GROUNDWATER MONITORING REPORT – WET SEASON 2024

RCRA CORRECTIVE ACTION PROGRAM
BOEING RENTON FACILITY

Prepared for:

THE BOEING COMPANY

Seattle, Washington

MAY 29, 2024

GROUNDWATER MONITORING REPORT – WET SEASON 2024

RCRA CORRECTIVE ACTION PROGRAM
BOEING RENTON FACILITY

PROJECT # PS24206850

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Seattle, Washington

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This report was prepared by the staff of WSP USA Environment & Infrastructure Inc. under the supervision of the Hydrogeologist whose seal and signature appear hereon.

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LIST OF ABBREVIATIONS AND ACRONYMS

μg/L	micrograms per liter
μS/cm	microsiemens per centimeter
1,1-DCE	1,1-dichloroethene
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc
Amec	Amec Environment & Infrastructure, Inc
AOC	area of concern
Boeing	The Boeing Company
Calibre	CALIBRE Systems, Inc.
CAP	Cleanup Action Plan
cis-1,2-DCE	cis-1,2-dichloroethene
CMP	Compliance Monitoring Plan
COC	constituent of concern
CPOC	conditional point of compliance
CUL	cleanup level
DO	dissolved oxygen
Ecology	Washington State Department of Ecology
EDR	Engineering Design Report
ERD	enhanced reductive dechlorination
Facility	Boeing Renton facility
MA	monitored attenuation
mg/L	milligrams per liter
MNA	monitored natural attenuation
mV	millivolts
Order	Agreed Order No. 8191
ORP	oxidation/reduction potential
PCE	tetrachloroethene
RCRA	Resource Conservation and Recovery Act
SU	Standard units
SVE	soil vapor extraction
SWMU	solid waste management unit
TCE	trichloroethene
TOC	total organic carbon
TPH	total petroleum hydrocarbons
VC	vinyl chloride
VOCs	volatile organic compounds
Wood	Wood Environment & Infrastructure Solutions, Inc.
WSP	WSP USA Environment & Infrastructure Inc.

1 INTRODUCTION

This report provides progress reporting in conformance with Section VII.B.1 of Agreed Order Number 8191 (Order) and summarizes cleanup actions and monitoring conducted during the dry season of 2023 at The Boeing Company (Boeing) Renton facility (Facility) (Figure 1). This work is required under the Resource Conservation and Recovery Act (RCRA) Corrective Action Program being performed at the Facility. Corrective action activities are performed for those solid waste management units (SWMUs), areas of concern (AOCs), and other areas where cleanup actions are ongoing. Monitoring, cleanup activities, and reporting are being conducted as part of the final remedy implementation described in the Engineering Design Report (EDR) (Amec, 2014).

As approved by the Washington State Department of Ecology (Ecology) in a letter dated July 31, 2020, progress reporting is conducted on a semiannual basis in conjunction with monitoring, operations, and maintenance activities conducted pursuant to the Order and as outlined in the EDR.

The following documents summarize ongoing compliance activities conducted at the Facility:

- The original monitoring plan presented in Appendix D of the EDR (Amec, 2014) was superseded by the Compliance Monitoring Plan (CMP) (Amec Foster Wheeler, 2016a), which was subsequently revised in the first addendum to the CMP (CMP Addendum #1) (Amec Foster Wheeler, 2017).
- The groundwater monitoring program was further revised in the second addendum to the CMP (CMP Addendum #2) (Wood, 2019a), which removed selected areas or wells from the sampling program. Ecology approved these changes (Maeng, 2019).
- Boeing submitted the third addendum to the CMP (CMP Addendum #3) (CALIBRE, 2020) to Ecology on June 30, 2020. This addendum recommended further modifications to the groundwater monitoring program at the Facility. Ecology approved CMP Addendum #3 in July 2020.

Groundwater monitoring and cleanup actions are being conducted at the following areas (the ongoing remedies for each of these areas are noted in parentheses):

- SWMU-168: (monitored natural attenuation [MNA])
- SWMU-172 and SWMU-174: (bioremediation and monitored attenuation [MA]; the soil vapor extraction [SVE] system was shut down October 2022, decommissioning pending approval from Ecology)
- Building 4-78/79 SWMU/AOC Group: (bioremediation and MA; SVE has been discontinued per Ecology's approval of the system decommissioning during the first quarter of 2019)
- Former Fuel Farm AOC Group: (MNA)
- AOC-001 and AOC-002: (bioremediation and MA)
- AOC-003: (MA)
- AOC-004: (MA)
- AOC-060: (bioremediation and MA)
- AOC-090: (bioremediation and MA)
- Apron A: (bioremediation and MA)

The background and investigation history for each affected unit or group of units is described in the Cleanup Action Plan (CAP) (Amec, 2012) or EDR (Amec, 2014).

Although Apron A was not included in the CAP or EDR, this report includes monitoring results for Apron A. Semiannual monitoring of Apron A started in the fourth quarter of 2016 (Amec Foster Wheeler, 2016b).

As described in the CAP, the goals for cleanup of groundwater at the Facility include protection of groundwater for drinking water beneficial use at all areas of the site and demonstration of protection of surface water beneficial uses at the conditional points of compliance (CPOCs) for each SWMU and AOC. Cleanup goals and comparison with specific criteria are discussed in this report for each SWMU and AOC. Concentrations for protection of groundwater for beneficial use for each constituent of concern (COC) are based on site-specific cleanup levels (CULs) specified in the CAP. In June 2023, Ecology approved the implementation of an updated CUL of 8.0 micrograms per liter (µg/L) for arsenic (Cramer, 2023), which is the Puget Sound Basin background concentration according to Ecology's *Natural Background Groundwater Arsenic Concentrations in Washington State* guidance (2022). Previously, the CUL for arsenic was 1.0 µg/L. This CUL currently applies to SWMU-172/174. Otherwise, the measured COC concentrations in groundwater presented in this report are compared to the CULs specified in the CAP.

This semiannual report:

- Describes work completed during the reporting period.
- Describes any deviations from corrective action tasks required under the Order and/or CAP.
- Describes revisions to the corrective action schedule.
- Describes work projected to occur during the next semiannual sampling event, including any planned deviation from the CAP.
- Discusses remediation operation and maintenance activities conducted at the Facility during the reporting period.
- Documents monitoring activities conducted during the reporting period.
- Describes and discusses trends in monitoring data.
- Assesses remediation at each area.
- Assesses attainment of CULs at the CPOCs.

This report presents information based on monitoring activities conducted during the wet season 2024 for the period from November 1, 2023, through April 30, 2024. In accordance with the requirements of the Order, corrective action activities were conducted at the Facility as described in this report.

1.1 WORK COMPLETED IN THE WET SEASON OF 2024

The following work was completed during the wet season of 2024 (the period from November 1, 2023, through April 30, 2024):

- Boeing submitted the Apron R Investigation Work Plan to Ecology on November 6, 2023.
- Boeing submitted the 2023 dry season Groundwater Monitoring Report to Ecology and City of Renton on November 27, 2023.
- WSP completed the 2024 sitewide wet season sampling between January 31 through February 8, 2024.
- Ecology approved the Apron R Investigation Work Plan (CALIBRE, 2024a) on March 6, 2024 (Myers, 2024). Further information regarding the ongoing Apron R investigation can be found in Section 3.11.
- Boeing submitted the Remedial Progress at the Boeing Renton Plant Periodic Review Technical Memorandum to Ecology on March 19, 2024 (CALIBRE, 2024b). Ecology has indicated that they will complete this document as part of the agency's periodic review process (Myers, personal comm, April 2024).
- In order to expand the footprint of the effective groundwater treatment areas, Calibre installed four bioremediation injection wells on site on March 21 and 22, 2024; two wells in AOC-060 (B060-02 and B060-01) and two wells in AOC-090 (B090-01 and B090-02). These wells were sampled on March 27, 2024, for volatile organic compounds (VOCs).
- Boeing completed bioremediation substrate injections at the Facility between April 15 through April 22, 2024. Work was conducted at the following SWMUs/AOCs: Building 4-78/79, AOC-60, AOC-90, SWMU-172/174, and

AOC-001/002. Subsequent evaluation sampling will take place and be discussed in the dry season monitoring report.

1.2 DEVIATIONS FROM REQUIRED TASKS

No deviations from tasks required in the Order occurred during this reporting period.

1.3 DEVIATIONS FROM CAP

No deviations from tasks required in the CAP occurred during this reporting period.

1.4 SCHEDULE OF MONITORING

Ecology approved the modifications to the monitoring plan in CMP Addendum #3 (CALIBRE, 2020) on July 31, 2020, changing to a sitewide semiannual sampling program with sampling events to occur during the wet and dry seasons (in February and August, respectively). The current monitoring plan is detailed in Appendix A, Table A-1. This revised sampling schedule began in August 2020 and will continue until another CMP addendum is approved.

1.5 WORK PROJECTED FOR THE NEXT REPORTING PERIOD

The following work is projected for the upcoming 2024 dry season (May 1, 2024, to October 31, 2024):

- The Apron R Investigation Report will be submitted to Ecology.
- Based on evaluation of the semiannual monitoring data in this report, the following areas are planned for continued ERD treatment of VOCs in groundwater: SWMU-172/174, Building 4-78/79 SWMU/AOC Group, AOC-090, AOC-060 and AOC-001/002. Pursuant to the CAP, AOC-003 is planned to transition from the ERD program to MA.
- Reporting will be completed in accordance with the Order, CAP, EDR, and changes approved by Ecology, including those modifications proposed in CMP Addendum #3 (CALIBRE, 2020).

2 GROUNDWATER SAMPLING METHODOLOGY

Groundwater was sampled and analyzed as described in Appendix A. These procedures are in accordance with the methods specified in the CMP (Amec Foster Wheeler, 2016a) and CMP Addendum #3 (CALIBRE, 2020). Table A-1 summarizes the current groundwater monitoring program and COCs specified in the CAP and revised in CMP Addendum #1 (Amec Foster Wheeler, 2017), CMP Addendum #2 (Wood, 2019a), and CMP Addendum #3 (CALIBRE, 2020) for all Facility corrective action areas. Table A-2 summarizes the current groundwater monitoring program for the corrective action areas that include MNA or MA as part of the cleanup remedy specified in the CAP. Tables A-1 and A-2 also specify monitoring requirements for Apron A, which was not included in the CAP. Any changes or exceptions to the sampling or analytical methods cited in Appendix A during the event is described in the applicable subsections in Section 3. The field data sheets, which document the groundwater sample collection and field parameter monitoring for each well sampled during this event, are included in Appendix B.

The analytical methods, field duplicate, lab duplicate, and matrix spike/matrix spike duplicate frequencies are specified in the Quality Assurance Project Plan (Amec Foster Wheeler, 2016c). The full analytical reports provided by the laboratory are provided separately on a secure online storage application, OneDrive. The data validation memoranda are included in Appendix C.

3 CORRECTIVE ACTION ACTIVITIES COMPLETED DURING THE REPORTING PERIOD

This section describes the corrective action activities conducted at the Facility during the wet season of 2024. Compliance monitoring was conducted in accordance with the CMP (Amec Foster Wheeler, 2016a) and CMP Addendum #3 (CALIBRE, 2020).

3.1 SWMU-168

This section describes corrective action activities conducted at this SWMU. Figure 2 shows the locations of the groundwater monitoring wells at SWMU-168 for which sampling was required under CMP Addendum #3 (CALIBRE, 2020) and the groundwater elevation at the remaining well measured during this monitoring event. The cleanup remedy for SWMU-168 is MNA; therefore, cleanup activities consist of monitoring only.

3.1.1 CLEANUP ACTION ACTIVITIES

No installation/construction activities were conducted for this cleanup action area during this reporting period.

3.1.2 CMP DEVIATIONS

No deviations from the CMP occurred for this area during this reporting period. The well monitored in this SWMU and the COC remained unchanged.

3.1.3 WATER LEVELS

The groundwater elevation measured during this groundwater monitoring event at SWMU-168 is summarized in Table 1 and shown on Figure 2. Groundwater elevation contours are not shown because only one well, GW230I, is currently monitored in this SWMU. The general direction of groundwater flow depicted on Figure 2 is based on historical information.

3.1.4 GROUNDWATER MONITORING RESULTS

Results for primary geochemical indicators are presented in Table 2. The result for the single SWMU-168 COC, vinyl chloride (VC), is presented in Table 3 and COC results for sampling events in recent years are presented in Appendix D.

3.1.4.1 Natural Attenuation/Geochemical Indicators

The geochemical indicator results from CPOC well GW230I indicate that conditions are conducive to natural attenuation of VC in this SWMU. The pH value measured was slightly acidic at 6.43 standard units (SU). The CPOC well GW230I showed reducing conditions, with low dissolved oxygen (DO) and a negative oxidation/reduction potential (ORP) reading. Reducing conditions are present in well GW230I, indicating conditions favorable for continued dechlorination of VOCs.

3.1.4.2 COC Results for Source Area

Groundwater samples were not collected from the source area well, GW228S, for SWMU-168 per CMP Addendum #3 (CALIBRE, 2020).

3.1.4.3 COC Results for CPOC Area

Table 3 lists the analytical result for the SWMU-168 area. The concentration of VC in the groundwater from CPOC area well GW230I was below the CUL of 0.11 µg/L, at 0.0870 µg/L. Historical trends for VC in GW230I are shown in Appendix D and depicted on Figure 3. VC concentrations show an apparent historical seasonal pattern, with higher concentrations in the dry season. The last two monitoring events have departed from this trend, with decreasing VC concentrations since the dry season of 2022.

3.2 SWMU-172 AND SWMU-174

This section describes corrective action activities conducted at SWMU-172 and SWMU-174. The cleanup remedy for SWMU-172 and SWMU-174 is a combination of bioremediation and MA. SVE was used from 2015 through 2022. The SVE system has been shut down and is pending Ecology approval for decommissioning. Figure 4 shows the layout of the groundwater monitoring wells for which sampling is required under CMP Addendum #3 (CALIBRE, 2020) and the remediation system for these SWMUs.

3.2.1 CLEANUP ACTION ACTIVITIES

3.2.1.1 Installation/Construction Activities

No installation or construction activities were conducted in this SWMU Group during this reporting period.

3.2.1.2 SVE and Bioremediation Operations

The SVE system was in operation between April 17, 2015, and October 24, 2022. SVE was discontinued on October 24, 2022, as approved by Ecology (Cramer, 2022). Permanent discontinuation and decommissioning are subject to evaluation of the results of the sub-slab vapor sampling, which took place in May 2023. The most recent bioremediation injection was completed in April 2024, including ERD treatments. All of the SVE system equipment and infrastructure has been retained pending future discussions with Ecology regarding permanent discontinuation and removal.

3.2.2 CMP DEVIATIONS

No deviations from the CMP occurred for these SWMUs during this reporting period. The wells monitored in these SWMUs and the COCs remained unchanged.

3.2.3 WATER LEVELS

The groundwater elevations measured during this groundwater monitoring event at SWMU-172 and SWMU-174 are summarized in Table 4 and shown on Figure 4. The groundwater elevation data show a flow direction generally to the northeast, toward the Cedar River Waterway; however, the sheet pile wall to the east of this area prevents a direct groundwater connection to the waterway, as depicted by the groundwater contours on Figure 4.

3.2.4 GROUNDWATER MONITORING RESULTS

Groundwater at these SWMUs is monitored following the analysis protocol presented in Tables A-1 and A-2 in Appendix A. Results for primary geochemical indicators are presented in Table 5; results for the SWMU-172 and SWMU-174 area COCs are presented in Table 6.

3.2.4.1 Monitored Attenuation/Geochemical Indicators

The geochemical indicator results are presented in Table 5. Specific conductivity ranged between 106 and 407 microsiemens per centimeter (µS/cm) across SWMU-172 and SWMU-174, which are consistent with previously observed values for the groundwater in these SWMUs. Across SWMU-172 and SWMU-174, pH was slightly acidic, ranging between 6.12 and 6.71 SU. ORP was negative for all wells monitored, with the exceptions of source area well GW152S and CPOC area well GW236S. DO concentrations ranged from 0.01 to 6.53 mg/L, and total organic carbon (TOC) concentrations ranged from 0.74 to 12.70 milligrams per liter (mg/L) for all SWMU-172 and SWMU-174 monitoring wells.

3.2.4.2 COC Results for Source and Downgradient Plume Areas

Table 6 lists the analytical results for the SWMU-172 and SWMU-174 COCs. Historical trend plots for tetrachloroethene (PCE), trichloroethene (TCE), VC, and cis-1,2-dichloroethene (cis-1,2-DCE) in source area wells GW152S and GW153S are shown on Figure 5, in downgradient plume area wells GW172S and GW173S on Figure 6, and in downgradient plume area well GW226S on Figure 7. Groundwater flows generally from the vicinity of source area well GW152S to downgradient plume area well GW172S; groundwater from source area well GW153S is also expected to generally flow toward the downgradient plume area. PCE and TCE are chlorinated solvents that were used at the Facility, and cis-1,2-DCE and VC are breakdown products resulting from the biodegradation processes.

As shown in Figures 5 through 7, the concentrations of VOCs in groundwater from source area wells and downgradient plume area wells have generally remained stable or decreased over time.

Arsenic was detected slightly above the CUL (8.0 µg/L) in the groundwater from downgradient plume area wells GW173S (9.51 µg/L) and GW226S (9.01 µg/L). As shown on Figure 8, the arsenic concentrations in groundwater from source and downgradient plume area wells have generally remained within historical range over the past two years, with the exception of source area well GW152S and its downgradient counterpart GW172S.

Source area groundwater CUL exceedances (Table 6) consisted of the following:

- GW152S: cis-1,2-DCE (4.59 µg/L), PCE (0.238 µg/L), TCE (0.104 µg/L), VC (0.264 µg/L), and lead (1.18 µg/L).
- GW153S: cis-1,2-DCE (0.0677 µg/L), PCE (0.198 µg/L), and TCE (0.049 µg/L).

Downgradient plume area groundwater site-specific CUL exceedances (Table 6) consisted of the following:

- GW172S: cis-1,2-DCE (0.877 µg/L), TCE (0.266 µg/L), and VC (0.907 µg/L).
- GW173S: cis-1,2-DCE (0.145 µg/L), PCE (0.0543 µg/L), TCE (0.0307 µg/L), VC (0.280) µg/L, arsenic (9.51 µg/L), and lead (1.41 µg/L).
- GW226S: cis-1,2-DCE (0.0465 µg/L), arsenic (9.01 µg/L), and copper (6.69 µg/L).

3.2.4.3 COC Results for CPOC Area

As shown in Table 6, cis-1,2-DCE was detected above the CUL (0.03 µg/L) in the groundwater from CPOC area wells GW232S (0.167 µg/L), GW234S (0.0495 µg/L), and GW235I (0.229 µg/L). VC was detected above the CUL (0.11 µg/L) in the groundwater from GW232S (0.187 µg/L).VC was also detected in GW235I, but below the CUL. TCE was detected above the CUL (0.02 µg/L) in GW235I (0.0207 µg/L), and PCE was detected above the CUL (0.02 µg/L) in GW236S (0.0262 µg/L). Trend charts for cis-1,2-DCE, TCE, and VC for all CPOC area wells are presented in Figure 9. Figure 9 shows that the COCs in the CPOC area have primarily decreased over the past two years of sampling, or maintained concentrations below respective CULs.

No metals were detected above their respective CULs during this reporting period. Figure 10 shows arsenic, copper, and lead concentration trends in groundwater from the CPOC area wells since the beginning of compliance monitoring. As shown in Figure 10, these COCs have remained within historical range or decreased since the last monitoring event.

3.3 BUILDING 4-78/79 SWMU/AOC GROUP

This section describes corrective action activities conducted at the Building 4-78/79 SWMU/AOC Group. The cleanup remedy for this SWMU/AOC Group is bioremediation and MA as well as excavation of soils contaminated with total petroleum hydrocarbons (TPH); discontinuation of SVE was approved by Ecology on November 1, 2018, and the system was decommissioned during the first quarter of 2019. Figure 11 shows the location of the September 2021 TPH source area soil excavation; groundwater monitoring wells for which sampling is required under CMP Addendum #3 (CALIBRE, 2020); extraction wells; decommissioned wells; horizontal SVE wells; and bioremediation injection wells for this area.

3.3.1 CLEANUP ACTION ACTIVITIES

3.3.1.1 Installation/Construction Activities

No installation or construction activities were conducted in this SWMU/AOC Group during this reporting period.

3.3.1.2 SVE and Bioremediation Activities

SVE operations were discontinued in late 2018; the current remediation method is ERD of chlorinated solvents and anaerobic biodegradation of benzene by substrate injections. The most recent injection event was conducted in April 2024. Additional details regarding the injections can be found in Appendix E. Certain bioremediation injection wells are still sampled to monitor the status of COCs. Trend charts for cis-1,2-DCE and benzene in nitrate/sulfate injection wells are presented in Figure 12, and trend charts for TCE and VC in the injection wells are presented in Figure 13. Information regarding the injection that occurred during this reporting period can be found in Appendix E.

3.3.2 CMP DEVIATIONS

No deviations from the CMP occurred for this SWMU/AOC Group during this reporting period. The wells monitored in SWMU/AOC Group and the COCs remained unchanged.

3.3.3 WATER LEVELS

The groundwater elevations measured during this groundwater monitoring event at Building 4-78/79 SWMU/AOC Group are summarized in Table 7 and shown on Figure 11. A groundwater flow direction to the northwest is depicted on the figure based on current and historical groundwater elevation data.

3.3.4 GROUNDWATER MONITORING RESULTS

Groundwater in this area is monitored following the analysis protocol presented in Tables A-1 and A-2 in Appendix A. Results for primary geochemical indicators are presented in Table 8; results for Building 4-78/79 SWMU/AOC Group COCs are presented in Table 9.

3.3.4.1 Natural Attenuation/Geochemical Indicators

The geochemical indicator results are presented in Table 8. In general, source area and CPOC area wells had levels of DO ranging from 0.04 to 5.82 µg/L and moderate specific conductivity. The pH measured in monitored wells was uniform and slightly acidic, ranging between 6.28 and 6.56 SU. ORP was negative in all wells monitored TOC concentrations in source area and CPOC area wells ranged from 4.62 to 12.98 mg/L. With the exception of DO, geochemical indicators were generally consistent in all wells monitored in this area.

3.3.4.2 COC Results for Source Area

Table 9 lists the analytical results for Building 4-78/79 SWMU/AOC Group COCs. Figures 14 and 15 show historical trends for COCs in source area wells.

VC was detected at all four source area monitoring wells with concentrations ranging between 0.230 µg/L and 0.940 µg/L which are above the CUL (0.2 µg/L). Benzene was detected above the CUL (0.80 µg/L) in GW033S (6.49 µg/L) and its associated duplicate sample (6.51 µg/L). Cis-1,2-DCE was detected at two source area locations below the CUL (0.70 µg/L). TCE was not detected in any of the source area wells. TPH as gasoline was detected at one source area monitoring well, GW033S. Detected concentration of TPH at GW033S and its duplicate sample were below the CUL of 800 µg/L. The continued downward trend of TPH levels since 2021 is likely a result of the removal of TPH-contaminated soil that took place in September 2021.

Figure 14 presents historical results for VOCs in source area wells GW031S and GW033S. GW031S-R results were added to the existing trend chart for GW031S. COCs in GW031S appear to be stabilizing over the past four monitoring events. COCs detected in GW031S during this period have remained in historical ranges after a single-event decrease observed during the 2023 wet season.

Figure 15 presents historical results for VOCs in source area wells GW034S and GW244S. GW244S-R results were added to the existing trend chart for GW244S. TCE has remained undetected in GW034S for the last several years, and concentrations of all other COCs in GW034S have decreased or remained undetected since the last reporting period. COCs in GW244S have remained within historical ranges, with TCE and benzene remaining undetected.

Cis-1,2-DCE, benzene, and VC have returned to the generally stable levels observed before the significant increase in concentrations detected during the 2023 wet season monitoring event. Concentrations of COCs in GW244S appear have a decreasing trend since the start of compliance monitoring.

3.3.4.3 COC Results for CPOC Area

As shown in Table 9, VC was detected above the CUL (0.20 µg/L) in groundwater from GW237S (6.47 µg/L). All other detections of benzene and cis-1,2-DCE are below their respective CULs. TPH as gasoline was detected above the CUL (800 µg/L) in groundwater at GW237S (915 µg/L). TCE was not detected in any CPOC area wells sampled.

Trend charts for CPOC area wells are shown in Figures 16 through 18.

Figure 16 shows that benzene and cis-1,2-DCE have been sporadically detected above the CUL in CPOC area wells GW237S and GW143S, respectively. A seasonal trend appears to be forming for benzene in GW237S with higher concentrations detected during the wet season. Benzene was detected in GW237S (6.47 µg/L) above the CUL (0.80 µg/L) during this monitoring period. Cis-1,2-DCE was detected in GW143S below (0.290 µg/L) the CUL (0.70 µg/L).

Figure 17 shows that TCE has not been detected in the CPOC area for the past several events, with the exception of GW143S during the 2022 dry season sampling event. VC was detected above the CUL (0.20 µg/L) in CPOC area well GW237S (0.290 µg/L) during this event, which has shown the highest levels of VC of the three wells since the 2022 wet season monitoring events. Figure 18 shows that TPH as gasoline has been detected only in GW237S since monitoring began and has been generally decreasing over time, with a trend of higher concentrations detected during the wet season in the last five reporting periods.

3.4 FORMER FUEL FARM AOC GROUP

This section describes corrective action activities conducted at the Former Fuel Farm AOC Group. Figure 19 shows the layout of the groundwater monitoring wells for which sampling is required under CMP Addendum #3 (CALIBRE, 2020). The final remedy for the Former Fuel Farm is MNA.

3.4.1 CLEANUP ACTION ACTIVITIES

No installation/construction activities were conducted for this AOC Group during this reporting period.

3.4.2 CMP DEVIATIONS

No deviations from the CMP occurred for this cleanup action area during this reporting period. The wells monitored and the COCs remained the same for this AOC Group.

3.4.3 WATER LEVELS

The groundwater elevations measured during this groundwater monitoring event at the Former Fuel Farm AOC Group are summarized in Table 10 and shown on Figure 19. Groundwater elevation contours are not shown because only three wells are monitored in this group and data are too limited to produce accurate contours. Groundwater flow direction to the northeast is based on historical information from this AOC.

3.4.4 GROUNDWATER MONITORING RESULTS

Groundwater at Former Fuel Farm AOC Group is monitored following the analysis protocol presented in Tables A-1 and A-2 in Appendix A. Results for primary geochemical indicators are presented in Table 11; results for the Former Fuel Farm AOC Group COCs are presented in Table 12.

3.4.4.1 MNA Indicators

The geochemical indicator results are presented in Table 11. Specific conductivity was low for groundwater. Slightly acidic pH was observed in CPOC area wells ranging from 6.12 to 6.35 SU, with concentrations of DO ranging from 0.35 to 6.12 mg/L. ORP measurements ranged from -22.6 to 34.3 millivolts (mV) across the AOC. The geochemical indicators indicate natural attenuation of the COCs for the Former Fuel Farm AOC Group may be occurring.

3.4.4.2 COC Results for Source Area

The single source area well for this AOC Group was removed from the monitoring plan with Ecology's acceptance of CMP Addendum #3 (CALIBRE, 2020).

3.4.4.3 COC Results for CPOC Area

Table 12 presents the analytical results for the Former Fuel Farm AOC Group COCs. Figure 20 shows trend data for CPOC area wells GW211S, GW221S, and GW224S. Samples were analyzed for TPH as diesel, as motor oil, and as Jet A. In GW224S, TPH as diesel and as Jet A were detected above their CUL of 0.5 mg/L at 0.764 mg/L and 1.27 mg/L, respectively. TPH as motor oil was not detected in any CPOC area wells; no CULs are established for this analyte. TPH as diesel and as Jet A at CPOC area well GW221S were detected above their respective CUL (0.5 mg/L) at 3.57 mg/L and 2.65 mg/L, respectively. No COCs were detected at CPOC area well GW211S. TPH as diesel and Jet A in GW211S have been below the CULs and/or non-detect since the wet season of 2017 (Figure 20). Figure 20 shows COC concentrations in GW221S and GW224S remain within historical ranges since 2020.

3.5 AOC-001/002

This section describes corrective action activities conducted at AOC-001/002. The monitoring and future/continued cleanup actions for this AOC will be determined in the next CMP addendum prepared for Ecology approval. Figure 21 shows the layout of the groundwater monitoring wells.

3.5.1 CLEANUP ACTION ACTIVITIES

No installation/construction activities were conducted for this AOC during this reporting period.

3.5.2 CMP DEVIATIONS

No deviations from the CMP occurred for AOC-001/002 during this reporting period.

3.5.3 WATER LEVELS

The groundwater elevations measured during this groundwater monitoring event at AOC-001 and AOC-002 are summarized in Table 13. A groundwater flow direction to the northwest is depicted on the figure based on current and historical groundwater elevation data.

3.5.4 GROUNDWATER MONITORING RESULTS

Groundwater at this area is monitored following the analysis protocol presented in Tables A-1 and A-2 in Appendix A. Results for geochemical indicators are presented in Table 14; results for the AOC-001 and AOC-002 COCs are presented in Table 15.

3.5.4.1 Monitored Attenuation/Geochemical Indicators

The geochemical indicator results are presented in Table 14. Moderate to high specific conductivity and negative ORP (with the exception of reading of 122.1 mV in GW192S-R) were observed during this reporting period. pH readings varied from slightly acidic to basic, ranging from 6.12 to 8.93 SU. Measured concentrations of DO ranged from 0.01 to 6.46 mg/L. TOC was measured between 2.01 mg/L and 20.26 mg/L.

3.5.4.2 COC Results for Source Area, Cross-Gradient, and Downgradient Plume Area

Table 15 lists the analytical results for the AOC-001 and AOC-002 COCs. Samples from wells in this group were analyzed for benzene, 1,1-dichloroethene (1,1-DCE), cis-1,2-DCE, TCE, and VC. Analytes present in Table 15 are the COCs analyzed during the last sampling event that all wells in AOC-001 and AOC-002 were sampled before decommissioning for construction (Wood, 2019b).

Source area and cross-gradient well groundwater CUL exceedances (Table 15) consisted of the following:

- GW193S-R: cis-1,2-DCE (0.135 µg/L), TCE (0.0291 µg/L), and VC (0.130 µg/L).
- GW213S-R: cis-1,2-DCE (0.0932 µg/L), and VC (0.123 µg/L).
- GW214S-R: cis-1,2-DCE (0.0347 µg/L).
- GW215S-R: cis-1,2-DCE (0.0.368 µg/L).

Figures 22 and 23 show the historical trends of cis-1,2-DCE, TCE, and VC concentrations in source area well GW193S and downgradient plume area wells compared to the concentrations detected during this monitoring period. All replacement well results were added to the existing trend charts for this AOC.

3.5.4.3 COC Results for CPOC Area

The concentrations of these analytes can be found in Table 15. Analytes listed in Table 15 are the COCs analyzed during the last sampling event that all wells in AOC-001 and AOC-002 were sampled before decommissioning for construction (Wood, 2019b).

Downgradient plume area and CPOC groundwater site-specific CUL exceedances (Table 15) consisted of the following:

- GW190S-R: cis-1,2-DCE (0.0924 µg/L) and VC (0.0506 µg/L).
- GW191D-R: cis-1,2-DCE (0.0254 µg/L) and VC (0.0627 µg/L).
- GW192S-R: cis-1,2-DCE (0.0254 µg/L), TCE (0.0231 µg/L), and VC (0.166 µg/L).
- GW264S-R: cis-1,2-DCE (0.167 µg/L) and VC (0.303 µg/L).
- GW158S-R: cis-1,2-DCE (0.112 µg/L) and VC (0.0823 µg/L).
- GW195S-R: cis-1,2-DCE (0.0899 µg/L) and VC (0.0998 µg/L).

- GW196D-R: cis-1,2-DCE (0.0282 µg/L).
- GW197S-R: 1,1-DCE (0.150 µg/L), cis-1,2-DCE (41.6 µg/L), TCE (0.580 µg/L), and VC (27.0 µg/L).
- GW245S-RS-R: cis-1,2-DCE (0.135 µg/L) and TCE (0.0235 µg/L).

VC and cis-1,2-DCE were detected at elevated concentrations compared to historic levels (27.0 µg/L and 41.6 µg/L, respectively) in GW197S-R. Plans for remedial actions are forthcoming and will be prepared for Ecology approval.

3.6 AOC-003

This section describes corrective action activities conducted at AOC-003. The cleanup remedy for this AOC is MA. Figure 25 shows the location of groundwater monitoring wells for which sampling is required under CMP Addendum #3 (CALIBRE, 2020) and bioremediation wells, as well as the groundwater elevations measured during this monitoring event.

3.6.1 CLEANUP ACTION ACTIVITIES

No installation/construction activities were conducted for this AOC during this reporting period.

3.6.2 CMP DEVIATIONS

No deviations from the CMP occurred in this AOC during this reporting period.

3.6.3 WATER LEVELS

The groundwater elevations measured during this groundwater monitoring event at AOC-003 are summarized in Table 16 and shown on Figure 25. Groundwater elevations measured during this event are consistent with historical groundwater flow directions to the northwest.

3.6.4 GROUNDWATER MONITORING RESULTS

Groundwater at this AOC is monitored following the analysis protocol presented in Tables A-1 and A-2 in Appendix A. Results for geochemical indicators are presented in Table 17; results for the AOC-003 COCs are presented in Table 18.

3.6.4.1 Monitored Attenuation/Geochemical Indicators

The geochemical indicator results are presented in Table 17. High specific conductivity, low DO (with the exception of a reading of 5.98 mg/L at GW188S), and negative ORP were observed during this reporting period. pH readings were slightly acidic for all wells in this area, ranging between 6.22 and 6.38 SU. TOC concentrations ranged from 11.37 to 12.16 mg/L.

3.6.4.2 COC Results for Source Area and Downgradient Plume Area

Table 18 lists the analytical results for the AOC-003 COCs. Samples from wells in this group were analyzed for cis-1,2-DCE, TCE, PCE, and VC. VC was detected below the CUL (0.24 µg/L) in GW249S and GW188S. No detected concentrations of TCE or PCE were observed in the source area and downgradient plume area wells. Cis-1,2-DCE was detected in both source area and downgradient plume wells below the CUL (0.78 µg/L). Figure 26 shows the historical trends for VC in source area well GW249S and downgradient plume area well GW188S.

3.6.4.3 COC Results for CPOC Area

VC was detected above the CUL (0.24 µg/L) in CPOC area wells GW247S-R (0.467 µg/L) and GW248I (0.383 µg/L) (Table 18). No detected concentrations of TCE or PCE were found in the CPOC area wells. Cis-1,2-DCE was detected in CPOC area well GW248I below the CUL (0.78 µg/L) and was not detected in GW247S-R.

Figure 27 shows the historical trends for VC in CPOC area wells GW247S and GW248I. GW247S-R results were added to the existing trend chart for GW247S. Results from the new well, beginning with the dry season 2023, appear to be within historical ranges of the initial GW247S. VC concentrations in GW247S-R appear to be increasing since 2022 and decreasing in GW248I over the same timeframe.

3.7 AOC-004

This section describes corrective action activities conducted at AOC-004. The cleanup remedy for this AOC is MA. Figure 28 shows the location of the groundwater monitoring well for which sampling is required under CMP Addendum #3 (CALIBRE, 2020), the bioremediation wells, and the groundwater elevation measured during this monitoring event.

3.7.1 CLEANUP ACTION ACTIVITIES

No installation/construction activities were conducted for this AOC during this reporting period.

3.7.2 CMP DEVIATIONS

No deviations from the CMP occurred for this AOC during this reporting period and COCs remained the same for this AOC.

3.7.3 WATER LEVELS

The groundwater elevation measured during this groundwater monitoring event at AOC-004 is summarized in Table 19 and shown on Figure 28. Groundwater contouring and flow direction cannot be determined from the single groundwater elevation measurement, but a general direction of groundwater flow based on historical information is shown on Figure 28.

3.7.4 GROUNDWATER MONITORING RESULTS

Groundwater at AOC-004 is monitored following the analysis protocol presented in Tables A-1 and A-2 in Appendix A. Results for geochemical indicators are presented in Table 20; the result for the AOC-004 COC (lead) is presented in Table 21.

3.7.4.1 Monitored Attenuation/Geochemical Indicators

The geochemical indicator results are presented in Table 20. The pH reading was near neutral at 6.95 SU. Moderate specific conductivity, negative ORP, and high DO readings were observed during this monitoring event.

3.7.4.2 COC Results for Source Area

Table 21 lists the analytical result for the AOC-004 COC. Lead was detected in the single source area monitoring well GW250S at 0.112 µg/L, below the CUL of 1 µg/L. Figure 29 shows the historical trend chart for lead in GW250S, which has been detected below the CUL since the wet season of 2023.

3.8 AOC-060

This section describes corrective action activities conducted at AOC-060. The cleanup remedy for this AOC is bioremediation and MA. Figure 30 shows the location of groundwater monitoring wells for which sampling is required under CMP Addendum #3 (CALIBRE, 2020), the bioremediation wells, and the groundwater elevations measured during this monitoring event.

3.8.1 CLEANUP ACTION ACTIVITIES

3.8.1.1 INSTALLATION/CONSTRUCTION ACTIVITIES

Two bioremediation injection wells (B060-01 and B060-02) were installed on March 21 and 22, 2024. No other installation/construction activities were conducted for this AOC during this reporting period.

3.8.1.2 BIOREMEDIATION ACTIVITIES

The current remediation method is bioremediation injections and ERD treatment. Bioremediation injection wells B060-01 and B060-02 were installed on March 21, 2024, and sampled for VOCs on March 27, 2024. The samples were collected from newly installed injection wells as an evaluation parameter to understand initial conditions at the intended injection points. These samples are not part of a compliance monitoring and therefore are not included with the source area and CPOC monitoring results in this area. The most recent injection in this area occurred in April 2024. Substrate injections were conducted in B060-01, B060-02, and GW147S. Additional details regarding the injection can be found in Appendix E.

3.8.2 CMP DEVIATIONS

No deviations from the CMP occurred for this AOC during this reporting period. The wells monitored and COCs remained the same for this AOC.

3.8.3 WATER LEVELS

The groundwater elevations measured during this groundwater monitoring event at AOC-060 are summarized in Table 22 and shown on Figure 30. Groundwater flow direction is generally to the west–southwest toward the Cedar River Waterway.

3.8.4 GROUNDWATER MONITORING RESULTS

Groundwater at AOC-060 is monitored following the analysis protocol presented in Tables A-1 and A-2 in Appendix A. Results for geochemical indicators are presented in Table 23; results for the AOC-060 COCs are presented in Table 24.

3.8.4.1 Monitored Attenuation/Geochemical Indicators

The geochemical indicator results are presented in Table 23. Conductivity ranged from 175 to 1575 µS/cm. DO concentrations ranged from 0.01 to 6.36 mg/L. The pH was slightly acidic in this AOC, between 6.13 and 6.59 SU. TOC results from all wells varied greatly, with a range from 4.03 to 338.2 mg/L.

3.8.4.2 COC Results for Source, Cross-Gradient, and Downgradient Plume Areas

Table 24 lists the analytical results for the AOC-060 COCs. Wells in this group were analyzed for cis-1,2-DCE, TCE, and VC. Groundwater from source area well GW009S, cross-gradient wells GW012S and GW0145S, and downgradient plume area well GW147S exceeded their respective CULs for all three COCs, with the exception of the detected concentration of VC below the CUL (0.26 µg/L) in GW147S (0.0638 µg/L).

Figure 31 shows historical trends for COCs in source area well GW009S, which have remained within historical ranges since monitoring began. Figures 31 and 32 show historical trends for COCs in downgradient plume area wells. COC results in GW014S have been generally consistent and without large fluctuation since monitoring began., GW012S and GW147S exhibit more fluctuation in COC concentrations but appear to remain within a site-specific amplitude of historical range. This fluctuation may be associated with seasonal groundwater flow variations. TCE in GW012S appears to have increasing fluctuation over the last five monitoring events, departing from the lows observed in 2018 and 2019, but concentrations remain within the historical range for TCE concentrations in this well.

3.8.4.3 COC Results for CPOC Area

As shown in Table 24, detected concentrations of cis-1,2-DCE exceeded the CUL (0.08 µg/L) in groundwater from CPOC area well GW253I (0.0929 µg/L). cis-1,2-DCE was also detected below the CUL in well GW150S (0.0509 µg/L) and TCE and VC were detected in groundwater from CPOC area well GW253I but did not exceed their respective CULs (0.02 µg/L and 0.26 µg/L, respectively). VC was also detected below the CUL in GW150S (0.0608 µg/L). Figure 33 shows historical trends for COCs in CPOC area wells GW150S and GW253I. Considerable fluctuation is still present for cis-1,2-DCE and VC, but TCE appears to be stabilized below the CUL in both CPOC area wells.

3.9 AOC-090

This section describes corrective action activities conducted at AOC-090. The cleanup remedy for this AOC is bioremediation and MA. Figure 34 shows the location of groundwater monitoring wells for which sampling is required under CMP Addendum #3 (CALIBRE, 2020), the bioremediation wells, and the groundwater elevations measured during this monitoring event.

3.9.1 CLEANUP ACTION ACTIVITIES

3.9.1.1 INSTALLATION/CONSTRUCTION ACTIVITIES

In order to expand the effective footprint of the treatment area, two bioremediation injection wells (B090-01 and B090-02) were installed on March 21 and 22, 2024. No other installation/construction activities were conducted for this AOC during this reporting period.

3.9.1.2 BIOREMEDIATION ACTIVITIES

The current remediation method is bioremediation injections and ERD treatment. Bioremediation injection wells B090-01 and B090-02 were installed on March 21, 2024, and sampled for VOCs on March 27, 2024. The samples were collected from newly installed injection wells as an evaluation parameter to understand initial conditions at the intended injection points. These samples are not a part of compliance monitoring and therefore are not included with the source area and CPOC monitoring results in this area. The most recent injection in this area occurred in April 2024. Substrate injections were conducted in B090-01 and B090-02 and did not include GW189S because the current vinyl chloride concentration was non-detect (< 0.02 µg/L). The need for continued/further treatment in this source area will be evaluated in the future as this area transitions to monitored attenuation. Additional details regarding the injection can be found in Appendix E.

3.9.2 CMP DEVIATIONS

No deviations from the CMP occurred for this area during this reporting period. The wells monitored and COCs remained the same for this AOC.

3.9.3 WATER LEVELS

The groundwater elevations measured during this groundwater monitoring event at AOC-090 are summarized in Table 25 and shown on Figure 34. Groundwater flow direction is to the northwest toward the Cedar River

Waterway; however, the sheet pile wall to the west of this area prevents a direct groundwater connection to the waterway, as depicted by the contours.

3.9.4 GROUNDWATER MONITORING RESULTS

Groundwater at AOC-090 is monitored following the analysis protocol presented in Tables A-1 and A-2 in Appendix A. Results for geochemical indicators are presented in Table 26; results for the AOC-090 COCs are presented in Table 27.

3.9.4.1 Monitored Attenuation/Geochemical Indicators

The geochemical indicator results are presented in Table 26. Results showed moderate to high specific conductivity and high DO values across the area (with the exception of a DO concentration of 0.03 mg/L in GW208S). The pH was slightly acidic in this AOC, with all wells ranging between 6.20 and 6.74 SU. TOC was measured at 1.70 mg/L in source area well GW189S. The trend plot for TOC in GW189S (Figure 35) shows TOC has stayed consistent with a slight overall decrease since a substrate injection in 2017. Subsequent injections were completed in May 2023 and April 2024.

3.9.4.2 COC Results for Source and Downgradient Plume Areas

Table 27 lists the analytical results for the AOC-090 COCs. 1,1,2,2-Tetrachloroethane was detected below the CUL (0.17 µg /L) in source area well GW189S at 0.158 µg/L.VC was detected above the CUL (0.13 µg/L) in downgradient plume area well GW176S at 0.21 µg/L. Historical trends for GW189S show chlorinated VOCs have been trending downward since the start of monitoring (Figure 35).

3.9.4.3 COC Results for CPOC Area

VC was detected above the CUL in CPOC area wells GW178S (0.27 µg/L) and GW208S (0.298 µg/L).

3.10 APRON A AREA

This section describes corrective action activities conducted at the Apron A area. The cleanup remedy proposed for the Apron A area is bioremediation and MA. Figure 36 shows the locations of the groundwater monitoring wells in the Apron A area for which sampling is required under CMP Addendum #3 (CALIBRE, 2020).

3.10.1 CLEANUP ACTION ACTIVITIES

No construction or operations work was conducted in the Apron A area during this reporting period.

3.10.2 CMP DEVIATIONS

No deviations from the CMP occurred for this area during this reporting period. The wells monitored in this group and COCs remained the same.

3.10.3 WATER LEVELS

The groundwater elevation measurement from this groundwater monitoring event at Apron A is in Table 28 and shown on Figure 36. Groundwater elevation contours are not shown because only three wells are monitored in this group and data are too limited to produce accurate contours. Groundwater flow direction is estimated based on historical information and an expected flow east toward the Cedar River Waterway.

3.10.4 GROUNDWATER MONITORING RESULTS

Groundwater at Apron A is monitored following the analysis protocol presented in Tables A-1 and A-2 in Appendix A. Results for primary geochemical indicators presented in Table 29; results for the Apron A area COCs are presented in Table 30.

3.10.4.1 Monitored Attenuation/Geochemical Indicators

The geochemical indicator results are presented in Table 29. Observations included high specific conductivity, low DO, slightly acidic pH, and a negative ORP reading. TOC was detected in GW264S at a concentration of 24.58 mg/L.

3.10.4.2 COC Results

Table 30 lists the analytical results for the Apron A area COCs (cis-1,2-DCE and VC). Cis-1,2-DCE was reported as non-detect (< 0.200 µg/L). VC was detected at a concentration of 0.810 µg/L. Analytes from Apron A samples do not have established CULs because they were added to the monitoring program after the CAP was in place (CALIBRE, 2020). Additional monitoring of the soil and groundwater in Apron A was completed in 2016 and included installation of the monitoring wells in this area (Amec Foster Wheeler, 2016b). Neither cis-1,2-DCE nor VC were detected in the groundwater from well GW264S. The trend plot for COCs in GW264S is shown in Figure 37. Cis-1,2-DCE has not been detected for six consecutive reporting periods. VC appears to be fluctuating, but demonstrated the lowest concentration observed since 2020 this reporting period.

3.11 APRON R INVESTIGATION

In July 2021, total petroleum hydrocarbons (TPH) were observed in an excavation in the Apron R area during site construction work. Samples were collected and work was stopped while Boeing informed Ecology (through a teleconference in July 2021) and discussed next steps for investigation work to be undertaken upon construction project completion. As discussed with Ecology during the July 2021 teleconference, Boeing installed a layered geotechnical membrane backfilled with granular activated carbon (GAC) above and below the observed TPH to mitigate further migration of the observed TPH in the Apron R excavation trench. This work was completed in parallel with site construction during July 2021. Boeing submitted to Ecology a technical memorandum which described the construction work in the Apron R vicinity, as well as initial characterization sampling results from the Apron R excavation trench (CALIBRE, 2021). Ecology provided comments in a letter dated August 10, 2021. Apron R construction work was completed in December 2023. In February 2024, Boeing submitted an Apron R Investigation Work Plan (CALIBRE, 2024a) for Ecology review and approval (Myers, 2024; approved by Ecology in March 2024 as noted above). Boeing conducted direct push probe sampling in ten discrete Apron R locations on March 18 and 19, 2024; these direct push probe samples were collected in continuation of the potential TPH source investigation. A technical memorandum with results from this work is in-progress and will be submitted to Ecology upon completion.

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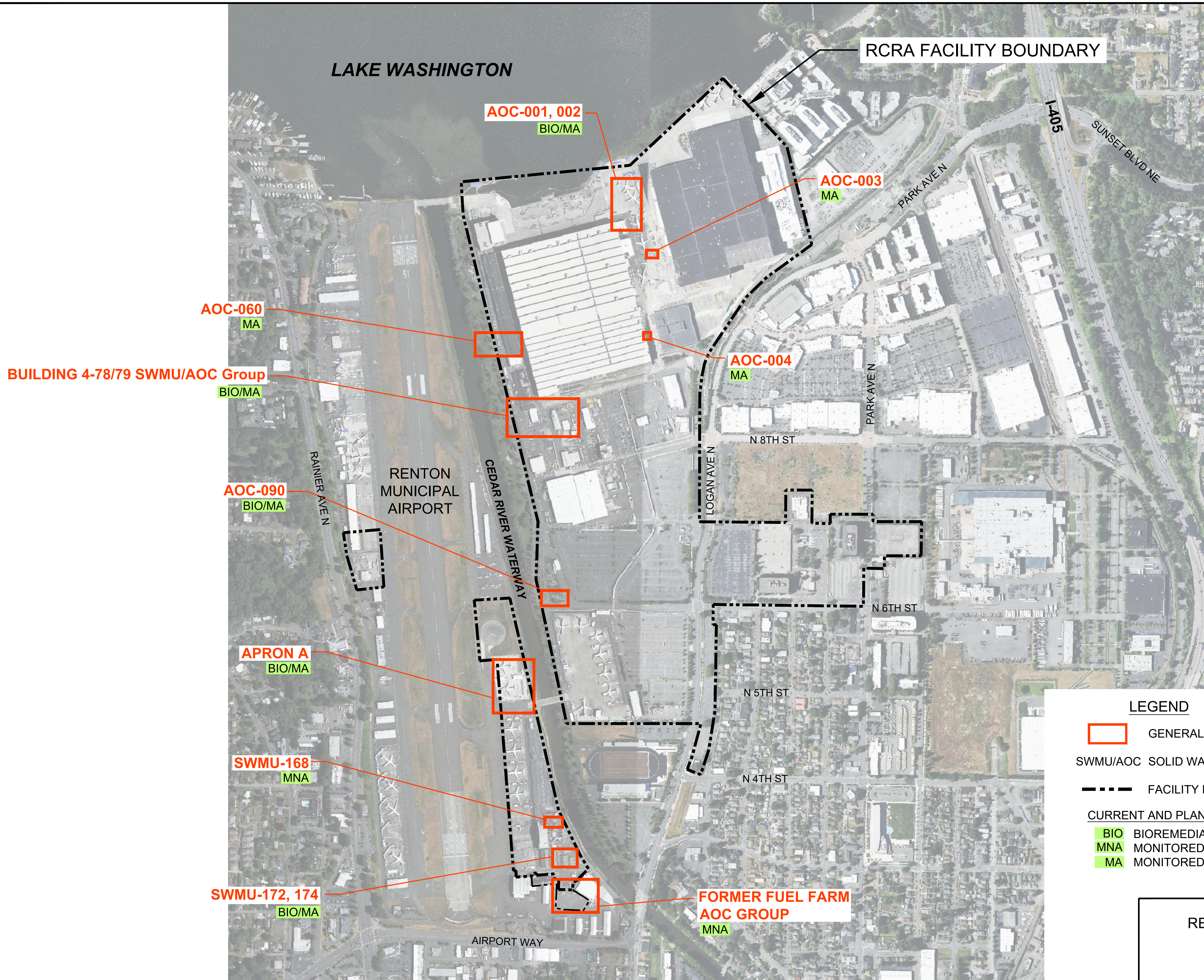
FIGURES



LEGEND

GENERAL LOCATION OF SWMUs, AOCs AND OTHER AREAS

SWMU/AOC SOLID WASTE MANAGEMENT UNIT/AREA OF CONCERN

FACILITY BOUNDARY

CURRENT AND PLANNED CLEANUP REMEDIES:

- BIO BIOREMEDIATION
- MNA MONITORED NATURAL ATTENUATION
- MA MONITORED ATTENUATION

0 400 800

APPROXIMATE SCALE IN FEET

RENTON SWMU AND AOC LOCATIONS

Boeing Renton Facility
Renton, Washington

By: APS/SD	Date: 05/22/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 1

Plot Date: 05/22/24 - 10:01am, Plotted by: USSD715014
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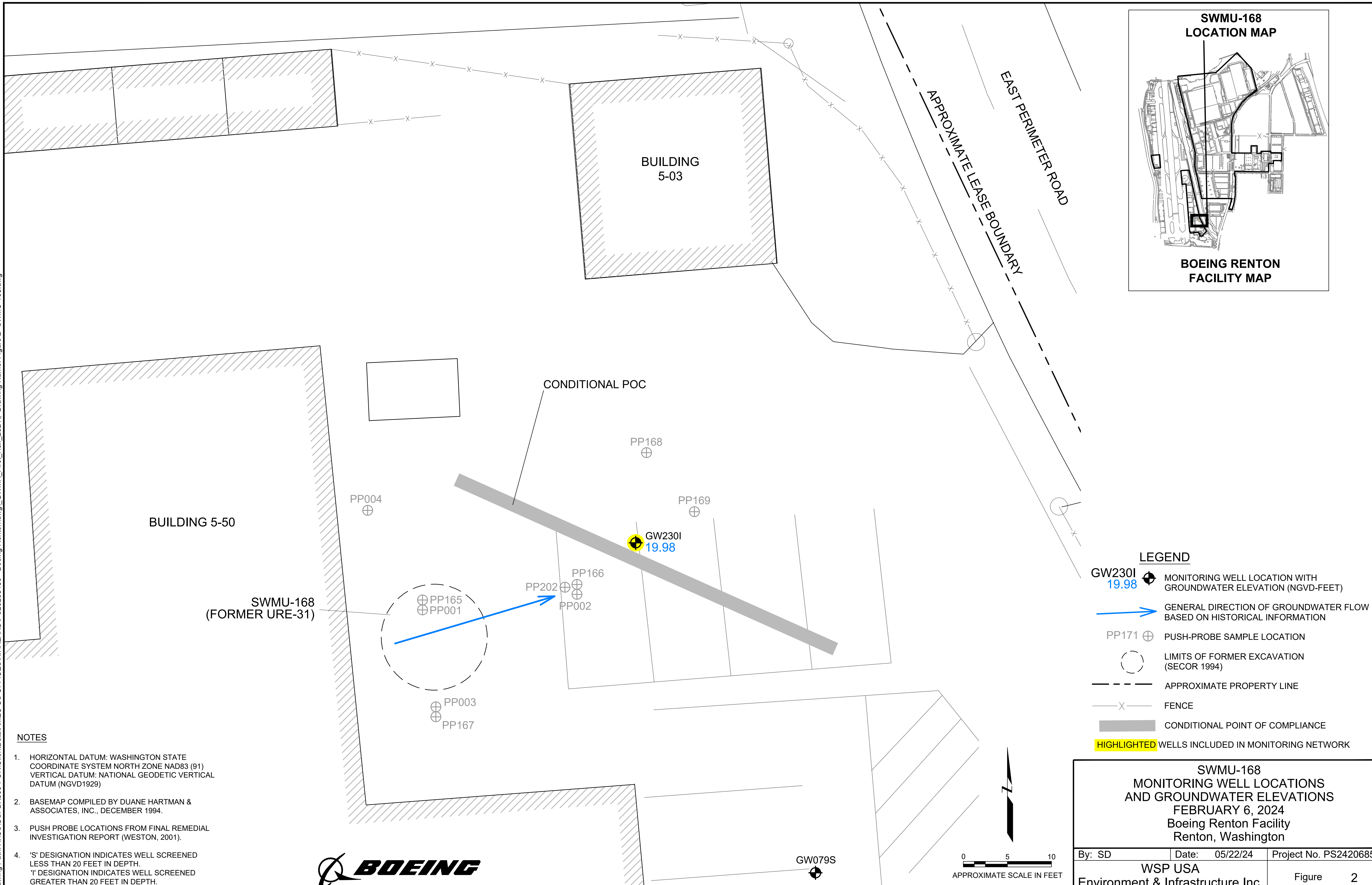

NOTES

1. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE NAD83 (91) VERTICAL DATUM: NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
2. BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER 1994.
3. PUSH PROBE LOCATIONS FROM FINAL REMEDIAL INVESTIGATION REPORT (WESTON, 2001).
4. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 20 FEET IN DEPTH.
'I' DESIGNATION INDICATES WELL SCREENED GREATER THAN 20 FEET IN DEPTH.

SWMU-168
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
FEBRUARY 6, 2024
Boeing Renton Facility
Renton, Washington

By: SD	Date: 05/22/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 2

Plot Date: 05/22/24 - 10:11am, Plotted by: USSD715014
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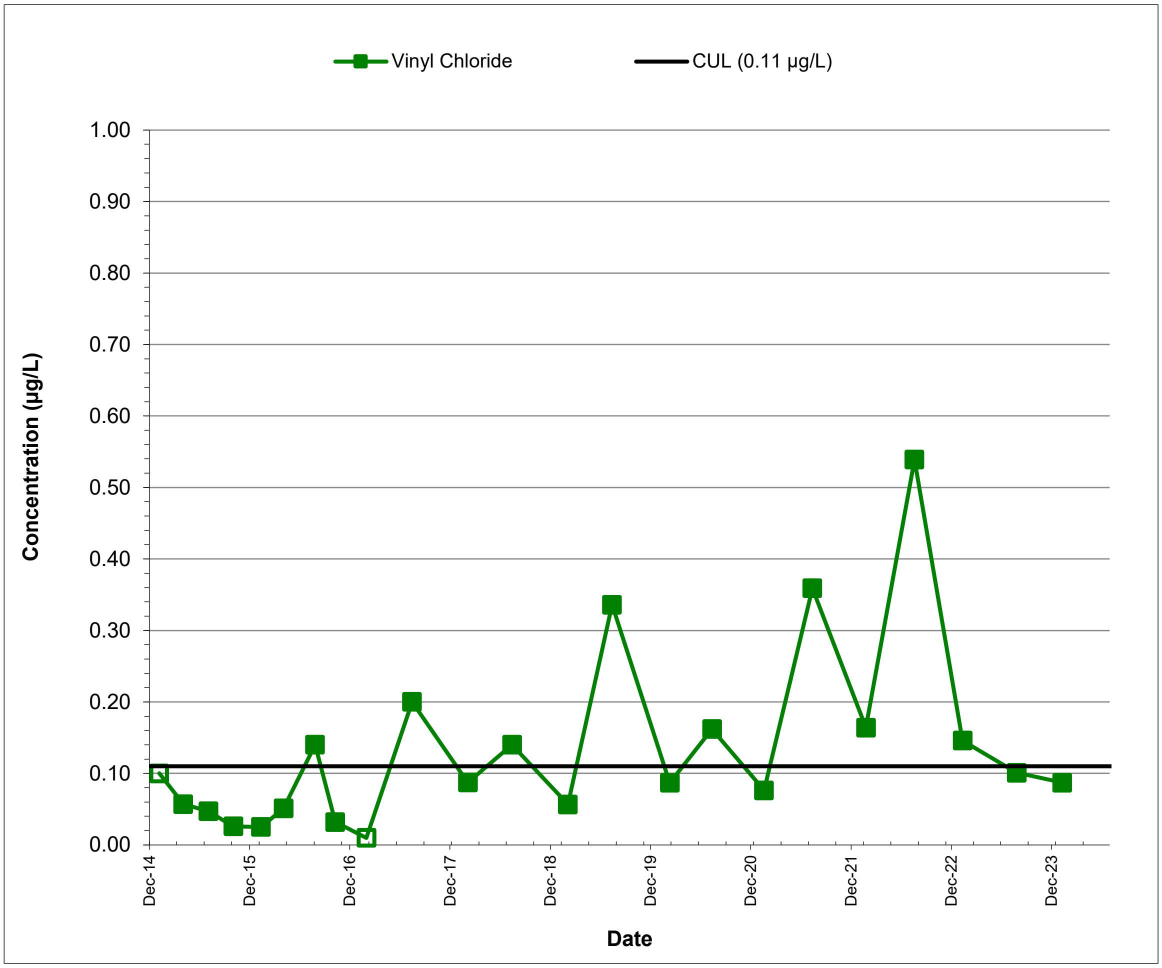
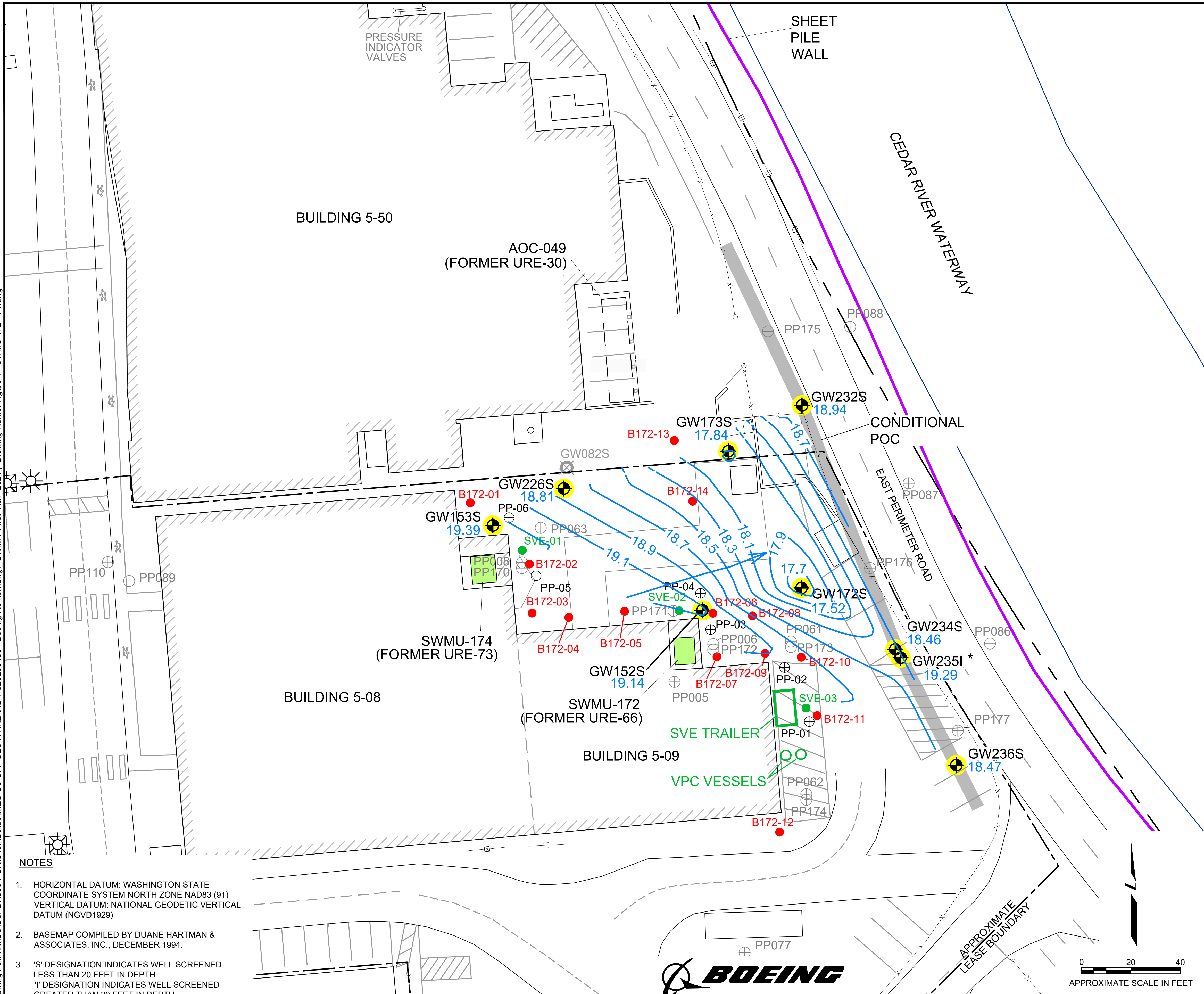


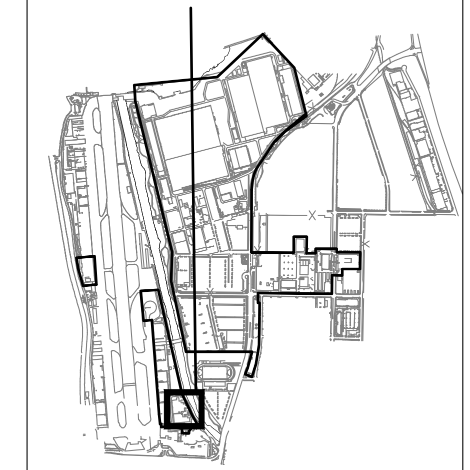
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

CPOC AREA WELL GW230I

WSP	SWMU-168 TREND PLOT FOR CPOC AREA WELL GW230I Boeing Renton Facility, Renton, Washington	Project No. PS20203450
		Figure 3

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\[Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm]Figure 3





LEGEND

GW173S 16.38	MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
*	WELL SCREENED IN UPPER AND LOWER PORTION OF AQUIFER, SO WATER LEVEL IS NOT USED FOR CONTOURING.
16.4	GROUNDWATER ELEVATION CONTOUR (IN FEET) (DASHED WHERE INFERRED)
	GENERAL GROUNDWATER FLOW DIRECTION
GW082S	DECOMMISSIONED MONITORING WELL
	APPROXIMATE PROPERTY LINE
	FENCE
	CONDITIONAL POINT OF COMPLIANCE
	APPROXIMATE LOCATION OF SHEET PILE WALL
	SOLID WASTE MANAGEMENT UNIT (SWMU)
HIGHLIGHTED	WELLS INCLUDED IN MONITORING NETWORK
SVE-02	SVE WELL
B172-10	BIOREMEDIATION INJECTION WELL
PP171	PUSH PROBE SAMPLING LOCATION
PP-01	PUSH PROBE SAMPLE LOCATION COMPLETED IN JUNE 2018

NOTES

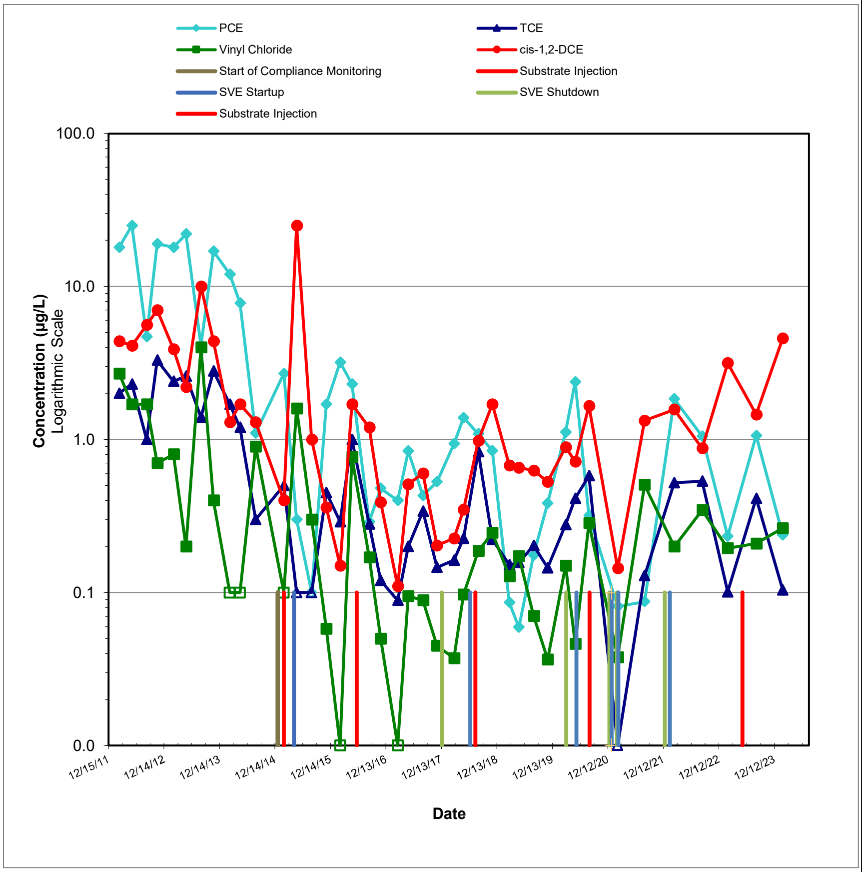
1. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE NAD83 (91)
   VERTICAL DATUM: NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
2. BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER 1994.
3. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 20 FEET IN DEPTH.
   'I' DESIGNATION INDICATES WELL SCREENED GREATER THAN 20 FEET IN DEPTH.

