



The Boeing Company **RCRA Corrective Action Program**

Groundwater Monitoring Report – Wet Season 2025

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GROUNDWATER MONITORING REPORT – WET SEASON 2025

RCRA CORRECTIVE ACTION PROGRAM
BOEING RENTON FACILITY

PROJECT # US0041831.2092

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May 21, 2025

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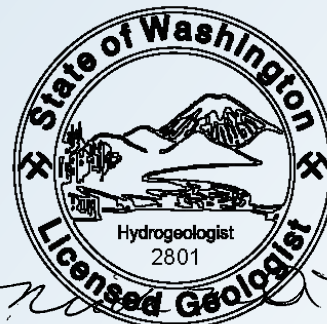
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LIST OF ABBREVIATIONS AND ACRONYMS

µg/L	micrograms per liter
µS/cm	microsiemens per centimeter
1,1-DCE	1,1-dichloroethene
AOC	area of concern
Boeing	The Boeing Company
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
DNR	(Washington State) Department of Natural Resources
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
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
VOC	volatile organic compound
WSP	WSP USA 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 wet season of 2025 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

comparisons 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 (Ecology, 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 2025 for the period from November 1, 2024, through April 30, 2025. 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 2025

The following work was completed during the wet season of 2025 (the period from November 1, 2024, through April 30, 2025):

- Boeing submitted the 2024 Groundwater Monitoring Report – Dry Season 2024 to Ecology and the City of Renton on November 30, 2024.
- Continued enhanced reductive dechlorination (ERD) treatment of volatile organic compounds (VOCs) using substrate injections in groundwater were performed by WSP USA Inc. (WSP) at SWMU-172/174, Building 4-78/79 SWMU/AOC Group, AOC-090, AOC-060, and AOC-001/002 in November and December 2024.
- WSP completed the 2025 sitewide wet season sampling event between February 10 and 14, 2025.
- The Investigation of Apron R Technical Memorandum was finalized in September 2024. Ecology provided a notification of approval letter dated November 25, 2024.
- The Draft On- and Off-Site Investigation of Apron R Work Plan was submitted to Ecology on March 31, 2025. The objective of this work plan is to further delineate contaminant screening level concentration exceedances in on-site soil and groundwater at the former Apron R excavation area, and potentially in groundwater at the Washington State Department of Natural Resources (DNR) property to the north, by collecting and analyzing samples.
- WSP performed a round of substrate injections in November and December 2024 at SWMU-172/174, Building 4-78/79, AOC-001/002, AOC-060, and AOC-090.

1.2 DEVIATIONS FROM CAP

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

1.3 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. Monitoring wells in AOC-001/002 were included in CMP Addendum #2, but monitoring was discontinued due to construction in the area from 2019 through 2023. Wells removed from AOC-001/002 (Wood, 2021) were replaced by new wells in July 2023 and were sampled during each semi-annual event since their re-installation.

1.4 WORK PROJECTED FOR THE NEXT REPORTING PERIOD

The following work is projected for the upcoming 2025 dry season (May 1 to October 31, 2025):

- Boeing and WSP will continue to work with Ecology to reach concurrence on the On- and Off-Site Groundwater Investigation of Apron R.
- Boeing will continue coordinating with DNR, including discussing the statement of work and access agreement requirements for the proposed off-site investigation on the DNR parcel between Apron R and Lake Washington.
- Based on evaluation of the semiannual monitoring data in this report, the following areas are planned for continued ERD treatment of VOCs using carbon substrate injections in groundwater: SWMU-172/174, Building 4-78/79 SWMU/AOC Group, AOC-090, AOC-060, and AOC-001/002.
- Reporting will be completed in accordance with the Order, CAP, EDR, and CMP Addendum #3.

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 in Appendix A 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 in Appendix A 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 are 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 2025. 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 target COC list remained unchanged.

3.1.3 WATER LEVELS

The groundwater elevation measured during this groundwater monitoring event at SWMU-168 is provided in Table 1 and shown in 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 in 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. 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 6.46 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 0.0428 µg/L. Historical trends for VC in GW230I are shown in Appendix D and depicted in Figure 3. The last four monitoring events have shown decreasing VC concentrations, all detected below the CUL 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, as approved by Ecology, and Ecology approval for decommissioning is pending. Figure 4 shows the layout of the nine 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 of SVE and decommissioning of the SVE system are subject to Ecology's evaluation of the results of the sub-slab vapor sampling, which took place in May 2023. All of the SVE system equipment and infrastructure have been retained pending future discussions with Ecology regarding permanent discontinuation and removal.

The most recent injection of ERD treatment amendments was completed in December 2024. Due to lack of sucrose availability and quality, and colder conditions, only two of the seven wells at SWMU-172/174 received carbon injection during this event. Each injection well (B172-13 and B172-14) received approximately 450 gallons of substrate rather than the approximate 1,000 gallons typically injected at each due to the issues listed previously.

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 target COC list 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 in Figure 4. The groundwater elevation data show a flow direction generally to the east, 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 in all wells ranged between 175 and 464 microsiemens per centimeter ($\mu\text{S}/\text{cm}$), which is consistent with previously observed values for the groundwater in these SWMUs. In source area well GW153S, all downgradient plume area wells, and all CPOC area wells, pH was slightly acidic, ranging between 5.84 and 6.73 SU. ORP was negative for all wells monitored, with the exception of source area well GW172S. Total organic carbon (TOC) concentrations in all wells in this SWMU ranged from 0.88 to 193.30 milligrams per liter (mg/L). DO concentrations ranged from 0.18 to 0.64 mg/L in 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 in Figure 5, in downgradient plume area wells GW172S and GW173S in Figure 6, and in downgradient plume area well GW226S in Figure 7. The source area groundwater characterized by wells GW152S and GW153S migrates downgradient toward plume area wells GW172S, GW173S, and GW226S. PCE and TCE are chlorinated solvents that were used at the Facility, while cis-1,2-DCE and VC are breakdown products resulting from biodegradation.

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 either stable or have decreased over time.

Arsenic was not detected above the CUL (8.0 $\mu\text{g}/\text{L}$) in the groundwater from any source area or downgradient plume area wells. As shown in 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, which exhibits an apparent seasonal pattern of significantly higher concentrations during dry seasons, and its downgradient counterpart GW172S, which exhibited an increase in concentration during the dry season of 2023.

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

- **GW152S:** cis-1,2-DCE (1.57 $\mu\text{g}/\text{L}$); PCE (0.188 $\mu\text{g}/\text{L}$); TCE (0.0673 $\mu\text{g}/\text{L}$); copper (5.36 $\mu\text{g}/\text{L}$); and lead (1.58 $\mu\text{g}/\text{L}$).
- **GW153S:** cis-1,2-DCE (0.167 $\mu\text{g}/\text{L}$); PCE (0.352 $\mu\text{g}/\text{L}$); and TCE (0.242 $\mu\text{g}/\text{L}$).

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

- **GW172S:** cis-1,2-DCE (0.362 $\mu\text{g}/\text{L}$); PCE (0.0302 $\mu\text{g}/\text{L}$); and TCE (0.135 $\mu\text{g}/\text{L}$).
- **GW173S:** cis-1,2-DCE (0.224 $\mu\text{g}/\text{L}$); PCE (0.0206 $\mu\text{g}/\text{L}$); TCE (0.0973 $\mu\text{g}/\text{L}$); and copper (4.67 $\mu\text{g}/\text{L}$).
- **GW226S:** cis-1,2-DCE (0.0412 $\mu\text{g}/\text{L}$).

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 $\mu\text{g}/\text{L}$) in the groundwater from CPOC area wells GW232S (0.179 $\mu\text{g}/\text{L}$), GW234S (0.0692 $\mu\text{g}/\text{L}$), and GW235I (0.302 $\mu\text{g}/\text{L}$). VC was detected above the CUL (0.11 $\mu\text{g}/\text{L}$) in the groundwater from GW232S (0.144 $\mu\text{g}/\text{L}$). VC was also detected in GW234S and GW235I, but below the CUL. TCE was detected slightly above the CUL (0.02 $\mu\text{g}/\text{L}$) in CPOC area well GW235I at 0.0239 $\mu\text{g}/\text{L}$. PCE was not detected in any CPOC wells. 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 COC concentrations in the CPOC area either have primarily decreased or stabilized over the past three years of sampling or have maintained concentrations below respective CULs, except for GW235I, which exhibited an increase in cis-1,2-DCE and TCE concentrations during this monitoring period.

No metals were detected at concentrations 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 have 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, MA, and 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; seven 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 November 2024. During this event, injection wells B8-12, B78-14, B15, and B78-16 were injected with an average of 966 gallons of substrate each. Certain bioremediation injection wells were sampled until February 2020 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.

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 target COC list 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 in Figure 11. The contouring in Figure 11 indicates a seasonal groundwater flow direction to the southwest. Historical information shows the flow direction is generally toward the Cedar River Waterway to the northwest. The groundwater flow direction during this monitoring period is depicted in Figure 11.

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 Monitored 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 0.10 to 0.27 µg/L and moderate specific conductivity. The pH measured in monitored wells was uniform and slightly acidic, ranging between 6.17 and 6.62 SU. ORP was negative in all wells monitored. TOC concentrations in source area and CPOC area wells ranged from 4.31 to 10.77 mg/L. Geochemical indicators were generally consistent in all wells monitored in this area, indicating conditions favorable for continued dechlorination of VOCs.

3.3.4.2 COC Results for Source Area

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

VC was detected above the CUL (0.2 µg/L) in GW031S-R (0.260 µg/L) and GW033S (1.49 µg/L) but was not detected in any other source area wells. Benzene was detected above the CUL (0.80 µg/L) in GW033S (6.39 µg/L). Cis-1,2-DCE was detected above the CUL (0.70 µg/L) in GW033S (0.610 µg/L) but was not detected in any other source area wells. TCE was not detected in any source area wells. TPH as gasoline was detected below the CUL (800 µg/L) in GW033S but was not detected in any other source area wells. 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 six monitoring events. COCs detected in GW033S 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 for the last three reporting periods. COCs in GW244S have remained within historical ranges, with no detections of any COCs observed during this reporting period.

Benzene, cis-1,2-DCE, and VC have returned to the generally stable levels observed before the increase in concentrations detected during the 2023 wet season monitoring event. Concentrations of COCs in GW031S-R and GW244S appear to have decreasing trends 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) at 0.230 µg/L and benzene was detected above the CUL (0.70 µg/L) at 3.78 µg/L in groundwater from GW237S. No other detections of VC or cis-1,2-DCE were observed in any CPOC area wells sampled during this monitoring event. No detections of TCE or TPH as gasoline above their respective CULs were observed in any CPOC area wells sampled during this reporting period.

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 present for benzene in GW237S with higher concentrations detected during the wet season.

Figure 17 shows that TCE has not been detected in the CPOC area since the dry season of 2020, with the exception of a detection at GW143S during the 2022 dry season sampling. VC was detected above the CUL (0.20 µg/L) in CPOC area well GW237S (0.230 µg/L) during the 2024 wet season event. TPH as gasoline has been detected in only GW237S since compliance monitoring began and has been generally decreasing over time (Figure 18), with higher concentrations typically detected during the wet season.

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 three 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 target COC list 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 in 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 is generally toward the east 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 readings in groundwater from this AOC ranged from 208 to 250 $\mu\text{S}/\text{cm}$. Slightly acidic pH was observed in CPOC area wells ranging from 6.19 to 6.39 SU, with concentrations of DO ranging from 0.14 to 0.27 mg/L. ORP measurements observed in this AOC were all negative. The geochemical indicators indicate natural attenuation of the COCs for the Former Fuel Farm AOC Group is likely 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 CULs of 0.5 mg/L at 0.850 mg/L and 1.43 mg/L, respectively. TPH as diesel and as Jet A were also detected below their respective CULs in GW221S and GW211S. TPH as motor oil was not detected in any CPOC area wells; no CULs are established for this analyte. Concentrations of TPH as Jet A in GW211S have been below the CUL 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 13 groundwater monitoring wells in this AOC.

3.5.1 CLEANUP ACTION ACTIVITIES

3.5.1.1 Installation/Construction Activities

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

3.5.1.2 Bioremediation Activities

The current remediation method is carbon substrate addition leading to ERD treatment of VOCs. The most recent injection in this area occurred in November 2024. Carbon substrate injections were conducted in IPR-1, IPR-2, GW213S-R, GW214S-R, and GW215S-R. Wells GW213S-R, GW214S-R, and GW215S-R experienced issues receiving the planned injection volumes and received less substrate than was expected for injection. WSP is currently evaluating alternative locations for future injections within this AOC.

3.5.2 CMP DEVIATIONS

AOC-001/002 is not in the current CMP Addendum #3 (CALIBRE, 2020) because the area was under construction with wells decommissioned during the preparation of the altered monitoring plan (Wood, 2021). During construction, WSP (Wood) instructed Boeing (Holocene Drilling) to re-install wells in this AOC in the approximate locations of the previously abandoned wells (Wood, 2021). Monitoring was resumed in this area following reinstallation of wells in July 2023 and is based on monitoring approved in CMP Addendum #2. Recent data will be used to evaluate conditions in this area.

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 toward the west is depicted on Figure 21 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 an ORP reading of 17.1 millivolts in GW192S-R) were observed at all monitoring locations in this AOC during this reporting period. Readings of pH varied from acidic to slightly basic, ranging from 4.08 to 8.40 SU. Measured concentrations of DO were low, ranging from 0.01 to 0.35 mg/L. TOC measurements varied greatly, ranging between 3.3 and 49,880 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, cross-gradient, and downgradient well groundwater CUL exceedances (Table 15) consisted of the following:

- **GW193S-R:** cis-1,2-DCE (2.38 µg/L); TCE (0.844 µg/L); and VC (0.460 µg/L).
- **GW213S-R:** cis-1,2-DCE (0.111 µg/L).
- **GW190S-R:** cis-1,2-DCE (0.0934 µg/L).
- **GW191D-R:** cis-1,2-DCE (0.309 µg/L) and VC (0.0574 µg/L).
- **GW192S-R:** cis-1,2-DCE (0.359 µg/L); TCE (0.0273 µg/L); and VC (0.0842 µg/L).

- **GW246S-R:** cis-1,2-DCE (0.0932 µg/L) and VC (0.122 µg/L).

It appears that certain injection well screens are not adequately connected to the transmissive portion of the aquifer, leading to lowered infiltration rates and higher concentrations of injection substrate within the well casing, potentially leading to carbon fermentation and accompanying acidity and foaming within the well casing. Due to the foamy sample matrix, the laboratory's reporting limits were elevated to concentrations above the CULs for samples collected from all cross-gradient wells in AOC-001/-002. WSP is currently evaluating alternative locations for future injections to both further optimize the distribution of substrate throughout the AOC and to mitigate the analytical matrix interference exhibited during this reporting period.

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 analytes evaluated in this area can be found in Table 15. These are the same COCs that were analyzed during the last sampling event when all wells in AOC-001 and AOC-002 were sampled before decommissioning for construction (Wood, 2019b).

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

- **GW185S-R:** cis-1,2-DCE (0.172 µg/L) and VC (0.156 µg/L).
- **GW195S-R:** cis-1,2-DCE (0.0878 µg/L) and VC (0.0936 µg/L).
- **GW196D-R:** cis-1,2-DCE (0.0279 µg/L).
- **GW197S-R:** 1,1-DCE (0.107 µg/L); cis-1,2-DCE (39.9 µg/L); TCE (0.181 µg/L); and VC (26.3 µg/L).
- **GW245S-R:** cis-1,2-DCE (0.190 µg/L).

VC and cis-1,2-DCE were detected at elevated concentrations compared to historical levels (26.3 µg/L and 39.9 µg/L, respectively) in GW197S-R. Figure 24 shows the historical trends of cis-1,2-DCE, TCE, and VC concentrations in all CPOC area wells. All replacement well results were added to the existing trend charts for this AOC. An overall downward trend in COC concentrations since August 2023 has been observed in all CPOC area wells.

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 wells formerly used for bioremediation substrate injection, the four groundwater monitoring wells for which sampling is required under CMP Addendum #3 (CALIBRE, 2020), and 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. The wells monitored and the target COC list remained the same for this AOC Group.

3.6.3 WATER LEVELS

The groundwater elevations measured during this groundwater monitoring event at AOC-003 are summarized in Table 16 and shown in Figure 25. Groundwater elevations measured during this event indicate a flow gradient generally toward the northwest, consistent with historical results.

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. Moderate specific conductivity, low DO, and negative ORP were observed during this reporting period. In this area pH readings were slightly acidic for all wells, ranging between 6.34 and 6.44 SU. TOC concentrations ranged from 8.95 to 11.97 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 slightly above the CUL (0.24 µg/L) in GW249S (0.243 µg/L) and below the CUL in GW188S. PCE was detected above the CUL (0.02 µg/L) in groundwater collected from GW188S (0.0390 µg/L). Cis-1,2-DCE was detected in both source area and downgradient plume wells below the CUL (0.78 µg/L). No detected concentrations of TCE were observed in the source area or downgradient plume area wells above the CUL (0.16 µg/L). Figure 26 shows the historical trends for VC in source area well GW249S and downgradient plume area well GW188S. The trend chart shows the VC concentration in GW249S is hovering around the CUL, while in GW188S the VC concentration has been below the CUL for five monitoring events (since early 2023).

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 (0.483 µg/L) and GW248I (0.445 µg/L) (Table 18). No detected concentrations of cis-1,2-DCE, TCE, or PCE were found in the CPOC area wells.

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 GW248I appear to be decreasing since 2022.

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 wells formerly used for bioremediation substrate injection, the groundwater monitoring well for which sampling is required under CMP Addendum #3 (CALIBRE, 2020), 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 the target COC list remained the same for this AOC.

3.7.3 WATER LEVELS

The groundwater elevation measured during this groundwater monitoring event at AOC-004 is shown in Table 19 and in Figure 28. Groundwater contours cannot be drawn using the single groundwater elevation measurement for this AOC, but, based on historical data, a general groundwater flow direction toward the west is shown in 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 7.04 SU. Low specific conductivity, negative ORP, and low 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 0.600 µg/L, below the CUL of 1 µg/L. Figure 29 shows the historical trend chart for lead in GW250S, which has been below the CUL for the past five reporting periods.

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 the bioremediation wells, the eight groundwater monitoring wells for which sampling and water level measurements are required under CMP Addendum #3 (CALIBRE, 2020), and the groundwater elevations measured during this monitoring event.

3.8.1 CLEANUP ACTION ACTIVITIES

3.8.1.1 Installation/Construction Activities

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

3.8.1.2 Bioremediation Activities

The current remediation method is carbon substrate addition leading to ERD treatment of VOCs. The most recent injection in this area occurred in November 2024. Substrate injections were conducted in B060-01, B060-02, and GW147S.

3.8.2 CMP DEVIATIONS

No deviations from the CMP occurred for this AOC during this reporting period. The wells monitored and the target COC list 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 in Figure 30. Groundwater flow direction is generally 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. Specific conductivity ranged from 253 to 1,848 $\mu\text{S}/\text{cm}$. DO concentrations ranged from 0.03 to 0.25 mg/L. The pH ranged from acidic to slightly acidic in this AOC, between 4.80 and 6.59 SU. TOC results from all wells ranged from 3.91 to 2,074 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 and wells GW012S, GW014S, and GW147S exceeded the respective CULs for all three COCs, with the exception of the detected concentration of TCE below the CUL (0.02 $\mu\text{g}/\text{L}$) in GW014S (0.0193 $\mu\text{g}/\text{L}$ [estimated]).

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 since 2022, departing from the lows observed in 2018 and 2019, but concentrations remain within the historical range for TCE concentrations in this well while exhibiting a downward trend for the last four reporting periods.

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 $\mu\text{g}/\text{L}$) in groundwater from CPOC area wells GW150S (0.0859 $\mu\text{g}/\text{L}$) and GW253I (0.122 $\mu\text{g}/\text{L}$). TCE and VC were detected in groundwater from CPOC area wells GW150S and GW253I but did not exceed their respective CULs (0.02 $\mu\text{g}/\text{L}$ and 0.26 $\mu\text{g}/\text{L}$, respectively). 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 in GW150S; some stabilization appears to have occurred over the past five reporting periods for these COCs at GW253I. 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 the bioremediation wells, the five groundwater monitoring wells for which sampling is required under CMP Addendum #3 (CALIBRE, 2020), and the groundwater elevations measured during this monitoring event.

3.9.1 CLEANUP ACTION ACTIVITIES

3.9.1.1 INSTALLATION/CONSTRUCTION ACTIVITIES

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

3.9.1.2 BIOREMEDIATION ACTIVITIES

The current remediation method is carbon substrate addition leading to ERD treatment of VOCs. The most recent injection in this area occurred in November 2024. Substrate injections were conducted in B090-01 and B090-02 and did not include GW189S because the most recent VC concentration was non-detect ($< 0.02 \mu\text{g/L}$). The need for continued/further treatment in this source area will be evaluated in the future as this area transitions to MA.

3.9.2 CMP DEVIATIONS

No deviations from the CMP occurred for this area during this reporting period. The wells monitored and target COC list 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 in Figure 34. Groundwater flow direction is to the west and 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 low DO values across the area, with the exception of a moderately high DO reading of 3.56 mg/L in the groundwater from shallow zone CPOC area well GW178S. The pH was slightly acidic in this AOC, with all wells ranging between 5.20 and 6.71 SU. TOC was measured at 6.91 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 April and November 2024.

3.9.4.2 COC Results for Source and Downgradient Plume Areas

Table 27 lists the analytical results for the AOC-090 COCs in source area well GW189S. Concentrations of VC ($0.162 \mu\text{g/L}$) and TCE ($0.100 \mu\text{g/L}$) were detected above their respective CULs ($0.13 \mu\text{g/L}$ and $0.08 \mu\text{g/L}$, respectively). No TPH detections were at concentrations greater than their carbon range's respective CUL. VC was detected above the CUL ($0.13 \mu\text{g/L}$) in downgradient plume area well GW176S at $0.249 \mu\text{g/L}$. 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 ($0.294 \mu\text{g/L}$) and GW208S ($0.359 \mu\text{g/L}$).

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 three groundwater monitoring wells in the Apron A area for which sampling and/or water level measurements are required under CMP Addendum #3 (CALIBRE, 2020).

3.10.1 CLEANUP ACTION ACTIVITIES

The last injection in this area occurred in June 2022 and no further injections have been planned due to the downward trend in COCs in the area. On June 1, 2024, WSP mobilized to Apron A in response to an odor reportedly originating from a catch basin. The bottom of the catch basin was below the groundwater depth in this area at the time of observation. Cracks in the sidewalls of the catch basin were observed and appeared to be a potential pathway for groundwater to infiltrate into the basin. One water sample was collected from groundwater infiltrating into the basin after it was flushed for observation. The sample was analyzed for VOCs using the U.S. Environmental Protection Agency's Method 8260D, and gasoline range organics by NWTPH-Gx. The laboratory provided full analytical reports separately on a secure online storage application, OneDrive.

Results for Apron A COCs were non-detect in the water; gasoline range organics were also non-detect. Based on the results of the analytical report and the observations made on site, WSP concluded that the water present in the catch basin is likely upgradient groundwater inflow, and that the characteristics observed in the catch basin water are not consistent with characteristics typically associated with the COCs currently monitored in Apron A. No construction 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 the target COC list 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 in Figure 36. Groundwater elevation contours are not shown because only three wells are monitored in this group and the limited data set and placement of the wells limit the ability to produce accurate contours. Groundwater flow in this area is expected to be 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 moderately high specific conductivity, low DO, slightly acidic pH, and a negative ORP reading. TOC was detected in GW264S at a concentration of 26.96 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 and VC were both reported as non-detect (< 0.200 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 during the 2016 monitoring. The trend plot for COCs in GW264S is shown in Figure 37. Though cis-1,2-DCE was not detected during the wet and dry seasons of 2022, instrument sensitivity was reduced due to matrix interference, resulting in elevated reporting limits for this analyte during those reporting periods. Cis-1,2-DCE has not been detected since the wet season of 2016. VC in GW264S had seasonal fluctuations through 2021 but has now been decreasing since February 2022. Because of the downward trend in COC concentrations in this area, no substrate injections are currently planned.

3.11 APRON R INVESTIGATION

In July 2021, 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 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, 2024) for Ecology review and approval (Myers, 2024; approved by Ecology in March 2024). 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 initial investigation was submitted to Ecology in September 2024 and a letter of approval was received from Ecology in November 2024 (Meyers, 2024b).

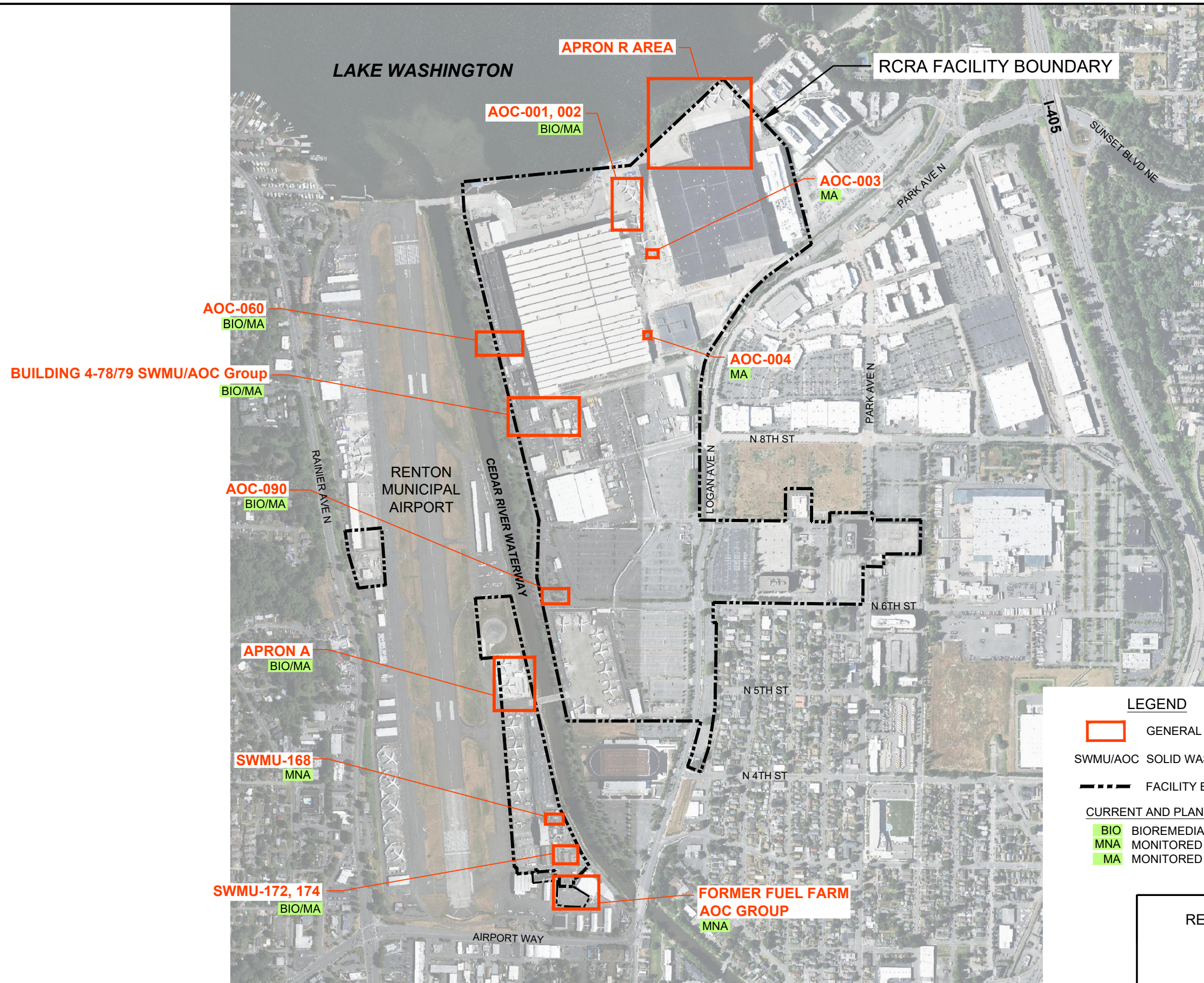
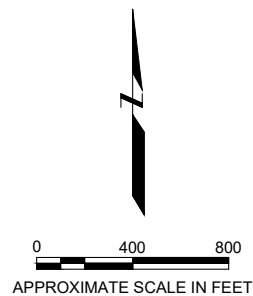
An On- and Off-Site Apron R Groundwater Investigation Work Plan, which proposes additional direct push sample locations to delineate the extent of the historical TPH contamination, was submitted to Ecology for review and approval in March 2025. WSP will conduct the investigation in accordance with the work plan upon Ecology and DNR approval.

4 REFERENCES

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- , 2014, Draft Engineering Design Report, Boeing Renton Cleanup Plan Implementation, Boeing Renton Facility, Renton, Washington, Prepared for The Boeing Company, July.
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- Wood Environment & Infrastructure Solutions, Inc. (Wood), 2019a, Addendum to the Compliance Monitoring Plan, Boeing Renton Facility, Renton, Washington: Prepared for the Boeing Company, April.
- , 2019b, Quarterly report, third quarter 2019, RCRA Corrective Action Program, Boeing Renton Facility, November 15.
- , 2021, Apron R Well Abandonment and Replacement: AOC-001 and AOC-002, Boeing Renton Corrective Action Program, Renton, Washington: Prepared for the Boeing Company, November 11.

FIGURES

Plot Date: 10/18/24 - 10:31am, Plotted by: USSD715014
Drawing Path: X:\USUSDPDX800-POR\ClientData\AMEC-US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg\ GWMR_Sec2nd_Half_2024\, Drawing Name: Figure 1 - Site Map.dwg



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

RENTON SWMU AND AOC LOCATIONS

Boeing Renton Facility
Renton, Washington

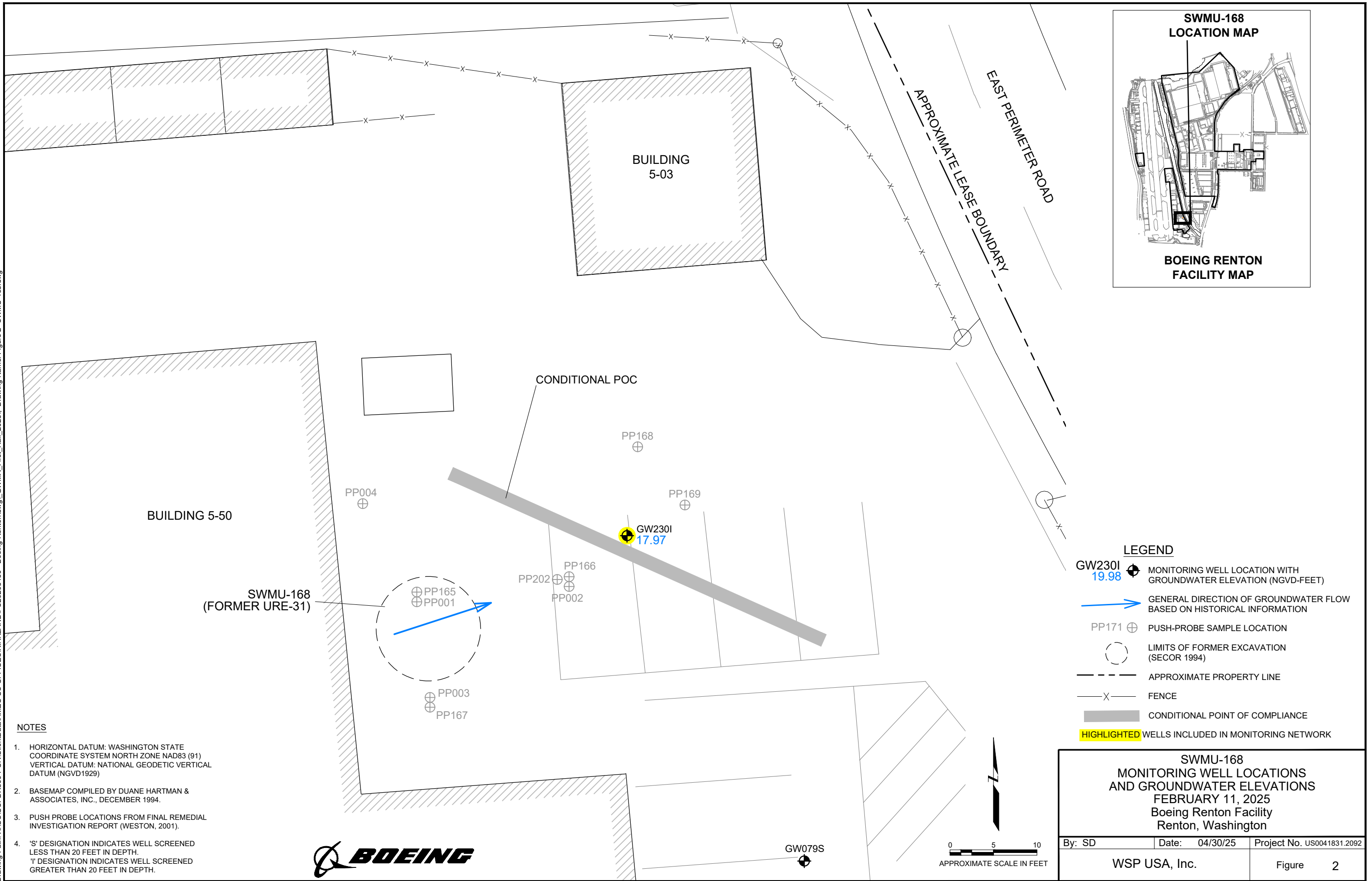
By: APS/SD Date: 10/18/24 Project No. PS24206850

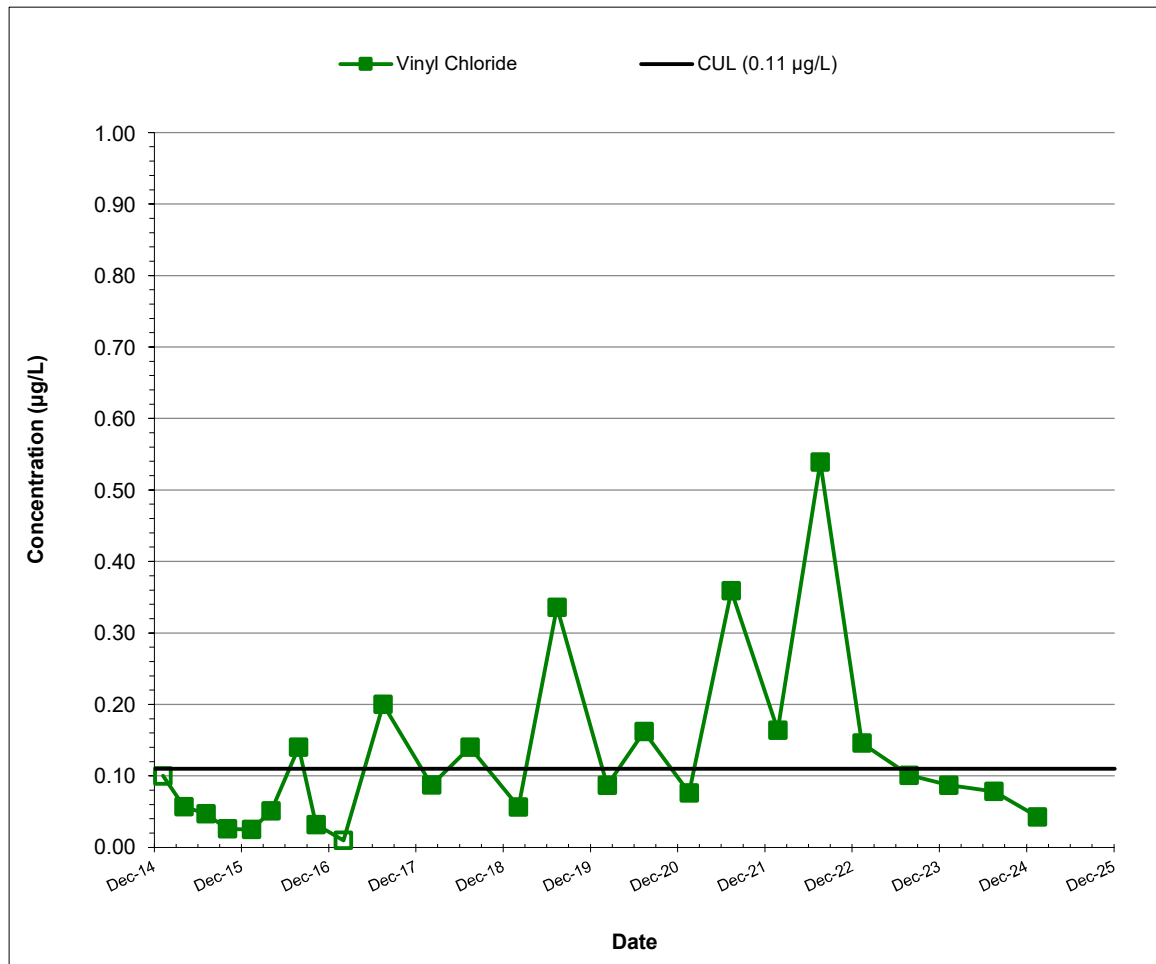
WSP USA, Inc.

