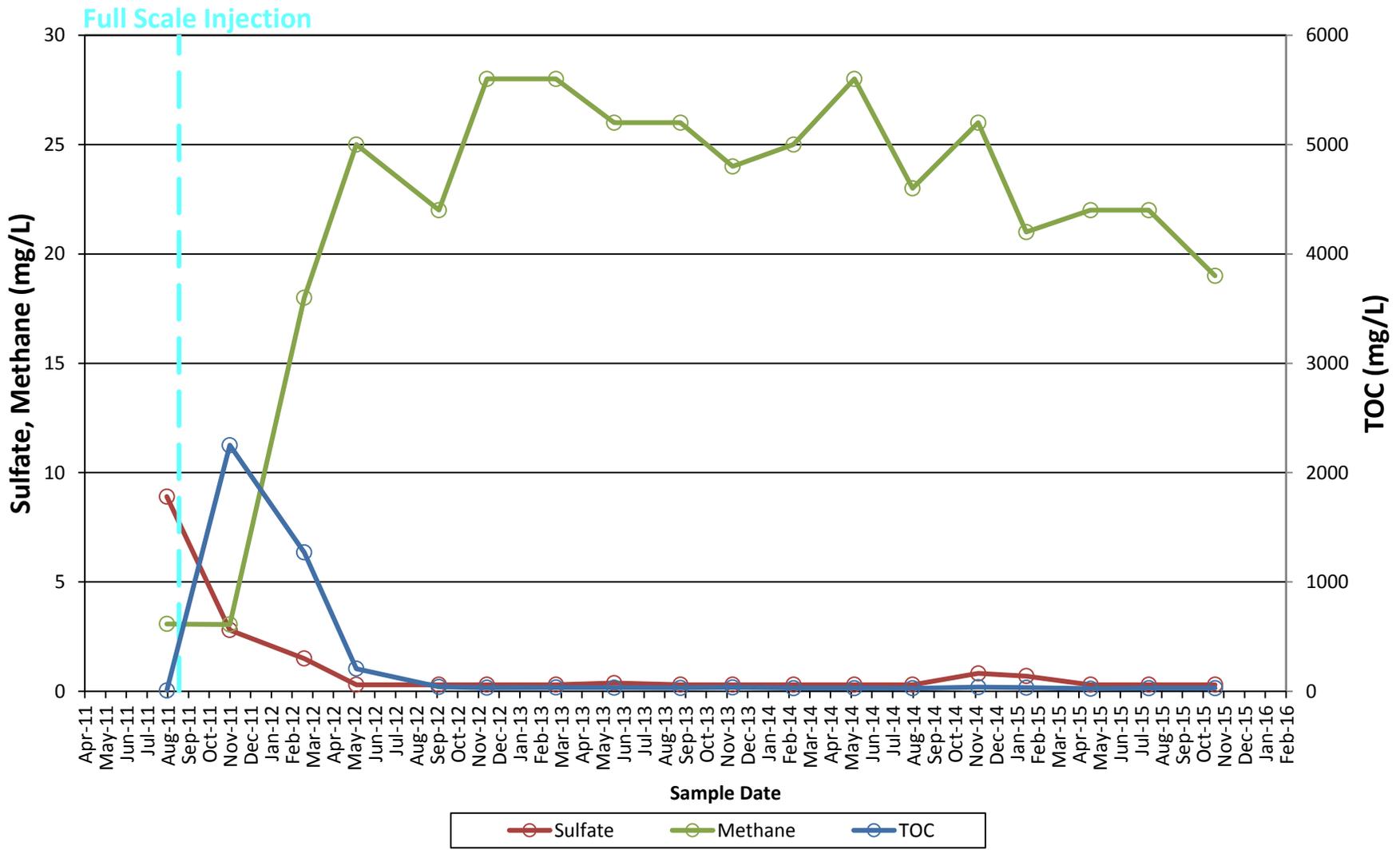
Figure
D-3



Boeing Developmental Center
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**Redox and TOC
Plume Injection Well BDC-05-10**