BOEING

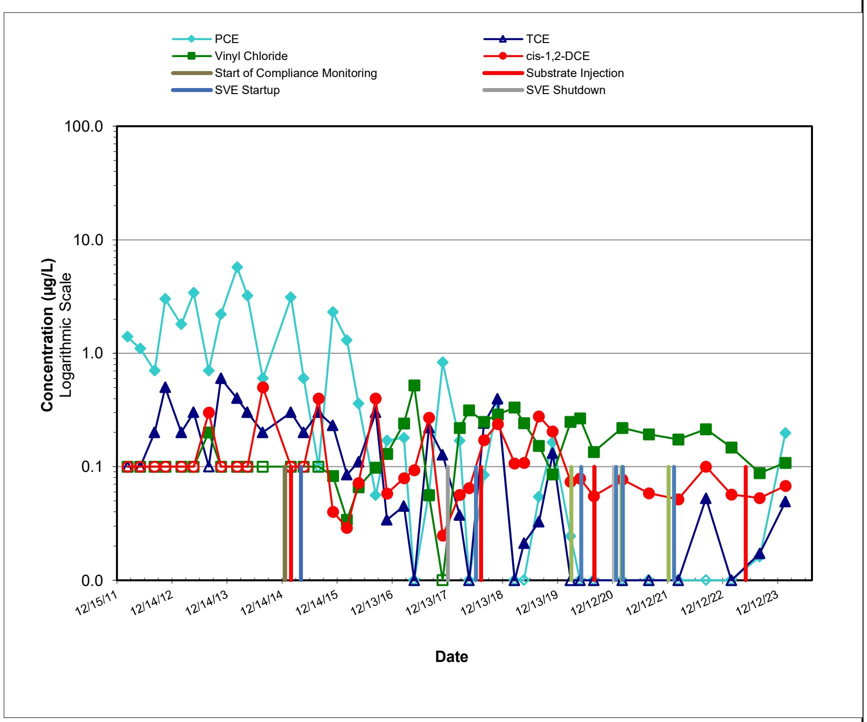
SWMU-172 AND SWMU-174
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
FEBRUARY 2 & 5, 2024
Boeing Renton Facility
Renton, Washington

By: SD	Date: 05/22/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 4

Plot Date: 05/22/24 - 10:15am, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2024\, Drawing Name: Figure 4 - SWMU-172-174.dwg



SOURCE AREA WELL GW152S

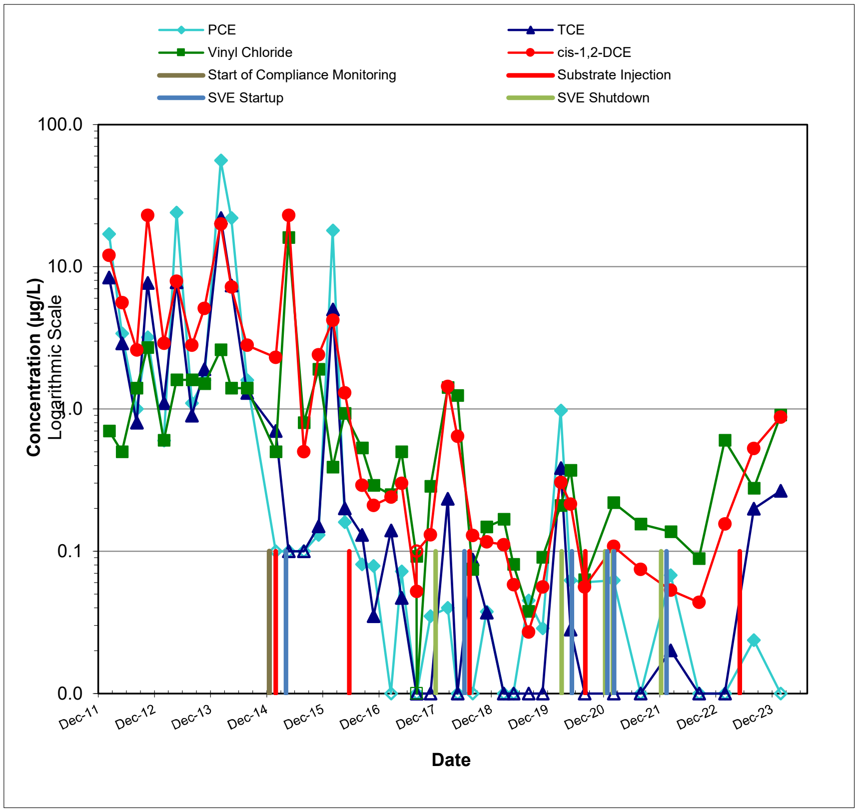


SOURCE AREA WELL GW153S

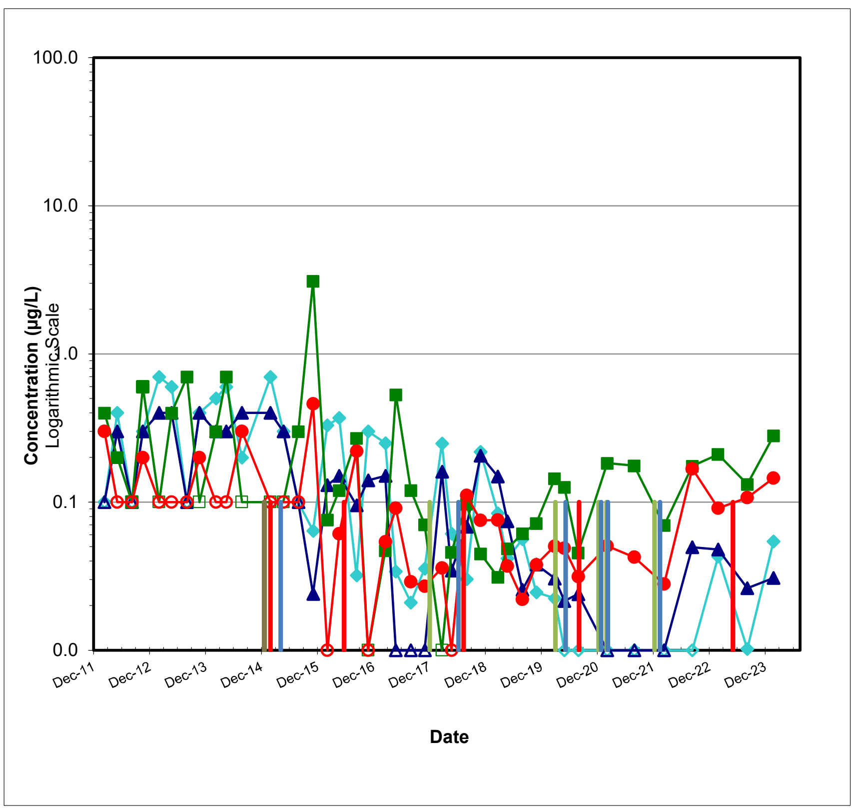
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

wsp	SWMU-172 AND SWMU-174 TREND PLOTS FOR SOURCE AREA WELLS GW152S AND GW153S Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 5

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\[Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm]Figure 37



DOWNGRADIENT PLUME AREA WELL GW172S

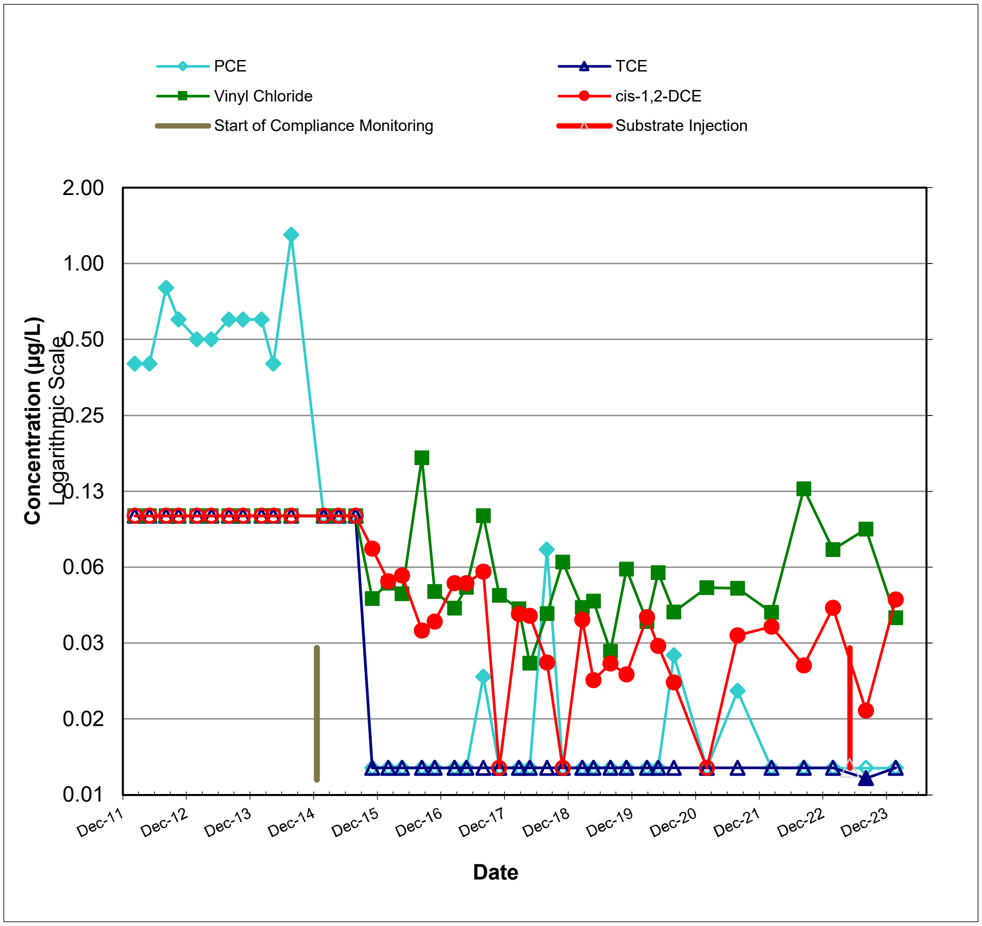


DOWNGRADIENT PLUME AREA WELL GW173S

Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

WSP	SWMU-172 AND SWMU-174 TREND PLOTS FOR DOWNGRADIENT PLUME AREA WELLS GW172S AND GW173S Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 6

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\[Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm]Figure 3

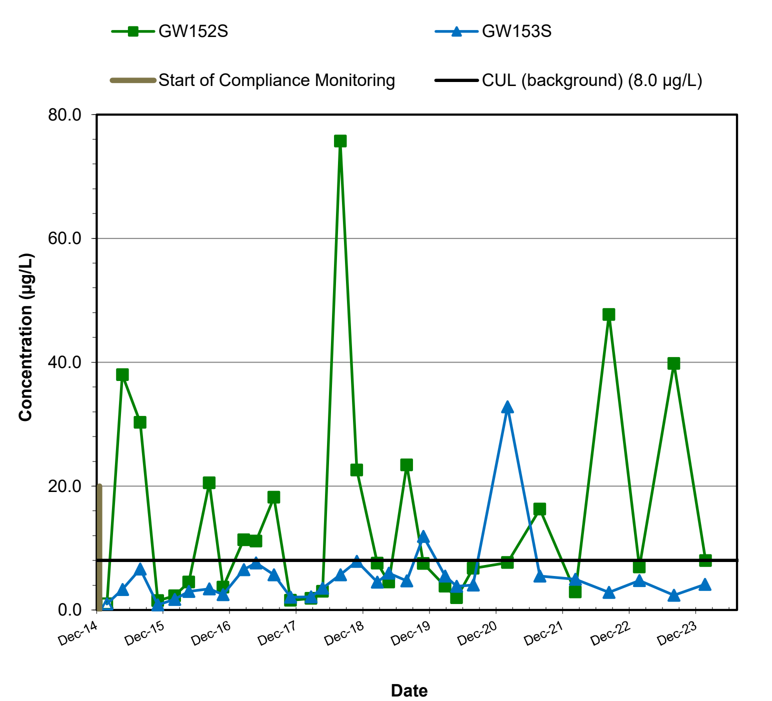


Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

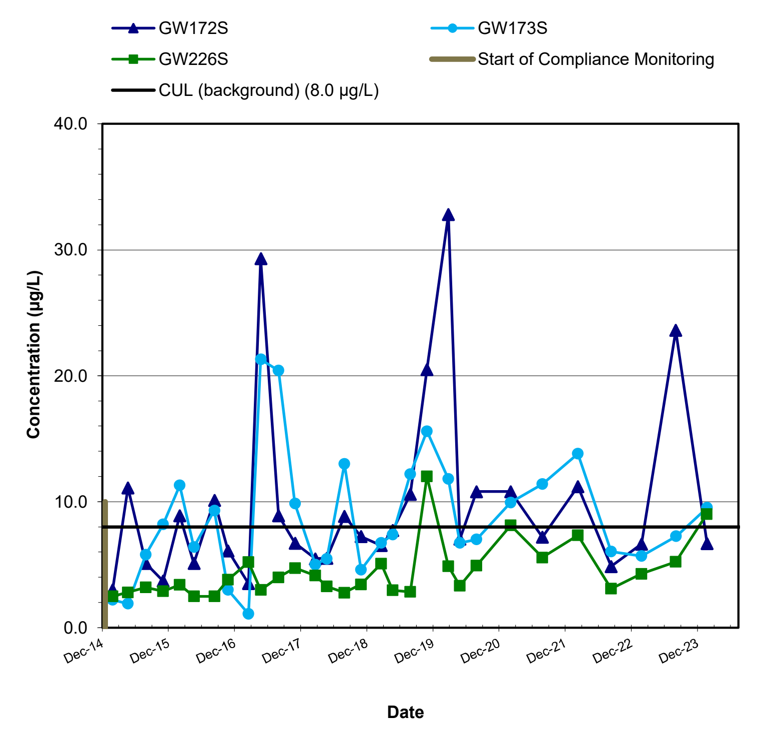
DOWNGRADIENT PLUME AREA WELL GW226S

wsp	SWMU-172 AND SWMU-174 TREND PLOT FOR DOWNGRADIENT PLUME AREA WELL GW226S Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 7

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\[Boeing



TOTAL ARSENIC IN SOURCE AREA WELLS

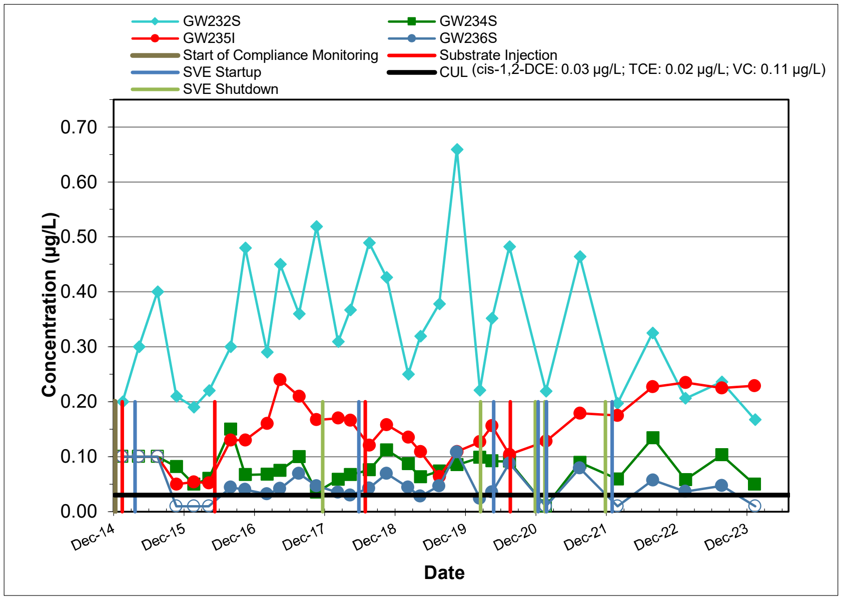


TOTAL ARSENIC IN DOWNGRADIENT PLUME AREA WELLS

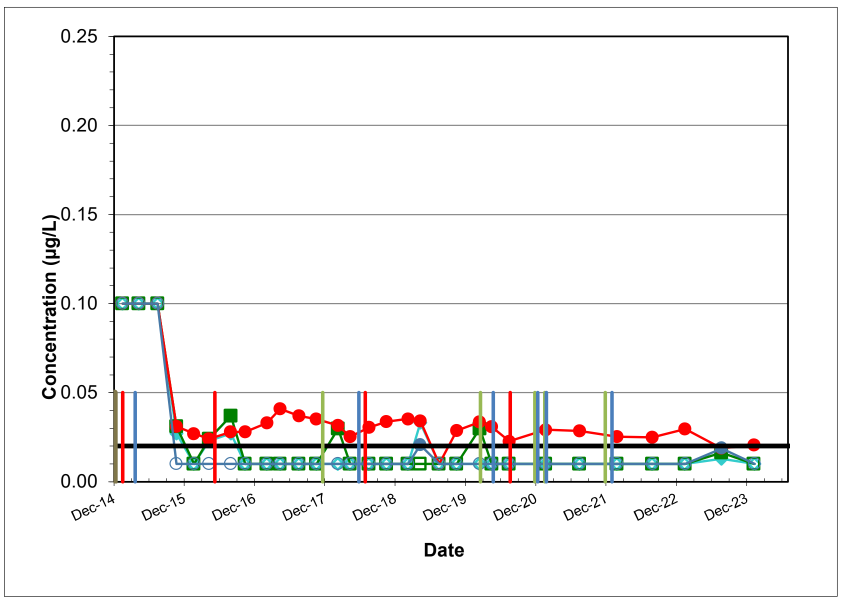
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

wsp	SWMU-172 AND SWMU-174 TREND PLOTS FOR ARSENIC IN SELECT SOURCE AREA AND DOWNGRADIENT PLUME AREA WELLS Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 8

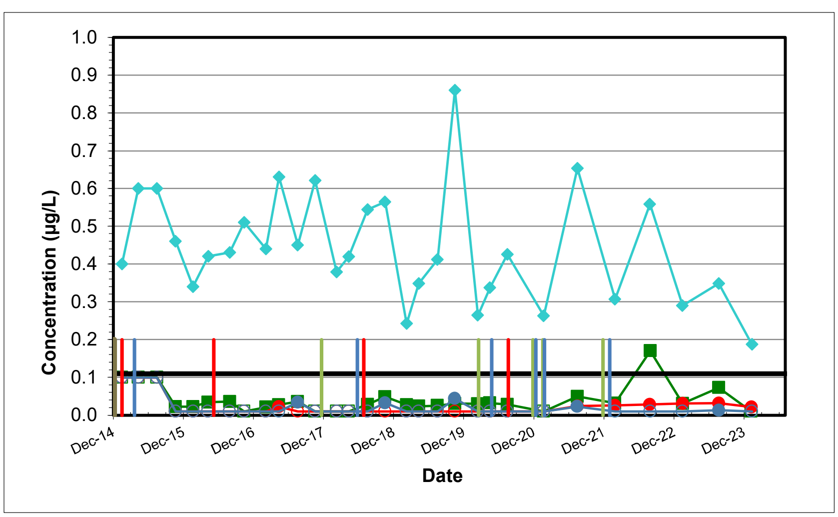
X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm



cis-1,2-DCE



TCE

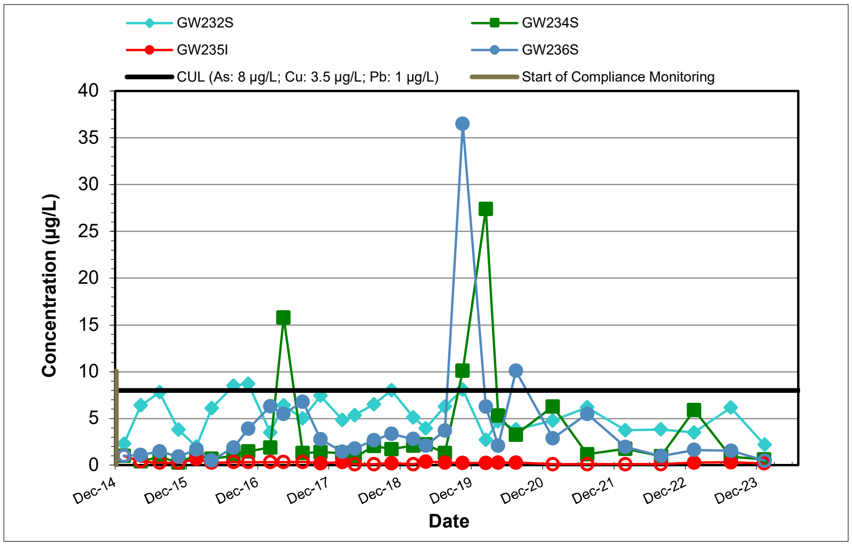


Vinyl Chloride

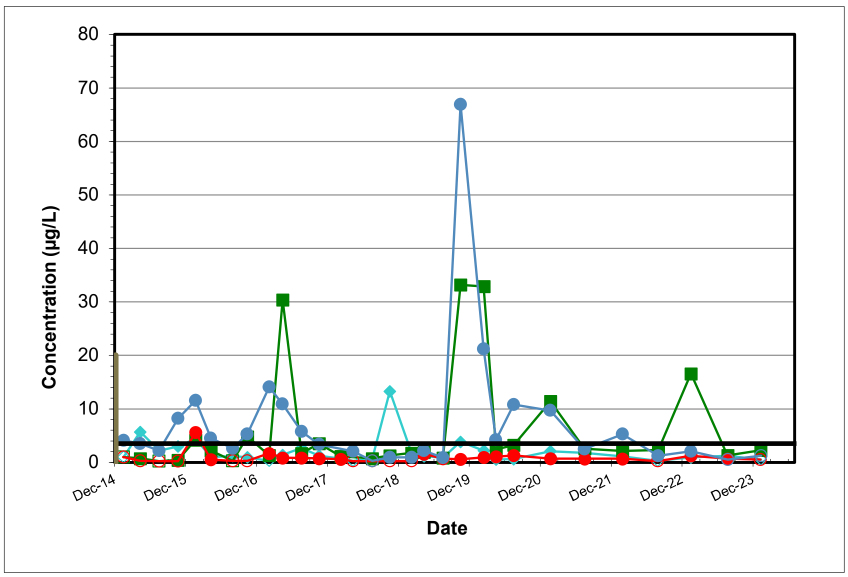
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

WSP	SWMU-172 AND SWMU-174 TREND PLOTS FOR CIS-1,2-DICHLROETHENE, TRICHLOROETHENE, AND VINYL CHLORIDE IN CPOC AREA WELLS Boeing Renton Facility, Renton, Washington	Project No. PS2020345 0 Figure 9

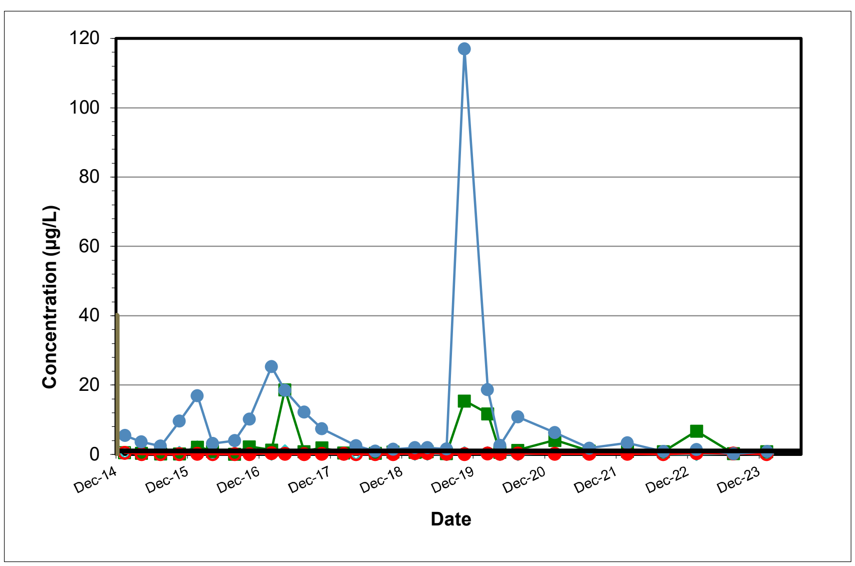
X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm



Arsenic



Copper

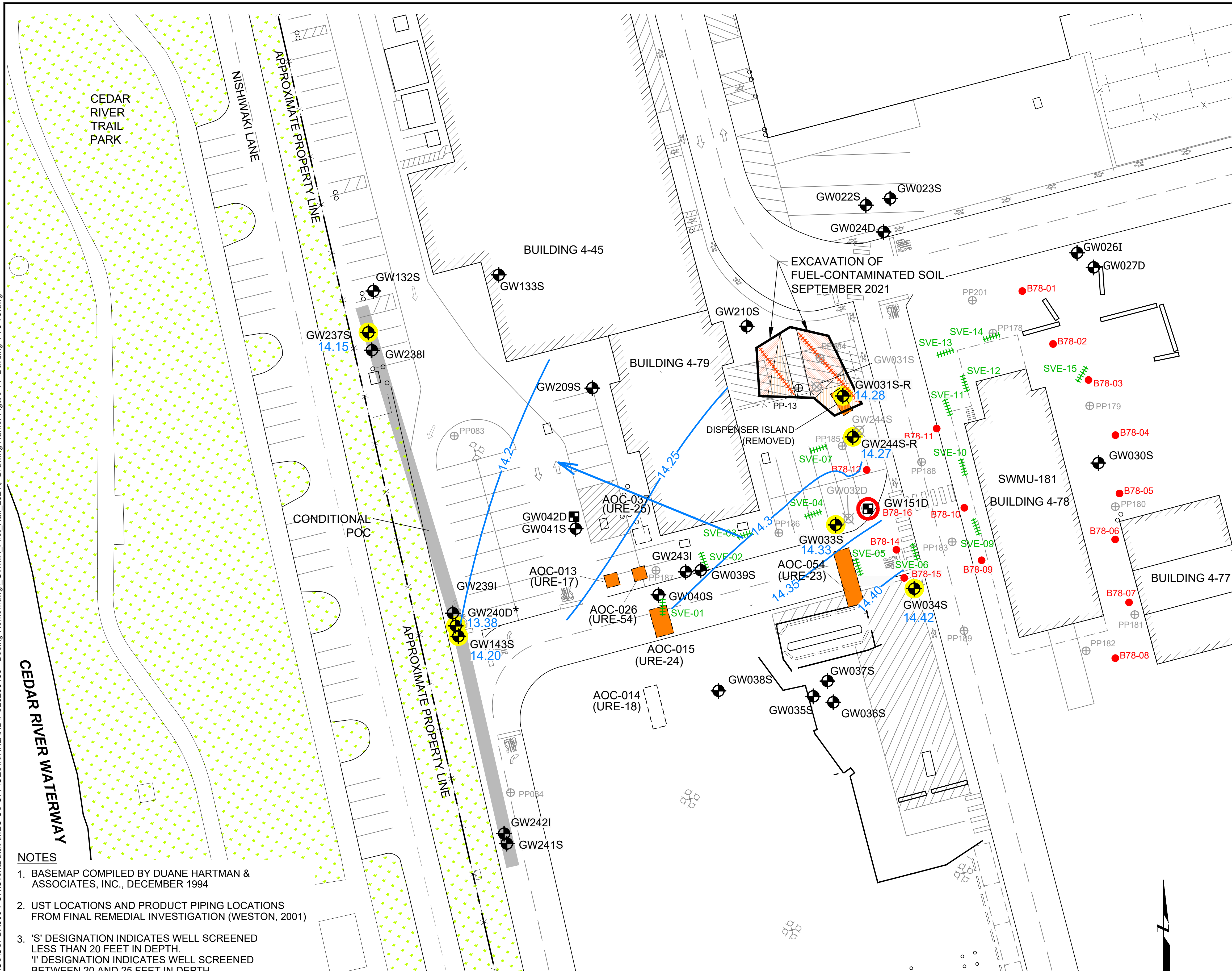


Lead

Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

wsp	SWMU-172 AND SWMU-174 TREND PLOTS FOR ARSENIC, COPPER AND LEAD IN CPOC AREA WELLS Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 10

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm



LEGEND

- GW033S 14.20 — MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
- NM — NOT MEASURED: SURVEY INFORMATION FOR REPLACEMENT WELLS NOT YET AVAILABLE.
- * — WELL SCREENED IN LOWER PORTION OF AQUIFER, SO WATER LEVEL IS NOT USED FOR CONTOURING.
- 14.30 — GROUNDWATER ELEVATION CONTOUR (IN FEET) (DASHED WHERE INFERRED)
- GENERAL GROUNDWATER FLOW DIRECTION
- GW042D — EXTRACTION WELL
- GW032D — DECOMMISSIONED MONITORING WELL
- SVE-15 — HORIZONTAL SVE WELL
- HORIZONTAL BIOREMEDIATION INJECTION WELL
- B78-12 — BIOREMEDIATION INJECTION WELL
- EXTRACTION WELL CONVERTED TO INJECTION WELL
- PP083 — PUSH-PROBE SAMPLE LOCATION
- x — FENCE
- APPROXIMATE FUEL AND NON-CHLORINATED VOC SOURCE AREAS
- REMOVED UST (WESTON, 2001)
- CONDITIONAL POINT OF COMPLIANCE
- HIGHLIGHTED WELLS INCLUDED IN MONITORING NETWORK

NOTES

1. BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER 1994
2. UST LOCATIONS AND PRODUCT PIPING LOCATIONS FROM FINAL REMEDIAL INVESTIGATION (WESTON, 2001)
3. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 20 FEET IN DEPTH.
'I' DESIGNATION INDICATES WELL SCREENED BETWEEN 20 AND 25 FEET IN DEPTH.
'D' DESIGNATION INDICATES WELL SCREENED GREATER THAN 25 FEET IN DEPTH.
4. THE GROUNDWATER FLOW DIRECTION SHOWN IS BASED ON HISTORICAL GROUNDWATER DATA.

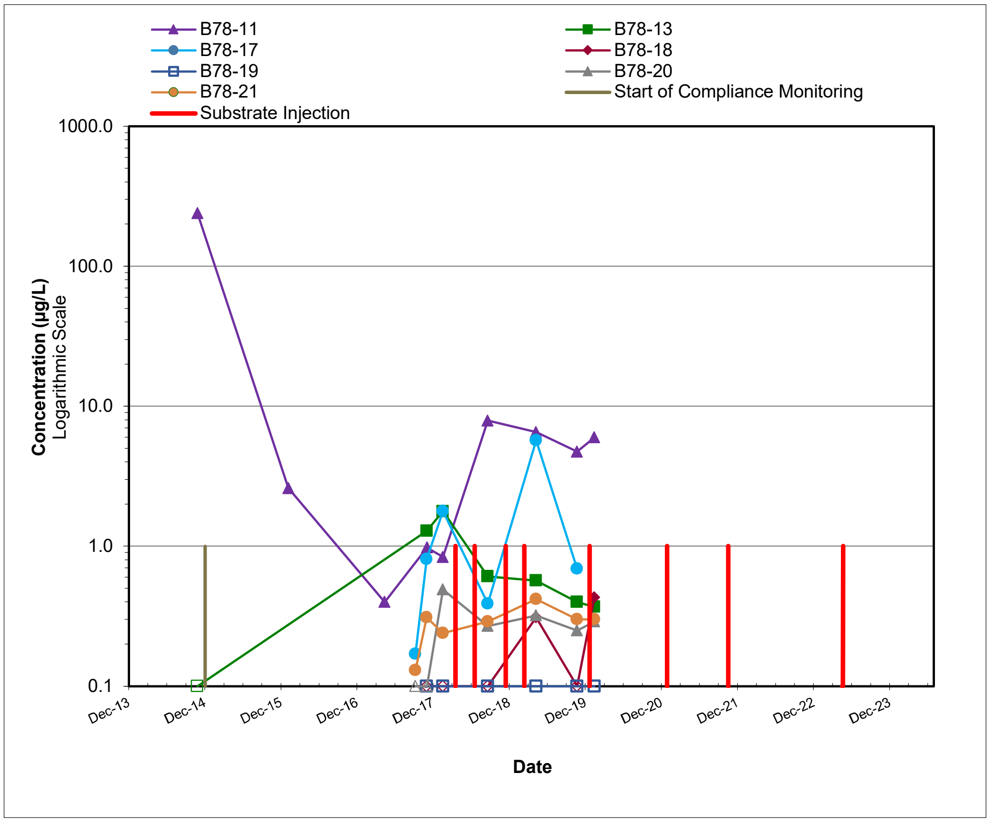
BOEING

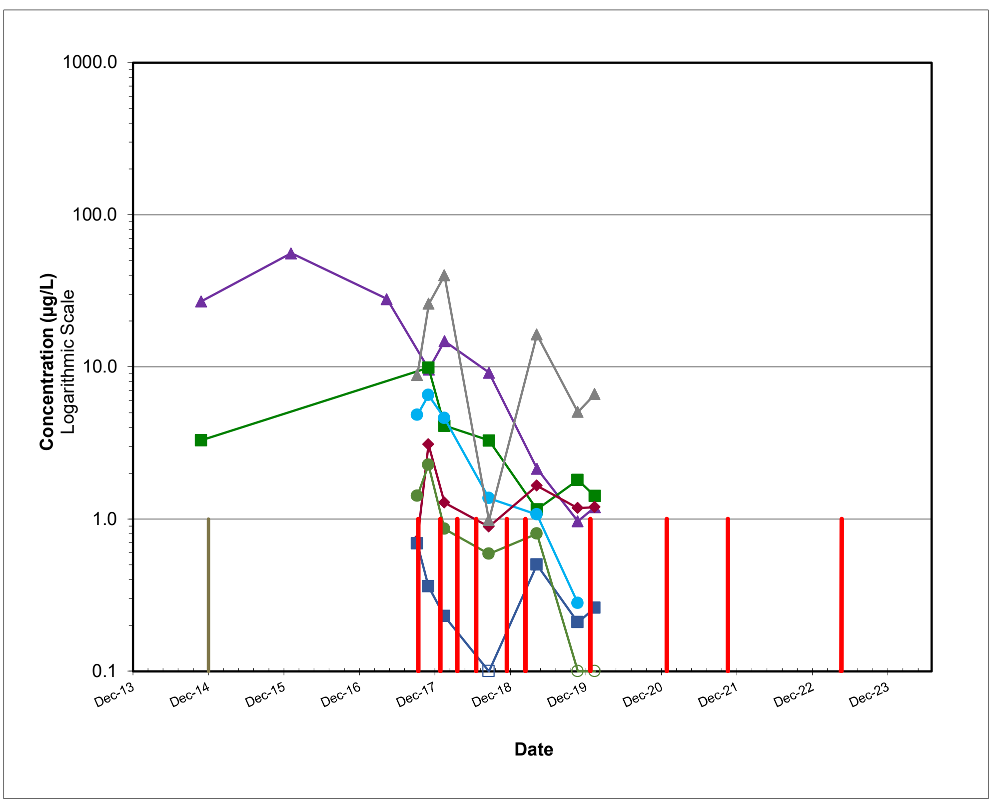
BUILDING 4-78/79 SWMU/AOC GROUP MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATIONS JANUARY 30, FEBRUARY 5 & 6, 2024

Boeing Renton Facility
Renton, Washington

By: SD	Date: 04/16/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 11

Plot Date: 04/16/24 - 3:48pm, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2024\, Drawing Name: Figure 11 -Building 4-78-79.dwg



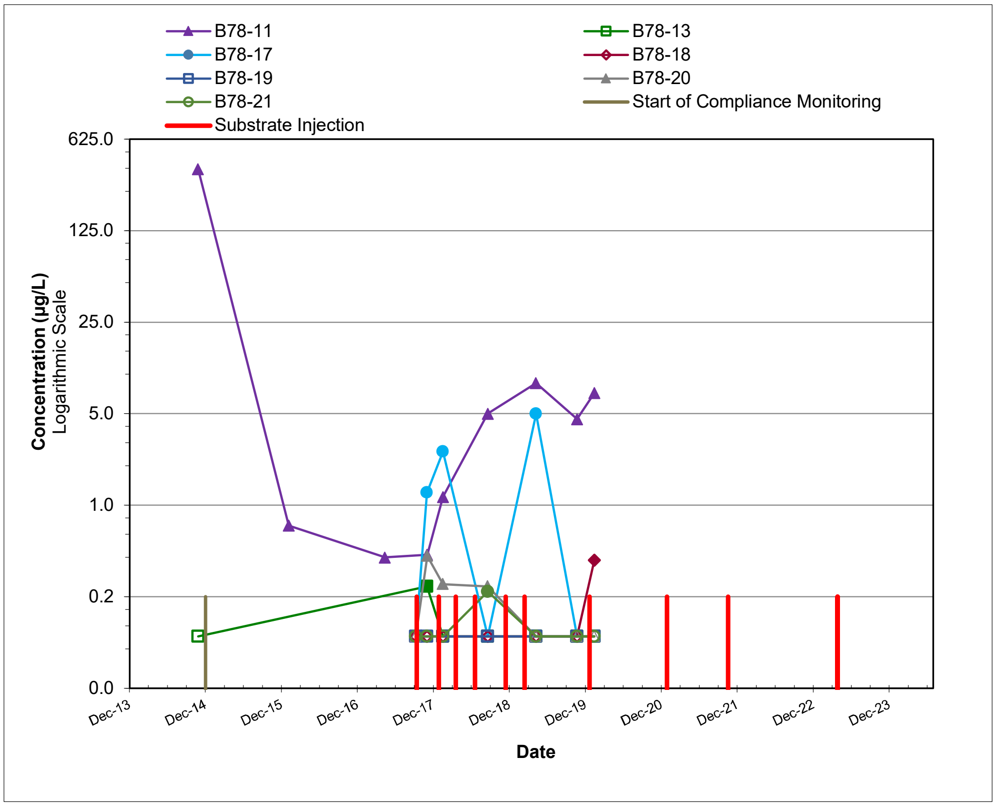


Benzene

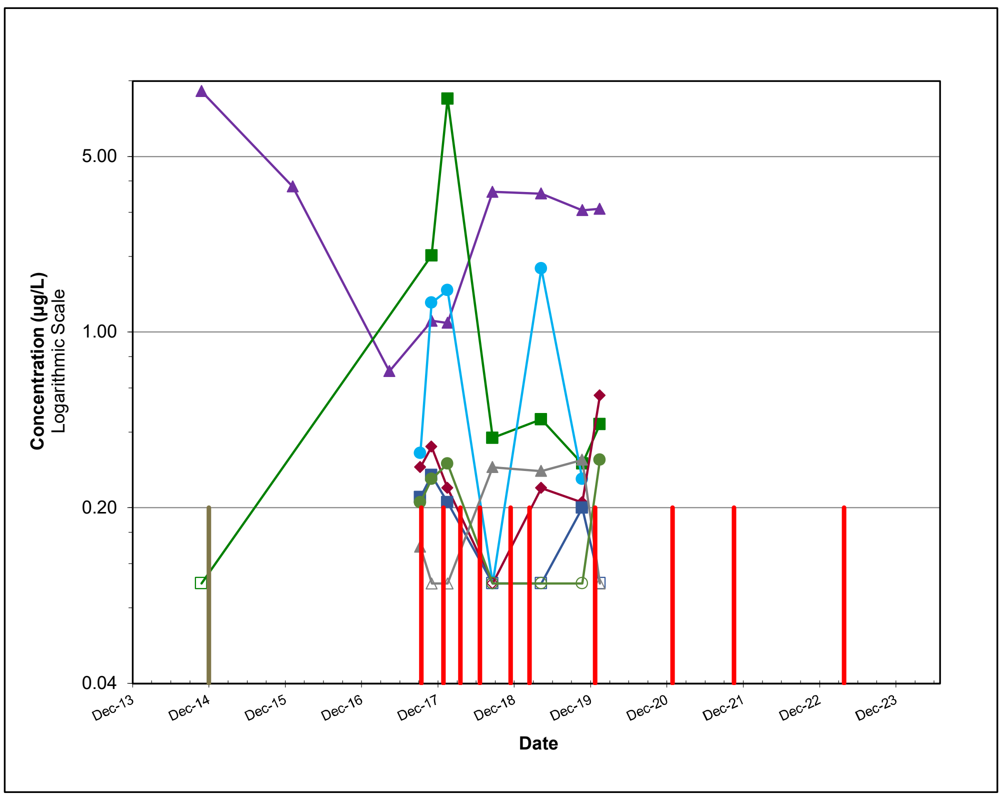
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37)_RLV_new_wells_20240416.xlsm

wsp	BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS FOR CIS-1,2-DICHLOROETHENE AND BENZENE IN INJECTION WELLS Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 12



TCE



VC

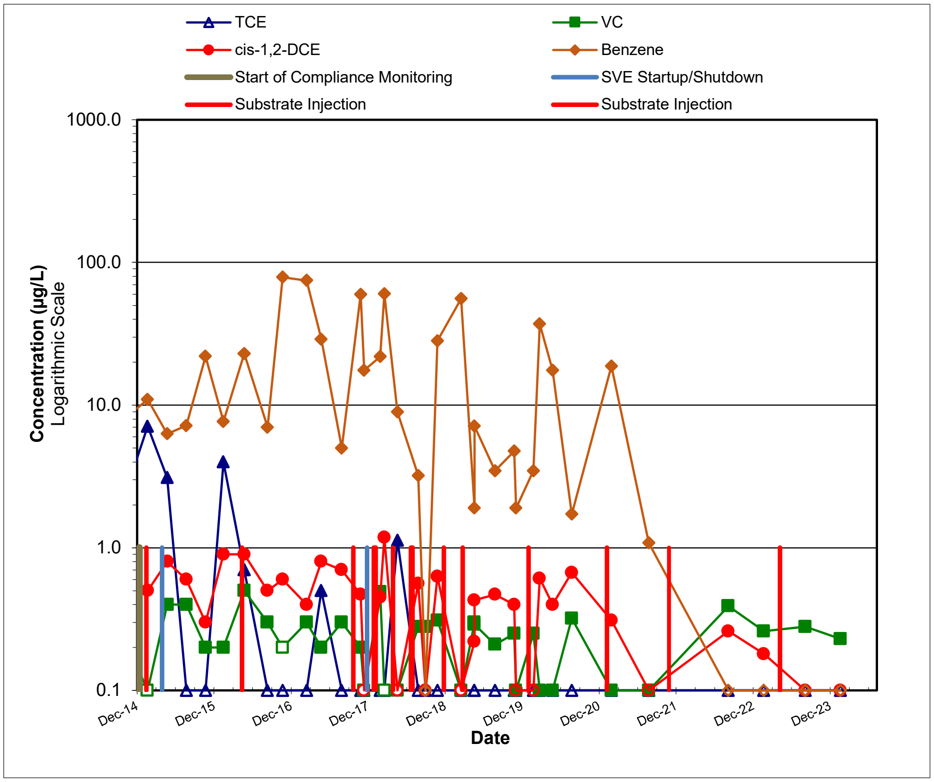
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm

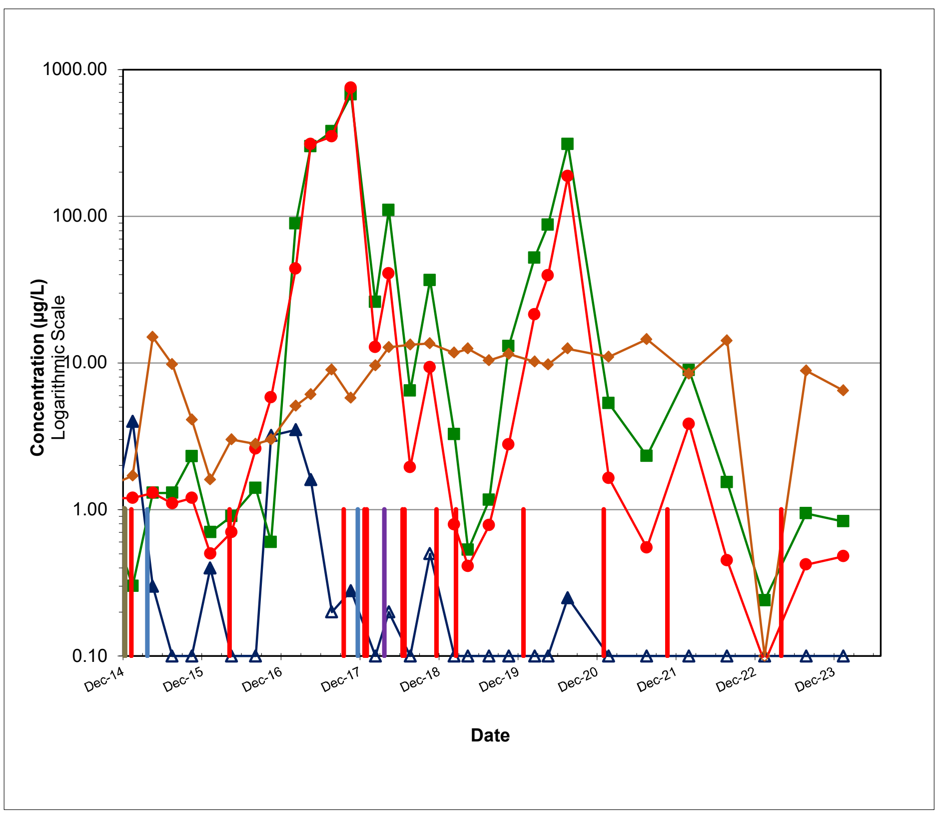
BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS FOR TRICHLOROETHENE AND VINYL CHLORIDE IN INJECTION WELLS
Boeing Renton Facility, Renton, Washington

Project No. PS20203450

Figure 13



SOURCE AREA WELL GW031S

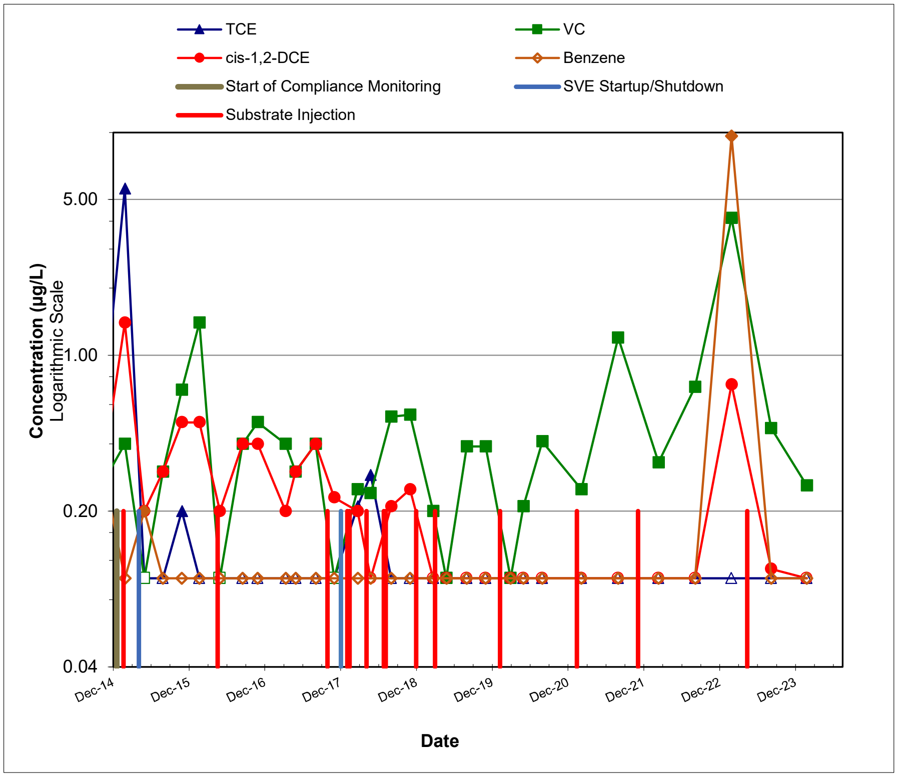


SOURCE AREA WELL GW033S

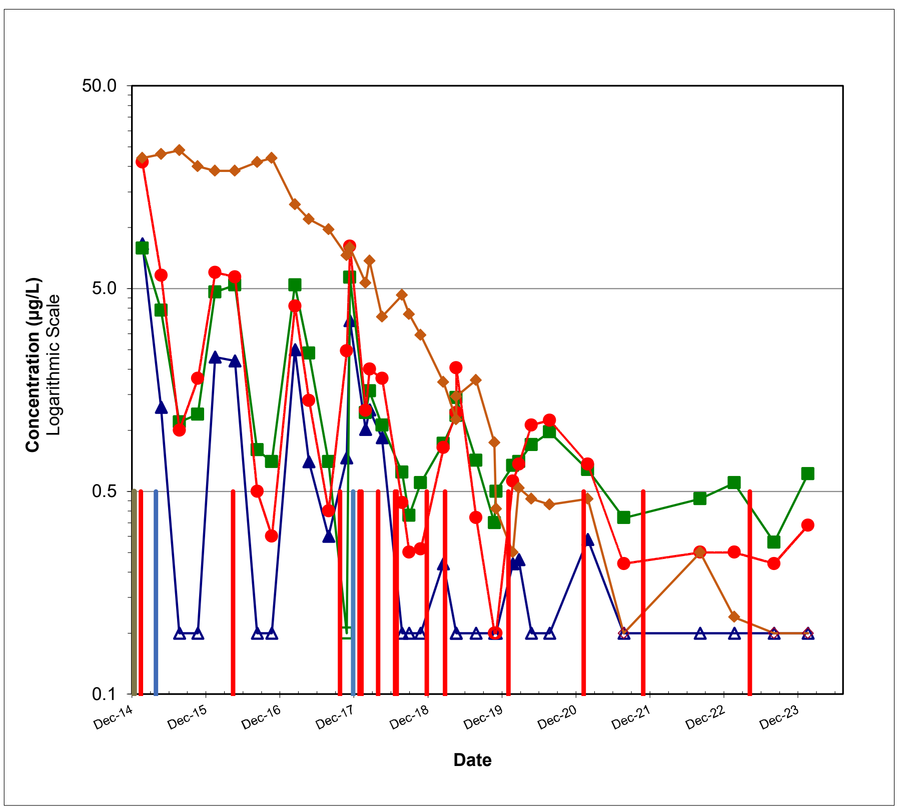
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

wsp	BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS FOR SOURCE AREA WELLS GW031S AND GW033S Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 14

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm



SOURCE AREA WELL GW034S

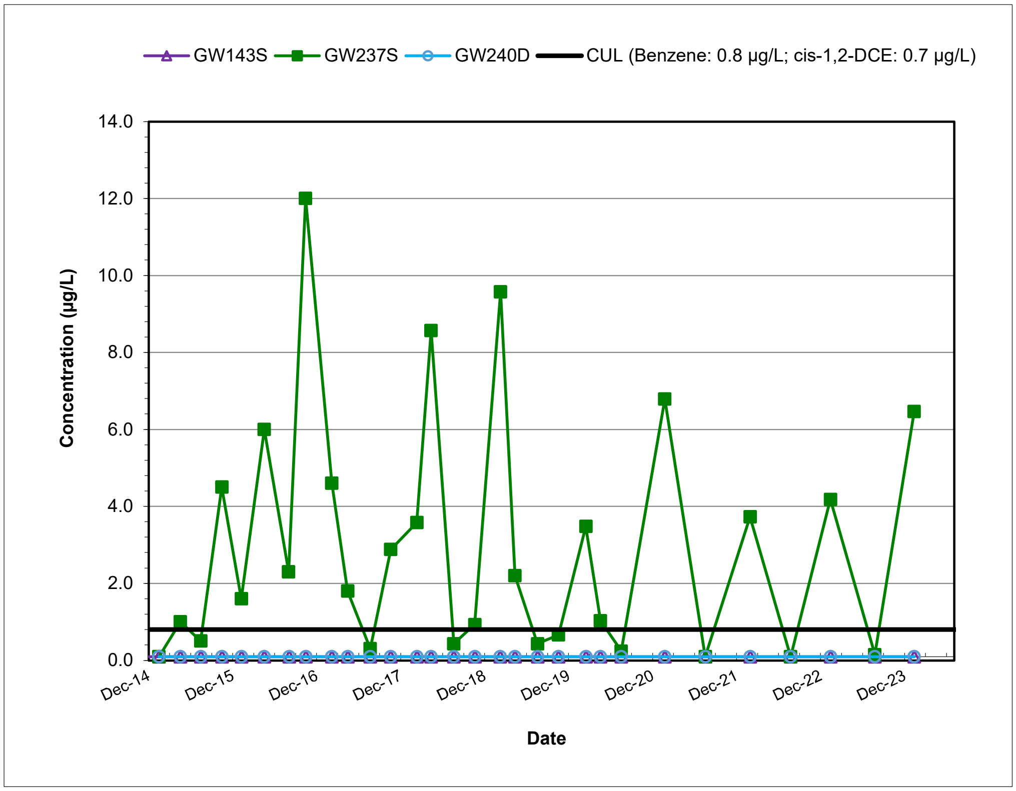


SOURCE AREA WELL GW244S

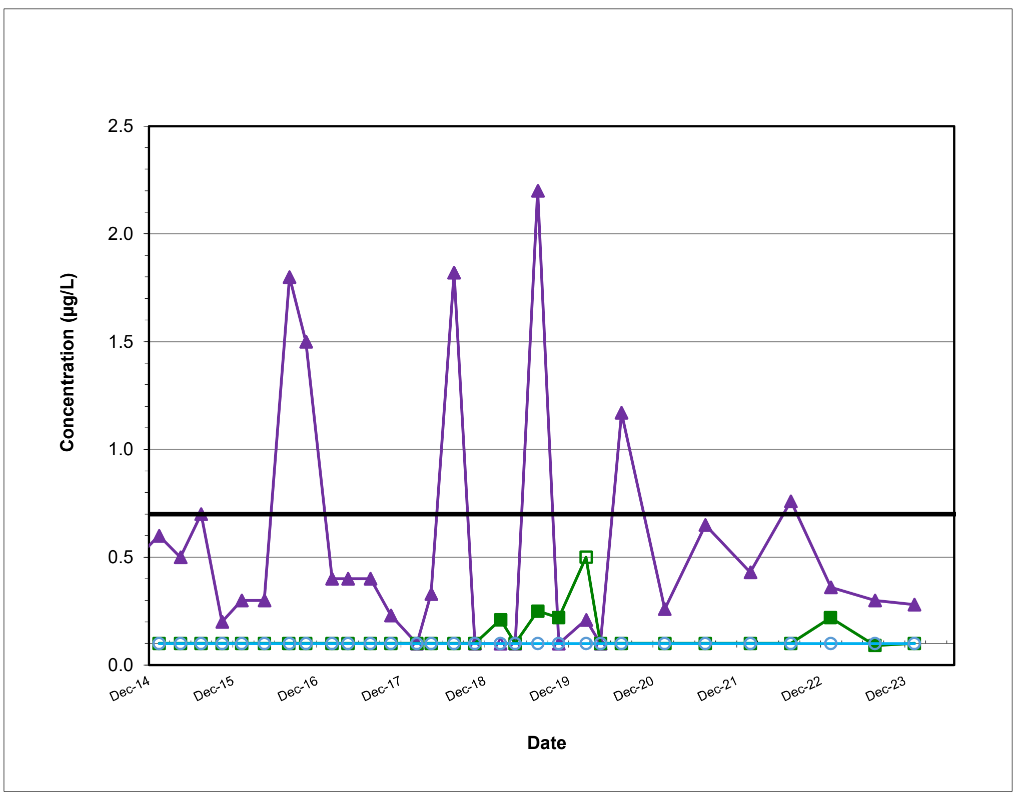
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm

wsp	BLDG 4-78/79 SWMU/AOC GROUP TREND PLOTS FOR SOURCE AREA WELLS GW034S AND GW244S Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 15



Benzene

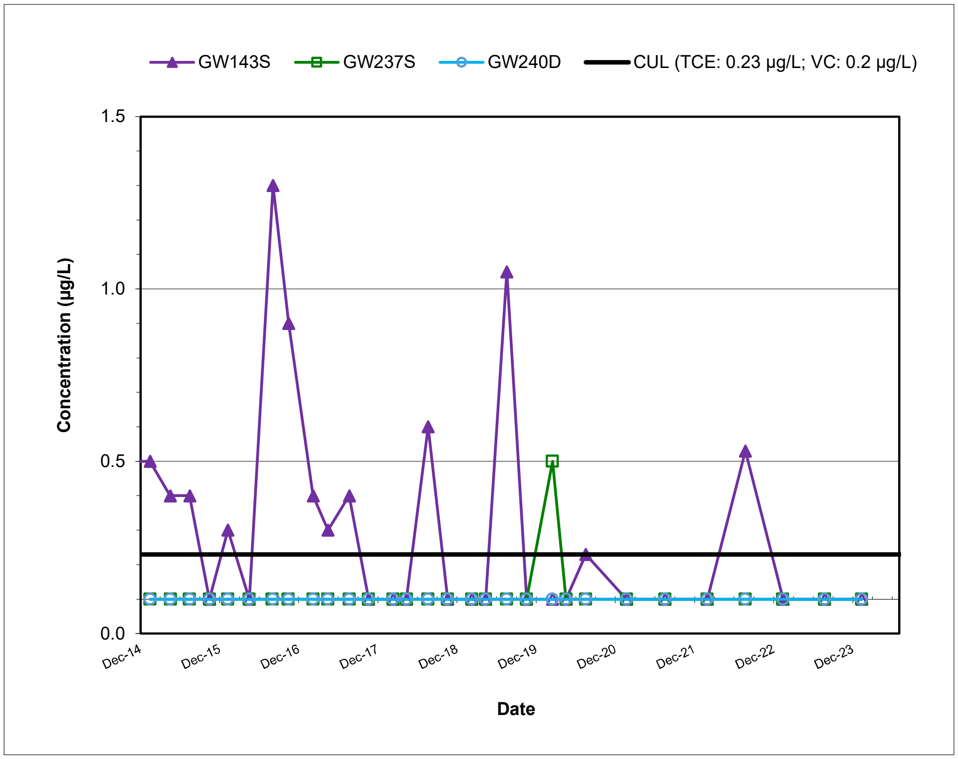


cis-1,2-DCE

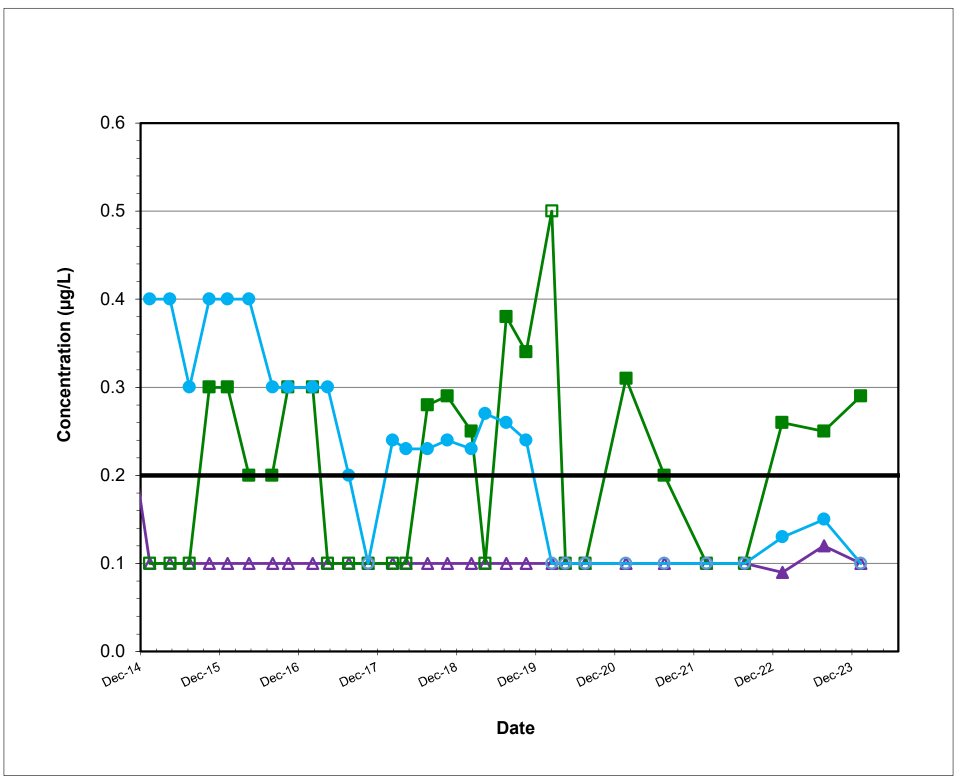
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

wsp	BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS FOR BENZENE AND CIS-1,2-DICHLOROETHENE IN CPOC AREA WELLS Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 16

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37)_RLV_new_wells_20240416.xlsm



TCE

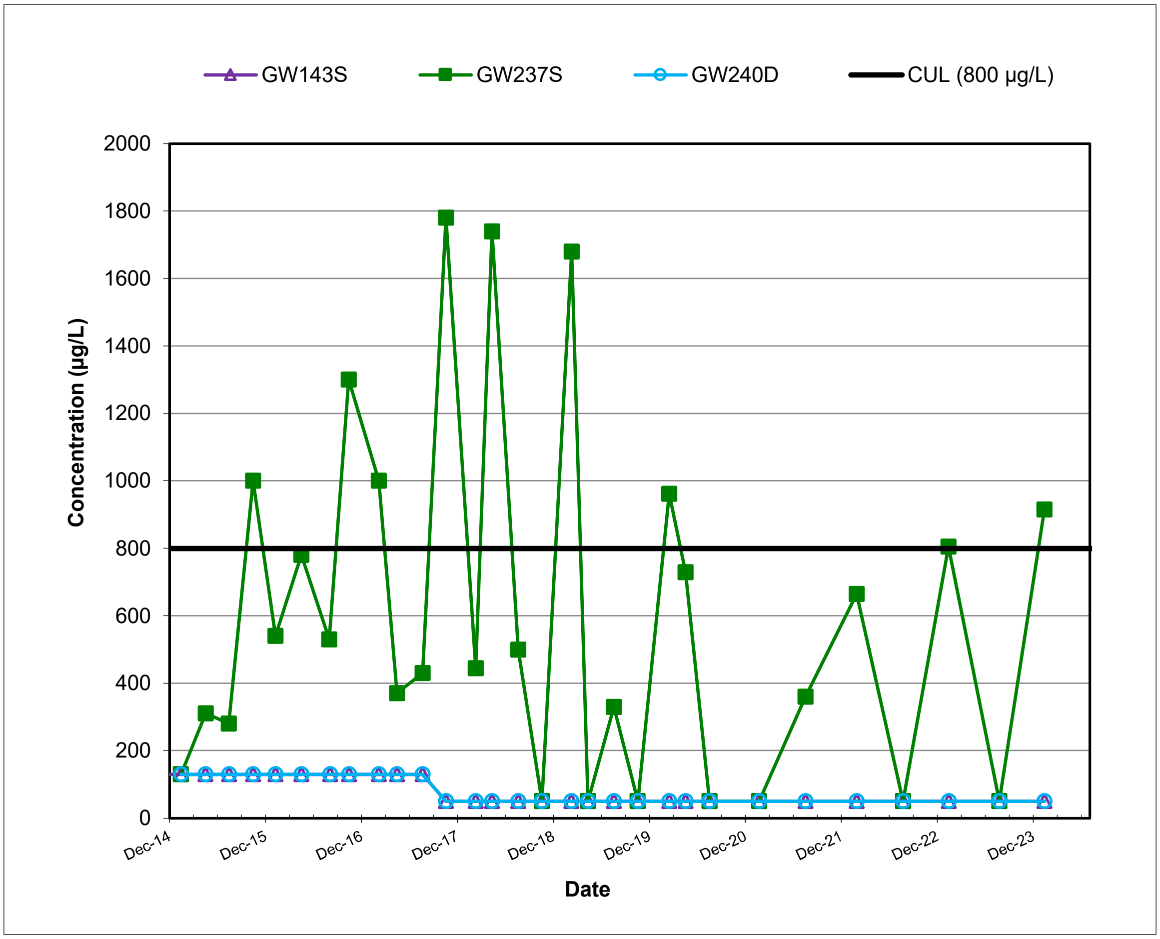


VC

Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

wsp	BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS FOR TRICHLOROETHENE AND VINYL CHLORIDE IN CPOC AREA WELLS Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 17

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm

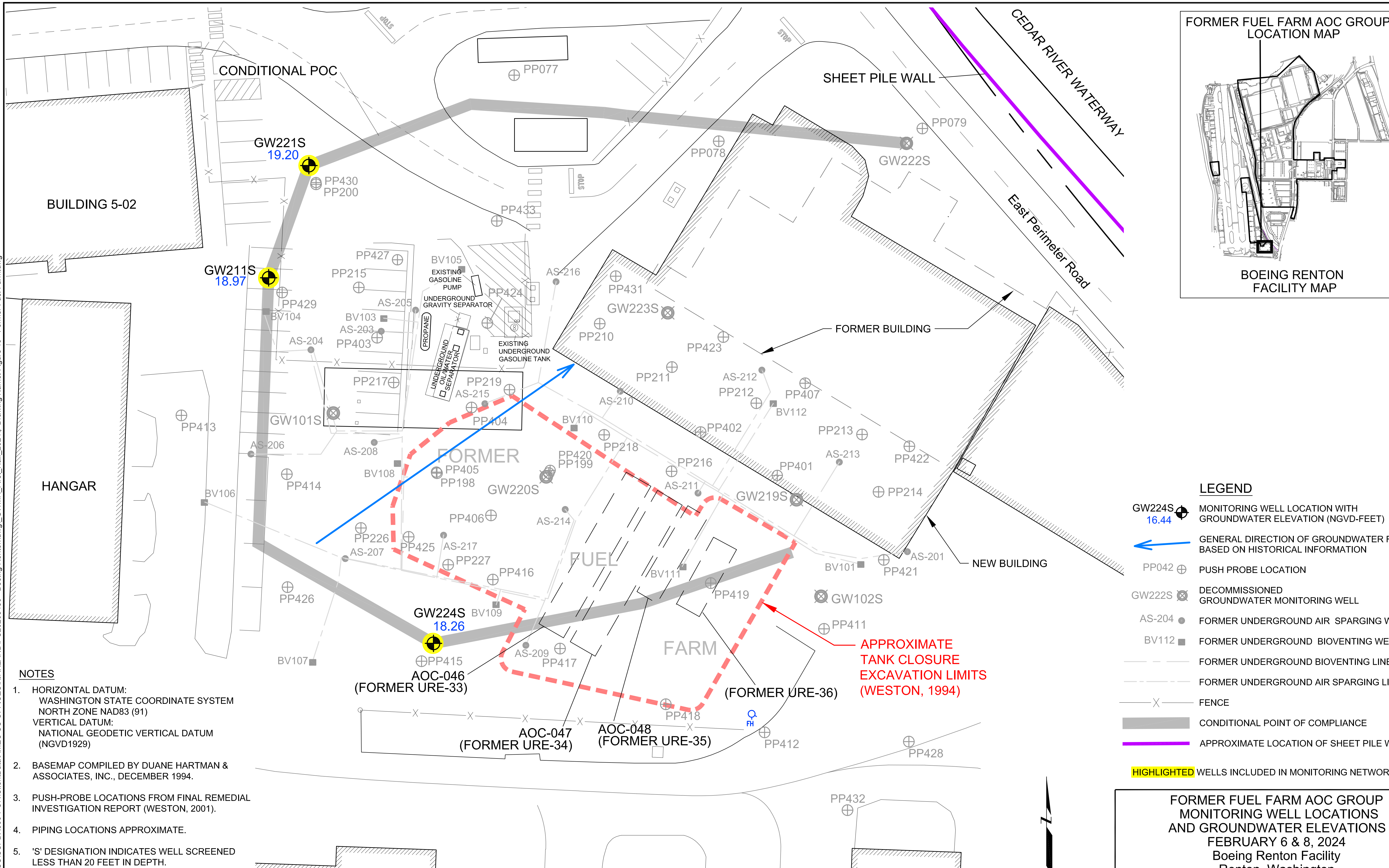


TPH as Gasoline

Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

wsp	BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS FOR TPH AS GASOLINE IN CPOC AREA WELLS Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 18

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures



NOTES

1. HORIZONTAL DATUM:
   WASHINGTON STATE COORDINATE SYSTEM
   NORTH ZONE NAD83 (91)
   VERTICAL DATUM:
   NATIONAL GEODETIC VERTICAL DATUM
   (NGVD1929)
2. BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER 1994.
3. PUSH-PROBE LOCATIONS FROM FINAL REMEDIAL INVESTIGATION REPORT (WESTON, 2001).
4. PIPING LOCATIONS APPROXIMATE.
5. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 20 FEET IN DEPTH. 'I' DESIGNATION INDICATES WELL SCREENED GREATER THAN 20 FEET IN DEPTH.
6. THE GROUNDWATER FLOW DIRECTION SHOWN IS BASED ON HISTORICAL GROUNDWATER DATA.

LEGEND

GW224S 16.44	MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
	GENERAL DIRECTION OF GROUNDWATER FLOW BASED ON HISTORICAL INFORMATION
PP042	PUSH PROBE LOCATION
GW222S	DECOMMISSIONED GROUNDWATER MONITORING WELL
AS-204	FORMER UNDERGROUND AIR SPARGING WELL
BV112	FORMER UNDERGROUND BIOVENTING WELL
	FORMER UNDERGROUND BIOVENTING LINE
	FORMER UNDERGROUND AIR SPARGING LINE
X	FENCE
	CONDITIONAL POINT OF COMPLIANCE
	APPROXIMATE LOCATION OF SHEET PILE WALL

HIGHLIGHTED WELLS INCLUDED IN MONITORING NETWORK

FORMER FUEL FARM AOC GROUP
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
FEBRUARY 6 & 8, 2024
Boeing Renton Facility
Renton, Washington

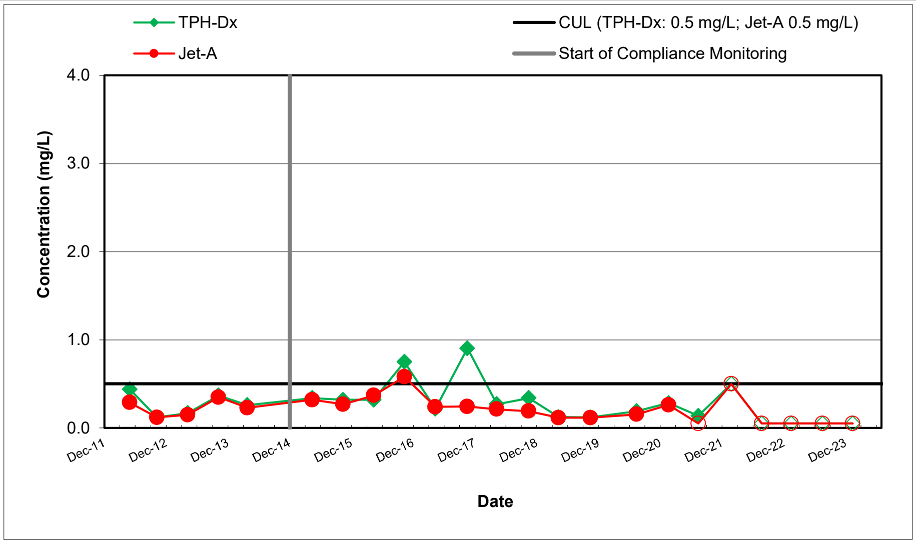
By: SD | Date: 05/22/24 | Project No. PS24206850

WSP USA
Environment & Infrastructure Inc.