Figure 1



Plot Date: 04/30/25 - 11:57am, Plotted by: USSD715014
Drawing Path: X:\USUSPD\800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS2020\450 - Boeing Rentondwg\GWMR_First_Half_2025\ Drawing Name: Figure 2 -SWMU-168.dwg





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

CPOC AREA WELL GW230I

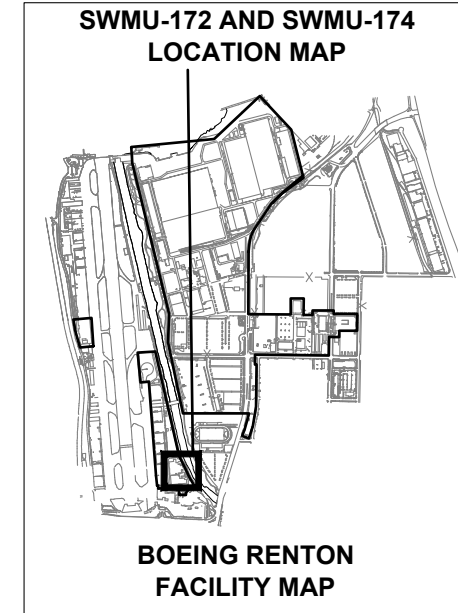
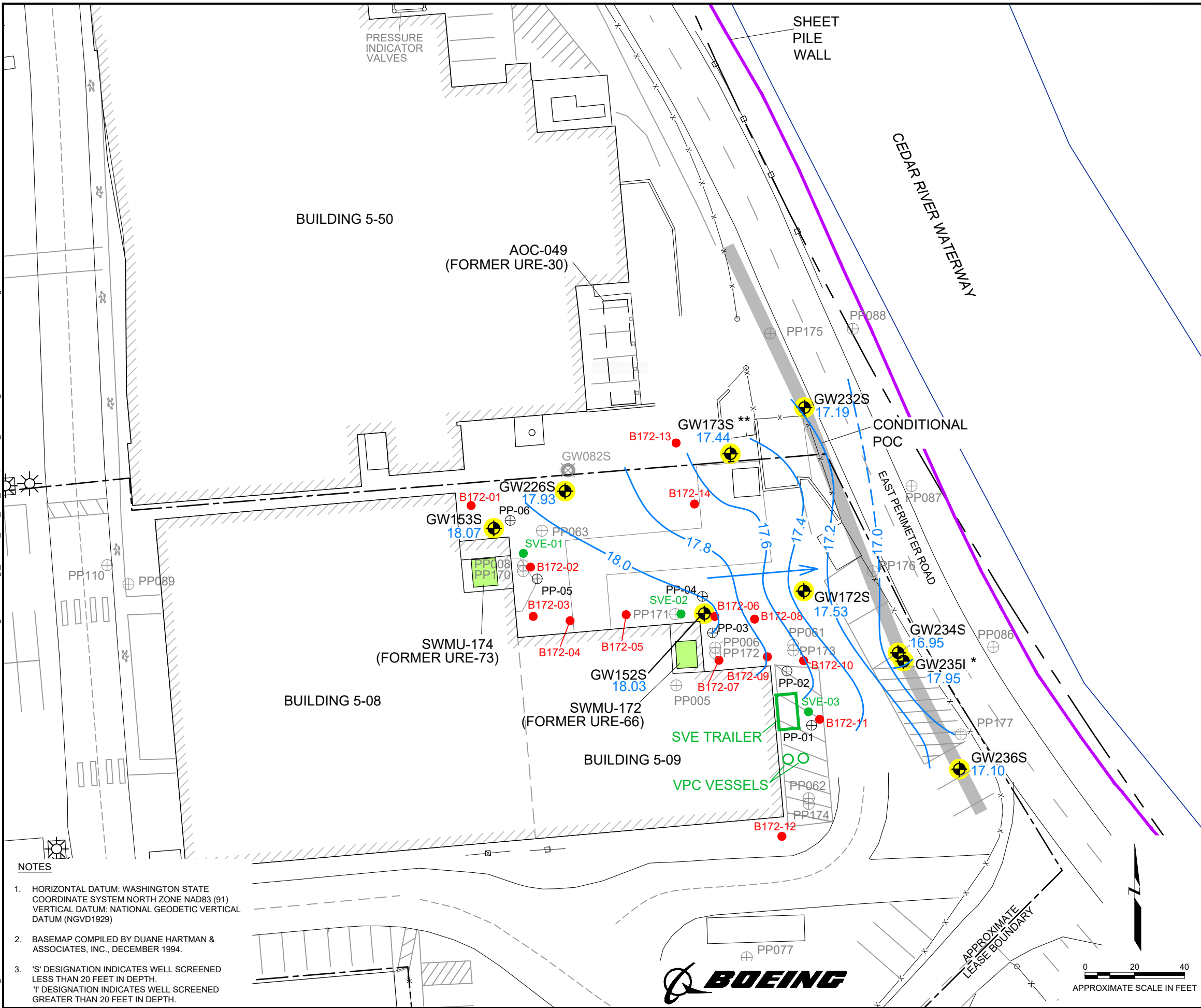


SWMU-168 TREND PLOT FOR CPOC AREA WELL GW230I
Boeing Renton Facility, Renton, Washington

Project No.
US0041831.2092

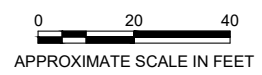
Figure
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Plot Date: 04/30/25 - 12:00pm, Plotted by: USSD715014
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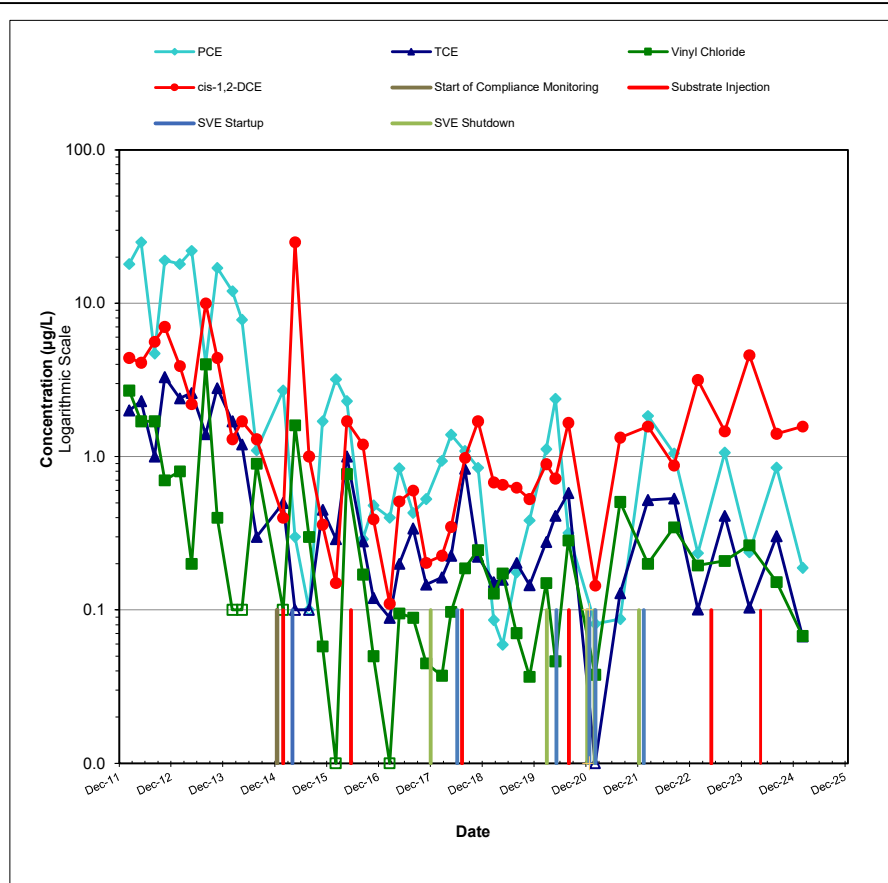
- LEGEND**
- GW173S 16.38 MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-Feet)
 - * WELL SCREENED IN UPPER AND LOWER PORTION OF AQUIFER, SO WATER LEVEL IS NOT USED FOR CONTOURING.
 - ** ANOMALOUS READING, SO WATER LEVEL IS NOT USED FOR CONTOURING.
 - 16.4 GROUNDWATER ELEVATION CONTOUR (IN FEET) (DASHED WHERE INFERRED)
 - GENERAL GROUNDWATER FLOW DIRECTION
 - GW082S DECOMMISSIONED MONITORING WELL
 - - - - - APPROXIMATE PROPERTY LINE
 - X-X- 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**
- HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM NORTH ZONE NAD83 (91)
VERTICAL DATUM: NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
 - BASEMAP COMPILED BY DUANE HARTMAN & ASSOCIATES, INC., DECEMBER 1994.
 - 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 20 FEET IN DEPTH.
'I' DESIGNATION INDICATES WELL SCREENED GREATER THAN 20 FEET IN DEPTH.

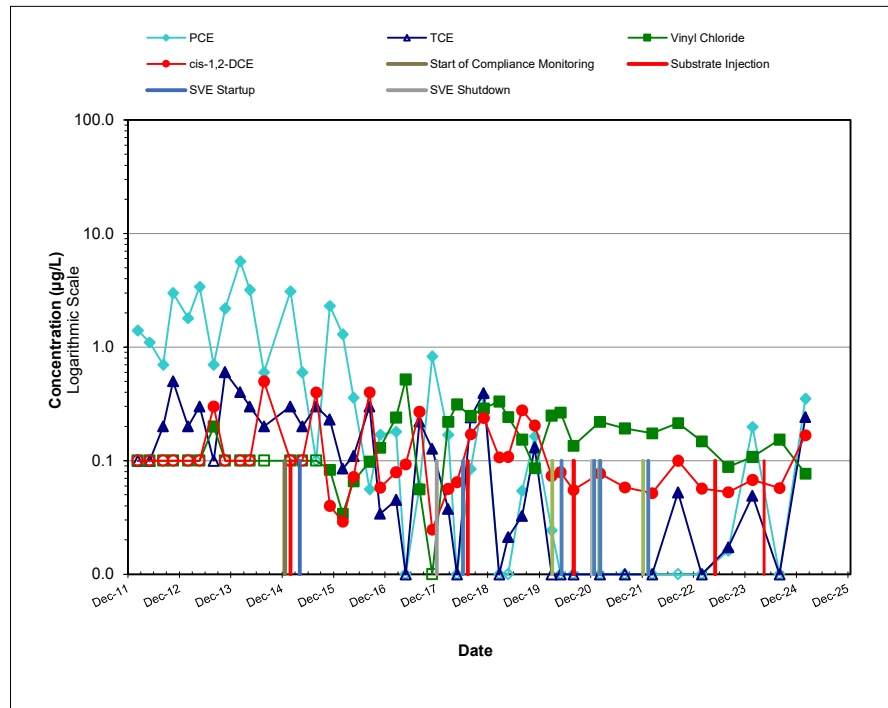


SWMU-172 AND SWMU-174 MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATIONS FEBRUARY 13 & 14, 2025 Boeing Renton Facility Renton, Washington		
By: SD	Date: 04/30/25	Project No. US0041831.2092
WSP USA, Inc.		Figure 4

X:\US\USX\HF100_SEAISEA2-FS1-Archive\8888.000 Boeing Renton\269\Figures\Boeing_Renton_Charts (3-37)_250406.xlsm\Figure 26



SOURCE AREA WELL GW152S



SOURCE AREA WELL GW153S

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

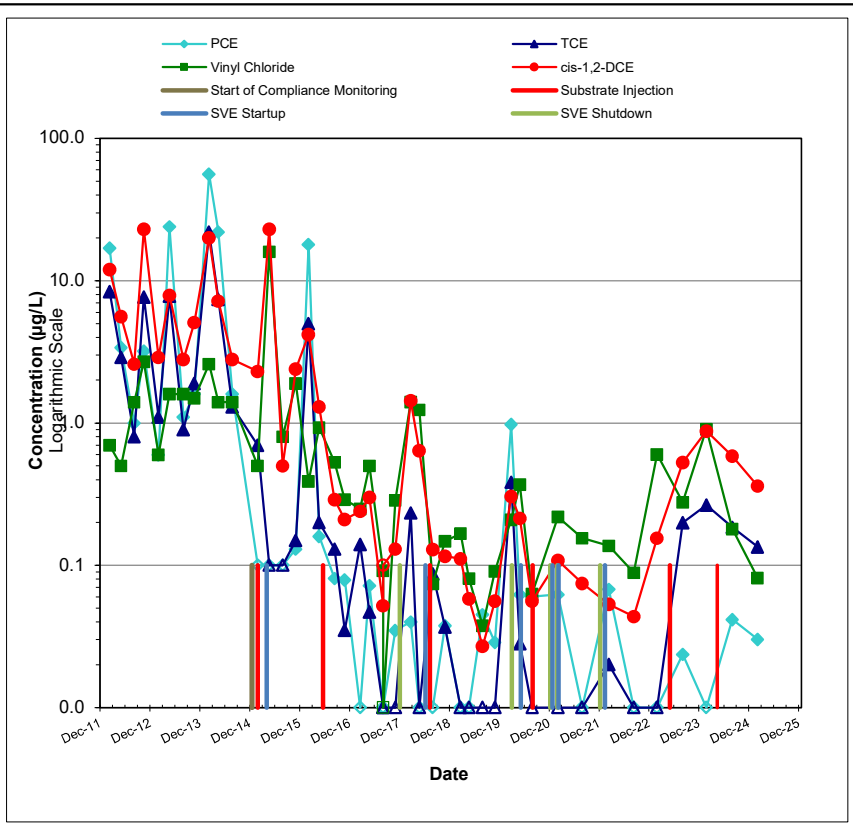


SWMU-172 AND SWMU-174 TREND PLOTS FOR SOURCE
AREA WELLS GW152S AND GW153S
Boeing Renton Facility, Renton, Washington

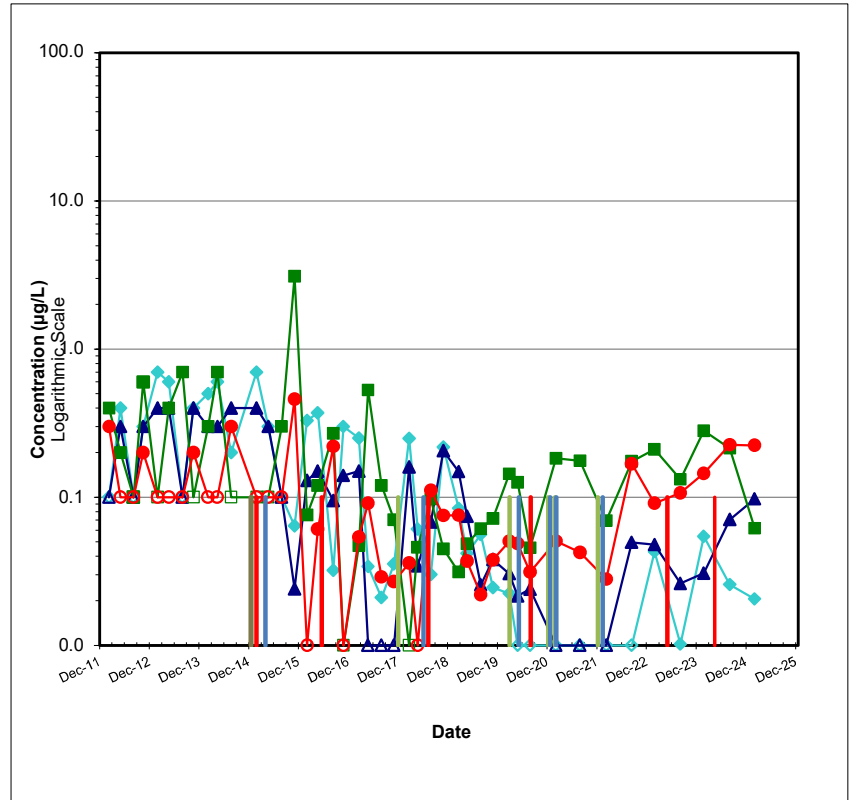
Project No.
US0041831.2092

Figure
5

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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.

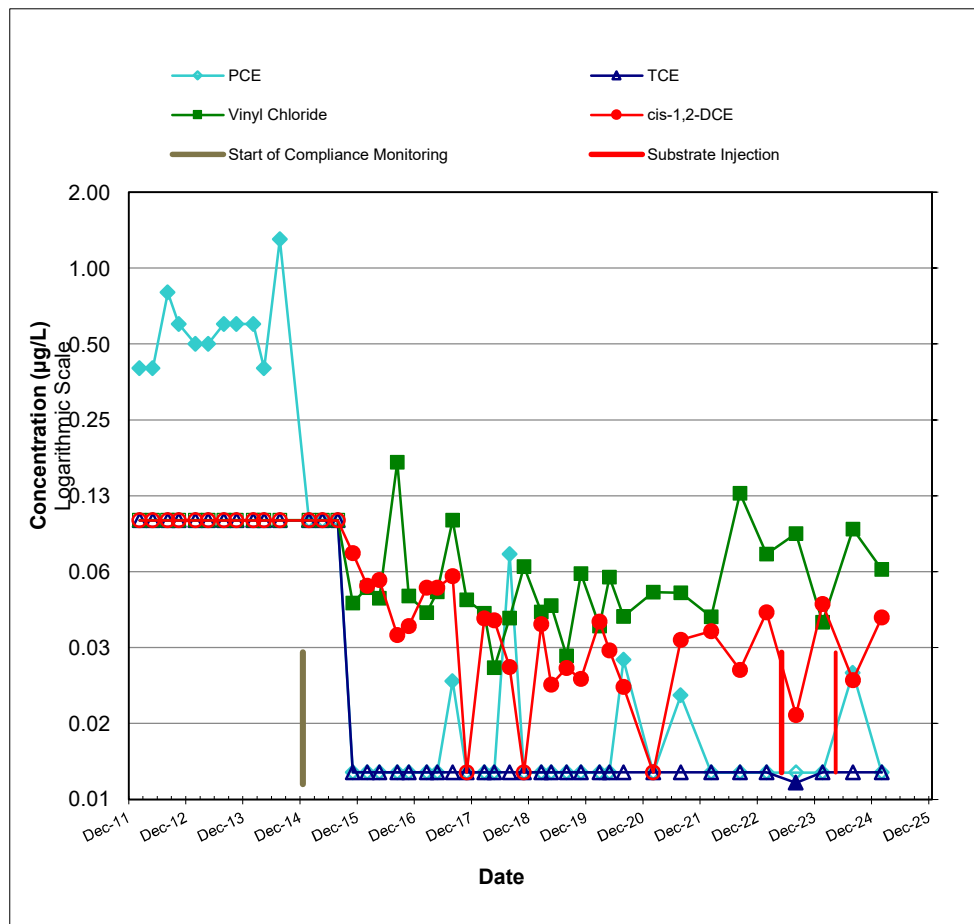


SWMU-172 AND SWMU-174 TREND PLOTS FOR
DOWNGRADIENT PLUME AREA WELLS GW172S
AND GW173S
Boeing Renton Facility, Renton, Washington

Project No.
US0041831.209
2

Figure
6

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

DOWNGRADIENT PLUME AREA WELL GW226S

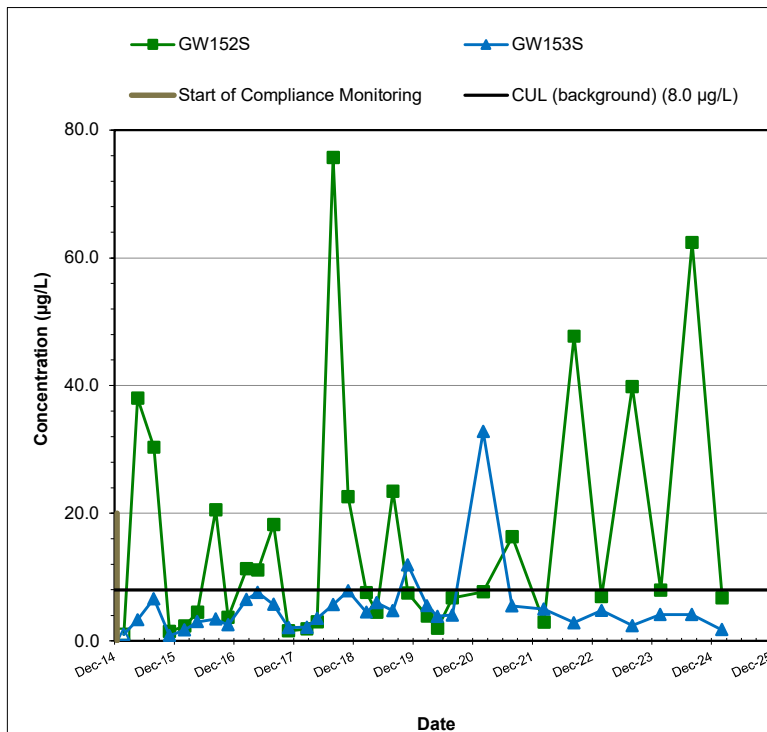


SWMU-172 AND SWMU-174 TREND PLOT FOR
DOWNGRADIENT PLUME AREA WELL GW226S
Boeing Renton Facility, Renton, Washington

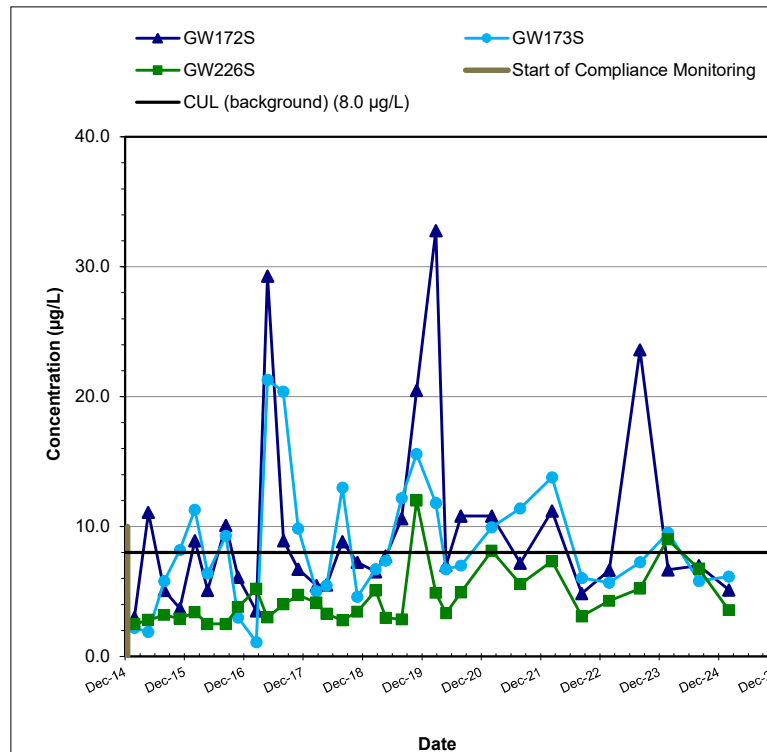
Project No.
US0041831.2092

Figure
7

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TOTAL ARSENIC IN SOURCE AREA WELLS



TOTAL ARSENIC IN DOWNGRADIANT PLUME AREA WELLS

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

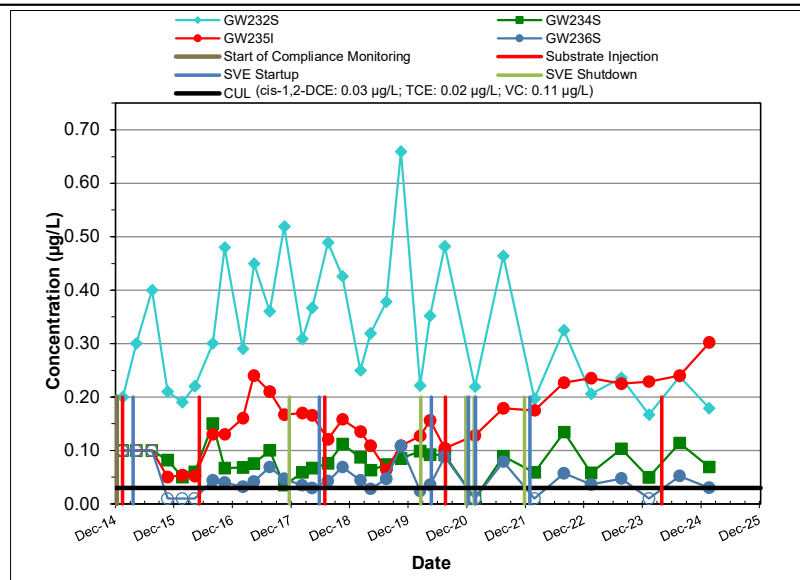


SWMU-172 and SWMU-174 Trend Plots for Arsenic in Select Source Area and Downgradient Plume Area Wells
Boeing Renton Facility, Renton, Washington

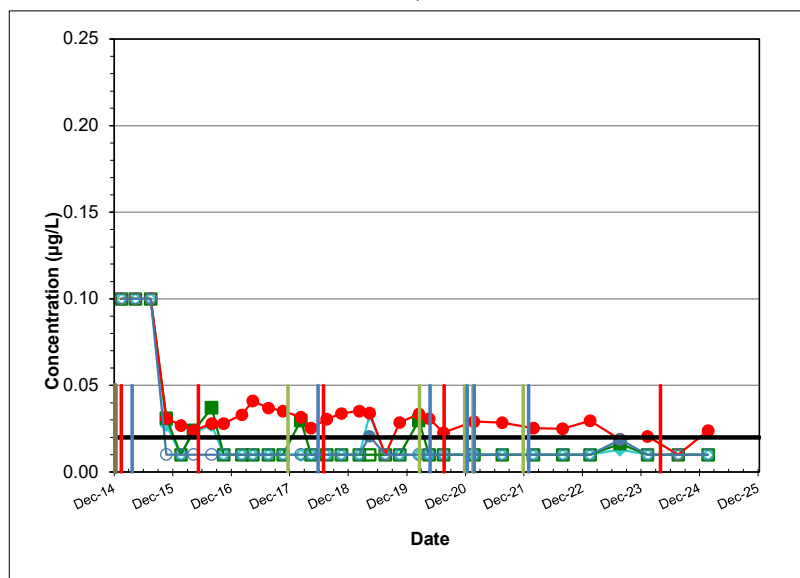
Project No.
US0041831.2092

Figure
8

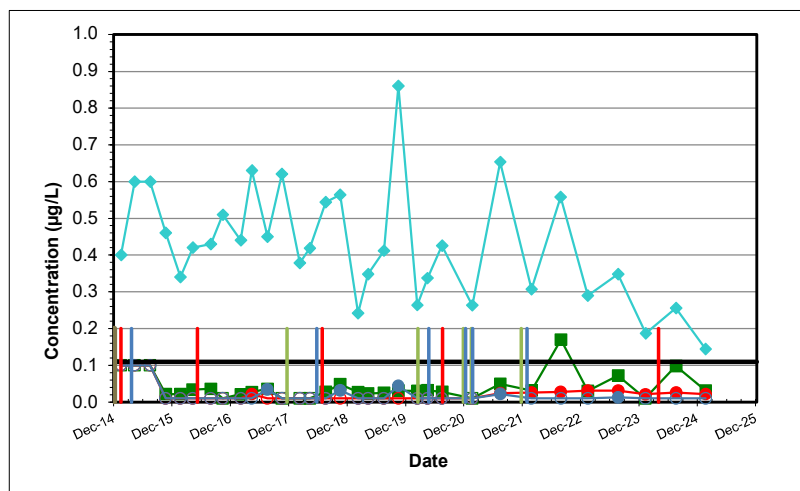
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cis-1,2-DCE



TCE



Vinyl Chloride

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

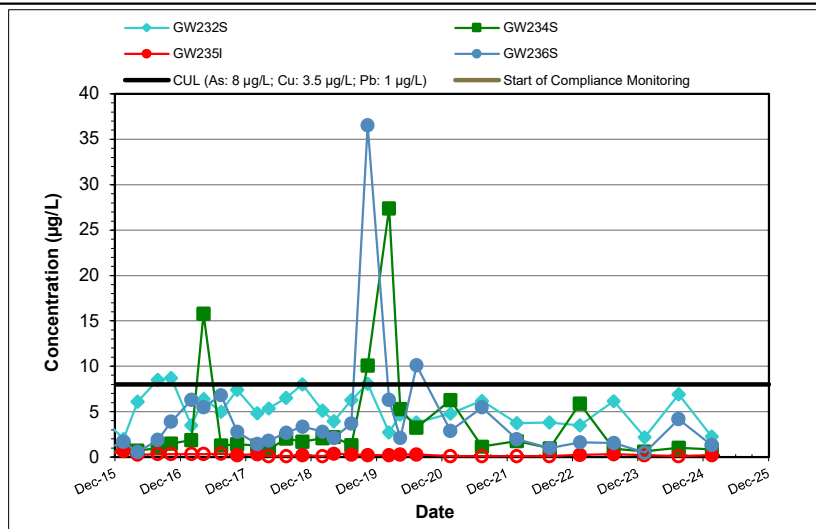


SWMU-172 and SWMU-174 TREND PLOTS FOR
CIS-1,2-DICHLOROETHENE, TRICHLOROETHENE, AND
VINYL CHLORIDE IN CPOC AREA WELLS
Boeing Renton Facility, Renton, Washington

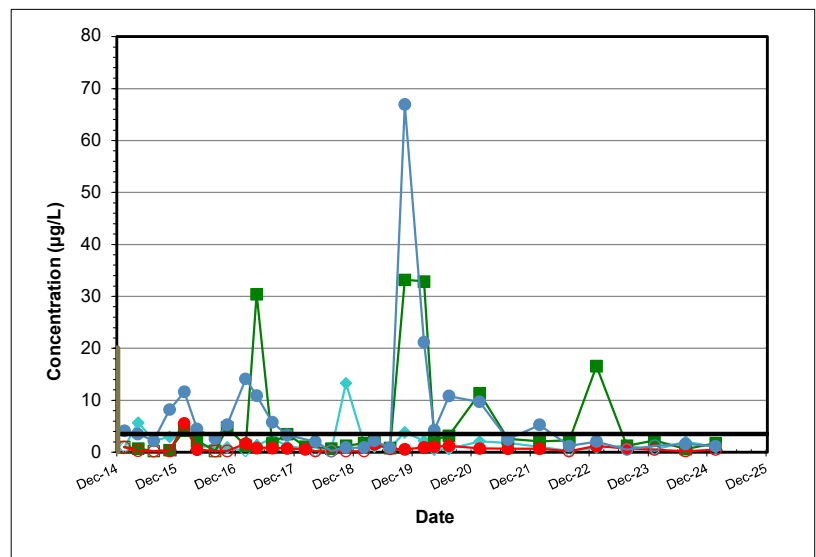
Project No.
US0041831.2092

Figure
9

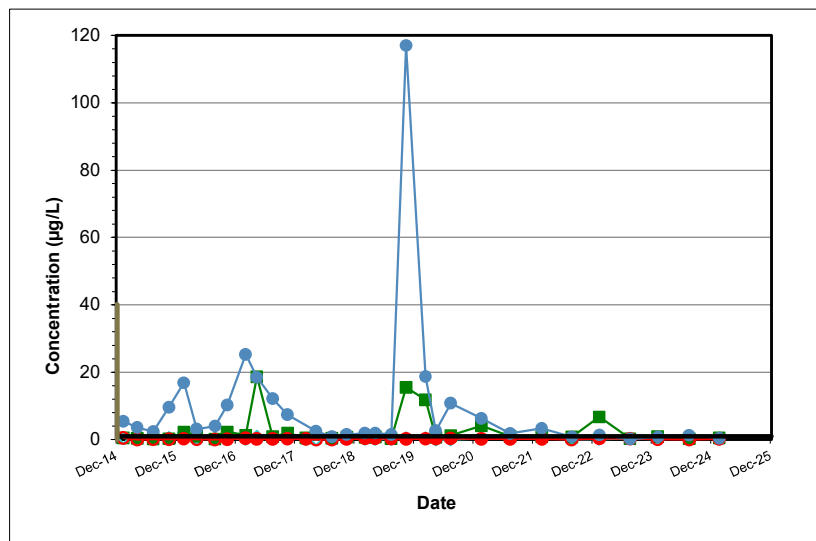
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Arsenic



Copper



Lead

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



SWMU-172 AND SWMU-174 TREND PLOTS FOR
ARSENIC, COPPER AND LEAD IN
CPOC AREA WELLS
Boeing Renton Facility, Renton, Washington

Project No.
US0041831.209

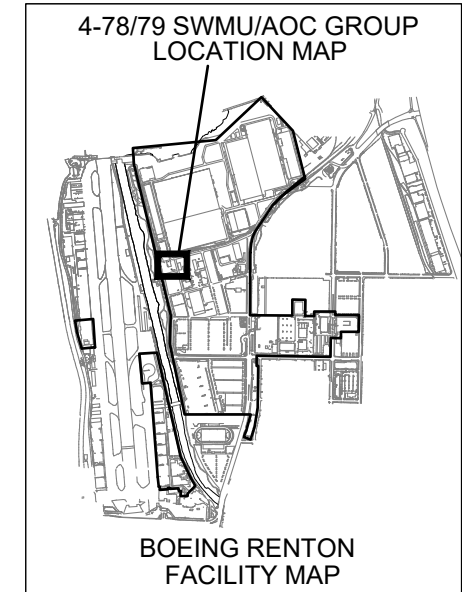
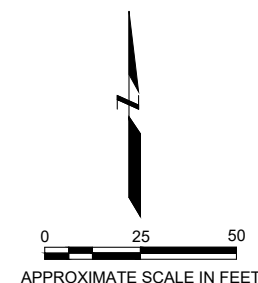
Figure
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CEDAR RIVER WATERWAY

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.