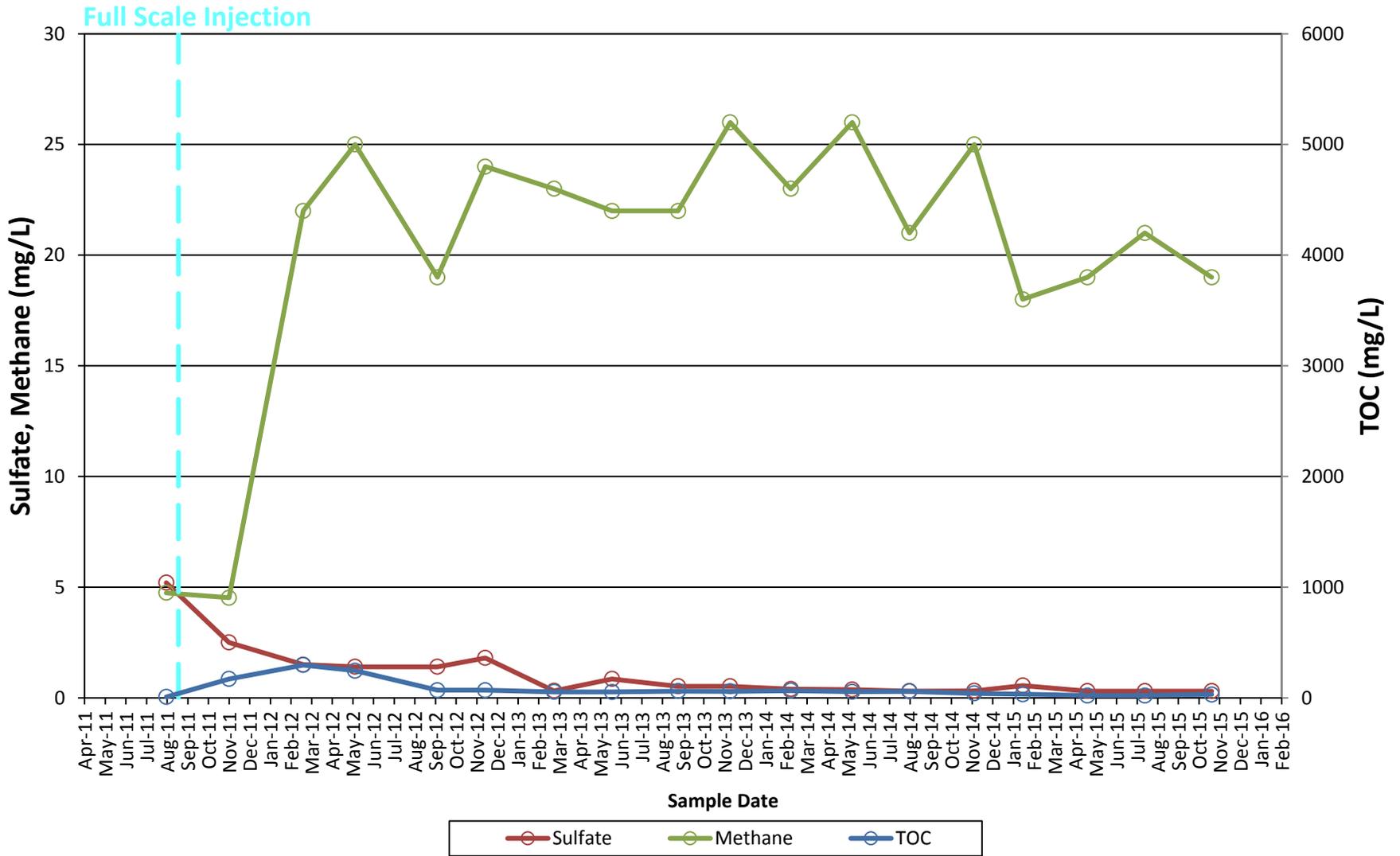
Figure
D-4

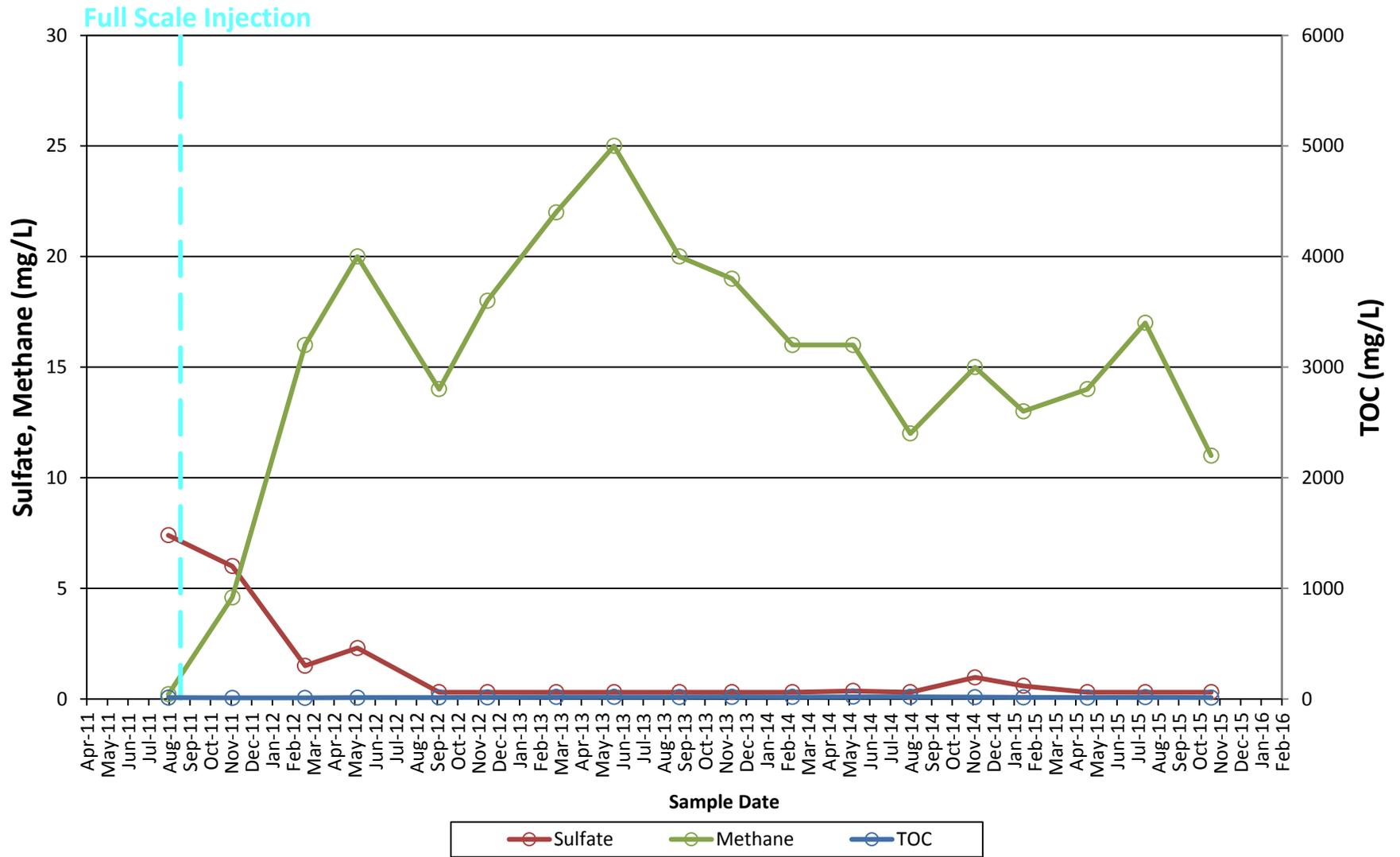


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Redox and TOC
Plume Injection Well BDC-05-16