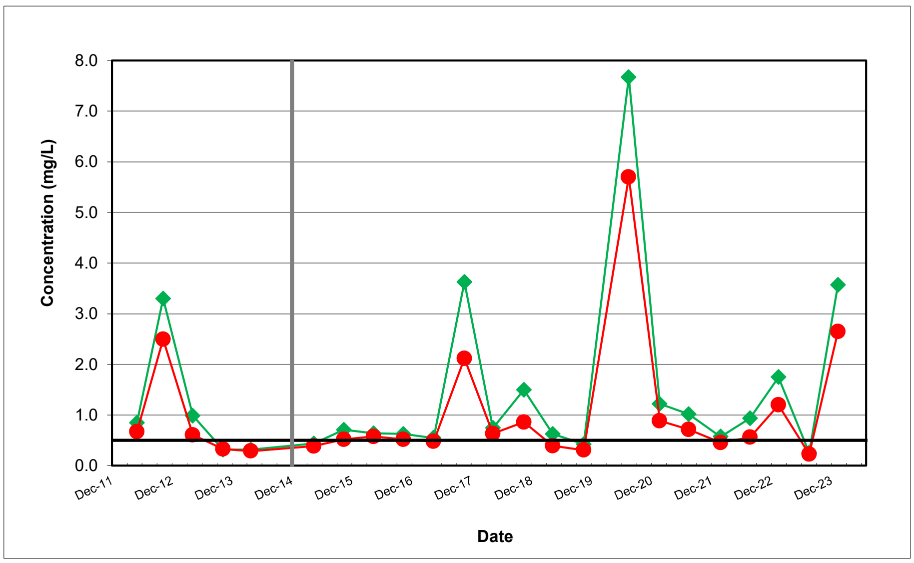
Figure 19

BOEING

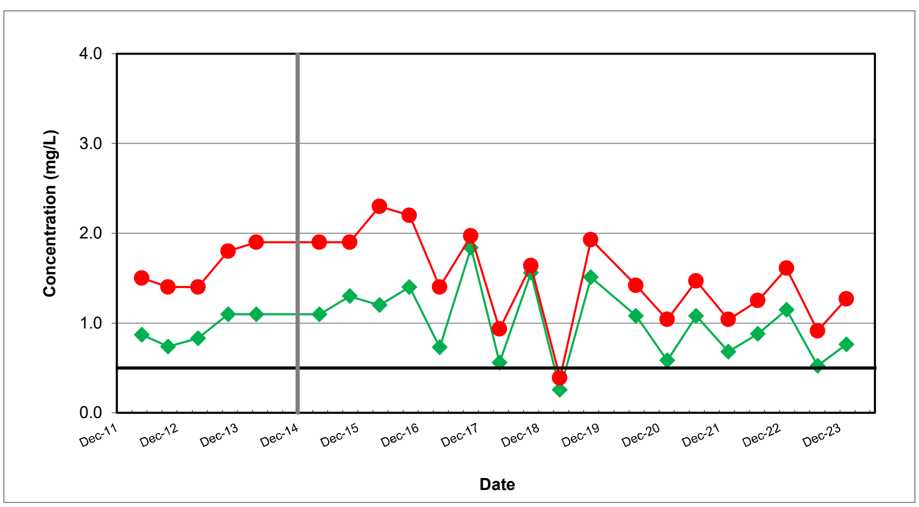
Plot Date: 05/22/24 - 10:19am, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2024\, Drawing Name: Figure 19 - Former Fuel Farm.dwg



CPOC WELL GW211S



CPOC WELL GW221S

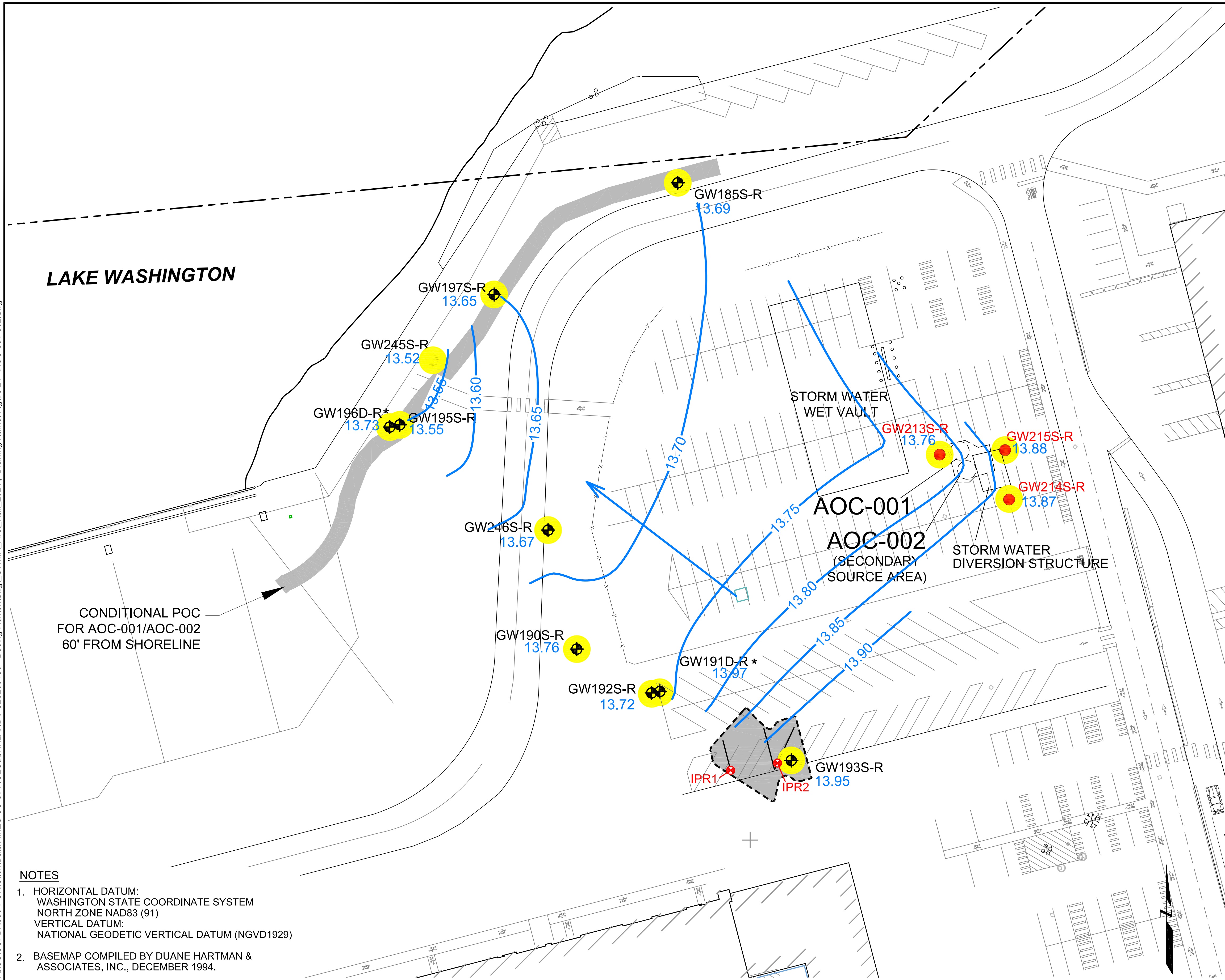


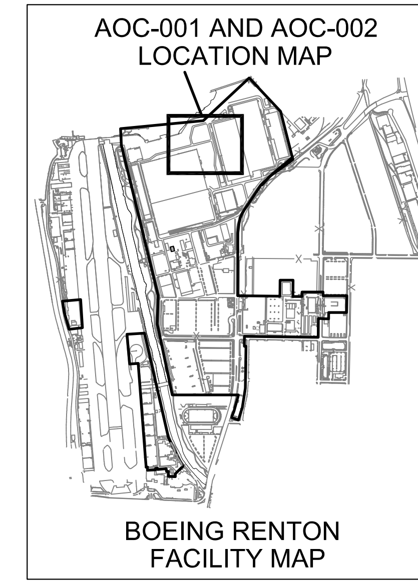
CPOC WELL GW224S

Note: Non-detected values shown at one-half the reporting limit and with an open symbol. Reporting limits were elevated for February 2022 results in GW211S.

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm

wsp	FORMER FUEL FARM AOC GROUP TREND PLOTS FOR CPOC AREA WELLS GW211S, GW221S, AND GW224S Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 20





LEGEND

- GW195S 13.92 — MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
- * — WELL SCREENED IN LOWER PORTION OF AQUIFER, SO WATER LEVEL IS NOT USED FOR CONTOURING.
- 14.1 — GROUNDWATER ELEVATION CONTOUR (IN FEET) (DASHED WHERE INFERRED)
- GENERAL GROUNDWATER FLOW DIRECTION
- GW215S — EXISTING ELECTRON DONOR INJECTION WELL
- IPR1 — EXISTING INJECTION PIPE RISER
- APPROXIMATE PROPERTY LINE
- FENCE LINE
- APPROXIMATE LIMIT OF NOVEMBER 2005 SOURCE AREA EXCAVATION
- AOC-001, AOC-002 CONDITIONAL POINT OF COMPLIANCE
- HIGHLIGHTED WELLS INCLUDED IN MONITORING NETWORK

NOTES

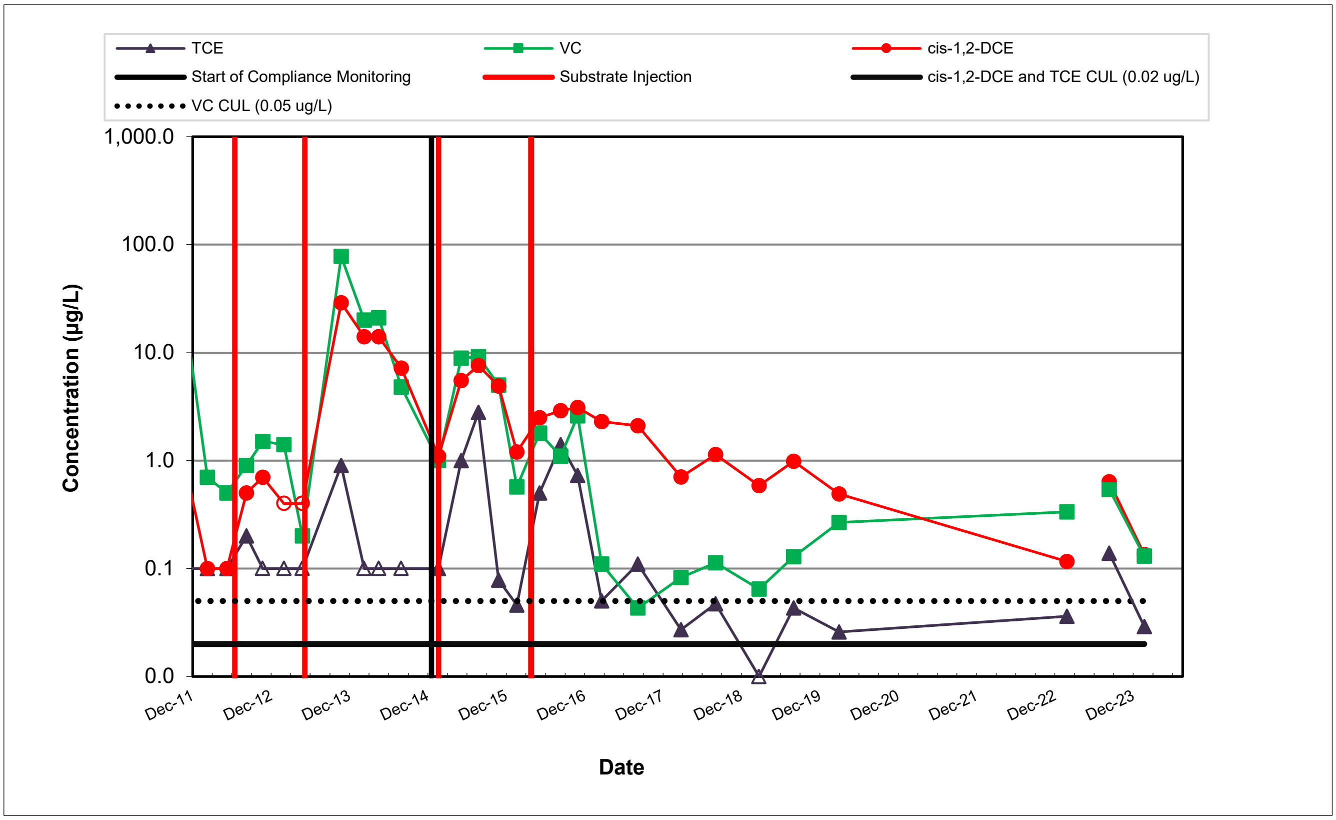
1. HORIZONTAL DATUM:
   WASHINGTON STATE COORDINATE SYSTEM
   NORTH ZONE NAD83 (91)
   VERTICAL DATUM:
   NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
2. BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER 1994.
3. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 25 FEET IN DEPTH.
   'D' DESIGNATION INDICATES WELL SCREENED GREATER THAN 25 FEET IN DEPTH.

BOEING

AOC-001 AND AOC-002
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
JANUARY 31, FEBRUARY 1 & 2, 2024
Boeing Renton Facility
Renton, Washington

By: SD	Date: 05/22/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 21

Plot Date: 05/22/24 - 10:22am, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2024\, Drawing Name: Figure 21 - AOC-001-002.dwg

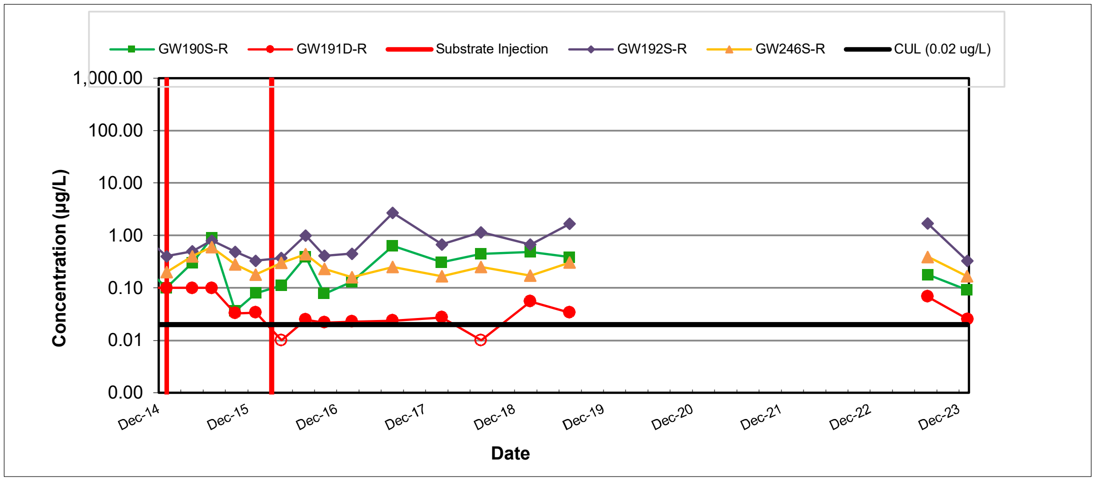


SOURCE AREA WELL GW193S-R

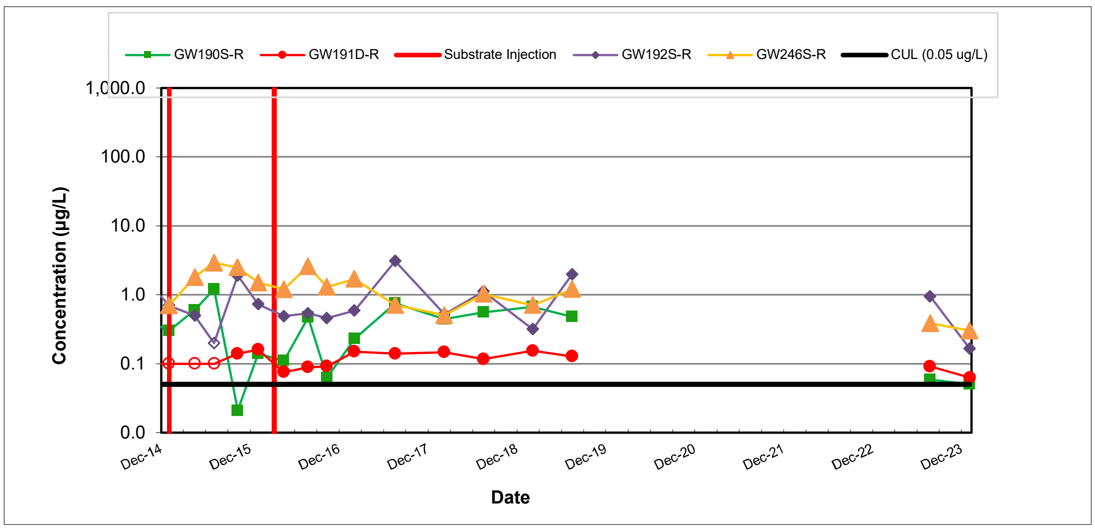
Note: non-detected values shown at one-half the reporting limit and are graphed with an open symbol. This well was replaced in July 2023; results from the new well are shown separated from original well results.

wsp	AOC-001 AND -002 TREND PLOT FOR SOURCE AREA WELL GW193S Boeing Renton Facility Renton, Washington	Project No. 8888 Figure 22

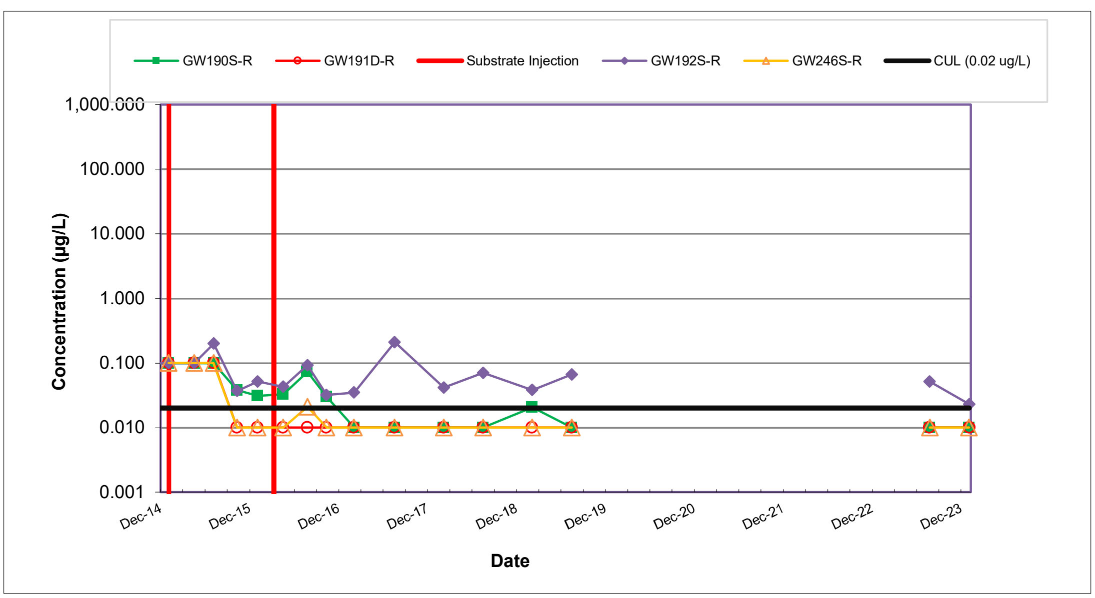
X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\



cis-1,2-DCE



VC

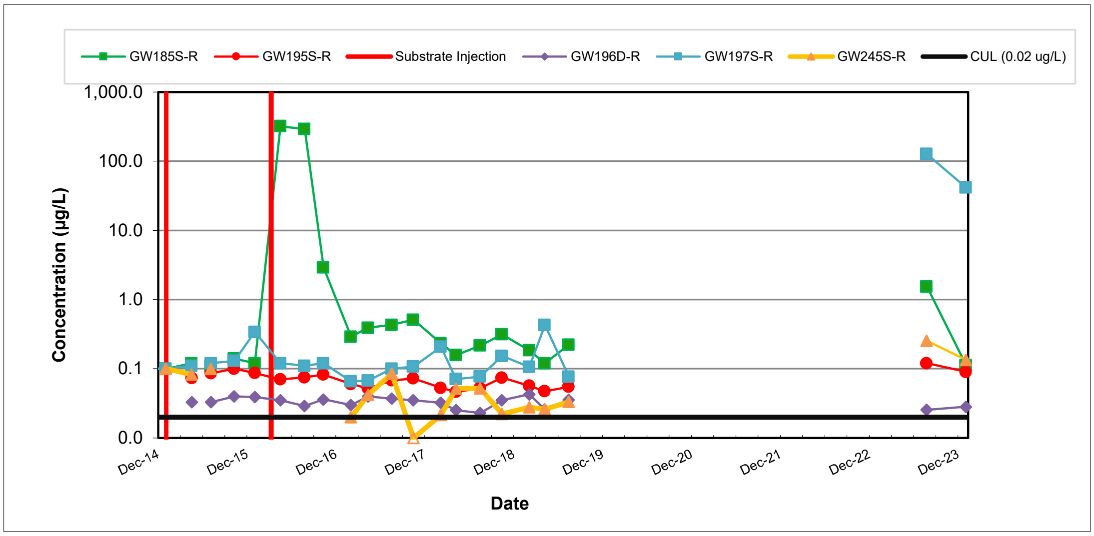


TCE

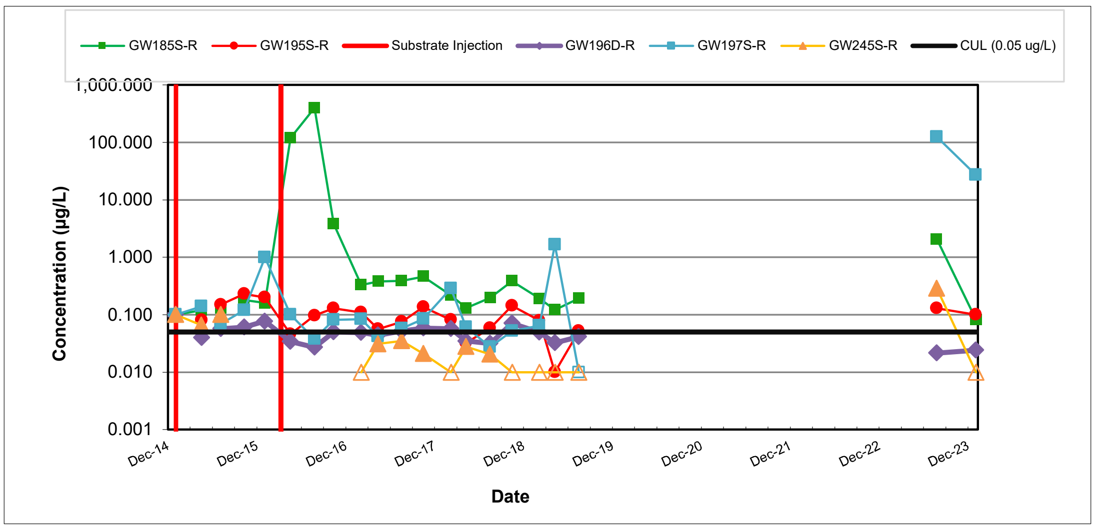
Note: non-detected values shown at one-half the reporting limit and graphed with an open symbol. Wells in this area were replaced in July 2023; results from the new wells are shown separated from original well results.

wsp	AOC-001 AND -002 TREND PLOTS FOR CIS-1,2-DICHLOROETHENE, TRICHLOROETHENE, AND VINYL CHLORIDE IN DOWNGRADIENT AREA WELLS Boeing Renton Facility Renton, Washington	Project No. 8888 Figure 23

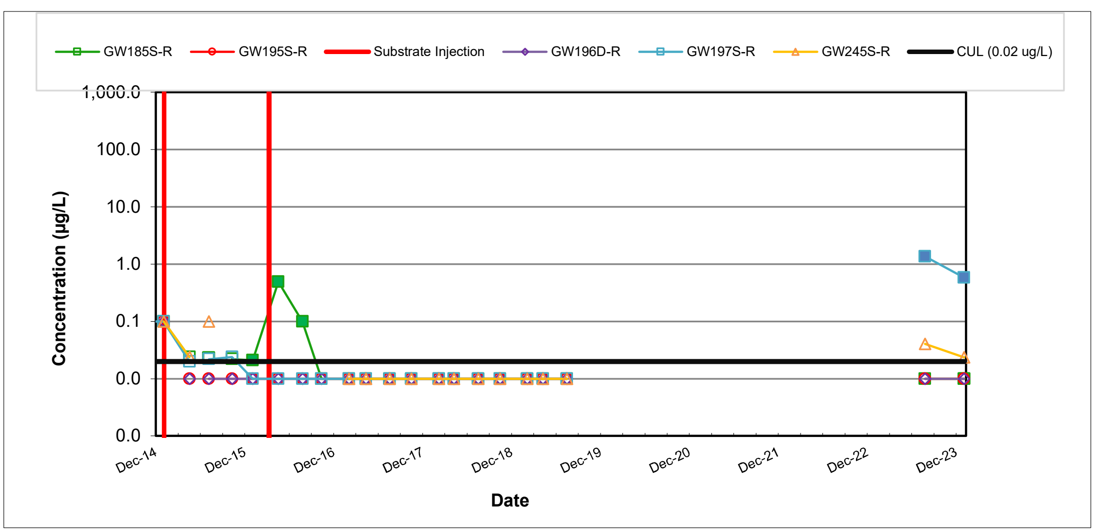
X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\AOC-001_-002_Figures (22-25)_RLV_reshaped.xlsb



cis-1,2-DCE



VC

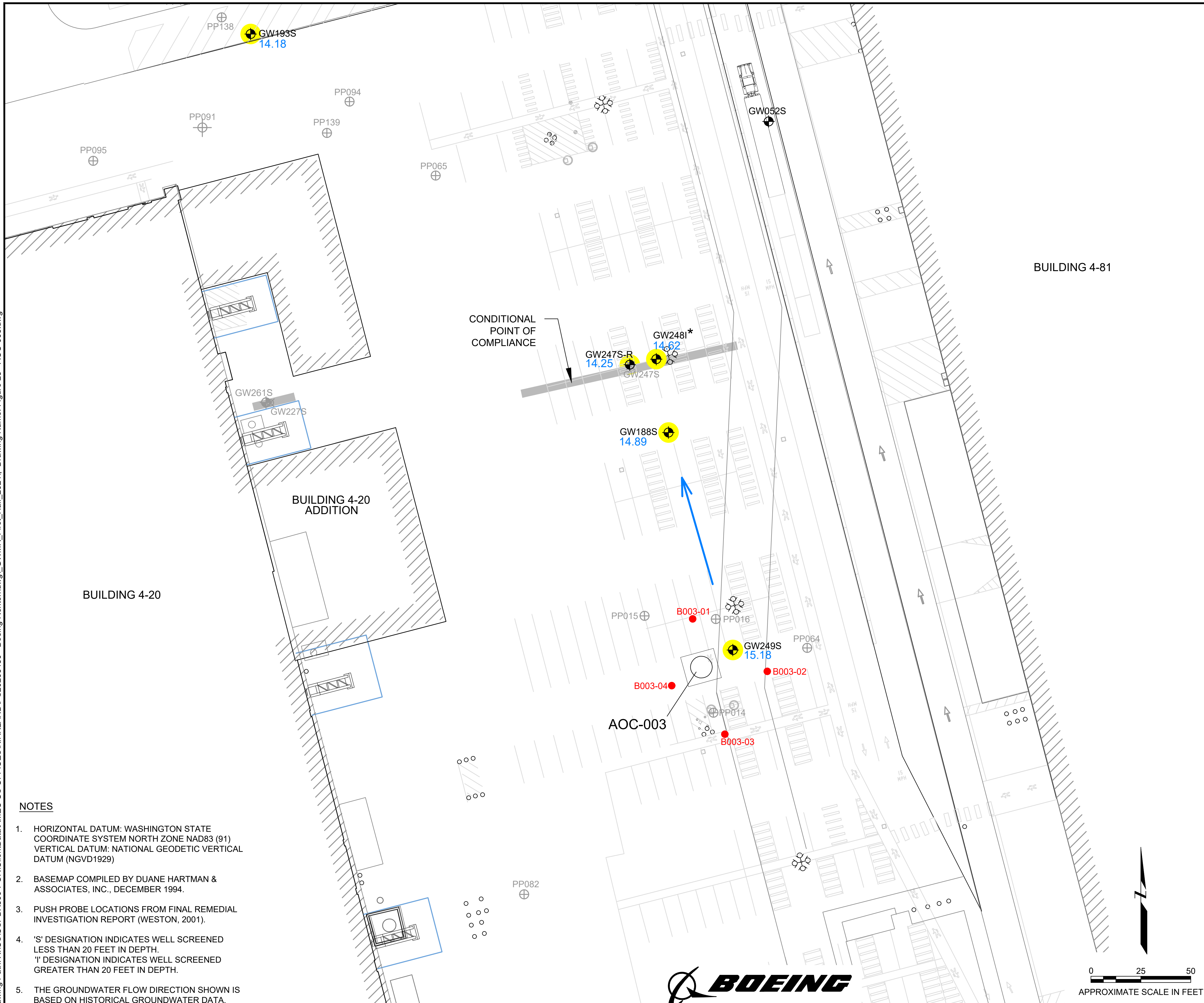


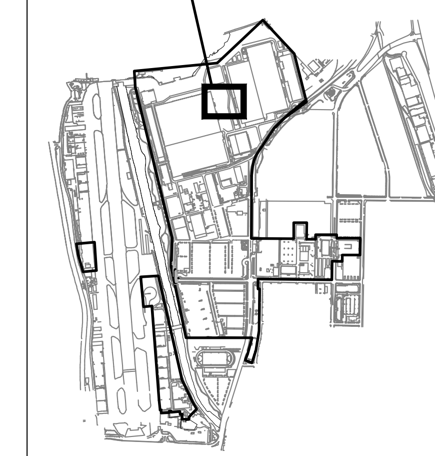
TCE

Note: non-detected values shown at one-half the reporting limit and graphed with an open symbol. Wells in this area were replaced in July 2023; results from the new wells are shown separated from original well results.

WSP	AOC-001 AND -002 TREND PLOTS FOR CIS-1,2-DICHLOROETHENE, TRICHLOROETHENE, AND VINYL CHLORIDE IN CPOC AREA WELLS Boeing Renton Facility Renton, Washington	Project No. 8888 Figure 24

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\AOC-001_-002_Figures (22-25)_RLV_reshaped.xlsb





LEGEND

- GW249S 16.52 — MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
- * — WELL SCREENED IN UPPER AND LOWER PORTION OF AQUIFER, SO WATER LEVEL IS NOT USED FOR CONTOURING.
- GENERAL DIRECTION OF GROUNDWATER FLOW BASED ON HISTORICAL INFORMATION
- CONDITIONAL POINT OF COMPLIANCE
- GW227S — DECOMMISSIONED MONITORING WELL
- B003-01 — BIOREMEDIATION INJECTION WELL
- PP011 — PUSH PROBE SAMPLING LOCATION
- HIGHLIGHTED WELLS INCLUDED IN MONITORING NETWORK

NOTES

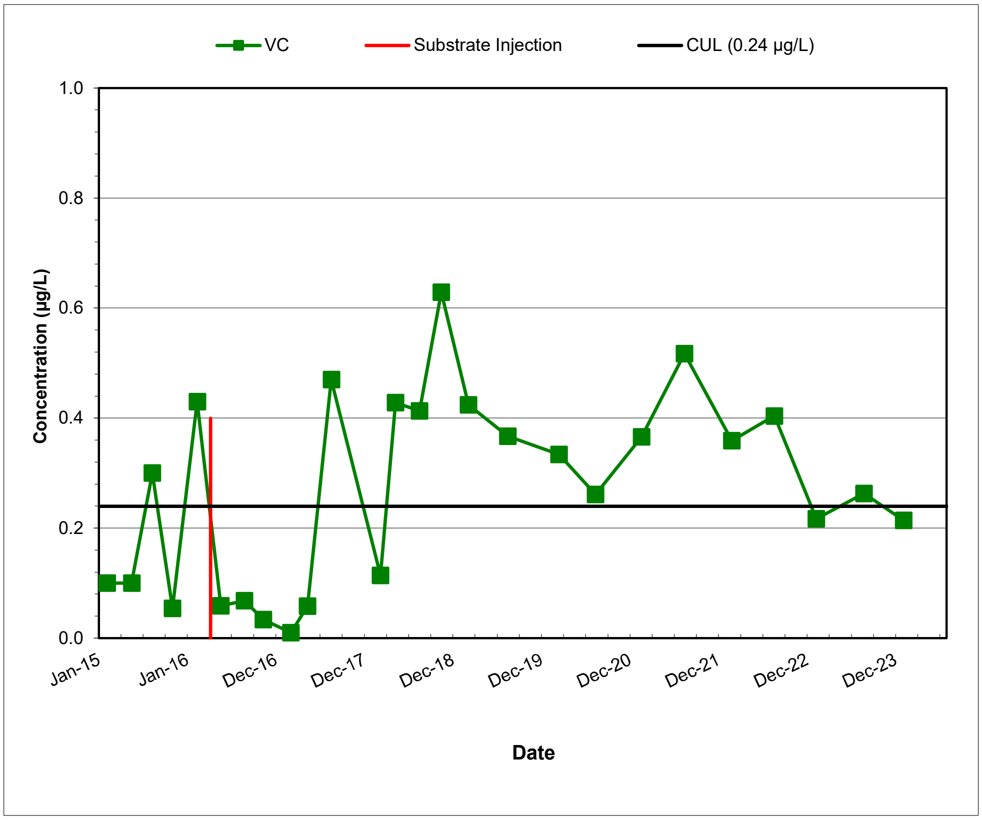
1. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE NAD83 (91) VERTICAL DATUM: NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
2. BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER 1994.
3. PUSH PROBE LOCATIONS FROM FINAL REMEDIAL INVESTIGATION REPORT (WESTON, 2001).
4. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 20 FEET IN DEPTH. 'I' DESIGNATION INDICATES WELL SCREENED GREATER THAN 20 FEET IN DEPTH.
5. THE GROUNDWATER FLOW DIRECTION SHOWN IS BASED ON HISTORICAL GROUNDWATER DATA.

BOEING

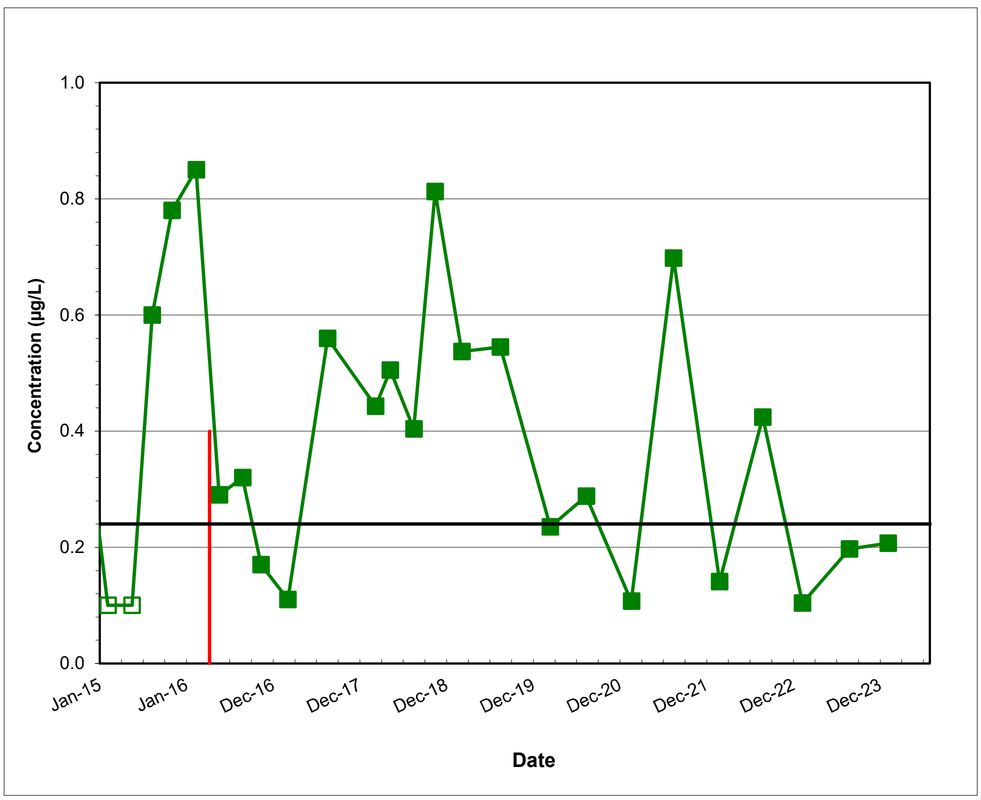
AOC-003
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
FEBRUARY 1 & 2, 2024
Boeing Renton Facility
Renton, Washington

By: SD	Date: 05/22/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 25

Plot Date: 05/22/24 - 10:25am, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2024\, Drawing Name: Figure 25 - AOC-003.dwg



SOURCE AREA WELL GW249S

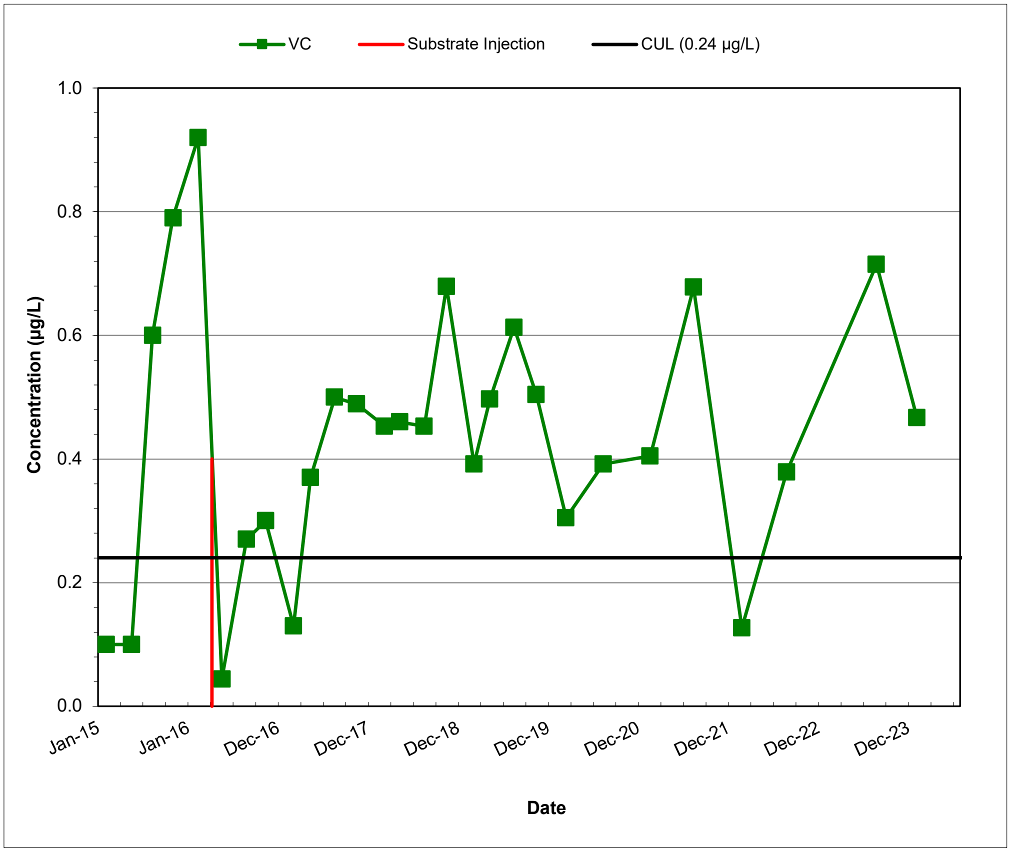


DOWNGRADIENT PLUME AREA WELL GW188S

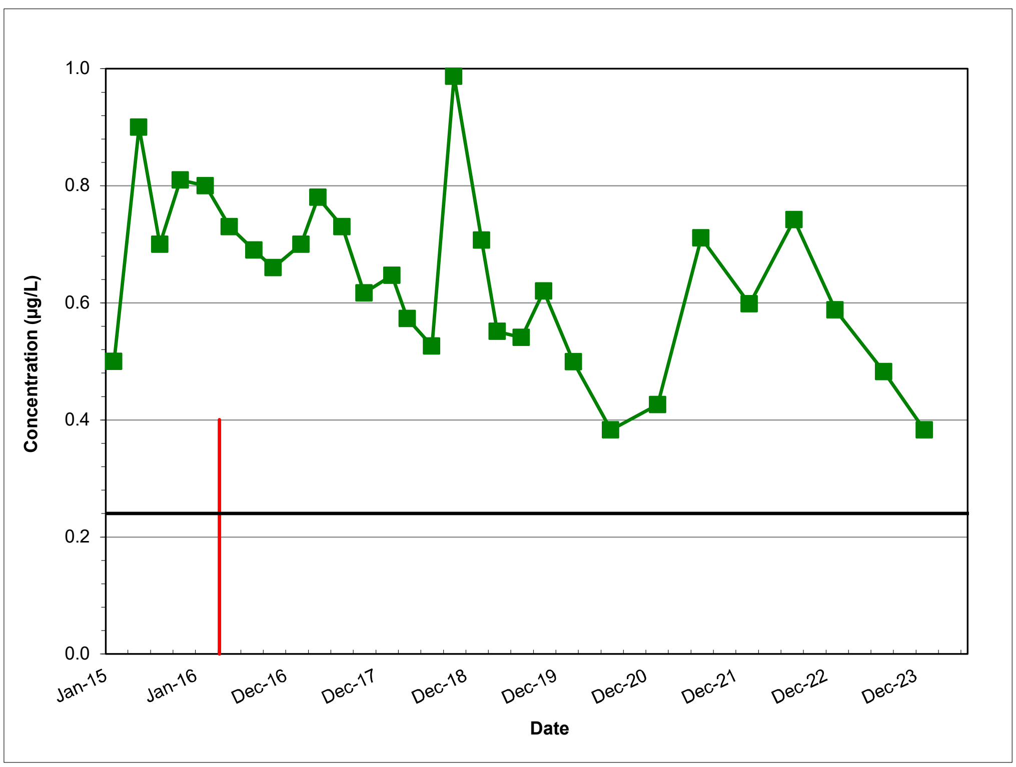
Note: Non-detected values shown at one-half the reporting limit and with an open symbol

wsp	AOC-003 TREND PLOTS FOR SOURCE AREA WELL GW249S AND DOWNGRADIENT PLUME AREA WELL GW188S Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 26

P:\8888 - Boeing Renton\9.0 Field & Lab Data Mgmt\Grapher and Excel Figure Files\excel\2022 Update\Figure 22 to 25_AOC 003-4.xlsx



CPOC WELL GW247S

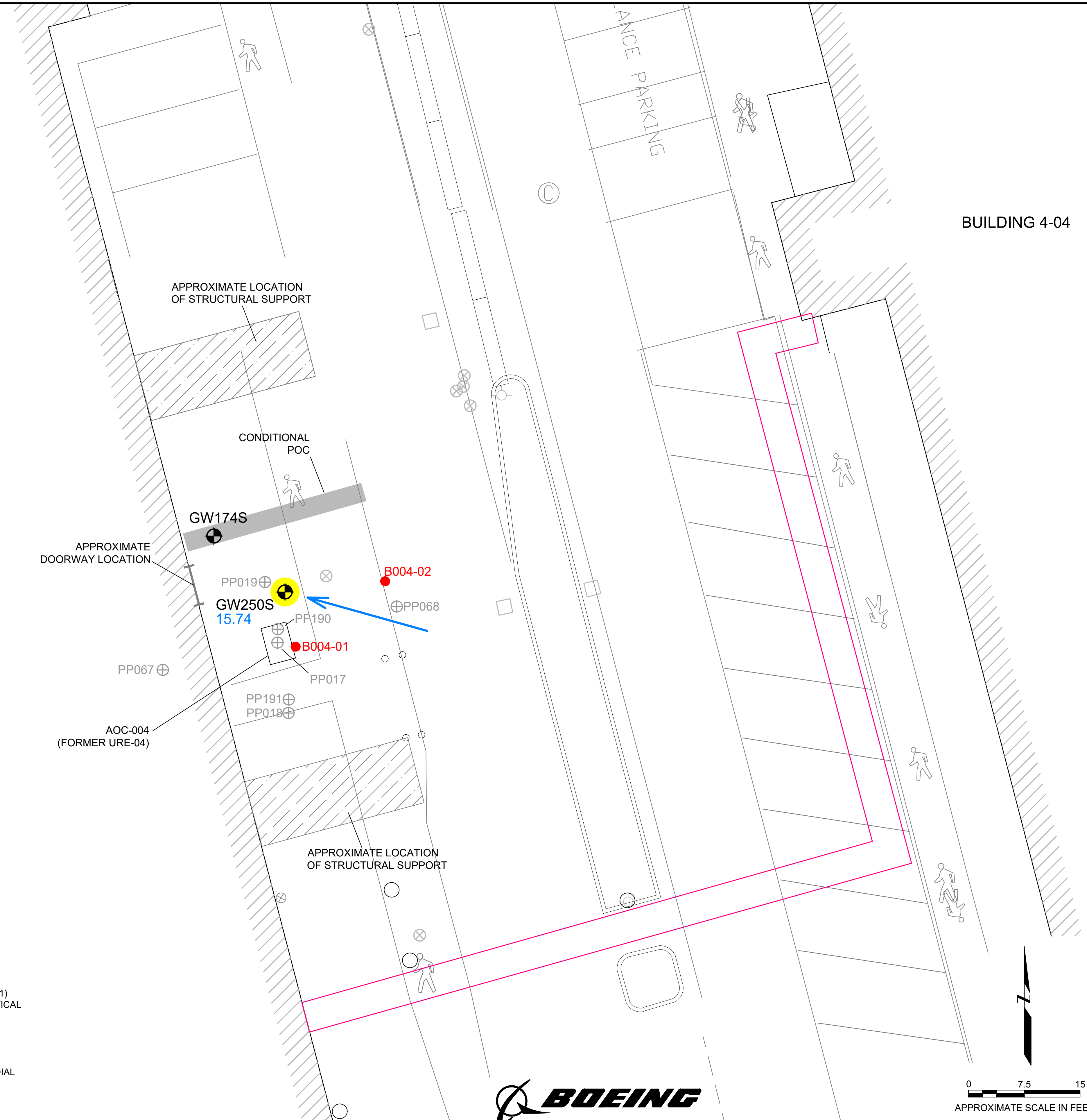


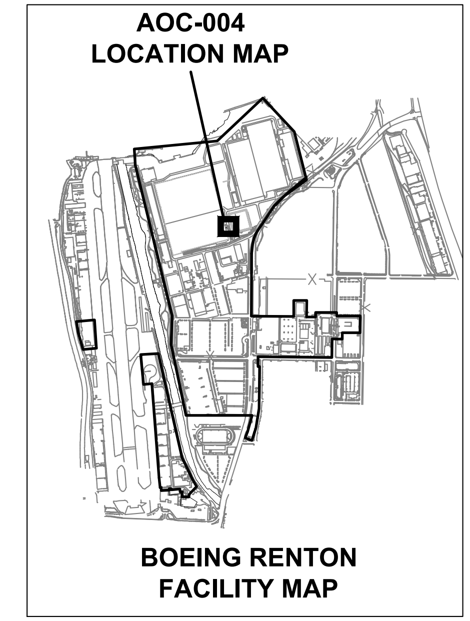
CPOC WELL GW248I

Note: Non-detected values shown at one-half the reporting limit and with an open symbol

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm

wsp	AOC-003 TREND PLOTS FOR CPOC WELLS GW247S AND GW248I Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 27





LEGEND

GW250S 15.45	MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
	GENERAL DIRECTION OF GROUNDWATER FLOW BASED ON HISTORICAL INFORMATION
B004-01	BIOREMEDIATION INJECTION WELL
PP190	PUSH PROBE SAMPLING LOCATION
	APPROXIMATE PROPERTY LINE
	CONDITIONAL POINT OF COMPLIANCE
HIGHLIGHTED	WELLS INCLUDED IN MONITORING NETWORK

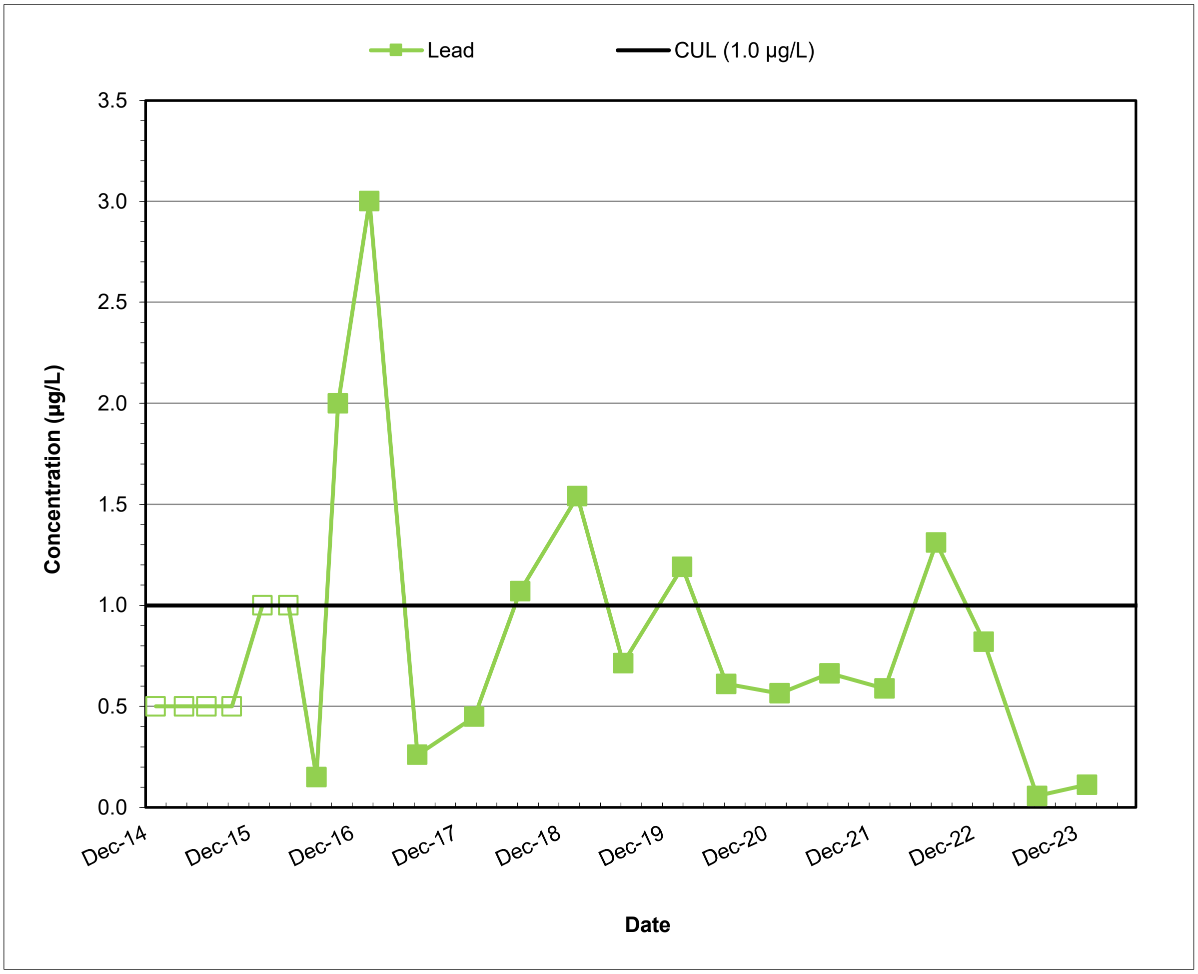
NOTES

1. HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE NAD83 (91) VERTICAL DATUM: NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
2. BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER 1994.
3. PUSH PROBE LOCATIONS FROM FINAL REMEDIAL INVESTIGATION REPORT (WESTON, 2001).
4. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 10 FEET IN DEPTH.

AOC-004
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
FEBRUARY 6, 2024
Boeing Renton Facility
Renton, Washington

By: SD	Date: 05/22/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 28

Plot Date: 05/22/24 - 10:29am, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2024\, Drawing Name: Figure 28 - AOC-004.dwg

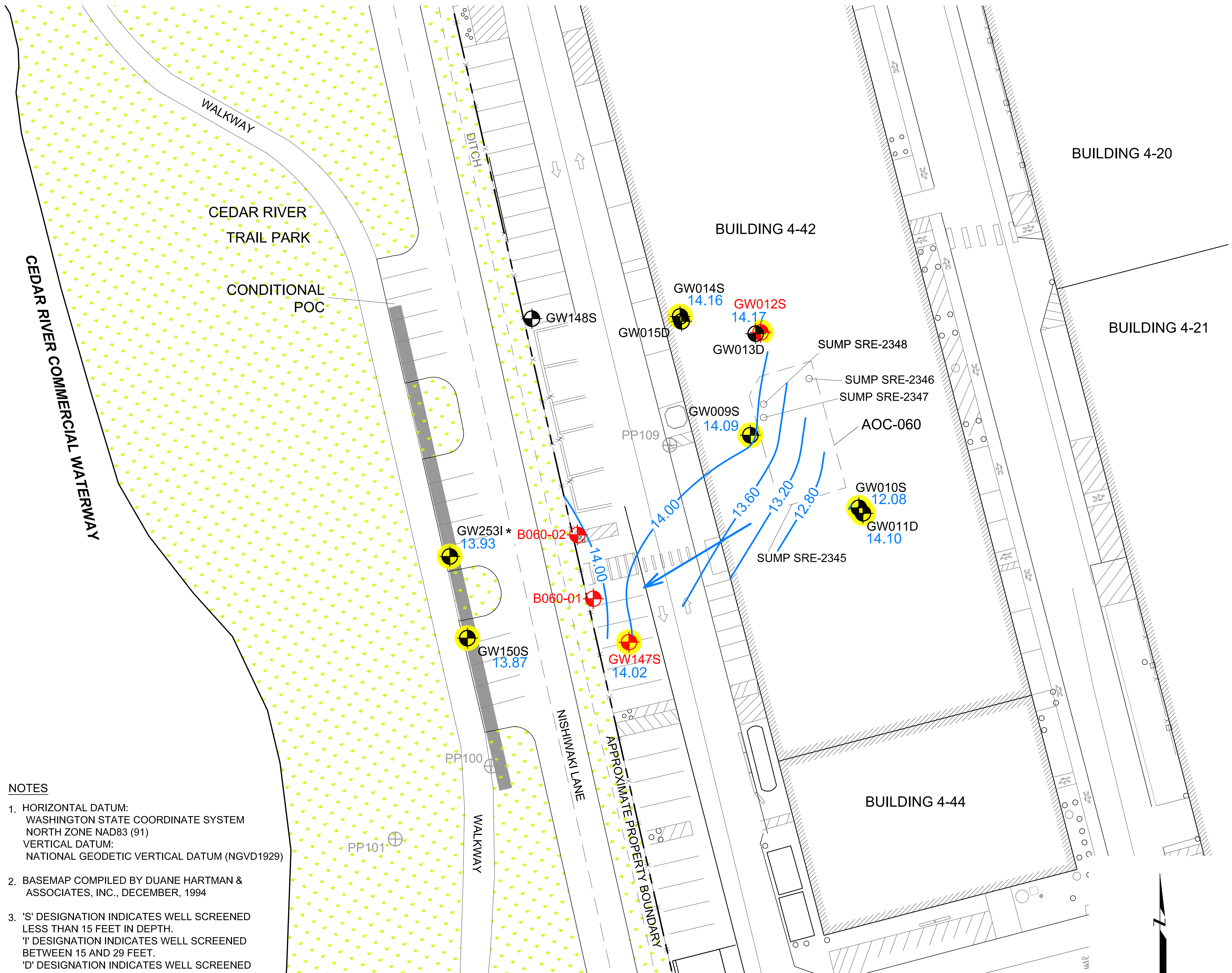


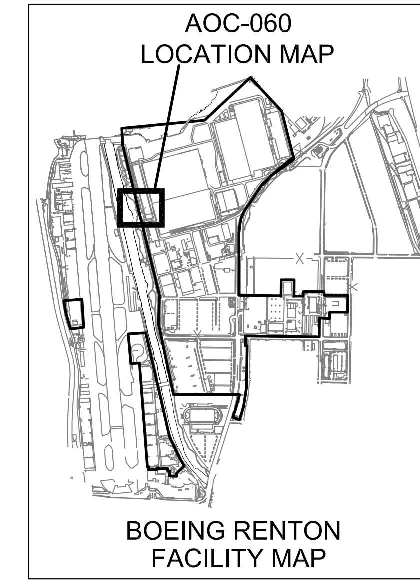
SOURCE AREA WELL GW250S

Note: Non-detected values shown at one-half the reporting limit and with an open symbol

wsp	AOC-004 TREND PLOT FOR SOURCE AREA WELL GW250S Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 29

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Ren





LEGEND

GW150S 13.96	MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
*	WELL SCREENED IN UPPER AND LOWER PORTION OF AQUIFER, SO WATER LEVEL IS NOT USED FOR CONTOURING.
GW147S	BIOREMEDIATION INJECTION WELL AND MONITORING WELL
14.1	GROUNDWATER ELEVATION CONTOUR (IN FEET) (DASHED WHERE INFERRED)
	GENERAL DIRECTION OF GROUNDWATER FLOW BASED ON HISTORICAL INFORMATION
PP109	PUSH PROBE SAMPLING LOCATION
	APPROXIMATE PROPERTY LINE
X	FENCE LINE
	CONDITIONAL POINT OF COMPLIANCE
HIGHLIGHTED	WELLS INCLUDED IN MONITORING NETWORK

NOTES

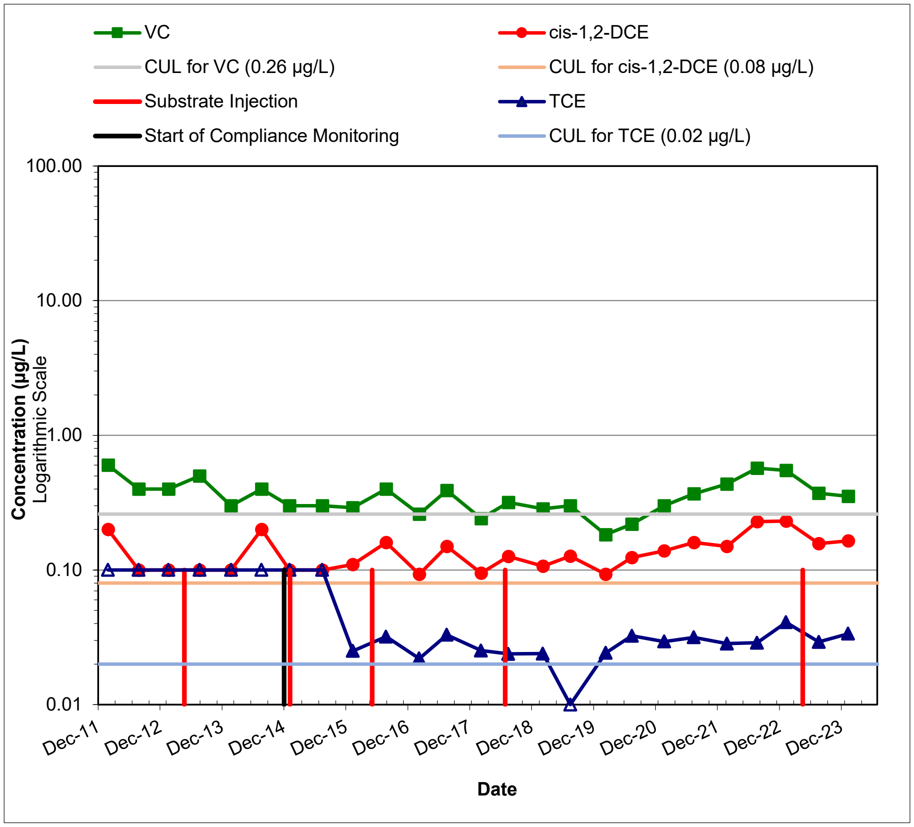
1. HORIZONTAL DATUM:
   WASHINGTON STATE COORDINATE SYSTEM
   NORTH ZONE NAD83 (91)
   VERTICAL DATUM:
   NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
2. BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER, 1994
3. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 15 FEET IN DEPTH.
   'I' DESIGNATION INDICATES WELL SCREENED BETWEEN 15 AND 29 FEET.
   'D' DESIGNATION INDICATES WELL SCREENED GREATER THAN 29 FEET IN DEPTH.
4. THE GROUNDWATER FLOW DIRECTION SHOWN IS BASED ON HISTORICAL GROUNDWATER DATA.

BOEING

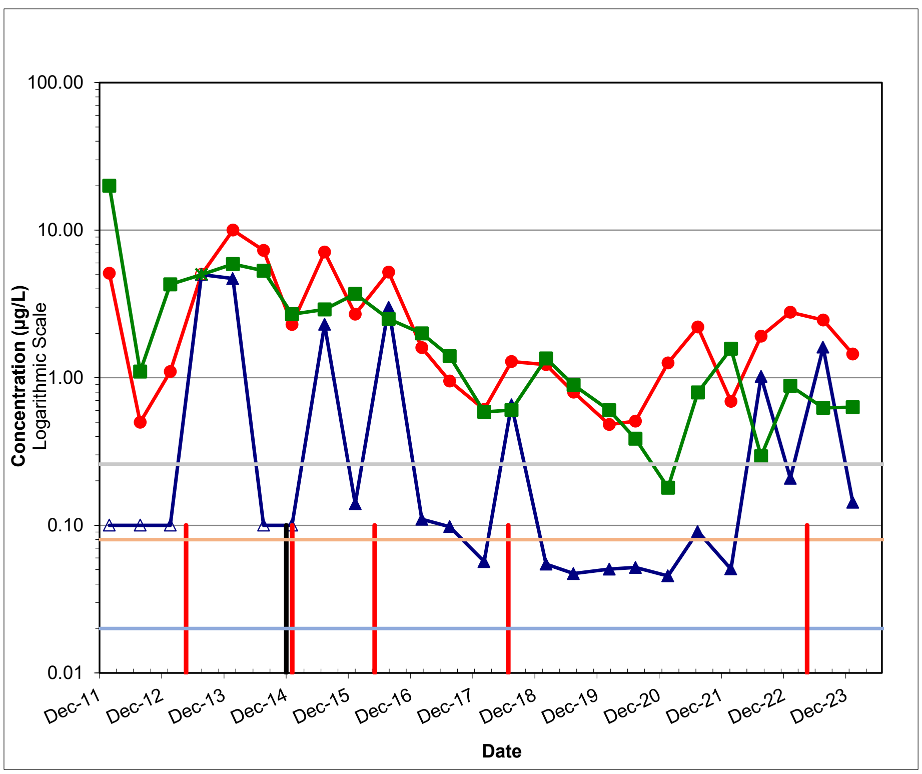
AOC-060
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
FEBRUARY 7, 2024
Boeing Renton Facility
Renton, Washington

By: SD	Date: 05/22/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 30

Plot Date: 05/22/24 - 10:32am, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2024\, Drawing Name: Figure 30 - AOC-060.dwg



SOURCE AREA WELL GW009S

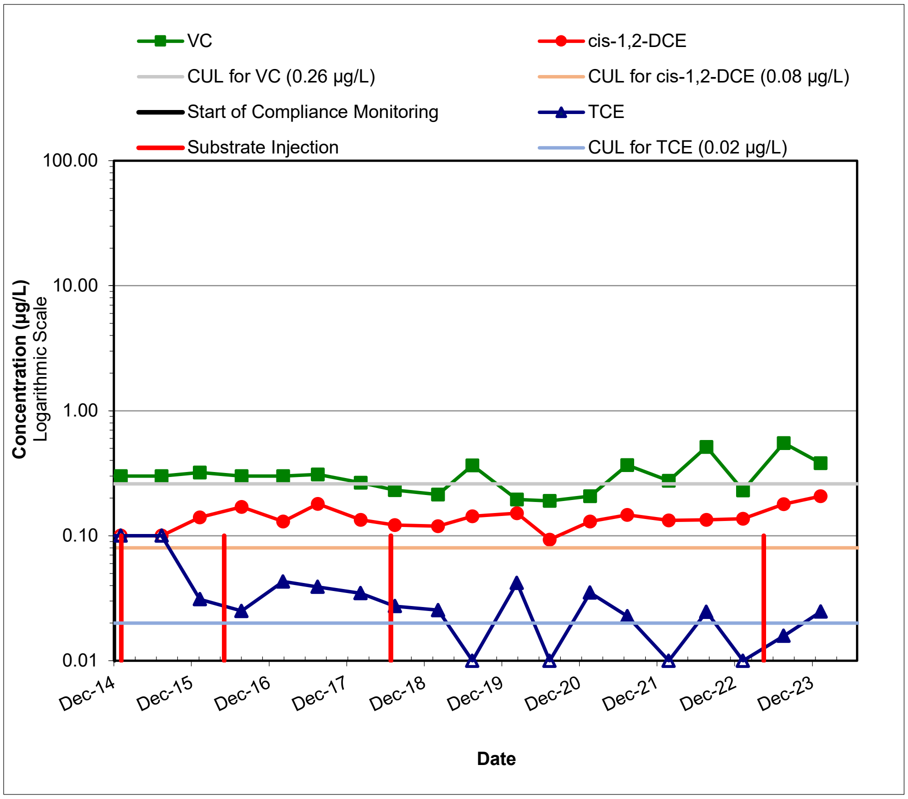


DOWNGRADIENT PLUME AREA WELL GW012S

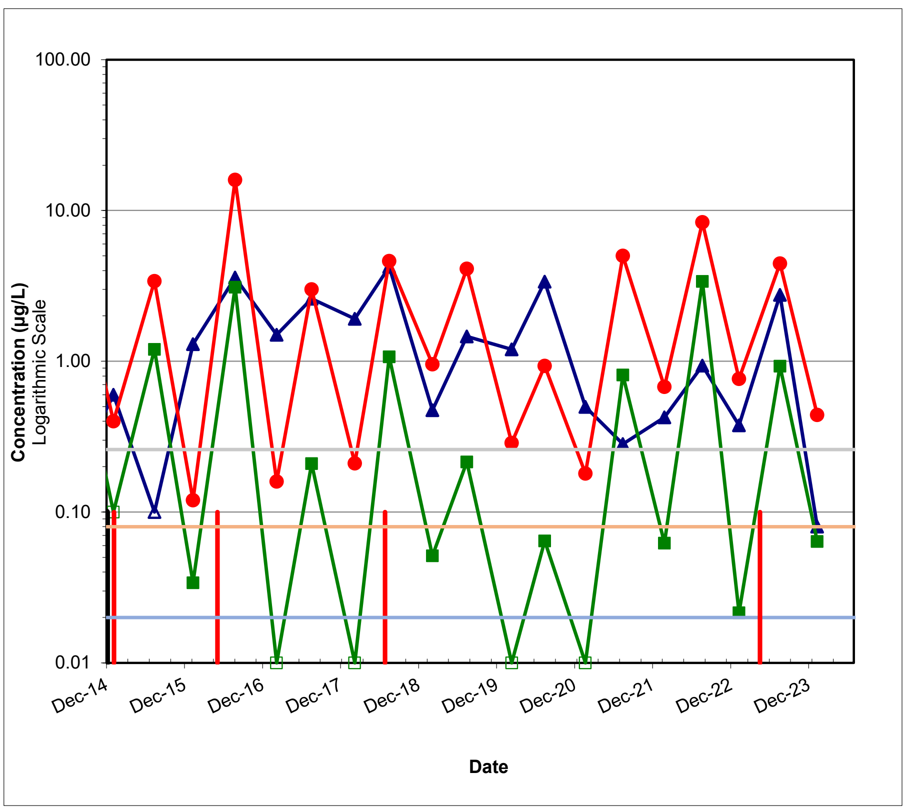
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37)_RLV_new_wells_20240520.xlsm

wsp	AOC-060 TREND PLOTS FOR SOURCE AREA WELL GW009S AND DOWNGRADIENT PLUME AREA WELL GW012S Boeing Renton Facility, Renton, Washington	Project No. PS2020345 Figure 31



DOWNGRADIENT PLUME AREA WELL GW014S

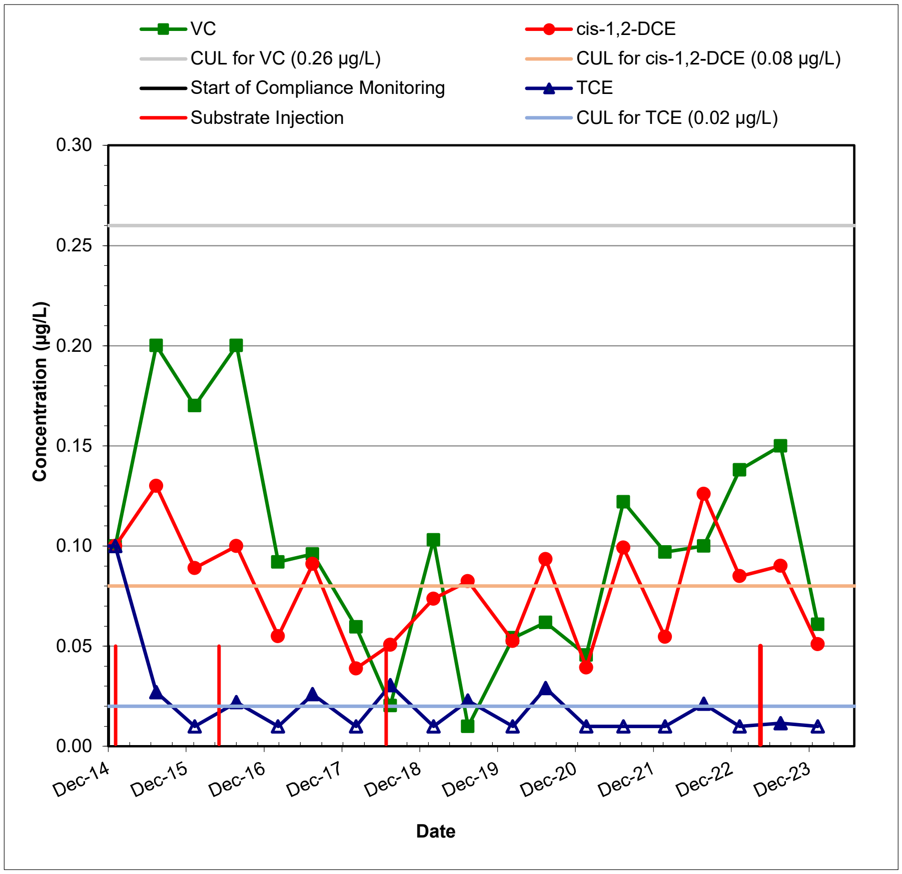


DOWNGRADIENT PLUME AREA WELL GW147S

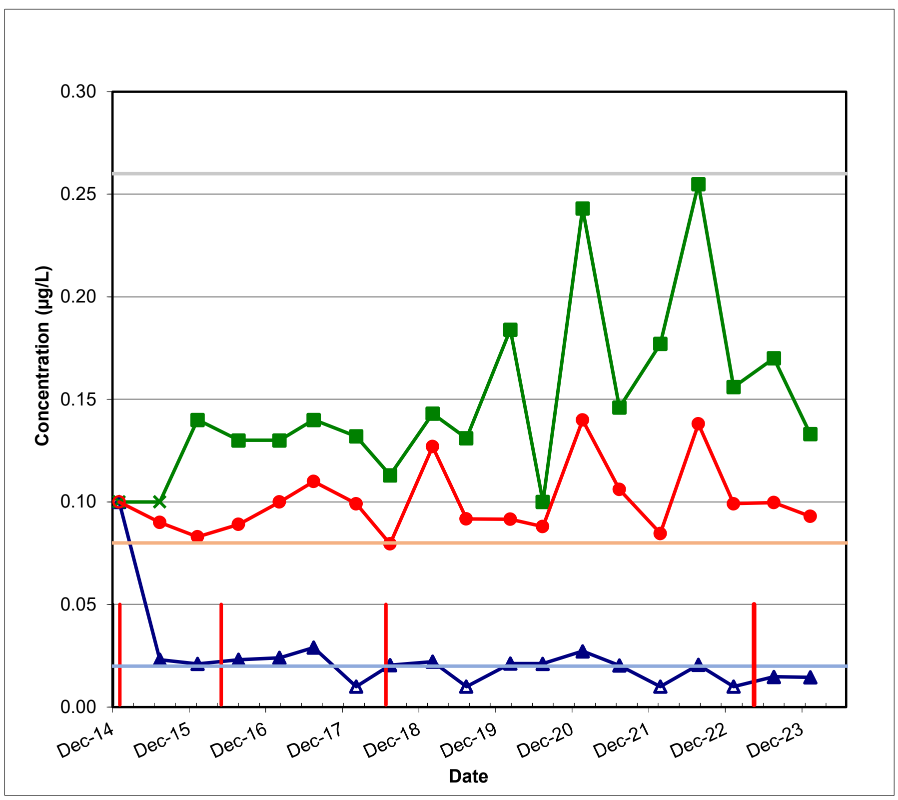
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240520.xlsm

wsp	AOC-060 TREND PLOTS FOR DOWNGRADIENT PLUME AREA WELLS GW014S AND GW147S Boeing Renton Facility, Renton, Washington	Project No. PS2020345 Figure 32



CPOC AREA WELL GW150S

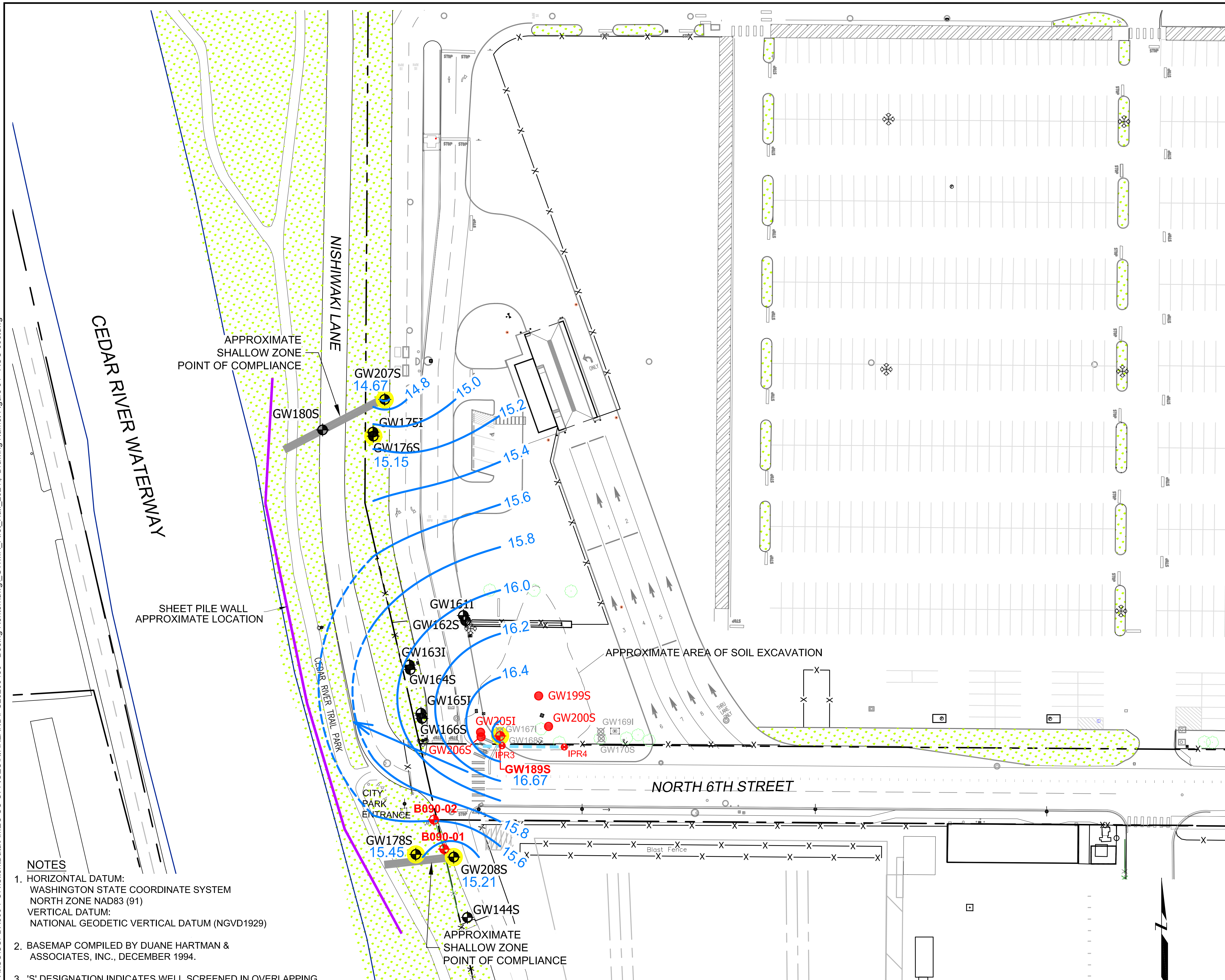


CPOC AREA WELL GW253I

Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

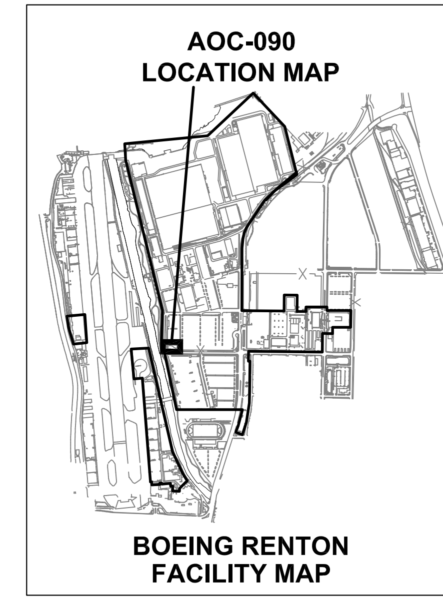
wsp	AOC-060 TREND PLOTS FOR CPOC AREA WELLS GW150S AND GW253I Boeing Renton Facility, Renton, Washington	Project No. PS2020345 Figure 33

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm



NOTES

1. HORIZONTAL DATUM:
   WASHINGTON STATE COORDINATE SYSTEM
   NORTH ZONE NAD83 (91)
   VERTICAL DATUM:
   NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
2. BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER 1994.
3. 'S' DESIGNATION INDICATES WELL SCREENED IN OVERLAPPING RANGES BETWEEN 18.5 TO 5.5 FEET ELEVATION (NGVD1929).
   'I' DESIGNATION INDICATES WELL SCREENED IN OVERLAPPING RANGES BETWEEN 1.0 TO -13.7 FEET IN ELEVATION (NGVD1929).