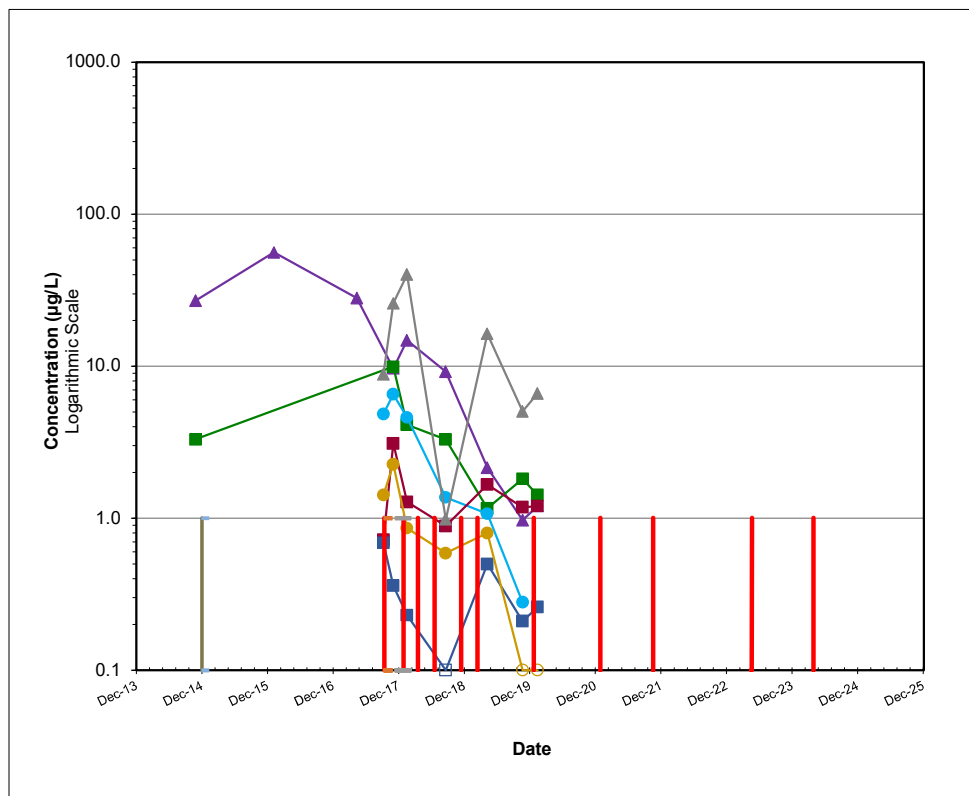
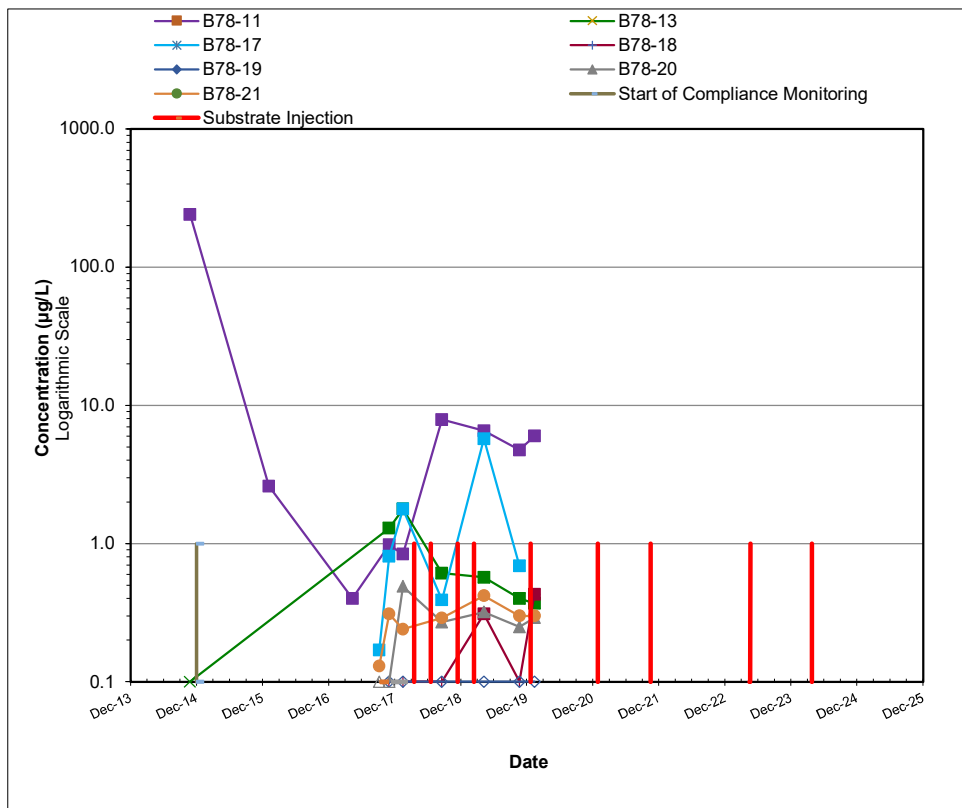
LEGEND

- 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
- FENCE
- APPROXIMATE FUEL AND NON-CHLORINATED VOC SOURCE AREAS
- REMOVED UST (WESTON, 2001)
- CONDITIONAL POINT OF COMPLIANCE
- HIGHLIGHTED** WELLS INCLUDED IN MONITORING NETWORK

BUILDING 4-78/79 SWMU/AOC GROUP
MONITORING WELL LOCATIONS AND
GROUNDWATER ELEVATIONS
FEBRUARY 10 & 13, 2025
Boeing Renton Facility
Renton, Washington

By: SD	Date: 03/17/25	Project No. US0041831.2092
WSP USA Inc.		Figure 11

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

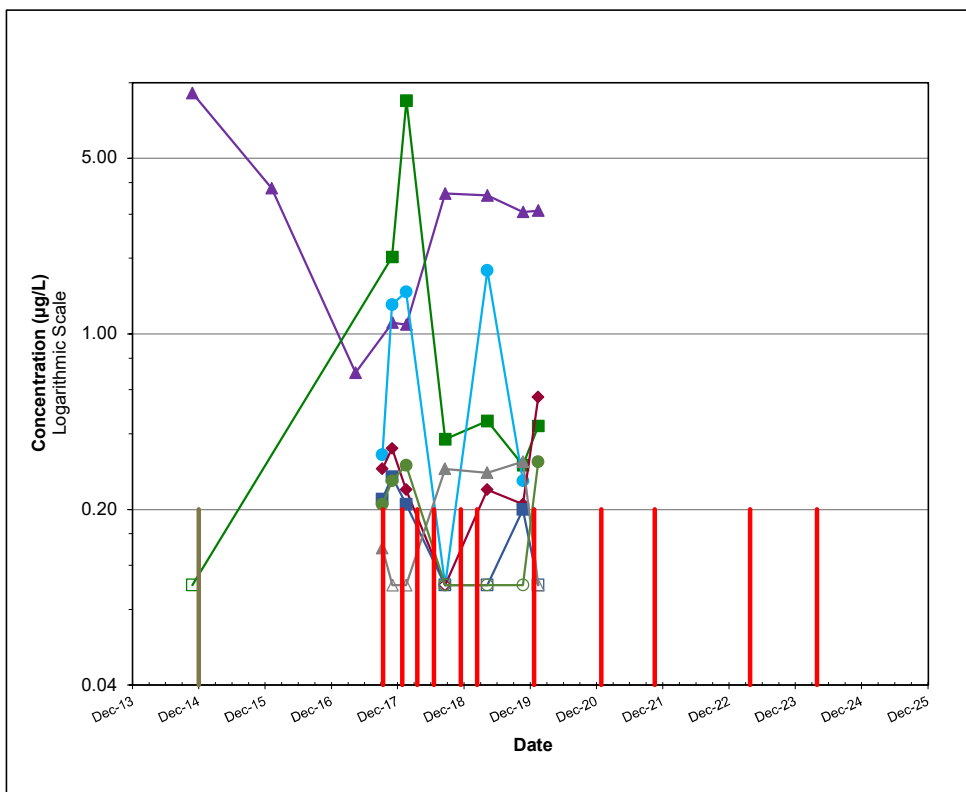
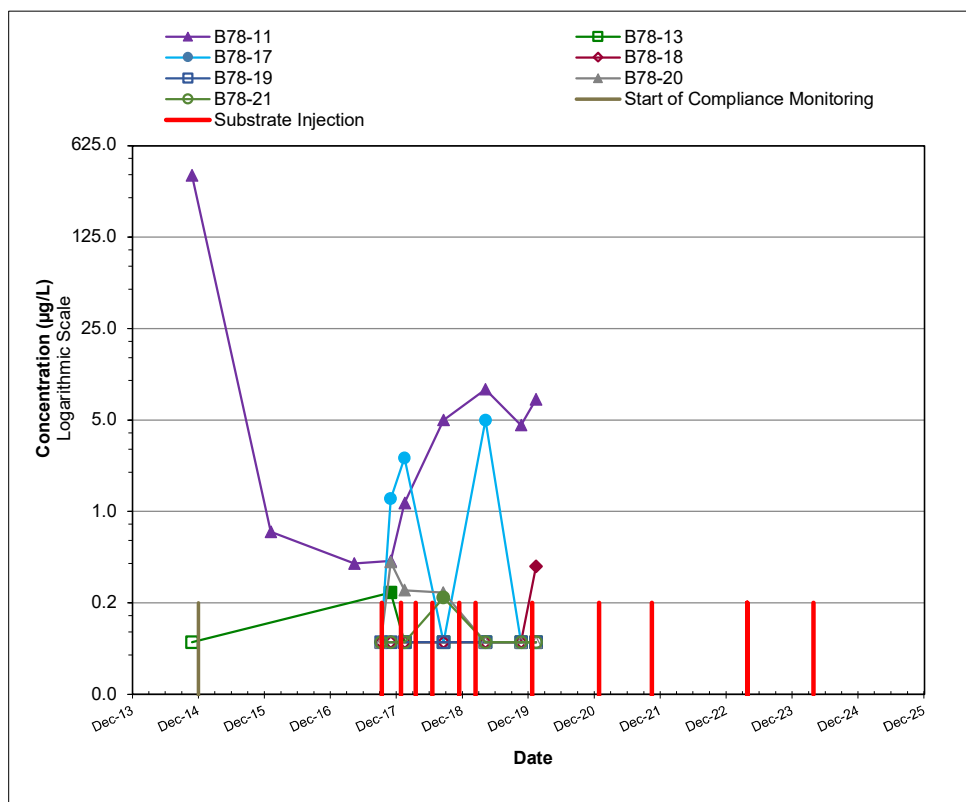


BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS FOR
CIS-1,2-DICHLOROETHENE AND BENZENE
IN INJECTION WELLS
Boeing Renton Facility, Renton, Washington

Project No.
US0041831.2092

Figure
12

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

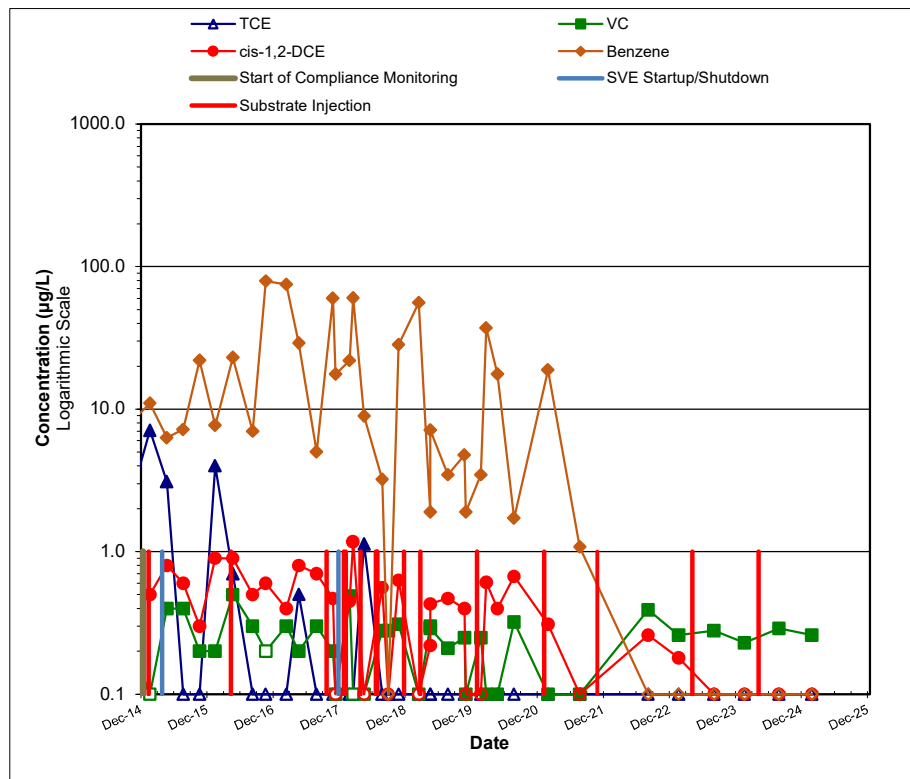


BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS
FOR TRICHLOROETHENE AND VINYL CHLORIDE
IN INJECTION WELLS
Boeing Renton Facility, Renton, Washington

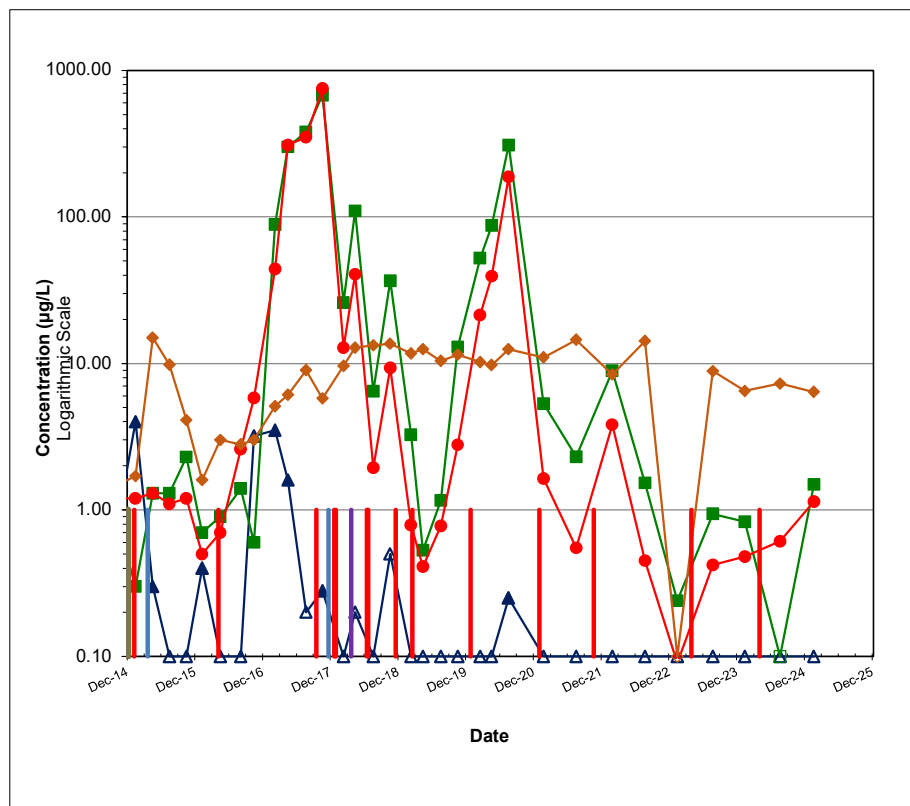
Project No.
US0041831.2092

Figure
13

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SOURCE AREA WELL GW031S



SOURCE AREA WELL GW033S

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

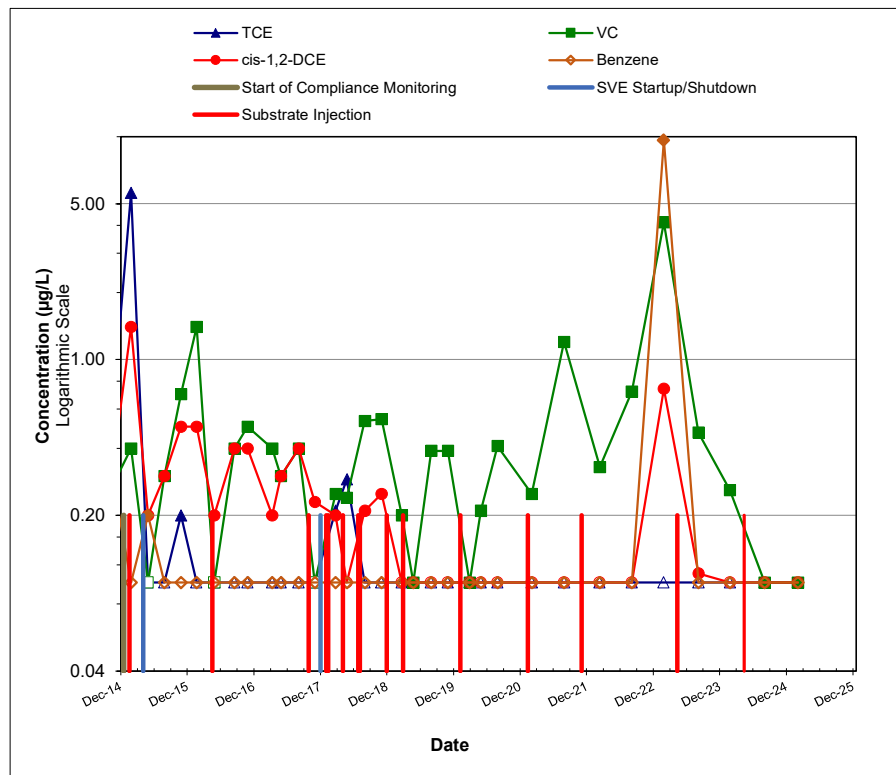


BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS
FOR SOURCE AREA WELLS GW031S AND GW033S
Boeing Renton Facility, Renton, Washington

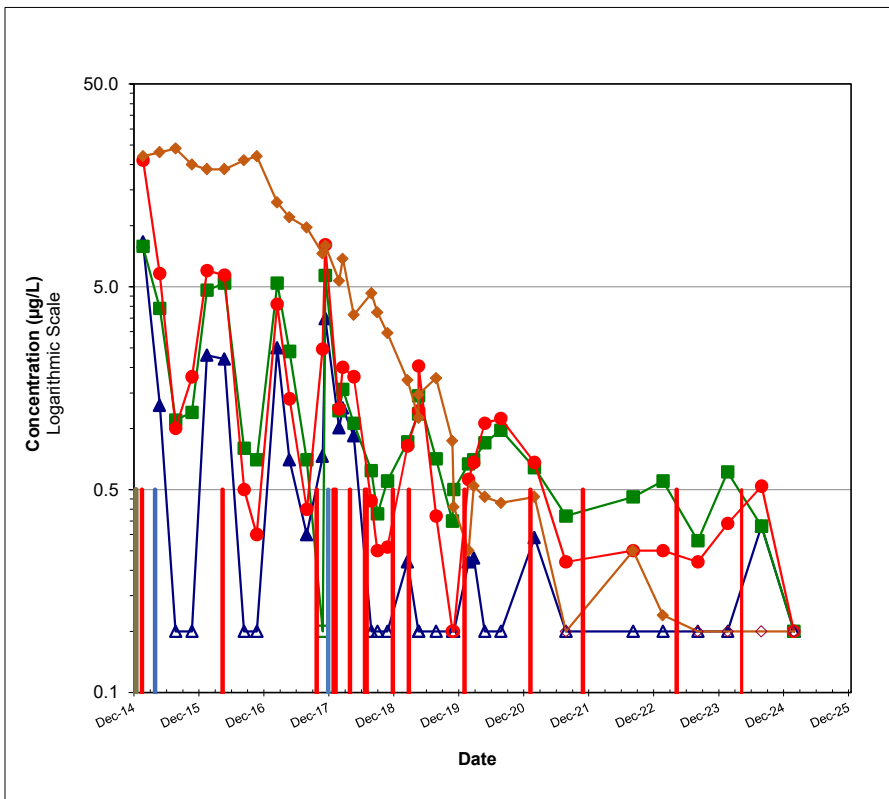
Project No.
US0041831.2092

Figure
14

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SOURCE AREA WELL GW034S



SOURCE AREA WELL GW244S

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

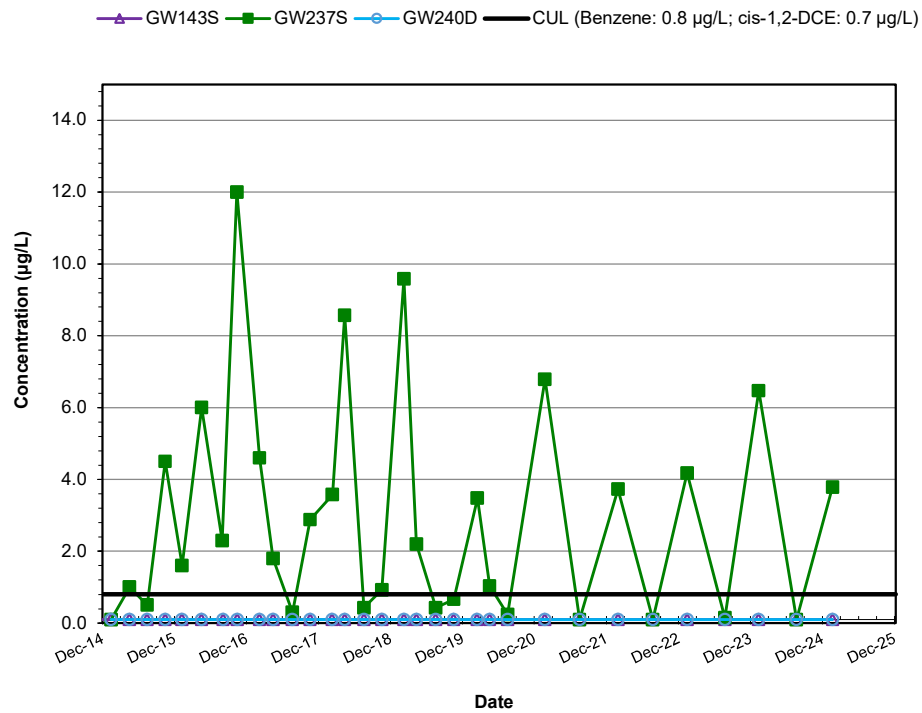


BLDG 4-78/79 SWMU/AOC GROUP TREND PLOTS
FOR SOURCE AREA WELLS GW034S AND GW244S
Boeing Renton Facility, Renton, Washington

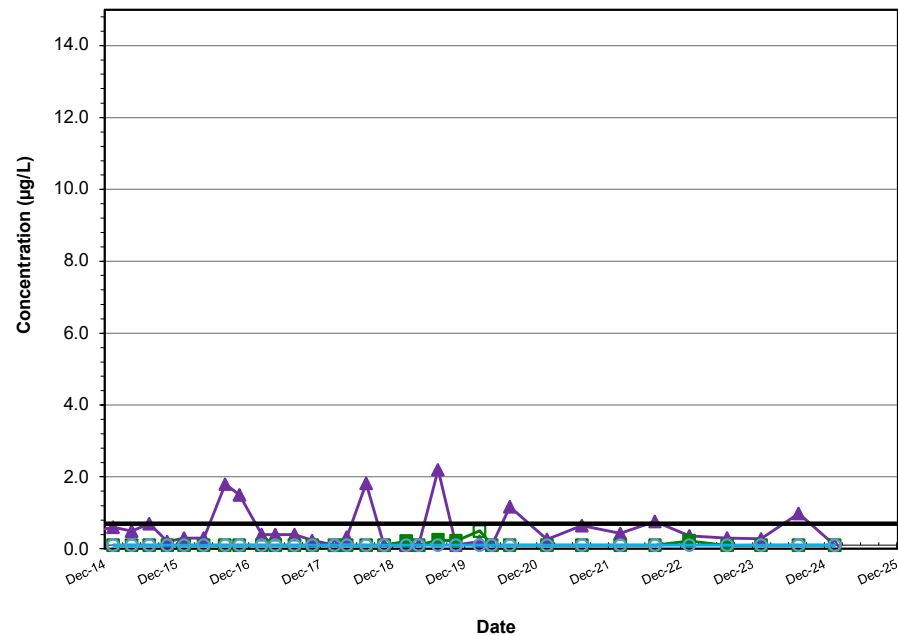
Project No.
US0041831.2092

Figure
15

X:\USUSXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\269\Figures\Boeing_Renton_Charts (3-37)_250406.xlsm



Benzene



cis-1,2-DCE

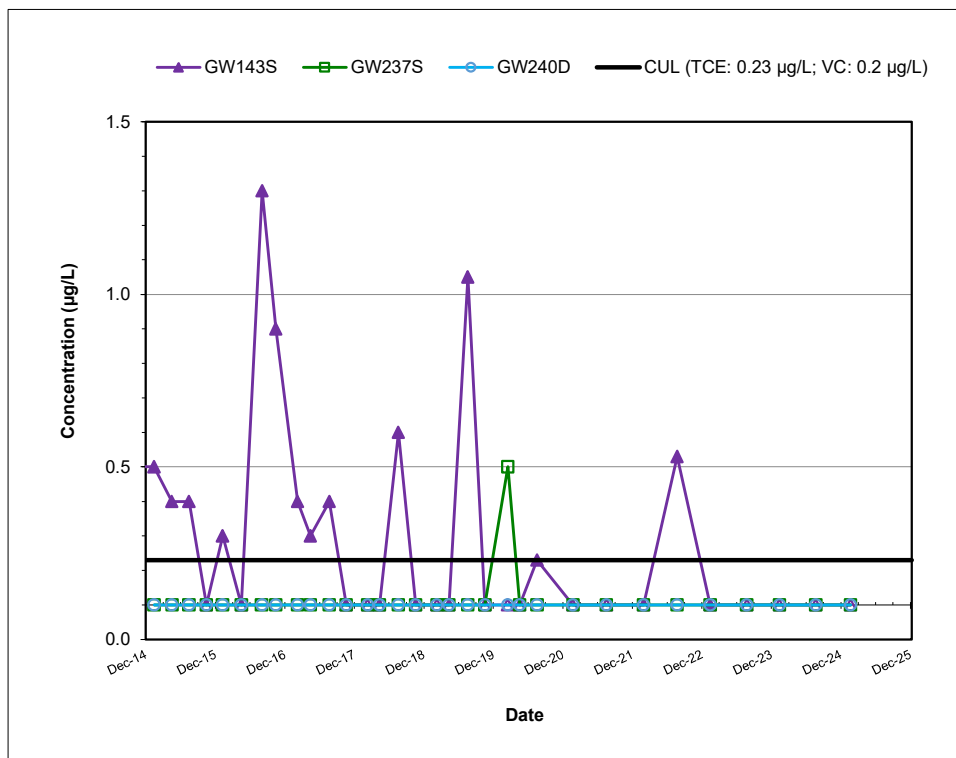
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.



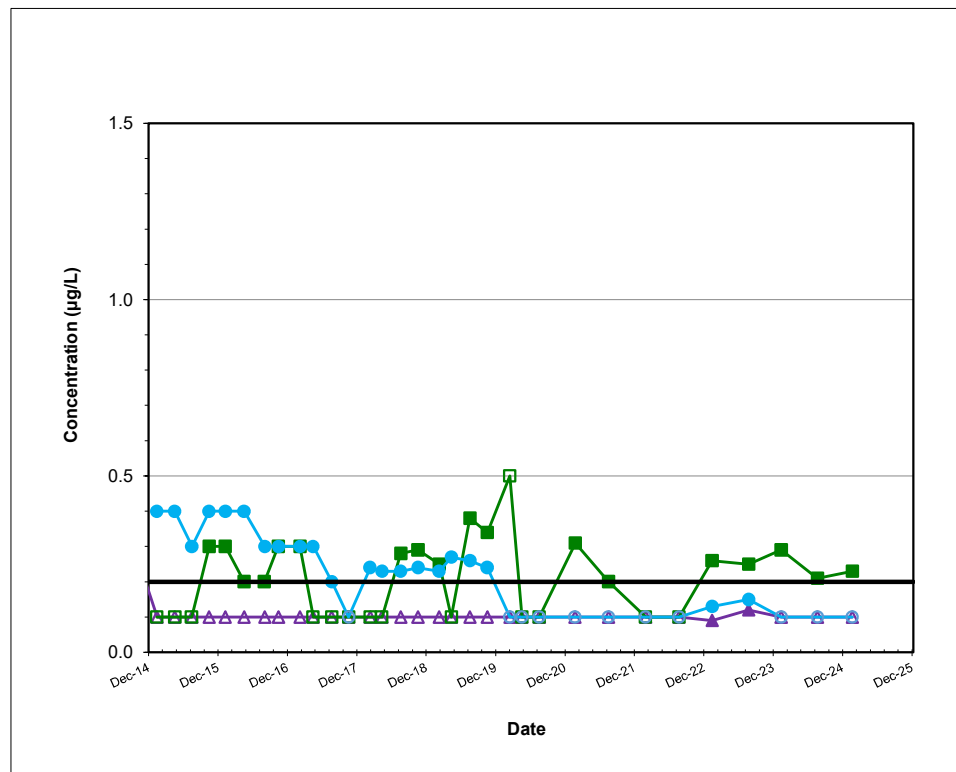
BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS FOR
BENZENE AND CIS-1,2-DICHLOROETHENE IN
CPOC AREA WELLS
Boeing Renton Facility, Renton, Washington

Project No.
US0041831.2092

Figure
16



TCE



VC

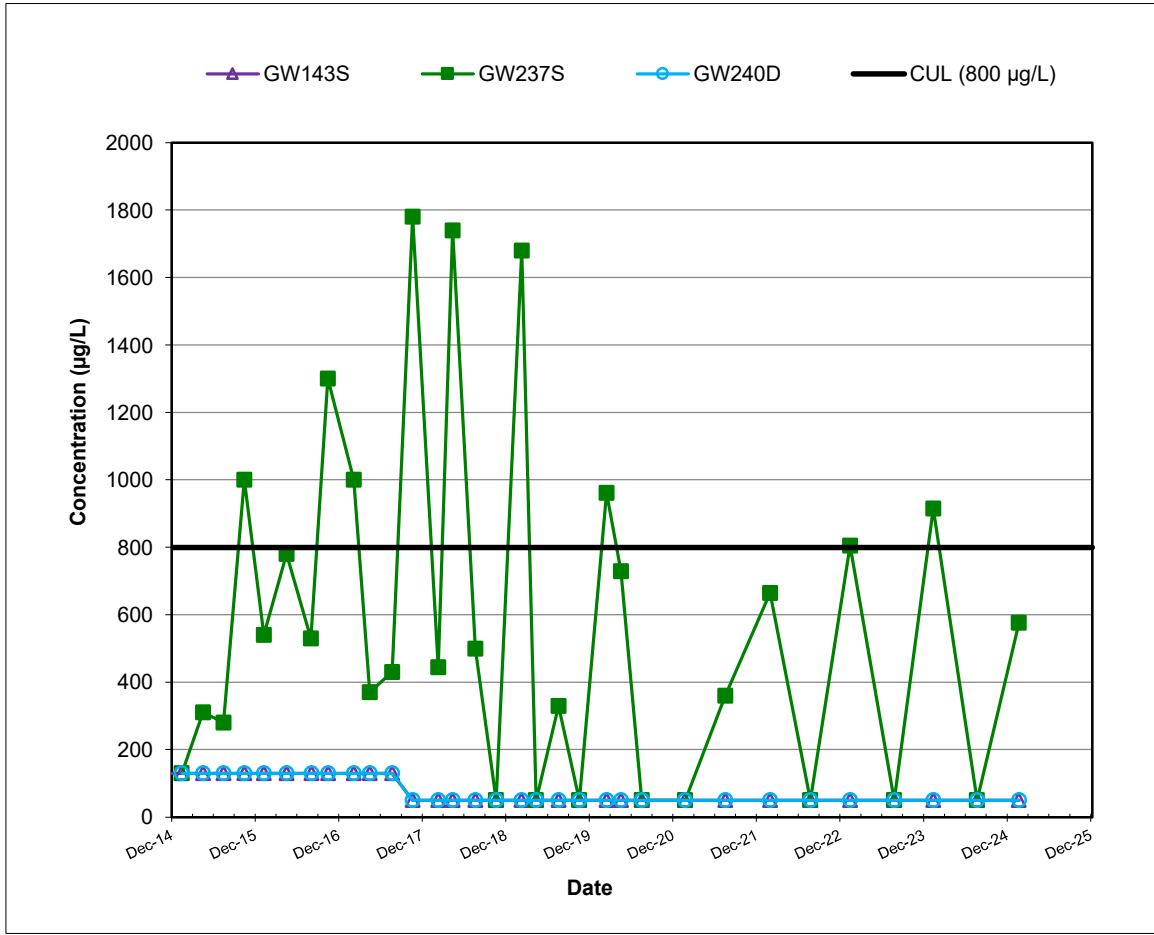
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.



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.
US0041831.209
2
Figure
17

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TPH as Gasoline

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

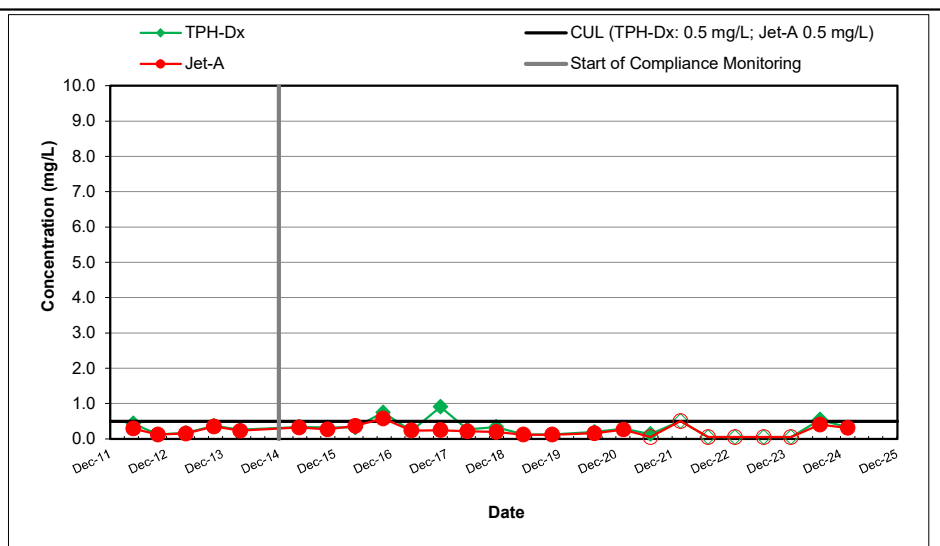


BUILDING 4-78/79 SWMU/AOC GROUP TREND PLOTS
FOR TPH AS GASOLINE IN CPOC AREA WELLS
Boeing Renton Facility, Renton, Washington

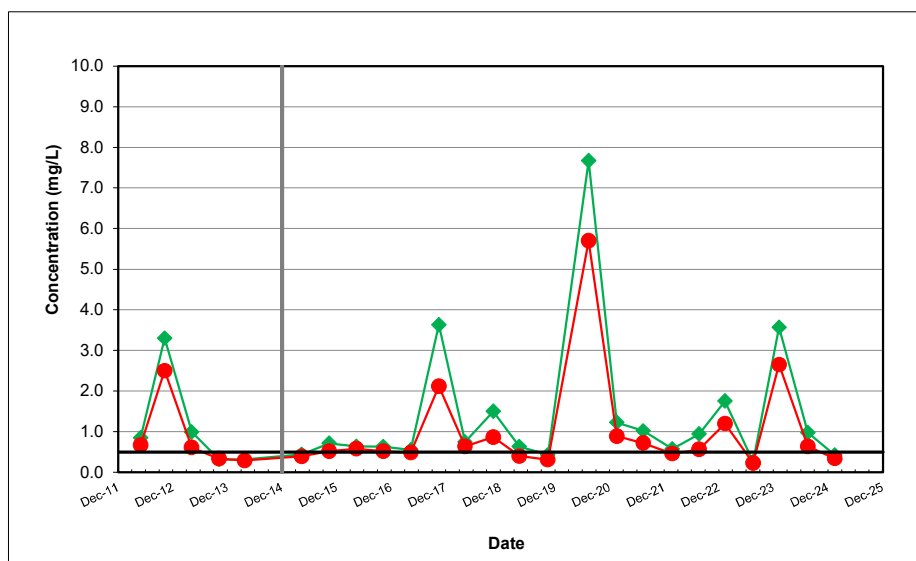
Project No.
US0041831.2092

Figure
18

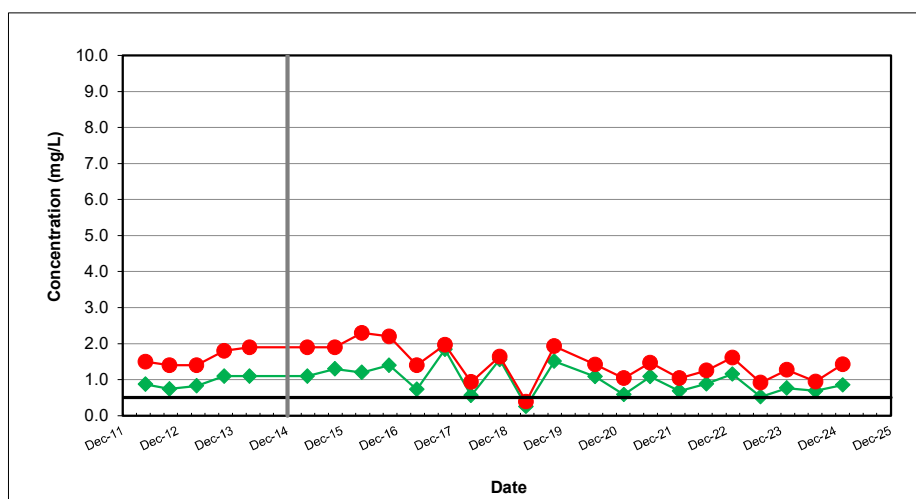
X:\US\XHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\269\Figures\Boeing_Renton_Charts (3-37) _250406.xlsm



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.

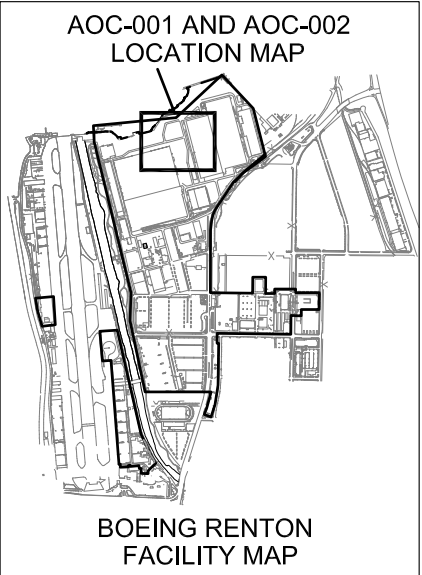
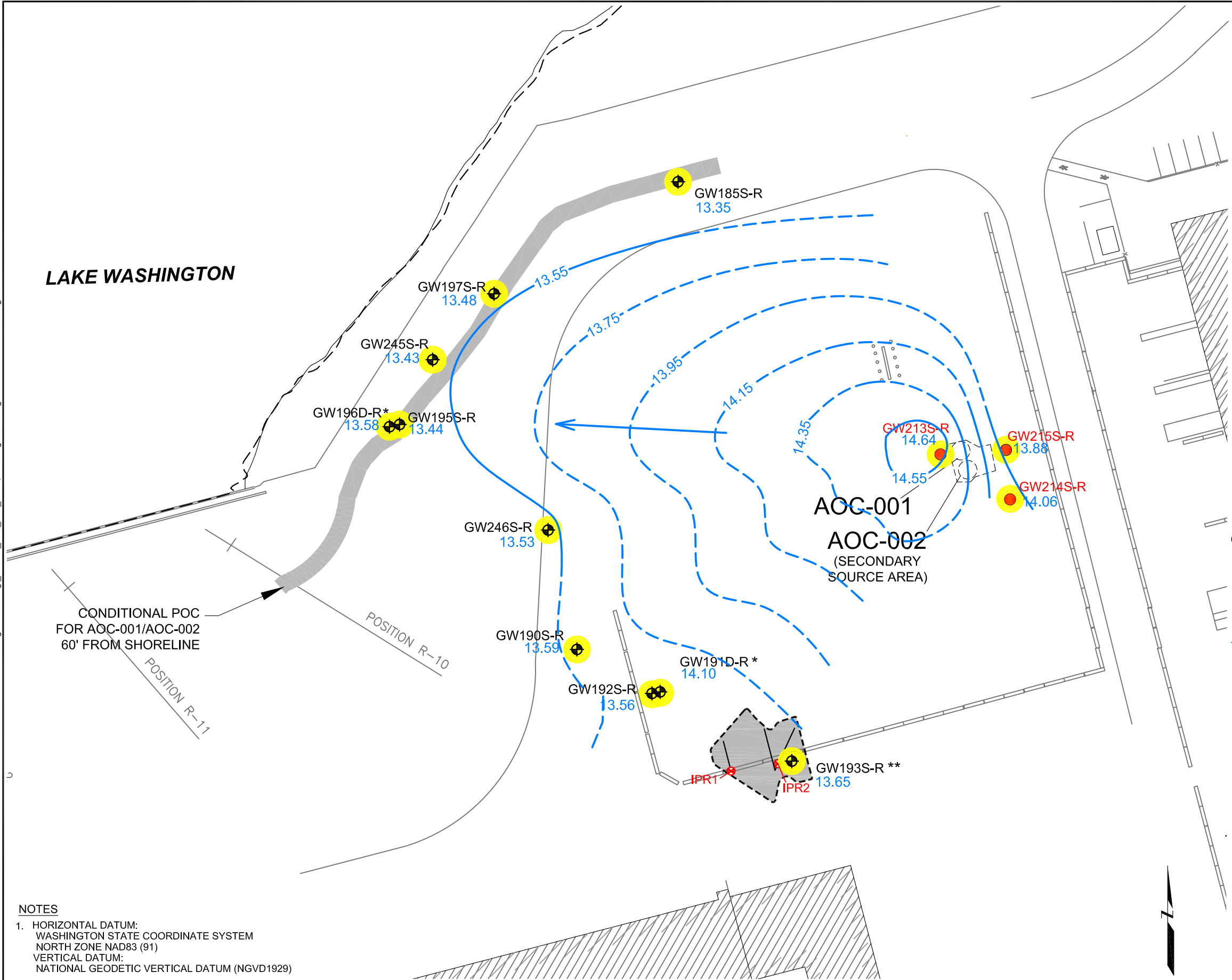


FORMER FUEL FARM AOC GROUP TREND PLOTS
FOR CPOC AREA WELLS GW211S, GW221S, AND GW224S
Boeing Renton Facility, Renton, Washington

Project No.
US0041831.2092

Figure
20

Plot Date: 04/30/25 - 2:36pm. Plotted by: USSD715014
Drawing Path: X:\USP\DX800-PORT\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg\ GWMR_First_Half_2025\, Drawing Name: Figure 21 - AOC-001-002.dwg



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.
- ** WATER LEVEL IS ANOMALOUS, 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

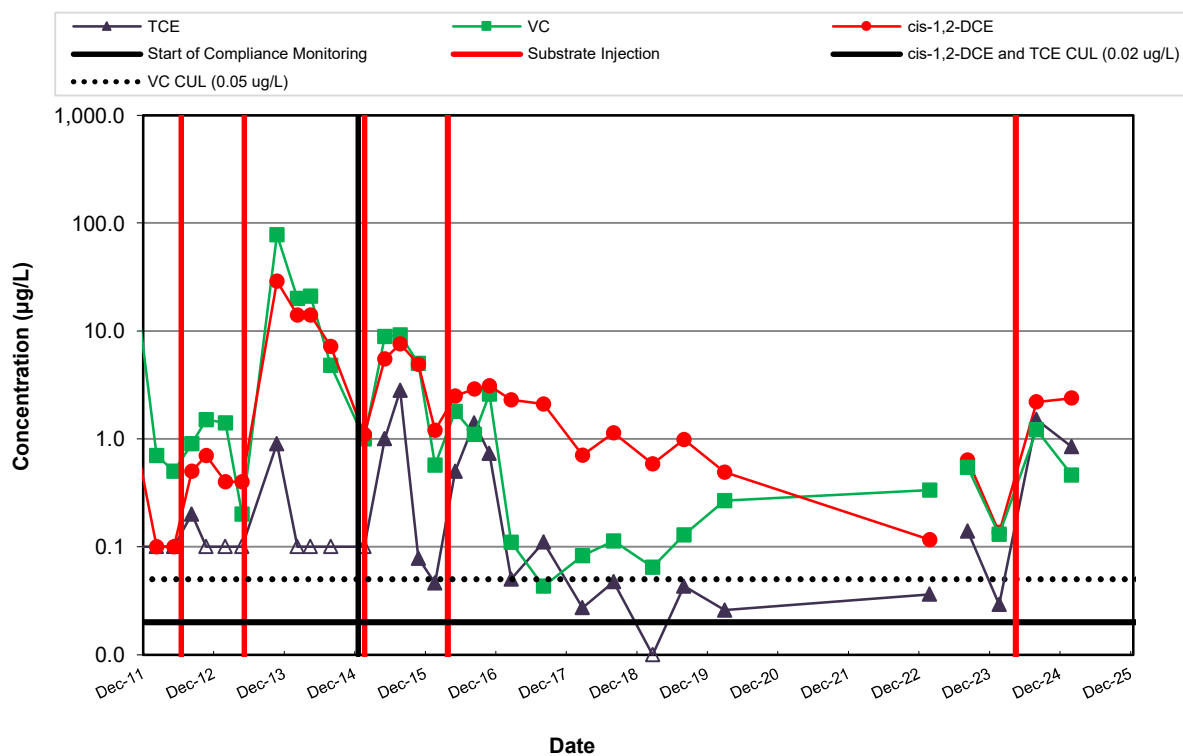
NOTES

- HORIZONTAL DATUM:
WASHINGTON STATE COORDINATE SYSTEM
NORTH ZONE NAD83 (91)
VERTICAL DATUM:
NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
- 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 25 FEET IN DEPTH.
'D' DESIGNATION INDICATES WELL SCREENED GREATER THAN 25 FEET IN DEPTH.