Figure
D-5

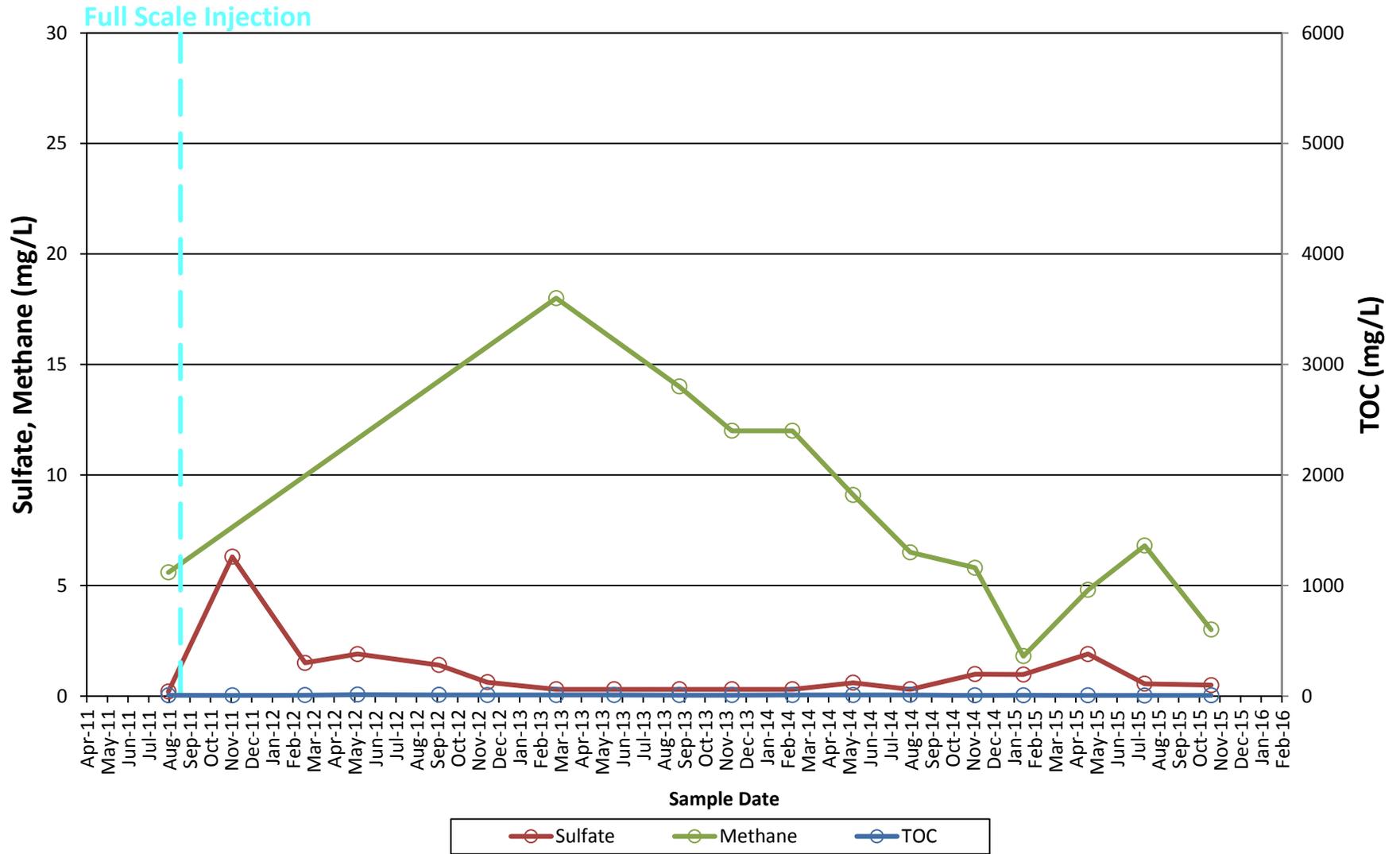




Boeing Developmental Center
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**Redox and TOC
Monitoring Well BDC-05-20**