LEGEND

GW178S 14.44	MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
15.0	GROUNDWATER ELEVATION CONTOUR (IN FEET) (DASHED WHERE INFERRED)
	GENERAL DIRECTION OF GROUNDWATER FLOW BASED ON HISTORICAL INFORMATION
GW201S	EXISTING BIOREMEDIATION SUBSTRATE INJECTION WELL
GW189S 15.62	EXISTING BIOREMEDIATION SUBSTRATE INJECTION WELL AND MONITORING WELL GROUNDWATER ELEVATION (NGVD-FEET)
IPR4	EXISTING INJECTION PIPE RISER
GW170S	DECOMMISSIONED MONITORING WELL
	APPROXIMATE PROPERTY LINE
	FENCE
	APPROXIMATE LOCATION OF 4-INCH DIAMETER PERFORATED PIPE
	CONDITIONAL POINT OF COMPLIANCE
	APPROXIMATE LOCATION OF SHEET PILE WALL
HIGHLIGHTED	WELLS INCLUDED IN MONITORING NETWORK

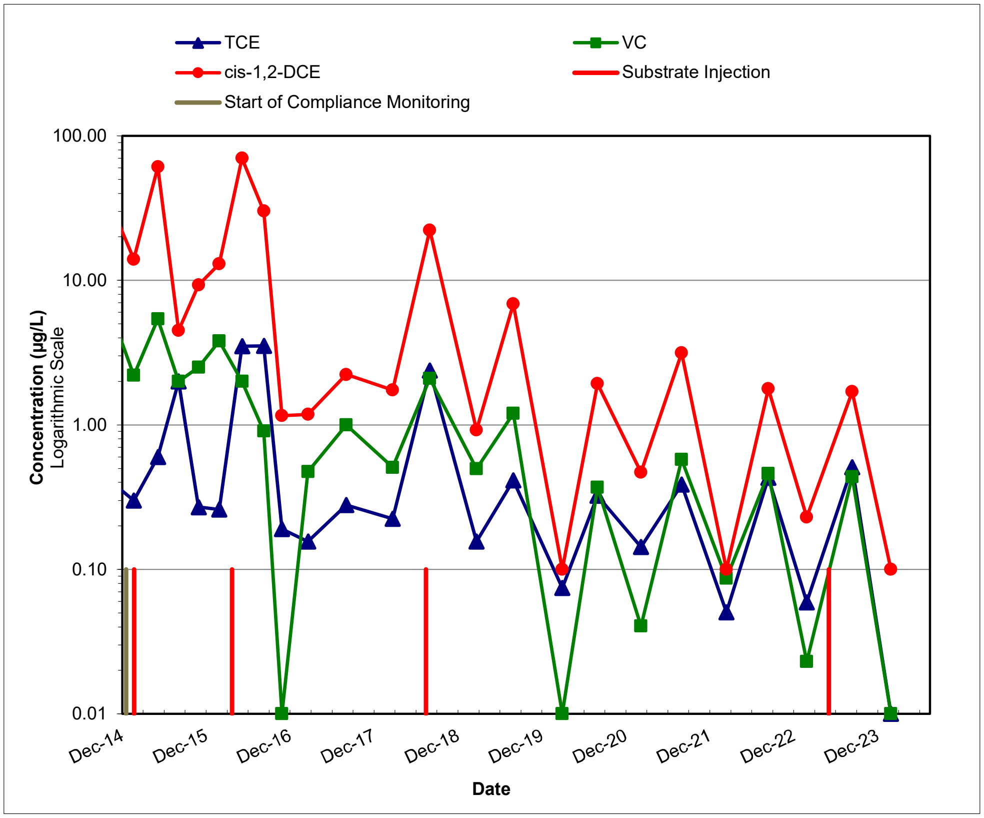
0 40 80
APPROXIMATE SCALE IN FEET

BOEING

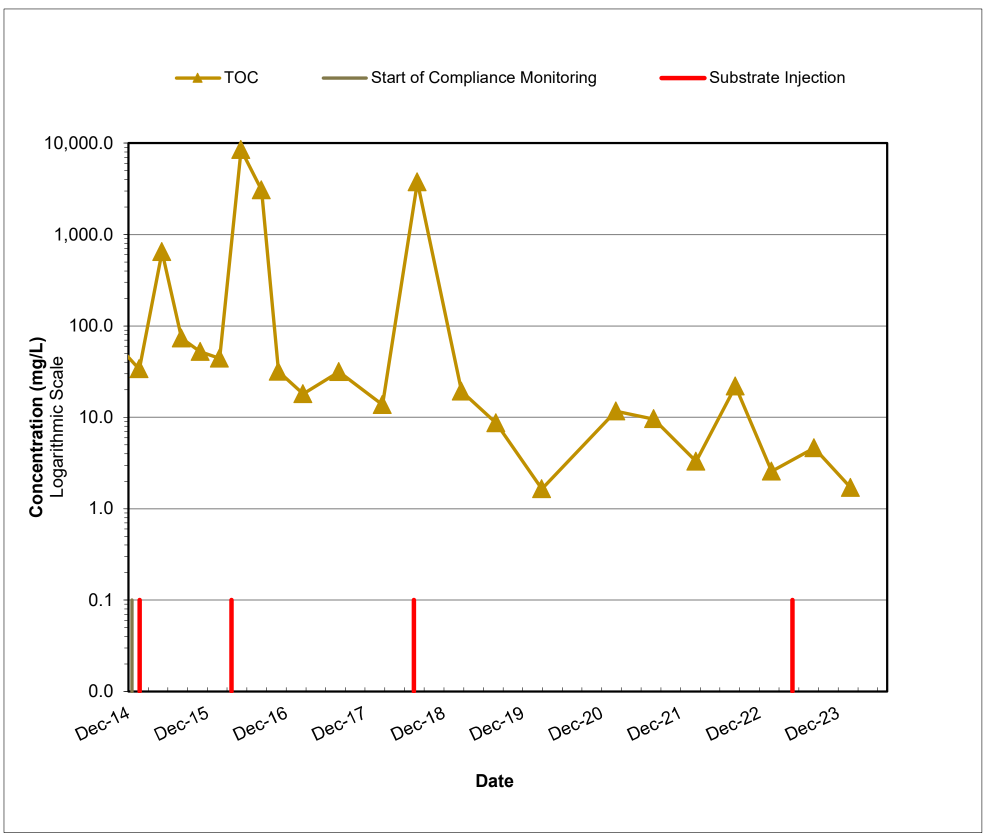
AOC-090
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
FEBRUARY 8, 2024
Boeing Renton Facility
Renton, Washington

By: SD	Date: 05/22/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 34

Plot Date: 05/22/24 - 10:35am, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-PORIClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2024\, Drawing Name: Figure 34 - AOC-090.dwg



SOURCE AREA WELL GW189S



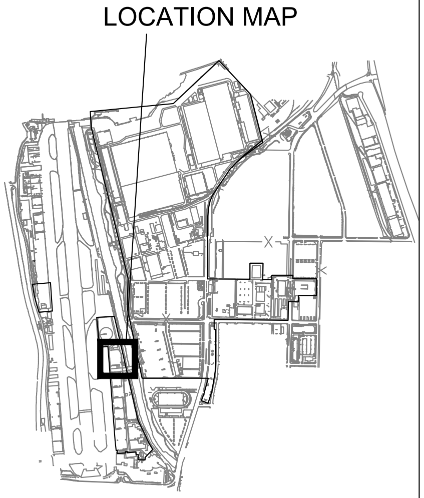
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

wsp	AOC-090 TREND PLOTS FOR SOURCE AREA WELL GW189S Boeing Renton Facility, Renton, Washington	Project No. PS20203450 Figure 35

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing_Renton_Charts (3-37) _RLV_new_wells_20240416.xlsm

Plot Date: 05/22/24 - 10:39am, Plotted by: USSD715014
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2024\, Drawing Name: Figure 36 - APRON A.dwg

APRON A
LOCATION MAP



BOEING RENTON
FACILITY MAP

LEGEND

GW264S 14.64	MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
	GENERAL DIRECTION OF GROUNDWATER FLOW BASED ON HISTORICAL INFORMATION
B-1	SOIL SAMPLE LOCATION
	APPROXIMATE PROPERTY LINE
x	FENCE

HIGHLIGHTED WELLS INCLUDED IN MONITORING NETWORK

NOTE:
1. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 10 FEET IN DEPTH.

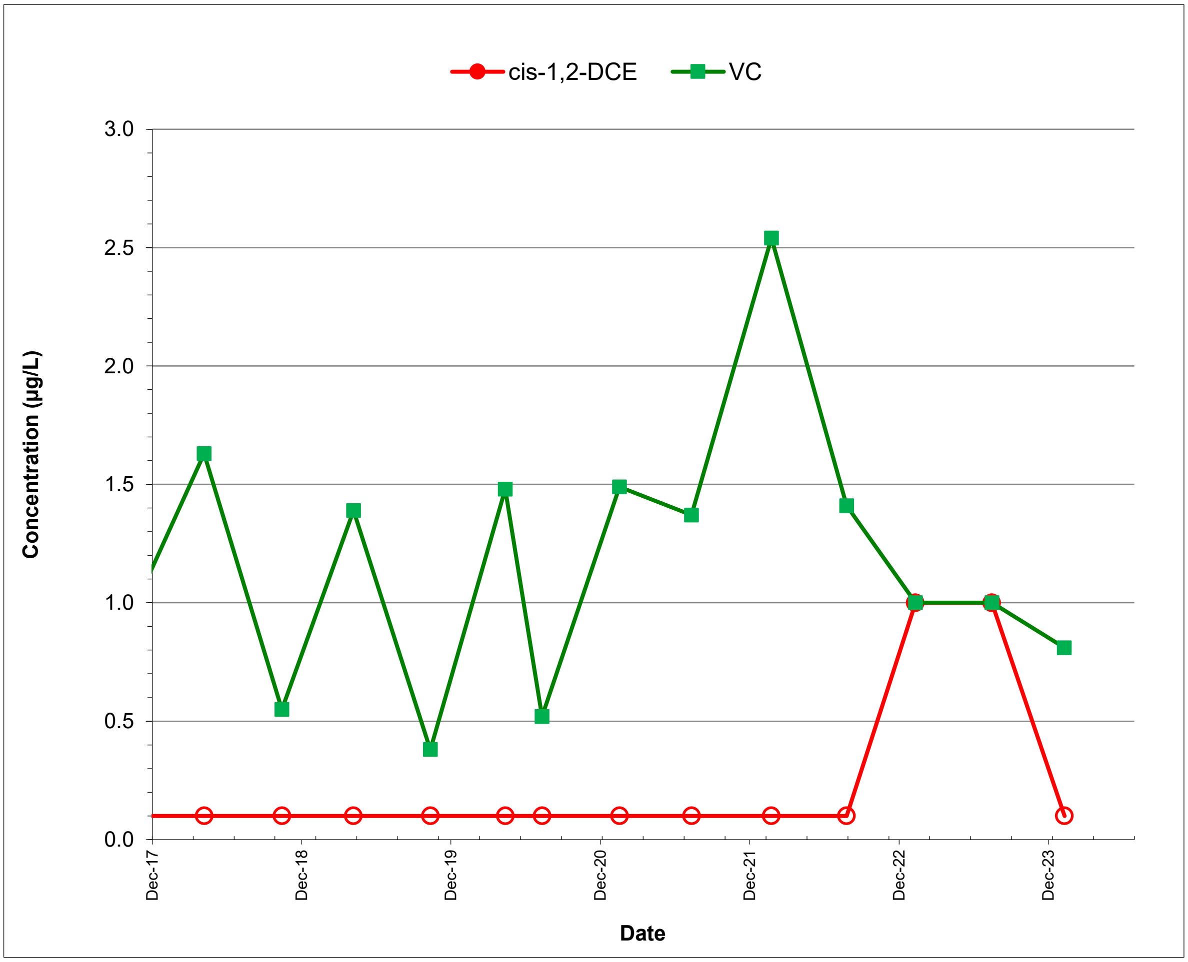
N

0 20 40
APPROXIMATE SCALE IN FEET

BOEING

APRON A AREA
MONITORING WELL LOCATIONS AND
DEPTH TO GROUNDWATER
FEBRUARY 7, 2024
Boeing Renton Facility
Renton, Washington

By: SD	Date: 05/22/24	Project No. PS24206850
WSP USA Environment & Infrastructure Inc.		Figure 36



SOURCE AREA WELL GW264S

Note: Non-detected values shown at one-half the reporting limit and with an open symbol.

wsp	APRON A TREND PLOT FOR WELL GW264S Boeing Renton Facility Renton, Washington	Project No. PS20203450 Figure 37

X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\264\Figures\Boeing

TABLES

Table 1: SWMU-168 Groundwater Elevation Data

February 6, 2024

Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)[2]	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)[2]
GW230I	4 to 14	24.86	4.88	19.98

Notes:

1. I = intermediate well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.

Abbreviations:

bgs = below ground surface

SWMU = solid waste management unit

TOC = top of casing

Table 2: SWMU-168 Primary Geochemical Indicators[1]
Febraury 6, 2024
Boeing Renton Facility, Renton, Washington

Parameter	Well ID [2]
	CPOC Area
	GW230I
Temperature (degrees C)	12
Specific Conductivity (µS/cm)	410
Dissolved Oxygen (mg/L)	0.05
pH (standard units)	6.43
Oxidation/Reduction Potential (mV)	-67.1

Notes:
1. Primary geochemical indicators are measured in the field.
2. I = intermediate well.

Abbreviations:
µS/cm = microsiemens per centimeter
CPOC = conditional point of compliance
degrees C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
SWMU = solid waste management unit

Table 3: SWMU-168 Concentrations of Constituents of Concern [1, 2]
February 6, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level [1]	Well ID [2] CPOC Area GW230I
Volatile Organic Compounds (µg/L)		
Vinyl Chloride	0.11	0.0870

Notes:
1. Cleanup levels obtained from Table 2 of the Cleanup Action Plan.
2. I = intermediate well.

Abbreviations:
µg/L = micrograms per liter
CPOC = conditional point of compliance
SWMU = solid waste management unit

Table 4: SWMU-172 and SWMU-174 Group Groundwater Elevation Data
February 2 & 5, 2024
Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)[3]	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)[3]
GW152S	5 to 20[2]	26.98	7.84	19.14
GW153S	5 to 20[2]	27.47	8.08	19.39
GW172S	8 to 18[2]	26.44	8.92	17.52
GW173S	8 to 18[2]	26.51	8.67	17.84
GW226S	5 to 20[2]	26.86	8.05	18.81
GW232S	4 to 14	24.45	5.51	18.94
GW234S	3 to 13	24.95	6.49	18.46
GW235I	15 to 25	24.90	5.61	19.29
GW236S	5 to 15	24.36	5.89	18.47

Notes:
1. S = shallow well; I = intermediate well.
2. Screen intervals are approximate and based on database listings of the screen interval depths for these wells.
3. Elevations in feet relative to National Geodetic Vertical Datum of 1929.

Abbreviations:
bgs = below ground surface
SWMU = solid waste management unit
TOC = top of casing

Table 5: SWMU-172 and SWMU-174 Group Primary Geochemical Indicators[1]
February 2 & 5, 2024
Boeing Renton Facility, Renton, Washington

Parameter	Well ID[2]									
	Source Area		Downgradient Plume Area				CPOC Area			
	GW152S	GW153S	GW172S	GW172S (field dup.)	GW173S	GW226S	GW232S	GW234S	GW235I	GW236S
Temperature (degrees C)	12.5	14.8	14.2	NA	12.3	16.0	10.7	12.2	13.2	11.2
Specific Conductivity (µS/cm)	197	246	307	NA	288	275	407	217	199	106
Dissolved Oxygen (mg/L)	6.20	5.88	0.02	NA	6.23	5.59	6.53	0.05	0.01	2.90
pH (standard units)	6.12	6.43	6.42	NA	6.65	6.41	6.30	6.40	6.71	6.50
Oxidation/Reduction Potential (mV)	8.9	-45.9	-86.9	NA	-65.6	-53.5	-26.1	-24.0	-50.7	64.9
Total Organic Carbon (mg/L)[3]	3.22	6.64	3.43	3.36	4.95	12.70	6.1	1.76	0.74	1.17

Notes
1. Primary geochemical indicators are measured in the field, with the exception of total organic carbon, which is measured in the laboratory
2. S = shallow well; I = intermediate well.
3. Data qualifiers are as follows:
J = the value is estimated.

Abbreviations
µS/cm = microsiemens per centimeter
CPOC = conditional point of compliance
degrees C = degrees Celsius
field dup. = field duplicate
mg/L = milligrams per liter
mV = millivolts
SWMU = solid waste management unit

Table 6: SWMU-172 and SWMU-174 Group Concentrations of Constituents of Concern[1, 2]
February 2 & 5, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level [4]	Well ID [3]									
		Source Area		Downgradient Plume Area				CPOC Area			
		GW152S	GW153S	GW172S	GW172S duplicate	GW173S	GW226S	GW232S	GW234S	GW235I	GW236S
Volatile Organic Compounds (µg/L)											
cis -1,2-Dichloroethene	0.03	**4.59**	**0.0677**	**0.877**	**0.890**	**0.145**	**0.0465**	**0.167**	**0.0495**	**0.229**	0.0200 U
Tetrachloroethene	0.02	**0.238**	**0.198**	0.0200 U	0.0200 U	**0.0543**	0.0200 U	0.0200 U	0.0200 U	0.0200 U	**0.0262**
Trichloroethene	0.02	**0.104**	**0.049**	**0.266**	**0.258**	**0.0307**	0.0200 U	0.0200 U	0.0200 U	**0.0207**	0.0200 U
Vinyl Chloride	0.11	**0.264**	0.108	**0.907**	**0.902**	**0.280**	0.0394	**0.187**	0.0200 U	0.0215	0.0200 U
Total Metals (µg/L)											
Arsenic	8.0	7.95	4.12	6.68	6.73	**9.51**	**9.01**	2.19	0.626	0.400 U	1.00 U
Copper	3.5	2.44	1.00 U	1.08	1.00 U	3.07	**6.69**	1.00 U	2.26	1.00 U	2.50 U
Lead	1.0	**1.18**	0.232	0.714	0.668	**1.41**	0.950	0.200 U	0.876	0.200 U	0.795

Notes:
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
   J = the value is estimated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; I = intermediate well.
4. Cleanup levels obtained from Table 2 of the Cleanup Action Plan.

Abbreviations:
µg/L = micrograms per liter
CPOC = conditional point of compliance
SWMU = solid waste management unit

Table 7: Building 4-78/79 SWMU/AOC Group Groundwater Elevation Data
January 30, February 5 & 6, 2024
Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)[2]	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)[2]
GW031S-R	5 to 25	19.59	5.31	14.28
GW033S	5 to 25	19.49	5.16	14.33
GW034S	5 to 25	19.65	4.34	14.42
GW143S	10 to 15	19.81	5.61	14.20
GW237S	5 to 15	18.85	4.7	14.15
GW240D	22 to 27	19.81	6.43	13.38
GW244S-R	5 to 15	19.42	5.15	14.27

Notes:
1. S = shallow well; D = deep well; R = replaced.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.

Abbreviations:
AOC = area of concern
bgs = below ground surface
NA = not available
SWMU = solid waste management unit
TOC = top of casing

Table 8: Building 4-78/79 SWMU/AOC Group Primary Geochemical Indicators[1]
January 30, February 5 & 6, 2024
Boeing Renton Facility, Renton, Washington

Parameter	Well ID[2]							
	Source Area					CPOC Area		
	GW031S-R	GW033S	GW033S (field dup.)	GW034S	GW244S-R	GW143S	GW237S	GW240D
Temperature (degrees C)	14.8	14.9	NA	12.5	14.1	14.4	13.0	14.6
Specific Conductivity (µS/cm)	342	566	NA	529	434	359	290	252
Dissolved Oxygen (mg/L)	5.75	0.04	NA	0.04	5.82	5.74	0.48	5.76
pH (standard units)	6.29	6.28	NA	6.45	6.29	6.37	6.39	6.56
Oxidation/Reduction Potential (mV)	-31.6	-84.0	NA	-96.8	-38.0	-60.4	-55	-71.7
Total Organic Carbon (mg/L)[3]	10.99	10.17	10.13	7.59	12.98	9.13	5.92	4.62

Notes
1. Primary geochemical indicators are measured in the field, with the exception of total organic carbon, which is measured in the laboratory
2. S = shallow well; D = deep well.
3. Data qualifiers are as follows:
J = the value is estimated.

Abbreviations
µS/cm = microsiemens per centimeter
AOC = area of concern
CPOC = conditional point of compliance
degrees C = degrees Celsius
field dup. = field duplicate
mg/L = milligrams per liter
mV = millivolts
NA = not analyzed
SWMU = solid waste management unit

Table 9: Building 4-78/79 SWMU/AOC Group Concentrations of Constituents of Concern[1, 2]
February 5 & 6, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level[4]	Well ID[3]							
		Source Area					CPOC Area		
		GW031S-R	GW033S	GW033S (field dup.)	GW034S	GW244S-R	GW143S	GW237S	GW240D
Volatile Organic Compounds (µg/L)									
Benzene	0.80	0.200 U	**6.49**	**6.51**	0.200 U	0.200 U	0.200 U	**6.47**	0.200 U
cis -1,2-Dichloroethene	0.70	0.200 U	0.480	0.430	0.200 U	0.340	0.280	0.200 U	0.200 U
Trichloroethene	0.23	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Vinyl Chloride	0.20	**0.230**	**0.830**	**0.940**	**0.260**	**0.610**	0.200 U	**0.290**	0.200 U
Total Petroleum Hydrocarbons (µg/L)									
TPH-G (C7-C12)	800	100 U	141	141	100 U	100 U	100 U	**915**	100 U

Notes:
1. Data qualifiers are as follows:
U = The analyte was not detected at the reporting limit indicated.
J = The value is estimated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; D = deep well.
4. Cleanup levels obtained from Table 2 of the Cleanup Action Plan.

Abbreviations:
µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
field dup. = field duplicate
SWMU = solid waste management unit
TPH-G = total petroleum hydrocarbons as gasoline

Table 10: Former Fuel Farm Groundwater Elevation Data

February 6 & 8, 2024

Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)[2]	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)[2]
GW211S	4.8 to 14.7	27.77	8.80	18.97
GW221S	5 to 15	27.93	8.73	19.20
GW224S	5 to 15	27.98	9.72	18.26

Notes

1. S = shallow well
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.

Abbreviations

bgs = below ground surface

TOC = top of casing

Table 11: Former Fuel Farm Primary Geochemical Indicators [1]
February 6 & 8, 2024
Boeing Renton Facility, Renton, Washington

Parameter	Well ID[2] CPOC Area		
	GW211S	GW221S	GW224S
Temperature (degrees C)	12.5	13.4	13.9
Specific Conductivity (µS/cm)	213	202	162
Dissolved Oxygen (mg/L)	0.35	6.12	6.03
pH (standard units)	6.35	6.27	6.12
Oxidation/Reduction Potential (mV)	-22.6	7.7	34.3

Notes
1. Primary geochemical indicators are measured in the field.
2. S = shallow well.

Abbreviations
µS/cm = microsiemens per centimeter
CPOC = conditional point of compliance
degrees C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts

Table 12: Former Fuel Farm Concentrations of Constituents of Concern [1, 2]
February 6 & 8, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level [4]	Well ID [3]			
		CPOC Area			
		GW211S	GW221S	GW224S	GW224S (field dup.)
Total Petroleum Hydrocarbons (mg/L)					
TPH-D (C12-C24)	0.5	0.100 U	**3.57**	**0.764**	**0.966**
TPH-O (C24-C38)	NE	0.200 U	0.200 U	0.200 U	0.200 U
Jet A (C10-C18)	0.5	0.100 U	**2.65**	**1.27**	**1.55**

Notes
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
   J = The value is estimated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well.
4. Cleanup levels obtained from Table 2 of the Cleanup Action Plan.

Abbreviations
CPOC = conditional point of compliance
field dup. = field duplicate
mg/L = milligrams per liter
NE = not established
TPH-D = total petroleum hydrocarbons as diesel
TPH-O = total petroleum hydrocarbons as motor oil

Table 13: AOC-001 and -002 Groundwater Elevation Data
January 31, February 1 & 2, 2024
Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)[2]	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)[2]
GW185S-R	4.5 to 14.5	17.83	4.14	13.69
GW190S-R	3 to 13	17.97	4.21	13.76
GW191D-R	26 to 36	17.94	3.97	13.97
GW192S-R	4.5 to 9.5	17.67	3.95	13.72
GW193S-R	3 to 12.8	18.39	4.44	13.95
GW195S-R	7 to 12	18.45	4.90	13.55
GW196D-R	26 to 36	18.43	4.70	13.73
GW197S-R	7.5 to 12.5	18.34	4.69	13.65
GW213S-R	3 to 13	18.14	4.38	13.76
GW214S-R	3.5 to 13.5	18.27	4.40	13.87
GW215S-R	3 to 13	18.22	4.34	13.88
GW245S-R	3 to 13	18.32	4.80	13.52
GW246S-R	4 to 14	17.85	4.18	13.67

Notes:
1. S = shallow well; D = deep well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.

Abbreviations:
AOC = area of concern
bgs = below ground surface
NA = not applicable
NM = not measured
TOC = top of casing

Table 14: AOC-001, -002, and -003 Primary Geochemical Indicators[1]
January 31, February 1 & 2, 2024
Boeing Renton Facility, Renton, Washington

Parameter	Well ID[2]												
	AOC-001 / AOC-002 Cross-Gradient Wells			AOC-001 / AOC-002 Source Area Wells	AOC-001 / AOC-002 Downgradient Plume Wells				AOC-001 / AOC-002 CPOC Wells				
	GW213S-R	GW214S-R	GW215S-R	GW193S-R	GW190S-R	GW191D-R	GW192S-R	GW246S-R	GW185S-R	GW195S-R	GW196D-R	GW197S-R	GW245S-R
Temperature (degrees C)	12.5	12.7	12.5	11.3	11.9	12.9	11.6	12.5	12.0	11.9	13.7	10.5	12.2
Specific Conductivity (µS/cm)	865	866	727	543	647	326	214	347.9	498	393	419	144	415.9
Dissolved Oxygen (mg/L)	6.02	6.19	6.02	6.38	0.01	6.15	0.30	0.02	1.69	6.21	5.80	6.46	0.01
pH (standard units)	6.71	6.41	6.55	6.16	6.35	6.39	6.22	6.43	6.46	6.22	6.12	8.93	8.72
Oxidation/Reduction Potential (mV)	-105.4	-115.6	-120.8	-81.2	-43.2	-77.6	122.1	-132.8	-35.8	-104.9	-99.7	-217.4	-334.3
Total Organic Carbon (mg/L)[3]	20.26	16.81	18.95	16.77	11.5	5.81	2.01	6.13	9.28	8.07	8.19	2.81	19.67

Notes
1. Primary geochemical indicators are measured in the field, with the exception of total organic carbon, which is measured in the laboratory.
2. S = shallow well; D = deep well.

Abbreviations
µS/cm = microsiemens per centimeter
AOC = area of concern
CPOC = conditional point of compliance
degrees C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
NA = not analyzed

Table 15: AOC -001 and -002 Concentrations of Constituents of Concern[1]
January 31 & February 2, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level [4]	Well ID [2]												
		AOC-001 / AOC-002 Source Area	AOC-001 / AOC-002 Cross-Gradient Wells			AOC-001 / AOC-002 Downgradient Plume Wells				AOC-001 / AOC-002 CPOC Wells				
		GW193S-R	GW213S-R	GW214S-R	GW215S-R	GW190S-R	GW191D-R	GW192S-R	GW246S-R	GW185S-R	GW195S-R	GW196D-R	GW197S-R	GW245S-R
Volatile Organic Compounds (µg/L)														
Benzene	0.80	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.320	0.350
1,1-Dichloroethene	0.057	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	**0.150**	0.0200 U
cis-1,2-Dichloroethene	0.02	**0.135**	**0.0932**	**0.0347**	**0.0368**	**0.0924**	**0.0254**	**0.326**	**0.167**	**0.112**	**0.0899**	**0.0282**	**41.6**	**0.135**
Trichloroethene	0.02	**0.0291**	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	**0.0231**	0.0200 U	0.0200 U	0.0200 U	0.0200 U	**0.580**	**0.0235**
Vinyl Chloride	0.05	**0.130**	**0.123**	0.0200 U	0.0200 U	**0.0506**	**0.0627**	**0.166**	**0.303**	**0.0823**	**0.0998**	0.0243	**27.0**	0.0200 U

Notes:
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
   J = The value is estimated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; I = intermediate well.
4. Cleanup levels obtained from Table 2 of the Cleanup Action Plan.

Abbreviations:
µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
NA = not analyzed
NE = not established

Table 16: AOC-003 Groundwater Elevation Data

February 1 & 2, 2024

Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)[2]	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)[2]
GW188S	3.5 to 13.5	18.78	3.89	14.89
GW247S-R	4 to 14	18.93	4.68	14.25
GW248I	10 to 20	18.78	4.16	14.62
GW249S	4 to 14	18.85	3.67	15.18

Notes:

1. S = shallow well; I = intermediate well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.

Abbreviations:

AOC = area of concern
bgs = below ground surface
NA = not applicable
NM = not measured
TOC = top of casing

Table 17: AOC-003 Primary Geochemical Indicators[1]
February 1 & 2, 2024
Boeing Renton Facility, Renton, Washington

Parameter	AOC-003 Source Area	AOC-003 Downgradient Plume Area	AOC-003 CPOC Area	
	GW249S	GW188S	GW247S-R	GW248I
Temperature (degrees C)	14.6	13.8	12.6	14.1
Specific Conductivity (µS/cm)	373	416	552	543
Dissolved Oxygen (mg/L)	0.02	5.98	0.03	0.01
pH (standard units)	6.30	6.22	6.38	6.37
Oxidation/Reduction Potential (mV)	-90.7	-76.6	-109.1	-96.4
Total Organic Carbon (mg/L)[3]	12.16	11.68	11.37	11.77

Notes
1. Primary geochemical indicators are measured in the field, with the exception of total organic carbon, which is measured in the laboratory.
2. S = shallow well; I = intermediate well.

Abbreviations
µS/cm = microsiemens per centimeter
AOC = area of concern
CPOC = conditional point of compliance
degrees C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
NA = not analyzed

Table 18: AOC -003 Concentrations of Constituents of Concern[1]
February 1 & 2, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level [4, 5]	Well ID[3]			
		AOC-003 Source Area	AOC-003 Downgradient Plume Area	AOC-003 CPOC Area	
		GW249S	GW188S	GW247S-R	GW248I
Volatile Organic Compounds (µg/L)					
cis-1,2-Dichloroethene	0.78	0.0576	0.0315	0.0200 U	0.0207
Trichloroethene	0.16	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Tetrachloroethene	0.02	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Vinyl Chloride	0.24	0.214	0.207	**0.467**	**0.383**

Notes:
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
   J = The value is estimated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; I = intermediate well.
4. Cleanup levels obtained from Table 2 of the Cleanup Action Plan.
5. Cleanup levels for cis, 1,2-dichloroethene, trichloroethene, and tetrachloroethene are established for wells in AOC-003 only.

Abbreviations:
µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
NA = not analyzed
NE = not established

Table 19: AOC-004 Groundwater Elevation Data
February 6, 2024
Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)[2]	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)[2]
GW250S	4 to 14	19.31	3.57	15.74

Notes:
1. S = shallow well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.

Abbreviations:
AOC = area of concern
bgs = below ground surface
TOC = top of casing

Table 20: AOC-004 Primary Geochemical Indicators[1]

February 6, 2024

Boeing Renton Facility, Renton, Washington

Parameter	Well ID[2] Source Area GW250S
Temperature (degrees C)	13.4
Specific Conductivity (µS/cm)	138
Dissolved Oxygen (mg/L)	6.18
pH (standard units)	6.95
Oxidation/Reduction Potential (mV)	-53.1

Notes:

1. Primary geochemical indicators are measured in the field.
2. S = shallow well.

Abbreviations:

µS/cm = microsiemens per centimeter
AOC = area of concern
degrees C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts

Table 21: AOC-004 Concentrations of Constituents of Concern
February 6, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level [3]	Well ID [2]
		Source Area
		GW250S
Metals (µg/L)		
Lead	1	0.112

Notes:
1. Data qualifiers are as follows:
   J = The value is estimated.
2. S = shallow well.
3. Cleanup levels obtained from Table 2 of the Cleanup Action Plan.

Abbreviations:
AOC = area of concern
µg/L = micrograms per liter

Table 22: AOC-060 Groundwater Elevation Data
February 7, 2024
Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)[2]	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)[2]
GW009S	4.5 to 14.5	19.36	5.27	14.09
GW010S	4.5 to 14.5	19.47	7.39	12.08
GW011D	29 to 39	19.49	5.39	14.10
GW012S	4.5 to 14.5	19.11	4.94	14.17
GW014S	4.5 to 14.5	19.24	5.08	14.16
GW147S	5 to 15	18.73	4.71	14.02
GW150S	5 to 15	19.10	5.23	13.87
GW253I	10 to 20	19.02	5.09	13.93

Notes:
1. S = shallow well; D = deep well; I = intermediate well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.

Abbreviations:
AOC = area of concern
bgs = below ground surface
TOC = top of casing

Table 23: AOC-060 Primary Geochemical Indicators[1]
February 7, 2024
Boeing Renton Facility, Renton, Washington

Parameter	Well ID [2]						
	Source Area	Downgradient Plume Area				CPOC Area	
	GW009S	GW012S	GW014S	GW014S (field dup.)	GW147S	GW150S	GW253I
Temperature (degrees C)	20.0	21.1	19.6	NA	14.1	13.1	14.1
Specific Conductivity (µS/cm)	335	1575	505	NA	175	224	356
Dissolved Oxygen (mg/L)	0.02	0.01	5.23	NA	0.03	6.36	6.26
pH (standard units)	6.44	6.13	6.38	NA	6.16	6.57	6.59
Oxidation/Reduction Potential (mV)	-98.1	-145.9	-52.6	NA	-29.2	-20.1	-41.2
Total Organic Carbon (mg/L)	6.40	338.2	4.16	4.07	4.03	4.79	4.48

Notes:
1. Primary geochemical indicators are measured in the field, with the exception of total organic carbon, which is measured in the laboratory.
2. S = shallow well; I = intermediate well.

Abbreviations:
µS/cm = microsiemens per centimeter
AOC = area of concern
CPOC = conditional point of compliance
degrees C = degrees Celsius
field dup. = field duplicate
mg/L = milligrams per liter
mV = millivolts

Table 24: AOC-060 Concentrations of Constituents of Concern[1, 2]
February 7, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Levels [4]	Well ID [3]						
		Source Area	Cross-Gradient Wells			Downgradient Plume Well	CPOC Area	
		GW009S	GW012S	GW014S	GW014S (field dup.)	GW147S	GW150S	GW253I
Volatile Organic Compounds (µg/L)								
cis -1,2-Dichloroethene	0.08	**0.165**	**1.45**	**0.207**	**0.221**	**0.442**	0.0509	**0.0929**
Trichloroethene	0.02	**0.0336**	**0.143**	**0.0247**	**0.0279**	**0.0802**	0.0200 U	0.0145 J
Vinyl Chloride	0.26	**0.353**	**0.632**	**0.380**	**0.437**	0.0638	0.0608	0.133

Notes:
1. Data qualifiers are as follows:
   J = The value is estimated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; I = intermediate well.
4. Cleanup levels obtained from Table 2 of the Cleanup Action Plan.

Abbreviations:
µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
field dup. = field duplicate

Table 25: AOC-090 Groundwater Elevation Data
February 8, 2024
Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)[2]	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)[2]
GW176S	10 to 14.3	20.15	5	15.15
GW178S	11.2 to 15.5	22.73	7.28	15.45
GW189S	4 to 14	22.01	5.34	16.67
GW207S	7.3 to 12	21.12	6.45	14.67
GW208S	6.3 to 11	22.45	7.24	15.21

Notes:
1. S = shallow well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.

Abbreviations:
AOC = area of concern
bgs = below ground surface
TOC = top of casing

Table 26: AOC-090 Primary Geochemical Indicators [1]
February 8, 2024
Boeing Renton Facility, Renton, Washington

Parameter	Well ID [2]				
	Source Area	Downgradient Plume Area	Shallow Zone CPOC Area		
	GW189S [3]	GW176S	GW178S	GW207S	GW208S
Temperature (degrees C)	10.7	12.4	11.9	12.8	12.0
Specific Conductivity (µS/cm)	151	486	344	366	495
Dissolved Oxygen (mg/L)	7.25	6.85	6.82	6.75	0.03
pH (standard units)	6.74	6.30	6.20	6.56	6.35
Oxidation/Reduction Potential (mV)	-36.4	-47.9	-19.0	-44.1	-61.9
Total Organic Carbon (mg/L)	1.70	NA	NA	NA	NA

Notes:
1. Primary geochemical indicators are measured in the field, with the exception of total organic carbon, which is measured in the laboratory.
2. S = shallow well.
3. GW189S is the replacement well for GW168S.

Abbreviations:
µS/cm = microsiemens per centimeter
AOC = area of concern
CPOC = conditional point of compliance
degrees C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts
NA = not analyzed

Table 27: AOC-090 Concentrations of Constituents of Concern [1, 2]
February 8, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Levels [4]	Well ID [3]				
		Source Area	Downgradient Plume Area	Shallow Zone CPOC Area		
		GW189S [5]	GW176S	GW178S	GW207S	GW208S
Chlorinated Volatile Organic Compounds (µg/L)						
1,1,2,2-Tetrachloroethane	0.17	0.158	NA	NA	NA	NA
1,1,2-Trichloroethane	0.2	0.200 U	NA	NA	NA	NA
1,1-Dichloroethene	0.057	0.0200 U	NA	NA	NA	NA
Acetone	300	5.00 U	NA	NA	NA	NA
Benzene	0.8	0.200 U	NA	NA	NA	NA
Carbon Tetrachloride	0.23	0.200 U	NA	NA	NA	NA
Chloroform	2	0.200 U	NA	NA	NA	NA
cis-1,2-Dichloroethene	2.4	0.200 U	NA	NA	NA	NA
Methylene Chloride	2	1.00 U	NA	NA	NA	NA
Toluene	75	0.200 U	NA	NA	NA	NA
trans-1,2-Dichloroethene	53.9	0.200 U	NA	NA	NA	NA
Tetrachloroethene	0.05	0.0200 U	NA	NA	NA	NA
Trichloroethene	0.08	0.0200 U	NA	NA	NA	NA
Vinyl Chloride	0.13	0.0200 U	**0.21**	**0.27**	0.111	**0.298**
Total Petroleum Hydrocarbons (µg/L)						
TPH-G (C7-C12)	800	100 U	NA	NA	NA	NA
TPH-D (C12-C24)	500	100 U	NA	NA	NA	NA
TPH-O (C24-C38)	500	200 U	NA	NA	NA	NA

Notes:
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well.
4. Cleanup levels obtained from Table 2 of the Cleanup Action Plan.
5. GW189S is the replacement well for GW168S.

Abbreviations:
µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
NA = not analyzed
TPH-D = total petroleum hydrocarbons as diesel
TPH-G = total petroleum hydrocarbons as gasoline
TPH-O = total petroleum hydrocarbons as motor oil

Table 28: Apron A Groundwater Elevation Data
February 7, 2024
Boeing Renton Facility, Renton, Washington

Well ID[1]	Screen Interval Depth (feet bgs)	TOC Elevation (feet)	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)
GW263S	8 to 18	21.68	7.71	13.97
GW264S	8 to 18	21.55	4.26	17.29
GW265S	8 to 18	21.64	5.50	16.14

Notes
1. S = shallow well.

Abbreviations
bgs = below ground surface
NA = not available
TOC = top of casing

Table 29: Apron A Primary Geochemical Indicators [1]
February 7, 2024
Boeing Renton Facility, Renton, Washington

Parameter	Well ID[2] Source Area GW264S
Temperature (degrees C)	14.1
Specific Conductivity (µS/cm)	871
Dissolved Oxygen (mg/L)	0.05
pH (standard units)	6.13
Oxidation/Reduction Potential (mV)	-80.7
Total Organic Carbon (mg/L)	24.58

Notes

1. Primary geochemical indicators are measured in the field, with the exception of total organic carbon, which is measured in the laboratory.
2. S = shallow well.

Abbreviations

µS/cm = microsiemens per centimeter
degrees C = degrees Celsius
mg/L = milligrams per liter
mV = millivolts

Table 30: Apron A Concentrations of Constituents of Concern [1]
February 7, 2024
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Levels	Well ID[2] GW264S
Volatile Organic Compounds (µg/L)		
cis- 1,2-Dichloroethene	NE	0.200 U
Vinyl Chloride	NE	0.810

Notes
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
2. S = shallow well.

Abbreviations
µg/L = micrograms per liter
NE = not established

APPENDIX A

SUMMARY OF GROUNDWATER SAMPLING METHODOLOGY

TABLE A-1: GROUNDWATER COMPLIANCE MONITORING PLAN

Boeing Renton Facility, Renton, Washington

Cleanup Action Area	Monitoring Wells[1, 2]					Constituents of Concern[4]	Analyses[5]
	Cross-Gradient Wells	Source Area Wells	Downgradient Plume Wells	CPOC Wells	Additional Water Level Monitoring Wells[3]		
SWMU-168	NA	NA	NA	GW230I	NA	VC	SW8260D SIM
SWMU-172/ SWMU-174	NA	GW152S and GW153S	GW172S, GW173S, and GW226S	GW232S, GW234S, GW235I, and GW236S	NA	*cis* -1,2-DCE, PCE, TCE, VC	SW8260D SIM[7]
						Arsenic, copper, and lead	EPA 6020A
Building 4-78/79 SWMU/AOC Group	NA	GW031S-R, GW033S, GW034S, and GW244S-R	NA	GW143S, GW237S, and GW240D	NA	VC, TCE, *cis* -1,2-DCE, benzene	SW8260D
						TPH-gasoline	NWTPH-Gx
Former Fuel Farm SWMU/AOC Group	NA	NA	NA	GW211S, GW221S, and GW224S	NA	TPH-jet fuel, TPH-diesel	NWTPH-Dx
AOC-001/ AOC-002[6]	GW213S-R, GW214S-R, GW215S-R	GW193S-R	GW190S-R, GW191D-R, GW192S-R, and GW246S-R	GW185S-R, GW195S-R, GW196D-R, GW197S-R, and GW245S-R	NA	Benzene	SW8260D
						TCE, *cis* -1,2-DCE, 1,1-dichloroethene, VC	SW8260D SIM[7]
AOC-003	NA	GW249S	GW188S	GW247S-R and GW248I	NA	VC	SW8260D
AOC-004	NA	GW250S	NA	NA	NA	Lead	EPA 6020A
AOC-060	GW012S and GW014S	GW009S	GW147S	GW150S and GW253I	GW010S and GW011D	VC, TCE, cis-1,2-DCE	SW8260D SIM[7]
AOC-090[8]	NA	GW189S	GW176S	GW178S, GW207S, and GW208S	NA	1,1,2-Trichloroethane, acetone, benzene, toluene, carbon tetrachloride, chloroform, *cis* -1,2-DCE, *trans* -1,2-DCE, methylene chloride	SW8260D
						1,1-Dichloroethene, 1,1,2,2-tetrachloroethane, VC, PCE, TCE	SW8260D SIM[7]
						TPH-gasoline	NWPTH-Gx
						TPH-diesel, TPH-motor oil	NWTPH-Dx
Apron A	NA	GW264S	NA	NA	GW263S, GW265S	*cis* -1,2-DCE and VC	SW8260D

Notes:

1. The EDR presents the groundwater monitoring frequency for each SWMU/AOC. All sites are monitored on a semi-annual basis with sampling events occurring in February and August.
2. Groundwater monitoring wells are also monitored for groundwater levels.
3. Additional wells are monitored for groundwater levels only.
4. In addition to COCs, primary geochemical indicators will be monitored during each regular monitoring event. Geochemical indicators are listed in Table A-2.
5. Details of analytical methods are specified in the Quality Assurance Project Plan, which is Appendix E to the Cleanup Action Plan (AMEC, 2012).
6. Monitoring wells were abandoned on 11/25/2019 prior to Apron R construction and were replaced upon completion of construction.
7. SIM methods will be used if the cleanup level is lower than the reporting limit achieved by the conventional 8021, 8260, or 8270 method. If cleanup levels become higher or if the conventional 8021, 8260, or 8270 methods are updated and able to achieve reporting limits below the cleanup levels, then the conventional method rather than the SIM method will be used.
8. GW189S will be sampled for CVOCs and TPH, all other wells will only be sampled for VC.

Abbreviations:

AOC = area of concern
cis -1,2-DCE = *cis* -1,2 dichloroethene
COCs = constituents of concern
CPOC = conditional point of compliance
CVOCs = chlorinated volatile organic compounds
EDR = Engineering Design Report
EPA = Environmental Protection Agency
NA = not applicable
PCE = tetrachloroethene
SIM = selected ion monitoring
SWMU = solid waste management unit
TCE = trichloroethene
TPH = total petroleum hydrocarbons
trans -1,2-DCE = *trans* -1,2 dichloroethene
VC = vinyl chloride

TABLE A-2: MONITORED NATURAL ATTENUATION/MONITORED ATTENUATION PLAN

Boeing Renton Facility, Renton, Washington

Cleanup Action Area	Groundwater Monitoring Wells				Primary Geochemical Parameters[1, 2]
	Cross-Gradient Wells	Source Area Wells	Downgradient Plume Wells	CPOC Wells	Indicators
SWMU-168	NA	NA	NA	GW230I	Dissolved oxygen, pH, ORP, temperature, specific conductance
SWMU-172/SWMU-174	NA	GW152S and GW153S	GW172S, GW173S, and GW226S	GW232S, GW234S, GW235I, and GW236S	Dissolved oxygen, pH, ORP, temperature, specific conductance, TOC
Building 4-78/79 SWMU/AOC Group	NA	GW031S-R, GW033S, GW034S, and GW244S-R	NA	GW143S, GW237S, and GW240D	Dissolved oxygen, pH, ORP, temperature, specific conductance, TOC
Former Fuel Farm SWMU/AOC Group	NA	NA	NA	GW211S, GW221S, and GW224S	Dissolved oxygen, pH, ORP, temperature, specific conductance
AOC-001/AOC-002[3]	GW213S-R, GW214S-R, GW215S-R	GW193S-R	GW190S-R, GW191D-R, GW192S-R, and GW246S-R	GW185S-R, GW195S-R, GW196D-R, GW197S-R, and GW245S-R	Dissolved oxygen, pH, ORP, temperature, specific conductance, TOC
AOC-003	NA	GW249S	GW188S	GW247S-R and GW248I	Dissolved oxygen, pH, ORP, temperature, specific conductance, TOC
AOC-004	NA	GW250S	NA	NA	Dissolved oxygen, pH, ORP, temperature, specific conductance
AOC-060	GW012S and GW014S	GW009S	GW147S	GW150S and GW253I	Dissolved oxygen, pH, ORP, temperature, specific conductance, TOC
AOC-090	NA	GW189S	GW176S	GW178S, GW207S, and GW208S	Dissolved oxygen, pH, ORP, temperature, specific conductance, TOC[4]
Apron A	NA	GW264S	NA	NA	Dissolved oxygen, pH, ORP, temperature, specific conductance, TOC

Notes:

1. In addition to COCs listed in Table A-1, primary geochemical indicators will be monitored during each regular monitoring event.
2. All primary geochemical indicators except TOC are monitored in the field during sampling. TOC is analyzed in the laboratory following methods specified in the Quality Assurance Project Plan, which is Appendix E to the Cleanup Action Plan (AMEC, 2012).
   The primary geochemical indicators differ slightly depending on whether the site is a fuel-related site or a solvent-related site.
   At a fuel-related site, TOC is not necessary; at a solvent-related site, TOC is a measure of how much electron donor remains present.
   All MNA parameters are measured semiannually in all wells on a wet season/dry season basis.
3. Monitoring wells were abandoned on 11/25/2019 prior to Apron R construction and were replaced upon completion of construction.
4. TOC will only be analyzed in the groundwater from the source area well (GW189S).

Abbreviations:

AOC = area of concern
COCs = constituents of concern
CPOC = conditional point of compliance
MNA = monitored natural attenuation
NA = not applicable
ORP = oxidation reduction potential
SWMU = solid waste management unit
TOC = total organic carbon

APPENDIX B

FIELD FORMS

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW185S-R

1-Well Integrity

Date	01/31/2024	Time	15:17
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED portable Bladder Pump (non dedicated)
Total drawdown	-0.15000000000000036	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO; SPC did not stabilize; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	01/31/2024	Time	15:17
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.14
Final DTW (ft)	4.29	Groundwater elevation	NA
Well Depth (ft)	13.48	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 4.29		

3-Wellhead

Date	02/01/2024	Time	12:55
Weather Conditions	Partly Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	180
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	9.5	Depth to Water (ft bmp)	4.14
Measured Well Depth (ft bmp)	13.48	Water Column in Well	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Gallons in Well	NA	Casing Volume to Remove	NA
Total Volume to Remove	NA		
Remarks	None		

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
01/31/24	12:13	180	360	360	4.26	5.64	11.7	6.53	0.282	1.8	88.77	
02/01/24	12:17	180	720		4.28	5.08	11.5	6.51	0.276	7.1	85.13	
02/01/24	12:21	180	720.0		4.29	5.04	11.4	6.51	0.270	10.1	84.80	
02/01/24	12:25	180	720.0		4.30	4.96	11.4	6.49	0.287	7.4	79.20	
02/01/24	12:29	180	720.0		4.31	3.88	11.7	6.46	0.387	-10.9	153.38	
02/01/24	12:33	180	720.0		4.31	2.63	11.9	6.46	0.447	-22.5	36.64	
02/01/24	12:37	180	720.0		4.31	2.23	12	6.46	0.471	-27.9	32.83	
02/01/24	12:41	180	720.0		4.32	2.02	12	6.46	0.480	-30.6	31.89	
02/01/24	12:45	180	720.0		4.32	1.83	12	6.46	0.491	-33.4	30.05	
02/01/24	12:49	180	720.0		4.32	1.69	12.0	6.46	0.498	-35.8	26.83	

5-Sample

Date	02/01/2024	Time	12:52
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/01/2024	Sample Time	12:40
Sample ID	RGW185S-R-02012024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0043
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

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Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW190S-R

1-Well Integrity

Date	02/01/2024	Time	09:09
Inspector Name	Jacklyn Perkins	Well Permit Number	BPQ-882
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.08999999999999986	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/01/2024	Time	09:10
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.21
Final DTW (ft)	4.3	Groundwater elevation	NA
Well Depth (ft)	13.07	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 4.3		

3-Wellhead

Date	02/01/2024	Time	09:12
Weather Conditions	Cloudy, Rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	230
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	8	Depth to Water (ft bmp)	4.21
Measured Well Depth (ft bmp)	13.07	Water Column in Well	8.86
Gallons in Well	5.78046	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperature (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/01/24	09:12	230	115	115	4.25	2.74	11.8	6.52	0.636	-62.8	92.87	
02/01/24	09:16	230			4.27	0.35	11.9	6.35	0.655	-50.5	93.44	
02/01/24	09:20	230			4.28	0.14	11.9	6.35	0.656	-45.7	86.46	
02/01/24	09:24	230			4.30	0.06	11.8	6.35	0.651	-44.0	81.68	
02/01/24	09:29	230			4.30	0.01	11.9	6.37	0.648	-42.8	75.32	
02/01/24	09:32	230			4.30	0.01	11.9	6.36	0.649	-43.1	73.80	
02/01/24	09:36	230			4.30	0.01	11.9	6.35	0.647	-43.2	72.43	Orange tint, bacterial growth in casing

5-Sample

Date	02/01/2024	Time	09:32
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/01/2024	Sample Time	09:40
Sample ID	RGW190S-R-02012024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0043
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW191D-R

1-Well Integrity

Date	02/02/2024	Time	08:44
Inspector Name	Lindsey Wielick	Well Permit Number	BPQ-820
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	0.1900000000000004	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/02/2024	Time	08:45
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	3.97
Final DTW (ft)	3.78	Groundwater elevation	NA
Well Depth (ft)	34.02	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 3.78		

3-Wellhead

Date	02/02/2024	Time	08:45
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	115
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	31	Depth to Water (ft bmp)	3.97
Measured Well Depth (ft bmp)	34.02	Water Column in Well	30.05
Gallons in Well	19.6052878	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/02/24	08:50	115	200	200	3.78	7.32	11.9	6.37	0.309	45.1	12.98	
02/02/24	08:54	115			3.78	6.41	12.8	6.22	0.327	-18.3	17.46	
02/02/24	08:58	115			3.79	6.31	12.8	6.25	0.331	-38.3	22.76	
02/02/24	09:02	115			3.78	6.19	12.8	6.26	0.333	-51.1	25.33	
02/02/24	09:06	115			3.78	6.18	12.8	6.28	0.334	-57.2	19.99	
02/02/24	09:10	115			3.78	6.18	12.7	6.32	0.332	-63.8	21.94	
02/02/24	09:14	115			3.79	6.15	12.8	6.34	0.330	-68.7	58.31	
02/02/24	09:18	115			3.78	6.20	12.8	6.38	0.328	-71.2	74.03	
02/02/24	09:22	115			3.78	6.18	12.8	6.37	0.326	-74.2	75.63	
02/02/24	09:26	115	460.0		3.78	6.15	12.9	6.39	0.326	-77.6	69.72	

5-Sample

Date	02/02/2024	Time	08:51
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/02/2024	Sample Time	09:35
Sample ID	RGW191D-R-02022024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0049
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW192S-R

1-Well Integrity

Date	02/01/2024	Time	10:39
Inspector Name	Jacklyn Perkins	Well Permit Number	BPQ-821
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-2.3999999999999995	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO; ORP did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/01/2024	Time	10:39
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	3.95
Final DTW (ft)	6.35	Groundwater elevation	NA
Well Depth (ft)	9.44	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 6.35		

3-Wellhead

Date	02/01/2024	Time	11:17
Weather Conditions	Partly Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	7	Depth to Water (ft bmp)	3.95
Measured Well Depth (ft bmp)	9.44	Water Column in Well	NA
Gallons in Well	NA	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove: NA

Remarks: None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/01/24	10:43	200	200	200	4.30	2.65	11.5	6.41	0.217	69.1	22.41	
02/01/24	10:47	200			4.44	0.83	11.5	6.25	0.213	92.0	20.79	
02/01/24	10:51	200			4.59	0.49	11.5	6.20	0.213	109.6	18.89	
02/01/24	10:55	200			4.72	0.37	11.5	6.19	0.213	122.1	18.87	
02/01/24	11:03	200			5.14	0.27	11.6	6.18	0.216	131.5	17.75	
02/01/24	11:08	200			5.38	0.42	11.6	6.18	0.216	132.9	17.60	
02/01/24	11:12	200			5.47	0.35	11.6	6.19	0.218	125.0	16.79	
02/01/24	11:16	200			5.66	0.25	11.6	6.20	0.220	107.2	17.30	
02/01/24	11:20	200			5.88	0.25	11.6	6.21	0.220	100.2	17.07	
02/01/24	11:24	200			6.07	0.26	11.6	6.24	0.220	99.2	18.17	
02/01/24	11:59	200			4.93	0.30	11.6	6.22	0.214	122.1	18.14	

5-Sample

Date	02/01/2024	Time	10:52
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/01/2024	Sample Time	11:30
Sample ID	RGW192S-R-02012024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0043
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW193S-R

1-Well Integrity

Date	02/01/2024	Time	09:58
Inspector Name	Lindsey Wielick	Well Permit Number	BPQ-818
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	0	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/01/2024	Time	09:58
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.44
Final DTW (ft)	4.44	Groundwater elevation	NA
Well Depth (ft)	12.29	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 4.44		

3-Wellhead

Date	02/01/2024	Time	09:58
Weather Conditions	Cloudy, Rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	230
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	7.9	Depth to Water (ft bmp)	4.44
Measured Well Depth (ft bmp)	12.29	Water Column in Well	7.85
Gallons in Well	5.1215144	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/01/24	10:03	230	200	200	4.45	7.25	11.3	6.13	0.586	-21.8	37.86	
02/01/24	10:07	230			4.44	6.56	11.3	6.13	0.545	-49.5	50.12	
02/01/24	10:11	230			4.43	6.50	11.2	6.14	0.541	-62.3	45.16	
02/01/24	10:15	230			4.44	6.46	11.2	6.15	0.543	-69.8	38.11	
02/01/24	10:19	230			4.43	6.45	11.2	6.15	0.543	-74.5	34.22	
02/01/24	10:23	230			4.43	6.42	11.2	6.15	0.543	-78.0	32.16	
02/01/24	10:28	230	1150.0		4.45	6.38	11.3	6.16	0.543	-81.2	31.68	Slight sheen on wastewa

5-Sample

Date	02/01/2024	Time	10:10
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/01/2024	Sample Time	10:35
Sample ID	RGW193S-R-02012024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0043
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW195S-R

1-Well Integrity

Date	01/31/2024	Time	11:32
Inspector Name	Lindsey Wielick	Well Permit Number	BPQ-824
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.04999999999999982	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	01/31/2024	Time	11:32
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.90
Final DTW (ft)	4.95	Groundwater elevation	NA
Well Depth (ft)	11.68	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 4.95		

3-Wellhead

Date	01/31/2024	Time	11:33
Weather Conditions	Cloudy, light rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	166
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	9.5	Depth to Water (ft bmp)	4.90
Measured Well Depth (ft bmp)	11.68	Water Column in Well	6.78
Gallons in Well	4.4234227	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
01/31/24	11:50	166	200	200	4.96	6.45	12.3	6.05	0.386	-57.5	15.23	
01/31/24	11:54	166			4.97	4.21	12.1	6.14	0.394	-92.6	28.07	
01/31/24	11:58	166			4.98	6.19	12.0	6.17	0.394	-99.7	26.15	
01/31/24	12:02	166			4.97	6.22	12.0	6.19	0.394	-102.1	31.41	
01/31/24	12:06	166			4.99	6.18	12.0	6.21	0.394	-105.2	31.79	
01/31/24	12:10	166			4.99	6.21	11.9	6.22	0.393	-104.9	31.63	

5-Sample

Date	01/31/2024	Time	12:12
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	01/31/2024	Sample Time	12:15
Sample ID	RGW-195S-R-01312024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0045
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW196D-R

1-Well Integrity

Date	01/31/2024	Time	12:44
Inspector Name	Lindsey Wielick	Well Permit Number	BPQ-825
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.05999999999999961	Did well meet SAP/WP stabilization requirements before sampling?	No; turbidity did not stabilize
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	01/31/2024	Time	12:45
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.70
Final DTW (ft)	4.76	Groundwater elevation	NA
Well Depth (ft)	34.34	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 4.76		

3-Wellhead

Date	01/31/2024	Time	12:45
Weather Conditions	Cloudy, Rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	166
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	31	Depth to Water (ft bmp)	4.70
Measured Well Depth (ft bmp)	34.34	Water Column in Well	29.64
Gallons in Well	19.3377947	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
01/31/24	12:51	166	200	200	4.72	6.61	12.9	6.19	0.420	-29.2	12.12	
01/31/24	12:55	166			4.74	5.92	13.7	6.07	0.419	-64.6	14.78	
01/31/24	12:59	166			4.74	5.84	13.8	6.12	0.422	-85.6	14.06	
01/31/24	13:03	166			4.75	5.87	13.8	6.12	0.422	-91.7	14.02	
01/31/24	13:07	166			4.72	5.87	13.8	6.12	0.422	-97.1	12.89	
01/31/24	13:11	166			4.75	5.80	13.7	6.12	0.419	-99.7	13.34	

5-Sample

Date	01/31/2024	Time	12:54
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	01/31/2024	Sample Time	13:15
Sample ID	RGW-196D-R-01312024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0045
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW197S-R

1-Well Integrity

Date	01/31/2024	Time	15:03
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.05999999999999961	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	01/31/2024	Time	15:10
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.69
Final DTW (ft)	4.75	Groundwater elevation	NA
Well Depth (ft)	12.15	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 4.75		

3-Wellhead

Date	01/31/2024	Time	15:10
Weather Conditions	Cloudy, Rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	230
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	10	Depth to Water (ft bmp)	4.69
Measured Well Depth (ft bmp)	12.15	Water Column in Well	NA
Gallons in Well	NA	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
01/31/24	15:13	230	300	300	4.71	6.67	10.7	8.55	0.195	-153.1	34.21	
01/31/24	15:17	230			4.71	6.47	10.6	8.96	0.144	-198.7	18.51	
01/31/24	15:21	230			4.72	6.44	10.6	8.99	0.143	-214.4	18.27	
01/31/24	15:25	230			4.70	6.42	10.6	8.98	0.144	-233.9	15.41	
01/31/24	15:29	230			4.72	6.42	10.6	8.94	0.144	-225.3	13.11	
01/31/24	15:33	230			4.71	6.43	10.5	8.96	0.144	-222.7	13.92	
01/31/24	15:37	230			4.71	6.46	10.5	8.93	0.144	-217.4	12.09	

5-Sample

Date	01/31/2024	Time	15:19
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	01/31/2024	Sample Time	15:45
Sample ID	RGW-197S-R-01312024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0045
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW213S-R

1-Well Integrity

Date	02/01/2024	Time	14:29
Inspector Name	Lindsey Wielick	Well Permit Number	BPQ-829
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.3200000000000003	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/01/2024	Time	14:29
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.38
Final DTW (ft)	4.7	Groundwater elevation	NA
Well Depth (ft)	12.89	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 4.70		

3-Wellhead

Date	02/01/2024	Time	14:30
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	170
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	8	Depth to Water (ft bmp)	4.38
Measured Well Depth (ft bmp)	12.89	Water Column in Well	8.51
Gallons in Well	5.5521131	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/01/24	14:30	170	90	90	4.28	6.57	12.6	6.79	0.778	-46.2	30.46	
02/01/24	14:34	170			4.36	6.14	12.6	6.74	0.850	-70.6	14.41	
02/01/24	14:38	170			4.50	6.06	12.6	6.72	0.863	-88.3	13.78	
02/01/24	14:42	170			4.54	6.03	12.6	6.72	0.865	-96.0	15.25	
02/01/24	14:46	170			4.61	6.02	12.5	6.71	0.865	-101.6	15.08	
02/01/24	14:50	170			4.68	6.02	12.5	6.71	0.865	-105.4	15.45	

5-Sample

Date	02/01/2024	Time	14:35
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/01/2024	Sample Time	14:55
Sample ID	RGW213S-R-02012024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0043
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW214S-R

1-Well Integrity

Date	02/01/2024	Time	12:05
Inspector Name	Lindsey Wielick	Well Permit Number	BPQ-828
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.5299999999999994	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/01/2024	Time	12:05
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.40
Final DTW (ft)	4.93	Groundwater elevation	NA
Well Depth (ft)	13.35	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW 4.93		

3-Wellhead

Date	02/01/2024	Time	12:06
Weather Conditions	Partly Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	NA	Depth to Water (ft bmp)	4.40
Measured Well Depth (ft bmp)	13.35	Water Column in Well	NA
Gallons in Well	NA	Casing Volume to Remove	NA

Powered by QNOPY

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/01/24	12:07	200	200	200	4.11	7.28	12.4	6.35	0.697	-33.9	22.42	
02/01/24	12:11	200			4.24	6.90	12.6	6.38	0.849	-77.4	13.13	
02/01/24	12:15	200			4.32	6.64	12.6	6.39	0.860	-92.8	11.08	
02/01/24	12:19	200			4.42	6.50	12.6	6.39	0.863	-102.3	11.83	
02/01/24	12:23	200			4.49	6.34	12.7	6.40	0.864	-108.6	11.79	
02/01/24	12:27	200			4.57	6.25	12.7	6.43	0.865	-113.2	12.54	
02/01/24	12:31	200			4.62	6.19	12.7	6.41	0.866	-115.6	12.38	

5-Sample

Date	02/01/2024	Time	12:20
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/01/2024	Sample Time	12:35
Sample ID	RGW214S-R-02012024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0043
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

RGW215S-R

1-Well Integrity

Date	02/01/2024	Time	11:09
Inspector Name	Lindsey Wielick	Well Permit Number	BPQ-830
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.25	Did well meet SAP/WP stabilization requirements before sampling?	No; turbidity did not stabilize
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/01/2024	Time	11:09
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.34
Final DTW (ft)	4.59	Groundwater elevation	NA
Well Depth (ft)	12.88	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 4.59		

3-Wellhead

Date	02/01/2024	Time	11:09
Weather Conditions	Partly Cloudy, Partly Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	144
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	8	Depth to Water (ft bmp)	4.34
Measured Well Depth (ft bmp)	12.88	Water Column in Well	8.54
Gallons in Well	5.5716858	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/01/24	11:12	144	144	144	4.21	6.89	12.1	6.41	0.624	1.9	17.48	
02/01/24	11:16	144			4.31	6.18	12.5	6.56	0.723	-79.9	17.18	
02/01/24	11:20	144			4.41	6.11	12.5	6.53	0.726	-97.2	17.80	
02/01/24	11:24	144			4.48	6.06	12.6	6.54	0.727	-108.2	13.19	
02/01/24	11:28	144			4.50	6.04	12.5	6.55	0.727	-113.6	14.40	
02/01/24	11:32	144			4.52	6.03	12.5	6.55	0.727	-117.8	12.38	
02/01/24	11:36	144			4.57	6.02	12.5	6.55	0.727	-120.8	13.34	

5-Sample

Date	02/01/2024	Time	11:31
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/01/2024	Sample Time	11:45
Sample ID	RGW215S-R-02012024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0043
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW245S-R