AOC-001 AND AOC-002 MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATIONS FEBRUARY 10 & 11, 2025 Boeing Renton Facility Renton, Washington		
By: SD	Date: 04/30/25	Project No. US0041831.2092
WSP USA, Inc.		Figure 21

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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.

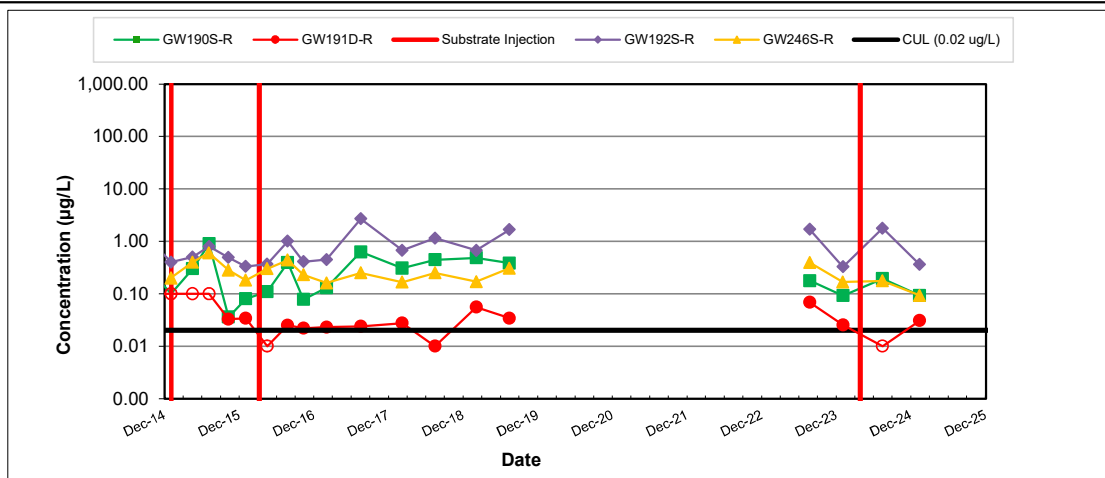


AOC-001 AND -002 TREND PLOT FOR SOURCE AREA WELL GW193S
Boeing Renton Facility
Renton, Washington

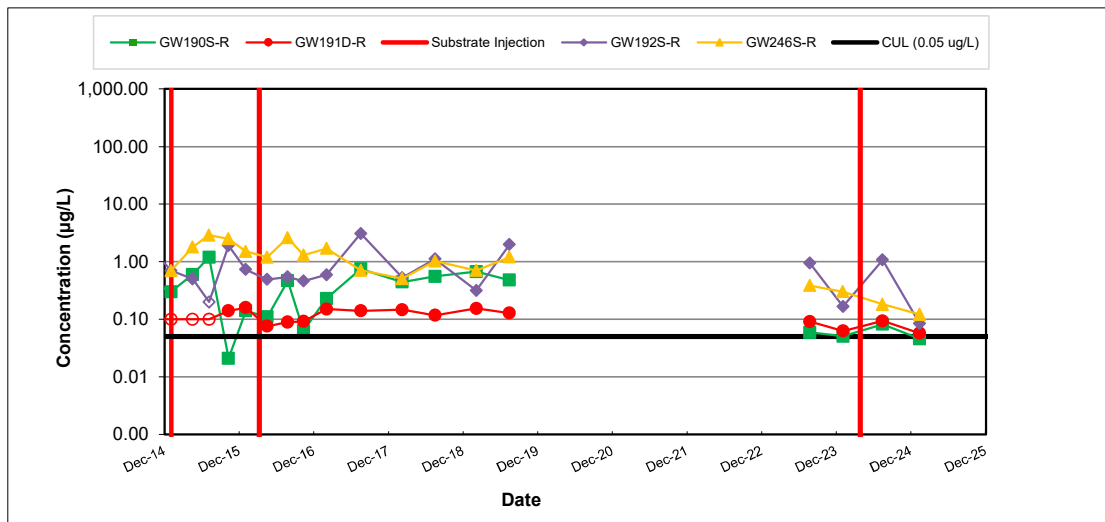
Project No.
US0041831.2092

Figure
22

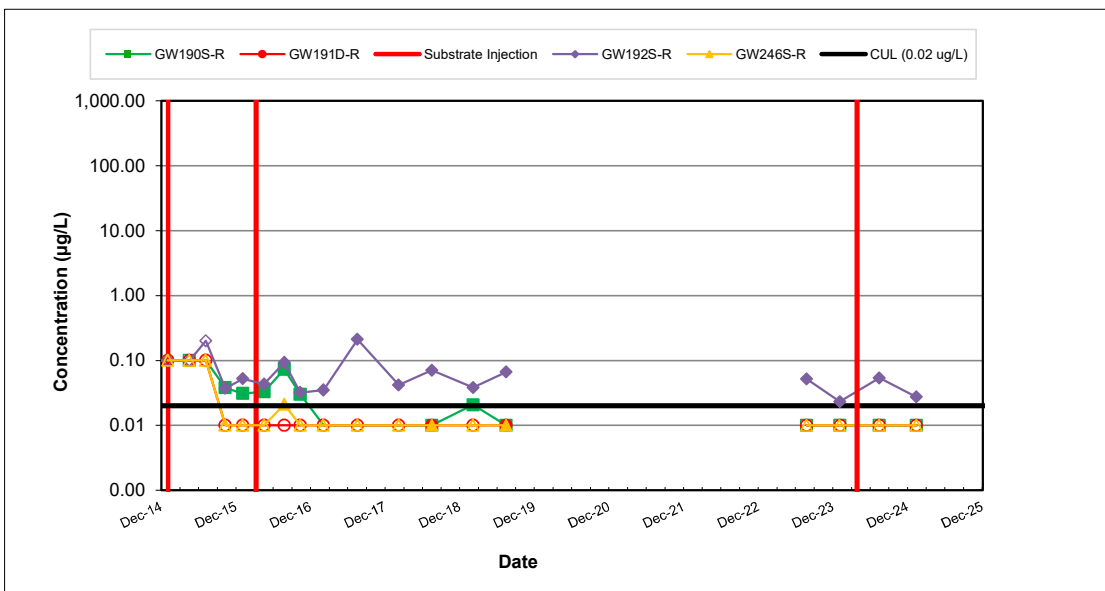
X:\US\USXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\269\Figures\AOC-001_-002_Figures (22-25)_240926.xlsm



cis-1,2-DCE



VC



TCE

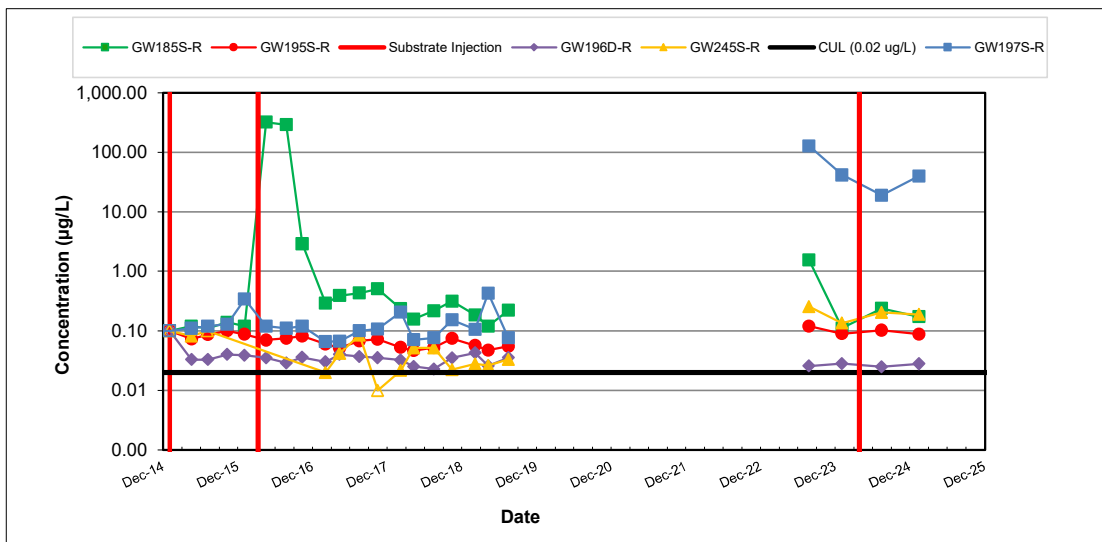
Note: non-detected values shown at one-half the reporting limit and graphed with an open symbol. Wells in this area were replaced in July 2023; results from the new wells are shown separated from original well results.



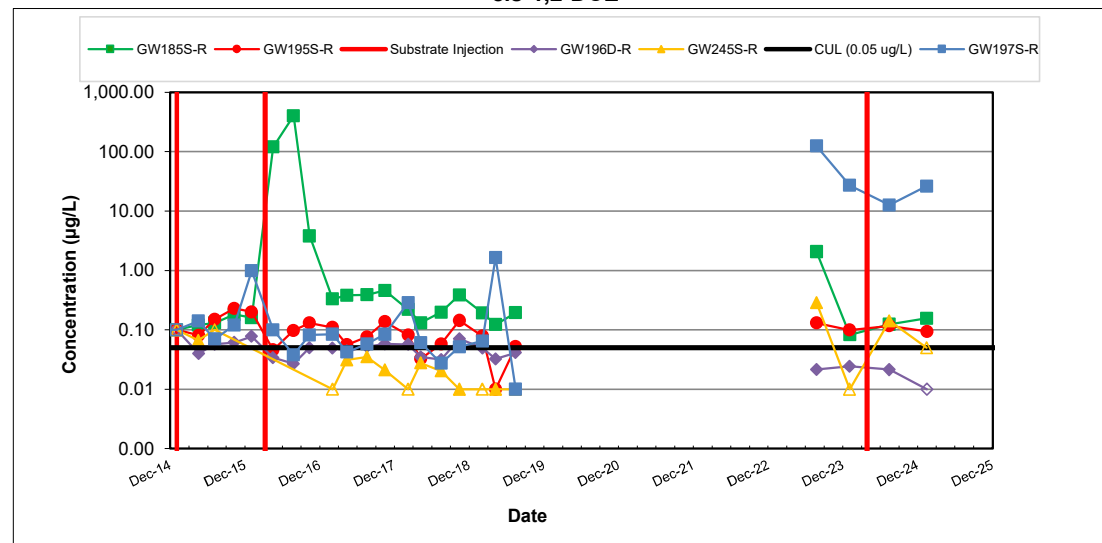
AOC-001 AND -002 TREND PLOTS FOR CIS-1,2-DICHLOROETHENE,
TRICHLOROETHENE, AND VINYL CHLORIDE IN DOWNGRADIENT AREA
WELLS
Boeing Renton Facility
Renton, Washington

Project No.
US0041831.2092
Figure
23

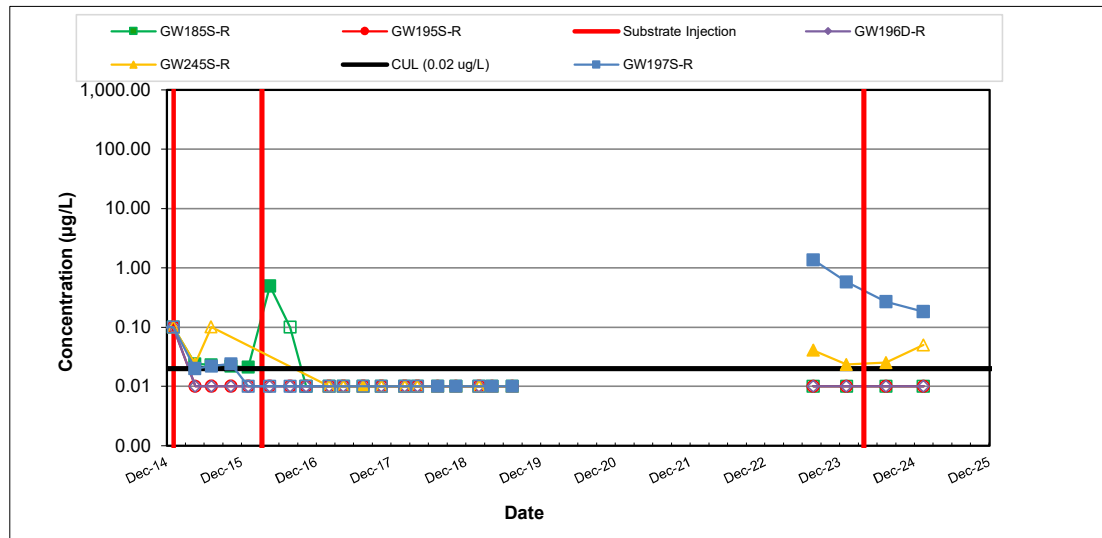
X:\US\XHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\269\Figures\AOC-001_-002_Figures (22-25)_240926.xlsm



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.

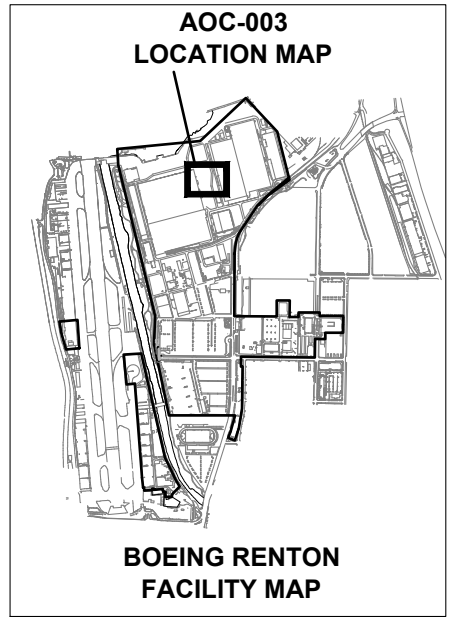
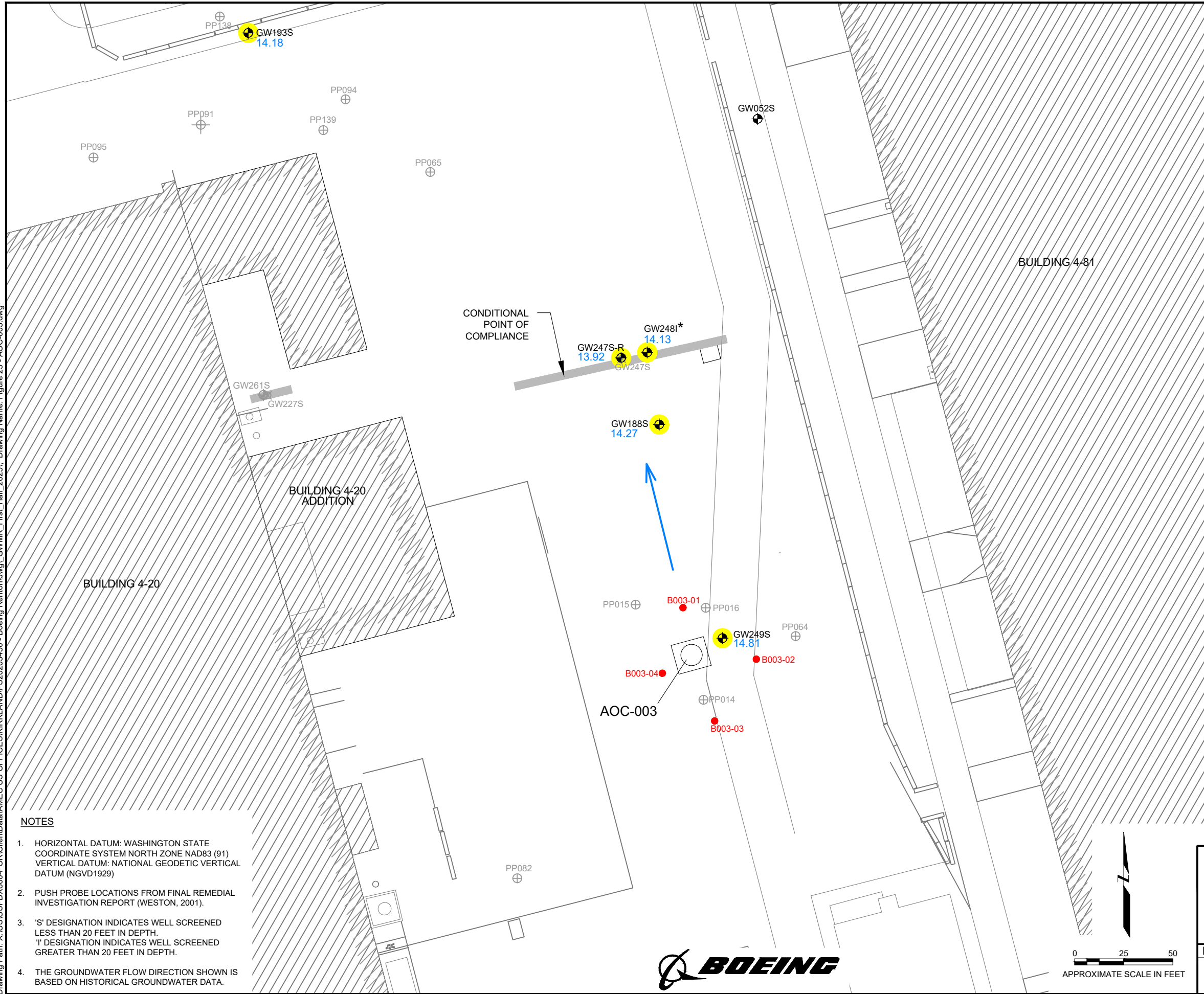


AOC-001 AND -002 TREND PLOTS FOR CIS-1,2-DICHLOROETHENE,
TRICHLOROETHENE, AND VINYL CHLORIDE IN CPOC AREA WELLS
Boeing Renton Facility
Renton, Washington

Project No.
US0041831.2092

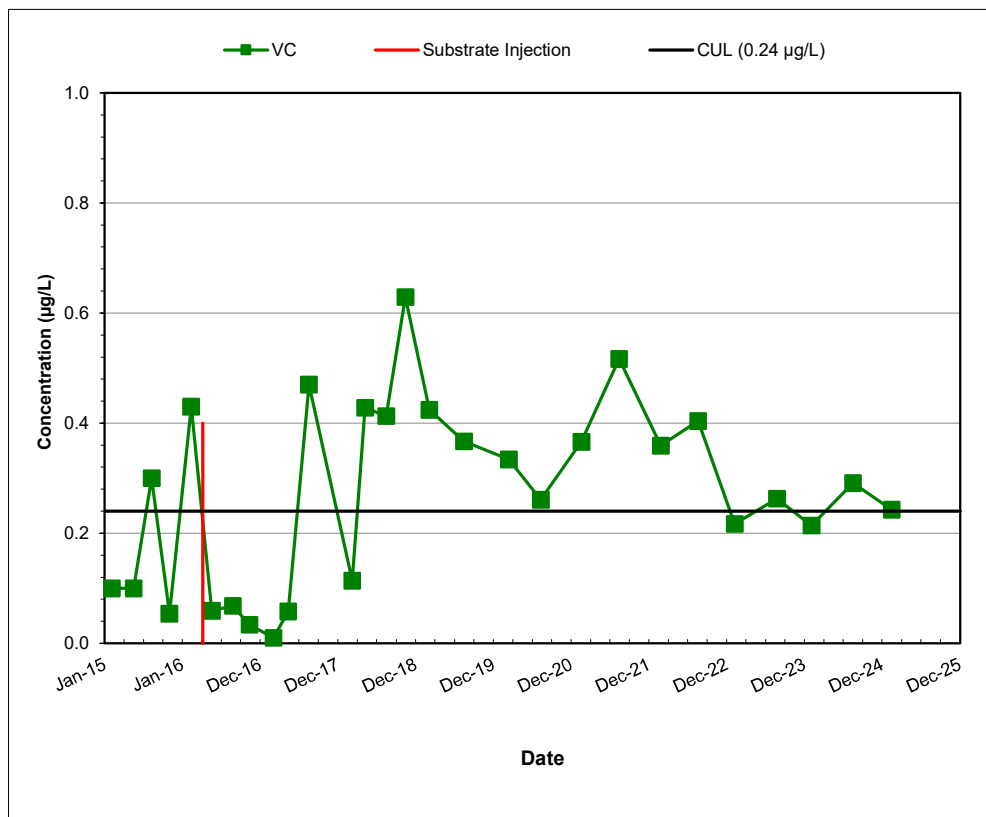
Figure
24

Plot Date: 04/30/25 - 12:30pm, Plotted by: USSD715014
Drawing Path: X:\USUSPD\800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Rentondwg\ GWMR_First_Half_2025\ Drawing Name: Figure 25 - AOC-003.dwg

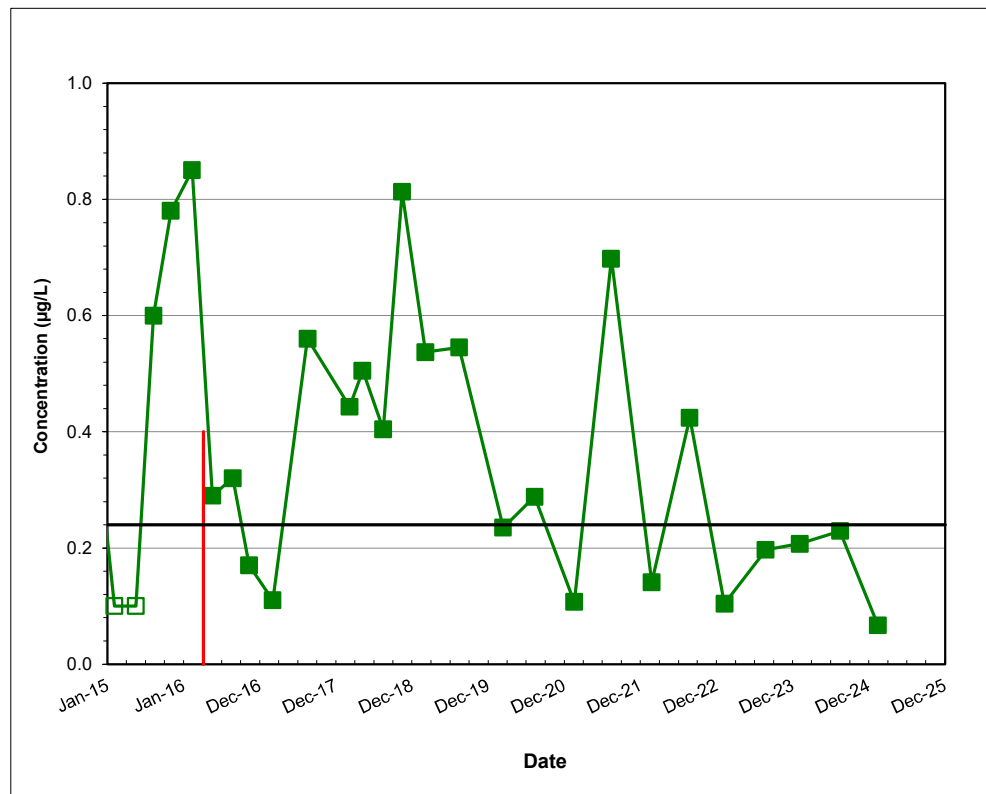


- LEGEND**
- GW249S 16.52 MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
 - * WELL SCREENED IN UPPER AND LOWER PORTION OF AQUIFER, SO WATER LEVEL IS NOT USED FOR CONTOURING.
 - GENERAL DIRECTION OF GROUNDWATER FLOW BASED ON HISTORICAL INFORMATION
 - CONDITIONAL POINT OF COMPLIANCE
 -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

AOC-003 MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATIONS FEBRUARY 11, 2025 Boeing Renton Facility Renton, Washington		
By: SD	Date: 04/30/25	Project No. US0041831.2092
WSP USA, Inc.		Figure 25



SOURCE AREA WELL GW249S



DOWNGRAIDENT PLUME AREA WELL GW188S

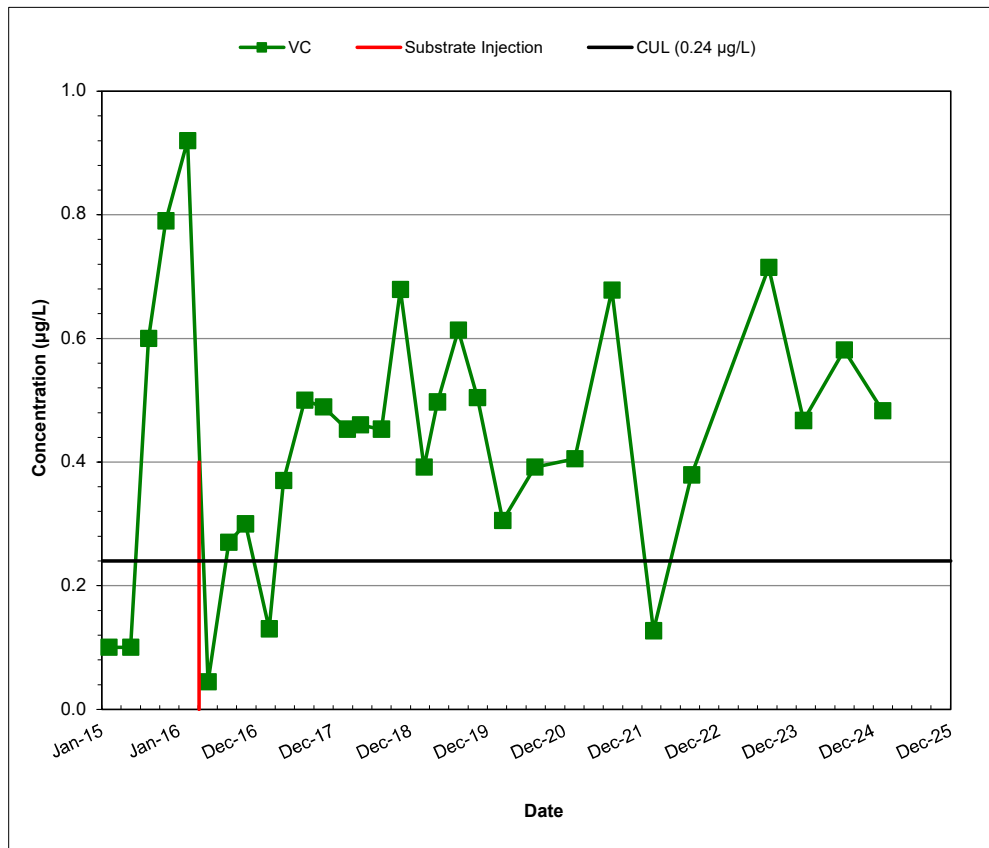
Note: Non-detected values shown at one-half the reporting limit and with an open symbol



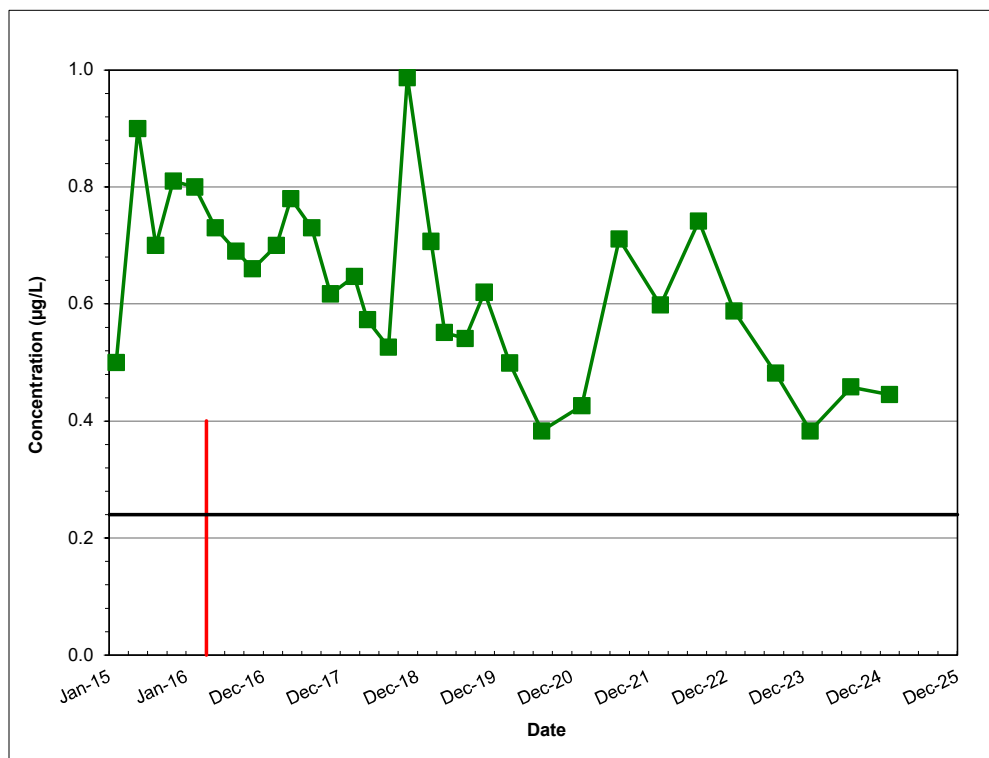
AOC-003 TREND PLOTS FOR SOURCE AREA WELL GW249S
 AND DOWNGRAIDENT PLUME AREA WELL GW188S
 Boeing Renton Facility, Renton, Washington

Project No.
 US0041831.2092

Figure
 26



CPOC WELL GW247S-R



CPOC WELL GW248I

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



AOC-003 TREND PLOTS FOR CPOC WELLS GW247S AND GW248I
Boeing Renton Facility, Renton, Washington

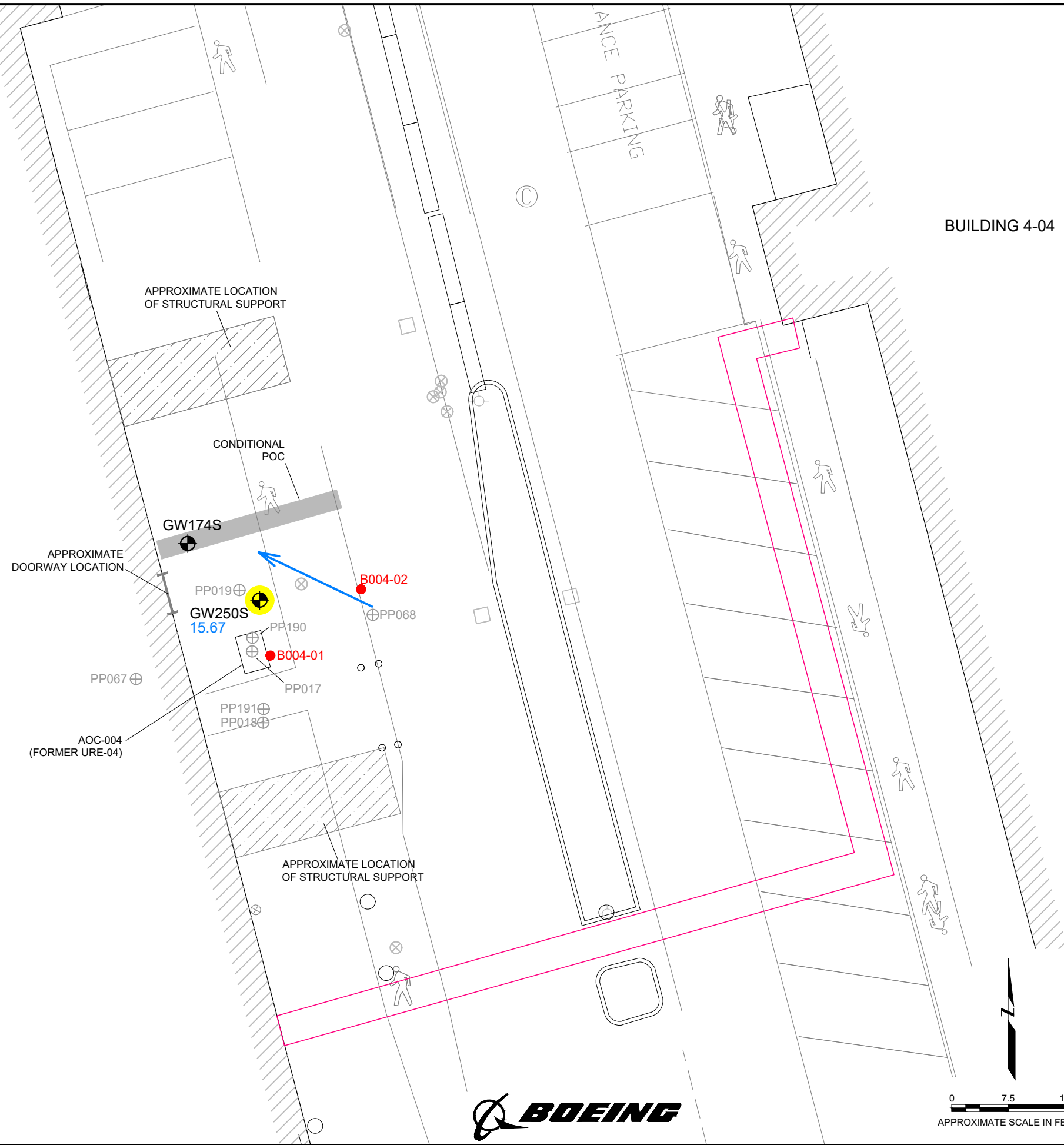
Project No.
US0041831.2092

Figure
27

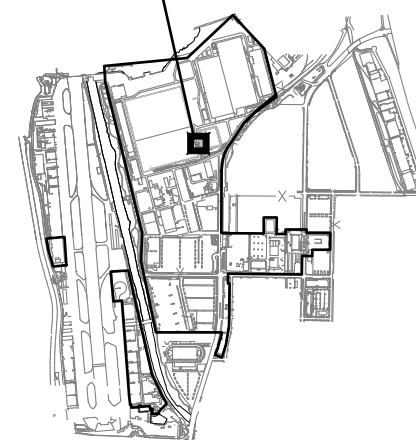
Plot Date: 04/30/25 - 12:35pm, Plotted by: USSD715014
Drawing Path: X:\USUSPD\800-POR\ClientData\AMEC US OFFICES\KIRKLAND\PS2020\3450 - Boeing Rentondwg\ GWMR_First_Half_2025\ Drawing Name: Figure 28 - AOC-004.dwg

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 LOCATION MAP



BOEING RENTON FACILITY MAP

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

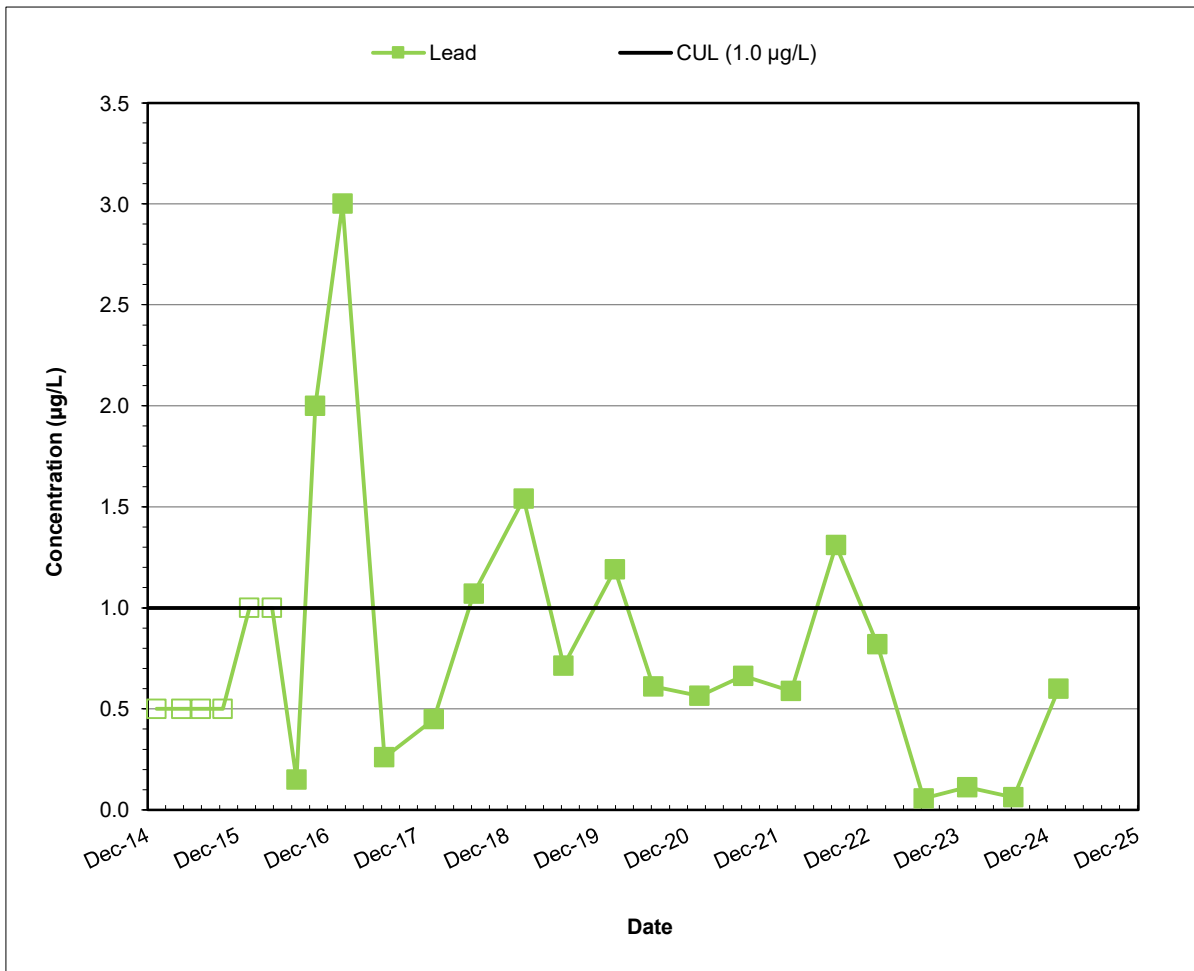
AOC-004 MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATIONS FEBRUARY 11, 2025 Boeing Renton Facility Renton, Washington

By: SD Date: 04/30/25 Project No. US0041831.2092

WSP USA, Inc.