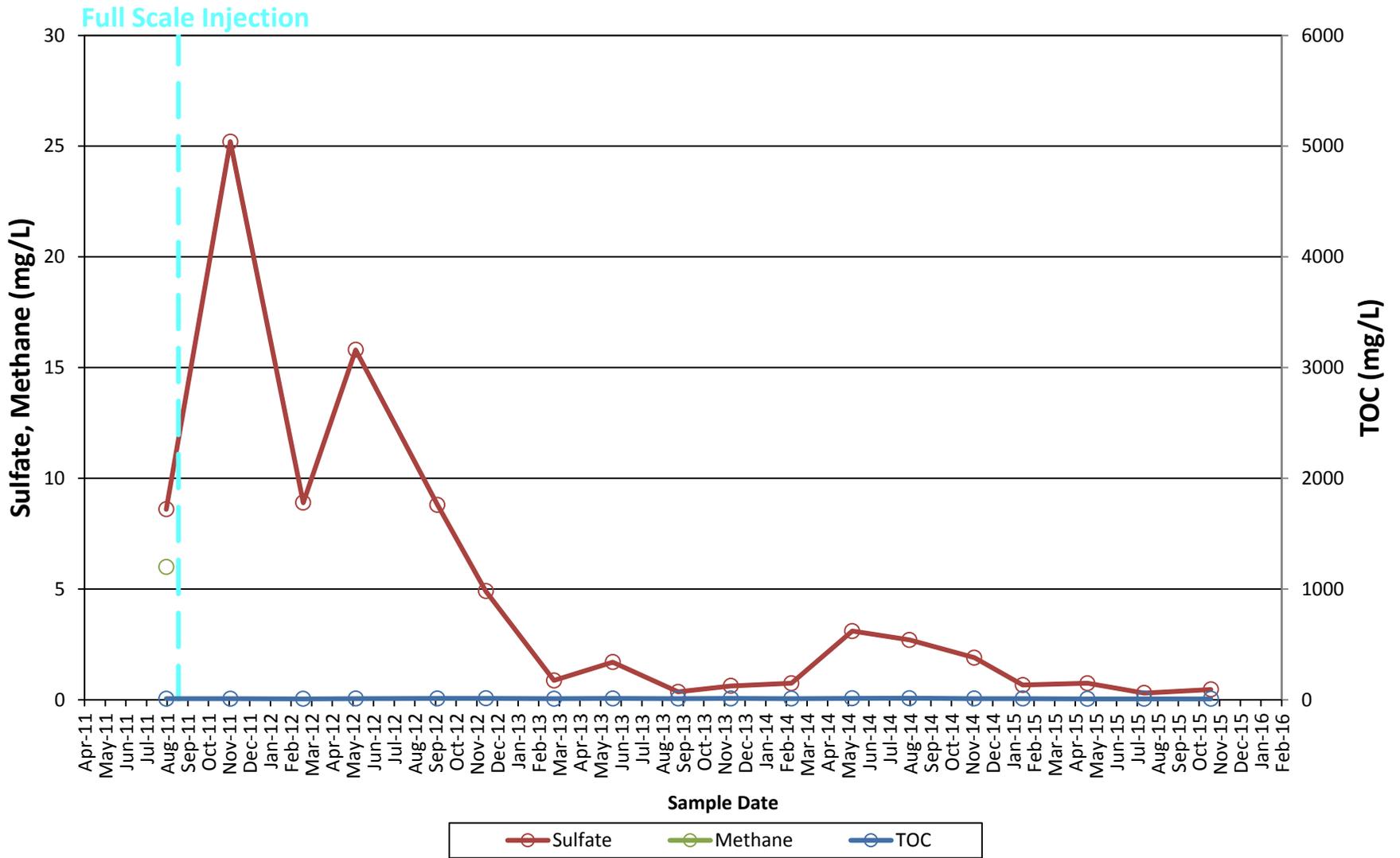
Figure
D-7



Boeing Developmental Center
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**Redox and TOC
Monitoring Well BDC-05-21**