1-Well Integrity

Date	01/31/2024	Time	11:34
Inspector Name	Jacklyn Perkins	Well Permit Number	BPQ-826
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.3199999999999994	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Date	01/31/2024	Time	12:43
Inspector Name	Jacklyn Perkins	Well Permit Number	BPQ-826
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Pump	GeoTech Bladder Pump
Total drawdown	-0.3199999999999994	Did well meet SAP/WP stabilization requirements before sampling?	Yes

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	01/31/2024	Time	12:43
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.8
Final DTW (ft)	5.14	Groundwater elevation	NA
Well Depth (ft)	12.59	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW 5.14		

3-Wellhead

Date	01/31/2024	Time	11:39
Weather Conditions	Cloudy, light rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	8	Depth to Water (ft bmp)	4.80
Measured Well Depth (ft bmp)	12.59	Water Column in Well	7.79
Gallons in Well	5.08237	Casing Volume to Remove	NA
Total Volume to Remove	NA		
Remarks	None		

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
01/31/24	12:03	200	200	200	4.97	0.00	12.2	9.02	380.9	-265.8	8.14	
01/31/24	12:07	200			5.03	0.00	12.2	9.01	381.8	-280.9	6.31	
01/31/24	12:11	200				.	12.2					Paused purging until 12:53
01/31/24	12:53	200			4.90	-0.08	12.1	8.79	403.0	-239.5	7.42	
01/31/24	12:57	200			5.00	-0.09	12.2	8.79	406.1	-296.3	6.29	
01/31/24	13:01	200			5.04	-0.09	12.2	8.78	407.3	-319.1	4.96	
01/31/24	13:05	200			5.07	-0.09	12.2	8.74	411.9	-324.5	5.80	

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
01/31/24	13:09	200			5.08	-0.09	12.2	8.72	415.9	-330.8	5.60	
01/31/24	13:13	200			5.10	-0.09	12.2	8.72	415.9	-334.3	5.58	Greyish tinge, slight diesel odor

5-Sample

Date	01/31/2024	Time	12:43
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	01/31/2024	Sample Time	13:30
Sample ID	RGW245S-R-01312024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0045
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	Greyish tinge		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW246S-R

1-Well Integrity

Date	01/31/2024	Time	09:42
Inspector Name	Jacklyn Perkins, Lindsey Wielick	Well Permit Number	BPQ-823
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.2400000000000002	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	01/31/2024	Time	09:44
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.18
Final DTW (ft)	4.42	Groundwater elevation	NA
Well Depth (ft)	13.25	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 4.42 ft		

3-Wellhead

Date	01/31/2024	Time	09:46
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	115
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	9	Depth to Water (ft bmp)	4.18
Measured Well Depth (ft bmp)	13.25	Water Column in Well	9.07
Gallons in Well	5.9174696	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
01/31/24	10:17	115	115	115	4.21	0.85	12.7	6.43	356.3	-99.7	0.21	
01/31/24	10:21	115			4.22	0.18	12.6	6.43	352.7	-118.3	0.00	
01/31/24	10:25	115			4.21	0.08	12.5	6.43	350.3	-125.5	-0.24	
01/31/24	10:29	115			4.22	0.04	12.6	6.43	349.5	-129.8	-0.18	
01/31/24	10:33	115			4.23	0.02	12.5	6.43	347.9	-132.8	-0.23	

5-Sample

Date	01/31/2024	Time	10:39
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	01/31/2024	Sample Time	10:40
Sample ID	RGW-246S-R-01312024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	7
Analysis	EPA 8260D, SM 5310C,8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0045
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	[signature]
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW188S

1-Well Integrity

Date	02/02/2024	Time	10:16
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	-0.37999999999999945	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/02/2024	Time	10:16
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	3.89
Final DTW (ft)	4.27	Groundwater elevation	NA
Well Depth (ft)	13.95	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW:4.27		

3-Wellhead

Date	02/02/2024	Time	10:16
Weather Conditions	Partly Cloudy, Partly Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	125
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	8.5	Depth to Water (ft bmp)	3.89
Measured Well Depth (ft bmp)	13.95	Water Column in Well	10.06
Gallons in Well	1.6408419	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/02/24	10:17	125	300	300	4.28	6.28	13.7	6.08	0.415	12.8	196.7	
02/02/24	10:21	125			4.24	6.18	13.5	6.18	0.416	-27.5	65.39	
02/02/24	10:25	125			4.24	6.22	13.2	6.20	0.415	-42.5	56.67	
02/02/24	10:29	125			4.24	6.19	13.2	6.24	0.415	-54.0	39.35	
02/02/24	10:33	125			4.23	6.15	13.3	6.22	0.416	-60.6	38.29	
02/02/24	10:37	125			4.24	6.11	13.4	6.22	0.417	-66.2	29.67	
02/02/24	10:41	125			4.27	6.08	13.5	6.23	0.417	-70.7	26.78	
02/02/24	10:45	125			4.27	6.03	13.7	6.23	0.416	-73.9	26.05	
02/02/24	10:49	125			4.27	5.98	13.8	6.22	0.416	-76.6	27.67	Slight sheen on purged water

5-Sample

Date	02/02/2024	Time	10:52
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/02/2024	Sample Time	10:45
Sample ID	RGW188S-R-02022024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	4
Analysis	SM 5310C,VOC-8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0055
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW247S-R

1-Well Integrity

Date	02/02/2024	Time	08:55
Inspector Name	Jacklyn Perkins	Well Permit Number	BPQ-827
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	New lock	Pump	GeoTech Bladder Pump
Total drawdown	-0.20999999999999996	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/02/2024	Time	08:55
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.68
Final DTW (ft)	4.89	Groundwater elevation	NA
Well Depth (ft)	14.03	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 4.89		

3-Wellhead

Date	02/02/2024	Time	09:00
Weather Conditions	Partly Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	250
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	4
Pump Intake Depth (ft bmp)	8	Depth to Water (ft bmp)	4.68
Measured Well Depth (ft bmp)	14.03	Water Column in Well	9.35
Gallons in Well	6.10015	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove: NA

Remarks: None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/02/24	08:59	250	250	250	4.78	2.14	11.7	6.45	0.572	-90.4	14.36	
02/02/24	09:03	250	1000.0	1250.0	4.83	0.29	12.4	6.38	0.553	-100.5	4.95	
02/02/24	09:07	250	1000.0	2250.0	4.84	0.15	12.5	6.38	0.553	-104.7	5.80	
02/02/24	09:11	250	1000.0	3250.0	4.87	0.08	12.6	6.38	0.553	-106.3	9.28	
02/02/24	09:15	250	1000.0	4250.0	4.87	0.06	12.5	6.38	0.553	-107.9	9.97	
02/02/24	09:19	250	1000.0	5250.0	4.87	0.03	12.6	6.38	0.552	-109.1	9.78	

5-Sample

Date	02/02/2024	Time	09:10
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/02/2024	Sample Time	09:20
Sample ID	RGW247S-R-02022024	Duplicate Sample ID	NA
Dup Sample Time	00:00	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	[signature]	No. of Containers	4
Analysis	SM 5310C,VOC-8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0055
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	[signature]
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW248I

1-Well Integrity

Date	02/02/2024	Time	10:06
Inspector Name	Jacklyn Perkins	Well Permit Number	NA No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	Lock rusted shut, replaced with new 1g022	Pump	GeoTech Bladder Pump
Total drawdown	-0.75	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO; turbidity did not stabilize
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/02/2024	Time	10:06
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.16
Final DTW (ft)	4.91	Groundwater elevation	NA
Well Depth (ft)	20	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 4.91		

3-Wellhead

Date	02/02/2024	Time	10:06
Weather Conditions	Partly Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	15	Depth to Water (ft bmp)	4.16
Measured Well Depth (ft bmp)	20	Water Column in Well	15.84
Gallons in Well	2.58359	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/02/24	10:13	200	600	600	4.74	0.54	13.7	6.38	0.544	-66.3	23.84	
02/02/24	10:17	200	800.0	1400.0	4.78	0.16	14.0	6.38	0.545	-85.0	18.09	
02/02/24	10:21	200	800.0	2200.0	4.88	0.10	14.0	6.38	0.545	-89.3	12.14	
02/02/24	10:25	200	800.0	3000.0	4.92	0.06	14.0	6.38	0.544	-92.9	9.66	
02/02/24	10:29	200	800.0	3800.0	4.85	0.03	14.1	6.38	0.543	-95.1	6.34	Cleared bubbles of sensor
02/02/24	10:33	200	800.0	4600.0	4.87	0.01	14.1	6.37	0.543	-96.4	5.42	

5-Sample

Date	02/02/2024	Time	10:34
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/02/2024	Sample Time	10:30
Sample ID	RGW248I-02022024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	4
Analysis	SM 5310C,VOC-8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0055
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info
Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW249S

1-Well Integrity

Date	02/01/2024	Time	14:38
Inspector Name	Jacklyn Perkins	Well Permit Number	BID-805
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	New lock	Pump	GeoTech Bladder Pump
Total drawdown	-0.050000000000000266	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/01/2024	Time	14:38
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	3.67
Final DTW (ft)	3.72	Groundwater elevation	NA
Well Depth (ft)	14	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 3.72		

3-Wellhead

Date	02/01/2024	Time	14:38
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	180
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	9	Depth to Water (ft bmp)	3.67
Measured Well Depth (ft bmp)	14	Water Column in Well	10.33
Gallons in Well	1.68488	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/01/24	14:41	180	360	360	3.73	1.96	14.4	6.33	0.436	-96.8	94.24	Cloudy
02/01/24	14:44	180	540.0		3.69	0.47	14.7	6.30	0.377	-85.6	15.42	
02/01/24	14:48	180	720.0		3.71	0.16	14.7	6.30	0.374	-86.2	8.44	
02/01/24	14:52	180	720.0		3.72	0.08	14.7	6.30	0.373	-88.4	8.31	
02/01/24	14:56	180	720.0		3.72	0.04	14.6	6.30	0.373	-89.6	8.93	
02/01/24	15:00	180	720.0		3.72	0.02	14.6	6.30	0.373	-90.7	8.56	

5-Sample

Date	02/01/2024	Time	14:46
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/01/2024	Sample Time	15:00
Sample ID	RGW249S-02012024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	4
Analysis	SM 5310C,VOC-8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0044
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW250S

1-Well Integrity

Date	02/06/2024	Time	10:56
Inspector Name	Lindsey Wielick	Well Permit Number	BIP-838
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.7799999999999998	Did well meet SAP/WP stabilization requirements before sampling?	No; ORP did not stabilize; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/06/2024	Time	11:04
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	3.57
Final DTW (ft)	4.35	Groundwater elevation	NA
Well Depth (ft)	14	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 4.35		

3-Wellhead

Date	02/06/2024	Time	11:04
Weather Conditions	Cloudy, light rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	8	Depth to Water (ft bmp)	3.57
Measured Well Depth (ft bmp)	14	Water Column in Well	10.43
Gallons in Well	1.7011909	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove: NA

Remarks: None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/06/24	11:05	200	100	100	4.01	7.26	13.1	6.76	0.129	64.5	137.04	
02/06/24	11:09	200			4.26	6.33	13.3	6.87	0.131	41.1	131.84	
02/06/24	11:13	200			4.41	6.25	13.3	6.91	0.130	22.3	332.46	
02/06/24	11:17	200			4.58	6.28	13.3	6.92	0.129	4.2	814.54	Water is orange looking in the YSI container
02/06/24	11:21	200			4.68	6.16	13.3	6.94	0.130	-9.9	1155.93	
02/06/24	11:25	200			4.65	6.15	13.3	6.93	0.132	-17.8	242.01	
02/06/24	11:29	200			4.73	6.23	13.2	6.93	0.137	-25.7	54.27	
02/06/24	11:33	200			4.66	6.23	13.2	6.94	0.138	-33.3	30.17	
02/06/24	11:37	200			4.68	6.20	13.3	6.94	0.138	-40.9	24.86	
02/06/24	11:41	200			4.74	6.20	13.3	6.94	0.138	-47.4	19.27	
02/06/24	11:45	200			4.68	6.18	13.4	6.95	0.138	-53.1	14.53	

5-Sample

Date	02/06/2024	Time	11:04
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/06/2024	Sample Time	11:55
Sample ID	RGW250S-02062024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	1
Analysis	6020A	Matrix	Water
Filtered?	NO	COC	24B0240
Bottles	1x 250mL HNO3 poly	Sampler Signature	

Remarks: None

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW009S

1-Well Integrity

Date	02/07/2024	Time	12:51
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	No
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	NA
Any repairs/replacement (explain)	NA	Pump	QED Bladder Pump
Total drawdown	-0.020000000000000462	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	Under carpet tile at office desk		

2-Gauging

Date	02/07/2024	Time	12:51
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.27
Final DTW (ft)	5.29	Groundwater elevation	NA
Well Depth (ft)	14.5	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 5.29		

3-Wellhead

Date	02/07/2024	Time	13:06
Weather Conditions	Sunny, Cold	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	180
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	9.5	Depth to Water (ft bmp)	5.27
Measured Well Depth (ft bmp)	14.5	Water Column in Well	9.23
Gallons in Well	1.50546	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/07/24	12:52	180	720	720	5.34	1.01	20.1	6.30	0.362	5.3	1.34	
02/07/24	12:56	180	720.0	1440.0	5.34	0.27	20.1	6.37	0.339	-45.6	2.37	
02/07/24	13:00	180	720.0	2160.0	5.29	0.11	20.0	6.41	0.335	-73.8	1.48	
02/07/24	13:04	180	720.0	2880.0	5.28	0.07	20.0	6.43	0.335	-83.3	1.31	
02/07/24	13:08	180	720.0	3600.0	5.29	0.04	20.0	6.44	0.335	-91.0	1.20	
02/07/24	13:12	180	720.0	4320.0	5.29	0.03	20.0	6.44	0.335	-95.2	1.44	
02/07/24	13:16	180	720.0	5040.0	5.29	0.02	20.0	6.44	0.335	-98.1	1.32	

5-Sample

Date	02/07/2024	Time	12:57
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/07/2024	Sample Time	13:20
Sample ID	RGW009S-02072024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	4
Analysis	VOC-8260D SIM, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0191
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW012S

1-Well Integrity

Date	02/07/2024	Time	11:27
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	-0.6099999999999994	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/07/2024	Time	11:27
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.94
Final DTW (ft)	5.55	Groundwater elevation	NA
Well Depth (ft)	14.5	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 5.55		

3-Wellhead

Date	02/07/2024	Time	11:41
Weather Conditions	Sunny, Cold	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	125
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	9.5	Depth to Water (ft bmp)	4.94
Measured Well Depth (ft bmp)	14.5	Water Column in Well	9.56
Gallons in Well	1.5592891	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/07/24	11:31	200	600	600	5.23	1.15	21.3	4.87	4.316	70.5	152.00	Cloudy white, foul sharp odor
02/07/24	11:35	125	500.0	1100.0	5.52	0.21	21.4	5.81	2.547	-81.5	152.66	
02/07/24	11:39	125	500.0	1600.0	5.56	0.12	21.3	5.98	2.458	-116.6	112.13	
02/07/24	11:43	125	500.0	2100.0	5.59	0.06	21.3	6.03	2.410	-127.8	61.38	
02/07/24	11:47	125	500.0	2600.0	5.60	0.05	21.2	6.07	2.348	-133.3	66.13	
02/07/24	11:51	125	500.0	3100.0	5.60	0.04	21.2	6.09	2.283	-137.0	66.85	
02/07/24	11:55	125	500.0	3600.0	5.54	0.02	21.1	6.12	2.131	-142.1	51.95	
02/07/24	12:00	125	625.0	4225.0	5.54	0.01	21.1	6.13	1.995	-144.1	50.87	
02/07/24	12:04	125	500.0	4725.0	5.55	0.01	21.1	6.13	1.856	-145.5	53.95	
02/07/24	12:08	125	500.0	5225.0	5.55	0.00	21.0	6.13	1.674	-146.0	54.79	
02/07/24	12:12	125	500.0	5725.0	5.55	-0.01	21.1	6.13	1.621	-146.0	30.13	
02/07/24	12:16	125	500.0	6225.0	5.55	-0.02	21.0	6.13	1.597	-145.9	28.51	
02/07/24	12:20	125	500.0	6725.0	5.55	-0.01	21.1	6.13	1.575	-145.9	31.36	

5-Sample

Date	02/07/2024	Time	11:34
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/07/2024	Sample Time	12:20
Sample ID	RGW012S-02072024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	4
Analysis	VOC-8260D SIM, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0191
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

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Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW014S

1-Well Integrity

Date	02/07/2024	Time	11:15
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	NA
Any repairs/replacement (explain)	NA	Pump	QED Bladder Pump
Total drawdown	-0.22999999999999954	Did well meet SAP/WP stabilization requirements before sampling?	No; SPC did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/07/2024	Time	11:28
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.08
Final DTW (ft)	5.31	Groundwater elevation	NA
Well Depth (ft)	14.4	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 5.31		

3-Wellhead

Date	02/07/2024	Time	11:28
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	335
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	9.5	Depth to Water (ft bmp)	5.08
Measured Well Depth (ft bmp)	14.4	Water Column in Well	9.32
Gallons in Well	1.5201438	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/07/24	11:29	335	160	160	5.27	6.59	18.7	6.30	0.554	79.5	54.03	Odor coming from well
02/07/24	11:33	335			5.27	5.59	19.2	6.28	0.607	37.0	30.51	
02/07/24	11:37	335			5.29	5.46	19.3	6.39	0.615	7.5	16.29	
02/07/24	11:41	335			5.37	5.40	19.4	6.35	0.616	-8.7	9.82	
02/07/24	11:45	335			5.42	5.33	19.5	6.35	0.608	-20.4	6.54	
02/07/24	11:49	335			5.33	5.32	19.5	6.36	0.593	-28.6	5.68	
02/07/24	11:53	335			5.32	5.29	19.5	6.37	0.573	-35.3	4.42	
02/07/24	11:57	335			5.32	5.27	19.6	6.37	0.557	-39.9	3.72	
02/07/24	12:01	335			5.34	5.26	19.6	6.38	0.541	-44.0	3.46	
02/07/24	12:05	335			5.36	5.25	19.6	6.38	0.534	-47.3	3.53	
02/07/24	12:09	335			5.36	5.25	19.6	6.38	0.515	-50.2	3.12	
02/07/24	12:13	335	1340.0		5.31	5.23	19.6	6.38	0.505	-52.6	2.75	Conducti didn't stabilize

5-Sample

Date	02/07/2024	Time	11:16
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/07/2024	Sample Time	12:15
Sample ID	RGW014S-02072024	Duplicate Sample ID	DUP4-02072024
Dup Sample Time	00:00	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	4
Analysis	VOC-8260D SIM, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0191
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW147S

1-Well Integrity

Date	02/07/2024	Time	09:54
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	NA
Any repairs/replacement (explain)	NA	Pump	QED Bladder Pump
Total drawdown	-0.030000000000000025	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO; SPC did not stabilize; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	Exterior ID : AEB456, Functioning 1g032 lock		

2-Gauging

Date	02/07/2024	Time	09:54
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.71
Final DTW (ft)	4.74	Groundwater elevation	NA
Well Depth (ft)	15.2	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 4.74		

3-Wellhead

Date	02/07/2024	Time	10:33
Weather Conditions	Sunny, Cold	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	140
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	10	Depth to Water (ft bmp)	4.71
Measured Well Depth (ft bmp)	15.2	Water Column in Well	10.49

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Gallons in Well	1.71098	Casing Volume to Remove	NA
Total Volume to Remove	NA		
Remarks	None		

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/07/24	09:58	140	280	280	4.72	0.92	13.4	5.14	1.016	86.9	32.32	Foul sharp odor
02/07/24	10:02	140	560.0	840.0	4.73	0.32	13.6	5.31	0.290	67.1	30.50	
02/07/24	10:06	140	560.0	1400.0	4.74	0.18	13.7	5.66	0.100	37.0	24.90	
02/07/24	10:10	140	560.0	1960.0	4.72	0.12	13.7	5.87	0.068	24.3	21.40	
02/07/24	10:14	140	560.0	2520.0	4.73	0.09	13.8	5.91	0.071	19.3	20.01	
02/07/24	10:18	140	560.0	3080.0	4.72	0.08	13.8	5.99	0.088	10.3	17.52	
02/07/24	10:22	140	560.0	3640.0	4.73	0.06	13.9	6.01	0.102	5.0	17.32	
02/07/24	10:26	140	560.0	4200.0	4.73	0.05	14.0	6.06	0.121	-5.2	17.97	
02/07/24	10:30	140	560.0	4760.0	4.74	0.05	14.0	6.09	0.140	-11.6	21.64	
02/07/24	10:34	140	560.0	5320.0	4.74	0.04	14.0	6.13	0.156	-21.5	21.97	
02/07/24	10:38	140	560.0	5880.0	4.75	0.04	14.0	6.13	0.154	-23.5	22.35	
02/07/24	10:42	140	560.0	6440.0	4.74	0.03	14.1	6.16	0.175	-29.2	15.24	

5-Sample

Date	02/07/2024	Time	10:03
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/07/2024	Sample Time	10:30
Sample ID	RGW147S-02062024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	4
Analysis	VOC-8260D SIM, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0191
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

RGW150S

1-Well Integrity

Date	02/07/2024	Time	09:55
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	NA
Any repairs/replacement (explain)	NA	Pump	QED Bladder Pump
Total drawdown	0.010000000000000675	Did well meet SAP/WP stabilization requirements before sampling?	No; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/07/2024	Time	09:55
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.23
Final DTW (ft)	5.22	Groundwater elevation	NA
Well Depth (ft)	18.3	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 5.22		

3-Wellhead

Date	02/07/2024	Time	09:55
Weather Conditions	Partly Sunny, Partly Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	250
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	10	Depth to Water (ft bmp)	5.23
Measured Well Depth (ft bmp)	18.3	Water Column in Well	13.07
Gallons in Well	2.1317896	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/07/24	09:55	250	100	100	5.2	7.11	12.1	6.73	0.212	16.9	335.26	
02/07/24	09:59	250			5.22	6.68	12.8	6.57	0.205	14.5	95.11	
02/07/24	10:03	250			5.19	6.53	12.9	6.56	0.205	8.8	176.54	Water is orange looking in probe
02/07/24	10:07	250			5.20	6.51	13.0	6.56	0.205	3.7	171.32	
02/07/24	10:11	250			5.26	6.47	13.0	6.57	0.206	-0.5	183.95	
02/07/24	10:15	250			5.20	6.44	13.1	6.58	0.207	-4.6	210.67	
02/07/24	10:19	250			5.18	6.45	13.2	6.56	0.213	-5.2	248.14	
02/07/24	10:23	250			5.21	6.43	13.2	6.56	0.212	-6.7	253.40	
02/07/24	10:27	250			5.19	6.39	13.1	6.56	0.214	-10.7	267.05	
02/07/24	10:31	250			5.20	6.37	13.1	6.57	0.218	-15.4	80.31	
02/07/24	10:35	250			5.22	6.37	13.1	6.57	0.218	-17.2	28.44	
02/07/24	10:39	250	1000.0		5.29	6.36	13.1	6.57	0.224	-20.1	16.25	

5-Sample

Date	02/07/2024	Time	10:29
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/07/2024	Sample Time	10:35
Sample ID	RGW150S-02072024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	4
Analysis	VOC-8260D SIM, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0191
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info
Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

RGW253I

1-Well Integrity

Date	02/07/2024	Time	08:46
Inspector Name	Lindsey Wielick	Well Permit Number	BID-810
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.030000000000000025	Did well meet SAP/WP stabilization requirements before sampling?	No; ORP did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/07/2024	Time	08:54
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.09
Final DTW (ft)	5.12	Groundwater elevation	NA
Well Depth (ft)	20	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 5.12		

3-Wellhead

Date	02/07/2024	Time	08:56
Weather Conditions	Partly Sunny, Partly Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	250
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	15	Depth to Water (ft bmp)	5.09
Measured Well Depth (ft bmp)	20	Water Column in Well	14.91
Gallons in Well	2.4319038	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperature (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/07/24	08:57	250	125	125	5.12	7.40	12.9	6.26	0.343	182.5	131.11	
02/07/24	09:01	250			5.16	6.53	14.0	6.39	0.354	126.0	108.83	
02/07/24	09:05	250			5.15	6.43	14.1	6.46	0.355	81.5	22.09	
02/07/24	09:09	250			5.15	6.39	14.1	6.51	0.355	43.1	12.96	
02/07/24	09:13	250			5.14	6.35	14.1	6.53	0.356	18.9	11.79	
02/07/24	09:17	250			5.14	6.32	14.2	6.54	0.356	-1.1	10.76	
02/07/24	09:21	250			5.12	6.32	14.1	6.56	0.356	-13.7	8.59	
02/07/24	09:25	250			5.12	6.29	14.3	6.56	0.356	-27.2	9.10	
02/07/24	09:29	250			5.15	6.25	14.2	6.57	0.356	-33.8	9.37	
02/07/24	09:33	250			5.13	6.26	14.1	6.59	0.356	-41.2	9.55	

5-Sample

Date	02/07/2024	Time	09:03
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/07/2024	Sample Time	09:45
Sample ID	RGW253I-02072024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	4
Analysis	VOC-8260D SIM, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0191
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW176S

1-Well Integrity

Date	02/08/2024	Time	10:09
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	-0.41000000000000014	Did well meet SAP/WP stabilization requirements before sampling?	No; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/08/2024	Time	10:14
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.0
Final DTW (ft)	5.41	Groundwater elevation	NA
Well Depth (ft)	14.8	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 5.41		

3-Wellhead

Date	02/08/2024	Time	10:14
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	250
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	12.15	Depth to Water (ft bmp)	5.0
Measured Well Depth (ft bmp)	14.8	Water Column in Well	9.8
Gallons in Well	1.5984344	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/08/24	10:14	250	125	125	5.19	7.95	12.1	6.29	0.477	6.5	34.84	
02/08/24	10:18	250			5.31	7.06	12.4	6.25	0.485	-3.1	26.72	
02/08/24	10:22	250			5.34	6.96	12.4	6.25	0.485	-14.1	13.81	
02/08/24	10:26	250			5.44	6.94	12.3	6.26	0.483	-23.1	13.45	
02/08/24	10:30	250			5.48	6.89	12.4	6.27	0.480	-30.7	9.62	
02/08/24	10:34	250			5.48	6.88	12.4	6.27	0.482	-37.9	9.83	
02/08/24	10:38	250			5.51	6.86	12.4	6.29	0.485	-43.9	9.03	
02/08/24	10:42	250	1000.0		5.49	6.85	12.4	6.30	0.486	-47.9	7.11	

5-Sample

Date	02/08/2024	Time	10:35
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/08/2024	Sample Time	10:45
Sample ID	RGW176S-02082024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	3
Analysis	8260 SIM	Matrix	Water
Filtered?	NO	COC	24B0240
Bottles	3x HCl VOA	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW178S

1-Well Integrity

Date	02/08/2024	Time	14:26
Inspector Name	Lindsey Wielick	Well Permit Number	AHN071
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	-0.029999999999999936	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/08/2024	Time	14:26
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	7.28
Final DTW (ft)	7.31	Groundwater elevation	NA
Well Depth (ft)	15.1	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	7.31 final DTW		

3-Wellhead

Date	02/08/2024	Time	14:27
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	320
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	13.35	Depth to Water (ft bmp)	7.28
Measured Well Depth (ft bmp)	15.1	Water Column in Well	7.82
Gallons in Well	1.2754854	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/08/24	14:27	320	100	100	7.19	8.11	12.3	6.25	0.421	45.8	65.69	
02/08/24	14:31	320			7.29	7.09	12.3	6.18	0.353	32.7	70.70	
02/08/24	14:35	320			7.28	6.97	12.2	6.18	0.365	21.5	69.82	
02/08/24	14:39	320			7.22	6.92	12.1	6.20	0.359	9.9	44.79	
02/08/24	14:43	320			7.21	6.88	12.0	6.20	0.353	2.0	26.18	
02/08/24	14:47	320			7.29	6.87	12.0	6.20	0.350	-3.8	17.99	
02/08/24	14:51	320			7.28	6.85	12.0	6.30	0.348	-8.2	13.67	
02/08/24	14:55	320			7.24	6.83	11.9	6.20	0.347	-12.3	11.13	
02/08/24	14:59	320			7.23	6.83	11.9	6.20	0.344	-16.0	10.66	
02/08/24	15:03	320	1280.0		7.30	6.82	11.9	6.20	0.344	-19.0	10.81	

5-Sample

Date	02/08/2024	Time	14:29
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/08/2024	Sample Time	15:15
Sample ID	RGW178S-02082024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	3
Analysis	8260 SIM	Matrix	Water
Filtered?	NO	COC	24B0240
Bottles	3x HCl VOA	Sampler Signature	
Remarks	None		

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW189S

1-Well Integrity

Date	02/08/2024	Time	13:07
Inspector Name	Lindsey Wielick, Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	-0.10000000000000053	Did well meet SAP/WP stabilization requirements before sampling?	No; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/08/2024	Time	13:08
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.34
Final DTW (ft)	5.44	Groundwater elevation	NA
Well Depth (ft)	14.1	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 5.44		

3-Wellhead

Date	02/08/2024	Time	13:08
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	250
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	9	Depth to Water (ft bmp)	5.34
Measured Well Depth (ft bmp)	14.1	Water Column in Well	8.76
Gallons in Well	1.4288047	Casing Volume to Remove	NA

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/08/24	13:10	250	200	200	5.49	8.29	11.0	6.34	0.251	64.4	54.20	
02/08/24	13:14	250			5.49	7.52	11.0	6.60	0.159	31.7	26.38	
02/08/24	13:18	250			5.54	7.51	10.8	6.68	0.155	16.4	20.59	
02/08/24	13:22	250			5.51	7.59	10.7	6.71	0.154	5.5	14.71	
02/08/24	13:26	250			5.50	7.41	10.6	6.73	0.153	-4.2	9.46	
02/08/24	13:30	250			5.51	7.36	10.6	6.73	0.153	-13.1	9.22	
02/08/24	13:34	250			5.49	7.28	10.8	6.74	0.153	-19.1	7.09	
02/08/24	13:38	250			5.52	7.28	10.7	6.74	0.152	-27.4	6.67	
02/08/24	13:42	250			5.58	7.30	10.6	6.75	0.152	-31.9	5.62	
02/08/24	13:46	250			5.49	7.25	10.7	6.74	0.151	-36.4	5.74	

5-Sample

Date	02/08/2024	Time	13:12
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/08/2024	Sample Time	13:50
Sample ID	RGW189S-02082024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	9
Analysis	8260 SIM	Matrix	Water
Filtered?	NO	COC	24B0240
Bottles	9x HCl VOA, 1x 250mL H2SO4 amber, 1x 500mL amber	Sampler Signature	
Remarks	MS/MSD collected		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW207S

1-Well Integrity

Date	02/08/2024	Time	09:01
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	0.2599999999999998	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/08/2024	Time	09:11
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	6.45
Final DTW (ft)	6.19	Groundwater elevation	NA
Well Depth (ft)	12.6	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 6.19		

3-Wellhead

Date	02/08/2024	Time	09:12
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	9.65	Depth to Water (ft bmp)	6.45
Measured Well Depth (ft bmp)	12.6	Water Column in Well	6.15
Gallons in Well	1.0030992	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info
Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove: NA

Remarks: None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperature (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/08/24	09:12	200	200	200	6.23	7.94	12.6	6.37	0.378	182.0	10.59	
02/08/24	09:16	200			6.28	7.03	13.0	6.41	0.383	121.8	7.83	
02/08/24	09:20	200			6.30	6.91	13.0	6.50	0.379	64.7	6.50	
02/08/24	09:24	200			6.22	6.86	13.0	6.52	0.374	35.8	6.74	
02/08/24	09:28	200			6.23	6.84	12.9	6.53	0.373	15.3	6.52	
02/08/24	09:32	200			6.25	6.82	12.9	6.54	0.371	-1.1	5.28	
02/08/24	09:36	200			6.20	6.80	12.9	6.54	0.370	-11.2	5.07	
02/08/24	09:40	200			6.30	6.79	12.9	6.55	0.368	-21.3	4.30	
02/08/24	09:44	200			6.24	6.77	12.9	6.55	0.369	-28.7	4.25	
02/08/24	09:48	200			6.23	6.76	12.8	6.55	0.367	-34.5	3.92	
02/08/24	09:52	200			6.27	6.76	12.8	6.56	0.367	-39.6	3.70	
02/08/24	09:56	200			6.32	6.75	12.8	6.56	0.366	-44.1	3.58	Slight sheen on purged water

5-Sample

Date	02/08/2024	Time	09:13
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/08/2024	Sample Time	09:55
Sample ID	RGW207S-02082024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	3
Analysis	8260 SIM	Matrix	Water
Filtered?	NO	COC	24B0240
Bottles	3x HCl VOA	Sampler Signature	

Remarks: None

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW208S

1-Well Integrity

Date	02/08/2024	Time	14:37
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	-0.14999999999999947	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/08/2024	Time	14:37
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	7.24
Final DTW (ft)	7.39	Groundwater elevation	NA
Well Depth (ft)	11.4	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 7.39		

3-Wellhead

Date	02/08/2024	Time	14:51
Weather Conditions	Partly Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	225
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	8.65	Depth to Water (ft bmp)	7.24
Measured Well Depth (ft bmp)	11.4	Water Column in Well	4.16
Gallons in Well	0.678519	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/08/24	14:38	225	115	115	7.31	3.14	12.4	6.31	0.543	87.3	17.79	
02/08/24	14:42	225	900.0	1015.0	7.37	0.42	12.4	6.27	0.548	42.0	4.97	
02/08/24	14:46	225	900.0	1915.0	7.41	0.14	12.2	6.31	0.521	-6.8	2.60	
02/08/24	14:50	225	900.0	2815.0	7.41	0.11	12.1	6.32	0.514	-19.2	2.47	
02/08/24	14:54	225	900.0	3715.0	7.41	0.08	12.1	6.33	0.507	-34.4	1.95	
02/08/24	14:58	225	900.0	4615.0	7.41	0.06	12.0	6.34	0.500	-45.9	1.77	
02/08/24	15:02	225	900.0	5515.0	7.41	0.05	12.0	6.34	0.498	-52.2	1.54	
02/08/24	15:06	225	900.0	6415.0	7.39	0.03	12.0	6.34	0.495	-57.3	1.54	
02/08/24	15:10	225	900.0	7315.0	7.39	0.03	12.0	6.35	0.495	-61.9	1.41	

5-Sample

Date	02/08/2024	Time	14:45
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/08/2024	Sample Time	15:10
Sample ID	RGW208S-02082024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	3
Analysis	8260 SIM	Matrix	Water
Filtered?	NO	COC	
Bottles	3x HCl VOA	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info
Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

RGW264S

1-Well Integrity

Date	02/07/2024	Time	15:18
Inspector Name	Jacklyn Perkins, Lindsey Wielick	Well Permit Number	BJU-193
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	Peristaltic (lowest setting, sample if drawdown exceeded)
Total drawdown	-3.83	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	No lock, none left for replacement		

2-Gauging

Date	02/07/2024	Time	15:19
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.26
Final DTW (ft)	8.09	Groundwater elevation	NA
Well Depth (ft)	18	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 8.09		

3-Wellhead

Date	02/07/2024	Time	15:32
Weather Conditions	Partly Sunny, Partly Cloudy	Purge Method	Peristaltic Pump
Purge Volume Units	mL	Purge Rate	160
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	13	Depth to Water (ft bmp)	4.26
Measured Well Depth (ft bmp)	18	Water Column in Well	13.74
Gallons in Well	2.2410703	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/07/24	15:23	160	500	500	5.23	0.54	14.1	6.07	0.87	4.4	11.61	
02/07/24	15:27	160	640.0	1140.0	5.70	0.23	13.9	6.09	0.866	-31.6	11.96	
02/07/24	15:31	160	640.0	1780.0	6.09	0.16	13.9	6.10	0.865	-47.0	19.09	
02/07/24	15:35	160	640.0	1140.1	6.46	0.11	14.0	6.10	0.865	-58.5	18.50	
02/07/24	15:39	160	640.0	1780.1	6.88	0.09	14.0	6.13	0.871	-65.2	35.29	
02/07/24	15:43	160	640.0	1140.2	7.11	0.08	14.0	6.12	0.871	-71.5	25.40	
02/07/24	15:47	160	640.0	1780.2	6.94	0.05	13.3	6.12	0.877	-76.4	44.46	Battery died and had to replace with new one
02/07/24	15:51	160	640.0	1140.3	7.18	0.06	14.0	6.12	0.871	-78.0	33.29	
02/07/24	15:55	160	640.0	1780.3	7.54	0.05	14.1	6.13	0.871	-80.7	38.22	

5-Sample

Date	02/07/2024	Time	15:30
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/07/2024	Sample Time	15:50
Sample ID	RGW264S-02072024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	4
Analysis	VOC-8260D, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0200
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

RGW031S-R

1-Well Integrity

Date	02/06/2024	Time	13:13
Inspector Name	Lindsey Wielick	Well Permit Number	BNE-654
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	0	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/06/2024	Time	13:13
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.31
Final DTW (ft)	5.31	Groundwater elevation	NA
Well Depth (ft)	25	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW:5.31		

3-Wellhead

Date	02/06/2024	Time	13:13
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	250
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	20	Depth to Water (ft bmp)	5.31
Measured Well Depth (ft bmp)	25	Water Column in Well	19.69
Gallons in Well	3.2115484	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/06/24	13:14	250	100	100	5.32	6.84	13.2	6.24	0.309	89.5	18.73	
02/06/24	13:18	250			5.30	6.10	14.5	6.22	0.341	66.4	10.93	
02/06/24	13:22	250			5.30	5.96	14.6	6.24	0.342	39.5	6.37	
02/06/24	13:26	250			5.31	5.88	14.7	6.26	0.342	19.2	4.52	
02/06/24	13:30	250			5.31	5.84	14.7	6.27	0.343	-1.1	3.91	
02/06/24	13:34	250			5.30	5.80	14.8	6.27	0.343	-7.4	3.25	
02/06/24	13:38	250			5.30	5.78	14.8	6.28	0.343	-15.6	3.33	
02/06/24	13:42	250			5.30	5.76	14.8	6.28	0.343	-22.7	2.95	
02/06/24	13:46	250			5.30	5.75	14.8	6.28	0.343	-27.3	2.57	
02/06/24	13:50	250	1000.0		5.31	5.75	14.8	6.29	0.342	-31.6	2.55	Sheen on purged water

5-Sample

Date	02/06/2024	Time	13:16
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/06/2024	Sample Time	13:55
Sample ID	RGW031S-R-02062024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	VOC-8260D, NWTPH-Gx, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0141
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW033S

1-Well Integrity

Date	02/06/2024	Time	12:59
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	No	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	0	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	Local surface of paved area ponds at this location, approx 6 gallons of water removed from wellhead continuously over purging/ sampling time		

2-Gauging

Date	02/06/2024	Time	13:17
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.16
Final DTW (ft)	5.25	Groundwater elevation	NA
Well Depth (ft)	25	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 5.25		

3-Wellhead

Date	02/06/2024	Time	17:36
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	NA
Water Quality Meter	YSI	Sampling Type	NA
Casing Material	NA	Casing Diameter (in)	NA
Pump Intake Depth (ft bmp)	NA	Depth to Water (ft bmp)	NA
Measured Well Depth (ft bmp)	NA	Water Column in Well	NA
Gallons in Well	NA	Casing Volume to Remove	NA

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/06/24	13:22	190	300	300	5.25	0.92	14.4	6.26	0.558	-50.4	4.64	
02/06/24	13:26	190	760.0	1060.0	5.25	0.23	14.7	6.27	0.566	-69.3	2.24	
02/06/24	13:30	190	760.0	1820.0	5.26	0.12	14.8	6.28	0.567	-76.9	2.10	
02/06/24	13:34	190	760.0	2580.0	5.25	0.09	14.8	6.28	0.567	-79.5	2.51	
02/06/24	13:38	190	760.0	3340.0	5.26	0.06	14.8	6.28	0.567	-82.0	3.36	
02/06/24	13:42	190	760.0	4100.0	5.25	0.04	14.9	6.28	0.566	-84.0	5.07	

5-Sample

Date	02/06/2024	Time	13:33
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/06/2024	Sample Time	13:50
Sample ID	RGW033S-02062024	Duplicate Sample ID	DUP2-02062024
Dup Sample Time	00:00	Sampler's Name	Jacklyn Perkins
Sampler's Signature:		No. of Containers	7
Analysis	VOC-8260D, NWTPH-Gx, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0141
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Photos

Feb 06,2024 01:03:34 PM
Location:RGW033S Latitude:47.495449 , Longitude:-122.212565

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Feb 06,2024 01:05:02 PM
Location:RGW033S Latitude:47.495449 , Longitude:-122.212565

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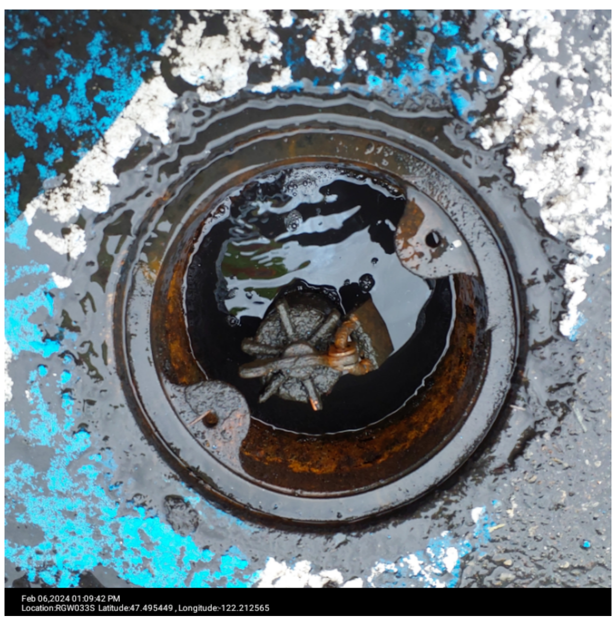

Feb 06,2024 01:09:42 PM
Location:RGW033S Latitude:47.495449 , Longitude:-122.212565

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Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW034S

1-Well Integrity

Date	02/06/2024	Time	15:06
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	Pumped ponded water out
Any repairs/replacement (explain)	Lock rusted shut, replaced with new 1g022	Pump	QED Bladder Pump
Total drawdown	-0.9800000000000004	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10 DO
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/06/2024	Time	15:06
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.34
Final DTW (ft)	5.32	Groundwater elevation	NA
Well Depth (ft)	25	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW 5.32		

3-Wellhead

Date	02/06/2024	Time	15:12
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	20	Depth to Water (ft bmp)	4.34
Measured Well Depth (ft bmp)	25	Water Column in Well	20.66
Gallons in Well	3.36976	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/06/24	15:09	200	500	500	5.35	1.63	12.1	6.50	0.472	-19.7	2.00	
02/06/24	15:13	200	800.0	1300.0	5.35	0.35	12.2	6.46	0.537	-65.6	1.48	
02/06/24	15:17	200	800.0	2100.0	5.35	0.15	12.3	6.46	0.536	-84.0	0.78	
02/06/24	15:21	200	800.0	2900.0	5.35	0.08	13.4	6.47	0.532	-90.9	0.63	
02/06/24	15:25	200	800.0	3700.0	5.36	0.06	12.4	6.46	0.528	-94.3	0.50	
02/06/24	15:29	200	800.0	4500.0	5.31	0.04	12.5	6.45	0.529	-96.8	0.42	

5-Sample

Date	02/06/2024	Time	15:14
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/06/2024	Sample Time	15:30
Sample ID	RGW034S-02062024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	7
Analysis	VOC-8260D, NWTPH-Gx, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0141
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

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Detailed Low Flow Sampling Info
Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW143S

1-Well Integrity

Date	02/05/2024	Time	15:12
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	No	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED Bladder Pump
Total drawdown	0.08000000000000007	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/05/2024	Time	15:15
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.61
Final DTW (ft)	5.53	Groundwater elevation	NA
Well Depth (ft)	15.9	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 5.53		

3-Wellhead

Date	02/05/2024	Time	15:15
Weather Conditions	Rain, Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	250
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	12.5	Depth to Water (ft bmp)	5.61
Measured Well Depth (ft bmp)	15.9	Water Column in Well	10.29
Gallons in Well	1.6783562	Casing Volume to Remove	NA

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/05/24	15:36	250	125	125	5.61	7.47	13.3	6.33	0.351	14.9	46.18	
02/05/24	15:40	250			5.62	6.77	13.7	6.34	0.358	-2.7	23.82	
02/05/24	15:44	250			5.67	6.03	14.1	6.35	0.359	-22.9	21.62	
02/05/24	15:48	250			5.61	5.95	14.2	6.35	0.360	-35.4	22.97	
02/05/24	15:52	250			5.64	5.84	14.3	6.36	0.361	-44.8	19.35	
02/05/24	15:56	250			5.66	5.77	14.4	6.36	0.360	-51.6	12.68	
02/05/24	16:00	250			5.63	5.75	14.4	6.37	0.360	-56.4	11.96	
02/05/24	16:04	250	1000.0		5.61	5.74	14.4	6.37	0.359	-60.4	11.79	

5-Sample

Date	02/05/2024	Time	15:49
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/05/2024	Sample Time	16:15
Sample ID	RGW143S-R-02052024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	VOC-8260D, NWTPH-Gx, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0106
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW237S

1-Well Integrity

Date	02/05/2024	Time	14:20
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	Pumped ponded water out
Any repairs/replacement (explain)	New lock	Pump	GeoTech Bladder Pump
Total drawdown	-0.009999999999999787	Did well meet SAP/WP stabilization requirements before sampling?	No; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	Lock rusted shut, replaced with new 1g022		

2-Gauging

Date	02/05/2024	Time	14:21
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.70
Final DTW (ft)	4.71	Groundwater elevation	NA
Well Depth (ft)	15	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 4.71		

3-Wellhead

Date	02/05/2024	Time	14:49
Weather Conditions	Rain, Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	150
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	10	Depth to Water (ft bmp)	4.70
Measured Well Depth (ft bmp)	15	Water Column in Well	10.3
Gallons in Well	1.67999	Casing Volume to Remove	

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperature (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/05/24	14:23	225	500	500	4.70	0.98	12.8	6.50	0.334	-51.5	225.50	Cloudy, orange
02/05/24	14:27	225	1125.0	1625.0	4.70	0.30	13.8	6.46	0.314	-51.6	510.06	Cloudy, orange
02/05/24	14:31	150			4.71	0.22	13.7	6.45	0.298	-45.6	526.14	Cloudy, orange
02/05/24	14:46	150	1000		4.71	2.30	13.4	6.39	0.300	-33.3	251.61	Emptied out follow cell, it refilled with very thick organic matter rich water, increased flow psi to flush from bladder. Turbidity decrease from 1700 to 300.
02/05/24	14:50	150			4.71	1.00	13.1	6.37	0.302	-36.6	187.74	
02/05/24	14:54	150			4.71	0.61	13.0	6.38	0.306	-45.3	104.32	
02/05/24	14:58	150			4.71	0.49	13.0	6.38	0.306	-49.6	58.42	
02/05/24	15:02	150			4.71	0.50	13.1	6.43	0.293	-52.7	40.45	
02/05/24	15:06	150			4.71	0.48	13.2	6.39	0.298	-54.0	41.96	
02/05/24	15:10	150			4.71	0.48	13.0	6.39	0.290	-55.0	25.75	

5-Sample

Date	02/05/2024	Time	14:49
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Sample Date	02/05/2024	Sample Time	15:10
Sample ID	RGW237S-02052024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	7
Analysis	VOC-8260D, NWTPH-Gx, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0106
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Photos

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Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW240D

1-Well Integrity

Date	02/05/2024	Time	14:19
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.9199999999999999	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/05/2024	Time	14:20
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	6.43
Final DTW (ft)	7.35	Groundwater elevation	NA
Well Depth (ft)	27	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 7.35		

3-Wellhead

Date	02/05/2024	Time	14:20
Weather Conditions	Rain, Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	24.5	Depth to Water (ft bmp)	6.43
Measured Well Depth (ft bmp)	27	Water Column in Well	20.57
Gallons in Well	3.3550813	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/05/24	14:21	200	100	100	6.44	7.22	11.9	6.33	0.250	105.0	229.46	
02/05/24	14:25	200			6.95	6.02	14.3	6.34	0.260	60.7	381.12	
02/05/24	14:29	200			7.18	5.94	14.4	6.49	0.256	18.7	122.92	
02/05/24	14:33	200			7.32	5.88	14.5	6.55	0.252	-11.9	50.73	
02/05/24	14:37	200			7.41	5.86	14.5	6.56	0.250	-31.7	32.95	
02/05/24	14:41	200			7.45	5.83	14.5	6.56	0.249	-45.9	29.16	
02/05/24	14:45	200			7.49	5.81	14.5	6.57	0.250	-55.0	22.42	
02/05/24	14:49	200			7.56	5.79	14.6	6.57	0.249	-61.9	19.04	
02/05/24	14:53	200			7.47	5.78	14.6	6.57	0.252	-67.2	18.75	
02/05/24	14:57	200			7.51	5.76	14.6	6.56	0.252	-71.7	19.93	Slight sheen on purged water

5-Sample

Date	02/05/2024	Time	14:38
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/05/2024	Sample Time	15:05
Sample ID	RGW240D-R-02052024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	VOC-8260D, NWTPH-Gx, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0106
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW-244S-R

1-Well Integrity

Date	02/06/2024	Time	14:11
Inspector Name	Lindsey Wielick	Well Permit Number	BNE-655
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.15999999999999925	Did well meet SAP/WP stabilization requirements before sampling?	No; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/06/2024	Time	14:12
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.15
Final DTW (ft)	5.31	Groundwater elevation	NA
Well Depth (ft)	15	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 5.31		

3-Wellhead

Date	02/06/2024	Time	14:11
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	250
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	10	Depth to Water (ft bmp)	5.15
Measured Well Depth (ft bmp)	15	Water Column in Well	9.85
Gallons in Well	1.6065897	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
01/30/24	10:44	250	250	250	90	7	20	7	1000	120	2	Remark
02/06/24	14:16	250			5.15	7.25	12.6	6.27	0.382	43.4	44.82	
02/06/24	14:20	250			5.14	6.10	14.0	6.23	0.442	30.9	35.48	
02/06/24	14:24	250			5.14	5.93	14.3	6.32	0.442	9.4	15.91	
02/06/24	14:28	250			5.15	5.86	14.5	6.28	0.439	-2.3	13.67	
02/06/24	14:32	250			5.14	5.85	14.5	6.29	0.435	-13.4	9.72	
02/06/24	14:36	250			5.15	5.79	14.8	6.29	0.435	-21.8	9.32	
02/06/24	14:40	250			5.15	5.75	14.7	6.29	0.433	-28.4	7.81	
02/06/24	14:44	250			5.15	5.78	14.5	6.30	0.434	-33.9	8.64	
02/06/24	14:48	250	1000.0		5.16	5.82	14.1	6.29	0.434	-38.0	9.72	

5-Sample

Date	02/06/2024	Time	14:16
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/06/2024	Sample Time	14:55
Sample ID	RGW244S-R-02062024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	7
Analysis	VOC-8260D, NWTPH-Gx, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0141
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber	Sampler Signature	
Remarks	None		

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW211S

1-Well Integrity

Date	02/08/2024	Time	09:15
Inspector Name	Jacklyn Perkins	Well Permit Number	BAB-498
Type of well head	Flush Mount	Freely accessible	No
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED n.d. sample Pro SS & PE, peristaltic pump
Total drawdown	-0.049999999999998934	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	Ran out of co2, completed purge and sampling with okay by CF		

2-Gauging

Date	02/08/2024	Time	09:15
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	8.80
Final DTW (ft)	8.85	Groundwater elevation	NA
Well Depth (ft)	14.75	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW 8.85		

3-Wellhead

Date	02/08/2024	Time	10:41
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	NA	Depth to Water (ft bmp)	8.80
Measured Well Depth (ft bmp)	14.75	Water Column in Well	5.95
Gallons in Well	0.970478	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/08/24	09:16	200	300	300	8.80	2.76	10.8	6.82	0.353	53.9	960.34	Brown, v turbid with organic
02/08/24	09:20	200	800.0	1100.0	8.80	6.28	11.6	6.61	0.223	18.3	344.05	Emptied out flow cell prior to reading
02/08/24	09:24	200	800.0	1900.0	8.82	2.46	12.1	6.43	0.214	-9.3	91.83	Emptied out flow cell prior to readings
02/08/24	09:28	200	800.0	2700.0	8.81	0.67	12.1	6.40	0.214	-13.2	72.14	
02/08/24	09:32	200	800.0	3500.0	8.81	0.20	12.1	6.44	0.214	-20.0	55.61	
02/08/24	09:36	200	800.0	4300.0	8.83	0.12	12.3	6.36	0.215	-24.4	47.70	
02/08/24	09:40	200	800.0		8.83	0.09	12.3	6.34	0.216	-27.0	37.09	
02/08/24	10:08	250	250.0	5200	8.83	1.23	12.1	6.39	0.201	-14.9	79.54	Switched to peristaltic pump
02/08/24	10:12	250			8.84	0.55	12.3	6.36	0.208	-16.5	84.16	
02/08/24	10:16	250			8.85	0.38	12.4	6.35	0.209	-20.1	76.55	
02/08/24	10:20	250			8.85	0.36	12.5	6.35	0.212	-22.1	79.99	
02/08/24	10:24	250			8.85	0.35	12.5	6.35	0.213	-22.6	72.58	Slight deisel odor, slight sheen on purgewat

5-Sample

Date	02/08/2024	Time	10:21
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Sample Date	02/08/2024	Sample Time	10:00
Sample ID	RGW211S-02082024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	2
Analysis	NWTPH-Dx	Matrix	Water
Filtered?	NO	COC	24B0221
Bottles	2x 500mL amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW221S

1-Well Integrity

Date	02/06/2024	Time	09:21
Inspector Name	Lindsey Wielick	Well Permit Number	BHB-417
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED n.d. sample Pro SS & PE
Total drawdown	0	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/06/2024	Time	09:32
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	8.73
Final DTW (ft)	8.73	Groundwater elevation	NA
Well Depth (ft)	15	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 8.73		

3-Wellhead

Date	02/06/2024	Time	09:32
Weather Conditions	Cloudy, light rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	250
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	10	Depth to Water (ft bmp)	8.73
Measured Well Depth (ft bmp)	15	Water Column in Well	6.27
Gallons in Well	1.0226718	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/06/24	09:34	250	200	200	8.71	7.67	11.9	6.24	0.215	53.7	55.28	
02/06/24	09:38	250			8.72	6.39	13.2	6.24	0.201	38.7	16.57	
02/06/24	09:42	250			8.75	6.24	13.3	6.26	0.202	27.7	7.62	
02/06/24	09:46	250			8.76	6.18	13.4	6.27	0.202	20.3	13.20	
02/06/24	09:50	250			8.74	6.16	13.4	6.27	0.202	15.1	9.84	
02/06/24	09:54	250			8.72	6.14	13.4	6.28	0.202	11.0	9.60	
02/06/24	09:58	250			8.72	6.12	13.4	6.27	0.202	7.7	9.71	Sheen on purged water

5-Sample

Date	02/06/2024	Time	09:38
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/06/2024	Sample Time	10:05
Sample ID	RGW221S-R-02062024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	2
Analysis	NWTPH-Dx	Matrix	Water
Filtered?	NO	COC	24B0139
Bottles	2x 500mL amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW224S

1-Well Integrity

Date	02/06/2024	Time	08:10
Inspector Name	Lindsey Wielick	Well Permit Number	BHB440
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	QED n.d. sample Pro SS & PE
Total drawdown	-0.3099999999999987	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/06/2024	Time	08:17
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	9.72
Final DTW (ft)	10.03	Groundwater elevation	NA
Well Depth (ft)	15	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 10.03		

3-Wellhead

Date	02/06/2024	Time	08:17
Weather Conditions	light rain, Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	240
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	10	Depth to Water (ft bmp)	9.72
Measured Well Depth (ft bmp)	15	Water Column in Well	5.28
Gallons in Well	0.8611973	Casing Volume to Remove	NA

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/06/24	08:22	240	120	120	10.01	7.83	12.4	5.85	0.151	175.3	154.17	
02/06/24	08:26	240			10.06	6.39	13.7	5.94	0.171	140.3	130.44	
02/06/24	08:30	240			10.01	6.22	13.8	6.01	0.170	105.0	55.17	
02/06/24	08:34	240			10.05	6.17	13.8	6.05	0.169	82.1	38.14	
02/06/24	08:38	240			10.06	6.14	13.8	6.09	0.167	66.8	20.79	
02/06/24	08:42	240			10.02	6.10	13.9	6.10	0.166	57.6	16.24	
02/06/24	08:46	240			10.05	6.08	13.9	6.11	0.165	49.9	11.82	
02/06/24	08:50	240			10.04	6.07	13.8	6.11	0.164	43.3	9.16	
02/06/24	08:54	240			10.02	6.06	13.8	6.12	0.163	38.5	9.45	
02/06/24	08:58	240			10.01	6.03	13.9	6.12	0.162	34.3	8.40	

5-Sample

Date	02/06/2024	Time	08:35
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/06/2024	Sample Time	09:05
Sample ID	RGW224S-R-02062024	Duplicate Sample ID	DUP3-02062024
Dup Sample Time	00:00	Sampler's Name	Lindsey Wielick
Sampler's Signature:		No. of Containers	2
Analysis	NWTPH-Dx	Matrix	Water
Filtered?	NO	COC	24B0139
Bottles	2x 500mL amber	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW230I

1-Well Integrity

Date	02/06/2024	Time	10:35
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	Pumped out ponded water
Any repairs/replacement (explain)	Old lock rusted shut, replaced with new 1g022	Pump	GeoTech Bladder Pump
Total drawdown	-1.0099999999999998	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	DO did not stabilize, <0.10		

2-Gauging

Date	02/06/2024	Time	10:35
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	4.88
Final DTW (ft)	5.86	Groundwater elevation	NA
Well Depth (ft)	14	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 5.89		

3-Wellhead

Date	02/06/2024	Time	10:44
Weather Conditions	Cloudy, light rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	140
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	9	Depth to Water (ft bmp)	4.88
Measured Well Depth (ft bmp)	14	Water Column in Well	9.12
Gallons in Well	1.48752	Casing Volume to Remove	NA

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove: NA

Remarks: None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/06/24	10:39	140	140	140	5.89	2.20	11.2	6.29	0.419	20.5	17.90	
02/06/24	10:43	140	560.0	700.0	5.90	0.44	12.1	6.34	0.421	-38.7	16.31	
02/06/24	10:47	140	560.0	1260.0	5.89	0.22	12.1	6.35	0.420	-51.6	12.84	
02/06/24	10:51	140	560.0	1820.0	5.90	0.13	12.1	6.36	0.419	-58.4	9.92	
02/06/24	10:55	140	560.0	2380.0	5.89	0.09	12.1	6.37	0.417	-62.2	7.41	
02/06/24	10:59	140	560.0	2940.0	5.89	0.07	12.0	6.39	0.413	-64.8	5.10	
02/06/24	11:04	140	700.0	3640.0	5.89	0.05	12.0	6.43	0.410	-67.1	3.95	

5-Sample

Date	02/06/2024	Time	10:36
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/06/2024	Sample Time	11:10
Sample ID	RGW230I-02062024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	3
Analysis	8260 SIM	Matrix	Water
Filtered?	NO	COC	24B0120
Bottles	3 HCl VOA	Sampler Signature	Jacklyn Perkins
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW152S

1-Well Integrity

Date	02/05/2024	Time	08:51
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	New lock	Pump	GeoTech Bladder Pump
Total drawdown	-0.020000000000000462	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/05/2024	Time	08:52
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	7.84
Final DTW (ft)	7.86	Groundwater elevation	NA
Well Depth (ft)	14.95	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 7.86		

3-Wellhead

Date	02/05/2024	Time	08:53
Weather Conditions	Cloudy, Rain	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	145
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	12.5	Depth to Water (ft bmp)	7.84
Measured Well Depth (ft bmp)	14.95	Water Column in Well	7.11
Gallons in Well	1.1596805	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/05/24	08:53	145	145	145	7.88	6.61	12.4	6.40	0.632	43.5	902.16	
02/05/24	08:57	145			7.86	6.34	12.7	6.26	0.238	12.6	426.10	
02/05/24	09:01	145			7.85	6.30	12.6	6.17	0.199	15.1	219.66	
02/05/24	09:05	145			7.87	6.26	12.6	6.14	0.196	16.9	110.45	
02/05/24	09:09	145			7.88	6.25	12.5	6.13	0.196	16.2	100.18	
02/05/24	09:13	145			7.89	6.22	12.6	6.13	0.196	14.0	42.16	
02/05/24	09:17	145			7.87	6.21	12.5	6.13	0.197	11.5	42.24	
02/05/24	09:21	145	580.0		7.88	6.20	12.5	6.12	0.197	8.9	40.47	

5-Sample

Date	02/05/2024	Time	08:59
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/05/2024	Sample Time	09:25
Sample ID	RGW152S-R-02052024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	5
Analysis	VOC-8260D SIM, EPA 6020A, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0107
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW153S

1-Well Integrity

Date	02/02/2024	Time	13:01
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.05000000000000071	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/02/2024	Time	13:06
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	8.08
Final DTW (ft)	8.13	Groundwater elevation	NA
Well Depth (ft)	14.65	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 8.13		

3-Wellhead

Date	02/02/2024	Time	13:07
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	12.5	Depth to Water (ft bmp)	8.08
Measured Well Depth (ft bmp)	14.65	Water Column in Well	6.57
Gallons in Well	1.0716035	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/02/24	13:08	180	300	300	8.14	7.96	14.7	6.47	0.246	77.5	223.79	
02/02/24	13:12	180			8.12	6.19	15.5	6.48	0.276	9.5	256.76	
02/02/24	13:16	180			8.09	5.92	15.4	6.49	0.270	-21.2	253.48	
02/02/24	13:20	180			8.11	5.90	15.4	6.48	0.262	-34.8	187.18	
02/02/24	13:24	180			8.12	5.83	15.3	6.46	0.257	-41.2	154.43	
02/02/24	13:28	180			8.11	5.85	15.0	6.45	0.251	-45.2	155.48	
02/02/24	13:32	180			8.13	5.86	15.0	6.44	0.249	-45.3	150.04	
02/02/24	13:36	180	720.0		8.13	5.88	14.8	6.43	0.246	-45.9	143.72	

5-Sample

Date	02/02/2024	Time	13:27
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/02/2024	Sample Time	13:45
Sample ID	RGW153S-R02022024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	5
Analysis	EPA 6020D, SM 5310C,VOC-8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0053
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW172S

1-Well Integrity

Date	02/05/2024	Time	09:18
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	No	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.5	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10; purged for >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	Wellhead mostly full of moist dirt		

2-Gauging

Date	02/05/2024	Time	09:19
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	8.92
Final DTW (ft)	9.42	Groundwater elevation	NA
Well Depth (ft)	17.82	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 9.42		

3-Wellhead

Date	02/05/2024	Time	09:19
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	150
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	13	Depth to Water (ft bmp)	8.92
Measured Well Depth (ft bmp)	17.82	Water Column in Well	8.9
Gallons in Well	1.45164	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove: NA

Remarks: None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/05/24	09:24	180	360	360	9.39	1.02	14.0	6.64	0.402	-101.5	258.32	Grey sedimenti
02/05/24	09:28	150	600.0	960.0	9.35	0.30	14.7	6.58	0.325	-100.1	204.52	
02/05/24	09:32	150	600.0	1560.0	9.23	0.14	14.0	6.54	0.314	-97.8	94.65	
02/05/24	09:36	150	600.0	2160.0	9.25	0.09	14.2	6.48	0.308	-91.3	44.13	
02/05/24	09:40	150	600.0	2760.0	9.21	0.07	14.2	6.45	0.305	-88.2	26.71	
02/05/24	09:45	150	750.0	3510.0	9.21	0.04	14.2	6.43	0.305	-86.8	19.46	
02/05/24	09:49	150	600		9.20	0.03	14.2	6.42	0.307	-86.8	17.07	
02/05/24	09:52	150	450.0		9.20	0.02	14.2	6.42	0.307	-86.9	18.29	

5-Sample

Date	02/05/2024	Time	09:24
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/05/2024	Sample Time	09:40
Sample ID	RGW172S-02052024	Duplicate Sample ID	DUP1-02052024
Dup Sample Time	00:00	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	5
Analysis	VOC-8260D SIM, EPA 6020A, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0107
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly	Sampler Signature	

Remarks: None

Photos

Feb 05,2024 09:26:10 AM
Location:RGW172S Latitude:47.486015 , Longitude:-122.210981

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Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW173S

1-Well Integrity

Date	02/05/2024	Time	09:50
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	No	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-0.10999999999999943	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/05/2024	Time	10:06
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	8.67
Final DTW (ft)	8.78	Groundwater elevation	NA
Well Depth (ft)	17.2	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 8.78		

3-Wellhead

Date	02/05/2024	Time	10:06
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	170
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	13	Depth to Water (ft bmp)	8.67
Measured Well Depth (ft bmp)	17.2	Water Column in Well	8.53
Gallons in Well	1.3912904	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info
Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperature (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/05/24	10:07	170	170	170	8.73	8.09	10.7	6.51	0.318	45.8	229.31	
02/05/24	10:11	170			8.67	7.12	11.0	6.54	0.314	21.5	392.80	
02/05/24	10:15	170			8.72	6.42	12.3	6.60	0.305	-6.2	232.75	
02/05/24	10:19	170			8.73	6.32	12.4	6.63	0.303	-26.6	137.7	
02/05/24	10:23	170			8.78	6.30	12.4	6.64	0.302	-39.7	105.38	
02/05/24	10:27	170			8.71	6.27	12.4	6.65	0.300	-48.0	83.18	
02/05/24	10:31	170			8.71	6.26	12.3	6.65	0.296	-54.5	76.33	
02/05/24	10:35	170			8.76	6.24	12.3	6.65	0.293	-59.3	74.47	
02/05/24	10:39	170			8.71	6.22	12.4	6.65	0.291	-62.8	67.83	
02/05/24	10:43	170			8.79	6.23	12.3	6.65	0.288	-65.6	68.59	

5-Sample

Date	02/05/2024	Time	09:50
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/05/2024	Sample Time	10:45
Sample ID	RGW173S-R-02052024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	5
Analysis	VOC-8260D SIM, EPA 6020A, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0107
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW226S

1-Well Integrity

Date	02/02/2024	Time	14:01
Inspector Name	Lindsey Wielick	Well Permit Number	BHB-419
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	New lock	Pump	GeoTech Bladder Pump
Total drawdown	0.16000000000000103	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/02/2024	Time	14:07
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	8.05
Final DTW (ft)	7.89	Groundwater elevation	NA
Well Depth (ft)	20	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	final DTW: 7.89		

3-Wellhead

Date	02/02/2024	Time	14:07
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	200
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	12.5	Depth to Water (ft bmp)	8.05
Measured Well Depth (ft bmp)	20	Water Column in Well	11.95
Gallons in Well	1.9491114	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperature (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/02/24	14:11	200		200	7.89	7.57	14.5	6.42	0.308	31.7	287.39	
02/02/24	14:15	200			7.89	5.85	15.8	6.44	0.291	-7.2	105.60	
02/02/24	14:19	200			7.92	5.73	16.0	6.43	0.279	-25.7	71.48	
02/02/24	14:23	200			7.85	5.67	16.0	6.43	0.276	-36.2	40.77	
02/02/24	14:27	200			7.87	5.64	16.0	6.42	0.275	-43.2	27.79	
02/02/24	14:31	200			7.92	5.61	16.0	6.42	0.275	-47.7	25.98	
02/02/24	14:35	200			7.86	5.59	16.0	6.41	0.275	-50.5	26.11	
02/02/24	14:39	200			7.87	5.59	16.0	6.41	0.275	-53.5	24.84	

5-Sample

Date	02/02/2024	Time	14:12
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/02/2024	Sample Time	14:45
Sample ID	RGW226S-R-02022024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	5
Analysis	EPA 6020D, SM 5310C,VOC-8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0053
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly	Sampler Signature	
Remarks	None		

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Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW232S

1-Well Integrity

Date	02/05/2024	Time	11:27
Inspector Name	Lindsey Wielick	Well Permit Number	BID-798
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	GeoTech Bladder Pump
Total drawdown	-3.0600000000000005	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/05/2024	Time	11:27
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.51
Final DTW (ft)	8.57	Groundwater elevation	NA
Well Depth (ft)	14	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final DTW: 8.57		

3-Wellhead

Date	02/05/2024	Time	11:27
Weather Conditions	Rain, Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	170
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	9	Depth to Water (ft bmp)	5.51
Measured Well Depth (ft bmp)	14	Water Column in Well	8.49
Gallons in Well	1.3847662	Casing Volume to Remove	NA

wsp

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/05/24	11:28	170	170	170	5.89	7.11	12.0	6.18	0.424	55.7	26.59	
02/05/24	11:32	170			6.36	6.35	12.6	6.27	0.410	29.8	12.46	
02/05/24	11:36	170			6.69	6.35	12.2	6.29	0.410	11.6	11.37	
02/05/24	11:40	170			6.88	6.38	11.8	6.29	0.410	-1.1	7.66	
02/05/24	11:44	170			7.10	6.50	11.6	6.29	0.409	-7.2	12.31	
02/05/24	11:48	170			7.29	6.47	11.6	6.29	0.409	-13.0	13.33	
02/05/24	11:52	170			7.40	6.44	11.3	6.30	0.410	-18.2	10.75	
02/05/24	11:56	170			7.49	6.46	11.1	6.30	0.409	-21.6	9.62	
02/05/24	12:00	170			7.59	6.48	10.9	6.30	0.409	-24.1	8.36	
02/05/24	12:04	170			7.69	6.53	10.7	6.30	0.407	-26.1	8.74	

5-Sample

Date	02/05/2024	Time	11:37
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/05/2024	Sample Time	12:15
Sample ID	RGW232S-R-02052024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
Sampler's Signature:	NA	No. of Containers	5
Analysis	VOC-8260D SIM, EPA 6020A, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0107
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly	Sampler Signature	
Remarks	None		

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW234S

1-Well Integrity

Date	02/02/2024	Time	13:07
Inspector Name	Jacklyn Perkins	Well Permit Number	BID-841
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	No
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	New lock	Pump	GeoTech Bladder Pump
Total drawdown	-0.019999999999999574	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	No lock present, added new 1g022		

2-Gauging

Date	02/02/2024	Time	13:07
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	6.49
Final DTW (ft)	6.51	Groundwater elevation	NA
Well Depth (ft)	13	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 6.51		