Figure 28

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SOURCE AREA WELL GW250S

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



AOC-004 TREND PLOT FOR SOURCE AREA WELL GW250S
Boeing Renton Facility, Renton, Washington

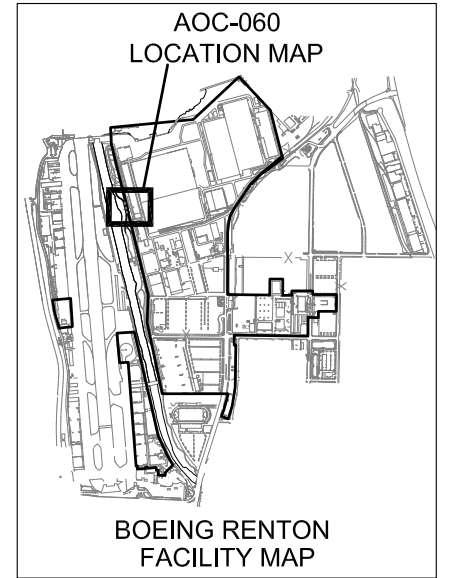
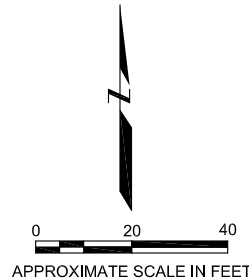
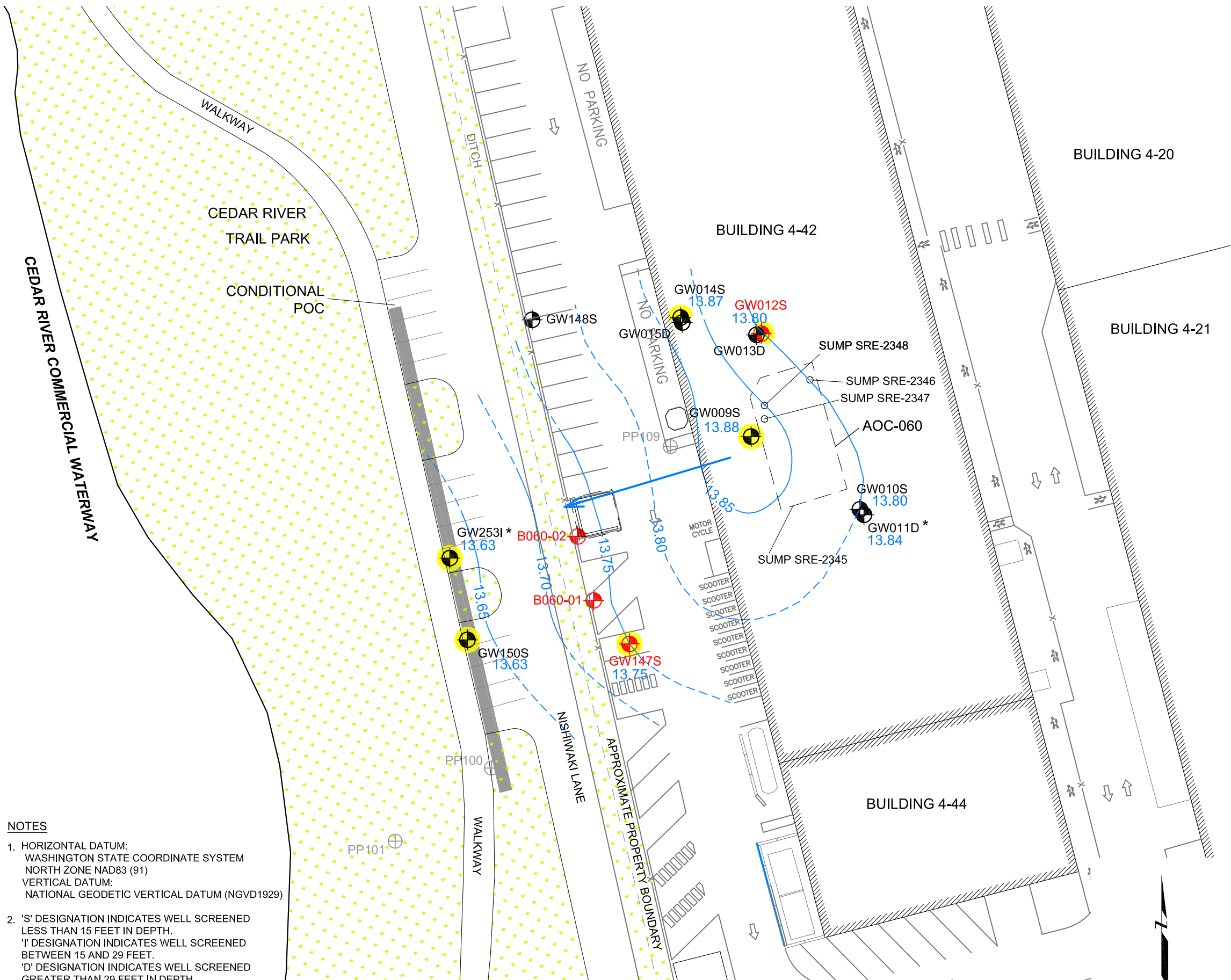
Project No.
US0041831.2092

Figure
29

Plot Date: 04/30/25 - 2:46pm. Plotted by: USSD715014
Drawing Path: X:\USP\DX800-PORT\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg\ GWMR_First_Half_2025\, Drawing Name: Figure 30 - AOC-060.dwg

NOTES

1. HORIZONTAL DATUM:
WASHINGTON STATE COORDINATE SYSTEM
NORTH ZONE NAD83 (91)
VERTICAL DATUM:
NATIONAL GEODETIC VERTICAL DATUM (NGVD1929)
2. '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.
3. THE GROUNDWATER FLOW DIRECTION SHOWN IS
BASED ON HISTORICAL GROUNDWATER DATA.

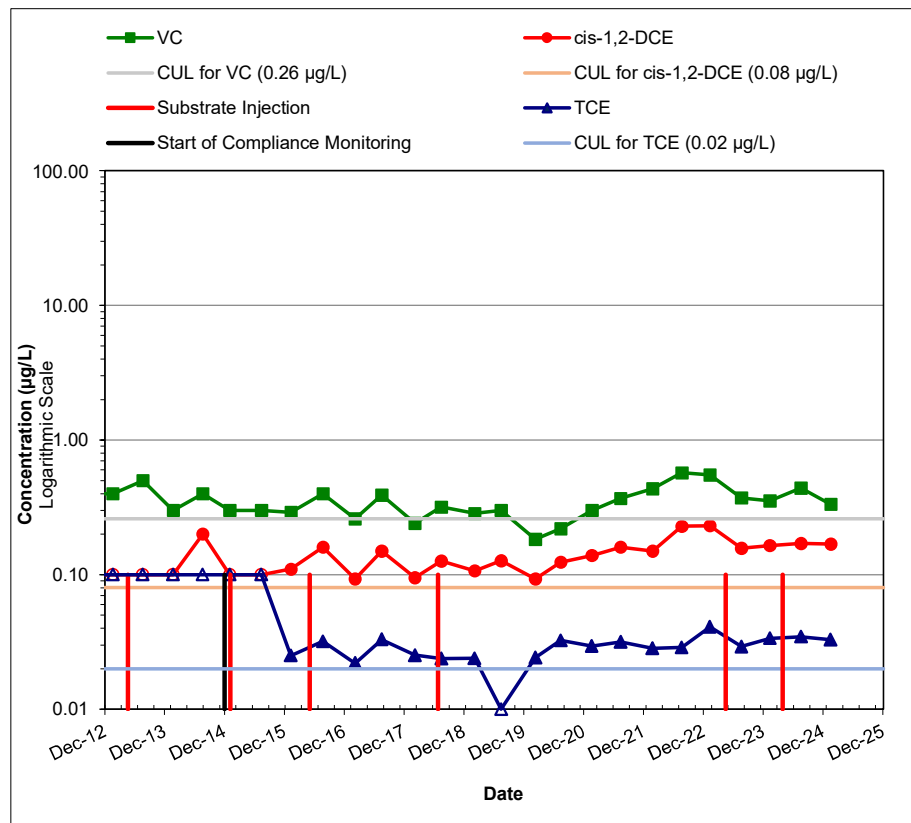


LEGEND

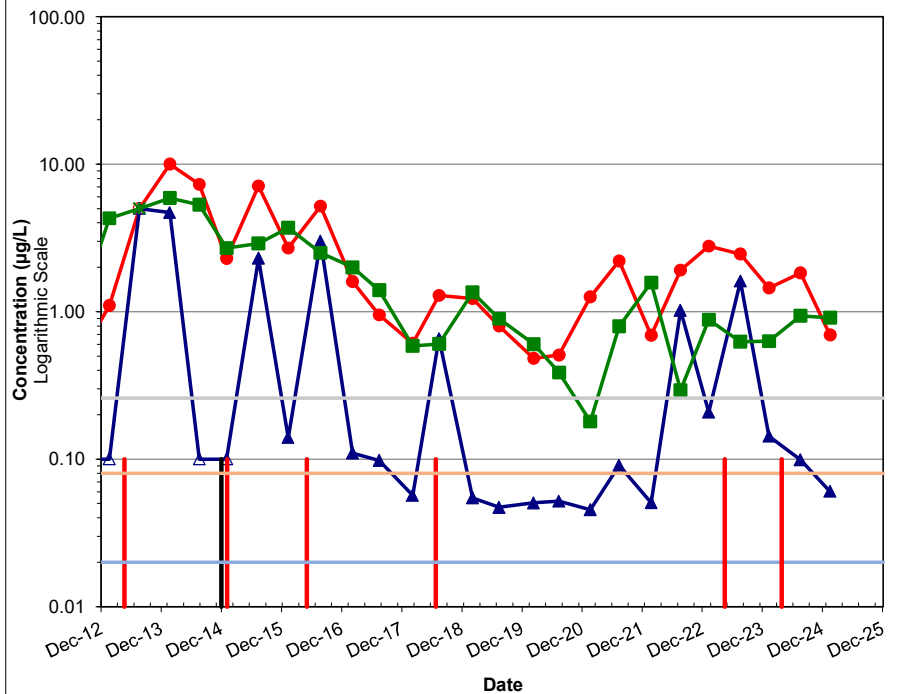
- GW150S 13.96 MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
- * WELL SCREENED IN UPPER AND LOWER PORTION OF AQUIFER, SO WATER LEVEL IS NOT USED FOR CONTOURING.
- GW147S BIOREMEDIATION INJECTION WELL AND MONITORING WELL
- 14.1 GROUNDWATER ELEVATION CONTOUR (IN FEET) (DASHED WHERE INFERRED)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

AOC-060 MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATIONS FEBRUARY 12, 2025 Boeing Renton Facility Renton, Washington

By: SD	Date: 04/30/25	Project No. US0041831.2092
WSP USA, Inc.		Figure 30



SOURCE AREA WELL GW009S



DOWNGRADEMENT PLUME AREA WELL GW012S

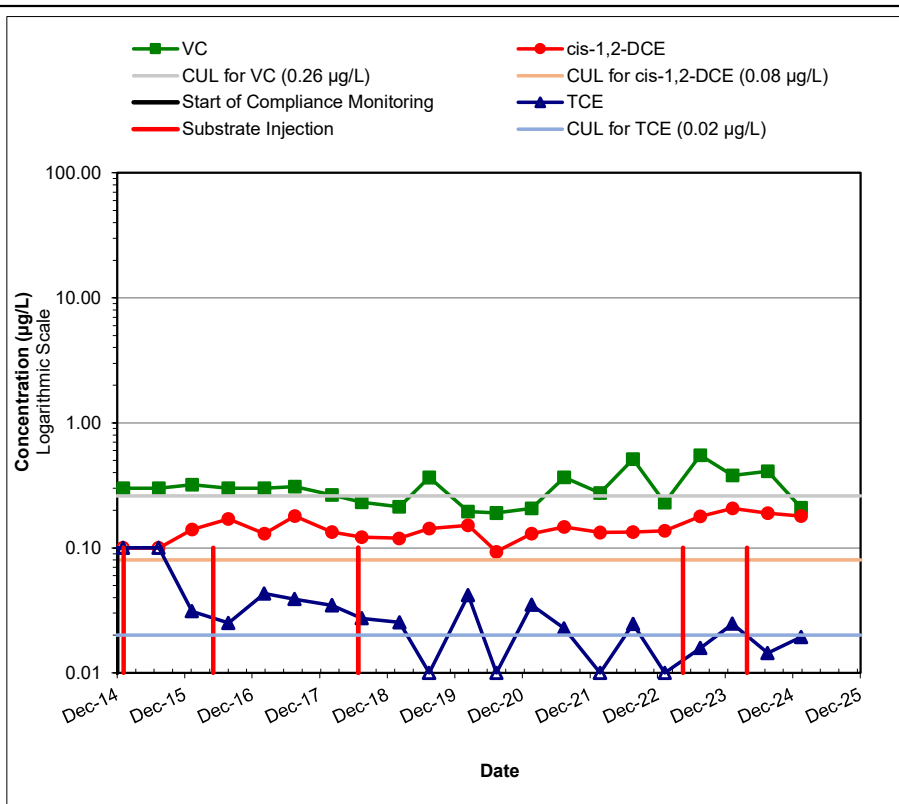
Note: Non-detected values shown at one-half the reporting limit and with an open symbol.



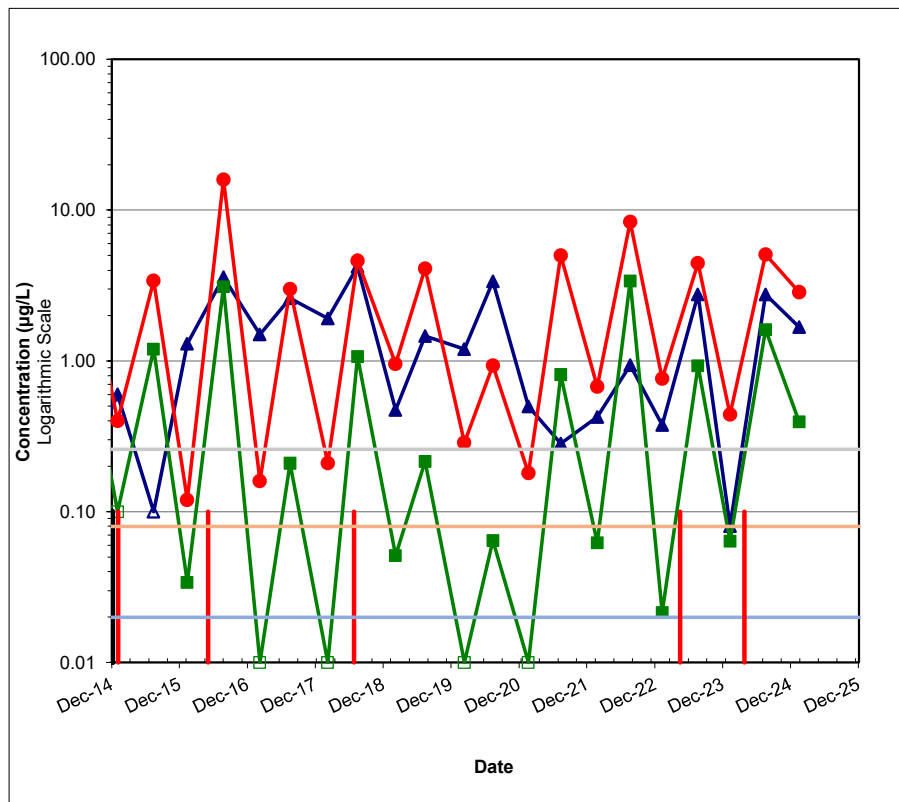
AOC-060 TREND PLOTS FOR
SOURCE AREA WELL GW009S AND
DOWNGRADEMENT PLUME AREA WELL GW012S
Boeing Renton Facility, Renton, Washington

Project No.
US0041831.2092

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.

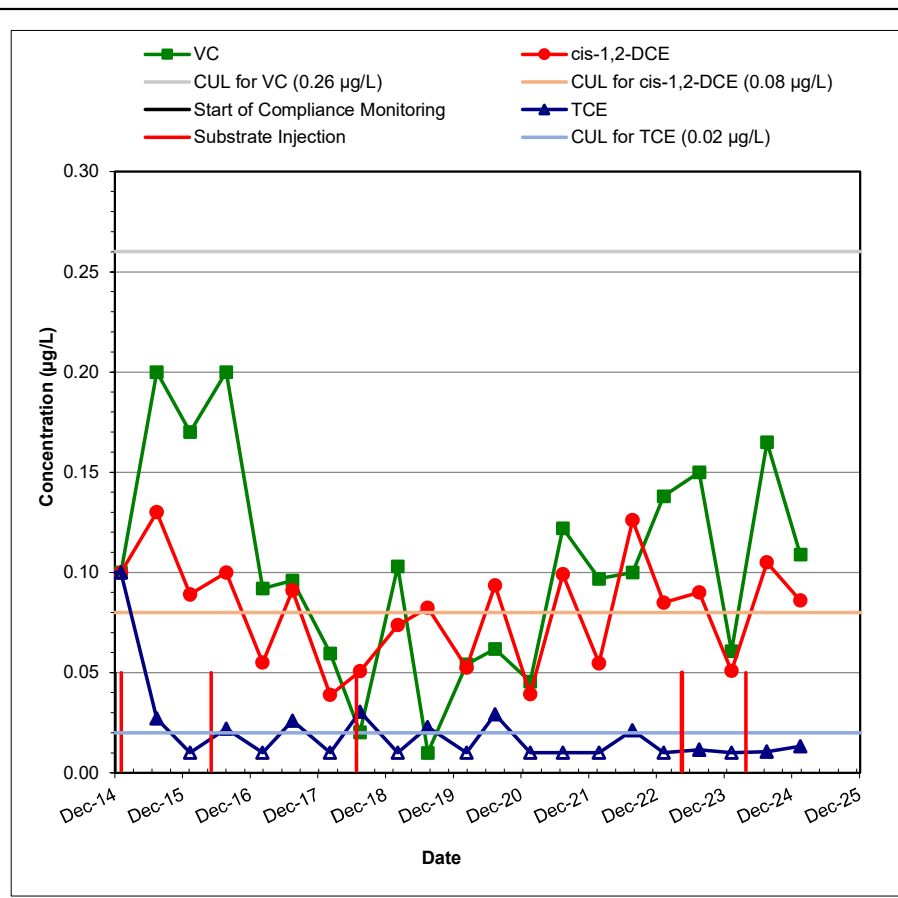


AOC-060 TREND PLOTS FOR DOWNGRADIENT PLUME
AREA WELLS GW014S AND GW147S
Boeing Renton Facility, Renton, Washington

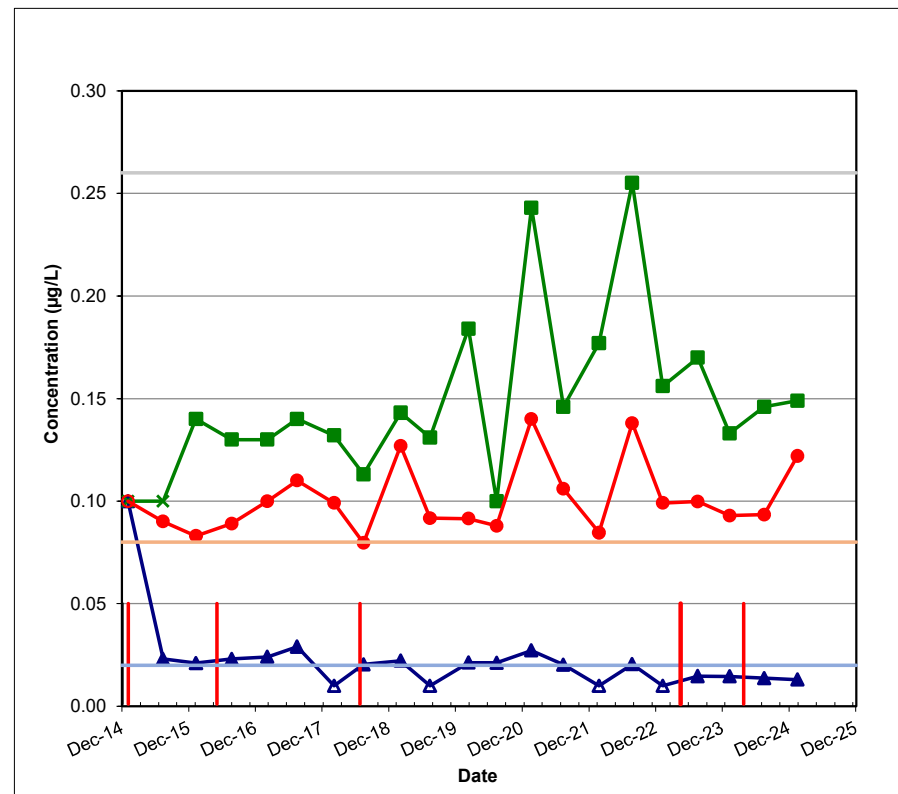
Project No.
US0041831.2092

Figure
32

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CPOC AREA WELL GW150S



CPOC AREA WELL GW253I

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

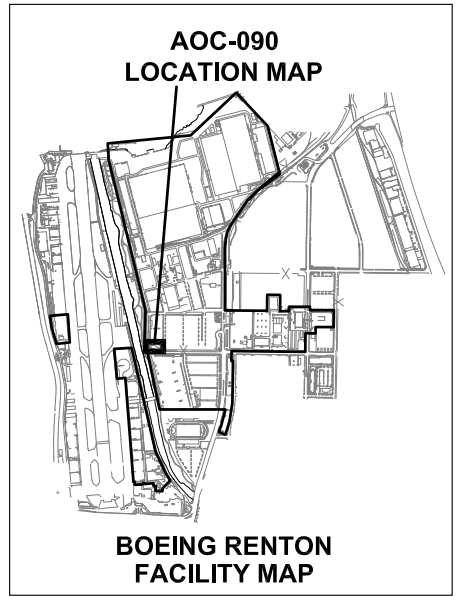
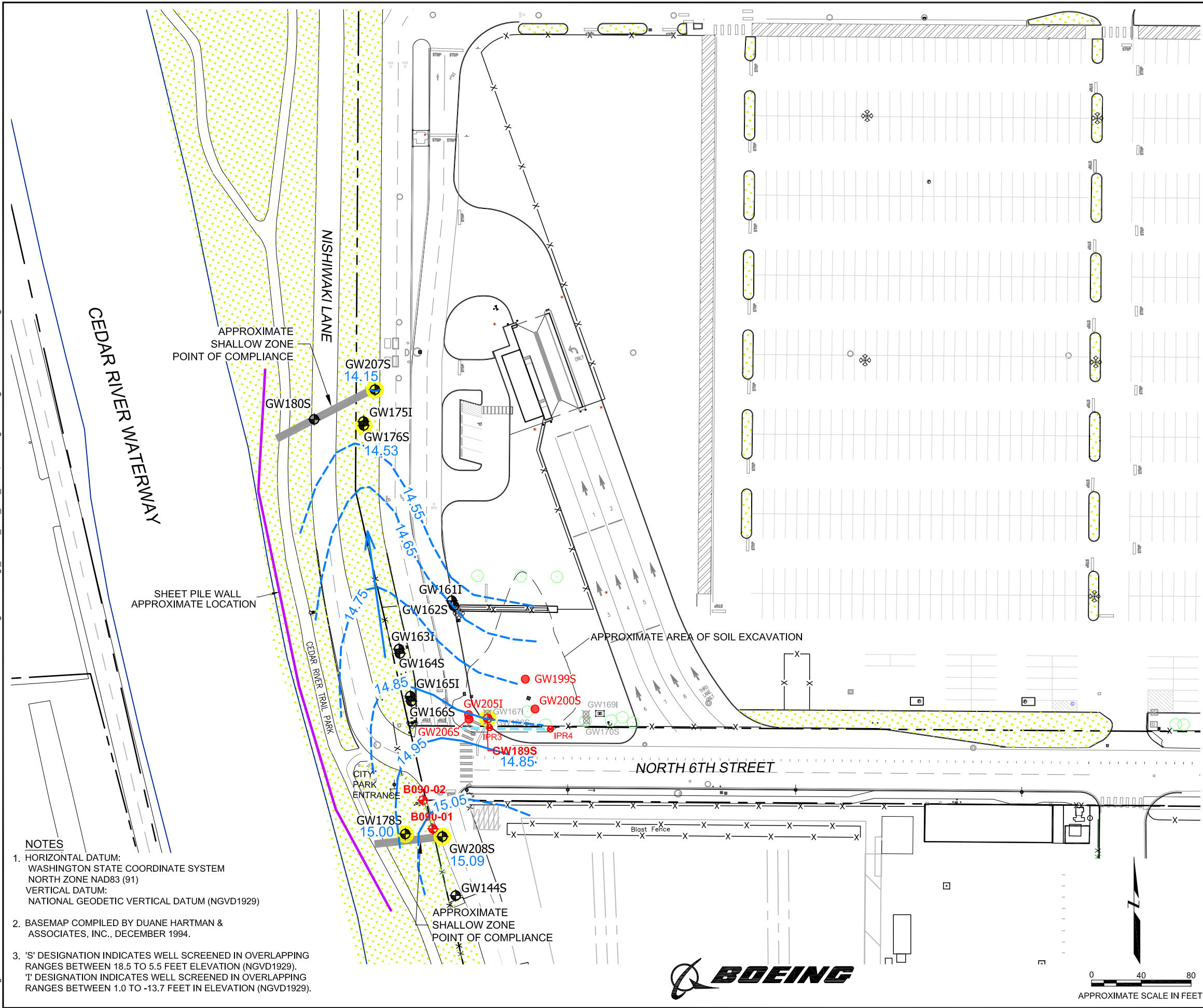


AOC-060 TREND PLOTS FOR
CPOC AREA WELLS GW150S AND GW253I
Boeing Renton Facility, Renton, Washington

Project No.
US0041831.2092

Figure
33

Plot Date: 04/30/25 - 2:31 pm. Plotted by: USSD715014
Drawing Path: X:\USPDX800-PORT\ClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton\dwg\ GWMR_First_Half_2025\, Drawing Name: Figure 34 - AOC-090.dwg

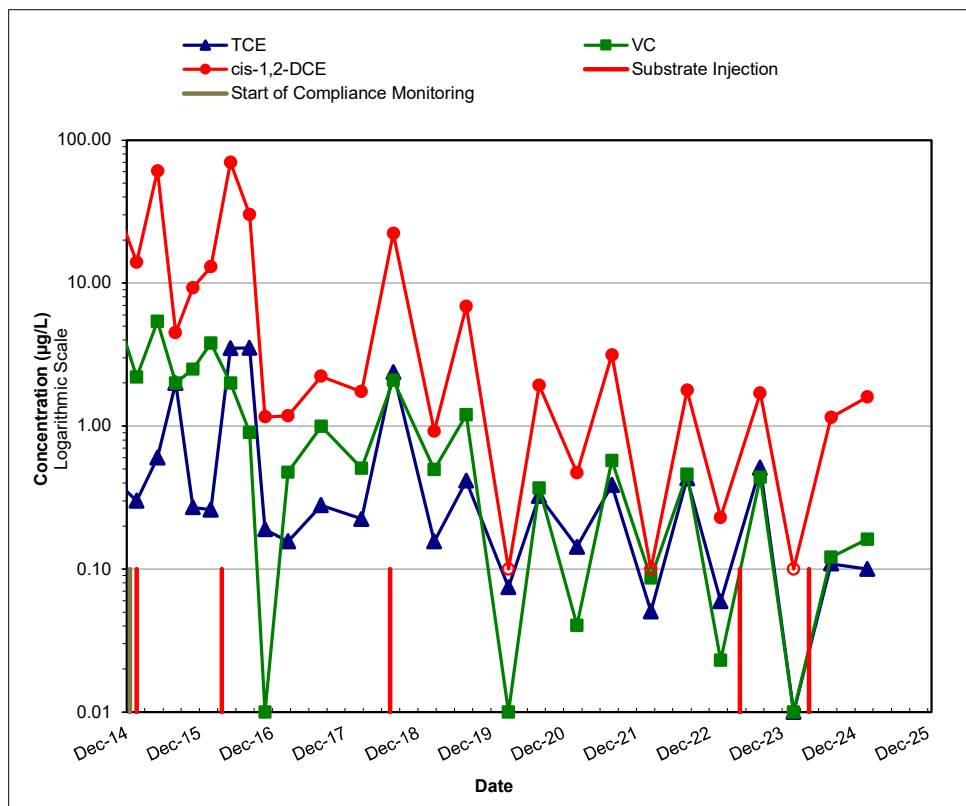


- LEGEND**
- GW178S 14.44 MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-Feet)
 - 15.0 GROUNDWATER ELEVATION CONTOUR (IN FEET) (DASHED WHERE INFERRED)
 - GENERAL DIRECTION OF GROUNDWATER FLOW BASED ON HISTORICAL INFORMATION
 - GW201S EXISTING BIOREMEDIATION SUBSTRATE INJECTION WELL
 - GW189S EXISTING BIOREMEDIATION SUBSTRATE INJECTION WELL AND MONITORING WELL GROUNDWATER ELEVATION (NGVD-Feet)
 - 15.62
 - 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

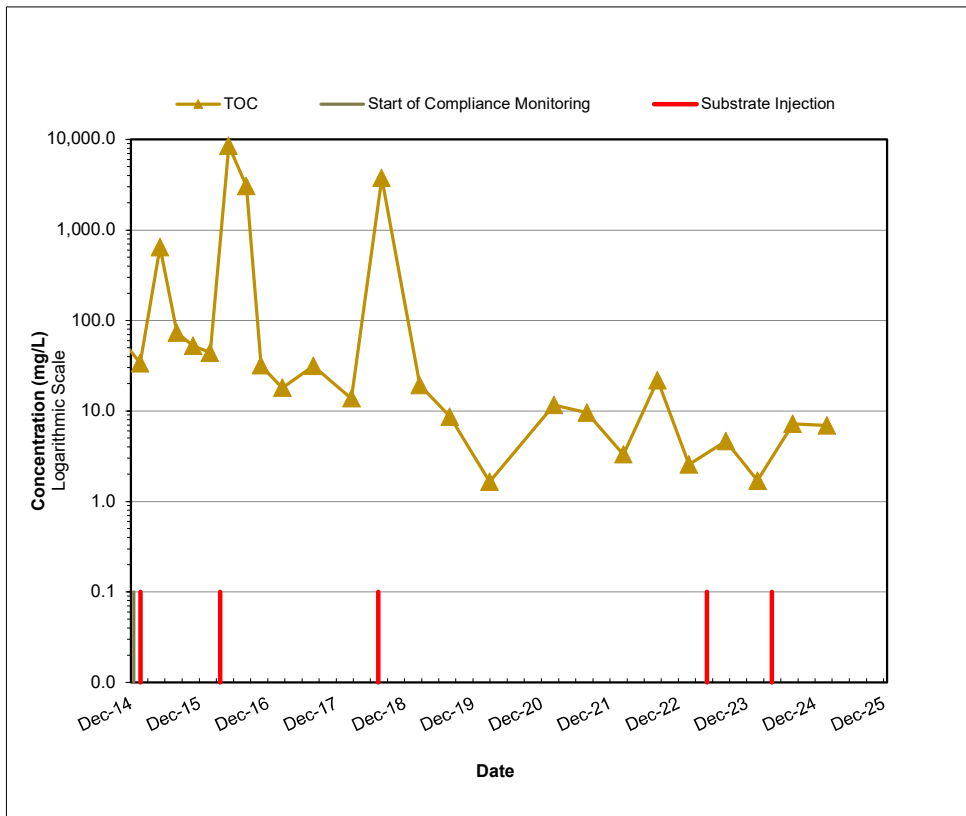
**AOC-090
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
FEBRUARY 12, 2025
Boeing Renton Facility
Renton, Washington**

By: SD	Date: 04/30/25	Project No. US0041831.2092
WSP USA, Inc.		Figure 34

X:\USUSXHF100-SEA\SEA2-FS1-Archive\8888.000 Boeing Renton\269\Figures\Boeing_Renton_Charts (3-37)_250406.xlsm



SOURCE AREA WELL GW189S



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



AOC-090 TREND PLOTS FOR
SOURCE AREA WELL GW189S
Boeing Renton Facility, Renton, Washington

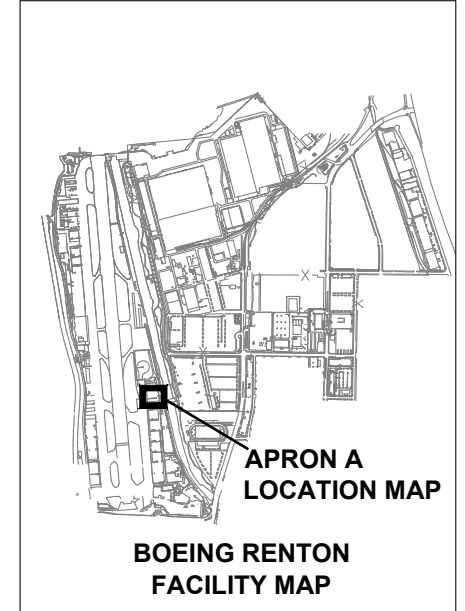
Project No.
US0041831.2092

Figure
35

Plot Date: 04/30/25 - 12:50pm, Plotted by: USSD715014
Drawing Path: X:\USUSDPDX800-PORClientData\AMEC US OFFICES\KIRKLAND\PS20203450 - Boeing Renton.dwg, GWMR_First_Half_2025, Drawing Name: Figure 36 - APRON A.dwg

NOTES

1. 'S' DESIGNATION INDICATES WELL SCREENED LESS THAN 20 FEET IN DEPTH.