Figure
D-8

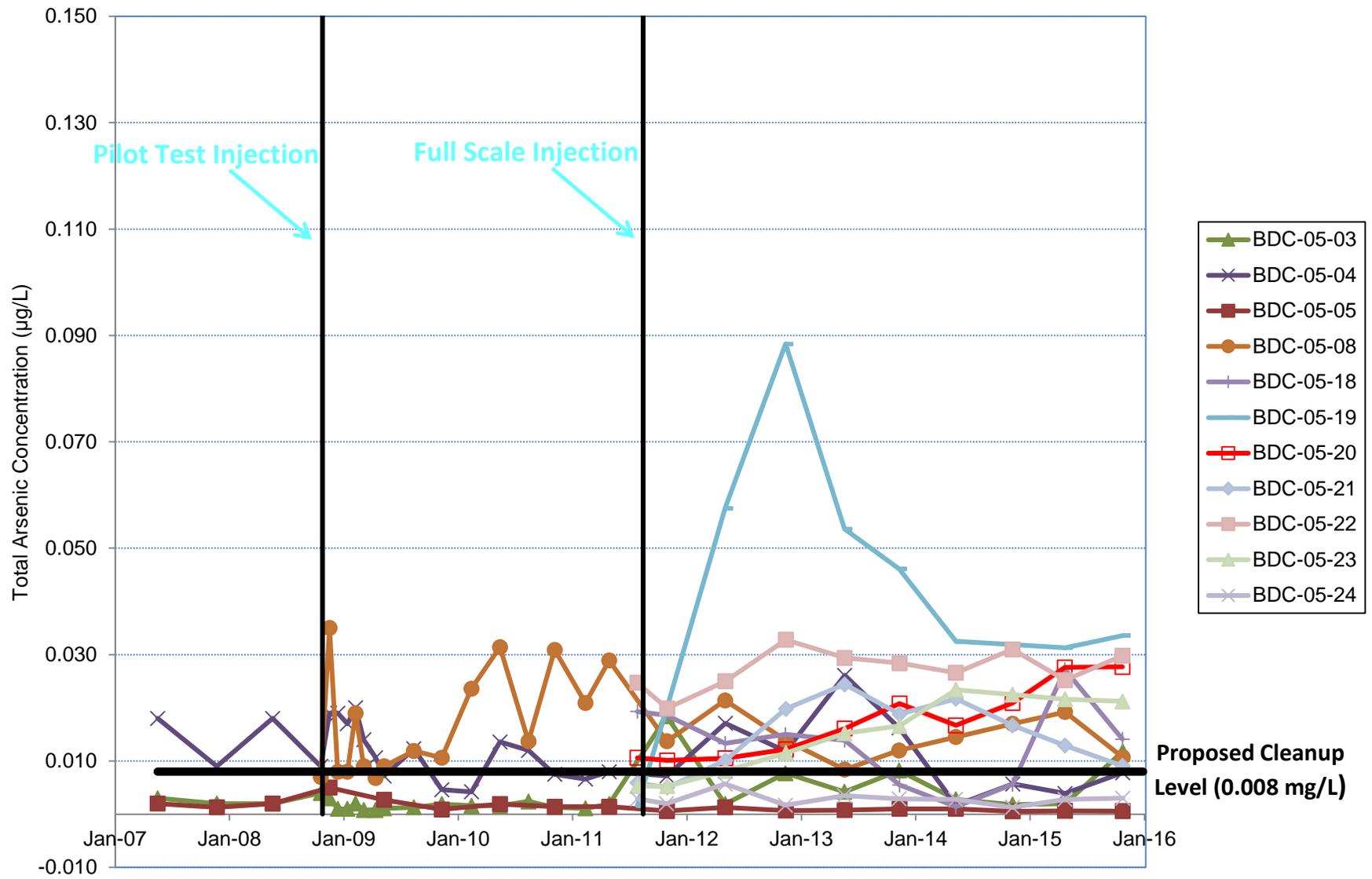


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**Redox and TOC
Monitoring Well BDC-05-23**

Figure
D-9

Time Plots – Copper and Arsenic



Boeing Developmental Center
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Total Arsenic – Monitoring Wells

Figure
E-1