3-Wellhead

Date	02/02/2024	Time	13:35
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	180
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	8	Depth to Water (ft bmp)	6.49
Measured Well Depth (ft bmp)	13	Water Column in Well	6.51
Gallons in Well	1.06182	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/02/24	13:21	180	500	500	6.51	5.17	11.9	6.59	0.252	-6.8	555.52	
02/02/24	13:25	180	720.0	1220.0	6.51	0.72	12.2	6.44	0.217	-14.6	91.46	
02/02/24	13:29	180	720.0	1940.0	6.51	0.27	12.2	6.42	0.215	-14.5	25.13	
02/02/24	13:33	180	720.0	2660.0	6.51	0.19	12.1	6.41	0.216	-16.5	21.15	
02/02/24	13:37	180	720.0	3380.0	6.51	0.13	12.1	6.41	0.216	-18.4	42.51	
02/02/24	13:41	180	720.0	4100.0	6.51	0.10	12.1	6.41	0.217	-21.0	22.0	
02/02/24	13:45	180	720.0	4820.0	6.51	0.07	12.1	6.40	0.217	-23.1	21.30	
02/02/24	13:49	180	720.0	5540.0	6.51	0.05	12.2	6.40	0.217	-24.0	13.09	

5-Sample

Date	02/02/2024	Time	13:36
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/02/2024	Sample Time	14:00
Sample ID	RGW234S-02022024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	5
Analysis	EPA 6020D, SM 5310C,VOC-8260D SIM	Matrix	Water
Filtered?	NO	COC	24B0053
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly	Sampler Signature	
Remarks	None		

Project No: PS20203450

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW235I

1-Well Integrity

Date	02/02/2024	Time	14:24
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	No	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	New lock	Pump	GeoTech Bladder Pump
Total drawdown	-0.05999999999999961	Did well meet SAP/WP stabilization requirements before sampling?	No; DO did not stabilize, <0.10
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	Current 1g022 l lock rusted shut, replaced with new 1g022		

2-Gauging

Date	02/02/2024	Time	14:25
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.61
Final DTW (ft)	5.67	Groundwater elevation	NA
Well Depth (ft)	25	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 5.67		

3-Wellhead

Date	02/02/2024	Time	14:24
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	170
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	20	Depth to Water (ft bmp)	5.61
Measured Well Depth (ft bmp)	25	Water Column in Well	19.39
Gallons in Well	3.16262	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove: NA

Remarks: None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/02/24	14:26	170	170	170	5.65	4.93	11.9	6.86	0.219	-31.1	19.38	
02/02/24	14:30	170	680.0	850.0	5.65	0.36	13.1	6.73	0.204	-57.6	10.06	
02/02/24	14:34	170	680.0	1530.0	5.65	0.16	13.2	6.73	0.200	-53.4	5.40	
02/02/24	14:38	170	680.0	2210.0	5.67	0.08	13.2	6.72	0.199	-51.0	1.45	
02/02/24	14:42	170	680.0	2890.0	5.67	0.03	13.2	6.73	0.199	-50.9	0.76	
02/02/24	14:46	170	680.0	3570.0	5.67	0.01	13.2	6.71	0.199	-50.7	0.48	

5-Sample

Date: 02/02/2024

Time: 14:28

Did Well Dewater?: No

Location of disposed purge water: Boeing RTN wastewater treatment plant

How were samples preserved?: Cooler with regular ice

How were samples transported to lab?: Sampler drop-off at lab

Sample Date: 02/02/2024

Sample Time: 14:50

Sample ID: RGW235I-02022024

Duplicate Sample ID: NA

Dup Sample Time: NA

Sampler's Name: Jacklyn Perkins

Sampler's Signature: NA

No. of Containers: 5

Analysis: EPA 6020D, SM 5310C,VOC-8260D SIM

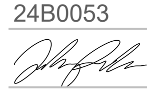
Matrix: Water

Filtered?: NO

COC: 24B0053

Bottles: 3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly

Sampler Signature:



Remarks: None

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW236S

1-Well Integrity

Date	02/05/2024	Time	10:54
Inspector Name	Jacklyn Perkins	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	Pumped out ponded water
Any repairs/replacement (explain)	Old 1g022 lock rusted shut, replaced with new 1g022	Pump	GeoTech Bladder Pump
Total drawdown	-0.5600000000000005	Did well meet SAP/WP stabilization requirements before sampling?	No; turbidity did not stabilize; purged >30 min
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/05/2024	Time	10:56
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.89
Final DTW (ft)	5.91	Groundwater elevation	NA
Well Depth (ft)	15	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Final dtw 5.91		

3-Wellhead

Date	02/05/2024	Time	10:54
Weather Conditions	Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	210
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	10	Depth to Water (ft bmp)	5.89
Measured Well Depth (ft bmp)	15	Water Column in Well	NA
Gallons in Well	NA	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/05/24	10:56	240	500	500	5.92	4.13	11.5	6.74	0.204	3.0	266.46	Orange, cloudy
02/05/24	11:00	240	960.0	1460.0	5.92	2.24	11.8	6.59	0.127	4.1	173.38	
02/05/24	11:04	210	840.0	2300.0	5.91	2.65	11.5	6.49	0.121	24.1	111.45	
02/05/24	11:08	210	840.0		5.90	2.86	11.4	6.46	0.118	41.2	113.02	
02/05/24	11:12	210	840.0		5.89	2.95	11.4	6.50	0.115	46.6	70.17	
02/05/24	11:16	210	840.0		5.90	2.97	11.3	6.48	0.112	54.7	49.83	
02/05/24	11:20	210	840.0		5.91	2.96	11.3	6.48	0.109	59.2	38.83	
02/05/24	11:24	210	840.0		5.91	2.95	11.2	6.50	0.107	62.3	28.02	
02/05/24	11:28	210	840.0		591	2.90	11.2	6.50	0.106	64.9	23.58	

5-Sample

Date	02/05/2024	Time	10:59
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/05/2024	Sample Time	11:30
Sample ID	RGW236S-02052024	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
Sampler's Signature:	NA	No. of Containers	5
Analysis	VOC-8260D SIM, EPA 6020A, SM5310 C	Matrix	Water
Filtered?	NO	COC	24B0107
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly	Sampler Signature	
Remarks	MS/MSD collected		

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

RGW010S

1-Well Integrity

Date	02/07/2024	Time	12:45
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	NA
Any repairs/replacement (explain)	NA	Pump	NA
Total drawdown	NA	Did well meet SAP/WP stabilization requirements before sampling?	Not sampled
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/07/2024	Time	12:48
Top of Casing	NA	Screen Interval	
PID	NA	Initial DTW (ft)	7.39
Final DTW (ft)	NA	Groundwater elevation	NA
Well Depth (ft)	14.5	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Not sampled		

3-Wellhead

Date	02/07/2024	Time	12:48
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	NA
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	9.5	Depth to Water (ft bmp)	7.39
Measured Well Depth (ft bmp)	14.5	Water Column in Well	7.11
Gallons in Well	1.1596805	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks

5-Sample

Date	02/07/2024	Time	12:54
Did Well Dewater?	NA	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	NA	Sample Time	NA
Sample ID	NA	Duplicate Sample ID	
Dup Sample Time	NA	Sampler's Name	NA
Sampler's Signature:	NA	No. of Containers	NA
Analysis	NA	Matrix	Water
Filtered?	NO	COC	NA
Bottles	NA	Sampler Signature	NA
Remarks	None		

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

RGW011D

1-Well Integrity

Date	02/07/2024	Time	12:51
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	Yes	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	No	Ponded Water Inside Casing	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	NA
Any repairs/replacement (explain)	NA	Pump	NA
Total drawdown	NA	Did well meet SAP/WP stabilization requirements before sampling?	Not sampled
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/07/2024	Time	12:54
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	5.39
Final DTW (ft)	NA	Groundwater elevation	NA
Well Depth (ft)	39	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Not sampled		

3-Wellhead

Date	02/07/2024	Time	12:54
Weather Conditions	Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	NA
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	34	Depth to Water (ft bmp)	5.39
Measured Well Depth (ft bmp)	39	Water Column in Well	33.61
Gallons in Well	5.4819777	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks

5-Sample

Date	02/07/2024	Time	NA
Did Well Dewater?	NA	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	NA	How were samples transported to lab?	NA
Sample Date	NA	Sample Time	NA
Sample ID	NA	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	NA
Sampler's Signature:	NA	No. of Containers	NA
Analysis	NA	Matrix	NA
Filtered?	NO	COC	NA
Bottles	NA	Sampler Signature	NA
Remarks	None		

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057
Client: The Boeing Company

Project No: PS20203450

RGW263S

1-Well Integrity

Date	02/07/2024	Time	15:20
Inspector Name	Lindsey Wielick	Well Permit Number	BIX-489
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	Yes
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	None
Any repairs/replacement (explain)	None	Pump	NA
Total drawdown	NA	Did well meet SAP/WP stabilization requirements before sampling?	Not sampled
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments	None		

2-Gauging

Date	02/07/2024	Time	15:20
Top of Casing	NA	Screen Interval	NA
PID	NA	Initial DTW (ft)	7.71
Final DTW (ft)	NA	Groundwater elevation	NA
Well Depth (ft)	18	Free Product?	No
Depth To NAPL	NA	Well Dry?	N
Remarks	Not sampled		

3-Wellhead

Date	02/07/2024	Time	15:20
Weather Conditions	Partly Cloudy, Partly Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	NA
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	13	Depth to Water (ft bmp)	7.71
Measured Well Depth (ft bmp)	18	Water Column in Well	NA
Gallons in Well	NA	Casing Volume to Remove	NA

Detailed Low Flow Sampling Info

Project No: PS20203450

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Total Volume to Remove	NA
Remarks	None

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolved Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks

5-Sample

Date	NA	Time	NA
Did Well Dewater?	NA	Location of disposed purge water	NA
How were samples preserved?	NA	How were samples transported to lab?	NA
Sample Date	NA	Sample Time	NA
Sample ID	NA	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	NA
Sampler's Signature:	NA	No. of Containers	NA
Analysis	NA	Matrix	NA
Filtered?	NO	COC	NA
Bottles	NA	Sampler Signature	NA
Remarks	None		

Detailed Low Flow Sampling Info
Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

RGW265S

1-Well Integrity

Date	02/07/2024	Time	15:21
Inspector Name	Lindsey Wielick	Well Permit Number	No tag
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	No	Outside ID Intact	NA
Well Cap Present	Yes	Inside Measurement Point	No
Inside Casing Clear of Debris	Yes	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	
Any repairs/replacement (explain)		Pump	NA
Total drawdown		Did well meet SAP/WP stabilization requirements before sampling?	Not sampled
Instrument calibration date	01/29/2024	Instrument calibration time	12:00
Comments			

2-Gauging

Date	02/07/2024	Time	15:21
Top of Casing		Screen Interval	
PID		Initial DTW (ft)	5.50
Final DTW (ft)		Groundwater elevation	
Well Depth (ft)	18	Free Product?	No
Depth To NAPL		Well Dry?	N
Remarks	Not sampled		

3-Wellhead

Date	02/07/2024	Time	15:42
Weather Conditions	Partly Sunny, Partly Cloudy	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	NA
Water Quality Meter	YSI	Sampling Type	Low Flow
Casing Material	PVC	Casing Diameter (in)	2
Pump Intake Depth (ft bmp)	13	Depth to Water (ft bmp)	5.50
Measured Well Depth (ft bmp)	18	Water Column in Well	
Gallons in Well		Casing Volume to Remove	

Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington 98057
Client: The Boeing Company

Project No: PS20203450

Total Volume to Remove

Remarks

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolvec Oxygen (mg/L)	Temperat (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks

5-Sample

Date

Time

Did Well Dewater?

Location of disposed purge water

How were samples preserved?

How were samples transported to lab?

Sample Date

Sample Time

Sample ID

Duplicate Sample ID

Dup Sample Time

Sampler's Name

Sampler's Signature:

No. of Containers

Analysis

Matrix

Filtered?

COC

Bottles

Sampler Signature

Remarks

APPENDIX C

DATA VALIDATION MEMOS

Memo

To:	Patrick McCarthy, Project Manager	Project:	PS2420685.03
From:	Caitlin Riechmann	c:	Project File
Tel:	(503) 207-9629		
Date:	March 4, 2024		
Subject:	Summary Data Quality Review February 2024 Boeing Renton Groundwater Sampling SWMU-168 ARI Work Order Number: 24B0120		

This memo presents the summary data quality review of one primary groundwater sample and one trip blank sample collected on February 6, 2024. The samples were submitted to Analytical Resources, Inc. (ARI), located in Tukwila, Washington, a laboratory accredited by the Washington State Department of Ecology. The samples were analyzed for the volatile organic compound vinyl chloride by U.S. Environmental Protection Agency (EPA) Method 8260D with selected ion monitoring.

The samples and the analyses conducted on the samples are listed below.

Sample ID	Laboratory Sample ID	Requested Analyses
RGW230I-02062024	24B0120-01	vinyl chloride
TB-02062024	24B0120-02	vinyl chloride

Data were reviewed in accordance with the appropriate method procedures and criteria documented in the Quality Assurance Project Plan (QAPP) (Amec Foster Wheeler, 2016). The control limits provided in the QAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used.

Holding times, method/trip blanks, surrogate recoveries, laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), matrix spike/matrix spike duplicates (MS/MSD), field duplicates, and reporting limits were reviewed where available to assess compliance with applicable methods. If qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA guidance documents (EPA, 2020).

ARI received the samples on February 6, 2024. The temperature of the cooler was recorded upon receipt and the cooler was below the maximum acceptable temperature of 6 degrees Celsius.

ORGANIC ANALYSES

Samples were analyzed for vinyl chloride. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. Surrogates – Acceptable
4. LCS/LCSD – Acceptable
5. MS/MSD – Acceptable

   Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

WSP USA Environment & Infrastructure Inc.
18300 Redmond Way, Ste 200
Redmond, WA 98052
+1 (425) 883-0777
wsp.com

6. Field Duplicates – Acceptable

   Field duplicates were not collected at this site during this sampling event. The project frequency requirement of one field duplicate for every 20 samples was achieved with field duplicate samples collected at other sites included in this sampling event.

7. Reporting Limits and Laboratory Flags – Acceptable.

OVERALL ASSESSMENT OF DATA

The table below summarizes the data assessment. The completeness of ARI work order number 24B0120 is 100 percent. The usefulness of these data was evaluated based on EPA guidance documents listed in the introduction to this report. No problems were identified, and analytical performance was within specified limits.

Sample ID	Qualified Analyte
RGW230I-02062024	none
TB-02062024	none

REFERENCES

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016, Quality Assurance Project Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, February.

U.S. Environmental Protection Agency (EPA), 2020, U.S. EPA National Functional Guidelines for Organic Superfund Methods Data Review: EPA 540-R-20-005, November.

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Memo

To:	Patrick McCarthy, Project Manager	Project:	PS2420685.03
From:	Caitlin Riechmann	c:	Project File
Tel:	(503) 207-9629		
Date:	March 4, 2024		
Subject:	Summary Data Quality Review February 2024 Boeing Renton Groundwater Sampling SWMU-172/174 ARI Group Numbers: 24B0053, 24B0107		

This memo presents the summary data quality review of 9 primary groundwater samples, one groundwater field duplicate, and two trip blank samples collected on February 2 and 5, 2024. The samples were submitted to Analytical Resources, Inc. (ARI), located in Tukwila, Washington, a laboratory accredited by the Washington State Department of Ecology. The samples were analyzed for the following:

- Volatile organic compounds (VOCs) (cis-1,2-dichloroethene, tetrachloroethene, trichloroethene, and vinyl chloride) by U.S. Environmental Protection Agency (EPA) Method 8260D with selected ion monitoring;
- Total organic carbon (TOC) by Standard Method 5310B; and
- Total metals (arsenic, copper, and lead) by EPA Method 6020A.

The samples and the analyses conducted on the samples are listed below.

Sample ID	Laboratory Sample ID	Requested Analyses
RGW153S-02022024	24B0053-01	all
RGW226S-02022024	24B0053-02	all
RGW234S-02022024	24B0053-03	all
RGW235I-02022024	24B0053-04	all
TB-02022024	24B0053-05	VOCs
RGW172S-02052024	24B0107-01	all
RGW173S-02052024	24B0107-02	all
RGW152S-02052024	24B0107-03	all
RGW236S-02052024	24B0107-04	all
RGW232S-02052024	24B0107-05	all
DUP01-02052024	24B0107-06	all
TB-02052024	24B0107-07	VOCs

Data were reviewed in accordance with the appropriate method procedures and criteria documented in the Quality Assurance Project Plan (QAPP) (Amec Foster Wheeler, 2016). The control limits provided in the QAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used.

Holding times, method/trip blanks, surrogate recoveries, laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), matrix spike/matrix spike duplicates (MS/MSD), field duplicates, and reporting limits were reviewed where available to assess compliance with applicable methods. If qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA guidance documents (EPA, 2020a and b).

ARI received the samples on February 2 and 5, 2024. The temperature of the coolers was recorded upon receipt and all coolers were below the maximum acceptable temperature of 6 degrees Celsius. According to the COC, the trip blank TB-02052024 should have been analyzed for metals as well as VOCs. ARI properly analyzed the trip blank for VOCs only.

ORGANIC ANALYSES

Samples were analyzed for VOCs. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. Surrogates – Acceptable
4. LCS/LCSD – Acceptable
5. MS/MSD – Acceptable
6. Field Duplicates – Acceptable

   One field duplicate was submitted for each analysis during this sampling event, meeting the project frequency requirement of five percent, or one for every 20 samples. Primary and duplicate results are summarized in the table below. The project-specific control limit for field duplicate relative percent differences (RPDs) is 30 percent for concentrations greater than five times the reporting limit. The field duplicate RPDs were within the control limits.

Sample ID/ Field Duplicate ID	Analyte	Primary Result (ng/L)	Duplicate Result (ng/L)	Reporting Limit (ng/L)	RPD (%)
RGW172S-02052024/ DUP01-02052024	vinyl chloride	907	902	20	0.6
	cis-1,2-dichloroethene	877	890	20	2
	trichloroethene	266	258	20	3

Abbreviations
ng/L = nanograms per liter   RPD = relative percent difference

7. Reporting Limits and Laboratory Flags – Acceptable

INORGANIC ANALYSES

Samples were analyzed for metals and TOC. Laboratory data were evaluated for the following parameters.

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. LCS – Acceptable
4. MS – Acceptable
5. Laboratory Duplicates – Acceptable
6. Field Duplicates – Acceptable

   One field duplicate was submitted for each analysis during this sampling event, meeting the project frequency requirement of five percent, or one for every 20 samples. Primary and duplicate results are summarized in the table below. The project-specific control limit for field duplicate RPDs is 30 percent for concentrations greater than five times the reporting limit. The RPD is not calculated for results that are less than five times the reporting limit, as indicated on the table below by “NC.” In these cases, the absolute value of the difference between the primary and duplicate result should not exceed the value of the reporting limit. The field duplicate RPDs were within control limits.

Sample ID/ Field Duplicate ID	Analyte	Primary Result	Duplicate Result	Average Reporting Limit	RPD (%)
RGW172S-02052024/ DUP01-02052024	TOC	3.43 mg/L	3.36 mg/L	0.50 mg/L	2
	total arsenic	6.68 µg/L	6.73 µg/L	0.400 µg/L	0.8
	total copper	1.08 µg/L	ND	1.00 µg/L	NC
	total lead	0.714 µg/L	0.668 µg/L	0.200 µg/L	NC

Abbreviations:
µg/L = micrograms per liter
mg/L = milligrams per liter
NC = not calculated
RPD = relative percent difference
TOC = total organic carbon
ND = not detected

7. Reporting Limits and Laboratory Flags – Acceptable

OVERALL ASSESSMENT OF DATA

The table below summarizes the data assessment. The completeness of work order numbers 24B0053 and 24B0107 is 100 percent. The usefulness of these data was evaluated based on EPA guidance documents listed in the introduction to this report. No problems were identified, and analytical performance was within specified limits. The data meet the project's data quality objectives.

Sample ID	Qualified Analyte	Reason for Qualifier	Qualified Result
RGW153S-02022024	None	NA	NA
RGW226S-02022024	None	NA	NA
RGW234S-02022024	None	NA	NA
RGW235I-02022024	None	NA	NA
TB-02022024	None	NA	NA
RGW172S-02052024	None	NA	NA
RGW173S-02052024	None	NA	NA
RGW152S-02052024	None	NA	NA
RGW236S-02052024	None	NA	NA
RGW232S-02052024	None	NA	NA
DUP01-02052024	None	NA	NA
TB-02052024	None	NA	NA

Abbreviation
NA = not applicable

REFERENCES

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016, Quality Assurance Project Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, February.

U.S. Environmental Protection Agency (EPA), 2020a, U.S. EPA National Functional Guidelines for Organic Superfund Methods Data Review: EPA 540-R-20-005, November.

EPA, 2020b, U.S. EPA National Functional Guidelines for Inorganic Superfund Methods Data Review: EPA 542-R-20-006, November.

Memo

To:	Patrick McCarthy, Project Manager	Project:	PS2420685.03
From:	Caitlin Riechmann	c:	Project File
Tel:	(503) 207-9629		
Date:	March 4, 2024		
Subject:	Summary Data Quality Review February 2024 Boeing Renton Groundwater Sampling Building 4-78/79 SWMU/AOC Group ARI Work Order Numbers: 24B0106, 24B0141		

This memo presents the summary data quality review of 7 primary groundwater samples, one field duplicate, and two trip blanks collected on February 5 and 6, 2024. The samples were submitted to Analytical Resources, Inc. (ARI), located in Tukwila, Washington, a laboratory accredited by the Washington State Department of Ecology (Ecology). The samples were analyzed for the following:

– Volatile organic compounds (VOCs) (limited suite: benzene, vinyl chloride, cis-1,2-dichloroethene, and trichloroethene) by U.S. Environmental Protection Agency (EPA) Method 8260D;

– Total petroleum hydrocarbons as gasoline (TPH-G) by Ecology Method NWTPH Gx; and

– Total organic carbon (TOC) by Standard Method 5310B-00.

The samples and the analyses conducted on the samples are listed below.

Sample ID	Laboratory Sample ID	Requested Analyses
RGW237S-02052024	24B0106-01	all
RGW240D-02052024	24B0106-02	all
RGW143S-02052024	24B0106-03	all
TB-020520224	24B0106-04	VOCs, TPH-G
RGW033S-02062024	24B0141-01	all
RGW034S-02062024	24B0141-02	all
RGW031S-R-02062024	24B0141-03	all
RGW244S-R-02062024	24B0141-04	all
DUP02-02062024	24B0141-05	all
TB-02062024	24B0141-06	VOCs, TPH-G

Data were reviewed in accordance with the appropriate method procedures and criteria documented in the Quality Assurance Project Plan (QAPP) (Amec Foster Wheeler, 2016). The control limits provided in the QAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used.

Holding times, method/trip blanks, surrogate recoveries, laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), matrix spike/matrix spike duplicates (MS/MSD), field duplicates, and reporting limits were reviewed where available to assess compliance with applicable methods. If qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in EPA guidelines (EPA, 2020a and b).

ARI received the samples on February 5 and 6, 2024. The temperature of the coolers were recorded upon receipt and all coolers were below the maximum acceptable temperature of 6 degrees Celsius.

ORGANIC ANALYSES

Samples were analyzed for VOCs and TPH-G. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. Surrogates – Acceptable
4. LCS/LCSD – Acceptable
5. MS/MSD – Acceptable

   Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

6. Field Duplicates – Acceptable

   One field duplicate was submitted for each analysis during this sampling event, meeting the project frequency requirement of five percent, or one for every 20 samples. Primary and duplicate results are summarized in the table below. The relative percent differences (RPDs) for the field duplicate are within the project-specific control limit of 30 percent for concentrations greater than five times the reporting limit. The RPD is not calculated for results that are less than five times the reporting limit, as indicated on the table below by "NC." In these cases, the absolute value of the difference between the primary and duplicate result should not exceed the value of the reporting limit. As shown in the table below, the field duplicate results are acceptable.

Sample ID/ Field Duplicate ID	Analyte	Primary Result (µg/L)	Duplicate Result (µg/L)	Reporting Limit (µg/L)	RPD (%)
RGW033S-02062024 / DUP02-02062024	vinyl chloride	0.83	0.94	0.20	NC
	cis-1,2-dichloroethene	0.48	0.43	0.20	NC
	benzene	6.49	6.51	0.20	0.3
	TPH-G	141	141	100	NC

Abbreviations
µg/L = micrograms per liter
NC = not calculated
RPD = relative percent difference
TPH-G = total petroleum hydrocarbons as gasoline

7. Reporting Limits and Laboratory Flags – Acceptable

INORGANIC ANALYSES

Samples were analyzed for TOC. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. LCS – Acceptable
4. MS – Acceptable
5. Laboratory Duplicates – Acceptable

6. Field Duplicates – Acceptable

   One field duplicate was submitted for each analysis during this sampling event, meeting the project frequency requirement of five percent, or one for every 20 samples. Primary and duplicate results are summarized in the table below. The RPD is acceptable.

Sample ID/ Field Duplicate ID	Analyte	Primary Result (mg/L)	Duplicate Result (mg/L)	Reporting Limit (mg/L)	RPD (%)
RGW033S-02062024 / DUP02-02062024	TOC	10.17	10.13	0.50	0.4

Abbreviations:
mg/L = milligrams per liter
RPD = relative percent difference
TOC = total organic carbon

7. Reporting Limits and Laboratory Flags – Acceptable

OVERALL ASSESSMENT OF DATA

The table below summarizes the data assessment. The completeness of work order numbers 24B0106 and 24B0141 is 100 percent. Evaluation of the usefulness of these data is based on EPA guidance documents identified in the introduction to this report. No problems were identified, and analytical performance was within specified limits. The data meet the project's data quality objectives.

Sample ID	Qualified Analyte
RGW237S-02052024	none
RGW240D-02052024	none
RGW143S-02052024	none
TB-020520224	none
RGW033S-02062024	none
RGW034S-02062024	none
RGW031S-R-02062024	none
RGW244S-R-02062024	none
DUP02-02062024	none
TB-02062024	none

REFERENCES

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016, Quality Assurance Project Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, February.

U.S. Environmental Protection Agency (EPA), 2020a, U.S. EPA National Functional Guidelines for Organic Superfund Methods Data Review: EPA 540-R-20-005, November.

EPA, 2020b, U.S. EPA National Functional Guidelines for Inorganic Superfund Methods Data Review: EPA 542-R-20-006, November.

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Memo

To:	Patrick McCarthy, Project Manager	Project:	PS2420685.03
From:	Caitlin Riechmann	c:	Project File
Tel:	(503) 207-9629		
Date:	March 4, 2024		
Subject:	Summary Data Quality Review February 2024 Boeing Renton Groundwater Sampling Former Fuel Farm AOC Group ARI Work Order Number: 24B0139, 24B0221		

This memo presents the summary data quality review of three primary groundwater samples and one field duplicate collected on February 6 and 8, 2024. The samples were submitted to Analytical Resources Inc. (ARI), a Washington State Department of Ecology (Ecology)-accredited laboratory located in Tukwila, Washington. The samples were analyzed for total petroleum hydrocarbons as diesel (TPH-D), plus motor oil (TPH-O) and Jet A (TPH-Jet A) ranges by Ecology Method NWTPH-Dx.

The samples and the analyses conducted on the samples are listed below.

Sample ID	Laboratory Sample ID	Requested Analyses
RGW221S-02062024	24B0139-01	all
RGW224S-02062024	24B0139-02	all
DUP03-02062024	24B0139-03	all
RGW211S-02082024	24B0221-01	all

Data were reviewed in accordance with the appropriate method procedures and criteria documented in the Quality Assurance Project Plan (QAPP) (Amec Foster Wheeler, 2016). The control limits provided in the QAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used.

Holding times, method/trip blanks, surrogate recoveries, laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), matrix spike/matrix spike duplicates (MS/MSD), field duplicates, and reporting limits were reviewed where available to assess compliance with applicable methods. If qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in EPA guidelines (EPA, 2020).

ARI received the samples on February 6 and 8, 2024. The temperature of the cooler was recorded upon receipt and the cooler was below the maximum acceptable temperature of 6 degrees Celsius.

ORGANIC ANALYSES

Samples were analyzed for TPH-D plus TPH-O and TPH-Jet A ranges. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable except as noted:

   According to the cooler receipt form, the sample IDs on the container labels for samples RGW221S-02062024, RGW224S-02062024, and DUP03-02062024 did not match the IDs listed on the COC. ARI logged the samples per the COC.

   According to the cooler receipt form, the laboratory received an additional container for sample RGW221S-02062024 that was not listed on the COC.

2. Blanks – Acceptable

3. Surrogates – Acceptable
4. LCS/LCSD – Acceptable
5. MS/MSD – Acceptable

   Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

6. Field Duplicates – Acceptable

   One field duplicate was submitted for each analysis during this sampling event, meeting the project frequency requirement of 5 percent, or one for every 20 samples. Primary and duplicate results are summarized in the table below. The project-specific control limit for field duplicate relative percent differences (RPDs) is 30 percent for concentrations greater than five times the reporting limit. The field duplicate RPDs were within control limits.

Sample ID/ Field Duplicate ID	Analyte	Primary Result (mg/L)	Duplicate Result (mg/L)	Reporting Limit (mg/L)	RPD (%)
RGW224S-02062024/ DUP03-02062024	TPH-D (C12–C24)	0.764	0.966	0.100	23
	TPH-Jet A (C10–C18)	1.27	1.55	0.100	20

Abbreviations
mg/L = milligrams per liter
RPD = relative percent difference
TPH-D = total petroleum hydrocarbons as diesel
TPH-Jet A = total petroleum hydrocarbons in the Jet A range

7. Reporting Limits and Laboratory Flags – Acceptable

OVERALL ASSESSMENT OF DATA

The table below summarizes the data review. The completeness of ARI work order numbers 24B0139 and 24B0221 is 100 percent. Evaluation of the usefulness of these data is based on EPA guidance documents listed in the introduction to this report. No problems were identified, and analytical performance was within specified limits. The data meet the project's data quality objectives.

Sample ID	Qualified Analyte	Reason for Qualifier	Qualified Result
RGW221S-02062024	None	NA	NA
RGW224S-02062024	None	NA	NA
DUP03-02062024	None	NA	NA
RGW211S-02082024	None	NA	NA

REFERENCES

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016, Quality Assurance Project Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, February.

U.S. Environmental Protection Agency (EPA), 2020a, U.S. EPA National Functional Guidelines for Organic Superfund Methods Data Review: EPA 540-R-20-005, November.

Memo

To:	Patrick McCarthy, Project Manager	Project:	PS2420685.03
From:	Caitlin Riechmann	c:	Project File
Tel:	(503) 207-9629		
Date:	April 16, 2024		
Subject:	Summary Data Quality Review February 2024 Boeing Renton Groundwater Sampling AOC-001, -002, and -003 ARI Work Order Numbers: 24B0043, 24B0044, 24B0045, 24B0049, 24B0055		

This memo presents the summary data quality review of 17 primary groundwater samples and 4 trip blank samples collected between January 31 and February 2, 2024. The samples were submitted to Analytical Resources, Inc. (ARI), located in Tukwila, Washington, a laboratory accredited by the Washington State Department of Ecology. The samples were analyzed for the following:

- Benzene (a volatile organic compound) by U.S. Environmental Protection Agency (EPA) Method 8260D;
- Volatile organic compounds (VOCs) (limited suite: vinyl chloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, and/or tetrachloroethene) by U.S. Environmental Protection Agency (EPA) Method 8260D with selected ion monitoring; and/or
- Total organic carbon (TOC) by Standard Method 5310B-00.

The samples and the analyses conducted on the samples are listed below.

Sample ID	Laboratory Sample ID	Requested Analyses
RGW190S-R-02012024	24B0043-01	all
RGW192S-R-02012024	24B0043-02	all
RGW185S-R-02012024	24B0043-03	all
RGW193S-R-02012024	24B0043-04	all
RGW215S-R-02012024	24B0043-05	all
RGW214S-R-02012024	24B0043-06	all
RGW213S-R-02012024	24B0043-07	all
Trip Blank	24B0043-08	Benzene, VOCs
RGW249S-R-02012024	24B0044-01	VOCs, TOC
Trip Blank	24B0044-02	VOCs
RGW246S-R-01312024	24B0045-01	all
RGW196D-R-01312024	24B0045-02	all
RGW195S-R-01312024	24B0045-03	all
RGW245S-R-01312024	24B0045-04	all
RGW197S-R-01312024	24B0045-05	all
RGW191D-R-020224	24B0049-01	all
TB-020224	24B0049-02	Benzene, VOCs

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Sample ID	Laboratory Sample ID	Requested Analyses
RGW188S-02022024	24B0055-01	VOCs, TOC
RGW247S-R-02022024	24B0055-02	VOCs, TOC
RGW248I-02022024	24B0055-03	VOCs, TOC
TB-02022024	24B0055-04	VOCs

Data were reviewed in accordance with the appropriate method procedures and criteria documented in the Quality Assurance Project Plan (QAPP) (Amec Foster Wheeler, 2016). The control limits provided in the QAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used.

Holding times, method/trip blanks, surrogate recoveries, laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), matrix spike/matrix spike duplicates (MS/MSD), field duplicates, and reporting limits were reviewed where available to assess compliance with applicable methods. If qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA guidance documents (EPA, 2020a and b).

ARI received the samples between January 31 and February 2, 2024. The temperature of the coolers was recorded upon receipt and all of the coolers were below the maximum acceptable temperature of 6 degrees Celsius.

ORGANIC ANALYSES

Samples were analyzed for VOCs. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable except as noted:

   According to the cooler receipt form, the sample ID for sample RGW247S-R-02022024 on the container label did not match the ID listed on the COC. ARI logged the sample per the COC.

2. Blanks – Acceptable
3. Surrogates – Acceptable
4. LCS/LCSD – Acceptable
5. MS/MSD – Acceptable

   Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

6. Field Duplicates – Acceptable

   Field duplicates were not collected at this site during this sampling event. The project frequency requirement of one field duplicate for every 20 samples was achieved with field duplicate samples collected at other sites included in this sampling event.

7. Reporting Limits and Laboratory Flags – Acceptable

INORGANIC ANALYSES

Samples were analyzed for TOC. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. LCS – Acceptable

4. MS/MSD – Acceptable

   Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

5. Laboratory Duplicates – Acceptable

   The laboratory did not perform duplicate analyses on the samples reviewed in this report.

6. Field Duplicates – Acceptable

   Field duplicates were not collected at this site during this sampling event. The project frequency requirement of one field duplicate for every 20 samples was achieved with field duplicate samples collected at other sites included in this sampling event.

7. Reporting Limits and Laboratory Flags – Acceptable

OVERALL ASSESSMENT OF DATA

The table below summarizes the data assessment. The completeness of work order numbers 24B0043, 24B0044, 24B0045, 23B0049, and 24B0055 is 100 percent. The usefulness of these data was evaluated based on EPA guidance documents listed in the introduction to this report. No problems were identified, and analytical performance was within specified limits.

Sample ID	Qualified Analyte
RGW190S-R-02012024	none
RGW192S-R-02012024	none
RGW185S-R-02012024	none
RGW193S-R-02012024	none
RGW215S-R-02012024	none
RGW214S-R-02012024	none
RGW213S-R-02012024	none
Trip Blank	none
RGW249S-R-02012024	none
Trip Blank	none
RGW246S-R-01312024	none
RGW196D-R-01312024	none
RGW195S-R-01312024	none
RGW245S-R-01312024	none
RGW197S-R-01312024	none
RGW191D-R-020224	none
TB-020224	none
RGW188S-02022024	none
RGW247S-R-02022024	none

Sample ID	Qualified Analyte
RGW248I-02022024	none
TB-02022024	none

REFERENCES

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016, Quality Assurance Project Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, February.

U.S. Environmental Protection Agency (EPA), 2020a, U.S. EPA National Functional Guidelines for Organic Superfund Methods Data Review: EPA 540-R-20-005, November.

EPA, 2020b, U.S. EPA National Functional Guidelines for Inorganic Superfund Methods Data Review: EPA 542-R-20-006, November.

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Memo

To:	Patrick McCarthy, Project Manager	Project:	PS2420685.03
From:	Caitlin Riechmann	c:	Project File
Tel:	(503) 207-9629		
Date:	March 4, 2024		
Subject:	Summary Data Quality Review February 2024 Boeing Renton Groundwater Sampling AOC-004 ARI Work Order Number: 24B0128		

This memo presents the summary data quality review of one primary groundwater sample collected on February 6, 2024. The sample was submitted to Analytical Resources, Inc. (ARI), located in Tukwila, Washington, a laboratory accredited by the Washington State Department of Ecology. The sample was analyzed for total lead by U.S. Environmental Protection Agency (EPA) Method 6020A.

The sample and the analyses conducted on the sample are listed below.

Sample ID	Laboratory Sample ID	Requested Analyses
RGW250S-02062024	24B0128-01	total lead

Data were reviewed in accordance with the appropriate method procedures and criteria documented in the Quality Assurance Project Plan (QAPP) (Amec Foster Wheeler, 2016). The control limits provided in the QAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used.

Holding times, method/trip blanks, laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), matrix spike/matrix spike duplicates (MS/MSD), field duplicates, and reporting limits were reviewed where available to assess compliance with applicable methods. If qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA guidance documents (EPA, 2020).

ARI received the sample on February 6, 2024. The temperature of the cooler was recorded upon receipt and was below the maximum acceptable temperature of 6 degrees Celsius.

INORGANIC ANALYSES

Samples were analyzed for total lead. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable except as noted:

   According to the cooler receipt form, the sample ID for sample RGW250S-02062024 on the container label did not match the ID listed on the COC. ARI logged the sample per the COC.

2. Blanks – Acceptable

3. LCS – Acceptable

4. MS – Acceptable

   Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

5. Laboratory Duplicates – Acceptable

   The laboratory did not perform duplicate analyses on the sample reviewed in this report.

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6. Field Duplicates – Acceptable

   Field duplicates were not collected at this site during this sampling event. The project frequency requirement of one field duplicate for every 20 samples was achieved with field duplicate samples collected at other sites included in this sampling event.

7. Reporting Limits and Laboratory Flags – Acceptable

OVERALL ASSESSMENT OF DATA

The table below summarizes the data assessment. The completeness of work order number 24B0128 is 100 percent. The usefulness of these data was evaluated based on EPA guidance documents listed in the introduction to this report. No problems were identified, and analytical performance was within specified limits.

Sample ID	Qualified Analyte
RGW250S-02062024	none

REFERENCES

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016, Quality Assurance Project Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, February.

EPA, 2020b, U.S. EPA National Functional Guidelines for Inorganic Superfund Methods Data Review: EPA 542-R-20-006, November.

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Memo

To:	Patrick McCarthy, Project Manager	Project:	PS2420685.03
From:	Caitlin Riechmann	c:	Project File
Tel:	(503) 207-9629		
Date:	March 5, 2024		
Subject:	Summary Data Quality Review February 2024 Boeing Renton Groundwater Sampling AOC-060 ARI Work Order Numbers: 24B0191		

This memo presents the summary data quality review of six primary groundwater samples, one field duplicate, and one trip blank sample collected on February 7, 2024. The samples were submitted to Analytical Resources, Inc. (ARI), located in Tukwila, Washington, a laboratory accredited by the Washington State Department of Ecology. The samples were selectively analyzed for the following:

- Volatile organic compounds (VOCs) (cis-1,2-dichloroethene, trichloroethene, and vinyl chloride) by U.S. Environmental Protection Agency (EPA) Method 8260D with selected ion monitoring; and
- Total organic carbon (TOC) by Standard Method 5310B-00.

The samples and the analyses conducted on the samples are listed below.

Sample ID	Laboratory Sample ID	Requested Analyses
RGW253I-02072024	24B0191-01	all
RGW150S-02072024	24B0191-02	all
RGW147S-02072024	24B0191-03	all
RGW014S-02072024	24B0191-04	all
RGW012S-02072024	24B0191-05	all
RGW009S-02072024	24B0191-06	all
DUP04-02072024	24B0191-07	all
TB-02072024	24B0191-08	VOCs

Data were reviewed in accordance with the appropriate method procedures and criteria documented in the Quality Assurance Project Plan (QAPP) (Amec Foster Wheeler, 2016). The control limits provided in the QAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used.

Hold times, method/trip blanks, surrogate recoveries, laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), matrix spike/matrix spike duplicates (MS/MSD), field duplicates, and reporting limits were reviewed where available to assess compliance with applicable methods. If qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in EPA guidelines (EPA, 2020a and b).

Samples were received by ARI on February 7, 2024. The temperature of the cooler was recorded upon receipt and was below the maximum acceptable temperature of 6 degrees Celsius.

ORGANIC ANALYSES

Samples were analyzed for VOCs. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable

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2. Blanks – Acceptable
3. Surrogates – Acceptable
4. LCS/LCSD – Acceptable
5. MS/MSD – Acceptable

   Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

6. Field Duplicates – Acceptable

   One field duplicate was submitted for each analysis during this sampling event, meeting the project frequency requirement of five percent, or one for every 20 samples. Primary and duplicate results are summarized in the table below. The project-specific control limit for field duplicate relative percent differences (RPDs) is 30 percent for concentrations greater than five times the reporting limit. The RPD is not calculated for results that are less than five times the reporting limit, as indicated on the table below by "NC." In these cases, the absolute value of the difference between the primary and duplicate result should not exceed the value of the reporting limit. The field duplicate RPDs were within the control limits.

Sample ID/ Field Duplicate ID	Analyte	Primary Result (ng/L)	Duplicate Result (ng/L)	Reporting Limit (ng/L)	RPD (%)
RGW014S-02072024 / DUP04-02072024	vinyl chloride	380	437	20.0	14
	cis-1,2-dichloroethene	207	221	20.0	7
	trichloroethene	24.7	27.9	20.0	NC

Abbreviations
ng/L = nanograms per liter
NC = not calculated
RPD = relative percent difference

7. Reporting Limits and Laboratory Flags – Acceptable except as noted:

   ARI J qualified the detected trichloroethene result from sample RGW253I-02072024 because the detected result was less than the reporting limit. WSP agrees that the result is quantitatively uncertain and has maintained ARI's J qualifier.

INORGANIC ANALYSES

Samples were analyzed for TOC. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. LCS – Acceptable
4. MS/MSD – Acceptable

   Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

5. Laboratory Duplicates – Acceptable

   The laboratory did not perform duplicate analyses on the samples reviewed in this report.

6. Field Duplicates – Acceptable

One field duplicate was submitted for TOC analysis during this sampling event, meeting the project frequency requirement of five percent, or one for every 20 samples. Primary and duplicate results are summarized in the table below. The project-specific control limit for field duplicate RPDs is 30 percent for concentrations greater than five times the reporting limit. The field duplicate RPD was within the control limits.

Sample ID/ Field Duplicate ID	Analyte	Primary Result (mg/L)	Duplicate Result (mg/L)	Reporting Limit (mg/L)	RPD (%)
RGW014S-02072024 / DUP04-02072024	TOC	4.16	4.07	0.50	2

Abbreviations
mg/L = milligrams per liter
RPD= relative percent difference
TOC = total organic carbon

7. Reporting Limits and Laboratory Flags – Acceptable

OVERALL ASSESSMENT OF DATA

A summary of the data assessment is presented in the table below. The completeness of work order numbers 24B0191 is 100 percent. Evaluation of the usefulness of these data is based on the EPA guidance document listed in the introduction to this report. No problems were identified, and analytical performance was within specified limits. The data meet the project's data quality objectives.

Sample ID	Qualified Analyte	Reason for Qualifier	Qualified Result (ng/L)
RGW253I-02072024	Trichloroethene	Detected result less than the RL	14.5 J
RGW150S-02072024	none	NA	NA
RGW147S-02072024	none	NA	NA
RGW014S-02072024	none	NA	NA
RGW012S-02072024	none	NA	NA
RGW009S-02072024	none	NA	NA
DUP04-02072024	none	NA	NA
TB-02072024	none	NA	NA

Abbreviations:
NA = not applicable
ng/L = nanograms per liter
RL = reporting limit

REFERENCES

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016, Quality Assurance Project Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, February.

U.S. Environmental Protection Agency (EPA), 2020a, U.S. EPA National Functional Guidelines for Organic Superfund Methods Data Review: EPA 540-R-20-005, November.

EPA, 2020b, U.S. EPA National Functional Guidelines for Inorganic Superfund Methods Data Review: EPA 542-R-20-006, November.

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Memo

To:	Patrick McCarthy, Project Manager	Project:	PS2420685.03
From:	Caitlin Riechmann	c:	Project File
Tel:	(503) 207-9629		
Date:	March 4, 2024		
Subject:	Summary Data Quality Review August 2023 Boeing Renton Groundwater Sampling AOC-090 ARI Work Order Number: 24B0240		

This memo summarizes the data quality review of five primary groundwater samples and one trip blank sample collected on February 8, 2024. The samples were submitted to Analytical Resources, Inc. (ARI), located in Tukwila, Washington, a laboratory accredited by the Washington State Department of Ecology (Ecology). The samples were selectively analyzed for the following:

- Volatile organic compounds (VOCs) (acetone, methylene chloride, trans-1,2-dichlorethene, cis-1,2-dichloroethene, chloroform, carbon tetrachloride, benzene, toluene, and 1,1,2-trichloroethane) by U.S. Environmental Protection Agency (EPA) Method 8260D);
- VOCs (vinyl chloride, 1,1-dichloroethene, trichloroethene, tetrachloroethene, and/or 1,1,2,2-tetrachloroethane) by EPA Method 8260D with selected ion monitoring (SIM);
- Total petroleum hydrocarbons in the gasoline range (TPH-G) by Ecology Method NWTPH Gx;
- Total petroleum hydrocarbons in the diesel and motor oil ranges (TPH-D and TPH-MO) by Ecology Method NWTPH-Dx (with silica gel cleanup); and
- Total organic carbon (TOC) by Standard Method 5310B-00.

The samples and the analyses conducted on the samples are listed below.

Sample ID	Laboratory Sample ID	Requested Analyses
RGW207S-02082024	24B0240-01	Vinyl chloride
RGW176S-02082024	24B0240-02	Vinyl chloride
RGW208S-02082024	24B0240-03	Vinyl chloride
RGW189S-02082024	24B0240-04	all
TB-02082024	24B0240-05	VOCs, TPH-G
RGW178S-02082024	24B0240-06	Vinyl chloride

Data were reviewed in accordance with the appropriate method procedures and criteria documented in the Quality Assurance Project Plan Addendum (QAPP) (Amec Foster Wheeler, 2016). The control limits provided in the QAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used.

Holding times, method/trip blanks, surrogate recoveries, laboratory control samples (LCS), laboratory duplicates (LCSD), matrix spike/matrix spike duplicates (MS/MSD), field duplicates, and reporting limits were reviewed where available to assess compliance with applicable methods. If qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in EPA guidelines (EPA, 2020a and b).

ARI received the samples on February 8, 2024. The temperature of the cooler was recorded upon receipt and was below the maximum acceptable temperature of 6 degrees Celsius.

ORGANIC ANALYSES

Samples were analyzed for VOCs and TPH. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable except as noted:

   Methylene chloride was detected at a concentration of 1.40 µg/L in the trip blank associated with the samples reviewed in this report. Methylene chloride either was not detected or it was not a target analyte in the associated samples and data usability is not adversely affected by the trip blank detection.

3. Surrogates – Acceptable
4. LCS/LCSD – Acceptable
5. MS/MSD – Acceptable except as noted:

   TPH-G recovery was high at 132% in the MSD performed on sample RGW189S-02082024. TPH-G was not detected in the unspiked native sample and data usability is not adversely affected by potential high analytical bias.

6. Field Duplicates – Acceptable

   Field duplicates were not collected at this site during this sampling event. The project frequency requirement of one field duplicate for every 20 samples was achieved with field duplicate samples collected at other sites included in this sampling event.

7. Reporting Limits and Laboratory Flags – Acceptable

INORGANIC ANALYSES

Samples were analyzed for TOC. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. LCS – Acceptable
4. MS/MSD – Acceptable
5. Laboratory Duplicates – Acceptable
6. Field Duplicates – Acceptable

   Field duplicates were not collected at this site during this sampling event. The project frequency requirement of one field duplicate for every 20 samples was achieved with field duplicate samples collected at other sites included in this sampling event.

7. Reporting Limits and Laboratory Flags– Acceptable

OVERALL ASSESSMENT OF DATA

The completeness of ARI work order number 24B0240 is 100 percent. Evaluation of the usefulness of these data was evaluated based on EPA guidance documents listed in the introduction to this report. No problems were identified, and analytical performance was within specified limits. The data meet the project's data quality objectives.

A summary of the data quality review is presented in the table below.

Sample ID	Qualified Analyte	Qualifier Reason	Qualified Result
RGW207S-02082024	None	NA	NA
RGW176S-02082024	None	NA	NA
RGW208S-02082024	None	NA	NA
RGW189S-02082024	None	NA	NA
TB-02082024	None	NA	NA
RGW178S-02082024	None	NA	NA

Abbreviations:
NA = not applicable

REFERENCES

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016, Quality Assurance Project Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, February.

U.S. Environmental Protection Agency (EPA), 2020a, U.S. EPA National Functional Guidelines for Organic Superfund Methods Data Review: EPA 540-R-20-005, November.

EPA, 2020b, U.S. EPA National Functional Guidelines for Inorganic Superfund Methods Data Review: EPA 542-R-20-006, November.

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Memo

To:	Patrick McCarthy, Project Manager	Project:	PS2420685.03
From:	Caitlin Riechmann	c:	Project File
Date:	March 4, 2024		
Tel:	(503) 207-9629		
Subject:	Summary Data Quality Review February 2024 Boeing Renton Groundwater Sampling Apron A ARI Work Order Number: 24B0200		

This memo presents the summary data quality review of one primary groundwater sample and one trip blank sample collected on February 7, 2023. The samples were submitted to Analytical Resources, Inc., (ARI), located in Tukwila, Washington, a laboratory accredited by the Washington State Department of Ecology. The samples were analyzed for the following:

- Volatile organic compounds (VOCs) (vinyl chloride and cis-1,2-dichloroethene) by U.S. Environmental Protection Agency (EPA) Method 8260D; and
- Total organic carbon (TOC) by Standard Method 5310B.

The samples and the analyses conducted on the samples are listed below.

Sample ID	Laboratory Sample ID	Requested Analyses
RGW264S-02072024	24B0200-01	all
TB-02072024	24B0200-02	VOCs

Data were reviewed in accordance with the appropriate method procedures and criteria documented in the Quality Assurance Project Plan (QAPP) (Amec Foster Wheeler, 2016). The control limits provided in the QAPP are advisory limits; therefore, the most current control limits provided by the laboratory were used to evaluate the quality control data. In cases where the laboratory did not track limits for an analyte, the limits in the QAPP were used.

Holding times, method/trip blanks, surrogate recoveries, laboratory control samples (LCS) and laboratory control sample duplicates (LCSD), matrix spike/matrix spike duplicates (MS/MSD), field duplicates, and reporting limits were reviewed where available to assess compliance with applicable methods. If qualification was required, data were qualified based on the definitions and use of qualifying flags outlined in the EPA guidance documents (EPA, 2020a and b).

ARI received the samples on February 7, 2024. The temperature of the coolers was recorded upon receipt and was below the maximum acceptable temperature of 6 degrees Celsius (°C).

ORGANIC ANALYSES

Samples were analyzed for VOCs. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. Surrogates – Acceptable
4. LCS/LCSD – Acceptable

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5. MS/MSD – Acceptable

   Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

6. Field Duplicates – Acceptable

   Field duplicates were not collected at this site during this sampling event. The project frequency requirement of one field duplicate for every 20 samples was achieved with field duplicate samples collected at other sites included in this sampling event.

7. Reporting Limits and Laboratory Flags – Acceptable.

INORGANIC ANALYSES

Samples were analyzed for TOC. Laboratory data were evaluated for the following parameters:

1. Preservation and Holding Times – Acceptable
2. Blanks – Acceptable
3. LCS – Acceptable
4. MS/MSD – Acceptable

Extra volume was not submitted for analysis of MS/MSD samples. The project frequency requirement was achieved with MS/MSD analysis conducted at other sites included in this sampling event.

5. Laboratory Duplicates – Acceptable

The laboratory did not perform duplicate analyses on the samples reviewed in this report.

6. Field Duplicates – Acceptable

Field duplicates were not collected at this site during this sampling event. The project frequency requirement of one field duplicate for every 20 samples was achieved with field duplicate samples collected at other sites included in this sampling event.

7. Reporting Limits and Laboratory Flags – Acceptable.

OVERALL ASSESSMENT OF DATA

The table below summarizes the data assessment. The completeness of work order number 24B0200 is 100 percent. The usefulness of these data was evaluated based on EPA guidance documents listed in the introduction to this report. No problems were identified, and analytical performance was within specified limits. The data meet the project's data quality objectives.

Sample ID	Qualified Analyte
RGW264S-02072024	none
TB-02072024	none

REFERENCES

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler), 2016, Quality Assurance Project Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, February.

U.S. Environmental Protection Agency (EPA), 2020a, U.S. EPA National Functional Guidelines for Organic Superfund Methods Data Review: EPA 540-R-20-005, November.

EPA, 2020b, U.S. EPA National Functional Guidelines for Inorganic Superfund Methods Data Review: EPA 542-R-20-006, November.

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APPENDIX D

HISTORICAL GROUNDWATER DATA TABLES

TABLE D-1: SWMU-168 HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1, 2]

Boeing Renton Facility, Renton, Washington

Analyte	Current Cleanup Level[4]	Well ID[3] CPOC Area GW229S 11/7/2016	3/1/2017	8/14/2017	3/5/2018	8/13/2018	3/4/2019	8/12/2019	3/9/2020
Volatile Organic Compounds (µg/L)									
Vinyl Chloride	0.11	0.020 U	0.020 U	0.021	0.0273	0.020 U	0.0211	0.020 U	0.020 U

Analyte	Current Cleanup Level[4]	Well ID[3] CPOC Area GW230I 8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/17/2022	2/9/2023	8/24/2023	2/6/2024
Volatile Organic Compounds (µg/L)									
Vinyl Chloride	0.11	**0.162**	0.076	0.359 J	**0.164**	**0.539 J**	**0.146**	0.101	0.087

Analyte	Current Cleanup Level[4]	Well ID[3] CPOC Area GW231S 11/7/2016	3/1/2017	8/14/2017	3/5/2018	8/13/2018	3/4/2019	8/12/2019	3/9/2020
Volatile Organic Compounds (µg/L)									
Vinyl Chloride	0.11	0.020 U	0.020 U	0.020 U	0.039	0.033	0.033	0.026	0.020 U

Notes:

1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; I = intermediate well.
4. Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.

Abbreviations:

µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
SWMU = solid waste management unit

TABLE D-2: SWMU-172 AND SWMU-174 GROUP HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1, 2]

Boeing Renton Facility, Renton, Washington

Analyte	Current Cleanup Level[4]	Well ID[3] Source Area																	
		GW152S									GW153S								
		8/10/2020	2/15/2021	8/10/2021	2/21/2022	2/21/2022	8/24/2022	2/8/2023	8/15/2023	2/5/2024	5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/15/2023	2/2/2024
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.03	1.66	0.144	1.330	1.57	1.59	0.877	3.16 J	1.46	4.59	0.0789	0.0551	0.077	0.0582 J	0.0517	0.100	0.0569 J	0.053	0.068
Tetrachloroethene	0.02	0.319	0.081	0.0872	1.84	1.71	1.05	0.234 J	1.06	0.238	0.020 U	0.020 U	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0200 UJ	0.0161 J	0.198
Trichloroethene	0.02	0.579	0.020 U	0.129	0.522	0.497	0.534	0.101 J	0.412	0.104	0.020 U	0.020 U	0.020 U	0.020 UJ	0.0200 U	0.0525	0.0200 UJ	0.0172 J	0.049
Vinyl Chloride	0.11	0.284	0.0378	0.506	0.200	0.219	0.346	0.195 J	0.209	0.264	0.266	0.135	0.220	0.193 J	0.174	0.214	0.148 J	0.0881	0.108
Total Metals (µg/L)																			
Arsenic	8.0	6.72	7.67	16.3	2.88	2.34	47.7	6.92	39.8	7.95	3.85	4.05	32.8	32.8	4.98	2.85	4.76	2.39	4.12
Copper	3.5	7.45 J	17.2 J	9.08 J	5.07	3.88	9.17	6.61	4.98 J	2.44	1.73	1.68	33.9	33.9	1.45	0.641	1.14	0.408 J	1.00 U
Lead	1.0	3.89	12.5 J	5.38 J	2.78 J	1.90 J	5.75	4.24 J	32.2	1.18	0.372	0.326	5.80	5.80	0.302	0.123	0.256	0.200 U	0.232

Analyte	Current Cleanup Level[4]	Well ID[3] Downgradient Plume Area																	
		GW172S									GW173S								
		5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/16/2023	2/5/2024	5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/17/2023	2/5/2024
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.03	0.214	0.0561	0.108	0.0746	0.0532	0.0436	0.155 J	0.528	0.877	0.0488	0.0313	0.0505	0.0424 J	0.0280	0.168	0.0909 J	0.107	0.145
Tetrachloroethene	0.02	0.0625	0.0603	0.0624	0.020 U	0.0677	0.0200 U	0.0200 UJ	0.0237	0.0200 U	0.020 U	0.020 U	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0429 J	0.0102 J	0.0543
Trichloroethene	0.02	0.028	0.020 U	0.020 U	0.020 U	0.0201	0.0200 U	0.0200 UJ	0.199	0.266	0.0215	0.0239	0.020 U	0.020 UJ	0.0200 U	0.0496	0.0479 J	0.0262	0.0307
Vinyl Chloride	0.11	0.369	0.0628	0.219	0.155	0.137	0.0887	0.601 J	0.277	0.907	0.126	0.0455	0.183	0.176 J	0.0696	0.175	0.210 J	0.132	0.280
Total Metals (µg/L)																			
Arsenic	8.0	7.03	10.8	10.8	7.18	11.2	4.86	6.64	23.6	6.68	6.72	7.00	9.94	11.4	13.8	6.04	5.69	7.26	9.51
Copper	3.5	2.2	6.12	3.89	2.86	2.86	1.52	6.17	17.70	1.08	0.875	3.19	3.11	5.96	2.58	1.54	2.98	1.09	3.07
Lead	1.0	1.07	2.58	1.98	1.33	1.37	1.32	3.80	14.7 J	0.714	0.215	0.470	0.850	1.65	0.788	0.468	0.752	0.384	1.41

Analyte	Current Cleanup Level[4]	Well ID[3]																	
		Downgradient Plume Area									CPOC Area								
		GW226S									GW232S								
		5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/16/2023	2/2/2024	5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/16/2023	2/5/2024
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.03	0.0305	0.0218	0.020 U	0.0335 J	0.0363	0.0255	0.0431 J	0.0169 J	0.0465	0.352	0.482	0.219	0.464 J	0.197	0.325	0.206 J	0.236	0.167
Tetrachloroethene	0.02	0.020 U	0.0279	0.020 U	0.0202 J	0.0200 U	0.0200 U	0.0200 UJ	0.0200 U	0.0200 U	0.020 U	0.020 U	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0200 UJ	0.0200 U	0.0200 U
Trichloroethene	0.02	0.020 U	0.020 U	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0200 UJ	0.00910 J	0.0200 U	0.020 U	0.020 U	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0200 UJ	0.0129 J	0.0200 U
Vinyl Chloride	0.11	0.0594	0.0415	0.0519	0.0516 J	0.0414	0.128	0.0734 J	0.0886	0.0394	0.337	0.425	0.263	0.653 J	0.307	0.558	0.290 J	0.348	0.187
Total Metals (µg/L)																			
Arsenic	8.0	3.33	4.93	8.12	5.57	7.33	3.09	4.28	5.22	9.01	4.71	3.83	4.78	6.19	3.75	3.83	3.51	6.16	2.19
Copper	3.5	0.704	1.48	3.92	1.48	2.40	0.500 U	0.500 U	1.31 J	6.69	0.539	0.627	2.09	1.79	1.09	0.500 U	0.915	1.26 J	1.00 U
Lead	1.0	0.190	0.136	0.513	0.124	0.237	0.100 U	0.100 U	0.500 U	0.95	0.100 U	0.100 U	0.318	0.262	0.234	0.122	0.124	0.285 J	0.200 U

TABLE D-2: SWMU-172 AND SWMU-174 GROUP HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1, 2]

Boeing Renton Facility, Renton, Washington

		Well ID[3] CPOC Area																	
		GW234S									GW235I								
Analyte	Current Cleanup Level[4]	5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/9/2023	8/16/2023	2/2/2024	5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/9/2023	8/16/2023	2/2/2024
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.03	**0.092**	**0.0914**	0.020 U	**0.0892**	**0.0591**	**0.134**	**0.0581 J**	**0.103**	**0.0495**	**0.156**	**0.104**	**0.128**	**0.179**	**0.175**	**0.227**	**0.235 J**	**0.225**	**0.229**
Tetrachloroethene	0.02	0.020 U	0.020 U	0.020 U	0.020 U	0.0200 U	0.0200 U	0.0200 UJ	0.0200 U	0.0200 U	0.020 U	0.020 U	**0.0292**	0.020 U	0.0200 U	0.0200 U	0.0200 UJ	0.0200 U	0.0200 U
Trichloroethene	0.02	0.020 U	0.020 U	0.020 U	0.020 U	0.0200 U	0.0200 U	0.0200 UJ	0.0163 J	0.0200 U	**0.031**	**0.0227**	0.020 U	**0.0285**	**0.0253**	**0.0250**	**0.0296 J**	0.0189 J	**0.0207**
Vinyl Chloride	0.11	0.032	0.0279	0.020 U	0.0497	0.0318	**0.170**	0.0304 J	0.0726	0.0200 U	0.020 U	0.020 U	0.020 U	**0.24**	0.0259	0.0280	0.0310 J	0.0313	0.0215
Total Metals (µg/L)																			
Arsenic	8.0	**5.31**	**3.26**	**6.29**	**1.18**	**1.76**	0.974	**5.90**	0.93	0.626	0.289	0.288	0.200 U	0.200 U	0.200 U	0.200 U	0.283	**0.318 J**	0.400 U
Copper	3.5	2.43	3.21	**11.4**	2.58	2.13	2.31	**16.6**	1.3	2.26	1.08	1.30	0.727	0.689	0.687	0.500 U	1.23	0.676 J	1.00 U
Lead	1.0	0.671	**1.25**	**4.13**	**1.01**	0.930	0.830	**6.75**	0.27	0.876	0.223	0.304	0.174	0.179	0.159	0.100 U	0.332	0.224	0.200 U

		Well ID[3] CPOC Area								
		GW236S								
Analyte	Current Cleanup Level[4]	5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/9/2023	8/17/2023	2/5/2024
Volatile Organic Compounds (µg/L)										
cis-1,2-Dichloroethene	0.03	**0.036**	**0.0881**	0.020 U	**0.0791**	0.0200 U	**0.0572**	**0.0364 J**	**0.0473**	0.020 U
Tetrachloroethene	0.02	0.020 U	0.020 U	0.020 U	0.020 U	**0.0206**	0.0200 U	0.0200 UJ	0.0200 U	**0.0262**
Trichloroethene	0.02	0.020 U	0.020 U	0.020 U	0.020 U	0.0200 U	0.0200 U	0.0200 UJ	0.0187 J	0.0200 U
Vinyl Chloride	0.11	0.020 U	0.020 U	0.020 U	0.0223	0.0200 U	0.0200 U	0.0200 UJ	**0.0128 J**	0.0200 U
Total Metals (µg/L)										
Arsenic	8.0	**2.10**	**10.1**	**2.89**	**5.49**	**1.97**	**0.995**	**1.64**	**1.55**	1.00 U
Copper	3.5	**4.24**	**10.8**	**9.70**	2.47	**5.27**	1.22	2.07	1.00 U	2.50 U
Lead	1.0	**2.61**	**10.8**	**6.31**	**1.79**	**3.32**	**0.798**	**1.38**	0.160 J	0.795

Notes

1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
   J = The value is an estimate.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; I = intermediate well.
4. Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.

Abbreviations

µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
SWMU = solid waste management unit

TABLE D-3: BUILDING 4-78/79 SWMU/AOC GROUP HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN [1, 2]

Boeing Renton Facility, Renton, Washington

Analyte	Current Cleanup Level[4]	Well ID[3] Source Area																	
		GW031S									GW033S								
		3/11/2020	5/11/2020	8/11/2020	2/15/2021	8/11/2021	8/23/2022	2/7/2023	8/22/2023	2/6/2024	8/11/2020	2/16/2021	8/11/2021	2/22/2022	2/22/2022	8/17/2022	2/7/2023	8/18/2023	2/6/2024
Volatile Organic Compounds (µg/L)																			
Benzene	0.80	**37.1**	**17.6**	**1.72 J**	**18.8 J**	**1.08**	0.20 U	0.20 U	0.200 U	0.200 U	**12.5**	**11.0**	**14.5**	**8.41**	**8.57**	**14.2 J**	0.20 U	**8.85**	**6.49**
cis-1,2-Dichloroethene	0.70	0.61	0.40 J	0.67 J	0.31 J	0.20 U	0.26	0.18 J	0.200 U	0.200 U	**188**	**1.64**	0.55	**3.82**	**4.04**	0.45 J	0.09 J	0.42	0.480
Trichloroethene	0.23	0.20 U	0.20 U	0.20 UJ	0.20 UJ	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	**0.25**	0.20 U	0.20 U	0.200 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U
Vinyl Chloride	0.20	0.20 U	0.20 U	**0.32 J**	0.20 UJ	0.20 U	**0.39**	**0.26**	**0.28**	**0.230**	**310**	**5.31**	**2.31**	**8.90**	**9.28**	**1.53 J**	**0.24**	**0.94**	**0.830**
Total Petroleum Hydrocarbons (µg/L)																			
TPH-G (C7-C12)	800	**2,980**	**1,880**	**1,160**	**2,340**	**1,540**	100 U	100 U	100 U	100 U	255	323	360	168	166	300 J	100 U	223	141

Analyte	Current Cleanup Level[4]	Well ID[3] Source Area																	
		GW034S									GW244S								
		5/11/2020	8/11/2020	2/15/2021	8/11/2021	2/22/2022	8/17/2022	2/8/2023	8/18/2023	2/6/2024	3/11/2020	5/11/2020	8/11/2020	2/15/2021	8/11/2021	8/23/2022	2/7/2023	8/22/2023	1/30/2024
Volatile Organic Compounds (µg/L)																			
Benzene	0.80	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	**1.47**	**9.62**	0.200 U	0.200 U	0.52	0.46	0.43	0.46	0.20 U	0.25	0.12 J	0.200 U	0.200 U
cis-1,2-Dichloroethene	0.70	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	**2.03**	**0.74**	0.110 J	0.200 U	0.68	**1.06**	**1.12**	0.68	0.22	0.25	0.25	0.22	0.340
Trichloroethene	0.23	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U	0.23	0.20 U	0.20 U	**0.29**	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U
Vinyl Chloride	0.20	**0.21**	**0.41**	**0.25**	**1.20**	**0.330**	**1.45**	**4.12**	**0.47**	**0.260**	**0.7**	**0.85**	**0.98**	**0.64**	**0.37**	**0.46**	**0.55**	**0.28**	**0.610**
Total Petroleum Hydrocarbons (µg/L)																			
TPH-G (C7-C12)	800	100 U	100 U	100 U	100 U	100 U	100 U	350	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U

Analyte	Current Cleanup Level[4]	Well ID[3] CPOC Area																	
		GW143S									GW237S								
		5/11/2020	8/11/2020	2/15/2021	8/11/2021	2/22/2022	8/17/2022	2/7/2023	8/18/2023	2/5/2024	5/11/2020	8/11/2020	2/16/2021	8/11/2021	2/22/2022	8/17/2022	2/6/2023	8/18/2023	2/5/2024
Volatile Organic Compounds (µg/L)																			
Benzene	0.80	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U	**1.03**	0.24	**6.79 J**	0.20 U	**3.73**	0.20 U	**4.18**	0.150 J	**6.47**
cis-1,2-Dichloroethene	0.70	0.20 U	**1.17**	0.26	0.65	0.430	**0.76 J**	0.36	0.30	0.280	0.20 U	0.20 U	0.20 UJ	0.20 U	0.200 U	0.20 U	0.22	0.0900 J	0.200 U
Trichloroethene	0.23	0.20 U	0.23	0.20 U	0.20 U	0.200 U	**0.53 J**	0.10 J	0.200 U	0.200 U	0.20 U	0.20 U	0.20 UJ	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U
Vinyl Chloride	0.20	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.20 U	0.09 J	0.120 J	0.200 U	0.20 U	0.20 U	**0.31 J**	0.20	0.200 U	0.20 U	**0.26**	**0.25**	**0.290**
Total Petroleum Hydrocarbons (µg/L)																			
TPH-G (C7-C12)	800	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	729	100 U	100 UJ	360	664	100 U	**805**	100 U	**915**

Analyte	Current Cleanup Level[4]	Well ID[3] CPOC Area								
		GW240D								
		5/11/2020	8/11/2020	2/15/2021	8/11/2021	2/22/2022	8/17/2022	2/7/2023	8/18/2023	2/5/2024
Volatile Organic Compounds (µg/L)										
Benzene	0.80	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U
cis-1,2-Dichloroethene	0.70	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U
Trichloroethene	0.23	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U
Vinyl Chloride	0.20	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.20 U	0.13 J	0.150 J	0.200 U
Total Petroleum Hydrocarbons (µg/L)										
TPH-G (C7-C12)	800	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U

Notes
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
   UJ = The result is estimated and was not detected at the reporting limit indicated.
   J = The value is an estimate.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; D = deep well.
4. Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.

Abbreviations
µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
SWMU = solid waste management unit
TPH-G = total petroleum hydrocarbons as gasoline

TABLE D-4: FORMER FUEL FARM HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1]

Boeing Renton Facility, Renton, Washington

Analyte	Current Cleanup Level[3]	Well ID[2] CPOC Area																	
		GW211S									GW221S								
		5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/19/2022	2/9/2023	8/15/2023	2/8/2024	5/11/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/19/2022	2/9/2023	8/15/2023	2/6/2024
Total Petroleum Hydrocarbons (mg/L)																			
TPH-D (C12-C24)	0.5	0.282	0.192	0.284	0.140	1.00 U	0.100 U	0.100 U	0.100 U	0.100 U	**1.58**	**7.67**	**1.22**	**1.02**	**0.575**	**0.940**	**1.75**	0.258	**3.57**
TPH-O (C24-C38)	NE	NA	0.200 U	0.225 U	0.200 U	2.00 U	0.200 U	0.200 U	0.200 U	0.200 U	NA	0.200 U	0.215 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U
Jet A	0.5	0.267	0.155	0.262	0.100 U	1.00 U	0.100 U	0.100 U	0.100 U	0.100 U	**1.09**	**5.70**	**0.89**	**0.718**	0.460	**0.562**	**1.20**	0.229	**2.65**

Analyte	Current Cleanup Level[3]	Well ID[2] CPOC Area								
		GW224S								
		8/10/2020	2/15/2021	8/10/2021	2/21/2022	2/21/2022	8/19/2022	2/9/2023	8/15/2023	2/6/2024
Total Petroleum Hydrocarbons (mg/L)										
TPH-D (C12-C24)	0.5	**1.08**	**0.584**	**1.08**	**0.682**	**1.01**	**0.881**	**1.15**	**0.526 J**	**0.764**
TPH-O (C24-C38)	NE	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.324	0.200 U
Jet A	0.5	**1.42**	**1.04**	**1.47**	**1.04**	**1.76**	**1.25**	**1.61**	**0.913 J**	**1.27**

Notes
1. **Bolded** values exceed the cleanup levels.
2. S = shallow well.
3. Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.