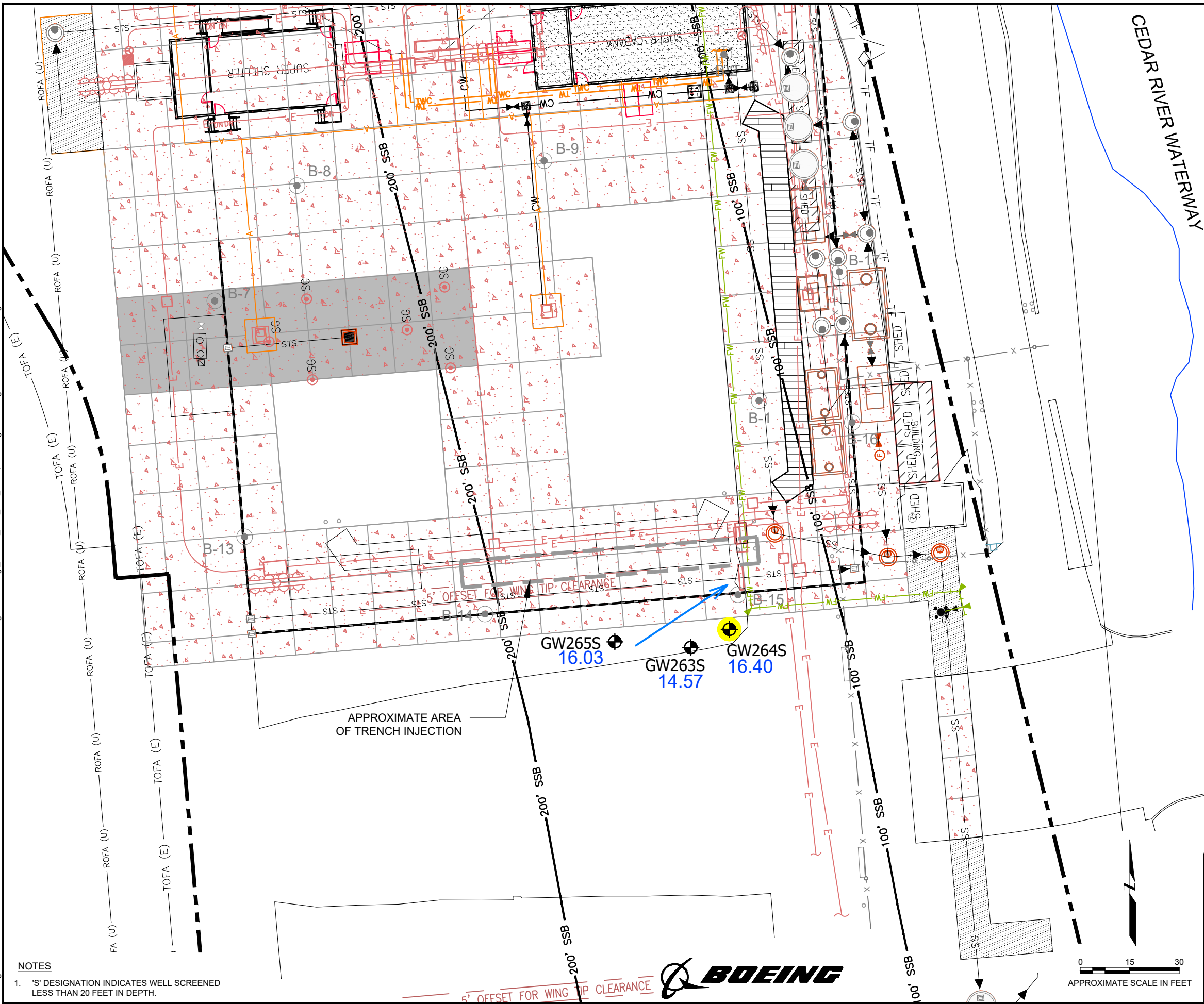


LEGEND

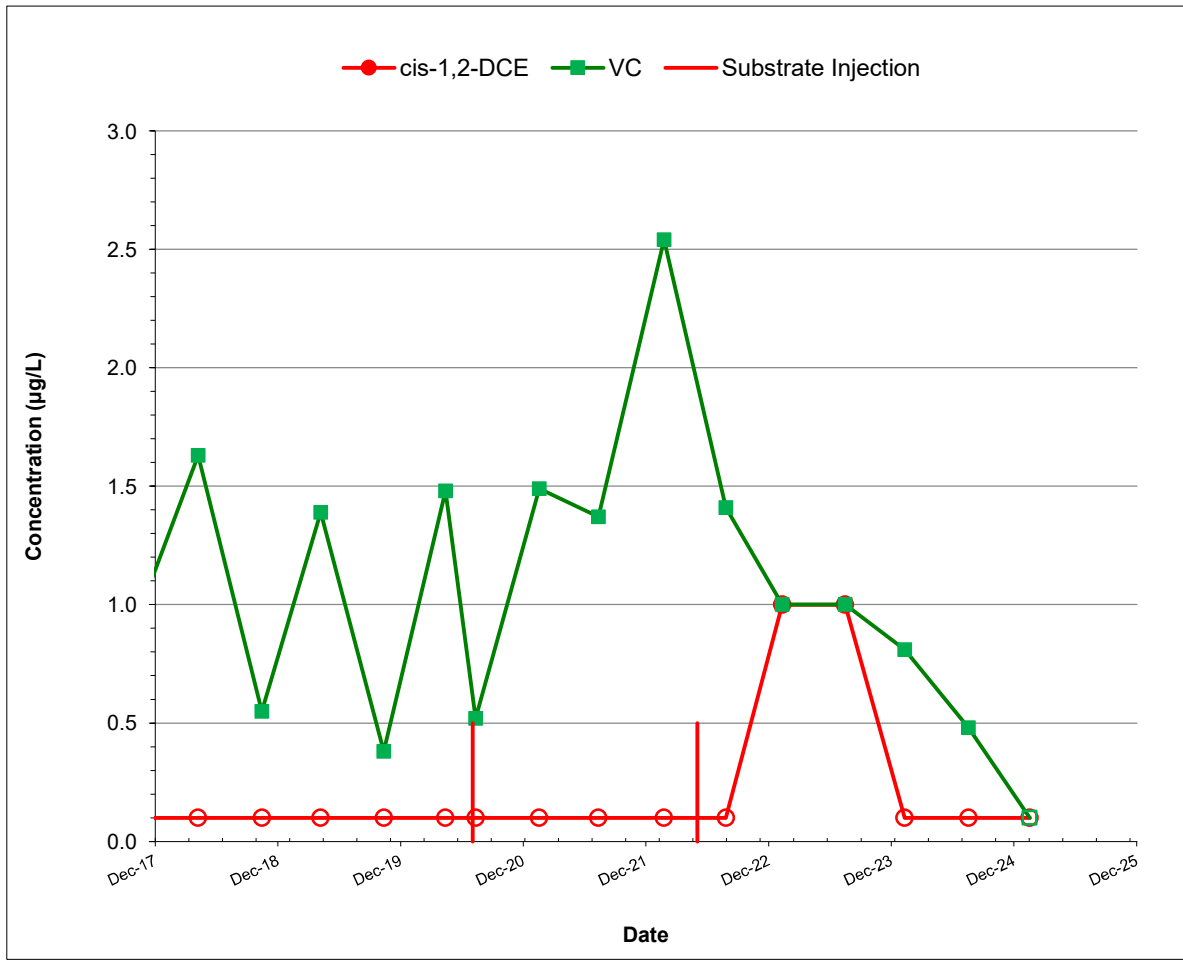
- GW264S 14.64 MONITORING WELL LOCATION WITH GROUNDWATER ELEVATION (NGVD-FEET)
- GENERAL DIRECTION OF GROUNDWATER FLOW BASED ON HISTORICAL INFORMATION
- B-1 SOIL SAMPLE LOCATION
- APPROXIMATE PROPERTY LINE
- FENCE
- HIGHLIGHTED WELLS INCLUDED IN MONITORING NETWORK

**APRON A AREA
MONITORING WELL LOCATIONS
AND GROUNDWATER ELEVATIONS
FEBRUARY 11, 2025
Boeing Renton Facility
Renton, Washington**

By: SD	Date: 04/30/25	Project No. US0041831.2092
WSP USA, Inc.		Figure 36



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SOURCE AREA WELL GW264S

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



APRON A TREND PLOT FOR WELL GW264S
Boeing Renton Facility
Renton, Washington

Project No.
US0041831.2092

Figure
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TABLES

Table 1: SWMU-168 Groundwater Elevation Data
February 11, 2025
 Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{2, 3}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet) ²
GW230I	4 to 14	24.86	6.89	17.97

Notes:

1. I = intermediate well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.
3. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

Abbreviations:

bgs = below ground surface

SWMU = solid waste management unit

TOC = top of casing

Table 2: SWMU-168 Primary Geochemical Indicators¹

February 11, 2025

Boeing Renton Facility, Renton, Washington

Parameter	Well ID ²
	CPOC Area
	GW230I
Temperature (degrees C)	11.0
Specific Conductivity (µS/cm)	350
Dissolved Oxygen (mg/L)	0.07
pH (standard units)	6.46
Oxidation/Reduction Potential (mV)	-46.2

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 11, 2025
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level ¹	Well ID ²
		CPOC Area
		GW230I
Volatile Organic Compounds (µg/L)		
Vinyl Chloride	0.11	0.0428

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 13 & 14, 2025
Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{3, 4}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet) ³
GW152S	5 to 20 ²	26.98	8.95	18.03
GW153S	5 to 20 ²	27.47	9.40	18.07
GW172S	8 to 18 ²	26.44	9.11	17.33
GW173S	8 to 18 ²	26.51	9.07	17.44
GW226S	5 to 20 ²	26.86	8.93	17.93
GW232S	4 to 14	24.45	7.26	17.19
GW234S	3 to 13	24.95	8.00	16.95
GW235I	15 to 25	24.90	6.95	17.95
GW236S	5 to 15	24.36	7.26	17.10

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.
4. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

Abbreviations:

bgs = below ground surface

SWMU = solid waste management unit

TOC = top of casing

Table 5: SWMU-172 and SWMU-174 Group Primary Geochemical Indicators¹

February 13 & 14, 2025

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)	11.9	14.0	12.8	NA	11.5	14.6	11.7	10.7	11.6	10.5
Specific Conductivity (µS/cm)	175	240	464	NA	359	291	359	224	188	395
Dissolved Oxygen (mg/L)	0.39	0.21	0.22	NA	0.28	0.30	0.18	0.30	0.24	0.64
pH (standard units)	6.14	6.44	5.84	NA	6.53	6.49	6.34	6.42	6.73	6.54
Oxidation/Reduction Potential (mV)	-17.6	-11.5	2.0	NA	-29.1	-36.9	-45.7	-13.6	-31.4	-27.2
Total Organic Carbon (mg/L) ³	3.08	3.48	193.30	183.7	4.96	8.06	6.36	2.37	0.88	1.67

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; 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 13 & 14, 2025

Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level ⁴	Well ID ³									
		Source Area		Downgradient Plume Area				CPOC Area			
		GW152S	GW153S	GW172S	GW172S (field dup.)	GW173S	GW226S	GW232S	GW234S	GW235I	GW236S
Volatile Organic Compounds (µg/L)											
<i>cis</i> -1,2-Dichloroethene	0.03	1.57	0.167	0.362	0.384	0.224	0.0412	0.179	0.0692	0.302	0.0299
Tetrachloroethene	0.02	0.188	0.352	0.0302	0.0315	0.0206	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Trichloroethene	0.02	0.0673	0.242	0.135	0.144	0.0973	0.0200 U	0.0200 U	0.0200 U	0.0239	0.0200 U
Vinyl Chloride	0.11	0.0675	0.0768	0.0816	0.0883	0.0618	0.0638	0.144	0.0310	0.0221	0.0200 U
Total Metals (µg/L)											
Arsenic	8.0	6.72	1.75	5.13	5.88	6.14	3.55	2.29	0.876	0.232 J	1.33
Copper	3.5	5.36	1.00 U	0.654 J	0.794 J	4.67	0.492 J	1.00	1.76	1.00 U	1.16
Lead	1.0	1.58 J	0.400 U	0.348 J	0.402	0.882	0.400 U	0.362 J	0.522	0.400 U	0.420

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
February 10 & 13, 2025
Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{2, 3}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet) ²
GW031S-R	5 to 25	19.59	5.71	13.88
GW033S	5 to 25	19.49	5.63	13.86
GW034S	5 to 25	19.65	5.78	13.87
GW143S	10 to 15	19.81	6.06	13.75
GW237S	5 to 15	18.85	5.21	13.64
GW240D	22 to 27	19.81	5.58	14.23
GW244S-R	5 to 15	19.42	5.52	13.90

Notes:

1. S = shallow well; D = deep well; R = replaced.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.
3. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

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 Indicators¹

February 13, 2025

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)	12.9	13.6	NA	11.7	13.6	12.8	12.4	13.4
Specific Conductivity (μS/cm)	421	481	NA	338	504	408	210	274
Dissolved Oxygen (mg/L)	0.27	0.11	NA	0.22	0.10	0.24	0.11	0.21
pH (standard units)	6.17	6.25	NA	6.48	6.28	6.41	6.56	6.62
Oxidation/Reduction Potential (mV)	-32.5	-30.1	NA	-39.1	-44.5	-62.2	-20.1	-69
Total Organic Carbon (mg/L) ³	10.43	10.02	10.25	7.68	10.77	9.9	5.17	4.31

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 13, 2025

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	6.39	6.48	0.200 U	0.200 U	0.200 U	3.78	0.200 U
cis -1,2-Dichloroethene	0.70	0.200 U	1.14	1.05	0.200 U	0.200 U	0.200 U	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	0.260	1.49	1.48	0.200 U	0.200 U	0.200 U	0.230	0.200 U
Total Petroleum Hydrocarbons (µg/L)									
TPH-G (C7-C12)	800	100 U	193	185	100 U	100 U	100 U	576	100 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; 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 11, 2025
 Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{2, 3}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet) ²
GW211S	4.8 to 14.7	27.77	9.84	17.93
GW221S	5 to 15	27.93	9.91	18.02
GW224S	5 to 15	27.98	10.33	17.65

Notes

1. S = shallow well
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.
3. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

Abbreviations

bgs = below ground surface

TOC = top of casing

Table 11: Former Fuel Farm Primary Geochemical Indicators ¹
February 11, 2025
Boeing Renton Facility, Renton, Washington

Parameter	Well ID ²		
	CPOC Area		
	GW211S	GW221S	GW224S
Temperature (degrees C)	11.8	12.8	12.5
Specific Conductivity (µS/cm)	232	250	208
Dissolved Oxygen (mg/L)	0.27	0.14	0.26
pH (standard units)	6.19	6.39	6.26
Oxidation/Reduction Potential (mV)	-50.9	-46.0	-30.2

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 11, 2025
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level ⁴	Well ID ³		
		CPOC Area		
		GW211S	GW221S	GW224S
Total Petroleum Hydrocarbons (mg/L)				
TPH-D (C12-C24)	0.5	0.321	0.422	0.850
TPH-O (C24-C38)	NE	0.200 U	0.200 U	0.200 U
Jet A (C10-C18)	0.5	0.312	0.341	1.43

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.

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
February 10, 2025
Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{2, 3}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet) ²
GW185S-R	4.5 to 14.5	17.83	4.48	13.35
GW190S-R	3 to 13	17.97	4.38	13.59
GW191D-R	26 to 36	17.94	3.84	14.10
GW192S-R	4.5 to 9.5	17.67	4.11	13.56
GW193S-R	3 to 12.8	18.39	4.74	13.65
GW195S-R	7 to 12	18.45	5.01	13.44
GW196D-R	26 to 36	18.43	4.85	13.58
GW197S-R	7.5 to 12.5	18.34	4.86	13.48
GW213S-R	3 to 13	18.14	3.50	14.64
GW214S-R	3.5 to 13.5	18.27	4.21	14.06
GW215S-R	3 to 13	18.22	4.34	13.88
GW245S-R	3 to 13	18.32	4.89	13.43
GW246S-R	4 to 14	17.85	4.32	13.53

Notes:

1. S = shallow well; D = deep well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.
3. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

Abbreviations:

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

Table 14: AOC-001 and -002 Primary Geochemical Indicators¹

February 10 & 11, 2025

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)	9.4	10.7	11.0	9.7	10.9	11.8	9.3	11.0	11.7	10.2	12.5	9.1	9.8
Specific Conductivity (µS/cm)	2830	3480	3770	806	632	376	320	1015	559	482	457	359	378
Dissolved Oxygen (mg/L)	0.25	0.28	0.22	0.01	0.21	0.07	0.08	0.13	0.10	0.33	0.27	0.24	0.35
pH (standard units)	4.21	4.09	4.08	4.89	6.26	6.52	6.16	6.37	6.46	6.45	6.38	8.40	8.01
Oxidation/Reduction Potential (mV)	-185.1	-282.4	-197.0	-37.7	-69.1	-96.3	76.6	-114.4	-96.6	-65.0	-94.4	-233.3	-191.2
Total Organic Carbon (mg/L) ³	17610	49880	47850	1006	14.59	6.2	3.3	226.7	15.79	8.66	8.33	12.84	18.58

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; 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 Concern¹

February 10 & 11, 2025

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	1.00 U	1.00 U	1.00 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.650	1.00 U	
1,1-Dichloroethene	0.057	0.0200 U	0.100 U	0.100 U	0.100 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.107	0.100 U	
cis-1,2-Dichloroethene	0.02	2.38	0.111	0.100 U	0.100 U	0.0934	0.0309	0.359	0.0932	0.172	0.0878	0.0279	39.9	0.190	
Trichloroethene	0.02	0.844	0.100 U	0.100 U	0.100 U	0.0200 U	0.0200 U	0.0273	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.181	0.100 U	
Vinyl Chloride	0.05	0.460	0.100 U	0.100 U	0.100 U	0.0458	0.0574	0.0842	0.122	0.156	0.0936	0.0200 U	26.3	0.100 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. 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

Table 16: AOC-003 Groundwater Elevation Data
February 11, 2025
 Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{2, 3}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet) ²
GW188S	3.5 to 13.5	18.78	4.51	14.27
GW247S-R	4 to 14	18.93	5.01	13.92
GW248I	10 to 20	18.78	4.65	14.13
GW249S	4 to 14	18.85	4.04	14.81

Notes:

1. S = shallow well; I = intermediate well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.
3. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

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 Indicators¹**February 11, 2025****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)	13.0	12.1	10.9	12.8
Specific Conductivity (µS/cm)	336	389	426	540
Dissolved Oxygen (mg/L)	0.10	0.05	0.01	0.29
pH (standard units)	6.34	6.38	6.44	6.36
Oxidation/Reduction Potential (mV)	-76.9	-68.9	-91.4	-80.7
Total Organic Carbon (mg/L) ³	11.95	8.95	11.97	10.63

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 11, 2025
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	0.0541	0.0373	0.0200 U	0.0200 U
Trichloroethene	0.16	0.0200 U	0.0353	0.0200 U	0.0200 U
Tetrachloroethene	0.02	0.0200 U	0.0390	0.0200 U	0.0200 U
Vinyl Chloride	0.24	0.243	0.0669	0.483	0.445

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. 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

Table 19: AOC-004 Groundwater Elevation Data
February 11, 2025
 Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{2, 3}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet) ²
GW250S	4 to 14	19.31	3.64	15.67

Notes:

1. S = shallow well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.
3. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

Abbreviations:

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

Table 20: AOC-004 Primary Geochemical Indicators¹

February 11, 2025

Boeing Renton Facility, Renton, Washington

Parameter	Well ID ²
	Source Area
	GW250S
Temperature (degrees C)	10.9
Specific Conductivity (µS/cm)	148
Dissolved Oxygen (mg/L)	0.40
pH (standard units)	7.04
Oxidation/Reduction Potential (mV)	-104.7

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 11, 2025
Boeing Renton Facility, Renton, Washington

Analyte	Cleanup Level ³	Well ID ²
		Source Area
		GW250S
Metals (µg/L)		
Lead	1	0.600

Notes:

1. Data qualifiers are as follows:
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 12, 2025
 Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{2, 3}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet) ²
GW009S	4.5 to 14.5	19.36	5.48	13.88
GW010S	4.5 to 14.5	19.47	5.67	13.80
GW011D	29 to 39	19.49	5.65	13.84
GW012S	4.5 to 14.5	19.11	5.31	13.80
GW014S	4.5 to 14.5	19.24	5.37	13.87
GW147S	5 to 15	18.73	4.98	13.75
GW150S	5 to 15	19.10	5.47	13.63
GW253I	10 to 20	19.02	5.39	13.63

Notes:

1. S = shallow well; D = deep well; I = intermediate well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.
3. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

Abbreviations:

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

Table 23: AOC-060 Primary Geochemical Indicators¹
February 12 , 2025
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)	19.3	20.7	19.4	NA	13.0	13.7	14.2
Specific Conductivity (µS/cm)	370	640	554	NA	1848	253	456
Dissolved Oxygen (mg/L)	0.25	0.08	0.17	NA	0.23	0.03	0.08
pH (standard units)	6.52	6.24	6.35	NA	4.80	6.59	6.50
Oxidation/Reduction Potential (mV)	-114.1	-110.1	-79.5	NA	-367.9	-33.8	-74.4
Total Organic Carbon (mg/L)	6.95	8.37	3.91	4.25	2074	7.97	8.06

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 12, 2025
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)								
<i>cis</i> -1,2-Dichloroethene	0.08	0.169	0.696	0.180	0.180	2.86	0.0859	0.122
Trichloroethene	0.02	0.0328	0.0604	0.0193 J	0.0182 J	1.68	0.0132 J	0.013 J
Vinyl Chloride	0.26	0.333	0.911	0.209	0.229	0.395	0.109	0.149

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 11 & 12, 2025
 Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{2, 3}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet) ²
GW176S	10 to 14.3	20.15	5.62	14.53
GW178S	11.2 to 15.5	22.73	7.73	15
GW189S	4 to 14	22.01	7.16	14.85
GW207S	7.3 to 12	21.12	6.97	14.15
GW208S	6.3 to 11	22.45	7.36	15.09

Notes:

1. S = shallow well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.
3. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

Abbreviations:

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

Table 26: AOC-090 Primary Geochemical Indicators¹

February 12, 2025

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)	12.0	12.1	11.8	12.4	11.0
Specific Conductivity (µS/cm)	382	439	424	394	1349
Dissolved Oxygen (mg/L)	0.09	0.04	3.56	0.08	0.21
pH (standard units)	6.67	6.38	6.22	6.71	5.20
Oxidation/Reduction Potential (mV)	-98.5	-71.6	-74.7	-88.7	-17.0
Total Organic Carbon (mg/L)	6.91	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 12, 2025
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	0.131	NA	NA	NA	NA
1,1,2-Trichloroethane	0.2	0.200 U	NA	NA	NA	NA
1,1-Dichloroethene	0.057	0.0288	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	1.60	NA	NA	NA	NA
Methylene Chloride	2	1.00 U	NA	NA	NA	NA
Toluene	75	0.220	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	0.100	NA	NA	NA	NA
Vinyl Chloride	0.13	0.162	0.249	0.294	0.056	0.359
Total Petroleum Hydrocarbons (µg/L)						
TPH-G (C7-C12)	800	170	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 13, 2025
Boeing Renton Facility, Renton, Washington

Well ID ¹	Screen Interval Depth (feet bgs)	TOC Elevation (feet) ^{2, 3}	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet)
GW263S	8 to 18	21.68	7.11	14.57
GW264S	8 to 18	21.55	5.15	16.4
GW265S	8 to 18	21.64	5.61	16.03

Notes

1. S = shallow well.
2. Elevations in feet relative to National Geodetic Vertical Datum of 1929.
3. Monitoring wells have flush mounted monuments, TOC measurement is approximately land surface elevation.

Abbreviations

bgs = below ground surface

NA = not available

TOC = top of casing

Table 29: Apron A Primary Geochemical Indicators ¹
February 13, 2025
Boeing Renton Facility, Renton, Washington

Parameter	Well ID ²
	Source Area
	GW264S
Temperature (degrees C)	12.9
Specific Conductivity (µS/cm)	549
Dissolved Oxygen (mg/L)	0.14
pH (standard units)	6.17
Oxidation/Reduction Potential (mV)	-27.6
Total Organic Carbon (mg/L)	26.96

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 13, 2025
Boeing Renton Facility, Renton, Washington

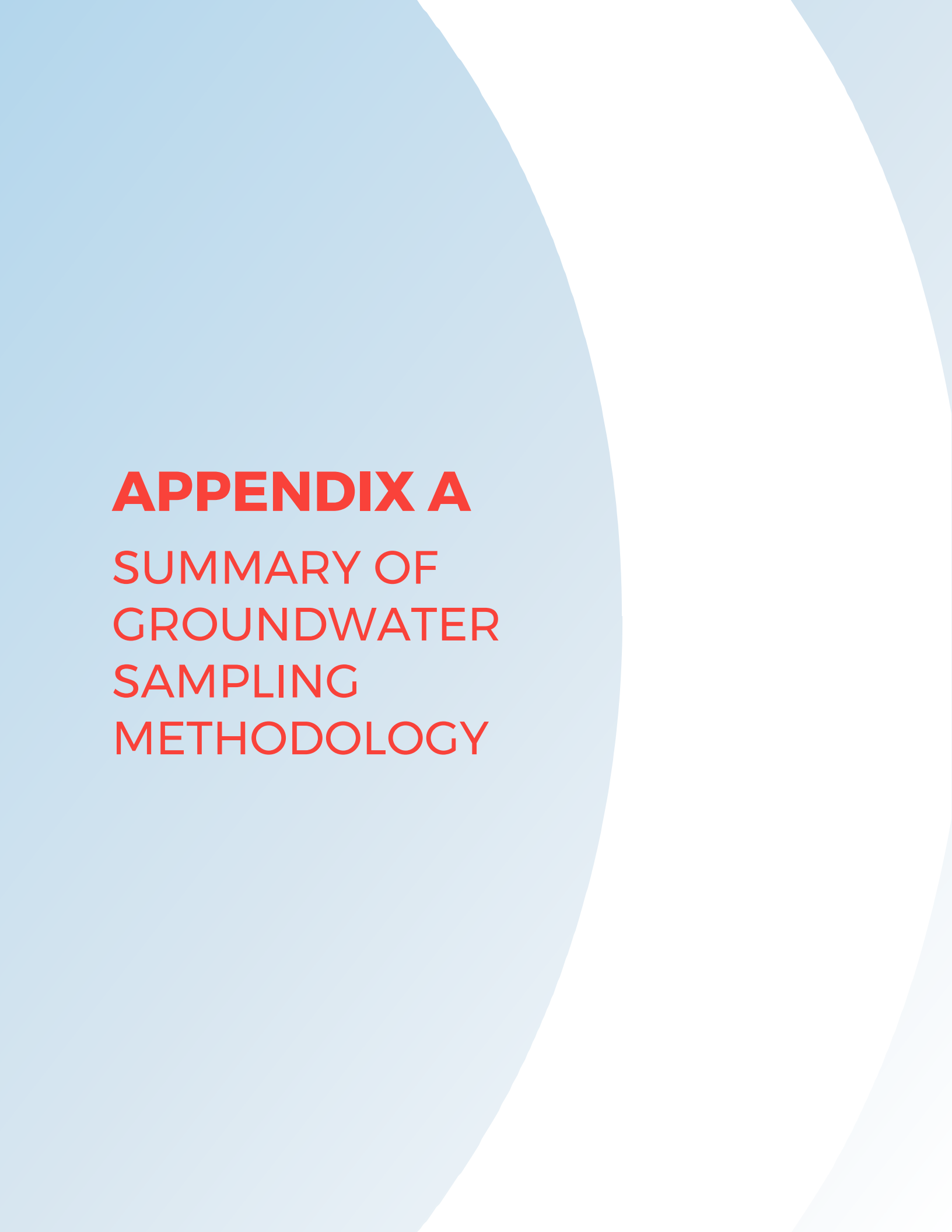
Analyte	Cleanup Levels	Well ID ²
		GW264S
Volatile Organic Compounds (µg/L)		
cis- 1,2-Dichloroethene	NE	0.200 U
Vinyl Chloride	NE	0.200 U

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	<i>cis</i> -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, <i>cis</i> -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, <i>cis</i> -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, <i>cis</i> -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, <i>cis</i> - 1,2-DCE, <i>trans</i> -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	<i>cis</i> -1,2-DCE and VC	SW8260D

Notes:

- 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.
- Groundwater monitoring wells are also monitored for groundwater levels.
- Additional wells are monitored for groundwater levels only.
- In addition to COCs, primary geochemical indicators will be monitored during each regular monitoring event. Geochemical indicators are listed in Table A-2.
- Details of analytical methods are specified in the Quality Assurance Project Plan, which is Appendix E to the Cleanup Action Plan (AMEC, 2012).
- Monitoring wells were abandoned on 11/25/2019 prior to Apron R construction and were replaced upon completion of construction.
- 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.
- 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

Project No: US0041831.2092

RGW185S-R

1-Well Integrity

Date	02/10/2025	Time	10:27
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	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)	No	Pump	QED Bladder Pump
Total drawdown	0.05	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/10/2025	Time	10:28
Top of Casing	17.83	PID	NA
Initial DTW (ft)	4.48	Final DTW (ft)	4.53
Groundwater elevation	13.35	Well Depth (ft)	13.48
Free Product?	Yes	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	10:28
Weather Conditions	Partly Cloudy, Partly Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	190
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)	NA
Measured Well Depth (ft bmp)	13.48	Water Column in Well	NA
Gallons in Well	NA		
Remarks	2 cycles of 24/6 to fill 250 mL		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
01/29/25	14:02	190	190	190	4.5	1.12	11.6	6.43	0.581	-84.4	40.18	NA
02/10/25	10:33	190	760	950	4.5	0.92	11.6	6.44	0.573	-86.3	36.33	NA
02/10/25	10:37	190	760	1710	4.52	0.37	11.6	6.45	0.568	-88.7	37.19	NA
02/10/25	10:42	190	760	2470	4.52	0.22	11.6	6.45	0.564	-91.2	35.7	NA
02/10/25	10:45	190	760	3230	4.53	0.15	11.7	6.45	0.562	-92.7	34.66	NA
02/10/25	10:50	190	760	3990	4.53	0.12	11.7	6.46	0.56	-95.3	36.08	NA
02/10/25	10:54	190	760	4750	4.53	0.1	11.7	6.46	0.559	-96.6	35.57	NA

5-Sample

Date	02/10/2025	Time	10:56
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	02/10/2025	Sample Time	11:00
Sample ID	RGW185S-R-20250210	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

Photos





Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

RGW190S-R

1-Well Integrity

Date	02/10/2025	Time	15:37
Inspector Name	Lindsey Wielick	Well Permit Number	BPQ-822
Type of well head	Flush Mount	Freely accessible	Yes
Ground Pad Intact	Yes	Security Case and Cover	Yes
Lock Present and Operable	NA	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)	No	Pump	QED Bladder Pump
Total drawdown	0.05	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/10/2025	Time	15:37
Top of Casing	17.97	PID	NA
Initial DTW (ft)	4.38	Final DTW (ft)	4.43
Groundwater elevation	13.59	Well Depth (ft)	13.07
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	15:37
Weather Conditions	Partly Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	190
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)	13.07	Water Column in Well	8.69
Gallons in Well	5.66955		
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	15:48	190	190	190	4.42	2.26	10	6.19	0.586	-53.4	65.4	NA
02/10/25	15:53	200	800	990	4.49	0.43	10.8	6.27	0.624	-61.5	71.82	NA
02/10/25	15:57	200	800	1790	NA	0.18	11	6.24	0.629	-64.7	74.19	NA
02/10/25	16:01	200	800	2590	4.45	0.1	10.8	6.25	0.631	-67.5	72.78	NA
02/10/25	16:05	200	800	3390	4.44	0.21	10.9	6.26	0.632	-69.1	72.1	NA

5-Sample

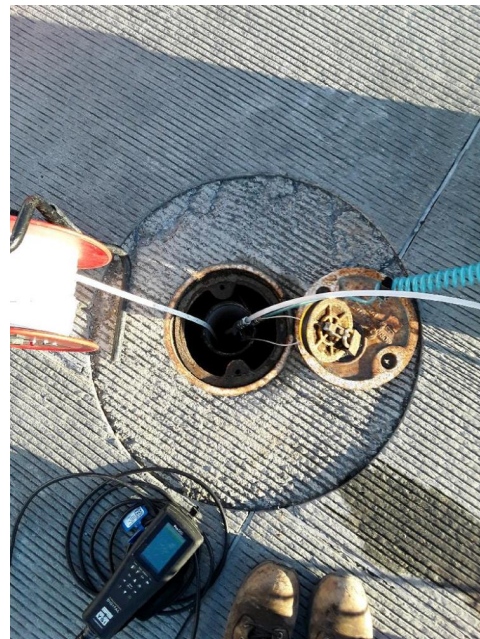
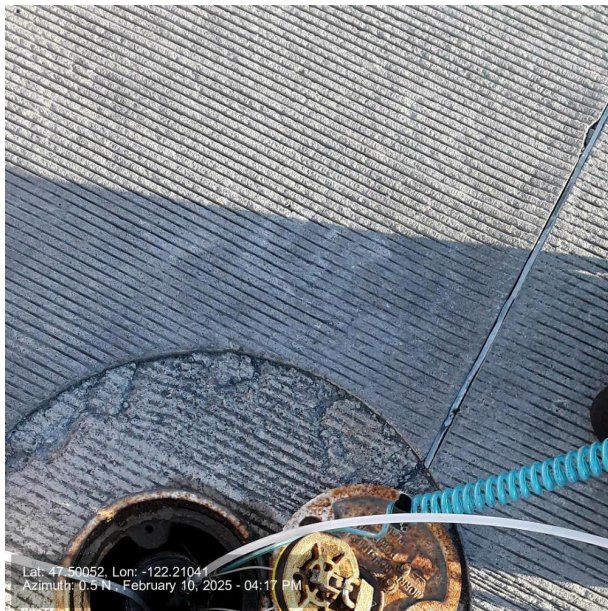
Date	02/10/2025	Time	15:37
Did Well Dewater?	No	Location of disposed purge water	Boeing RTN wastewater treatment plant
How were samples preserved?	Cooler with regular ice	How were samples transported to lab?	Sampler drop-off at lab
Sample Date	02/10/2025	Sample Time	16:10
Sample ID	RGW190S-R-20250210	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



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

Project No: US0041831.2092

Photos





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

Project No: US0041831.2092

RGW191D-R

1-Well Integrity

Date	02/10/2025	Time	13:48
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	NA	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)	No	Pump	QED Bladder Pump
Total drawdown	0	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/10/2025	Time	13:48
Top of Casing	17.94	PID	NA
Initial DTW (ft)	3.84	Final DTW (ft)	3.84
Groundwater elevation	14.1	Well Depth (ft)	34.02
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	13:48
Weather Conditions	Partly Cloudy, 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)	31	Depth to Water (ft bmp)	3.84
Measured Well Depth (ft bmp)	34.02	Water Column in Well	30.18
Gallons in Well	19.6901		
Remarks	100 mL at 24/6 cycle for 2 rounds		



Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057

Client: The Boeing Company

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	13:58	200	200	200	3.84	2.08	10.1	6.54	0.353	-46.1	11.74	NA
02/10/25	14:02	200	800	1000	3.84	1.78	10.5	6.51	0.359	-47.3	53.25	NA
02/10/25	14:06	200	800	1800	3.85	0.53	11.3	6.53	0.372	-75.1	79.19	NA
02/10/25	14:10	200	800	2600	3.84	0.26	11.5	6.52	0.376	-84.6	81.61	NA
02/10/25	14:14	200	800	3400	3.85	0.18	11.9	6.52	0.376	-90.3	82.64	NA
02/10/25	14:18	200	800	4200	3.87	0.1	11.8	6.52	0.375	-93	80.22	NA
02/10/25	14:23	200	800	5000	3.86	0.07	11.8	6.52	0.376	-96.3	83.88	NA

5-Sample

Date	02/10/2025	Time	13:48
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	02/10/2025	Sample Time	14:30
Sample ID	RGW191D-R-20250210	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	6	Matrix	Water
Filtered?	NA	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



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

Project No: US0041831.2092

RGW192S-R

1-Well Integrity

Date	02/10/2025	Time	14:40
Inspector Name	Lindsey Wielick	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	NA	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)	No	Pump	QED Bladder Pump
Total drawdown	2.25	Did well meet SAP/WP stabilization requirements before sampling?	No, ORP
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/10/2025	Time	14:40
Top of Casing	17.67	PID	NA
Initial DTW (ft)	4.11	Final DTW (ft)	6.36
Groundwater elevation	13.56	Well Depth (ft)	9.44
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	14:40
Weather Conditions	Partly Cloudy, 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)	4
Pump Intake Depth (ft bmp)	7	Depth to Water (ft bmp)	4.11
Measured Well Depth (ft bmp)	9.44	Water Column in Well	5.33
Gallons in Well	3.47741		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

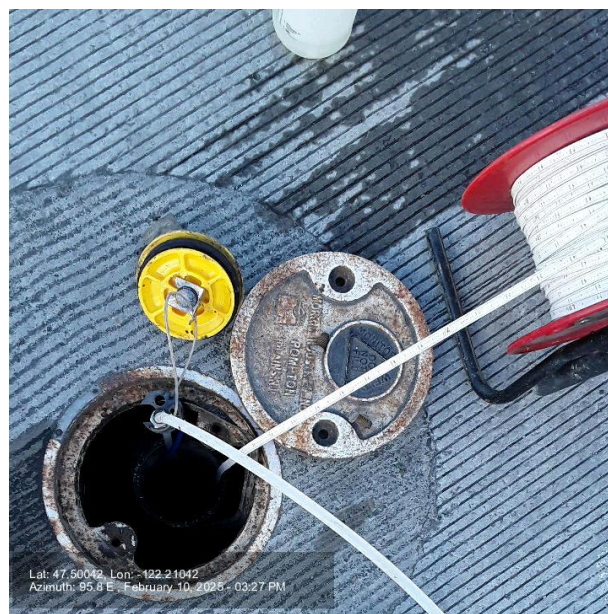
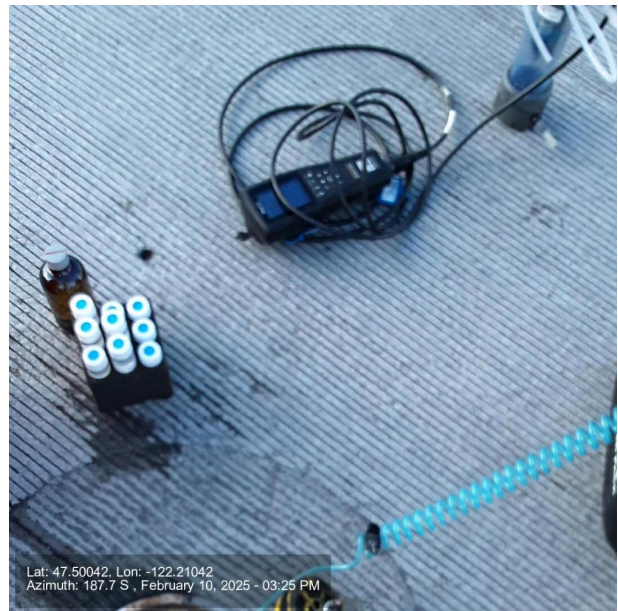
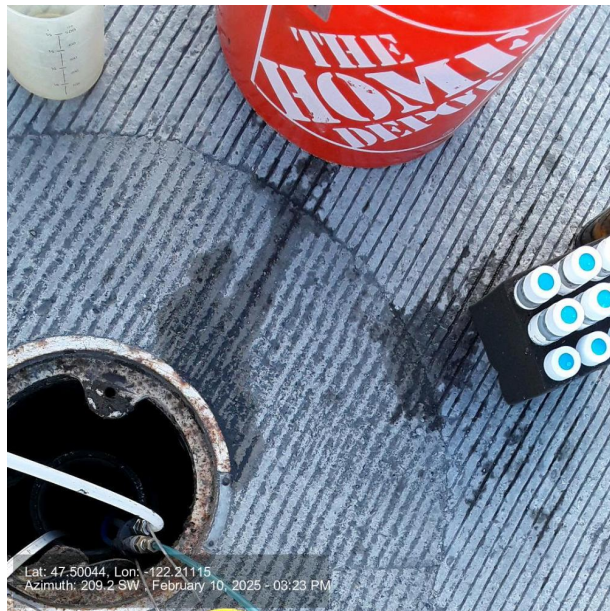
4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	14:46	225	225	225	4.36	5.16	8.7	6.19	0.284	76.4	10.77	NA
02/10/25	14:50	225	900	1125	4.6	0.5	9.8	6.29	0.31	86.3	10.78	NA
02/10/25	14:54	225	900	2025	4.9	0.2	9.9	6.17	0.312	120.8	8.1	NA
02/10/25	14:58	225	900	2925	5.05	0.13	9.8	6.15	0.313	122.1	7.9	NA
02/10/25	15:03	250	900	3825	5.35	0.1	9.7	6.13	0.315	110	8.71	NA
02/10/25	15:07	225	900	4725	5.68	0.08	9.6	6.15	0.317	98.6	8.47	NA
02/10/25	15:11	225	900	5625	5.84	0.08	9.6	6.15	0.318	89	8.05	NA
02/10/25	15:15	225	900	6525	6.04	0.08	9.3	6.16	0.32	76.6	8.78	NA

5-Sample

Date	02/10/2025	Time	15:20
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	02/10/2025	Sample Time	15:20
Sample ID	RGW192S-R-20250210	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		

Photos





Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW193S-R

1-Well Integrity

Date	02/10/2025	Time	12:45
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	No	No Apparent Physical Damage	Yes
Any cleanup performed (explain)	NA	Any repairs/replacement (explain)	No
Pump	QED Bladder Pump	Total drawdown	-0.01
Did well meet SAP/WP stabilization requirements before sampling?	No, ORP, Turbidity	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	NA		

2-Gauging

Date	02/10/2025	Time	12:45
Top of Casing	18.39	PID	NA
Initial DTW (ft)	4.74	Final DTW (ft)	4.73
Groundwater elevation	13.65	Well Depth (ft)	12.29
Free Product?	Yes	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	12:45
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)	7.92
Depth to Water (ft bmp)	4.74	Measured Well Depth (ft bmp)	12.29
Water Column in Well	7.55	Gallons in Well	4.92579
Remarks	250 mill at 25/5 cycle at 2 cycles		



Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057

Client: The Boeing Company

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	12:51	200	200	200	4.75	1.95	9	5.46	0.85	-1.5	48.9	NA
02/10/25	12:56	200	1000	1200	4.73	0.69	9.7	4.89	0.767	27.2	48.08	NA
02/10/25	13:00	200	800	2000	4.73	0.15	9.8	4.87	0.794	14.6	83.92	NA
02/10/25	13:05	200	800	2800	4.72	0.07	9.8	4.87	0.811	-0.5	60.32	NA
02/10/25	13:10	200	800	3600	4.76	0.03	9.7	4.88	0.811	-8.1	59.86	NA
02/10/25	13:14	200	800	4400	4.73	0.01	9.8	4.87	0.813	-16	63.1	NA
02/10/25	13:18	200	800	5200	4.73	0.01	9.7	4.88	0.809	-24.8	42.66	NA
02/10/25	13:22	200	800	6000	4.72	0.01	9.7	4.88	0.807	-38.4	55.83	NA
02/10/25	13:26	200	800	6800	4.73	0.01	9.7	4.89	0.806	-37.7	61.58	NA

5-Sample

Date	02/10/2025	Time	12:45
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	02/10/2025	Sample Time	13:30
Sample ID	RGW193S-R-20250210	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



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

Project No: US0041831.2092

RGW195S-R

1-Well Integrity

Date	02/11/2025	Time	14:59
Inspector Name	Jacklyn Perkins	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	Yes
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)	No	Pump	QED Bladder Pump
Total drawdown	0.08	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	14:59
Top of Casing	18.45	PID	NA
Initial DTW (ft)	5.01	Final DTW (ft)	5.09
Groundwater elevation	13.44	Well Depth (ft)	11.68
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	14:59
Weather Conditions	Cold, 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)	5.01
Measured Well Depth (ft bmp)	11.68	Water Column in Well	6.67
Gallons in Well	4.35166		
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	15:05	180	180	180	5.06	2.06	9.6	6.45	0.471	-42.5	78.77	NA
02/11/25	15:08	180	570	750	5.09	0.6	10	6.45	0.478	-54.4	80.21	NA
02/11/25	15:11	180	570	1320	5.08	0.42	10	6.45	0.479	-58.1	75.24	NA
02/11/25	15:14	180	570	1890	5.08	0.33	9.9	6.45	0.48	-62	81.79	NA
02/11/25	15:18	180	570	2460	5.09	0.31	10.2	6.45	0.481	-64	79.65	NA
02/11/25	15:22	180	570	3030	5.07	0.33	10.2	6.45	0.482	-65	75.39	NA

5-Sample

Date	02/11/2025	Time	14:59
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	02/11/2025	Sample Time	15:25
Sample ID	RGW-195S-R-	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	7	Matrix	Water
Filtered?	NO	Bottles	6x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



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

Project No: US0041831.2092

RGW196D-R

1-Well Integrity

Date	02/11/2025	Time	14:10
Inspector Name	Jacklyn Perkins	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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	14:10
Top of Casing	18.43	PID	NA
Initial DTW (ft)	4.85	Final DTW (ft)	4.85
Groundwater elevation	13.58	Well Depth (ft)	34.34
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	14:10
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)	31
Depth to Water (ft bmp)	4.85	Measured Well Depth (ft bmp)	34.34
Water Column in Well	29.49	Gallons in Well	19.23993
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	14:14	200	200	200	4.86	1.41	11.8	6.39	0.532	-84	5.67	NA
02/11/25	14:17	200	600	800	4.85	0.61	12.1	6.39	0.467	-87.2	4.67	NA
02/11/25	14:20	200	600	1400	5.87	0.37	12.2	6.38	0.459	-88.9	3.58	NA
02/11/25	14:23	200	600	2000	4.85	0.35	12.3	6.37	0.459	-89.3	4.71	NA
02/11/25	14:26	200	600	2600	4.85	0.31	12.2	6.37	0.459	-91	3.65	NA
02/11/25	14:29	200	600	3200	4.85	0.29	12.2	6.38	0.457	-92.5	3.99	NA
02/11/25	14:32	200	600	3800	4.85	0.27	12.3	6.38	0.456	-93.9	2.88	NA
02/11/25	14:35	200	600	4400	4.85	0.27	12.5	6.38	0.457	-94.4	2.92	NA

5-Sample

Date	02/11/2025	Time	14:14
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	02/11/2025	Sample Time	14:35
Sample ID	RGW-196D-R-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	7	Matrix	Water
Filtered?	NO	Bottles	6x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW197S-R

1-Well Integrity

Date	02/10/2025	Time	16:14
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)	No
Pump	QED Bladder Pump	Total drawdown	0.05
Did well meet SAP/WP stabilization requirements before sampling?	No, DO, pH	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	NA		

2-Gauging

Date	02/10/2025	Time	16:14
Top of Casing	18.34	PID	NA
Initial DTW (ft)	4.86	Final DTW (ft)	4.91
Groundwater elevation	13.48	Well Depth (ft)	12.15
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	16:14
Purge Method	Low-flow Bladder Pump	Purge Volume Units	mL
Purge Rate	175	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)	4.86	Measured Well Depth (ft bmp)	12.15
Water Column in Well	7.29	Gallons in Well	4.75616
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057

Client: The Boeing Company

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	15:50	175	175	175	4.91	0.92	8.8	6.69	0.391	-173	10.75	NA
02/10/25	15:54	175	700	875	4.91	0.57	9.1	7.06	0.362	-189.5	8.82	NA
02/10/25	15:58	175	700	1575	4.91	0.4	9.1	7.63	0.355	-207.8	6.62	NA
02/10/25	16:02	175	700	2275	4.91	0.32	9.1	8.03	0.349	-219.6	5.12	NA
02/10/25	16:06	175	700	2975	4.91	0.29	9.2	8.18	0.351	-224.8	5.43	NA
02/10/25	16:10	175	700	3675	4.91	0.27	9.3	8.26	0.351	-227.9	4.79	NA
02/10/25	16:14	175	700	4375	4.91	0.26	9.2	8.34	0.357	-230.4	3.4	NA
02/10/25	16:18	175	700	5075	4.91	0.24	9.1	8.4	0.359	-233.3	3.32	NA

5-Sample

Date	02/10/2025	Time	16:14
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 ID	RGW-197S-R-	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	7	Matrix	Water
Filtered?	NO	Bottles	6x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW213S-R

1-Well Integrity

Date	02/10/2025	Time	11:27
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)	NA	Any repairs/replacement (explain)	No
Pump	QED Bladder Pump	Total drawdown	1.76
Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	NA		

2-Gauging

Date	02/10/2025	Time	11:27
Top of Casing	18.14	PID	NA
Initial DTW (ft)	3.5	Final DTW (ft)	5.26
Groundwater elevation	14.64	Well Depth (ft)	12.89
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	11:27
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)	3.5	Measured Well Depth (ft bmp)	12.89
Water Column in Well	9.39	Gallons in Well	6.12624
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	11:27	200	200	200	4.24	0.29	7.8	4.18	2.925	-160.7	92.33	NA
02/10/25	11:32	200	1400	1600	4.46	0.25	9.4	4.2	2.83	-176.9	92.12	NA
02/10/25	11:35	200	600	2200	4.57	0.25	9.4	4.2	2.831	-179	94.9	NA
02/10/25	11:38	200	600	2800	4.71	0.25	9.4	4.21	2.829	-185.1	95.24	NA

5-Sample

Date	02/10/2025	Time	11:27
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 Time	11:45	Sample ID	RGW213S-R-20250210
Duplicate Sample ID	NA	Dup Sample Time	NA
Sampler's Name	Jacklyn Perkins	No. of Containers	7
Matrix	Water	Filtered?	NO
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW214S-R

1-Well Integrity

Date	02/10/2025	Time	13:51
Inspector Name	Jacklyn Perkins	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	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.6	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, ORP, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	Sharp foul odor from purged water, yellowish grey tint		

2-Gauging

Date	02/10/2025	Time	13:51
Top of Casing	18.27	PID	NA
Initial DTW (ft)	4.21	Final DTW (ft)	4.81
Groundwater elevation	14.06	Well Depth (ft)	13.35
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	13:51
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)	4.21	Measured Well Depth (ft bmp)	13.35
Water Column in Well	9.14	Gallons in Well	5.96314
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057

Client: The Boeing Company

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	13:51	200	200	200	4.29	1.29	10.5	4.07	3.482	-83.7	448.6	NA
02/10/25	14:04	200	1000	1200	4.34	0.77	10.6	4.08	3.467	-160.2	138.05	NA
02/10/25	14:07	200	600	1800	4.42	0.54	10.5	4.08	3.475	-204.1	141.21	NA
02/10/25	14:10	200	600	2400	4.47	0.4	10.7	4.09	3.483	-235.7	142.36	NA
02/10/25	14:13	200	600	3000	4.55	0.35	10.5	4.09	3.476	-253.5	145.11	NA
02/10/25	14:16	200	600	3600	4.59	0.31	10.6	4.09	3.476	-268.9	143.92	NA
02/10/25	14:19	200	600	4200	4.63	0.29	10.6	4.09	3.475	-273.9	144.1	NA
02/10/25	14:22	200	600	4800	4.68	0.28	10.7	4.09	3.48	-282.4	144.21	NA

5-Sample

Date	02/10/2025	Time	13:51
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 Time	14:25
Sample ID	RGW214S-R-20250210	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	7	Matrix	Water
Filtered?	NO	Bottles	6x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



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

Project No: US0041831.2092

RGW215S-R

1-Well Integrity

Date	02/10/2025	Time	14:53
Inspector Name	Jacklyn Perkins	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	No	Ponded Water Inside Casing	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	Biogenic foam inside monument-scooped out, pounded water pumped out. Ponder water had oily sheen
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	1.27	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/10/2025	Time	14:53
Top of Casing	18.22	PID	NA
Initial DTW (ft)	4.34	Final DTW (ft)	5.61
Groundwater elevation	13.88	Well Depth (ft)	12.88
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	14:53
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)	4.34	Measured Well Depth (ft bmp)	12.88
Water Column in Well	8.54	Gallons in Well	5.57169



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

Remarks NA

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	14:59	200	200	200	4.45	1.44	10.8	4.09	3.843	-48.6	64	NA
02/10/25	15:02	200	600	800	4.56	0.52	11	4.08	3.775	-93.3	57.62	NA
02/10/25	15:06	200	600	1400	4.7	0.34	10.8	4.08	3.766	-124.4	59.31	NA
02/10/25	15:09	200	600	2000	4.8	0.31	10.9	4.08	3.769	-145.4	58.64	NA
02/10/25	15:12	200	600	2600	4.91	0.27	10.9	4.08	3.773	-161.2	59.2	NA
02/10/25	15:15	200	600	3200	5.02	0.26	10.9	4.08	3.77	-172.3	58.76	NA
02/10/25	15:18	200	600	3800	5.13	0.24	10.9	4.08	3.77	-184.7	61.07	NA
02/10/25	15:21	200	600	4400	5.22	0.23	10.8	4.08	3.769	-191.3	62.36	NA
02/10/25	15:24	200	600	5000	5.32	0.22	10.9	4.08	3.767	-195.1	62.34	NA
02/10/25	15:27	200	600	5600	5.45	0.22	11	4.08	3.772	-197	65.48	NA

5-Sample

Date	02/10/2025	Time	14:53
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 Time	15:25	Sample ID	RGW215S-R-20250210
Duplicate Sample ID	NA	Dup Sample Time	NA
Sampler's Name	Jacklyn Perkins	No. of Containers	7
Matrix	Water	Filtered?	NO
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW245S-R

1-Well Integrity

Date	02/10/2025	Time	17:06
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)	NA	Any repairs/replacement (explain)	No
Pump	QED Bladder Pump	Total drawdown	0.12
Did well meet SAP/WP stabilization requirements before sampling?	No, DO	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	NA		

2-Gauging

Date	02/10/2025	Time	17:06
Top of Casing	18.32	PID	NA
Initial DTW (ft)	4.89	Final DTW (ft)	5.01
Groundwater elevation	13.43	Well Depth (ft)	12.59
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	17:06
Purge Method	Low-flow Bladder Pump	Purge Volume Units	mL
Purge Rate	175	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)	4.89	Measured Well Depth (ft bmp)	12.59
Water Column in Well	7.7	Gallons in Well	5.02365
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	17:16	175	175	175	4.99	2.48	8.9	7.35	0.397	-143.3	8.31	NA
02/10/25	17:19	175	525	700	4.97	0.9	9.1	7.8	0.377	-172.6	5.48	NA
02/10/25	17:23	175	525	1225	4.96	0.44	9.7	7.99	0.374	-186.1	4.91	NA
02/10/25	17:26	175	525	1750	4.96	0.39	9.7	8.02	0.376	-188.8	3.63	NA
02/10/25	17:29	175	525	2275	4.98	0.4	9.7	8	0.376	-188.2	2.77	NA
02/10/25	17:33	175	525	2800	4.99	0.35	9.8	8.01	0.378	-191.2	2.56	NA

5-Sample

Date	02/10/2025	Time	17:06
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	02/10/2025
Sample Time	17:35	Sample ID	RGW245S-R-20250210
Duplicate Sample ID	NA	Dup Sample Time	NA
Sampler's Name	Jacklyn Perkins	No. of Containers	7
Matrix	Water	Filtered?	NO
Bottles	6x HCl VOA, 1x 250mL H2SO4 amber		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW246S-R

1-Well Integrity

Date	02/10/2025	Time	16:35
Inspector Name	Jacklyn Perkins	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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.06	Did well meet SAP/WP stabilization requirements before sampling?	No, DO
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/10/2025	Time	16:35
Top of Casing	17.85	PID	NA
Initial DTW (ft)	4.32	Final DTW (ft)	4.38
Groundwater elevation	13.53	Well Depth (ft)	13.25
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/10/2025	Time	16:35
Weather Conditions	Cold, Snow, 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)	9	Depth to Water (ft bmp)	4.32
Measured Well Depth (ft bmp)	13.25	Water Column in Well	8.93
Gallons in Well	5.82613		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/10/25	16:38	200	200	200	4.35	3.26	10.3	6.65	0.658	-85	5.45	NA
02/10/25	16:41	200	600	800	4.38	0.83	11.2	6.38	0.784	-80.7	4.64	NA
02/10/25	16:44	200	600	1400	4.38	0.32	11.2	6.34	0.819	-90.2	3.2	NA
02/10/25	16:47	200	600	2000	4.38	0.19	11.3	6.35	0.828	-96.8	2.85	NA
02/10/25	16:51	200	800	2800	4.37	NA	11.2	6.35	0.836	-102.7	2.51	NA
02/10/25	16:55	200	800	3600	4.36	0.06	11.1	6.4	1.01	-107.9	2.6	NA
02/10/25	16:59	200	800	4400	4.35	0.55	11.1	6.37	1.012	-111.7	9.72	NA
02/10/25	17:03	200	800	5200	4.38	0.13	11	6.37	1.015	-114.4	9.33	NA

5-Sample

Date	02/10/2025	Time	16:35
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	02/10/2025	Sample Time	17:10
Sample ID	RGW-246S-R-20250210	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW188S

1-Well Integrity

Date	02/11/2025	Time	13:48
Inspector Name	Lindsey Wielick, Gordon Davies	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	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.2	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	13:48
Top of Casing	18.78	PID	NA
Initial DTW (ft)	4.51	Final DTW (ft)	4.71
Groundwater elevation	14.27	Well Depth (ft)	13.95
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	13:48
Weather Conditions	Sunny, Cold	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)	8.5	Depth to Water (ft bmp)	4.51
Measured Well Depth (ft bmp)	13.95	Water Column in Well	9.44
Gallons in Well	1.53972		
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057

Client: The Boeing Company

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	14:00	200	200	200	4.58	1.92	12.2	6.1	0.394	4.1	191.99	NA
02/11/25	14:04	200	800	1000	4.62	0.37	12.5	6.41	0.381	-34.6	168.72	NA
02/11/25	14:08	200	800	1800	4.66	0.2	12.4	6.37	0.381	-48.2	155.4	NA
02/11/25	14:12	200	800	2600	4.68	0.14	12.3	6.37	0.382	-55.4	144.03	NA
02/11/25	14:16	200	800	3400	4.69	0.09	12.2	6.38	0.385	-60.5	135.45	NA
02/11/25	14:20	200	800	4200	4.69	0.06	12.2	6.38	0.388	-65.5	128.67	NA
02/11/25	14:24	200	800	5000	4.68	0.05	12.1	6.38	0.389	-68.9	135.73	NA

5-Sample

Date	02/11/2025	Time	13:48
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	02/11/2025	Sample Time	14:30
Sample ID	RGW188S-R-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	3	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



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

Project No: US0041831.2092

RGW247S-R

1-Well Integrity

Date	02/11/2025	Time	14:45
Inspector Name	Lindsey Wielick, Gordon Davies	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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.12	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	14:45
Top of Casing	18.93	PID	NA
Initial DTW (ft)	5.01	Final DTW (ft)	5.13
Groundwater elevation	13.92	Well Depth (ft)	14.03
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	14:45
Weather Conditions	Sunny, Cold	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)	5.01
Measured Well Depth (ft bmp)	14.03	Water Column in Well	9.02
Gallons in Well	5.88485		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	14:50	200	200	200	5.1	NA	NA	6.44	0.428	-45.5	NA	NA
02/11/25	14:54	200	800	1000	5.13	0.33	11.6	6.42	0.415	-63.8	5.12	NA
02/11/25	14:58	200	800	1800	5.14	0.17	11.4	6.42	0.417	-74.3	21.67	NA
02/11/25	15:02	200	800	2600	5.13	0.18	11.1	6.43	0.42	-80.2	31.23	NA
02/11/25	15:06	200	800	3400	5.13	0.07	10.9	6.44	0.421	-84.1	38.37	NA
02/11/25	15:10	200	800	4200	5.13	0.04	11.1	6.44	0.422	-87.2	40.95	NA
02/11/25	15:14	200	800	5000	5.14	0.03	11.1	6.44	0.423	-89.5	44.9	NA
02/11/25	15:18	200	800	5800	5.14	0.01	10.9	6.44	0.426	-91.4	49.41	NA

5-Sample

Date	02/11/2025	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	02/11/2025	Sample Time	15:20
Sample ID	RGW247S-R-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	4	Matrix	Water
Filtered?	NO	Bottles	3x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		

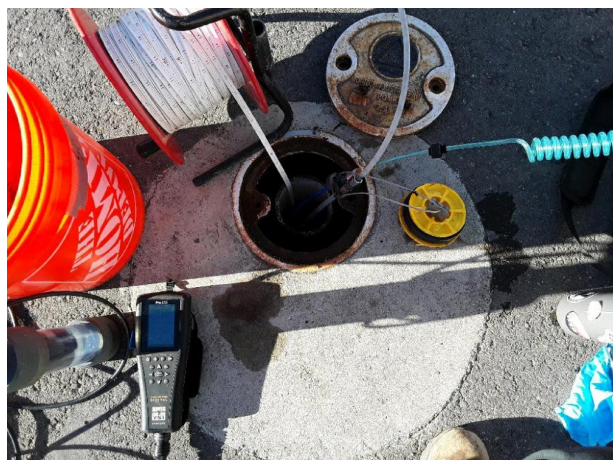


Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

Photos



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Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

RGW248I

1-Well Integrity

Date	02/11/2025	Time	15:36
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	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)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.43	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	All 3 bolts missing, 2 bolt holes broken off, no exterior or interior id		

2-Gauging

Date	02/11/2025	Time	15:36
Top of Casing	18.78	PID	NA
Initial DTW (ft)	4.65	Final DTW (ft)	5.08
Groundwater elevation	14.13	Well Depth (ft)	20
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	15:36
Weather Conditions	Sunny, Cold	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)	4.65
Measured Well Depth (ft bmp)	20	Water Column in Well	15.35
Gallons in Well	2.50367		
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	15:42	200	200	200	4.98	1.95	11	6.35	0.478	-2.6	225.08	NA
02/11/25	15:46	200	800	1000	5.11	0.38	12.4	6.36	0.516	-44.1	322.49	NA
02/11/25	15:50	200	800	1800	5.11	0.19	12.5	6.37	0.522	-57	327.6	NA
02/11/25	15:54	200	800	2600	5.11	0.11	12.7	6.36	0.528	-67.2	139.47	NA
02/11/25	15:58	200	800	3400	5.17	0.06	12.6	6.36	0.533	-74.4	48.62	NA
02/11/25	16:02	200	800	4200	5.18	0.62	12.8	6.36	0.537	-75.8	72.22	NA
02/11/25	16:06	200	800	5000	5.19	0.55	12.7	6.36	0.538	-78.6	77.76	NA
02/11/25	16:10	200	800	5800	5.2	0.29	12.8	6.36	0.54	-80.7	154.02	NA

5-Sample

Date	02/11/2025	Time	15:36
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	02/11/2025	Sample Time	16:10
Sample ID	RGW248I-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	3	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



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

Project No: US0041831.2092

RGW249S

1-Well Integrity

Date	02/11/2025	Time	13:01
Inspector Name	Lindsey Wielick, Gordon Davies	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	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)	No	Pump	QED Bladder Pump
Total drawdown	0.01	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	13:01
Top of Casing	18.85	PID	NA
Initial DTW (ft)	4.04	Final DTW (ft)	4.05
Groundwater elevation	14.81	Well Depth (ft)	14
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	13:01
Weather Conditions	Sunny, Cold	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	175
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)	4.04
Measured Well Depth (ft bmp)	14	Water Column in Well	9.96
Gallons in Well	1.62453		
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	13:09	175	175	175	4.08	1.75	11.3	6.45	0.355	-50.9	44.53	NA
02/11/25	13:13	175	700	875	4.1	0.43	12.4	6.35	0.325	-60	21.36	NA
02/11/25	13:17	175	700	1575	4.1	0.24	12.7	6.34	0.328	-66.4	11.46	NA
02/11/25	13:21	175	700	2275	4.13	2.47	12.7	6.34	0.33	-70.5	25.06	NA
02/11/25	13:25	175	700	2975	4.11	0.37	12.9	6.34	0.332	-70.5	22.52	NA
02/11/25	13:29	175	700	3675	4.11	0.15	13	6.34	0.334	-74.4	22.78	NA
02/11/25	13:33	175	700	4375	4.11	0.1	13	6.34	0.336	-76.9	42.36	NA

5-Sample

Date	02/11/2025	Time	13:01
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	02/11/2025	Sample Time	13:30
Sample ID	RGW249S-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	3	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		

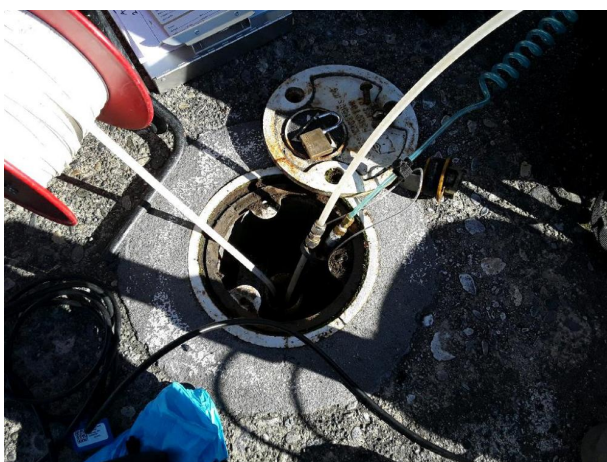


Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

Photos





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

Project No: US0041831.2092

RGW250S

1-Well Integrity

Date	02/11/2025	Time	13:07
Inspector Name	Jacklyn Perkins	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	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 out ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	1.11	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	13:07
Top of Casing	19.31	PID	NA
Initial DTW (ft)	3.64	Final DTW (ft)	4.75
Groundwater elevation	15.67	Well Depth (ft)	14
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	13:07
Weather Conditions	Cold, Sunny	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	175
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)	3.64
Measured Well Depth (ft bmp)	14	Water Column in Well	10.36
Gallons in Well	1.68977		
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	13:13	175	175	175	4.2	1.94	11.3	6.76	0.162	-30.2	224.42	NA
02/11/25	13:16	175	525	700	4.45	0.66	11.7	6.93	0.15	-76.4	148.93	NA
02/11/25	13:19	175	525	1225	4.58	0.49	11.6	7	0.148	-89.6	86.03	NA
02/11/25	13:21	175	525	1750	4.79	0.44	11.5	7.03	0.148	-95.8	48.3	NA
02/11/25	13:24	175	525	2275	4.82	0.42	11.3	7.04	0.148	-101.3	26.26	NA
02/11/25	13:27	175	525	2800	4.8	0.42	11	7.05	0.148	-102.9	24.16	NA
02/11/25	13:30	175	525	3325	4.71	0.4	10.9	7.04	0.148	-104.7	25.77	NA

5-Sample

Date	02/11/2025	Time	13:07
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	02/11/2025	Sample Time	13:35
Sample ID	RGW250S-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	1	Matrix	Water
Filtered?	NO	Bottles	1x 250mL HNO3 poly
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW012S

1-Well Integrity

Date	02/12/2025	Time	09:27
Inspector Name	Lindsey Wielick, Gordon Davies	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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.06	Did well meet SAP/WP stabilization requirements before sampling?	No, SPC
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	1 bolt hole dethreaded, no interior id		

2-Gauging

Date	02/12/2025	Time	09:27
Top of Casing	19.11	PID	NA
Initial DTW (ft)	5.31	Final DTW (ft)	5.37
Groundwater elevation	13.8	Well Depth (ft)	14.5
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/12/2025	Time	09:27
Weather Conditions	Sunny, Cold	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	175
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)	5.31
Measured Well Depth (ft bmp)	14.5	Water Column in Well	9.19
Gallons in Well	1.49894		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/12/25	9:30	275	275	275	5.46	1.1	20.7	6.21	0.648	-10.6	64.13	NA
02/12/25	09:34	275	1100	1375	5.46	0.3	20.8	6.21	0.693	-83	72.82	NA
02/12/25	09:38	274	1100	2475	5.41	0.18	20.7	6.23	0.789	-98.8	64.09	NA
02/12/25	09:42	275	1100	3575	5.51	0.14	20.7	6.22	0.771	-102.9	64.17	NA
02/12/25	09:46	275	1100	4675	5.48	0.12	20.7	6.23	0.755	-105.9	76.57	NA
02/12/25	9:50	275	1100	5775	5.49	0.1	20.7	6.23	0.661	-107.9	84.05	NA
02/12/25	09:54	275	1100	6875	5.56	0.09	20.7	6.24	0.649	-109.2	99.14	NA
02/12/25	09:58	275	1100	7975	5.51	0.08	20.7	6.24	0.64	-110.1	106.52	NA

5-Sample

Date	02/12/2025	Time	09:27
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	02/12/2025	Sample Time	10:00
Sample ID	RGW012S-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW014S

1-Well Integrity

Date	02/12/2025	Time	08:39
Inspector Name	Lindsey Wielick, Gordon Davies	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	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.24	Did well meet SAP/WP stabilization requirements before sampling?	No, DO
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	No exterior or interior id, dedicated tubing is smaller diameter and attachable piece is very yellowed		

2-Gauging

Date	02/12/2025	Time	08:39
Top of Casing	19.24	PID	NA
Initial DTW (ft)	5.37	Final DTW (ft)	5.61
Groundwater elevation	13.87	Well Depth (ft)	14.4
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/12/2025	Time	08:39
Weather Conditions	Sunny, Cold	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)	9.5	Depth to Water (ft bmp)	5.37
Measured Well Depth (ft bmp)	14.4	Water Column in Well	9.03
Gallons in Well	1.47284		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

Remarks NA

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/12/25	8:41	275	275	275	5.52	2.07	18.4	6.41	0.493	-28	15.67	NA
02/12/25	08:45	275	1100	1375	5.59	0.7	18.9	6.36	0.549	-59.6	7.3	NA
02/12/25	08:49	275	1100	2475	5.63	0.34	19.1	6.35	0.562	-70.6	4.71	NA
02/12/25	08:53	275	1100	3575	5.63	0.23	19.3	6.35	0.563	-76.4	3.95	NA
02/12/25	08:57	275	1100	4675	5.58	0.17	19.4	6.35	0.554	-79.5	2.86	NA

5-Sample

Date	02/12/2025	Time	08:39
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	02/12/2025	Sample Time	9:00
Sample ID	RGW014S-20250212	Duplicate Sample ID	DUP3-20250212
Dup Sample Time	0:00	Sampler's Name	Lindsey Wielick
No. of Containers	12	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 2x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW147S

1-Well Integrity

Date	02/12/2025	Time	10:39
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)	No
Pump	QED Bladder Pump	Total drawdown	0.16
Did well meet SAP/WP stabilization requirements before sampling?	No, SPC, ORP, Turbidity	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	NA		

2-Gauging

Date	02/12/2025	Time	10:39
Top of Casing	18.73	PID	NA
Initial DTW (ft)	4.98	Final DTW (ft)	5.14
Groundwater elevation	13.75	Well Depth (ft)	15.2
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/12/2025	Time	10:39
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)	10
Depth to Water (ft bmp)	4.98	Measured Well Depth (ft bmp)	15.2
Water Column in Well	10.22	Gallons in Well	1.66694
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/12/25	10:43	175	175	175	5.12	1.01	11.9	4.83	1.748	40.9	64.47	NA
02/12/25	10:46	175	700	875	5.14	0.52	80.89	4.68	1.987	19.1	67.79	NA
02/12/25	10:50	175	700	1575	5.14	0.33	12.2	4.69	2.05	-27.1	28.47	NA
02/12/25	10:54	175	700	2275	5.11	0.3	12.3	4.71	2.049	-193.8	19.26	NA
02/12/25	10:57	175	700	2975	5.14	0.28	12.5	4.73	2.029	-275.9	15.5	NA
02/12/25	11:00	175	700	3675	5.18	0.26	12.5	4.75	2.004	-327.6	16.08	NA
02/12/25	11:03	175	700	4375	5.17	0.25	12.5	4.77	1.96	-341.5	16.47	NA
02/12/25	11:06	175	700	5075	5.14	0.23	12.9	4.79	1.915	-351.6	17.8	NA
02/12/25	11:09	175	700	5775	5.14	0.23	12.9	4.79	1.88	-363	17.68	NA
02/12/25	11:12	175	700	6475	5.17	0.23	13	4.8	1.848	-367.9	17.62	NA

5-Sample

Date	02/12/2025	Time	11:14
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	02/12/2025	Sample Time	11:15
Sample ID	RGW147S-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	3	Matrix	Water
Filtered?	NO	Bottles	3x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



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

Project No: US0041831.2092

RGW150S

1-Well Integrity

Date	02/12/2025	Time	11:40
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	No
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	-0.09	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	No id card, one bolt missing, bolt holes stripped		

2-Gauging

Date	02/12/2025	Time	11:40
Top of Casing	19.1	PID	NA
Initial DTW (ft)	5.47	Final DTW (ft)	5.38
Groundwater elevation	13.63	Well Depth (ft)	18.3
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/12/2025	Time	11:40
Weather Conditions	Sunny, Cold	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)	10	Depth to Water (ft bmp)	5.47
Measured Well Depth (ft bmp)	18.3	Water Column in Well	12.83
Gallons in Well	2.09264		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/12/25	11:41	200	200	200	5.48	1.42	12.8	6.64	0.235	-5.8	22.4	NA
02/12/25	11:45	200	800	1000	5.49	0.38	13.3	6.62	0.218	-2.6	129.61	NA
02/12/25	11:49	200	800	1800	5.51	0.17	13.5	6.61	0.227	-7.4	169.16	NA
02/12/25	11:53	200	800	2600	5.5	0.12	13.9	6.61	0.233	-12.9	105.65	NA
02/12/25	11:57	200	800	3400	5.54	0.08	13.6	6.62	0.24	-20.5	25.05	NA
02/12/25	12:01	200	800	4200	5.5	0.06	13.6	6.6	0.246	-25.3	19.55	NA
02/12/25	12:06	200	800	5000	5.49	0.04	13.8	6.59	0.252	-31.1	16.2	NA
02/12/25	12:10	200	800	5800	5.48	0.03	13.7	6.59	0.253	-33.8	15.25	NA

5-Sample

Date	02/12/2025	Time	11:40
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	02/12/2025	Sample Time	12:10
Sample ID	RGW150S-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	3	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW253I

1-Well Integrity

Date	02/12/2025	Time	10:47
Inspector Name	Lindsey Wielick, Gordon Davies	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)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	-0.02	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/12/2025	Time	10:47
Top of Casing	19.02	PID	NA
Initial DTW (ft)	5.39	Final DTW (ft)	5.37
Groundwater elevation	13.63	Well Depth (ft)	20
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/12/2025	Time	10:47
Weather Conditions	Sunny, Cold	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)	5.39
Measured Well Depth (ft bmp)	20	Water Column in Well	14.61
Gallons in Well	2.38297		
Remarks	NA		



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Site: Boeing Renton
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98057

Client: The Boeing Company

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/12/25	10:57	200	200	200	5.34	4.19	11.8	6.49	0.363	59.7	142.04	NA
02/12/25	11:01	200	800	1000	5.38	1.41	13.9	6.56	0.427	-2.7	160.48	NA
02/12/25	11:05	200	800	1800	5.43	0.42	14	6.51	0.436	0.319	67.45	NA
02/12/25	11:09	200	800	2600	5.38	0.23	13.9	6.5	0.442	-48.4	102.79	NA
02/12/25	11:13	200	800	3400	5.38	0.16	14	6.5	0.447	-57.7	138.71	NA
02/12/25	11:17	200	800	4200	5.38	0.13	14	6.5	0.45	-64.9	158.47	NA
02/12/25	11:21	200	800	5000	5.38	0.1	14	6.5	0.452	-70.5	140.93	NA
02/12/25	11:25	200	800	5800	5.39	0.08	14.2	6.5	0.456	-74.4	159.61	Didn't stabilize

5-Sample

Date	02/12/2025	Time	10:47
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	02/12/2025	Sample Time	11:30
Sample ID	RGW253I-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW176S

1-Well Integrity

Date	02/12/2025	Time	15:54
Inspector Name	Lindsey Wielick, Gordon Davies	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)	No	Pump	QED Bladder Pump
Total drawdown	0.43	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/12/2025	Time	15:54
Top of Casing	20.15	PID	NA
Initial DTW (ft)	5.62	Final DTW (ft)	6.05
Groundwater elevation	14.53	Well Depth (ft)	14.8
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/12/2025	Time	15:54
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)	12.15
Depth to Water (ft bmp)	5.62	Measured Well Depth (ft bmp)	14.8
Water Column in Well	9.18	Gallons in Well	1.49731
Remarks	NA		