Abbreviations
AOC = area of concern
CPOC = conditional point of compliance
mg/L = milligrams per liter
NE = not established
SWMU = solid waste management unit
TPH-D = total petroleum hydrocarbons as diesel

TABLE D-5: AOC-003 HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1, 2]

Boeing Renton Facility, Renton, Washington

Analyte	Current Cleanup Level[4]	Well ID[3]																	
		Source Area									Downgradient Plume Area								
		GW249S									GW188S								
		3/12/2020	8/10/2020	2/16/2021	8/12/2021	2/23/2022	8/24/2022	2/6/2023	8/22/2023	2/1/2024	3/12/2020	8/10/2020	2/16/2021	8/12/2021	2/22/2022	8/23/2022	2/6/2023	8/23/2023	2/2/2024
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.78	0.0604	NA	NA	NA	NA	NA	NA	0.0529	0.0576	0.0362	NA	NA	NA	NA	NA	NA	0.0408	0.0315
Tetrachloroethene	0.02	0.020 U	NA	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0244	NA	NA	NA	NA	NA	NA	0.0200 U	0.0200 U
Trichloroethene	0.16	0.020 U	NA	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.020 U	NA	NA	NA	NA	NA	NA	0.0200 U	0.0200 U
Vinyl Chloride	0.24	**0.334**	**0.261**	**0.366**	**0.517**	**0.359 J**	**0.404 J**	0.217	**0.263**	0.214	**0.235**	**0.288**	**0.107**	**0.698**	0.141 J	**0.404**	0.104	0.197	0.207

Analyte	Current Cleanup Level[4]	Well ID[3] CPOC Area																	
		GW247S									GW248I								
		5/13/2020	8/10/2020	2/16/2021	8/11/2021	2/23/2022	8/23/2022	2/6/2023	8/22/2023	2/2/2024	5/13/2020	8/10/2020	2/16/2021	8/11/2021	2/23/2022	8/23/2022	2/6/2023	8/22/2023	2/2/2024
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.78	0.584	NA	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.020 U	NA	NA	NA	NA	NA	NA	0.0219	0.0207
Tetrachloroethene	0.02	0.020 U	NA	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.020 U	NA	NA	NA	NA	NA	NA	0.0200 U	0.0200 U
Trichloroethene	0.16	0.020 U	NA	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.020 U	NA	NA	NA	NA	NA	NA	0.0200 U	0.0200 U
Vinyl Chloride	0.24	**0.409**	**0.392**	**0.405**	**0.678**	0.127 J	**0.379**	NA	**0.715**	**0.467**	**0.546**	**0.383**	**0.426**	**0.711**	**0.598 J**	**0.742**	**0.588**	**0.482**	**0.383**

Analyte	Current Cleanup Level[4]	Well ID[3] Source Area GW193S	
		2/6/2023	8/22/2023
Volatile Organic Compounds (µg/L)			
benzene			0.20 U
cis-1,2-Dichloroethene	0.78	NA	0.635
Tetrachloroethene	0.02	NA	NA
Trichloroethene	0.16	NA	0.139
Vinyl Chloride	0.24	**0.334**	**0.541**
1,1-Dichloroethene			0.020 U

Notes
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; I = intermediate well.
4. Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.

Abbreviations
µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
NA = not analyzed
SWMU = solid waste management unit

TABLE D-6: AOC-004 HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1]

Boeing Renton Facility, Renton, Washington

Analyte	Current Cleanup Level[3]	Well ID[2] Source Area GW250S										
		3/5/2019	8/14/2019	3/9/2020	8/12/2020	2/16/2021	8/12/2021	2/22/2022	8/23/2022	2/7/2023	8/14/2023	2/6/2024
Metals (mg/L)												
Lead	0.001	**0.00154**	0.000714	**0.00119**	**0.000611**	**0.000564**	**0.000663**	0.000588	**0.00131**	0.000820	0.0570 J	0.0001

Notes

1. **Bolded** values exceed the cleanup levels.
2. S = shallow well.
3. Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.

Abbreviations

AOC = area of concern

CPOC = conditional point of compliance

mg/L = milligrams per liter

SWMU = solid waste management unit

TABLE D-7: AOC-060 HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1, 2]

Boeing Renton Facility, Renton, Washington

Analyte	Current Cleanup Levels[4]	Well ID[3]																	
		Source Area									Downgradient Plume Area								
		GW009S									GW012S								
		3/10/2020	8/11/2020	2/17/2021	8/11/2021	2/22/2022	8/19/2022	2/6/2023	8/18/2023	2/7/2024	3/10/2020	8/11/2020	2/17/2021	8/11/2021	2/22/2022	8/18/2022	2/6/2023	8/17/2023	2/7/2024
Volatile Organic Compounds (µg/L)																			
cis -1,2-Dichloroethene	0.08	**0.093**	**0.124**	**0.139**	**0.368**	**0.15**	**0.229**	**0.231**	**0.157**	**0.165**	**0.482**	**0.508**	**1.260**	**2.210**	**0.693**	**1.91 J**	**2.78**	**2.46**	**1.45**
Trichloroethene	0.02	**0.0242**	**0.0324**	**0.0294**	**0.0316**	**0.0284**	**0.0288**	**0.0409**	**0.0292**	**0.0336**	**0.0505**	**0.0518**	**0.0454**	**0.0908**	**0.0506**	**1.02 J**	**0.208**	**1.61**	**0.143**
Vinyl Chloride	0.26	0.183	0.219	**0.300**	0.160	**0.434**	**0.570**	**0.550**	**0.371**	**0.353**	**0.603**	**0.387**	0.180	**0.795**	**1.57**	**0.294 J**	**0.881**	**0.625**	**0.632**

Analyte	Current Cleanup Levels[4]	Well ID[3]																	
		Downgradient Plume Area																	
		GW014S									GW147S								
		3/10/2020	8/11/2020	2/17/2021	8/11/2021	2/22/2022	8/18/2022	2/6/2023	8/17/2023	2/7/2024	3/10/2020	8/11/2020	2/17/2021	8/11/2021	2/22/2022	8/19/2022	2/6/2023	8/17/2023	2/7/2024
Volatile Organic Compounds (µg/L)																			
cis -1,2-Dichloroethene	0.08	**0.151**	**0.0932**	**0.130**	**0.147**	**0.133**	**0.134 J**	**0.137**	**0.179**	**0.207**	**0.287**	**0.931**	**0.180**	**0.180**	**0.679**	**8.37**	**0.766**	**4.46**	**0.442**
Trichloroethene	0.02	**0.0419**	0.020 U	**0.035**	**0.0227**	0.020 U	**0.0246 J**	0.0200 U	0.0158 J	**0.0247**	**1.20**	**3.37**	**0.498**	**0.498**	**0.425**	**0.937**	**0.376**	**2.76**	**0.0802**
Vinyl Chloride	0.26	0.195	0.190	0.207	**0.367**	**0.276**	**0.514 J**	0.231	**0.551**	**0.380**	0.020 U	0.0643	0.020 U	0.020 U	**0.0623**	**3.39**	0.0215	**0.928**	0.0638

Analyte	Current Cleanup Levels[4]	Well ID[3]																	
		CPOC Area																	
		GW150S									GW253I								
		3/10/2020	8/11/2020	2/17/2021	8/11/2021	2/22/2022	8/22/2022	2/6/2023	8/17/2023	2/7/2024	3/10/2020	8/11/2020	2/17/2021	8/11/2021	2/22/2022	8/22/2022	2/6/2023	8/17/2023	2/7/2024
Volatile Organic Compounds (µg/L)																			
cis -1,2-Dichloroethene	0.08	0.0525	**0.0935**	0.0393	**0.0991**	**0.0547**	**0.126**	**0.0849**	**0.0901**	**0.0509**	**0.0915**	**0.0879**	**0.140**	**0.106**	**0.0846**	**0.138**	**0.0991**	**0.0997**	**0.0929**
Trichloroethene	0.02	0.02 U	**0.0291**	0.020 U	0.020 U	0.020 U	**0.0212**	0.0200 U	0.0115 J	0.0200 U	**0.0212**	**0.0211**	**0.0272**	**0.0202**	0.020 U	**0.0205**	0.0200 U	0.0147 J	0.0145 J
Vinyl Chloride	0.26	0.0541	0.0619	0.0455	0.122	0.0969	0.100	0.138	0.15	0.0608	0.184	0.100	0.243	0.146	0.177	0.255	0.156	0.17	0.133

Notes:

1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
   J = The value is an estimate.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; I = intermediate well.
4. Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.

Abbreviations:

µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
SWMU = solid waste management unit

TABLE D-8: AOC-090 HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1, 2]

Boeing Renton Facility, Renton, Washington

		Well ID[3]								
	Current	Source Area								
	Cleanup	GW189S[5]								
Analyte	Levels[4]	8/12/2019	8/12/2020	2/17/2021	8/12/2021	2/23/2022	8/24/2022	2/7/2023	8/24/2023	2/8/2024
Volatile Organic Compounds (µg/L)										
1,1,2,2-Tetrachloroethane	0.17	0.020 U	0.020 U	0.020 U	0.020 U	0.24 U	0.158	0.153	0.153	**0.158**
1,1,2-Trichloroethane	0.2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U
1,1-Dichloroethene	0.057	0.020 U	0.0529	0.020 U	0.020 U	0.0200 U	0.0432	0.0200 U	0.0322	0.0200 U
Acetone	300	5.0 U	5.00 U	10.6 J	5.00 U	5.00 U	6.28	5.00 U	5.00 U	5.00 U
Benzene	0.8	0.49	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U
Carbon Tetrachloride	0.23	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U
Chloroform	2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U
cis-1,2-Dichloroethene	2.4	**6.87**	1.93	0.47	**3.15**	0.20 U	1.78	0.230	1.7	0.200 U
Methylene Chloride	2	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Tetrachloroethene	0.05	0.020 U	0.020 U	0.0283	0.020 U	0.0200 U	0.0206	0.200 U	17.2 J	0.0200 U
Toluene	75	3.11	1.05	5.21	2.42	0.47 J	43.7	0.690 J	0.200 U	0.200 U
trans-1,2-Dichloroethene	53.9	0.39	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.0200 U	0.200 U
Trichloroethene	0.08	**0.414**	**0.324**	**0.143**	**0.386**	0.0505 UJ	**0.43**	0.0593	**0.511**	0.0200 U
Vinyl Chloride	0.13	**1.20**	**0.369**	0.0405	**0.575**	0.0867 J	**0.460**	0.0230	**0.438**	0.0200 U
Total Petroleum Hydrocarbons (µg/L)										
TPH-G (C7-C12)	800	**943**	699	507	504	370 J	555	246	288	100 U
TPH-D (C12-C24)	500	432	150	**2160**	390	192 J	521	**648 J**	100.0 U	100 U
TPH-O (C24-C40)	500	**853**	379	**3990**	**689**	263 J	586	**1,120**	211	200 U

		Well ID[3]								
	Current	Downgradient Plume Area								
	Cleanup	GW176S								
Analyte	Levels[4]	3/11/2020	8/12/2020	2/17/2021	8/17/2021	2/23/2022	8/23/2022	2/7/2023	8/24/2023	2/8/2024
Volatile Organic Compounds (µg/L)										
1,1,2,2-Tetrachloroethane	0.17	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
1,1,2-Trichloroethane	0.2	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
1,1-Dichloroethene	0.057	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
Acetone	300	5.0 U	NM	NM	NM	NM	NM	NM	NA	NA
Benzene	0.8	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Carbon Tetrachloride	0.23	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Chloroform	2	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
cis-1,2-Dichloroethene	2.4	0.25	NM	NM	NM	NM	NM	NM	NA	NA
Methylene Chloride	2	1.0 U	NM	NM	NM	NM	NM	NM	NA	NA
Tetrachloroethene	0.05	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
Toluene	75	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
trans-1,2-Dichloroethene	53.9	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Trichloroethene	0.08	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
Vinyl Chloride	0.13	**0.207**	**0.232**	**0.138**	**0.431**	**0.311 J**	**0.364**	**0.349**	**0.314**	**0.21**
Total Petroleum Hydrocarbons (µg/L)										
TPH-G (C7-C12)	800	100 U	NM	NM	NM	NM	NM	NM	NA	NA
TPH-D (C12-C24)	500	100 U	NM	NM	NM	NM	NM	NM	NA	NA
TPH-O (C24-C40)	500	200 U	NM	NM	NM	NM	NM	NM	NA	NA

		Well ID[3]								
	Current	Shallow Zone CPOC Area								
	Cleanup	GW178S								
Analyte	Levels[4]	8/12/2019	8/12/2020	2/17/2021	8/12/2021	2/23/2022	8/24/2022	2/7/2023	8/24/2023	2/8/2024
Volatile Organic Compounds (µg/L)										
1,1,2,2-Tetrachloroethane	0.17	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
1,1,2-Trichloroethane	0.2	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
1,1-Dichloroethene	0.057	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
Acetone	300	5.0 U	NM	NM	NM	NM	NM	NM	NA	NA
Benzene	0.8	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Carbon Tetrachloride	0.23	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Chloroform	2	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
cis-1,2-Dichloroethene	2.4	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Methylene Chloride	2	1.00 U	NM	NM	NM	NM	NM	NM	NA	NA
Tetrachloroethene	0.05	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
Toluene	75	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
trans-1,2-Dichloroethene	53.9	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Trichloroethene	0.08	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
Vinyl Chloride	0.13	**0.3840**	**0.141**	**0.224**	**0.182**	**0.361 J**	**0.390**	**0.531**	**0.343**	**0.27**
Total Petroleum Hydrocarbons (µg/L)										
TPH-G (C7-C12)	800	100 U	NM	NM	NM	NM	NM	NM	NA	NA
TPH-D (C12-C24)	500	100 U	NM	NM	NM	NM	NM	NM	NA	NA
TPH-O (C24-C40)	500	200 U	NM	NM	NM	NM	NM	NM	NA	NA

		Well ID[3]							
	Current	Shallow Zone CPOC Area							
	Cleanup	GW207S							
Analyte	Levels[4]	8/12/2020	2/17/2021	8/12/2021	2/23/2022	8/23/2022	2/7/2023	8/24/2023	2/8/2024
Volatile Organic Compounds (µg/L)									
1,1,2,2-Tetrachloroethane	0.17	NM	NM	NM	NM	NM	NM	NA	NA
1,1,2-Trichloroethane	0.2	NM	NM	NM	NM	NM	NM	NA	NA
1,1-Dichloroethene	0.057	NM	NM	NM	NM	NM	NM	NA	NA
Acetone	300	NM	NM	NM	NM	NM	NM	NA	NA
Benzene	0.8	NM	NM	NM	NM	NM	NM	NA	NA
Carbon Tetrachloride	0.23	NM	NM	NM	NM	NM	NM	NA	NA
Chloroform	2	NM	NM	NM	NM	NM	NM	NA	NA
cis-1,2-Dichloroethene	2.4	NM	NM	NM	NM	NM	NM	NA	NA
Methylene Chloride	2	NM	NM	NM	NM	NM	NM	NA	NA
Tetrachloroethene	0.05	NM	NM	NM	NM	NM	NM	NA	NA
Toluene	75	NM	NM	NM	NM	NM	NM	NA	NA
trans-1,2-Dichloroethene	53.9	NM	NM	NM	NM	NM	NM	NA	NA
Trichloroethene	0.08	NM	NM	NM	NM	NM	NM	NA	NA
Vinyl Chloride	0.13	**0.377**	0.066	**0.232**	**0.356 J**	**0.326**	0.0200 U	**0.293**	0.111
Total Petroleum Hydrocarbons (µg/L)									
TPH-G (C7-C12)	800	NM	NM	NM	NM	NM	NM	NA	NA
TPH-D (C12-C24)	500	NM	NM	NM	NM	NM	NM	NA	NA
TPH-O (C24-C40)	500	NM	NM	NM	NM	NM	NM	NA	NA

		Well ID[3]									
	Current	Shallow Zone CPOC Area									
	Cleanup	GW208S									
Analyte	Levels[4]	8/12/2019	3/11/2020	8/12/2020	2/17/2021	8/12/2021	2/23/2022	8/24/2022	2/7/2023	8/24/2023	2/8/2024
Volatile Organic Compounds (µg/L)											
1,1,2,2-Tetrachloroethane	0.17	0.020 U	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
1,1,2-Trichloroethane	0.2	0.20 U	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
1,1-Dichloroethene	0.057	0.020 U	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
Acetone	300	5.0 U	5.0 U	NM	NM	NM	NM	NM	NM	NA	NA
Benzene	0.8	0.20 U	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Carbon Tetrachloride	0.23	0.20 U	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Chloroform	2	0.20 U	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
cis-1,2-Dichloroethene	2.4	0.20 U	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Methylene Chloride	2	1.0 U	1.0 U	NM	NM	NM	NM	NM	NM	NA	NA
Tetrachloroethene	0.05	0.020 U	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
Toluene	75	0.20 U	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
trans-1,2-Dichloroethene	53.9	0.20 U	0.20 U	NM	NM	NM	NM	NM	NM	NA	NA
Trichloroethene	0.08	0.0293	0.020 U	NM	NM	NM	NM	NM	NM	NA	NA
Vinyl Chloride	0.13	**0.245**	**0.419**	**0.343**	**0.349**	**0.313**	**0.404 J**	**0.400**	**0.419**	**0.242**	**0.298**
Total Petroleum Hydrocarbons (µg/L)											
TPH-G (C7-C12)	800	100 U	100 U	NM	NM	NM	NM	NM	NM	NA	NA
TPH-D (C12-C24)	500	100 U	100 U	NM	NM	NM	NM	NM	NM	NA	NA
TPH-O (C24-C40)	500	200 U	200 U	NM	NM	NM	NM	NM	NM	NA	NA

Notes:

1. Data qualifiers are as follows:
   - U = The analyte was not detected at the reporting limit indicated.
   - J = The value is an estimate.
   - UJ = The analyte was not detected at the estimated reporting limit indicated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well.
4. Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.
5. GW189S is the replacement well for GW168S.

Abbreviations:

µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
NM = Analyte not measured
SWMU = solid waste management unit
TPH-D = total petroleum hydrocarbons as diesel
TPH-G = total petroleum hydrocarbons as gasoline
TPH-O = total petroleum hydrocarbons as oil

TABLE D-9: APRON A HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1]

Boeing Renton Facility, Renton, Washington

Analyte	Well ID[2] GW264S								
	5/12/2020	8/10/2020	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/14/2023	2/7/2024
Volatile Organic Compounds (µg/L)									
cis-1,2-Dichloroethene	0.20 U	0.52	0.20 U	0.20 U	0.200 U	0.200 U	2.00 U	2.00 U	0.200 U
Vinyl Chloride	1.48	0.20 U	1.49	1.37	2.54	1.41	2.00 U	2.00 U	0.810

Notes:

1. Data qualifiers are as follows:

   U = The analyte was not detected at the reporting limit indicated.

2. S = shallow well

Abbreviations:

µg/L = micrograms per liter

TABLE D-10: AOC-001,-002 HISTORICAL CONCENTRATIONS OF CONSTITUENTS OF CONCERN[1, 2]

Boeing Renton Facility, Renton, Washington

Analyte	Current Cleanup Level[4]	Well ID [3]			
		AOC-001 / AOC-002 Source Area	AOC-001 / AOC-002 Cross-Gradient Wells		
		GW193S-R	GW213S-R	GW214S-R	GW215S-R
		2/1/2024	2/1/2024	2/1/2024	2/1/2024
Volatile Organic Compounds (µg/L)					
Benzene	0.80	0.200 U	0.200 U	0.200 U	0.200 U
1,1-Dichloroethene	0.057	0.0200 U	0.0200 U	0.0200 U	0.0200 U
cis-1,2-Dichloroethene	0.020	**0.135**	**0.0932**	**0.0347**	**0.0368**
Trichloroethene	0.02	**0.0291**	0.0200 U	0.0200 U	0.0200 U
Vinyl Chloride	0.05	**0.1300**	**0.123**	0.0200 U	0.0200 U

Analyte	Current Cleanup Level[4]	Well ID [3]			
		CPOC Area			
		AOC-001 / AOC-002 Downgradient Plume Wells			
		GW190S-R	GW191D-R	GW192S-R	GW246S-R
		2/1/2024	2/2/2024	2/1/2024	1/31/2024
Volatile Organic Compounds (µg/L)					
Benzene	0.80	0.200 U	0.200 U	0.200 U	0.200 U
1,1-Dichloroethene	0.057	0.0200 U	0.0200 U	0.0200 U	0.0200 U
cis-1,2-Dichloroethene	0.020	**0.0924**	**0.0254**	**0.326**	**0.167**
Trichloroethene	0.02	0.0200 U	0.0200 U	**0.0231**	0.0200 U
Vinyl Chloride	0.05	**0.0506**	**0.0627**	**0.166**	NA

Analyte	Current Cleanup Level[4]	Well ID [3]				
		AOC-001 / AOC-002 CPOC Wells				
		GW185S-R	GW195S-R	GW196D-R	GW197S-R	GW245S-R
		1/31/2024	1/31/2024	1/31/2024	1/31/2024	1/31/2024
Volatile Organic Compounds (µg/L)						
Benzene	0.80	0.200 U	0.200 U	0.200 U	0.32	0.35
1,1-Dichloroethene	0.057	0.0200 U	0.0200 U	0.0200 U	**0.15**	0.0200 U
cis-1,2-Dichloroethene	0.020	**0.112**	**0.0899**	**0.0282**	**41.6**	**0.135**
Trichloroethene	0.02	0.0200 U	0.0200 U	0.0200 U	**0.58**	**0.0235**
Vinyl Chloride	0.05	**0.0823**	NA	NA	NA	NA

Notes
1. Data qualifiers are as follows:
   U = The analyte was not detected at the reporting limit indicated.
2. **Bolded** values exceed the cleanup levels.
3. S = shallow well; I = intermediate well.
4. Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.

Abbreviations
µg/L = micrograms per liter
AOC = area of concern
CPOC = conditional point of compliance
NA = not analyzed
SWMU = solid waste management unit

APPENDIX E

SUMMARY OF REMEDIAL ACTIONS AT THE BOEING RENTON FACILITY MAY 2023 – OCTOBER 2023

APPENDIX E

Summary of Remedial Actions at the Boeing Renton Facility
November 2023 – April 2024

Boeing Renton Site
Renton, Washington

THOMAS McKEON
STATE OF WASHINGTON
26136
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 8/2025

Prepared for:
The Boeing Company
EHS Remediation

Prepared by:
CALIBRE Systems, Inc.
Project No. T0014538

May 31, 2024

Table of Contents

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Acronyms

AOC	Area of Concern
Building 4-78/79	Building 4-78/4-79 SWMU/AOC Group
cis-1,2-DCE	cis-1,2-Dichloroethene
EDR	Engineering Design Report
ERD	Enhanced Reductive Dechlorination
SVE	Soil Vapor Extraction
SWMU	Solid Waste Management Unit
TCE	Trichloroethene
Tech Memo	Technical Memorandum
UNC	Utility Notification Center
VC	vinyl chloride
VOCs	Volatile Organic Compounds

1.0 Introduction

CALIBRE Systems, Inc. (CALIBRE) prepared this Technical Memorandum (Tech Memo) for the Boeing Company to summarize remedial actions implemented at the Boeing Renton Facility between November 1, 2023 and April 30, 2024. Remedial actions completed in this period include:

1. Installation of supplemental injection wells at Area of Concern (AOC)-060 and AOC-090, and;
2. Biological treatment to promote Enhanced Reductive Dechlorination (ERD) of volatile organic compounds (VOCs) in groundwater underway at several AOCs located throughout the Renton Facility.

New site characterization work was completed in the Apron R area following an approved work plan (CALIBRE, 2024). The analytical results from the Apron R sampling were not yet available at the time of this report preparation and will be reported in a subsequent Tech Memo.

CALIBRE completed the work described in this Tech Memo to support remedial activities described in the Engineering Design Report (EDR), (AMEC, 2014). The additional injection wells at AOC-060 and AOC-090 were installed based on data evaluation and recommendations in the recent Biannual Groundwater Monitoring Report (WSP, 2023) for the Renton Facility.

Prior remedial actions at the Site have included soil vapor extraction (SVE) operation at two AOCs/solid waste management units (SWMUs) as part of the Cleanup Action Plan for the Site (AMEC, 2012). SVE systems were installed at the Building 4-78/79 and SWMU-172/174 areas and began operation in April 2015. During the last quarter of 2017, monitoring results from the Building 4-78/79 SVE system indicated that VOC concentrations had attained asymptotically low levels. A rebound test was conducted in early 2018 followed by collection of soil confirmation samples in June 2018. Ecology approved the recommended shutdown and decommissioning of the Building 4-78/79 SVE system (Ecology, 2018) after review and evaluation of the soil confirmation results for that area (CALIBRE, 2018).

During the May 2021 to October 2021 operating period, monitoring results measured from the SWMU-172/174 SVE system indicated that VOC concentrations had attained asymptotically low levels. A rebound test for the system was conducted during December 2021 to January 2022. The rebound results showed marginal increases in PCE concentrations and a slight increase in mass removal after a 35-day rest period; mass removal was approximately 0.003 lbs/day prior to the rebound start and 0.005 lbs/day after the rest period. The slight increase in PCE mass removal was diminished back to prior asymptote levels after 16 days of operation. SVE system shutdown was recommended as the system continued to show asymptotic low level vapor concentrations following rebound testing. Ecology provided approval for the SWMU-172/174 system shutdown in October 2022 (Ecology, 2022). All of the SVE system equipment and infrastructure has been retained pending future discussions with Ecology regarding permanent discontinuation and removal.

1.1 Facility Location and Background

The Renton Facility is used for assembly of 737 airplanes and is located at the southern end of Lake Washington in Renton, Washington. The location of the Renton Facility and the AOCs and SWMUs associated with the Site are presented in Figure 1-1.

1.2 Objectives and Organization

The objective for this Tech Memo is to summarize work completed in accordance with the EDR during the reporting period stated above. This includes a summary of the ongoing biological treatment based on recent groundwater monitoring at the following areas:

SWMU-172/174
Building 4-78/4-79 SWMU/AOC Group (Building 4-78/79)
AOC-001/002
AOC-003
AOC-060
AOC-090

Additional work completed during the period included installation of two new injection wells at AOC-060 and two new injection wells at AOC-090 in March 2024.

This Tech Memo is organized as follows:
Section 1 – Introduction and Background
Section 2 – Well Installation at AOC-060 and AOC-090
Section 3 – Groundwater Treatment
Section 4 – Conclusions and Recommendations
Section 5 – References

Attachment A Information From Well Installation at AOC-060 and AOC-090 (Driller Logs and Boring Logs)
Attachment B Groundwater Sampling Field Data Sheets
Attachment C Laboratory Data Packages

2.0 New Well Installation at AOC-060 and AOC-090

This section describes the installation of supplemental injection wells at AOC-060 and AOC-090. The wells were installed to support remedial optimization based on recent monitoring evaluation of ERD performance (WSP, 2023). A site map showing individual AOCs is included in Figure 1-1. The well installation work is part of the remedial actions at AOC-060 and AOC-090 and was implemented to promote better substrate distribution upgradient of conditional point of compliance (CPOC) wells in these areas.

At AOC-060, the new injection wells were installed to address continuing low-level VOCs present at CPOC wells GW-150S and GW-253I. These wells continue to exceed the cleanup levels (CULs) for cis-1,2-dichloroethene (cis-1,2-DCE) and trichloroethene (TCE). At AOC-090, the new injection wells were installed to address VOCs present at compliance wells GW-178S and GW-208S; these 2 wells continue to show vinyl chloride (VC) exceeding the CUL.

The areas for well installation are located downgradient from source areas and recent groundwater monitoring samples collected in August 2023 show all concentrations in nearby CPOC wells are below MCLs (WSP, 2023).

Two new injection wells (B060-01 and B060-02) were installed in the AOC-060 area, located inside the Renton factory area near the western edge of the property (Figure 2-1). In the AOC-090 area, the two new injection wells, B090-01 and B090-02, are located outside the factory area on the western edge of a private Boeing access road, located immediately south of the intersection between North 6th Street and Nishiwaki Lane (Figure 2-2).

2.1 Planning, Preparatory and Drilling Activities

Underground utility clearance (gas, water, sewer, power, communication lines, and other utilities) was completed prior to the drilling work. The first step was to mark the planned work areas. The Utility Notification Center (UNC) was then notified more than 48 hours prior to initiation of intrusive work so that utilities, if any, could be identified and marked. In addition, prior to drilling, a private utility locating service was used to identify buried utilities in the area. Current utility maps for the area were provided to the private utility locating service. Using a combination of electric resistivity and ground penetrating radar, any utilities present in the area were located and marked on the surface.

Cascade Drilling Services was subcontracted to install four wells, two in each AOC. All four wells were installed beginning on March 21, 2024 (the last well was completed early in the morning of March 22). Cascade's well registration and other records are included in Attachment A.

The soil cores were logged by a CALIBRE field geologist using the Unified Soil Classification System (USCS). The soil cores were field tested using a calibrated photoionization detector to field screen the soil cores over the extent of the depth drilled. CPOC wells are below MCLs (WSP, 2023) therefore no soil characterization samples were collected while drilling. Due to time constraints working at night, and the close proximity to B060-02, B060-01 was advanced without collecting soil cores. Soil boring logs are included in Attachment A.

The wells were constructed with 2-inch diameter, schedule 40, flush threaded PVC well casing with 0.020 inch pre-packed well screens. Each well was constructed with blank casing, slotted well screens, end caps, sand, bentonite, and cement/grout delivered to the Site in their original packaging. Post installation, a locking well cap (J-plug) was installed to seal each well, and a traffic rated flush-mount monument was installed as the surface completion. A representative well construction diagram is included in Figure 2-3 and well construction details for the four wells are shown in Table 2-1. After well completion, each well was developed by performing surge and pump cycles until the water was substantially clear. Well development included surging over the length of the screened interval.

These new wells are planned as injection wells and are not part of the Compliance Monitoring Plan. Baseline groundwater samples were collected from each well before the first substrate injection event, see Table 2-2. Sampling used a low-flow peristaltic pump and the samples were collected in laboratory-supplied pre-preserved 40 milliliter vials. The vials were filled to avoid air bubbles and placed on ice in a cooler. The samples were labeled and managed following chain-of-custody procedures and submitted to Analytical Resources, LLC, a Washington state accredited laboratory. The samples were analyzed for VOC using EPA Method 8260D. The field sample data sheets for these baseline samples are included in Attachment B.

The laboratory detections for VOCs from these baseline samples are shown in Table 2-2 and the complete analytical report is included in Attachment C. The sampling identified low-level detections of cis-1,2-DCE, VC, carbon disulfide, and acetone. Acetone is a common by-product of fermentation from the ERD process and is readily biodegraded. The baseline data from the AOC-060 and AOC-090 new injection wells show similar concentrations of cis-1,2-DCE and VC, where detected, compared to the downgradient CPOC wells for each area (all detections of new injection wells and CPOC wells are below 0.50 ug/L). New well B090-01 was non-detect for cis-1,2-DCE and VC.

3.0 Ongoing Groundwater Treatment (Building 4-78/79, SWMU-172-174, AOC-060, AOC-090, and AOC-001/002)

Targeted groundwater treatment (ERD) is being implemented for VOCs at the AOCs/SWMUs listed above. The ERD treatment involves substrate injection using sucrose/fructose as a carbon source to stimulate biological degradation of the chlorinated solvents. The need for continued treatment is evaluated on a semi-annual basis following review of the prior groundwater sampling results, in this case after the February 2024 sampling event. Site-wide groundwater sampling was conducted as part of the biannual monitoring program during this reporting period and the results are discussed in the main text of the summary report. Table 3-1 presents a high-level summary of those groundwater monitoring results by area and ERD treatment recommendations. Table 3-2 presents the list of injection wells by area including substrate volume and mass injected.

The two new injection wells installed at AOC-060 and the two at AOC-090, had sufficient recharge capacity to complete the planned injection volumes. This substrate injection event is the first time the replacement wells in the AOC-001/002 area were used (all prior wells at AOC-001/002 were closed several years ago with construction in the area). Two of the replacement wells in the AOC-001/002 area had a limited recharge capacity (GW-213SR and GW-214SR) and consideration should be given for added redevelopment of these two wells in the future.

The next groundwater monitoring event is planned for August 2024 and those future sampling results will be used to evaluate groundwater conditions and recommendations for continued ERD implementation as necessary.

4.0 Conclusions and Recommendations

Supplemental injection wells were installed at AOC-060 and AOC-090 with the objective to expand the footprint of substrate distribution for continued ERD treatment in these two areas.

Additional substrate injections were completed for the SWMU-172/174, Building 4-78/79, AOC-060, AOC-090, and AOC-001/002 areas in April 2024. Recommendations for potential, continued groundwater treatment will be presented in the next semi-annual groundwater monitoring report.

5.0 References

AMEC Environment & Infrastructure, Inc. (AMEC), 2012, Draft Cleanup Action Plan, Boeing Renton Facility, Renton, Washington, Prepared for The Boeing Company. September 2012.

AMEC, 2014. Draft Engineering Design Report Boeing Renton Cleanup Action Plan Implementation. Prepared by AMEC Environment & Infrastructure, Inc. for The Boeing Company. July 2014.

CALIBRE, 2018. Recommendation to shut down SVE system at Building 4-78/4-79 SWMU/AOC Group; Boeing Renton Site. Prepared by CALIBRE Systems, Inc. for The Boeing Company, EHS Remediation. October 2018.

CALIBRE, 2024. Work Plan for Investigation of Apron R Area, Rev 3. Boeing Renton Facility Renton, Washington. February 27, 2024.

Ecology, 2018. Correspondence from Byung Maeng (Ecology) to Carl Bach (Boeing) approving the shutdown of the SVE System at the 4-78/79 Area. November 1, 2018.

Ecology, 2022. Correspondence from Val Cramer (Ecology) to Nick Garson (Boeing) approving the shutdown of the SWMU-172/174.SVE System. September 20, 2022.

WSP, 2023. Groundwater Monitoring Report – Dry Season 2023. RCRA Corrective Action Program Boeing Renton Facility. Prepared by WSP and CALIBRE Systems, Inc. for the Boeing Company, EHS. November 2023.

TABLES

Table 2-1 Well Construction Details

Area	Start Card Number	Drilling Date	Well Name	Total Depth (ft)	Screen Length (ft)	Screen Interval (ft)
B060	BPR909	3/21/2024	B060-02	25	15	10 to 25
B060	BPR910	3/21/2024	B060-01	25	20	5 to 25
B090	BPR911	3/21/2024	B090-02	20	15	5 to 20
B090	BPR912	3/21/2024	B090-01	20	15	5 to 20

Note
ft = feet

Table 2-2 Detections from Baseline Sampling in New IWs at AOC-060 and AOC-090

Sample Location	Date	cis-1,2-DCE	VC	Acetone	Carbon Disulfide
B-060-01	3/27/2024	0.11J	0.09J	1.92J	<0.06
B-060-02	3/27/2024	0.15J	0.29	<1.91	<0.06
B-090-01	3/27/2024	<0.08	<0.08	<1.91	0.08J
B-090-02	3/27/2024	0.09J	0.18J	<1.91	0.11J
DUP01	3/27/2024	0.09J	0.17J	6.61	0.10J
Trip Blank	3/27/2024	<0.08	<0.08	<1.91	<0.06

Notes

all results in micrograms per liter (µg/L)

cis-1,2-DCE = cis-1,2-dichloroethene

VC = vinyl chloride

J = concentration is estimated

Table 3-1 Evaluation of Groundwater Monitoring Results Summary from February 2024 and Recommended ERD Treatment

GW Treatment Area	Source and down gradient MWs	CPOC wells	Treatment IWs	ERD Treatment Recommendation
SWMU-172/174	PCE and TCE below 0.30 ug/L, cis-1,2-DCE below 4.6 ug/L and VC below 1.0 ug/L.	All detections are at or below 0.23 ug/L (PCE, TCE, cis-1,2-DCE, and VC detected).	*Prior data Feb 2022; North IW B172-01 is ND for CVOCs, South IW B172-08 near GW-152S show PCE at 1.6 ug/L and cisDCE at 0.3 ug/L. TOC near background.*	**Completed substrate injections in April 2024. Evaluate August 2024 results for ERD recommendation.**
Building 4-78/4-79 SWMU/AOC Group	TCE is nondetect, cisDCE is under 0.5 ug/L; VC under 1.0 ug/L. Benzene at 6.5 ug/L in GW033S; benzene less than 0.20 ug/L in benzene treatment area.	TCE is nondetect. cisDCE and VC are below 0.30 ug/L. Benzene at 6.5 ug/L in GW237S.	*Prior data April 2023; B78-11 showed TCE at 52 ug/L and downgradient B78-16 showed TCE at 2.1 ug/L, cisDCE 34 ug/L, and VC at 71 ug/L.* This well and nearby others were injected with sucrose May 2023 and again in April 2024.	**Completed substrate injections in April 2024. Evaluate August 2024 results for ERD recommendation.**
AOC-001/002	All wells with detections less than 0.35 ug/L, primarily cis-1,2DCE and VC.	*GW-197SR with cis-1,2-DCE at 41.6 ug/L and VC at 27.0 ug/L. All other wells with detections less than 0.60 ug/L.*	*Prior data Mar 2018, detections at or below 0.30 ug/L (cis-1,2-DCE, VC and benzene detected).*	**Completed substrate injections in April 2024. Evaluate August 2024 results for ERD recommendation.**
AOC-003	PCE and TCE nondetect, cisDCE less than 0.06 ug/L, VC below 0.22 ug/L.	PCE and TCE nondetect, cisDCE at 0.02 ug/L, VC less than 0.50 ug/L.	*Prior data Feb 2022; B003-01 showed VC at <0.2 ug/L and TOC near background*	**Evaluate August 2024 results for ERD recommendation.**
AOC-60	Results are primarily cis-1,2DCE and VC. Treatment MWs with total CVOCs less than 2.5 ug/L, other MWs with total CVOCs less than 0.70 ug/L.	MW's with total CVOCs less than 0.23 ug/L, primarily as cis-1,2DCE and VC.	*Two new treatment IWs with cis-1,2-DCE and VC detections less than 0.50 ug/L. Substrate injections completed after sampling.*	**CPOC wells GW150S and GW253I continue to show low detections of cis-1,2-DCE (~0.1 ug/L, versus CUL = 0.08 ug/L) therefore implemented ERD optimization to drive CVOCs lower before Site goes to MNA. Installed two injection wells upgradient of these CPOC wells in March 2024 and treated in April 2024. Evaluate August 2024 results for ERD recommendation.**
AOC – 90	Source with total CVOCs of 0.16 ug/L; down gradient well with VC at 0.21 ug/L.	VC less than 0.30 ug/L.	*Two new treatment IWs with cis-1,2-DCE and VC detections either nondetect or less than 0.50 ug/L. Substrate injections completed after sampling.*	**CPOC wells GW178S and GW208S continue to show low detections of VC (~0.5 ug/L, versus CUL = 0.13 ug/L) therefore implemented ERD optimization to drive CVOCs lower before Site goes to MNA. Installed two injection wells upgradient of these CPOC wells in March 2024 and treated in April 2024. Evaluate August 2024 results for ERD recommendation.**
Apron A	cis-1,2DCE is nondetect and VC at 0.81 ug/L.	-	-	**No action at this time.**
SWMU-168	-	VC at 0.09 ug/L.	-	**No action at this time.**

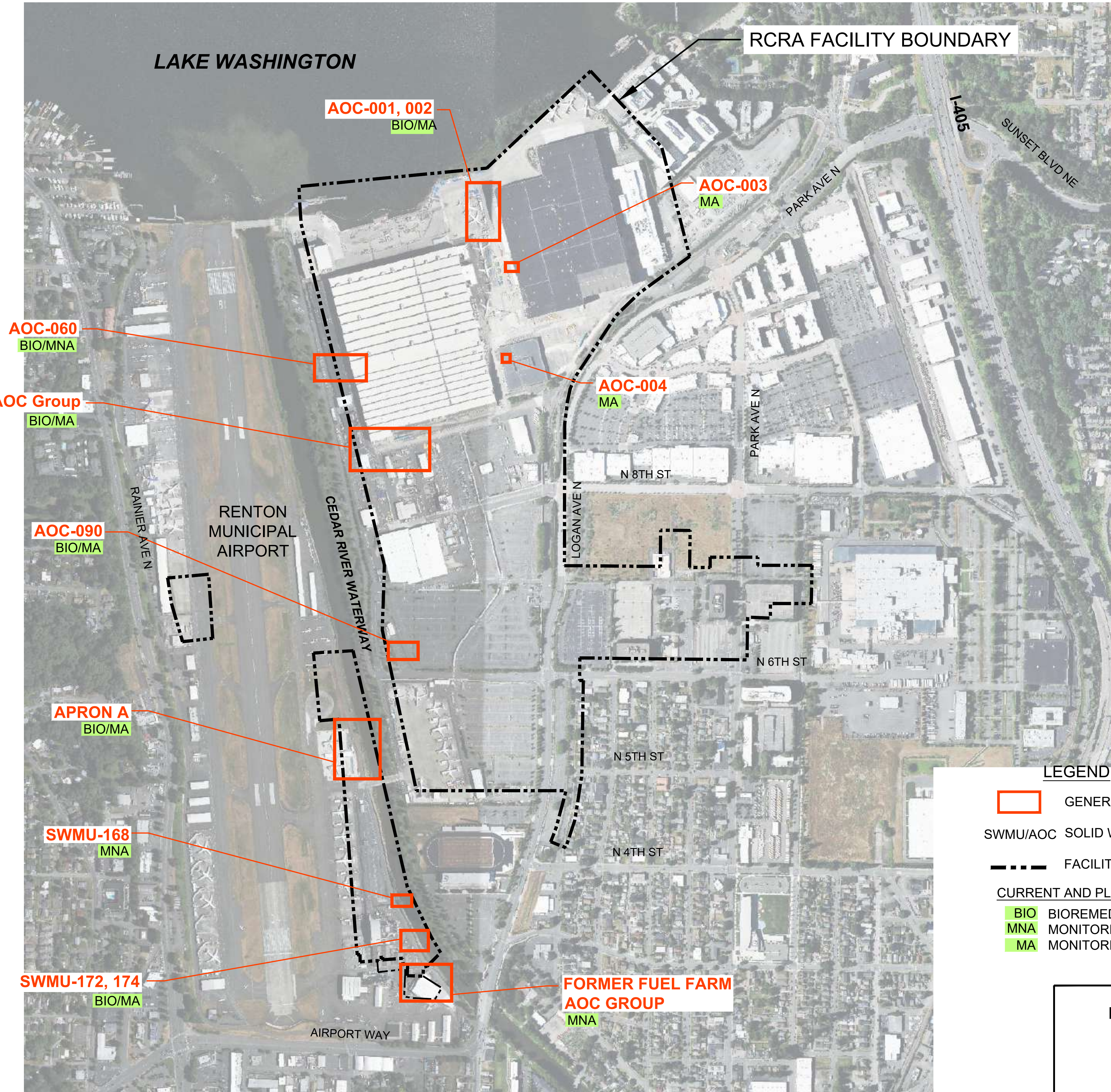
Table 3-2 - April 2024 Injection Summary at Renton AOCs

Area	Injection Well	Volume of Solution (gallons)	Brix (°Bx)	Pounds Substrate in the Solution (lbs)
SWMU-172/174	B172-05	457	10.6	402
	B172-06	650	10.6	572
	B172-07	650	10.6	572
	B172-08	500	10.6	440
	B172-09	526	10.6	463
	B172-13	1029	10.6	906
	B172-14	1017	10.6	896
Building 4-78/79	B78-12	950	8.8	697
	B78-14	955	8.8	701
	B78-15	953	8.8	699
	B78-16	976	8.8	716
AOC-060	GW147S	1051	12.2	1068
	B060-01	1047	12.2	1064
	B060-02	1033	12.2	1050
AOC-090	B090-01	496	11.2	461
	B090-02	491	11.2	457
AOC-001/002	IPR-1	906	13.3	1008
	IPR-2	863	13.3	960
	GW-213SR	290	13.6	329
	GW-214SR	56	13.6	64
	GW-215SR	450	13.6	511
	Total (gal)	15,346	Total (lbs)	14,038

Notes:

°Bx (degrees brix) is a measure of the sugar content in an aqueous solution. One degree Brix is 1 gram of sucrose in 100 grams of solution and represents the strength of the solution as percantage by mass.

FIGURES



0 400 800
APPROXIMATE SCALE IN FEET

LEGEND

GENERAL LOCATION OF SWMUs AND AOCs
SWMU/AOC SOLID WASTE MANAGEMENT UNIT/AREA OF CONCERN
FACILITY BOUNDARY

CURRENT AND PLANNED CLEANUP REMEDIES:
BIO BIOREMEDIATION
MNA MONITORED NATURAL ATTENUATION
MA MONITORED ATTENUATION

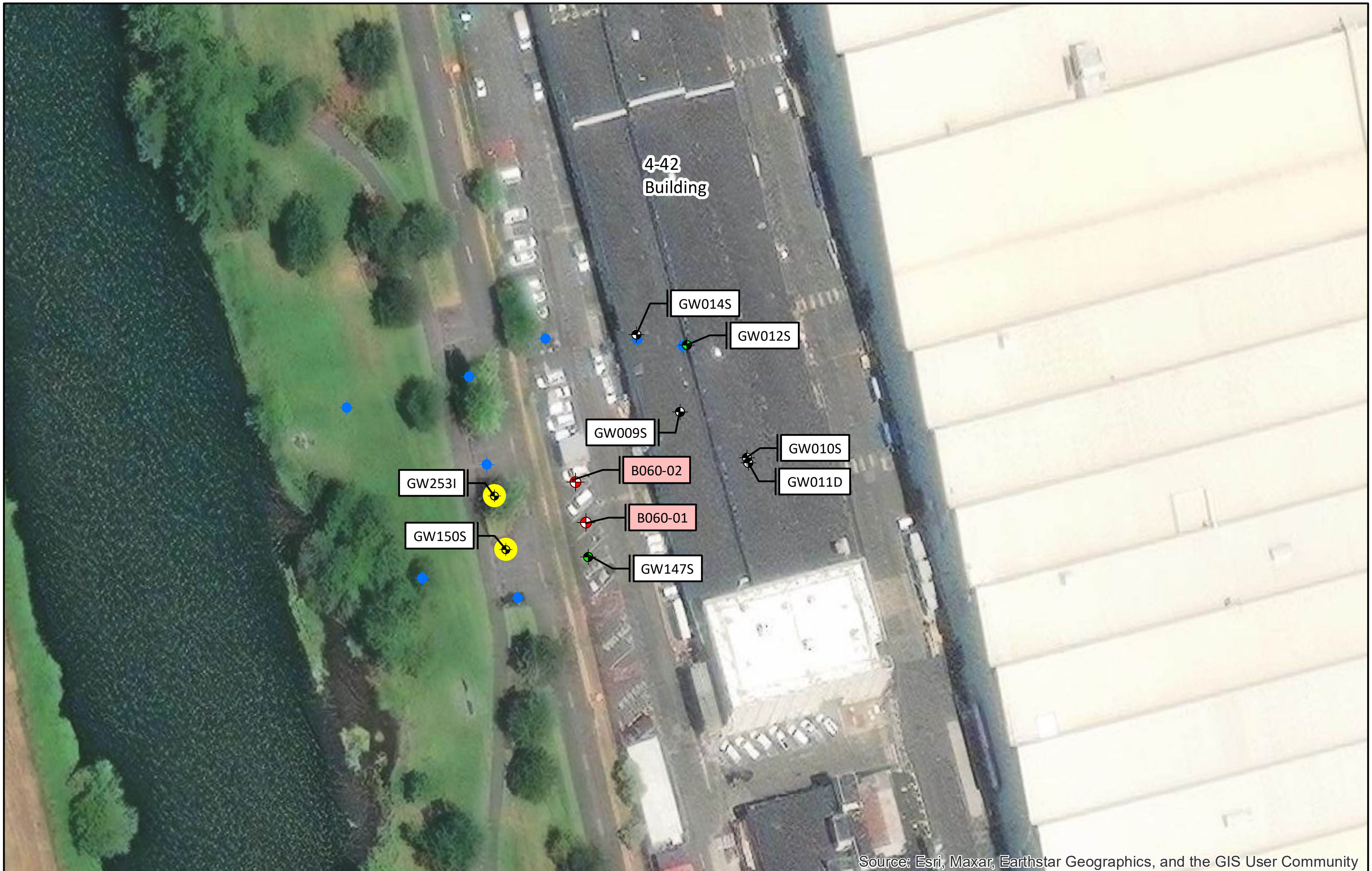
BOEING

RENTON SWMU AND AOC LOCATIONS

Boeing Renton Facility
Renton, Washington

By: APS/SD	Date: 11/16/23	Project No. PS20203450
WSP USA Environment & Infrastructure Inc.		Figure 1-1

Plot Date: 11/16/23 - 2:18pm, Plotted by: USAS719374
Drawing Path: X:\US\USPDX800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg_GWMR_First_Half_2023 - Rev2\, Drawing Name: Figure 1 - Site Map.dwg



BOEING

CALIBRE

CPOC Monitoring Well

Monitoring Well

Bioremediation Well

Closed Wells in 2022-2023 due to meeting cleanup goals over several years

New Bioremediation Well

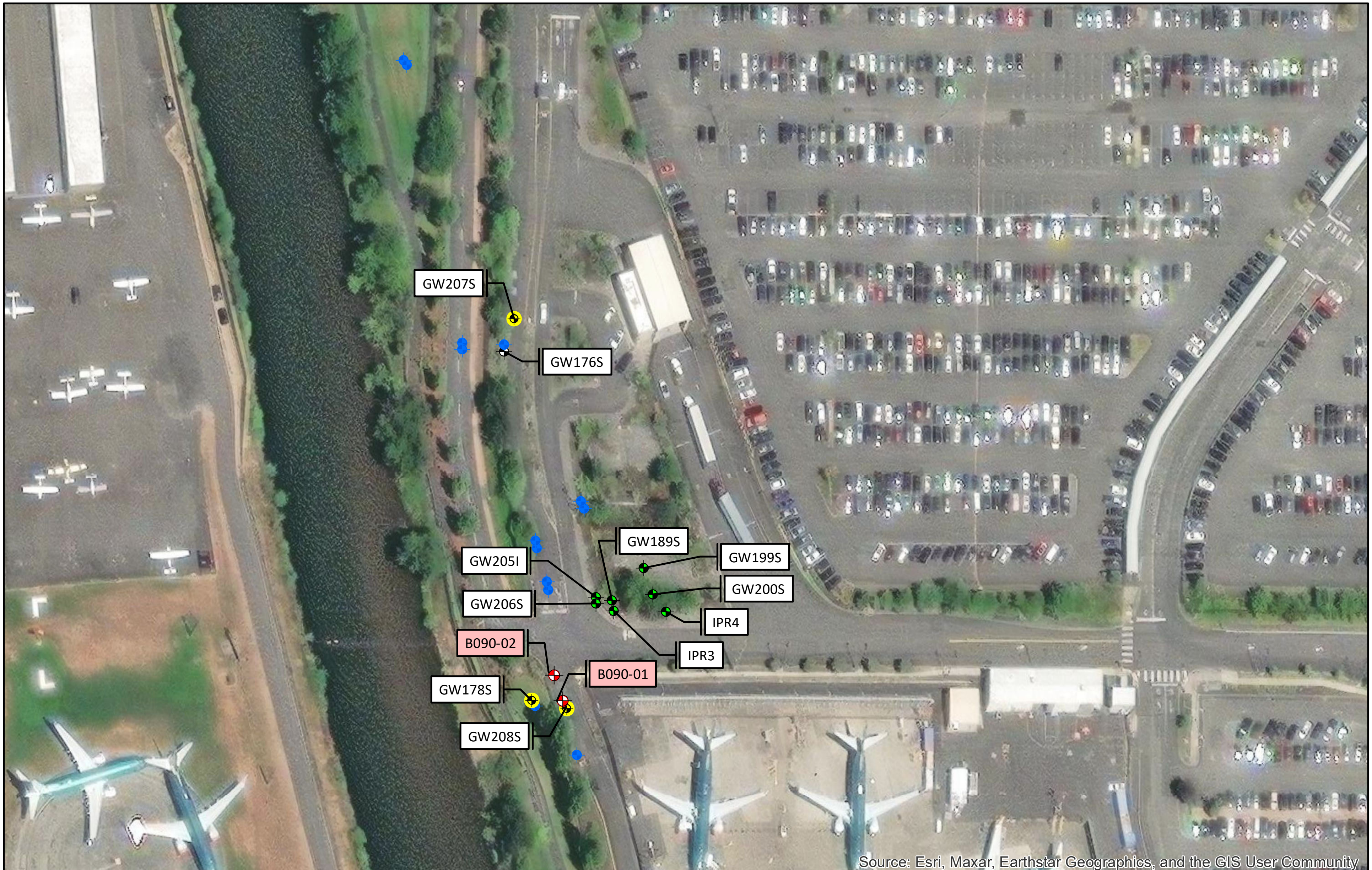
N

0 25 50 100 Feet

Figure 2-1

AOC-060 SWMU/AOC Group
New Bioremediation Wells

Boeing Renton Facility



BOEING

CALIBRE

CPOC Monitoring Well

Monitoring Well

Bioremediation Well

Closed Wells in 2022-2023 due to meeting cleanup goals over several years

New Bioremediation Well

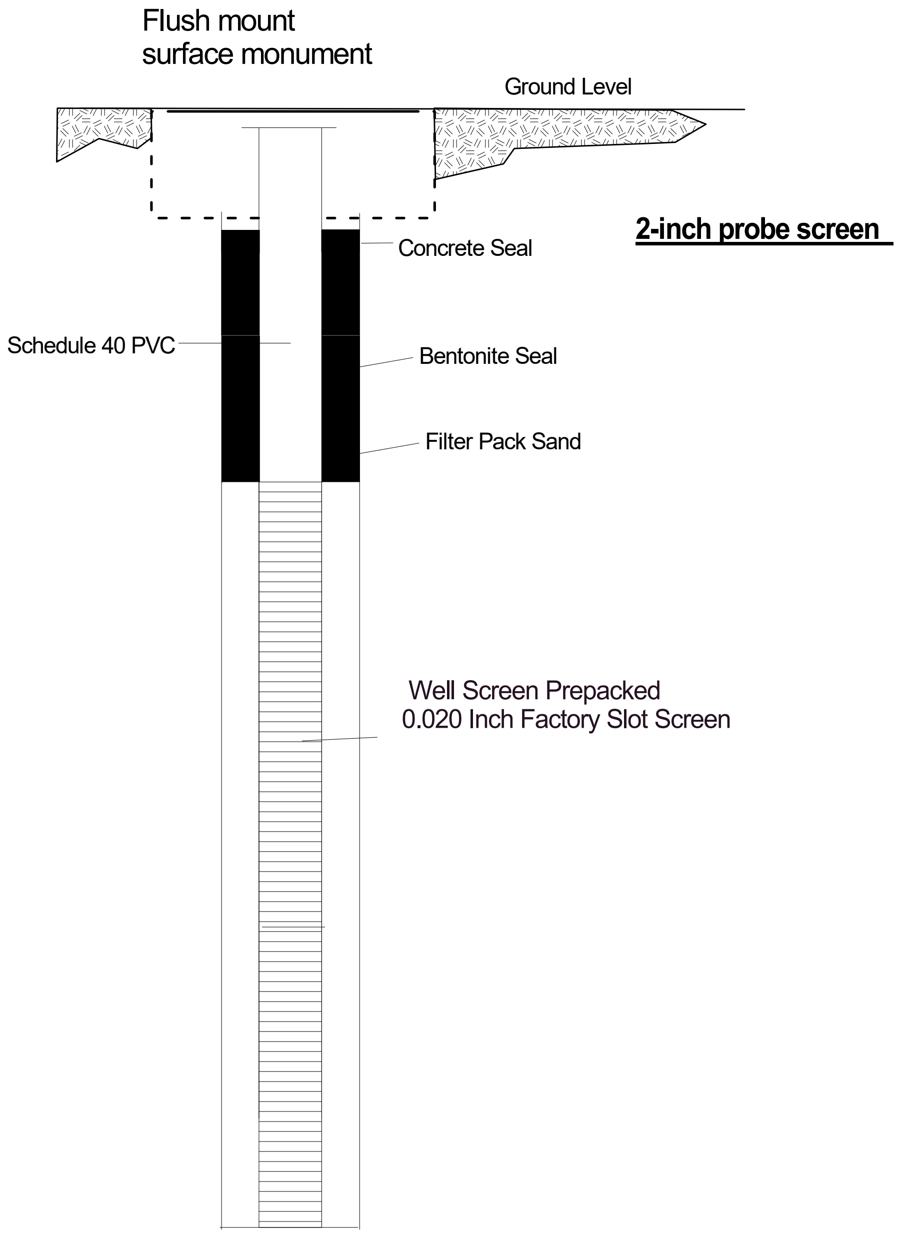
N

0 25 50 100 Feet

Figure 2-2

AOC-090
New Bioremediation Wells

Boeing Renton Facility



Direct Push Injection Well
Dimensions vary by well

CALIBRE		Calibre Systems 16935 SE 39th St Bellevue, WA 98008
REVISION NO.: 0	DATE: 3/29/24	ACAD FILE: Well Construction.skf

Figure 2-3. Representative Well Construction Diagram

DES'D:	CLIENT: Boeing	PROJECT NO.: AOC-060
	LOCATION:	
CHK'D:	Boeing Renton	

Attachment A: Information From Well Installation at AOC-060 and AOC-090 (Driller Logs and Boring Logs)

103-24-1058

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:

■ Construction
☐ Decommission ⇨ Original NOI No. ____

Ecology Well ID Tag No. **BPR 909**

Site Well Name ____

Consulting Firm **Calibre Systems**

Was a variance approved for this well/boring? ☐ Yes ■ No

If yes, what was the variance for? ____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) **Josh Doty**

Driller/Engineer/Trainee Signature Doty

License No. **3358**

Company Name **Cascade Drilling - Seattle**

If trainee box is checked, sponsor's license number: ____

Sponsor's signature ____

Notice of Intent No. **RE25897**

Type of Well:

■ Resource Protection Well ☐ Injection Point
☐ Remediation Well ☐ Grounding Well
☐ Geotechnical Soil Boring ☐ Ground Source Heat Pump
☐ Environmental Boring ☐ Other ____
↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner **The Boeing Company**

Well Street Address **737 Logan Ave**

City **Renton** County **King**

Tax Parcel No. **0723059001**

Location (see instructions): WWM ☐ or EWM ■

SW ¼-¼ **NE** ¼, Section **7** Town **23N** Range **5E**

Latitude (Example: 47.12345) **47.49562**

Longitude (Example: -120.12345) **-122.20722**

(WGS 84 Coordinate System)

Borehole diameter **2.25"** inches Casing diameter **2** inches

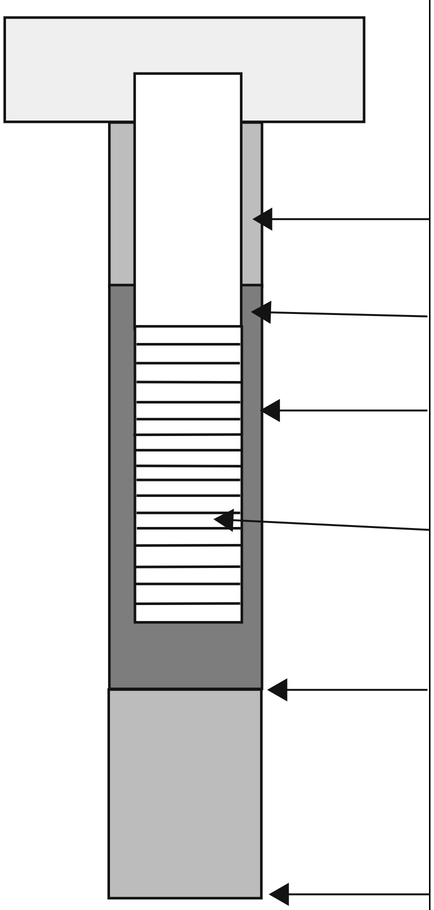
Static water level **n/a** ft below top of casing Date ____

☐ Above-ground completion with bollards ■ Flush monument

↳ Stick-up of top of well casing ____ ft above ground surface

Start Date **3/21/2024** Completed Date **3/21/2024**

Construction Design



Well Data

Concrete Surface Seal Depth	**2'**
Blank Casing (dia x dep)	**2" x 10'**
Material	**PVC**
Backfill	
Type	
Seal	**8'**
Material	**Bentonite Chips**
Gravel Pack	**15'**
Material	**12/20 Sand**
Screen (dia x dep)	**2" x 15'**
Slot Size	**Prepack**
Material	**PVC**
Well Depth	**25'**
Backfill	**x**
Material	**x**
Total Hole Depth	**25'**

Driller's Log

0 - 5 FT	**Rocky fill**
5 - 15 FT	**Sandy silty till**
15 - 25 FT	**Silty sand**

103-24-1058

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:
- ■ Construction
- ☐ Decommission ⇨ Original NOI No. ______

Ecology Well ID Tag No. **BPR 910**

Site Well Name ______

Consulting Firm **Calibre Systems**

Was a variance approved for this well/boring? ☐ Yes ■ No

If yes, what was the variance for? ______

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) **Josh Doty**

Driller/Engineer/Trainee Signature [signature]

License No. **3358**

Company Name **Cascade Drilling - Seattle**

If trainee box is checked, sponsor's license number: ______

Sponsor's signature ______

Notice of Intent No. **RE25897**

Type of Well:
- ■ Resource Protection Well
- ☐ Injection Point
- ☐ Remediation Well
- ☐ Grounding Well
- ☐ Geotechnical Soil Boring
- ☐ Ground Source Heat Pump
- ☐ Environmental Boring
- ☐ Other ______
- ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner **The Boeing Company**

Well Street Address **737 Logan Ave**

City **Renton** County **King**

Tax Parcel No. **0723059001**

Location (see instructions): WWM ☐ or EWM ■

SW ¼-¼ **NE** ¼, Section **7** Town **23N** Range **5E**

Latitude (Example: 47.12345) **47.49562**

Longitude (Example: -120.12345) **-122.20722**

(WGS 84 Coordinate System)

Borehole diameter **2.25"** inches Casing diameter **2** inches

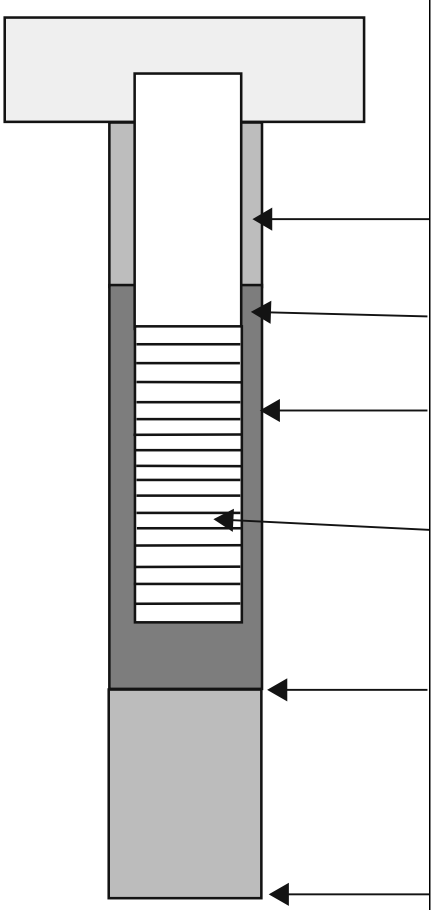
Static water level **n/a** ft below top of casing Date ______

☐ Above-ground completion with bollards ■ Flush monument

Stick-up of top of well casing ______ ft above ground surface

Start Date **3/21/2024** Completed Date **3/21/2024**

Construction Design



Well Data

Concrete Surface Seal Depth	2'
Blank Casing (dia x dep)	2" x 5'
Material	PVC
Backfill	
Type	
Seal	4'
Material	Bentonite Chips
Gravel Pack	19'
Material	12/20 Sand
Screen (dia x dep)	2" x 20'
Slot Size	Pre-pack
Material	PVC
Well Depth	25'
Backfill	x
Material	x
Total Hole Depth	25'

Driller's Log

0 - 5 FT

Rocky fill

5 - 15 FT

Sandy silty till

15 - 25 FT

Silty sand

103-24-1058

DEPARTMENT OF ECOLOGY
State of Washington

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:
- ■ Construction
- ☐ Decommission ⇨ Original NOI No. ____

Ecology Well ID Tag No. **BPR 911**

Site Well Name ____

Consulting Firm **Calibre Systems**

Was a variance approved for this well/boring? ☐ Yes ■ No

If yes, what was the variance for? ____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

■ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) **Josh Doty**

Driller/Engineer/Trainee Signature Doty

License No. **3358**

Company Name **Cascade Drilling - Seattle**

If trainee box is checked, sponsor's license number: ____

Sponsor's signature ____

Notice of Intent No. **RE25897**

Type of Well:
- ■ Resource Protection Well
- ☐ Injection Point
- ☐ Remediation Well
- ☐ Grounding Well
- ☐ Geotechnical Soil Boring
- ☐ Ground Source Heat Pump
- ☐ Environmental Boring
- ☐ Other ____
- ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner **The Boeing Company**

Well Street Address **737 Logan Ave**

City **Renton** County **King**

Tax Parcel No. **0723059001**

Location (see instructions): WWM ☐ or EWM ■

SW ¼-¼ **NE** ¼, Section **7** Town **23N** Range **5E**

Latitude (Example: 47.12345) **47.49562**

Longitude (Example: -120.12345) **-122.20722**

(WGS 84 Coordinate System)

Borehole diameter **2.25"** inches Casing diameter **2** inches

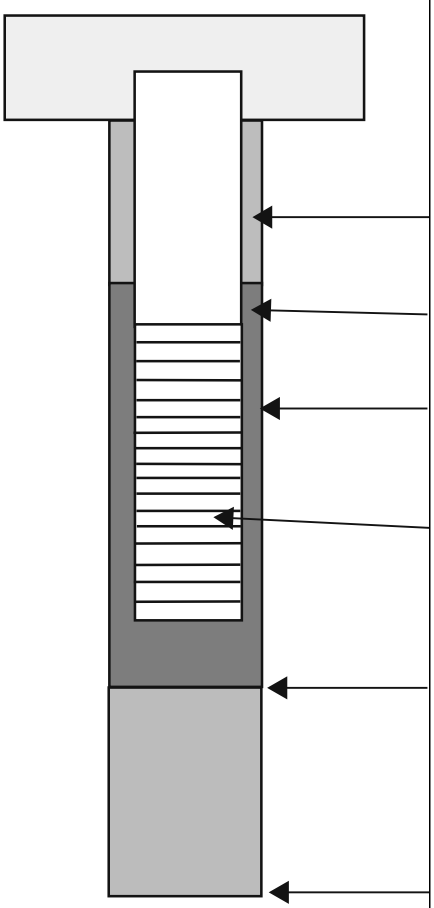
Static water level **n/a** ft below top of casing Date ____

☐ Above-ground completion with bollards ■ Flush monument

Stick-up of top of well casing ____ ft above ground surface

Start Date **3/21/2024** Completed Date **3/21/2024**

Construction Design



Well Data

Concrete Surface Seal Depth	**2'**
Blank Casing (dia x dep)	**2" x 5'**
Material	**PVC**
Backfill	
Type	
Seal	**4'**
Material	**Bentonite Chips**
Gravel Pack	**14'**
Material	**12/20 Sand**
Screen (dia x dep)	**2" x 15'**
Slot Size	**Pre-pack**
Material	**PVC**
Well Depth	**20'**
Backfill	**x**
Material	**x**
Total Hole Depth	**20'**

Driller's Log

0 - **5** FT

Rocky fill

5 - **20** FT

Sandy silty till

\- FT

DEPARTMENT OF ECOLOGY State of Washington

103-24-1058

Resource Protection Well Report

Submit one well report per well installed. See page two for instructions.

Type of Work:

- ■ Construction
- ☐ Decommission ⇨ Original NOI No. ______

Ecology Well ID Tag No. **BPR 912**

Site Well Name ______

Consulting Firm **Calibre Systems**

Was a variance approved for this well/boring? ☐ Yes ▣ No

If yes, what was the variance for? ______

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported are true to my best knowledge and belief.

▣ Driller ☐ Trainee ☐ Engineer

Name (Print Last, First Name) **Josh Doty**

Driller/Engineer/Trainee Signature Doty

License No. **3358**

Company Name **Cascade Drilling - Seattle**

If trainee box is checked, sponsor's license number: ______

Sponsor's signature ______

Notice of Intent No. **RE25897**

Type of Well:

- ■ Resource Protection Well
- ☐ Injection Point
- ☐ Remediation Well
- ☐ Grounding Well
- ☐ Geotechnical Soil Boring
- ☐ Ground Source Heat Pump
- ☐ Environmental Boring
- ☐ Other ______
- ↳ ☐ Soil- ☐ Vapor- ☐ Water-sampling

Property Owner **The Boeing Company**

Well Street Address **737 Logan Ave**

City **Renton** County **King**

Tax Parcel No. **0723059001**

Location (see instructions): WWM ☐ or EWM ▣

SW ¼-¼ **NE** ¼, Section **7** Town **23N** Range **5E**

Latitude (Example: 47.12345) **47.49562**

Longitude (Example: -120.12345) **-122.20722**

(WGS 84 Coordinate System)

Borehole diameter **2.25"** inches Casing diameter **2** inches

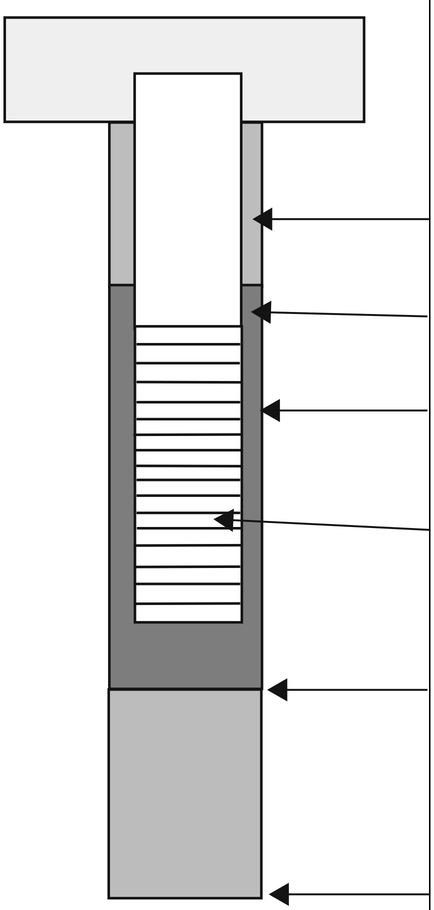
Static water level **n/a** ft below top of casing Date ______

☐ Above-ground completion with bollards ▣ Flush monument

↳ Stick-up of top of well casing ______ ft above ground surface

Start Date **3/21/2024** Completed Date **3/21/2024**

Construction Design



Well Data

Concrete Surface Seal Depth	**2'**
Blank Casing (dia x dep)	**2" x 5'**
Material	**PVC**
Backfill	
Type	
Seal	**4'**
Material	**Bentonite Chips**
Gravel Pack	**14'**
Material	**12/20 Sand**
Screen (dia x dep)	**2" x 15'**
Slot Size	**Pre-pack**
Material	**PVC**
Well Depth	**20'**
Backfill	**x**
Material	**x**
Total Hole Depth	**20'**

Driller's Log

0 - **5** FT

Rocky fill

5 - **20** FT

Sandy silty till

\- FT

CALIBRE Systems **GEOLOGIC BORING LOG**

PROJECT: Boeing Renton	**JOB NO.:**	**SHEET** 1**of** 2	**BORING NO.:** B060-02
PROJECT LOCATION: Renton, WA	**BORING LOCATION:** AOC-060		**TOTAL DEPTH:** 25 ft, screened 10-25ft
		BEGUN: 3/21/2024	
DRILL CONTRACTOR: Cascade	**GEOLOGIST:** RL	**FINISHED:**	
DRILL RIG: Geoprobe	**DRILLER:** Josh	**GROUND ELEV.:** ~10 ft	
HOLE SIZE: 8”	**WEATHER:** Cloudy and rain	**GROUND WATER (DEPTH/ELEV.): 4.25 ft bgs**	
DRILLING METHOD: Direct Push	DRILLING FLUID/SOURCE: .	**TOP OF ROCK (DEPTH/ELEV.):**	
SAMPLER TYPE: liner		**HAMMER WEIGHT: NA**	
SAMPLER LENGTH AND DIAM.: 1.25” x 5’		**HAMMER FALL: NA**	

Location Figure

DEPTH	SAMPLE TYPE/DEPTH/ NUMBER	Sample Interval	Graphic Driven - Recovered	NOTES: (PRODUCT, ODOR, OVA READING, ETC.)	USCS LOG	STRATIGRAPHIC DESCRIPTION
0-						Pavement 2”
1’						Fill
2’					SW	Brown fine to medium sand with cobbler up to 2”in diameter
3’						
						Grey brown poorly sorted sand
4’						
5’						
6’				0 ppb, no odor		Only 20% recovery likely too high gravel content
7’						
8’						
9’						
10’				0 ppb, no odor	GP	Grey gravel 0.25-0.5” gravel with some sand

FROM 0 TO 10 FT

PID = Photo ionization detector; field samples screened with PID over split-spoon sample when opened with calibrated PID.
GSA = Sample for grain size analysis
TA = Target analytes: VOC, SVOC, Metals, TSS

SAMPLE TYPES: SS = SPLIT SPOON, MP = MACRO PISTON, CC = Continuous Core

CALIBRE Systems **GEOLOGIC BORING LOG:**

DEPTH	SAMPLE TYPE/DPETH/ NUMBER	Sample Interval	Driven – Recovered	NOTES: (PRODUCT, ODOR, OVA READING, ETC.)	USCS LOG	STRATIGRAPHIC DESCRIPTION
11’					SP	Grey sorted sand fine-medium
				0ppb, no odor		
12’					SW	Grey poorly sorted sand very fine-coarse
13’				0ppb, no odor	SP	Grey semi sorted sand very fine-medium, some clay & silt
14’						
					CL	Grey clay 3“ thick with some sand
15’				0ppb, no odor	SP	Grey sorted sand fine-medium
16’						
				0ppb, no odor	SW	As above with coarser sand and less sorting
17’						
18’					SC	Grey sandy clay 2” thick
				0ppb, no odor	SP	Grey sorted medium sand
19’					SC	Grey sandy clay 2” thick
					SW	Grey poorly sorted sand very fine-coarse increasing gravel
20’					GW	Content, gravel up to 0.5-1” size, 5-10% clay
21’				0ppb, no odor	SW	Grey poorly sorted sand very fine-coarse with some
						Gravel
22’						
23’				0ppb, no odor		
24’					SW	
25’						
26’						
27’						
28’						
29’						
30’						

FROM 10 TO 30 FT

PID = Photo ionization detector; field samples screened with PID over split-spoon sample when opened with calibrated PID.
GSA = Sample for grain size analysis
TA = Target analytes: VOC, SVOC, Metals, TSS

SAMPLE TYPES: SS = SPLIT SPOON, MP = MACRO PISTON, CC = Continuous Core

CALIBRE Systems **GEOLOGIC BORING LOG**

PROJECT: Boeing Renton	**JOB NO.:**	**SHEET** 1**of** 2	**BORING NO.:** B090-01
PROJECT LOCATION: Renton, WA	**BORING LOCATION:** AOC-090		**TOTAL DEPTH:** 20 ft, Screened 5-20ft
		BEGUN: 3/21/2024	
DRILL CONTRACTOR: Cascade	**GEOLOGIST:** RL	**FINISHED:** 3/22/2024	
DRILL RIG: Geoprobe	**DRILLER:** Josh	**GROUND ELEV.:** ~10 ft	
HOLE SIZE: 8”	**WEATHER:** Cloudy and rain	**GROUND WATER (DEPTH/ELEV.): 6.8 ft bgs**	
DRILLING METHOD: Direct Push	DRILLING FLUID/SOURCE: .	**TOP OF ROCK (DEPTH/ELEV.):**	
SAMPLER TYPE: liner		**HAMMER WEIGHT: NA**	
SAMPLER LENGTH AND DIAM.: 1.25” x 5’		**HAMMER FALL: NA**	

Location Figure

DEPTH	SAMPLE TYPE/DEPTH/ NUMBER	Sample Interval	Graphic Driven - Recovered	NOTES: (PRODUCT, ODOR, OVA READING, ETC.)	USCS LOG	STRATIGRAPHIC DESCRIPTION
0-1’						Pavement 2”
						Fill
2’						
3’						
4’						
5’						
					ML	Grey silty sand
6’				0 ppb, no odor	SP	Grey sand fine-medium
7’					ML	Grey silt with clay and sand
8’						
9’				0 ppb, no odor		
					SP	Grey sand fine-coarse
10’				0 ppb, no odor		
					CL	Grey clay with sand

FROM 0 TO 10 FT

PID = Photo ionization detector; field samples screened with PID over split-spoon sample when opened with calibrated PID.
GSA = Sample for grain size analysis
TA = Target analytes: VOC, SVOC, Metals, TSS

SAMPLE TYPES: SS = SPLIT SPOON, MP = MACRO PISTON, CC = Continuous Core

CALIBRE Systems **GEOLOGIC BORING LOG:**

DEPTH	SAMPLE TYPE/DPETH/ NUMBER	Sample Interval	Driven – Recovered	NOTES: (PRODUCT, ODOR, OVA READING, ETC.)	USCS LOG	STRATIGRAPHIC DESCRIPTION
11’					SW/	Grey poorly sorted sand with clay
				400ppb, no odor	CL	
12’						
13’				0ppb, no odor	CL	Grey plastic clay with some organic material
14’						
15’				0ppb, no odor	PT	2” layer of organic material
					CL	Grey plastic clay with some organic material
16’						
				200ppb, no odor		
17’					ML	Grey silt with clay and sand
18’					CL	Grey plastic clay with some organic material
				0ppb, no odor		
19’					ML	Grey silt with clay and sand
20’				0ppb, no odor	CL	Grey plastic clay
					ML	Grey silt with clay and sand
21’						
22’						
23’						
24’						
25’						
26’						
27’						
28’						
29’						
30’						

FROM 10 TO 30 FT

PID = Photo ionization detector; field samples screened with PID over split-spoon sample when opened with calibrated PID.
GSA = Sample for grain size analysis
TA = Target analytes: VOC, SVOC, Metals, TSS

SAMPLE TYPES: SS = SPLIT SPOON, MP = MACRO PISTON, CC = Continuous Core

CALIBRE Systems **GEOLOGIC BORING LOG**

PROJECT: Boeing Renton	**JOB NO.:**	**SHEET** 1**of** 2	**BORING NO.:** B090-02
PROJECT LOCATION: Renton, WA	**BORING LOCATION:** AOC-090		**TOTAL DEPTH:** 20 ft, screened 5-20 ft
		BEGUN: 3/21/2024	
DRILL CONTRACTOR: Cascade	**GEOLOGIST:** RL	**FINISHED:** 3/22/2024	
DRILL RIG: Geoprobe	**DRILLER:** Josh	**GROUND ELEV.:** ~10 ft	
HOLE SIZE: 8"	**WEATHER:** Cloudy and rain	**GROUND WATER (DEPTH/ELEV.): 6.8 ft bgs**	
DRILLING METHOD: Direct Push	DRILLING FLUID/SOURCE: .	**TOP OF ROCK (DEPTH/ELEV.):**	
SAMPLER TYPE: liner		**HAMMER WEIGHT: NA**	
SAMPLER LENGTH AND DIAM.: 1.25" x 5'		**HAMMER FALL: NA**	

Location Figure

DEPTH	SAMPLE TYPE/DEPTH/ NUMBER	Sample Interval	Graphic Driven - Recovered	NOTES: (PRODUCT, ODOR, OVA READING, ETC.)	USCS LOG	STRATIGRAPHIC DESCRIPTION
0-1'						Pavement 2"
						Fill
2'						
3'						
4'						
5'					ML/SP	Grey silty sand
6'				1100 ppb, no odor		
7'						
8'					CL	Grey clay with sand
9'				400 ppb, no odor		
10'				940 ppb, no odor	ML	Grey silt with very fine sand

FROM 0 TO 10 FT

PID = Photo ionization detector; field samples screened with PID over split-spoon sample when opened with calibrated PID.
GSA = Sample for grain size analysis
TA = Target analytes: VOC, SVOC, Metals, TSS

SAMPLE TYPES: SS = SPLIT SPOON, MP = MACRO PISTON, CC = Continuous Core

CALIBRE Systems **GEOLOGIC BORING LOG:**

DEPTH	SAMPLE TYPE/DPETH/ NUMBER	Sample Interval	Driven – Recovered	NOTES: (PRODUCT, ODOR, OVA READING, ETC.)	USCS LOG	STRATIGRAPHIC DESCRIPTION
11’					ML	As above with medium sand
				500ppb, no odor		
12’					CL	Grey plastic clay with some organic material
13’				350ppb, no odor		
14’						
15’				200ppb, no odor		
16’						
				450ppb, no odor	ML	Grey silt with clay and sand
17’						
18’					CL	Grey plastic clay with some organic material
				320ppb, no odor		
19’					ML	Grey silt with clay and sand – increasing sand and decreasing
						Clay with depth
20’				480ppb, no odor		
21’						
22’						
23’						
24’						
25’						
26’						
27’						
28’						
29’						
30’						

FROM 10 TO 30 FT

PID = Photo ionization detector; field samples screened with PID over split-spoon sample when opened with calibrated PID.
GSA = Sample for grain size analysis
TA = Target analytes: VOC, SVOC, Metals, TSS

SAMPLE TYPES: SS = SPLIT SPOON, MP = MACRO PISTON, CC = Continuous Core

Attachment B: Groundwater Sampling Field Data Sheets

Well Sampling Data Sheet

Date	3 / 27 / 24	Site Location	Renton AUC 060
Samplers	JN	Well ID	B-060-01
Casing Material	PVC	Constructed Depth	
Casing Diameter	2"	Condition of Well	ok

Field Measurements:

Time	1200	Depth Measured From:	
Depth to Water	4.06		Top of access port
			Mark on PVC casing
			Mark of protective casing
		N side of case	Other

Purging Information:

Pump:		Dedicated		Non-dedicated		Peristaltic
Bailer:		PVC		Stainless Steel		Other:
Purge Start Time		Purge End Time				
Approximate Volume Purged						

Water Monitoring Conditions:

Time	Vol. Purged (gal)	Temperature (°C)	Conductivity (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)
1211	0	15.53	0.469	1.03	6.72	-174	21.3
1216	0.5	15.57	0.442	0.30	6.64	-169	9.2
1221	1.0	15.55	0.437	0.14	6.46	-161	8.1
1226	1.5	15.59	0.435	0.11	6.56	-168	5.5
1231	2.0	15.51	0.434	0.09	6.53	-167	6.0

Sampling Data:

Time	1235	Sample ID	B060-01-032724
Vol. Purged (gal)	2.5	Duplicates	
Temperature (°C)	15.54	QA/QC Volumes	
Conductivity (mS/cm)	0.431		
D.O. (mg/L)	0.06		
pH	6.54		
ORP (mV)	-168		
Turbidity (NTU)	5.7		

Sampling Device:

PVC Bailer		SS Bailer		Dedicated Pump	Peristaltic X	Teflon Bailer	

Analyses to be Performed:

Volatile Organics	X	VOCs 8260	SVOCs by 8270C	Sulfate 375.2	
Total Metals		RCRA 8 or Priority Pollutants	SVOCs by 8270C/SIM	RSK-175 (methane, ethane, ethene)	
Dissolved Metals			Total Organic Carbon 415.1	Other	

Sampling Notes:

15' sample
Clear, No odor.

Well Diameter	Well Volume (Gal/ft)
1 inch	0.041
2 inch	0.163
4 inch	0.653
6 inch	1.469

Or:(total depth(ft) - DTW(ft)) x Well Dia^2 x 0.0408 = 1 Well Volume

Well Sampling Data Sheet

Date	3 / 27 / 24	Site Location	Renton AOC60
Samplers	JN	Well ID	B-060-02
Casing Material	PVC	Constructed Depth	
Casing Diameter	2"	Condition of Well	ok

Field Measurements:

Time	1255	Depth Measured From:	
Depth to Water	4.25		Top of access port
			Mark on PVC casing
			Mark of protective casing
		N side of case	Other

Purging Information:

Pump:		Dedicated		Non-dedicated		Peristaltic	
Bailer:		PVC		Stainless Steel		Other:	
Purge Start Time			Purge End Time				
Approximate Volume Purged							

Water Monitoring Conditions:

Time	Vol. Purged (gal)	Temperature (°C)	Conductivity (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)
1259	0	14.60	0.305	1.90	6.67	-114	19.4
1305	0.5	14.97	0.371	0.16	6.34	-134	37.7
1309	1.0	15.13	0.379	0.08	6.46	-145	24.9
1315	1.5	15.15	0.384	0.00	6.38	-145	19.6
1320	2.0	15.16	0.385	0.00	6.42	-148	23.0

Sampling Data:

Time	1325	Sample ID	B-060-02-032724
Vol. Purged (gal)	2.5	Duplicates	
Temperature (°C)	15.14	QA/QC Volumes	
Conductivity (mS/cm)	0.388		
D.O. (mg/L)	0.00		
pH	6.41		
ORP (mV)	-145		
Turbidity (NTU)	18.0		

Sampling Device:

Peristaltic

PVC Bailer		SS Bailer		Dedicated Pump	x	Teflon Bailer	

Analyses to be Performed:

Volatile Organics	X	VOCs 8260	SVOCs by 8270C		Sulfate 375.2	
Total Metals		RCRA 8 or Priority Pollutants	SVOCs by 8270C/SIM		RSK-175 (methane, ethane, ethene)	
Dissolved Metals			Total Organic Carbon 415.1		Other	

Sampling Notes:

15' sample

Clear, no odor

Well Diameter	Well Volume (Gal/ft)
1 inch	0.041
2 inch	0.163
4 inch	0.653
6 inch	1.469

Or:(total depth(ft) - DTW(ft)) x Well Dia^2 x 0.0408 = 1 Well Volume

Well Sampling Data Sheet

Date	3/27/24	Site Location	Renton AOC 90
Samplers	JN	Well ID	B-090-02
Casing Material	PVC	Constructed Depth	
Casing Diameter	2"	Condition of Well	ok

Field Measurements:

Time	1400	Depth Measured From:	
Depth to Water	6.55		Top of access port
			Mark on PVC casing
			Mark of protective casing
		N side of case	Other

Purging Information:

Pump:		Dedicated		Non-dedicated		Peristaltic
Bailer:		PVC		Stainless Steel		Other:
Purge Start Time		Purge End Time				
Approximate Volume Purged						

Water Monitoring Conditions:

Time	Vol. Purged (gal)	Temperature (°C)	Conductivity (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)
1415	0	13.82	0.407	3.47	6.45	-104	15.4
1420	0.5	13.61	0.493	0.08	6.21	-118	15.3
1425	1.0	13.43	0.579	0.00	6.37	-136	36.3
1430	1.5	13.42	0.602	0.00	6.39	-139	37.7
1435	2.0	13.40	0.623	0.00	6.39	-137	37.3

Sampling Data:

Time	1435	Sample ID	B-090-02-032724
Vol. Purged (gal)		Duplicates	DUP01-032724 @ 0800
Temperature (°C)		QA/QC Volumes	
Conductivity (mS/cm)			
D.O. (mg/L)			
pH			
ORP (mV)			
Turbidity (NTU)			

Sampling Device:

Peristaltic

PVC Bailer		SS Bailer		Dedicated Pump	x	Teflon Bailer	

Analyses to be Performed:

Volatile Organics	X	VOCs 8260	SVOCs by 8270C		Sulfate 375.2	
Total Metals		RCRA 8 or	SVOCs by 8270C/SIM		RSK-175 (methane, ethane, ethene)	
Dissolved Metals		Priority Pollutants	Total Organic Carbon 415.1		Other	

Sampling Notes:

13' sample

Clear, no odor.

Well Diameter	Well Volume (Gal/ft)
1 inch	0.041
2 inch	0.163
4 inch	0.653
6 inch	1.469

Or:(total depth(ft) - DTW(ft)) x Well Dia^2 x 0.0408 = 1 Well Volume

Well Sampling Data Sheet

Date	3/27/24	Site Location	Renton AOC-90
Samplers	JN	Well ID	B-090-01
Casing Material	PVC	Constructed Depth	
Casing Diameter	2"	Condition of Well	ok

Field Measurements:

Time	1452	Depth Measured From:	
Depth to Water	6.81		Top of access port
			Mark on PVC casing
			Mark of protective casing
		N side of case	Other

Purging Information:

Pump:		Dedicated		Non-dedicated		Peristaltic
Bailer:		PVC		Stainless Steel		Other:
Purge Start Time		Purge End Time			
Approximate Volume Purged					

Water Monitoring Conditions:

Time	Vol. Purged (gal)	Temperature (°C)	Conductivity (mS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)
1455	0	13.86	0.617	4.58	6.30	-114	10.9
1500	0.5	14.01	0.627	0.25	6.17	-121	10.0
1505	1.0	14.05	0.628	0.00	6.19	-126	7.8
1510	1.5	14.13	0.625	0.00	6.15	-127	11.0
1515	2.0	14.17	0.625	0.00	6.30	-136	8.8

Sampling Data:

Time	1520	Sample ID	B-090-01-032724
Vol. Purged (gal)	2.5	Duplicates	
Temperature (°C)	14.20	QA/QC Volumes	
Conductivity (mS/cm)	0.624		
D.O. (mg/L)	0.00		
pH	6.26		
ORP (mV)	-135		
Turbidity (NTU)	12.6		

Sampling Device: peristaltic

PVC Bailer		SS Bailer		Dedicated Pump	X	Teflon Bailer	

Analyses to be Performed:

Volatile Organics	X	VOCs 8260	SVOCs by 8270C	Sulfate 375.2	
Total Metals		RCRA 8 or Priority Pollutants	SVOCs by 8270C/SIM	RSK-175 (methane, ethane, ethene)	
Dissolved Metals			Total Organic Carbon 415.1	Other	

Sampling Notes:

13' sample

Well Diameter	Well Volume (Gal/ft)
1 inch	0.041
2 inch	0.163
4 inch	0.653
6 inch	1.469

Or:(total depth(ft) - DTW(ft)) x Well Dia^2 x 0.0408 = 1 Well Volume

Attachment C: Laboratory Data Package

Analytical Resources, LLC
Analytical Chemists and Consultants
Tukwila, WA

04 April 2024

Tom McKeon
CALIBRE
-
-, - -

RE: Boeing Renton (Boeing Renton)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

Associated Work Order(s)	Associated SDG ID(s)
24C0645	N/A

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Kelly Bottem, Client Services Manager

Cert# 100006-012

4611 S. 134th Place, Suite 100 • Tukwila, WA 98168 • Ph: (206) 695-6200 • Fax: (206) 695-6202

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, LLC
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number: 24C0645

Turn-around Requested: Standard

Page: 1 of 1

ARI Client Company: CALIBRE

Phone: 425-241-8449

Date: 3/27/24

Ice Present? Y

Client Contact: Tom McKeon

No. of Coolers: 2

Cooler Temps: 8.2 4.1

Client Project Name: Boeing Renton

Client Project #:

Samplers: JNeste

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: VOCs 8260D									Notes/Comments
B-060-01-032724	3/27/24	1235	GW	3	X									
B-060-02-032724	↓	1325	GW	3	X									
B-090-02-032724	↓	1435	GW	3	X									
Dup01-032724	↓	0800	GW	3	X									
B-090-01-032724	↓	1520	GW	3	X									
Trip Blank				1	X									

Comments/Special Instructions	Relinquished by:	Received by:	Relinquished by:	Received by:
	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
	Printed Name: Justin Neste	Printed Name: Matthew Dax	Printed Name:	Printed Name:
	Company: CALIBRE	Company: ARI	Company:	Company:
	Date & Time: 3/27/24 1741	Date & Time: 03/27/24 1741	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B-060-01-032724	24C0645-01	Water	27-Mar-2024 12:35	27-Mar-2024 17:44
B-060-02-032724	24C0645-02	Water	27-Mar-2024 13:25	27-Mar-2024 17:44
B-090-02-032724	24C0645-03	Water	27-Mar-2024 14:35	27-Mar-2024 17:44
DUP01-032724	24C0645-04	Water	27-Mar-2024 08:00	27-Mar-2024 17:44
B-090-01-032724	24C0645-05	Water	27-Mar-2024 15:20	27-Mar-2024 17:44
TRIP BLANK	24C0645-06	Water	27-Mar-2024 12:35	27-Mar-2024 17:44

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Work Order Case Narrative

Volatiles - EPA Method SW8260D

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements with the exception of all associated "Q" flagged analytes which are out of control high in the CCAL and chloromethane, vinyl chloride and dichlorodifluoromethane are out of control low. All associated samples that contain analyte have been flagged with a "Q" qualifer.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits with the exception of analytes flagged on the associated forms.

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 3/28/2024 10:38:11AM

WORK ORDER

24C0645

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: CALIBRE

Project Manager: Kelly Bottem

Project: Boeing Renton

Project Number: Boeing Renton

Report To:
CALIBRE
Tom McKeon
-
-, - -
Phone: (360) 981-5606
Fax:

Invoice To:
CALIBRE
Tom McKeon
-
-, - -
Phone :(360) 981-5606
Fax:

Date Due: 11-Apr-2024 18:00 (10 day TAT)

Received By: Matthew Daniel

Logged In By: Vy Dang

Date Received: 27-Mar-2024 17:44

Date Logged In: 28-Mar-2024 09:43

Samples Received at:4.1°C

Intact, properly signed and dated custody seals attached to outside of coole(s).....No
Custody papers properly filled out(in, signed, analyses requested, etc).................Yes
Was sufficient ice used (if appropriate).................Yes
All bottles arrived in good condition(unbroken).................Yes
Number of containers listed on COC match number received.................Yes
Correct bottles used for the requested analyses.................Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC)..Yes
Sample split at ARI.................No

Custody papers included with the cooler................. Yes
Was a temperature blank included in the cooler................. No
All bottles sealed in individual plastic bags................. No
All bottle labels complete and legible................. Yes
Bottle labels and tags agree with COC................. Yes
All VOC vials free of air bubbles................. Yes
Sufficient amount of sample sent in each bottle................. Yes

Analysis	Due	TAT	Expires	Comments

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 3/28/2024 10:38:11AM

WORK ORDER

24C0645

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: CALIBRE
Project Manager: Kelly Bottem
Project: Boeing Renton
Project Number: Boeing Renton

Analysis	Due	TAT	Expires	Comments
24C0645-01 B-060-01-032724 [Water] Sampled 27-Mar-2024 12:35 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-02 B-060-02-032724 [Water] Sampled 27-Mar-2024 13:25 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-03 B-090-02-032724 [Water] Sampled 27-Mar-2024 14:35 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-04 DUP01-032724 [Water] Sampled 27-Mar-2024 08:00 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-05 B-090-01-032724 [Water] Sampled 27-Mar-2024 15:20 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-06 TRIP BLANK [Water] Sampled 27-Mar-2024 12:35 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	

Reviewed By ____________________ Date ____________

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Calibre

COC No(s): NA

Assigned ARI Job No: 24C0645

Project Name: Boeing Renton

Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES **NO**

Were custody papers included with the cooler? **YES** NO

Were custody papers properly filled out (ink, signed, etc.) **YES** NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1741 — 8.2 4.1*

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: J009707F

Cooler Accepted by: MD Date: 03/27/24 Time: 1741

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES **NO**

What kind of packing material was used? ... Bubble Wrap **Wet Ice** Gel Packs **Baggies** Foam Block Paper Other:

Was sufficient ice used (if appropriate)? NA * **YES** NO

How were bottles sealed in plastic bags? Individually Grouped **Not**

Did all bottles arrive in good condition (unbroken)? **YES** NO

Were all bottle labels complete and legible? **YES** NO

Did the number of containers listed on COC match with the number of containers received? **YES** NO

Did all bottle labels and tags agree with custody papers? **YES** NO

Were all bottles used correct for the requested analyses? **YES** NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... **NA** YES NO

Were all VOC vials free of air bubbles? NA **YES** NO

Was sufficient amount of sample sent in each bottle? **YES** NO

Date VOC Trip Blank was made at ARI NA 03/18

Were the sample(s) split by ARI? **NA** YES Date/Time: Equipment: Split by:

Samples Logged by: VD Date: 03/28/24 Time: Labels checked by: fr

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

~~On~~ mislabeling for one "B-090-01-032724" VOA ~~as~~ vial as "B-090-02-032724". ~~VD~~ ~~Assu~~ Correct labels on vials based off time. -VD on ~~bottles'~~ vials' labels.

By: Date:

0016F
01/17/2018

Cooler Receipt Form

Revision 014A

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 24C 0645

Cooler#: 1 Temperature(°C): 8.2°C

Sample ID	Bottle Count	Bottle Type
Samples recvd		
above 6.0°C		

Cooler#: Temperature(°C):

Sample ID	Bottle Count	Bottle Type

Cooler#: Temperature(°C):

Sample ID	Bottle Count	Bottle Type

Cooler#: Temperature(°C):

Sample ID	Bottle Count	Bottle Type

Completed by: MD Date: 03/27/24 Time: 1741

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 3/28/2024 10:38:11AM

WORK ORDER

24C0645

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: CALIBRE
Project: Boeing Renton

Project Manager: Kelly Bottem
Project Number: Boeing Renton

Report To:
CALIBRE
Tom McKeon
-
-, - -
Phone: (360) 981-5606
Fax:

Invoice To:
CALIBRE
Tom McKeon
-
-, - -
Phone :(360) 981-5606
Fax:

Date Due: 11-Apr-2024 18:00 (10 day TAT)
Received By: Matthew Daniel
Logged In By: Vy Dang

Date Received: 27-Mar-2024 17:44
Date Logged In: 28-Mar-2024 09:43

Samples Received at:4.1°C

Intact, properly signed and dated custody seals attached to outside of cooler(s).....No
Custody papers properly filled out(in, signed, analyses requested, etc).................Yes
Was sufficient ice used (if appropriate)..................Yes
All bottles arrived in good condition(unbroken)..................Yes
Number of containers listed on COC match number received..................Yes
Correct bottles used for the requested analyses..................Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC)..Yes
Sample split at ARI..................No

Custody papers included with the cooler.................. Yes
Was a temperature blank included in the cooler.................. No
All bottles sealed in individual plastic bags.................. No
All bottle labels complete and legible.................. Yes
Bottle labels and tags agree with COC.................. Yes
All VOC vials free of air bubbles.................. Yes
Sufficient amount of sample sent in each bottle.................. Yes

Analysis	Due	TAT	Expires	Comments

Analytical Resources, LLC
Analytical Chemists and Consultants

Printed: 3/28/2024 10:38:11AM

WORK ORDER

24C0645

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: CALIBRE
Project Manager: Kelly Bottem
Project: Boeing Renton
Project Number: Boeing Renton

Analysis	Due	TAT	Expires	Comments
24C0645-01 B-060-01-032724 [Water] Sampled 27-Mar-2024 12:35 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-02 B-060-02-032724 [Water] Sampled 27-Mar-2024 13:25 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-03 B-090-02-032724 [Water] Sampled 27-Mar-2024 14:35 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-04 DUP01-032724 [Water] Sampled 27-Mar-2024 08:00 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-05 B-090-01-032724 [Water] Sampled 27-Mar-2024 15:20 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL B = VOA Vial, Clear, 40 mL, HCL C = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	
24C0645-06 TRIP BLANK [Water] Sampled 27-Mar-2024 12:35 (GMT-08:00) Pacific Time (US & Canada)				
A = VOA Vial, Clear, 40 mL, HCL				
8260D VOA	11-Apr-2024 15:00	10	10-Apr-2024 23:59	

Reviewed By

Date

Analytical Resources, LLC
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Calibre

Project Name: Boeing Renton

COC No(s): NA

Delivered by: Fed-Ex UPS Courier Hand Delivered Other:

Assigned ARI Job No: 24C0645

Tracking No: NA

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? YES NO

Were custody papers properly filled out (ink, signed, etc.) YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1741 8.2 4.1*

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 3009706

Cooler Accepted by: MD Date: 03/27/24 Time: 1741

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler? YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other:

Was sufficient ice used (if appropriate)? NA * YES NO

How were bottles sealed in plastic bags? Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? YES NO

Were all bottle labels complete and legible? YES NO

Did the number of containers listed on COC match with the number of containers received? YES NO

Did all bottle labels and tags agree with custody papers? YES NO

Were all bottles used correct for the requested analyses? YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO

Were all VOC vials free of air bubbles? NA YES NO

Was sufficient amount of sample sent in each bottle? YES NO

Date VOC Trip Blank was made at ARI NA 03/18

Were the sample(s) split by ARI? NA YES Date/Time: Equipment: Split by:

Samples Logged by: VD Date: 03/28/24 Time: 9.43 Labels checked by: h

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

~~On~~ mislabeling for one "B-090-01-032724" VOA ~~as~~ vial as "B-090-02-032724". ~~VD~~ ~~Assu~~ Correct labels on vials based off time. -VD on vials' ~~bottles'~~ labels.

By: Date:

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Temperature Compliance Form

ARI Work Order: 24C 0645

Cooler#: 1 Temperature(°C): 8.2°C

Sample ID	Bottle Count	Bottle Type
Samples received		
above 6.0°C		

Cooler#: Temperature(°C):

Sample ID	Bottle Count	Bottle Type

Cooler#: Temperature(°C):

Sample ID	Bottle Count	Bottle Type

Cooler#: Temperature(°C):

Sample ID	Bottle Count	Bottle Type

Completed by: MD Date: 03/21/24 Time: 1741

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-060-01-032724
24C0645-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 12:35
Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 14:49

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24C0645-01 A
Preparation Batch: BMD0082 — Sample Size: 10 mL
Prepared: 04/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.27	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.08	0.20	0.09	ug/L	J
Bromomethane	74-83-9	1	0.23	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.05	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.13	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.70	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.11	0.20	ND	ug/L	U
Acetone	67-64-1	1	1.91	5.00	1.92	ug/L	J
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.15	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.53	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.40	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.06	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.12	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.04	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	1.77	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.11	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.11	ug/L	J
Chloroform	67-66-3	1	0.05	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.09	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.08	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.09	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.09	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.07	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.09	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.06	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.55	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	1.90	5.00	ND	ug/L	U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-060-01-032724

24C0645-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 12:35

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 14:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
cis-1,3-Dichloropropene	10061-01-5	1	0.09	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.09	0.20	ND	ug/L	U
2-Hexanone	591-78-6	1	2.06	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.10	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.09	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.09	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.06	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.09	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.09	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.15	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.03	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.16	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.60	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.07	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.07	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.07	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.06	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.06	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.07	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.07	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.05	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.06	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.08	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.08	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.10	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.18	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.08	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.39	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.21	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	1.00	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.27	0.50	ND	ug/L	U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-060-01-032724

24C0645-01 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 12:35

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 14:49

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
1,2,3-Trichlorobenzene	87-61-6	1	0.25	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.13	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U
2-Pentanone	107-87-9	1	2.34	5.00	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*103*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.4*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*106*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*103*	*%*	

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-060-02-032724

24C0645-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 13:25

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 15:11

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24C0645-02 A
Preparation Batch: BMD0082 — Sample Size: 10 mL
Prepared: 04/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.27	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.08	0.20	0.29	ug/L	
Bromomethane	74-83-9	1	0.23	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.05	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.13	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.70	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.11	0.20	ND	ug/L	U
Acetone	67-64-1	1	1.91	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.15	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.53	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.40	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.06	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.12	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.04	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	1.77	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.11	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.15	ug/L	J
Chloroform	67-66-3	1	0.05	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.09	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.08	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.09	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.09	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.07	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.09	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.06	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.55	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	1.90	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.09	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.09	0.20	ND	ug/L	U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	Reported:
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-060-02-032724

24C0645-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 13:25

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 15:11

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	2.06	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.10	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.09	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.09	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.06	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.09	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.09	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.15	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.03	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.16	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.60	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.07	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.07	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.07	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.06	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.06	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.07	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.07	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.05	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.06	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.08	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.08	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.10	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.18	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.08	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.39	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.21	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	1.00	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.27	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.25	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.13	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-060-02-032724

24C0645-02 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 13:25

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 15:11

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	2.34	5.00	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*112*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*96.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*109*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*102*	*%*	

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-090-02-032724

24C0645-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 14:35

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 15:33

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24C0645-03 A

Preparation Batch: BMD0082 — Sample Size: 10 mL

Prepared: 04/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.27	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.08	0.20	0.18	ug/L	J
Bromomethane	74-83-9	1	0.23	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.05	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.13	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.70	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.11	0.20	ND	ug/L	U
Acetone	67-64-1	1	1.91	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.15	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.53	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.40	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.06	0.20	0.11	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.12	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.04	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	1.77	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.11	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.09	ug/L	J
Chloroform	67-66-3	1	0.05	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.09	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.08	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.09	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.09	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.07	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.09	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.06	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.55	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	1.90	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.09	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.09	0.20	ND	ug/L	U

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-090-02-032724

24C0645-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 14:35

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 15:33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	2.06	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.10	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.09	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.09	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.06	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.09	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.09	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.15	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.03	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.16	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.60	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.07	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.07	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.07	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.06	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.06	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.07	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.07	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.05	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.06	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.08	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.08	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.10	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.18	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.08	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.39	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.21	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	1.00	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.27	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.25	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.13	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	Reported:
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-090-02-032724

24C0645-03 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 14:35

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 15:33

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	2.34	5.00	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*101*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*99.9*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*100*	*%*	

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

DUP01-032724
24C0645-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 08:00

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 15:55

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24C0645-04 A

Preparation Batch: BMD0082 — Sample Size: 10 mL

Prepared: 04/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.27	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.08	0.20	0.17	ug/L	J
Bromomethane	74-83-9	1	0.23	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.05	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.13	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.70	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.11	0.20	ND	ug/L	U
Acetone	67-64-1	1	1.91	5.00	6.61	ug/L	
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.15	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.53	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.40	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.06	0.20	0.10	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.12	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.04	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	1.77	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.11	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	0.09	ug/L	J
Chloroform	67-66-3	1	0.05	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.09	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.08	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.09	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.09	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.07	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.09	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.06	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.55	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	1.90	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.09	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.09	0.20	ND	ug/L	U

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

DUP01-032724

24C0645-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 08:00

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 15:55

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	2.06	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.10	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.09	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.09	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.06	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.09	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.09	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.15	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.03	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.16	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.60	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.07	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.07	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.07	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.06	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.06	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.07	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.07	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.05	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.06	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.08	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.08	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.10	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.18	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.08	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.39	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.21	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	1.00	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.27	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.25	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.13	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U

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Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

DUP01-032724

24C0645-04 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 08:00

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 15:55

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	2.34	5.00	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*113*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.9*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*107*	*%*	

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-090-01-032724

24C0645-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 15:20

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 16:17

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24C0645-05 A

Preparation Batch: BMD0082 — Sample Size: 10 mL

Prepared: 04/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.27	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.23	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.05	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.13	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.70	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.11	0.20	ND	ug/L	U
Acetone	67-64-1	1	1.91	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.15	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.53	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.40	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.06	0.20	0.08	ug/L	J
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.12	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.04	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	1.77	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.11	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.05	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.09	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.08	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.09	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.09	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.07	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.09	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.06	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.55	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	1.90	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.09	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.09	0.20	ND	ug/L	U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-090-01-032724

24C0645-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 15:20

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 16:17

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	2.06	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.10	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.09	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.09	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.06	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.09	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.09	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.15	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.03	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.16	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.60	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.07	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.07	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.07	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.06	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.06	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.07	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.07	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.05	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.06	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.08	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.08	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.10	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.18	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.08	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.39	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.21	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	1.00	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.27	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.25	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.13	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

B-090-01-032724

24C0645-05 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 15:20

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 16:17

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	2.34	5.00	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*115*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*95.2*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*103*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*105*	*%*	

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

TRIP BLANK

24C0645-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 12:35

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 10:43

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 24C0645-06 A

Preparation Batch: BMD0082 — Sample Size: 10 mL

Prepared: 04/03/2024 — Final Volume: 10 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Chloromethane	74-87-3	1	0.27	0.50	ND	ug/L	U
Vinyl Chloride	75-01-4	1	0.08	0.20	ND	ug/L	U
Bromomethane	74-83-9	1	0.23	1.00	ND	ug/L	U
Chloroethane	75-00-3	1	0.05	0.20	ND	ug/L	U
Trichlorofluoromethane	75-69-4	1	0.13	0.20	ND	ug/L	U
Acrolein	107-02-8	1	2.70	5.00	ND	ug/L	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	1	0.11	0.20	ND	ug/L	U
Acetone	67-64-1	1	1.91	5.00	ND	ug/L	U
1,1-Dichloroethene	75-35-4	1	0.08	0.20	ND	ug/L	U
Iodomethane	74-88-4	1	0.15	1.00	ND	ug/L	U
Methylene Chloride	75-09-2	1	0.53	1.00	ND	ug/L	U
Acrylonitrile	107-13-1	1	0.40	1.00	ND	ug/L	U
Carbon Disulfide	75-15-0	1	0.06	0.20	ND	ug/L	U
trans-1,2-Dichloroethene	156-60-5	1	0.07	0.20	ND	ug/L	U
Vinyl Acetate	108-05-4	1	0.12	0.20	ND	ug/L	U
1,1-Dichloroethane	75-34-3	1	0.04	0.20	ND	ug/L	U
2-Butanone	78-93-3	1	1.77	5.00	ND	ug/L	U
2,2-Dichloropropane	594-20-7	1	0.11	0.20	ND	ug/L	U
cis-1,2-Dichloroethene	156-59-2	1	0.08	0.20	ND	ug/L	U
Chloroform	67-66-3	1	0.05	0.20	ND	ug/L	U
Bromochloromethane	74-97-5	1	0.09	0.20	ND	ug/L	U
1,1,1-Trichloroethane	71-55-6	1	0.08	0.20	ND	ug/L	U
1,1-Dichloropropene	563-58-6	1	0.09	0.20	ND	ug/L	U
Carbon tetrachloride	56-23-5	1	0.09	0.20	ND	ug/L	U
1,2-Dichloroethane	107-06-2	1	0.08	0.20	ND	ug/L	U
Benzene	71-43-2	1	0.05	0.20	ND	ug/L	U
Trichloroethene	79-01-6	1	0.07	0.20	ND	ug/L	U
1,2-Dichloropropane	78-87-5	1	0.07	0.20	ND	ug/L	U
Bromodichloromethane	75-27-4	1	0.09	0.20	ND	ug/L	U
Dibromomethane	74-95-3	1	0.06	0.20	ND	ug/L	U
2-Chloroethyl vinyl ether	110-75-8	1	0.55	1.00	ND	ug/L	U
4-Methyl-2-Pentanone	108-10-1	1	1.90	5.00	ND	ug/L	U
cis-1,3-Dichloropropene	10061-01-5	1	0.09	0.20	ND	ug/L	U
Toluene	108-88-3	1	0.05	0.20	ND	ug/L	U
trans-1,3-Dichloropropene	10061-02-6	1	0.09	0.20	ND	ug/L	U

Analytical Resources, LLC
Analytical Chemists and Consultants

Analytical Report

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

TRIP BLANK
24C0645-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 12:35
Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 10:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Hexanone	591-78-6	1	2.06	5.00	ND	ug/L	U
1,1,2-Trichloroethane	79-00-5	1	0.10	0.20	ND	ug/L	U
1,3-Dichloropropane	142-28-9	1	0.07	0.20	ND	ug/L	U
Tetrachloroethene	127-18-4	1	0.09	0.20	ND	ug/L	U
Dibromochloromethane	124-48-1	1	0.09	0.20	ND	ug/L	U
1,2-Dibromoethane	106-93-4	1	0.09	0.20	ND	ug/L	U
Chlorobenzene	108-90-7	1	0.06	0.20	ND	ug/L	U
Ethylbenzene	100-41-4	1	0.05	0.20	ND	ug/L	U
1,1,1,2-Tetrachloroethane	630-20-6	1	0.09	0.20	ND	ug/L	U
m,p-Xylene	179601-23-1	1	0.14	0.40	ND	ug/L	U
o-Xylene	95-47-6	1	0.08	0.20	ND	ug/L	U
Xylenes, total	1330-20-7	1	0.22	0.60	ND	ug/L	U
Styrene	100-42-5	1	0.09	0.20	ND	ug/L	U
Bromoform	75-25-2	1	0.15	0.20	ND	ug/L	U
1,1,2,2-Tetrachloroethane	79-34-5	1	0.03	0.20	ND	ug/L	U
1,2,3-Trichloropropane	96-18-4	1	0.16	0.50	ND	ug/L	U
trans-1,4-Dichloro 2-Butene	110-57-6	1	0.60	1.00	ND	ug/L	U
n-Propylbenzene	103-65-1	1	0.07	0.20	ND	ug/L	U
Bromobenzene	108-86-1	1	0.07	0.20	ND	ug/L	U
Isopropyl Benzene	98-82-8	1	0.07	0.20	ND	ug/L	U
2-Chlorotoluene	95-49-8	1	0.06	0.20	ND	ug/L	U
4-Chlorotoluene	106-43-4	1	0.06	0.20	ND	ug/L	U
t-Butylbenzene	98-06-6	1	0.07	0.20	ND	ug/L	U
1,3,5-Trimethylbenzene	108-67-8	1	0.07	0.20	ND	ug/L	U
1,2,4-Trimethylbenzene	95-63-6	1	0.05	0.20	ND	ug/L	U
s-Butylbenzene	135-98-8	1	0.06	0.20	ND	ug/L	U
4-Isopropyl Toluene	99-87-6	1	0.08	0.20	ND	ug/L	U
1,3-Dichlorobenzene	541-73-1	1	0.08	0.20	ND	ug/L	U
1,4-Dichlorobenzene	106-46-7	1	0.10	0.20	ND	ug/L	U
n-Butylbenzene	104-51-8	1	0.18	0.20	ND	ug/L	U
1,2-Dichlorobenzene	95-50-1	1	0.08	0.20	ND	ug/L	U
1,2-Dibromo-3-chloropropane	96-12-8	1	0.39	0.50	ND	ug/L	U
1,2,4-Trichlorobenzene	120-82-1	1	0.21	0.50	ND	ug/L	U
Hexachloro-1,3-Butadiene	87-68-3	1	1.00	2.00	ND	ug/L	U
Naphthalene	91-20-3	1	0.27	0.50	ND	ug/L	U
1,2,3-Trichlorobenzene	87-61-6	1	0.25	0.50	ND	ug/L	U
Dichlorodifluoromethane	75-71-8	1	0.13	0.20	ND	ug/L	U
Methyl tert-butyl Ether	1634-04-4	1	0.14	0.50	ND	ug/L	U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

TRIP BLANK

24C0645-06 (Water)

Volatile Organic Compounds

Method: EPA 8260D — Sampled: 03/27/2024 12:35

Instrument: NT3 Analyst: LH — Analyzed: 04/03/2024 10:43

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
2-Pentanone	107-87-9	1	2.34	5.00	ND	ug/L	U
Surrogate: 1,2-Dichloroethane-d4				*80-129 %*	*106*	*%*	
Surrogate: Toluene-d8				*80-120 %*	*99.0*	*%*	
Surrogate: 4-Bromofluorobenzene				*80-120 %*	*104*	*%*	
Surrogate: 1,2-Dichlorobenzene-d4				*80-120 %*	*104*	*%*	

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0082 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMD0082-BLK1)					Prepared: 03-Apr-2024 Analyzed: 03-Apr-2024 09:14						
Chloromethane	ND	0.27	0.50	ug/L							U
Vinyl Chloride	ND	0.08	0.20	ug/L							U
Bromomethane	ND	0.23	1.00	ug/L							U
Chloroethane	ND	0.05	0.20	ug/L							U
Trichlorofluoromethane	ND	0.13	0.20	ug/L							U
Acrolein	ND	2.70	5.00	ug/L							U
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.11	0.20	ug/L							U
Acetone	ND	1.91	5.00	ug/L							U
1,1-Dichloroethene	ND	0.08	0.20	ug/L							U
Iodomethane	ND	0.15	1.00	ug/L							U
Methylene Chloride	ND	0.53	1.00	ug/L							U
Acrylonitrile	ND	0.40	1.00	ug/L							U
Carbon Disulfide	ND	0.06	0.20	ug/L							U
trans-1,2-Dichloroethene	ND	0.07	0.20	ug/L							U
Vinyl Acetate	ND	0.12	0.20	ug/L							U
1,1-Dichloroethane	ND	0.04	0.20	ug/L							U
2-Butanone	ND	1.77	5.00	ug/L							U
2,2-Dichloropropane	ND	0.11	0.20	ug/L							U
cis-1,2-Dichloroethene	ND	0.08	0.20	ug/L							U
Chloroform	ND	0.05	0.20	ug/L							U
Bromochloromethane	ND	0.09	0.20	ug/L							U
1,1,1-Trichloroethane	ND	0.08	0.20	ug/L							U
1,1-Dichloropropene	ND	0.09	0.20	ug/L							U
Carbon tetrachloride	ND	0.09	0.20	ug/L							U
1,2-Dichloroethane	ND	0.08	0.20	ug/L							U
Benzene	ND	0.05	0.20	ug/L							U
Trichloroethene	ND	0.07	0.20	ug/L							U
1,2-Dichloropropane	ND	0.07	0.20	ug/L							U
Bromodichloromethane	ND	0.09	0.20	ug/L							U
Dibromomethane	ND	0.06	0.20	ug/L							U
2-Chloroethyl vinyl ether	ND	0.55	1.00	ug/L							U
4-Methyl-2-Pentanone	ND	1.90	5.00	ug/L							U
cis-1,3-Dichloropropene	ND	0.09	0.20	ug/L							U
Toluene	ND	0.05	0.20	ug/L							U
trans-1,3-Dichloropropene	ND	0.09	0.20	ug/L							U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0082 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMD0082-BLK1)					Prepared: 03-Apr-2024	Analyzed: 03-Apr-2024 09:14					
2-Hexanone	ND	2.06	5.00	ug/L							U
1,1,2-Trichloroethane	ND	0.10	0.20	ug/L							U
1,3-Dichloropropane	ND	0.07	0.20	ug/L							U
Tetrachloroethene	ND	0.09	0.20	ug/L							U
Dibromochloromethane	ND	0.09	0.20	ug/L							U
1,2-Dibromoethane	ND	0.09	0.20	ug/L							U
Chlorobenzene	ND	0.06	0.20	ug/L							U
Ethylbenzene	ND	0.05	0.20	ug/L							U
1,1,1,2-Tetrachloroethane	ND	0.09	0.20	ug/L							U
m,p-Xylene	ND	0.14	0.40	ug/L							U
o-Xylene	ND	0.08	0.20	ug/L							U
Xylenes, total	ND	0.22	0.60	ug/L							U
Styrene	ND	0.09	0.20	ug/L							U
Bromoform	ND	0.15	0.20	ug/L							U
1,1,2,2-Tetrachloroethane	ND	0.03	0.20	ug/L							U
1,2,3-Trichloropropane	ND	0.16	0.50	ug/L							U
trans-1,4-Dichloro 2-Butene	ND	0.60	1.00	ug/L							U
n-Propylbenzene	ND	0.07	0.20	ug/L							U
Bromobenzene	ND	0.07	0.20	ug/L							U
Isopropyl Benzene	ND	0.07	0.20	ug/L							U
2-Chlorotoluene	ND	0.06	0.20	ug/L							U
4-Chlorotoluene	ND	0.06	0.20	ug/L							U
t-Butylbenzene	ND	0.07	0.20	ug/L							U
1,3,5-Trimethylbenzene	ND	0.07	0.20	ug/L							U
1,2,4-Trimethylbenzene	ND	0.05	0.20	ug/L							U
s-Butylbenzene	ND	0.06	0.20	ug/L							U
4-Isopropyl Toluene	ND	0.08	0.20	ug/L							U
1,3-Dichlorobenzene	ND	0.08	0.20	ug/L							U
1,4-Dichlorobenzene	ND	0.10	0.20	ug/L							U
n-Butylbenzene	ND	0.18	0.20	ug/L							U
1,2-Dichlorobenzene	ND	0.08	0.20	ug/L							U
1,2-Dibromo-3-chloropropane	ND	0.39	0.50	ug/L							U
1,2,4-Trichlorobenzene	ND	0.21	0.50	ug/L							U
Hexachloro-1,3-Butadiene	ND	1.00	2.00	ug/L							U
Naphthalene	ND	0.27	0.50	ug/L							U

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0082 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Blank (BMD0082-BLK1)					Prepared: 03-Apr-2024	Analyzed: 03-Apr-2024 09:14					
1,2,3-Trichlorobenzene	ND	0.25	0.50	ug/L							U
Dichlorodifluoromethane	ND	0.13	0.20	ug/L							U
Methyl tert-butyl Ether	ND	0.14	0.50	ug/L							U
2-Pentanone	ND	2.34	5.00	ug/L							U
Surrogate: 1,2-Dichloroethane-d4	4.99			ug/L	*5.00*		*99.8*	*80-129*			
Surrogate: Toluene-d8	4.87			ug/L	*5.00*		*97.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	4.97			ug/L	*5.00*		*99.3*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.11			ug/L	*5.00*		*102*	*80-120*			

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0082 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMD0082-BS1)					Prepared: 03-Apr-2024	Analyzed: 03-Apr-2024 07:46					
Chloromethane	7.74	0.27	0.50	ug/L	10.0		77.4	60-138			Q
Vinyl Chloride	7.88	0.08	0.20	ug/L	10.0		78.8	66-133			Q
Bromomethane	8.52	0.23	1.00	ug/L	10.0		85.2	72-131			
Chloroethane	8.20	0.05	0.20	ug/L	10.0		82.0	60-155			
Trichlorofluoromethane	8.34	0.13	0.20	ug/L	10.0		83.4	62-141			
Acrolein	43.1	2.70	5.00	ug/L	50.0		86.2	52-190			
1,1,2-Trichloro-1,2,2-Trifluoroethane	8.81	0.11	0.20	ug/L	10.0		88.1	76-129			
Acetone	46.1	1.91	5.00	ug/L	50.0		92.1	58-142			
1,1-Dichloroethene	8.45	0.08	0.20	ug/L	10.0		84.5	69-135			
Iodomethane	9.06	0.15	1.00	ug/L	10.0		90.6	56-147			
Methylene Chloride	8.37	0.53	1.00	ug/L	10.0		83.7	65-135			
Acrylonitrile	8.97	0.40	1.00	ug/L	10.0		89.7	64-134			
Carbon Disulfide	8.06	0.06	0.20	ug/L	10.0		80.6	78-125			
trans-1,2-Dichloroethene	8.79	0.07	0.20	ug/L	10.0		87.9	78-128			
Vinyl Acetate	9.50	0.12	0.20	ug/L	10.0		95.0	55-138			
1,1-Dichloroethane	8.81	0.04	0.20	ug/L	10.0		88.1	76-124			
2-Butanone	47.0	1.77	5.00	ug/L	50.0		94.1	61-140			
2,2-Dichloropropane	9.17	0.11	0.20	ug/L	10.0		91.7	66-147			
cis-1,2-Dichloroethene	8.44	0.08	0.20	ug/L	10.0		84.4	80-121			
Chloroform	9.33	0.05	0.20	ug/L	10.0		93.3	80-122			
Bromochloromethane	8.94	0.09	0.20	ug/L	10.0		89.4	80-121			
1,1,1-Trichloroethane	9.87	0.08	0.20	ug/L	10.0		98.7	79-123			
1,1-Dichloropropene	9.28	0.09	0.20	ug/L	10.0		92.8	80-127			
Carbon tetrachloride	9.08	0.09	0.20	ug/L	10.0		90.8	53-137			
1,2-Dichloroethane	10.3	0.08	0.20	ug/L	10.0		103	75-123			
Benzene	9.08	0.05	0.20	ug/L	10.0		90.8	80-120			
Trichloroethene	9.35	0.07	0.20	ug/L	10.0		93.5	80-120			
1,2-Dichloropropane	9.16	0.07	0.20	ug/L	10.0		91.6	80-120			
Bromodichloromethane	9.76	0.09	0.20	ug/L	10.0		97.6	80-121			
Dibromomethane	9.38	0.06	0.20	ug/L	10.0		93.8	80-120			
2-Chloroethyl vinyl ether	9.87	0.55	1.00	ug/L	10.0		98.7	64-120			
4-Methyl-2-Pentanone	49.1	1.90	5.00	ug/L	50.0		98.3	67-133			
cis-1,3-Dichloropropene	9.37	0.09	0.20	ug/L	10.0		93.7	80-124			
Toluene	9.42	0.05	0.20	ug/L	10.0		94.2	80-120			
trans-1,3-Dichloropropene	9.90	0.09	0.20	ug/L	10.0		99.0	71-127			

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	Reported:
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0082 - EPA 8260D

Instrument: NT3   Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMD0082-BS1)					Prepared: 03-Apr-2024		Analyzed: 03-Apr-2024 07:46				
2-Hexanone	52.4	2.06	5.00	ug/L	50.0		105	69-133			
1,1,2-Trichloroethane	9.56	0.10	0.20	ug/L	10.0		95.6	80-121			
1,3-Dichloropropane	9.45	0.07	0.20	ug/L	10.0		94.5	80-120			
Tetrachloroethene	9.87	0.09	0.20	ug/L	10.0		98.7	80-120			
Dibromochloromethane	10.4	0.09	0.20	ug/L	10.0		104	65-135			
1,2-Dibromoethane	9.61	0.09	0.20	ug/L	10.0		96.1	80-121			
Chlorobenzene	9.93	0.06	0.20	ug/L	10.0		99.3	80-120			
Ethylbenzene	9.99	0.05	0.20	ug/L	10.0		99.9	80-120			
1,1,1,2-Tetrachloroethane	9.79	0.09	0.20	ug/L	10.0		97.9	80-120			
m,p-Xylene	19.9	0.14	0.40	ug/L	20.0		99.4	80-121			
o-Xylene	10.3	0.08	0.20	ug/L	10.0		103	80-121			
Xylenes, total	30.1	0.22	0.60	ug/L	30.0		100	76-127			
Styrene	10.4	0.09	0.20	ug/L	10.0		104	80-124			
Bromoform	9.86	0.15	0.20	ug/L	10.0		98.6	51-134			
1,1,2,2-Tetrachloroethane	8.77	0.03	0.20	ug/L	10.0		87.7	77-123			
1,2,3-Trichloropropane	9.70	0.16	0.50	ug/L	10.0		97.0	76-125			
trans-1,4-Dichloro 2-Butene	8.60	0.60	1.00	ug/L	10.0		86.0	55-129			
n-Propylbenzene	10.4	0.07	0.20	ug/L	10.0		104	78-130			
Bromobenzene	9.79	0.07	0.20	ug/L	10.0		97.9	80-120			
Isopropyl Benzene	10.0	0.07	0.20	ug/L	10.0		100	80-128			
2-Chlorotoluene	10.1	0.06	0.20	ug/L	10.0		101	78-122			
4-Chlorotoluene	9.99	0.06	0.20	ug/L	10.0		99.9	80-121			
t-Butylbenzene	10.8	0.07	0.20	ug/L	10.0		108	78-125			
1,3,5-Trimethylbenzene	10.4	0.07	0.20	ug/L	10.0		104	80-129			
1,2,4-Trimethylbenzene	10.6	0.05	0.20	ug/L	10.0		106	80-127			
s-Butylbenzene	10.7	0.06	0.20	ug/L	10.0		107	78-129			
4-Isopropyl Toluene	10.8	0.08	0.20	ug/L	10.0		108	79-130			
1,3-Dichlorobenzene	10.4	0.08	0.20	ug/L	10.0		104	80-120			
1,4-Dichlorobenzene	10.2	0.10	0.20	ug/L	10.0		102	80-120			
n-Butylbenzene	11.0	0.18	0.20	ug/L	10.0		110	74-129			
1,2-Dichlorobenzene	10.5	0.08	0.20	ug/L	10.0		105	80-120			
1,2-Dibromo-3-chloropropane	10.5	0.39	0.50	ug/L	10.0		105	62-123			
1,2,4-Trichlorobenzene	13.3	0.21	0.50	ug/L	10.0		133	64-124			*, Q
Hexachloro-1,3-Butadiene	14.6	1.00	2.00	ug/L	10.0		146	65-145			*, Q
Naphthalene	12.7	0.27	0.50	ug/L	10.0		127	50-134			Q

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	Reported:
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0082 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS (BMD0082-BS1)					Prepared: 03-Apr-2024 Analyzed: 03-Apr-2024 07:46						
1,2,3-Trichlorobenzene	13.6	0.25	0.50	ug/L	10.0		136	49-133			*, Q
Dichlorodifluoromethane	7.47	0.13	0.20	ug/L	10.0		74.7	48-147			Q
Methyl tert-butyl Ether	9.38	0.14	0.50	ug/L	10.0		93.8	71-132			
2-Pentanone	45.2	2.34	5.00	ug/L	50.0		90.5	69-134			
Surrogate: 1,2-Dichloroethane-d4	4.79			ug/L	*5.00*		*95.8*	*80-129*			
Surrogate: Toluene-d8	4.82			ug/L	*5.00*		*96.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.11			ug/L	*5.00*		*102*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.06			ug/L	*5.00*		*101*	*80-120*			

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0082 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMD0082-BSD1)					Prepared: 03-Apr-2024 Analyzed: 03-Apr-2024 08:30						
Chloromethane	7.47	0.27	0.50	ug/L	10.0		74.7	60-138	3.55	30	Q
Vinyl Chloride	7.94	0.08	0.20	ug/L	10.0		79.4	66-133	0.80	30	Q
Bromomethane	8.15	0.23	1.00	ug/L	10.0		81.5	72-131	4.37	30	
Chloroethane	8.22	0.05	0.20	ug/L	10.0		82.2	60-155	0.33	30	
Trichlorofluoromethane	8.10	0.13	0.20	ug/L	10.0		81.0	62-141	2.89	30	
Acrolein	44.5	2.70	5.00	ug/L	50.0		89.1	52-190	3.30	30	
1,1,2-Trichloro-1,2,2-Trifluoroethane	8.28	0.11	0.20	ug/L	10.0		82.8	76-129	6.24	30	
Acetone	46.1	1.91	5.00	ug/L	50.0		92.2	58-142	0.09	30	
1,1-Dichloroethene	8.25	0.08	0.20	ug/L	10.0		82.5	69-135	2.37	30	
Iodomethane	9.13	0.15	1.00	ug/L	10.0		91.3	56-147	0.79	30	
Methylene Chloride	8.75	0.53	1.00	ug/L	10.0		87.5	65-135	4.45	30	
Acrylonitrile	8.65	0.40	1.00	ug/L	10.0		86.5	64-134	3.63	30	
Carbon Disulfide	7.83	0.06	0.20	ug/L	10.0		78.3	78-125	2.86	30	
trans-1,2-Dichloroethene	8.64	0.07	0.20	ug/L	10.0		86.4	78-128	1.61	30	
Vinyl Acetate	9.47	0.12	0.20	ug/L	10.0		94.7	55-138	0.35	30	
1,1-Dichloroethane	8.92	0.04	0.20	ug/L	10.0		89.2	76-124	1.26	30	
2-Butanone	47.7	1.77	5.00	ug/L	50.0		95.5	61-140	1.47	30	
2,2-Dichloropropane	9.20	0.11	0.20	ug/L	10.0		92.0	66-147	0.34	30	
cis-1,2-Dichloroethene	8.45	0.08	0.20	ug/L	10.0		84.5	80-121	0.05	30	
Chloroform	9.12	0.05	0.20	ug/L	10.0		91.2	80-122	2.31	30	
Bromochloromethane	8.96	0.09	0.20	ug/L	10.0		89.6	80-121	0.24	30	
1,1,1-Trichloroethane	9.64	0.08	0.20	ug/L	10.0		96.4	79-123	2.39	30	
1,1-Dichloropropene	9.25	0.09	0.20	ug/L	10.0		92.5	80-127	0.26	30	
Carbon tetrachloride	9.71	0.09	0.20	ug/L	10.0		97.1	53-137	6.68	30	
1,2-Dichloroethane	10.5	0.08	0.20	ug/L	10.0		105	75-123	1.82	30	
Benzene	9.22	0.05	0.20	ug/L	10.0		92.2	80-120	1.56	30	
Trichloroethene	9.41	0.07	0.20	ug/L	10.0		94.1	80-120	0.66	30	
1,2-Dichloropropane	9.14	0.07	0.20	ug/L	10.0		91.4	80-120	0.24	30	
Bromodichloromethane	10.0	0.09	0.20	ug/L	10.0		100	80-121	2.65	30	
Dibromomethane	9.59	0.06	0.20	ug/L	10.0		95.9	80-120	2.20	30	
2-Chloroethyl vinyl ether	9.94	0.55	1.00	ug/L	10.0		99.4	64-120	0.74	30	
4-Methyl-2-Pentanone	50.2	1.90	5.00	ug/L	50.0		100	67-133	2.13	30	
cis-1,3-Dichloropropene	9.43	0.09	0.20	ug/L	10.0		94.3	80-124	0.56	30	
Toluene	9.42	0.05	0.20	ug/L	10.0		94.2	80-120	0.01	30	
trans-1,3-Dichloropropene	9.83	0.09	0.20	ug/L	10.0		98.3	71-127	0.71	30	

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	Reported:
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0082 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMD0082-BSD1)					Prepared: 03-Apr-2024 Analyzed: 03-Apr-2024 08:30						
2-Hexanone	52.2	2.06	5.00	ug/L	50.0		104	69-133	0.33	30	
1,1,2-Trichloroethane	9.70	0.10	0.20	ug/L	10.0		97.0	80-121	1.37	30	
1,3-Dichloropropane	9.68	0.07	0.20	ug/L	10.0		96.8	80-120	2.35	30	
Tetrachloroethene	9.90	0.09	0.20	ug/L	10.0		99.0	80-120	0.29	30	
Dibromochloromethane	10.4	0.09	0.20	ug/L	10.0		104	65-135	0.32	30	
1,2-Dibromoethane	9.61	0.09	0.20	ug/L	10.0		96.1	80-121	0.06	30	
Chlorobenzene	10.3	0.06	0.20	ug/L	10.0		103	80-120	3.43	30	
Ethylbenzene	9.95	0.05	0.20	ug/L	10.0		99.5	80-120	0.39	30	
1,1,1,2-Tetrachloroethane	9.59	0.09	0.20	ug/L	10.0		95.9	80-120	2.06	30	
m,p-Xylene	20.4	0.14	0.40	ug/L	20.0		102	80-121	2.50	30	
o-Xylene	10.4	0.08	0.20	ug/L	10.0		104	80-121	0.99	30	
Xylenes, total	30.7	0.22	0.60	ug/L	30.0		102	76-127	1.99	30	
Styrene	10.3	0.09	0.20	ug/L	10.0		103	80-124	0.43	30	
Bromoform	9.98	0.15	0.20	ug/L	10.0		99.8	51-134	1.27	30	
1,1,2,2-Tetrachloroethane	9.32	0.03	0.20	ug/L	10.0		93.2	77-123	6.16	30	
1,2,3-Trichloropropane	10.2	0.16	0.50	ug/L	10.0		102	76-125	5.10	30	
trans-1,4-Dichloro 2-Butene	8.43	0.60	1.00	ug/L	10.0		84.3	55-129	2.07	30	
n-Propylbenzene	10.5	0.07	0.20	ug/L	10.0		105	78-130	0.40	30	
Bromobenzene	10.1	0.07	0.20	ug/L	10.0		101	80-120	2.68	30	
Isopropyl Benzene	10.1	0.07	0.20	ug/L	10.0		101	80-128	1.03	30	
2-Chlorotoluene	10.4	0.06	0.20	ug/L	10.0		104	78-122	3.09	30	
4-Chlorotoluene	10.3	0.06	0.20	ug/L	10.0		103	80-121	2.72	30	
t-Butylbenzene	10.8	0.07	0.20	ug/L	10.0		108	78-125	0.21	30	
1,3,5-Trimethylbenzene	10.7	0.07	0.20	ug/L	10.0		107	80-129	1.97	30	
1,2,4-Trimethylbenzene	10.7	0.05	0.20	ug/L	10.0		107	80-127	1.13	30	
s-Butylbenzene	10.7	0.06	0.20	ug/L	10.0		107	78-129	0.30	30	
4-Isopropyl Toluene	11.0	0.08	0.20	ug/L	10.0		110	79-130	1.24	30	
1,3-Dichlorobenzene	10.6	0.08	0.20	ug/L	10.0		106	80-120	1.65	30	
1,4-Dichlorobenzene	10.5	0.10	0.20	ug/L	10.0		105	80-120	3.22	30	
n-Butylbenzene	11.2	0.18	0.20	ug/L	10.0		112	74-129	1.54	30	
1,2-Dichlorobenzene	10.8	0.08	0.20	ug/L	10.0		108	80-120	2.31	30	
1,2-Dibromo-3-chloropropane	11.1	0.39	0.50	ug/L	10.0		111	62-123	6.42	30	
1,2,4-Trichlorobenzene	13.3	0.21	0.50	ug/L	10.0		133	64-124	0.43	30	*, Q
Hexachloro-1,3-Butadiene	14.4	1.00	2.00	ug/L	10.0		144	65-145	1.25	30	Q
Naphthalene	12.9	0.27	0.50	ug/L	10.0		129	50-134	1.80	30	Q

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BMD0082 - EPA 8260D

Instrument: NT3 Analyst: LH

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
LCS Dup (BMD0082-BSD1)					Prepared: 03-Apr-2024 Analyzed: 03-Apr-2024 08:30						
1,2,3-Trichlorobenzene	14.1	0.25	0.50	ug/L	10.0		141	49-133	3.48	30	*, Q
Dichlorodifluoromethane	6.68	0.13	0.20	ug/L	10.0		66.8	48-147	11.20	30	Q
Methyl tert-butyl Ether	9.27	0.14	0.50	ug/L	10.0		92.7	71-132	1.16	30	
2-Pentanone	46.4	2.34	5.00	ug/L	50.0		92.7	69-134	2.45	30	
Surrogate: 1,2-Dichloroethane-d4	4.69			ug/L	*5.00*		*93.8*	*80-129*			
Surrogate: Toluene-d8	4.88			ug/L	*5.00*		*97.5*	*80-120*			
Surrogate: 4-Bromofluorobenzene	5.27			ug/L	*5.00*		*105*	*80-120*			
Surrogate: 1,2-Dichlorobenzene-d4	5.06			ug/L	*5.00*		*101*	*80-120*			

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	Reported:
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Certified Analyses included in this Report

Analyte	Certifications
EPA 8260D in Water	
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Chloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Trichlorofluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
Acrolein	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroeth	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroeth	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroeth	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloro-1,2,2-Trifluoroeth	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

Acetone	DoD-ELAP,ADEC,NELAP,WADOE
Acetone	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Iodomethane	DoD-ELAP,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Methylene Chloride	DoD-ELAP,ADEC,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Acrylonitrile	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
Carbon Disulfide	DoD-ELAP,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
Vinyl Acetate	DoD-ELAP,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE

1,1-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2-Butanone	DoD-ELAP,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
2,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,2-Dichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Chloroform	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
1,1-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE
Carbon tetrachloride	DoD-ELAP,ADEC,NELAP,WADOE

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Benzene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Trichloroethene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Bromodichloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromomethane	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
2-Chloroethyl vinyl ether	DoD-ELAP,ADEC,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
4-Methyl-2-Pentanone	DoD-ELAP,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	**Reported:**
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
cis-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
Toluene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,3-Dichloropropene	DoD-ELAP,ADEC,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
2-Hexanone	DoD-ELAP,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2-Trichloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Tetrachloroethene	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dibromochloromethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE

CALIBRE	Project: Boeing Renton	
-	Project Number: Boeing Renton	Reported:
- -, -	Project Manager: Tom McKeon	04-Apr-2024 13:12

1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
1,2-Dibromoethane	DoD-ELAP,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Chlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
Ethylbenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,1,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
m,p-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
o-Xylene	DoD-ELAP,ADEC,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Styrene	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
Bromoform	DoD-ELAP,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE

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1,1,2,2-Tetrachloroethane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichloropropane	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
trans-1,4-Dichloro 2-Butene	DoD-ELAP,ADEC,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
n-Propylbenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Bromobenzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
Isopropyl Benzene	DoD-ELAP,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
2-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
4-Chlorotoluene	DoD-ELAP,ADEC,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE
t-Butylbenzene	DoD-ELAP,NELAP,WADOE

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1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,3,5-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
1,2,4-Trimethylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
s-Butylbenzene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
4-Isopropyl Toluene	DoD-ELAP,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,3-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,4-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
n-Butylbenzene	DoD-ELAP,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE

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1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2-Dibromo-3-chloropropane	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,4-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Hexachloro-1,3-Butadiene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
Naphthalene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
1,2,3-Trichlorobenzene	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Dichlorodifluoromethane	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
Methyl tert-butyl Ether	DoD-ELAP,ADEC,NELAP,WADOE
2-Pentanone	WADOE
2-Pentanone	WADOE
2-Pentanone	WADOE
2-Pentanone	WADOE

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Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2024
WA-DW	Ecology - Drinking Water	C558	06/30/2024

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Notes and Definitions

*	Flagged value is not within established control limits.
J	Estimated concentration value detected below the reporting limit.
Q	Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
U	This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
[2C]	Indicates this result was quantified on the second column on a dual column analysis.