Detailed Low Flow Sampling Info

Site: Boeing Renton
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98057

Client: The Boeing Company

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/12/25	15:54	200	200	200	5.92	1.67	11.9	6.36	0.414	-9.3	32.47	NA
02/12/25	15:58	200	800	1000	5.98	0.38	12.1	6.34	0.42	-23.5	16.29	NA
02/12/25	16:02	200	800	1800	6.01	0.19	12.1	6.34	0.421	-38.4	12.45	NA
02/12/25	16:06	200	800	2600	6.02	0.13	12.2	6.35	0.423	-48.6	10.93	NA
02/12/25	16:10	200	800	3400	6.03	0.09	12.1	6.37	0.429	-56.8	12.65	NA
02/12/25	16:14	200	800	4200	6.05	0.07	12.2	6.37	0.433	-62.1	13.11	NA
02/12/25	16:18	200	800	5000	6.05	0.05	12.1	6.37	0.436	-67.7	13.53	NA
02/12/25	16:22	200	800	5800	6.05	0.04	12.1	6.38	0.439	-71.6	14.69	NA

5-Sample

Date	02/12/2025	Time	15:54
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	02/12/2025	Sample Time	16:30
Sample ID	RGW176S-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	2	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA
Remarks	NA		



Detailed Low Flow Sampling Info
Site: Boeing Renton
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98057
Client: The Boeing Company

Project No: US0041831.2092

RGW178S

1-Well Integrity

Date	02/12/2025	Time	15:08
Inspector Name	Jacklyn Perkins	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	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)	No	Pump	QED Bladder Pump
Total drawdown	0.09	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/12/2025	Time	15:08
Top of Casing	22.73	PID	NA
Initial DTW (ft)	7.73	Final DTW (ft)	7.82
Groundwater elevation	15	Well Depth (ft)	15.1
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/12/2025	Time	15:08
Weather Conditions	Cold, 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)	13.35	Depth to Water (ft bmp)	7.73
Measured Well Depth (ft bmp)	15.1	Water Column in Well	7.37
Gallons in Well	1.20209		
Remarks	NA		



Detailed Low Flow Sampling Info

Site: Boeing Renton
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98057
Client: The Boeing Company

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/12/25	15:12	200	200	200	7.77	6.96	11.4	6.23	0.486	2.6	33.29	NA
02/12/25	15:15	200	800	1000	7.79	5.85	12	6.25	0.472	-29.9	35.94	NA
02/12/25	15:18	200	800	1800	7.81	5.16	12	6.25	0.457	-46.6	34	NA
02/12/25	15:21	200	800	2600	7.82	4.77	12	6.24	0.449	-55.8	35.55	NA
02/12/25	15:24	200	800	3400	7.82	4.55	12.1	6.24	0.445	-62.4	21.14	NA
02/12/25	15:28	200	800	4200	7.81	3.69	12	6.24	0.435	-68.2	16.38	NA
02/12/25	15:31	200	800	5000	7.82	3.73	11.8	6.22	0.427	-73.6	15.77	NA
02/12/25	15:35	200	800	5800	7.81	3.56	11.8	6.22	0.424	-74.7	14.98	NA

5-Sample

Date	02/12/2025	Time	15:37
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	02/12/2025	Sample Time	15:35
Sample ID	RGW178S-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	2	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA
Remarks	NA		



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

Project No: US0041831.2092

RGW189S

1-Well Integrity

Date	02/12/2025	Time	13:52
Inspector Name	Gordon Davies	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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.65	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/12/2025	Time	13:52
Top of Casing	22.01	PID	NA
Initial DTW (ft)	7.16	Final DTW (ft)	7.81
Groundwater elevation	14.85	Well Depth (ft)	14.1
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/12/2025	Time	13:52
Weather Conditions	Sunny, Cold	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)	9	Depth to Water (ft bmp)	7.16
Measured Well Depth (ft bmp)	14.1	Water Column in Well	6.94
Gallons in Well	1.13195		
Remarks	NA		



Detailed Low Flow Sampling Info

Site: Boeing Renton
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98057

Client: The Boeing Company

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/12/25	13:56	200	200	200	7.24	1.16	12.3	6.3	0.34	-18.8	26.1	NA
02/12/25	14:00	200	800	1000	7.42	0.43	12.3	6.59	0.373	-55.7	24.34	NA
02/12/25	14:04	200	800	1800	7.51	0.26	12.2	6.66	0.378	-73.3	15.43	NA
02/12/25	14:08	200	800	2600	7.57	0.17	12.1	6.67	0.38	-85.1	12.96	NA
02/12/25	14:13	200	800	3400	7.66	0.14	12.1	6.68	0.381	-91.1	12.34	NA
02/12/25	14:17	200	800	4200	7.68	0.11	12.4	6.68	0.382	-94.7	16.12	NA
02/12/25	14:21	200	800	5000	7.68	0.1	12.1	6.67	0.382	-96.8	14.45	NA
02/12/25	14:25	200	800	5800	7.59	0.09	12	6.67	0.382	-98.5	14.13	Not stabilized

5-Sample

Date	02/12/2025	Time	13:52
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	02/12/2025	Sample Time	14:30
Sample ID	RGW189S-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	25	Matrix	Water
Filtered?	NO	Bottles	21x HCl VOA, 2x 250mL H2SO4 amber, 2x 500mL amber
Remarks	NA		



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

Project No: US0041831.2092

RGW207S

1-Well Integrity

Date	02/12/2025	Time	15:11
Inspector Name	Lindsey Wielick, Gordon Davies	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)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	-0.08	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	08:52
Top of Casing	21.12	PID	NA
Initial DTW (ft)	6.97	Final DTW (ft)	6.89
Groundwater elevation	14.15	Well Depth (ft)	12.6
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	08:52
Weather Conditions	Sunny, Cold	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)	6.97
Measured Well Depth (ft bmp)	12.6	Water Column in Well	5.63
Gallons in Well	0.91828		
Remarks	NA		



Detailed Low Flow Sampling Info
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98057
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4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	15:13	225	225	225	6.74	1.79	12.5	6.68	0.376	-5.6	27.43	NA
02/12/25	15:17	225	900	1125	6.75	0.58	12.6	6.73	0.385	-43.4	27.07	NA
02/12/25	15:21	225	900	2025	6.78	0.29	12.6	6.73	0.388	-60.1	19.97	NA
02/12/25	15:25	225	900	2925	6.75	0.19	12.5	6.73	0.391	-71.2	16.91	NA
02/12/25	15:29	225	900	3825	6.76	0.15	12.5	6.73	0.392	-77.7	21.4	NA
02/12/25	15:33	225	900	4725	6.84	0.12	12.4	6.72	0.393	-82.7	29.89	NA
02/12/25	15:37	225	900	5625	6.85	0.1	12.5	6.72	0.393	-85.8	41.83	NA
02/12/25	15:41	225	900	6525	6.89	0.08	12.4	6.71	0.394	-88.7	37.97	Didn't stabilize

5-Sample

Date	02/11/2025	Time	15:13
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	02/12/2025	Sample Time	15:40
Sample ID	RGW207S-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	2	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA
Remarks	NA		



Detailed Low Flow Sampling Info
Site: Boeing Renton
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98057
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RGW208S

1-Well Integrity

Date	02/11/2025	Time	08:52
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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.4	Did well meet SAP/WP stabilization requirements before sampling?	No, SPC, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/12/2025	Time	13:56
Top of Casing	22.45	PID	NA
Initial DTW (ft)	7.36	Final DTW (ft)	7.76
Groundwater elevation	15.09	Well Depth (ft)	11.4
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	08:52
Weather Conditions	Sunny, Cold	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)	7.36
Measured Well Depth (ft bmp)	11.4	Water Column in Well	4.04
Gallons in Well	0.65895		
Remarks	NA		



Detailed Low Flow Sampling Info

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98057
Client: The Boeing Company

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	08:52	225	225	225	7.52	0.42	11.4	5.01	1.972	22	94.08	NA
02/12/25	14:05	225	675	900	7.69	0.37	11.4	5	1.93	13.6	78.06	NA
02/12/25	14:09	225	675	1575	7.61	0.31	11.3	5.05	1.875	5	70.99	NA
02/12/25	14:12	225	675	2250	7.67	0.28	11.2	5.09	1.796	-0.5	27.21	Bubbles cleared from sensor
02/12/25	14:15	225	675	2925	7.73	0.26	11.2	5.11	1.718	-3.9	24.44	NA
02/12/25	14:19	225	675	3600	7.63	0.24	11.2	5.14	1.605	-8.5	23.39	NA
02/12/25	14:22	225	675	4275	7.69	0.23	11.2	5.16	1.515	-11.2	23.32	NA
02/12/25	14:25	225	675	4950	7.61	0.23	11.1	5.18	1.476	-13.6	22.47	NA
02/12/25	14:29	225	675	5625	7.68	0.22	11.1	5.16	1.401	-15.3	23.33	NA
02/12/25	14:32	225	675	6300	7.62	0.21	11	5.2	1.349	-17	23.23	NA

5-Sample

Date	02/11/2025	Time	08:52
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	02/12/2025	Sample Time	14:35
Sample ID	RGW208S-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	2	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA
Remarks	NA		



Detailed Low Flow Sampling Info

Site: Boeing Renton
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98057
Client: The Boeing Company

Project No: US0041831.2092

RGW264S

1-Well Integrity

Date	02/13/2025	Time	14:33
Inspector Name	Gordon Davies	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)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	Peristaltic (lowest setting, sample if drawdown exceeded)
Total drawdown	3.67	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, ORP, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/13/2025	Time	14:33
Top of Casing	21.55	PID	NA
Initial DTW (ft)	5.15	Final DTW (ft)	8.82
Groundwater elevation	16.4	Well Depth (ft)	18
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	14:33
Weather Conditions	Cold, Cloudy, Snow	Purge Method	Peristaltic Pump
Purge Volume Units	mL	Purge Rate	175
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)	5.15
Measured Well Depth (ft bmp)	18	Water Column in Well	12.85
Gallons in Well	2.09591		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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Client: The Boeing Company

Remarks Sheen in purge water

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	14:33	200	675	200	6.06	0.61	13.1	6.15	0.493	54.8	47.8	NA
02/13/25	14:37	150	600	800	6.26	0.46	12.5	6.15	0.5	45	48.87	NA
02/13/25	14:42	175	600	1400	6.72	0.4	12.5	6.16	0.512	20.4	149.98	NA
02/13/25	14:46	175	600	2000	7.09	0.33	12.7	6.16	0.522	6.2	295.03	NA
02/13/25	14:50	175	600	2600	7.49	0.23	12.9	6.17	0.532	-6.2	255.63	NA
02/13/25	14:54	175	600	3200	7.8	0.19	12.9	6.17	0.538	-15.2	222.36	NA
02/13/25	14:58	175	600	3800	8	0.16	12.7	6.17	0.544	-21.9	225.12	NA
02/13/25	15:02	175	600	4400	8.33	0.14	12.9	6.17	0.549	-27.6	268.72	NA

5-Sample

Date	02/13/2025	Time	14:33
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	02/13/2025	Sample Time	15:00
Sample ID	RGW264S-20250213	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	4	Matrix	Water
Filtered?	NO	Bottles	3x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW031S-R

1-Well Integrity

Date	02/04/2025	Time	15:45
Inspector Name	Gordon Davies	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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/10/2025	Time	21:49
Top of Casing	19.59	PID	NA
Initial DTW (ft)	5.71	Final DTW (ft)	5.71
Groundwater elevation	13.88	Well Depth (ft)	25
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	9:23
Weather Conditions	Cold, Clear	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	175
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)	5.71
Measured Well Depth (ft bmp)	25	Water Column in Well	19.29
Gallons in Well	3.14631		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	9:01	175	175	175	5.74	2.16	11.1	6.11	0.434	24.7	35.04	NA
02/13/25	09:05	175	700	875	5.71	1.15	11.3	6.1	0.424	9.9	37.13	NA
02/13/25	09:09	175	700	1575	5.74	0.9	12.4	6.15	0.424	-5.1	37.1	NA
02/13/25	09:13	175	700	2275	5.81	0.83	12.5	6.16	0.423	-13.6	39.76	NA
02/13/25	09:17	175	700	2975	5.71	0.61	12.5	6.16	0.421	-19.9	19.43	NA
02/13/25	9:21	175	700	3675	5.71	0.33	12.6	6.18	0.42	-26.9	23.72	NA
02/13/25	09:25	175	700	4375	5.74	0.29	12.9	6.18	0.42	-29.8	32.67	NA
02/13/25	09:29	175	700	5075	5.71	0.27	12.9	6.17	0.421	-32.5	50.43	NA

5-Sample

Date	02/13/2025	Time	9:35
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	02/13/2025	Sample Time	9:35
Sample ID	RGW031S-R-20260213	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW033S

1-Well Integrity

Date	02/13/2025	Time	08:16
Inspector Name	Lindsey Wielick, Gordon Davies	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)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.01	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, ORP
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	No interior or exterior id, painted over, missing 2 bolts, local surface of paved area ponds at this location		

2-Gauging

Date	02/13/2025	Time	08:16
Top of Casing	19.49	PID	NA
Initial DTW (ft)	5.63	Final DTW (ft)	5.64
Groundwater elevation	13.86	Well Depth (ft)	25
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	08:16
Weather Conditions	Cold, Clear	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	175
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)	5.63
Measured Well Depth (ft bmp)	25	Water Column in Well	19.37
Gallons in Well	3.15935		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

Remarks NA

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	8:18	175	175	175	6.62	2.46	12.1	6.21	0.424	88.5	9.43	NA
02/13/25	08:22	175	700	875	5.64	0.99	12.7	6.24	0.437	59	16.99	NA
02/13/25	08:26	175	700	1575	5.63	0.54	12.8	6.26	0.449	22.6	32.42	NA
02/13/25	08:30	175	700	2275	5.66	1.01	13.2	6.26	0.455	5	9.86	NA
02/13/25	08:34	175	700	2975	5.63	0.3	13	6.26	0.46	-7.1	12.48	NA
02/13/25	08:38	175	700	3675	5.63	0.17	13.4	6.26	0.468	-16.4	7.37	NA
02/13/25	08:42	175	700	4375	5.63	0.14	13.4	6.25	0.475	-23.7	8.58	NA
02/13/25	08:46	175	700	5075	5.63	0.11	13.6	6.25	0.481	-30.1	7.94	Didn't stabilize

5-Sample

Date	02/13/2025	Time	08:16
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	02/13/2025	Sample Time	8:50
Sample ID	RGW033S-20250213	Duplicate Sample ID	DUP2-20250213
Dup Sample Time	0:00	Sampler's Name	Gordon Davies
No. of Containers	12	Matrix	Water
Filtered?	NO	Bottles	10x HCl VOA, 2x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW034S

1-Well Integrity

Date	02/13/2025	Time	11:03
Inspector Name	Lindsey Wielick, Gordon Davies	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)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, ORP
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	Missing 2 bolts, no interior or exterior id		

2-Gauging

Date	02/13/2025	Time	11:54
Top of Casing	19.65	PID	NA
Initial DTW (ft)	5.78	Final DTW (ft)	5.78
Groundwater elevation	13.87	Well Depth (ft)	25
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	11:03
Purge Method	Low-flow Bladder Pump	Purge Volume Units	mL
Purge Rate	175	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)	5.78	Measured Well Depth (ft bmp)	25
Water Column in Well	19.22	Gallons in Well	3.13489
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	11:03	175	175	175	5.77	1.97	11.1	6.45	0.316	52.1	14.61	NA
02/13/25	12:02	175	700	875	5.78	0.81	11.4	6.45	0.322	35.2	11.03	NA
02/13/25	12:06	175	700	1575	5.78	0.34	11.6	6.46	0.362	9.7	11.33	NA
02/13/25	12:10	175	700	2275	5.78	0.22	11.6	6.47	0.328	-7	9.28	NA
02/13/25	12:14	175	700	2975	5.78	0.17	11.6	6.47	0.331	-19.1	9.17	NA
02/13/25	12:18	175	700	3675	5.78	0.16	11.6	6.47	0.334	-26.9	9.15	NA
02/13/25	12:22	175	700	4375	5.78	0.18	11.6	6.48	0.336	-34.8	9.21	NA
02/13/25	12:26	175	700	5075	5.78	0.22	11.7	6.48	0.338	-39.1	9.4	Didn't stabilize

5-Sample

Date	02/13/2025	Time	11:03
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	02/13/2025	Sample Time	12:30
Sample ID	RGW034S-20250213	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW143S

1-Well Integrity

Date	02/13/2025	Time	10:09
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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	No internal or external id, no bolt holes, missing all 3 bolts		

2-Gauging

Date	02/13/2025	Time	10:09
Top of Casing	19.81	PID	NA
Initial DTW (ft)	6.06	Final DTW (ft)	6.06
Groundwater elevation	13.75	Well Depth (ft)	15.9
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	10:09
Weather Conditions	Cloudy, Cold	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	175
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)	6.06
Measured Well Depth (ft bmp)	15.9	Water Column in Well	9.84
Gallons in Well	1.60496		
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	10:25	175	175	175	6.04	0.35	11	6.36	0.396	-42.2	24.02	NA
02/13/25	10:30	175	875	1050	6.04	0.28	12.5	6.38	0.407	-50.1	23.74	NA
02/13/25	10:34	175	700	1750	6.05	0.26	12.5	6.39	0.408	-54.7	23.87	NA
02/13/25	10:37	175	525	2275	6.04	0.25	12.7	6.4	0.407	-58.7	24.49	NA
02/13/25	10:41	175	700	2975	6.04	0.24	12.8	6.41	0.408	-62.2	25.6	NA

5-Sample

Date	02/13/2025	Time	10:09
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	02/13/2025	Sample Time	10:45
Sample ID	RGW143S-R-	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	6x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW237S

1-Well Integrity

Date	02/13/2025	Time	10:39
Inspector Name	Lindsey Wielick, Gordon Davies	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)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	-0.07	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, SPC, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	10-inch lid, missing 1 bolt, outside id illegible, abundant bacterial growth		

2-Gauging

Date	02/13/2025	Time	10:39
Top of Casing	18.85	PID	NA
Initial DTW (ft)	5.21	Final DTW (ft)	5.14
Groundwater elevation	13.64	Well Depth (ft)	15
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	10:39
Weather Conditions	Cloudy, Cold	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	175
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)	5.21
Measured Well Depth (ft bmp)	15	Water Column in Well	9.79
Gallons in Well	1.5968		
Remarks	NA		



Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057

Client: The Boeing Company

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	10:40	250	175	175	5.11	4.84	10.2	6.72	0.203	19.3	227.7	NA
02/13/25	10:44	250	1000	1175	5.1	0.86	12.1	6.72	0.124	4.4	394.05	NA
02/13/25	10:48	250	1000	2175	5.1	0.47	12.1	6.63	0.142	3	281.95	NA
02/13/25	10:52	250	1000	3175	5.1	0.24	12.2	6.57	0.183	-3.4	494.81	NA
02/13/25	10:56	250	1000	4175	5.1	0.21	12.3	6.55	0.189	-5.9	162.9	NA
02/13/25	11:00	250	1000	5175	5.1	0.15	12.3	6.56	0.2	-11.3	55.17	NA
02/13/25	11:04	250	1000	6175	5.1	0.13	12.3	6.56	0.206	-16.2	40.53	NA
02/13/25	11:08	250	1000	7175	5.12	0.11	12.4	6.56	0.21	-20.1	36.69	Didn't stabilize

5-Sample

Date	02/13/2025	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	02/13/2025	Sample Time	11:10
Sample ID	RGW237S-20250213	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW240D

1-Well Integrity

Date	02/13/2025	Time	11:03
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)	No
Pump	QED Bladder Pump	Total drawdown	2.68
Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	All 3 bolts missing, no internal or external id		

2-Gauging

Date	02/13/2025	Time	11:03
Top of Casing	19.81	PID	NA
Initial DTW (ft)	5.58	Final DTW (ft)	8.26
Groundwater elevation	14.23	Well Depth (ft)	27
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	11:03
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)	24.5
Depth to Water (ft bmp)	5.58	Measured Well Depth (ft bmp)	27
Water Column in Well	21.42	Gallons in Well	3.49372
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	11:05	225	225	225	6.98	0.87	12.9	6.41	0.289	23.5	721.46	NA
02/13/25	11:08	225	900	1125	7.58	0.37	13.5	6.59	0.284	-15.8	142.17	NA
02/13/25	11:12	225	900	2025	7.98	0.3	13.5	6.61	0.279	-34.4	65.17	NA
02/13/25	11:16	225	900	2925	8.14	0.26	13.5	6.62	0.278	-45.8	61.29	NA
02/13/25	11:20	225	900	3825	8.3	0.24	13.6	6.63	0.276	-55	69.44	NA
02/13/25	11:24	225	900	4725	8.5	0.22	13.7	6.63	0.276	-62	27.47	NA
02/13/25	11:28	225	900	5625	8.49	0.22	13.4	6.63	0.277	-66.1	27.55	NA
02/13/25	11:32	225	900	6525	8.47	0.21	13.4	6.62	0.274	-69	40.59	Didn't stabilize

5-Sample

Date	02/13/2025	Time	11:03
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	02/13/2025	Sample Time	11:35
Sample ID	RGW240D-R-	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	7	Matrix	Water
Filtered?	NO	Bottles	6x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW244S-R

1-Well Integrity

Date	02/13/2025	Time	09:12
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	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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.02	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/13/2025	Time	09:12
Top of Casing	19.42	PID	NA
Initial DTW (ft)	5.52	Final DTW (ft)	5.54
Groundwater elevation	13.9	Well Depth (ft)	15
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	09:12
Weather Conditions	Cold, Clear	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)	10	Depth to Water (ft bmp)	5.52
Measured Well Depth (ft bmp)	15	Water Column in Well	9.48
Gallons in Well	1.54624		
Remarks	NA		



Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057

Client: The Boeing Company

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	9:13	225	225	225	5.52	1.67	11.7	6.27	0.454	34.6	48.22	NA
02/13/25	09:17	225	900	1125	5.53	0.42	13.3	6.29	0.481	10.6	97.85	NA
02/13/25	09:21	225	900	2025	5.53	0.52	13.4	6.27	0.488	-8.5	54.79	NA
02/13/25	09:25	225	900	2925	5.53	0.74	13.5	6.28	0.492	-21.1	97.26	NA
02/13/25	09:29	225	900	3825	5.54	0.43	13.5	6.28	0.496	-28.7	33.17	NA
02/13/25	09:33	225	900	4725	5.54	0.32	13.5	6.28	0.501	-35.1	44.51	NA
02/13/25	09:37	225	900	5625	5.54	0.24	13.5	6.28	0.502	-40.1	64.82	NA
02/13/25	9:41	225	900	6525	5.53	0.1	13.6	6.28	0.504	-44.5	30.77	Didn't stabilize

5-Sample

Date	02/13/2025	Time	09:12
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	02/13/2025	Sample Time	9:50
Sample ID	RGW244S-R-20250213	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	5x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW211S

1-Well Integrity

Date	02/11/2025	Time	09:31
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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.04	Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	09:32
Top of Casing	27.77	PID	NA
Initial DTW (ft)	9.84	Final DTW (ft)	9.88
Groundwater elevation	17.93	Well Depth (ft)	14.75
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	09:32
Weather Conditions	Sunny, Cold	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)	9.84
Measured Well Depth (ft bmp)	14.75	Water Column in Well	4.91
Gallons in Well	0.80085		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	9:38	200	200	200	9.88	0.84	11.2	6.18	0.217	-10.4	122.34	NA
02/11/25	09:41	200	800	1000	9.86	0.53	11.6	6.17	0.225	-31.6	60.73	NA
02/11/25	09:45	200	800	1800	9.88	0.41	11.8	6.18	0.228	-41.5	39.98	NA
02/11/25	09:49	200	800	2600	9.86	0.35	11.8	6.18	0.23	-46.6	29.38	NA
02/11/25	09:52	200	800	3400	9.85	0.33	11.8	6.19	0.232	-50.2	20	NA
02/11/25	09:55	200	800	4200	9.88	0.31	11.8	6.19	0.232	-52	19.47	NA
02/11/25	09:58	200	800	5000	9.86	0.29	11.5	6.19	0.232	-51.4	15.91	NA
02/11/25	10:01	200	800	5800	9.88	0.28	11.8	6.19	0.232	-51.9	14.64	NA
02/11/25	10:04	200	800	6600	9.88	0.27	11.8	6.19	0.232	-50.9	15.02	NA

5-Sample

Date	02/11/2025	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	02/11/2025	Sample Time	10:05
Sample ID	RGW211S-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	2	Matrix	Water
Filtered?	NO	Bottles	2x 500mL amber
Remarks	NA		



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

Project No: US0041831.2092

RGW221S

1-Well Integrity

Date	02/11/2025	Time	10:18
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	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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.03	Did well meet SAP/WP stabilization requirements before sampling?	No, DO
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	08:53
Top of Casing	27.93	PID	NA
Initial DTW (ft)	9.91	Final DTW (ft)	9.94
Groundwater elevation	18.02	Well Depth (ft)	15
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	08:53
Weather Conditions	Sunny, Cold	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)	10	Depth to Water (ft bmp)	9.91
Measured Well Depth (ft bmp)	15	Water Column in Well	5.09
Gallons in Well	0.83021		
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

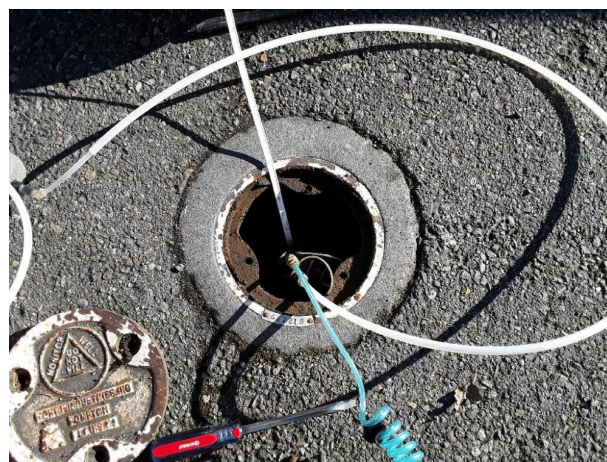
4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	10:29	200	200	200	9.91	2.6	10.2	6.29	0.239	40.1	20.1	NA
02/11/25	10:33	200	800	1000	9.93	0.51	12.3	6.39	0.243	-15.6	15.14	NA
02/11/25	10:37	200	800	1800	9.94	0.32	12.3	6.39	0.245	-27	10.9	NA
02/11/25	10:41	200	800	2600	9.93	0.22	12.2	6.39	0.246	-33.3	7.49	NA
02/11/25	10:45	200	800	3400	9.93	0.15	12.5	6.39	0.247	-39.3	4.28	NA
02/11/25	10:49	200	800	4200	9.93	0.13	12.9	6.39	0.247	-43.6	3.58	NA
02/11/25	10:53	200	800	5000	9.94	0.14	12.8	6.39	0.25	-46	3.39	NA

5-Sample

Date	02/11/2025	Time	10:38
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	02/11/2025	Sample Time	11:00
Sample ID	RGW221S-R-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	2	Matrix	Water
Filtered?	NO	Bottles	2x 500mL amber
Remarks	NA		

Photos





Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

RGW224S

1-Well Integrity

Date	02/11/2025	Time	09:09
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	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)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.21	Did well meet SAP/WP stabilization requirements before sampling?	No, DO
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	09:09
Top of Casing	27.98	PID	NA
Initial DTW (ft)	10.33	Final DTW (ft)	10.54
Groundwater elevation	17.65	Well Depth (ft)	15
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	09:09
Weather Conditions	Sunny, Cold	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)	10	Depth to Water (ft bmp)	10.33
Measured Well Depth (ft bmp)	15	Water Column in Well	4.67
Gallons in Well	0.7617		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

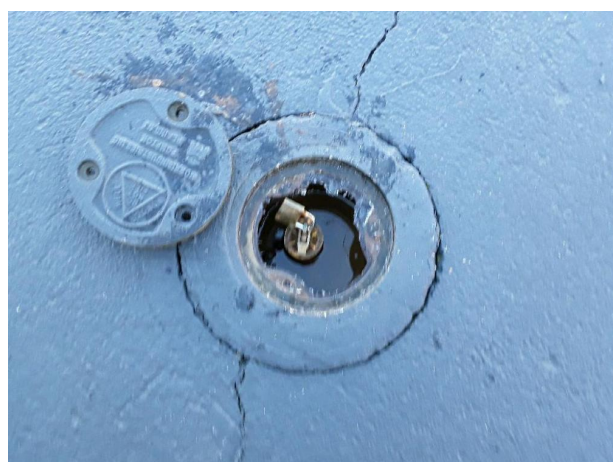
4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	9:03	200	200	200	10.71	5.5	11.2	6.2	0.195	14.5	94.77	NA
02/11/25	9:07	200	800	1000	10.68	0.64	12.5	6.31	0.23	-4.2	33.86	NA
02/11/25	09:11	200	800	1800	10.63	0.6	12.5	6.28	0.22	-20.2	19.89	NA
02/11/25	09:15	200	800	2600	10.61	NA	12.7	6.27	0.215	-26.3	12.86	NA
02/11/25	09:19	200	800	3400	10.59	0.36	12.6	6.26	0.21	-28.5	7.72	NA
02/11/25	09:23	200	800	4200	10.68	0.31	12.6	6.26	0.209	-29.6	5.96	NA
02/11/25	09:28	200	800	5000	10.61	0.26	12.5	6.26	0.208	-30.2	5.01	NA

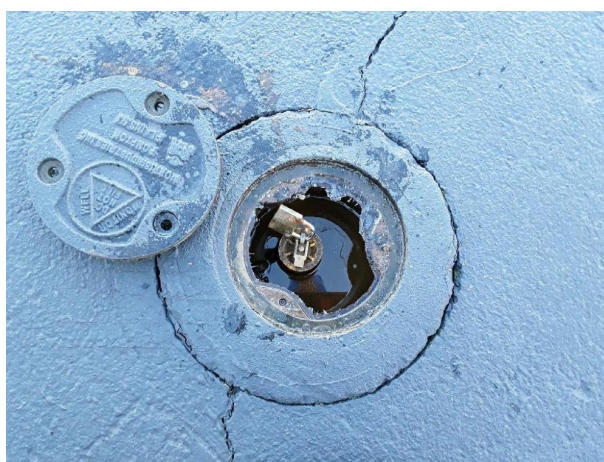
5-Sample

Date	02/11/2025	Time	09:09
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	02/11/2025	Sample Time	9:40
Sample ID	RGW224S-R-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	4	Matrix	Water
Filtered?	NO	Bottles	4x 500mL amber
Remarks	NA		

Photos



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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: US0041831.2092

RGW230I

1-Well Integrity

Date	02/11/2025	Time	17:10
Inspector Name	Lindsey Wielick, Gordon Davies	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	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	Water pumped out of monument, sheen on ponded water
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.02	Did well meet SAP/WP stabilization requirements before sampling?	Yes
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/11/2025	Time	17:10
Top of Casing	24.86	PID	NA
Initial DTW (ft)	6.89	Final DTW (ft)	6.91
Groundwater elevation	17.97	Well Depth (ft)	14
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/11/2025	Time	17:10
Weather Conditions	Sunny, Cold	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)	6.89
Measured Well Depth (ft bmp)	14	Water Column in Well	7.11
Gallons in Well	1.15968		
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/11/25	16:52	250	250	250	6.96	4.49	9.7	6.3	0.346	24.6	48.26	NA
02/11/25	16:56	250	1000	1250	6.91	0.44	11.2	6.44	0.347	-13.9	17.13	NA
02/11/25	17:00	250	1000	2250	6.91	0.23	11.1	6.44	0.348	-28.5	14.47	NA
02/11/25	17:04	250	1000	3250	6.96	0.15	11.1	6.45	0.348	-37.3	9.13	NA
02/11/25	17:08	250	1000	4250	6.96	0.1	11.1	6.45	0.349	-42.6	8.64	NA
02/11/25	17:12	250	1000	5250	6.91	0.07	11	6.46	0.35	-46.2	8.64	NA

5-Sample

Date	02/11/2025	Time	17:10
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	02/11/2025	Sample Time	17:20
Sample ID	RGW230I-20250211	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	2	Matrix	Water
Filtered?	NO	Bottles	2 HCl VOA
Remarks	NA		



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

Project No: US0041831.2092

RGW152S

1-Well Integrity

Date	02/14/2025	Time	09:07
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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.07	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/14/2025	Time	09:07
Top of Casing	26.98	PID	NA
Initial DTW (ft)	8.95	Final DTW (ft)	9.02
Groundwater elevation	18.03	Well Depth (ft)	14.95
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/14/2025	Time	09:07
Weather Conditions	Cold, 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)	8.95
Measured Well Depth (ft bmp)	14.95	Water Column in Well	6
Gallons in Well	0.97863		
Remarks	NA		



Detailed Low Flow Sampling Info

Site: Boeing Renton
737 Logan Avenue N, Renton, Washington
98057

Client: The Boeing Company

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/14/25	09:07	200	250	200	9.03	2.86	12	6.72	0.321	-116.5	686.03	NA
02/14/25	09:21	200	1000	1200	9.01	0.65	12.4	6.2	0.184	-64.2	446.4	NA
02/14/25	09:24	200	1000	2200	8.99	0.54	12.3	6.17	0.179	-39.1	269.31	NA
02/14/25	09:28	200	1000	3200	8.99	0.55	12.1	6.16	0.174	-29.6	66.64	NA
02/14/25	09:32	200	1000	4200	8.99	0.48	12	6.16	0.173	-24.9	50.03	NA
02/14/25	09:36	200	1000	5200	9.01	0.44	12	6.15	0.173	-21.5	48.77	NA
02/14/25	09:40	200	1000	6200	9.01	0.41	11.9	6.16	0.174	-19.3	46.74	NA
02/14/25	09:44	200	1000	7200	9.01	0.39	11.9	6.14	0.175	-17.6	38.73	Didn't stabilize

5-Sample

Date	02/14/2025	Time	09:07
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	02/14/2025	Sample Time	9:50
Sample ID	RGW152S-R-20250214	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	4	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly
Remarks	NA		



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

Project No: US0041831.2092

RGW153S

1-Well Integrity

Date	02/13/2025	Time	16:12
Inspector Name	Gordon Davies	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)	No	Pump	QED Bladder Pump
Total drawdown	0.28	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	Missing 1 bolt		

2-Gauging

Date	02/13/2025	Time	16:12
Top of Casing	27.47	PID	NA
Initial DTW (ft)	9.4	Final DTW (ft)	9.68
Groundwater elevation	18.07	Well Depth (ft)	14.65
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	16:12
Weather Conditions	Cold, 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)	12.5	Depth to Water (ft bmp)	9.4
Measured Well Depth (ft bmp)	14.65	Water Column in Well	5.25
Gallons in Well	0.8563		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	16:12	200	200	200	9.51	1.34	14.2	6.58	0.272	3	205.49	NA
02/13/25	16:16	200	800	1000	9.59	0.51	14.2	6.57	0.27	-0.7	165.51	NA
02/13/25	16:20	200	800	1800	9.5	0.31	14.3	6.55	0.267	-5.8	160.94	NA
02/13/25	16:24	200	800	2600	9.68	0.28	14.5	6.52	0.256	-9.6	65.53	NA
02/13/25	16:28	200	800	3400	9.67	0.27	14	6.55	0.245	-12.1	43.77	NA
02/13/25	16:34	200	800	4200	9.68	0.24	14.1	6.46	0.242	-11.6	19.97	NA
02/13/25	16:38	200	800	5000	9.68	0.21	13.9	6.45	0.24	-11.4	12.82	NA
02/13/25	16:42	200	800	5800	9.68	0.21	14	6.44	0.24	-11.5	11.33	NA

5-Sample

Date	02/13/2025	Time	16:12
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	02/13/2025	Sample Time	16:40
Sample ID	RGW153S-R-20250213	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	5	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly
Remarks	NA		



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

Project No: US0041831.2092

RGW172S

1-Well Integrity

Date	02/13/2025	Time	16:03
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)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	1	Did well meet SAP/WP stabilization requirements before sampling?	No, pH, SPC, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	Missing all 3 bolts, interior filled with soil, no interior ID		

2-Gauging

Date	02/13/2025	Time	16:03
Top of Casing	26.44	PID	NA
Initial DTW (ft)	9.11	Final DTW (ft)	10.11
Groundwater elevation	17.33	Well Depth (ft)	17.82
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	16:03
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)	13
Depth to Water (ft bmp)	9.11	Measured Well Depth (ft bmp)	17.82
Water Column in Well	8.71	Gallons in Well	1.42065
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	16:05	200	200	200	9.8	1.01	12	6.46	0.381	27	356.74	NA
02/13/25	16:09	200	800	1000	9.9	0.49	12.3	6.53	0.31	1.5	199.27	NA
02/13/25	16:13	200	800	1800	10.1	0.34	12.8	6.53	0.293	-19.2	92.43	NA
02/13/25	16:16	200	600	2400	10.12	0.3	12.5	6.5	0.296	-25.1	62.74	NA
02/13/25	16:19	200	600	3000	10.1	0.28	12.8	6.39	0.322	-22.9	40.17	NA
02/13/25	16:22	200	600	3600	10.06	0.26	12.6	6.18	0.373	-14.7	27.25	NA
02/13/25	16:25	200	600	4200	10.05	0.25	12.7	6.07	0.41	-9.1	27.62	NA
02/13/25	16:28	200	600	4800	10.04	0.24	12.7	5.98	0.431	-5.2	29.14	NA
02/13/25	16:32	200	600	5400	10.04	0.23	12.7	5.87	0.458	0.6	27.91	NA
02/13/25	16:35	200	800	6200	10.09	0.22	12.8	5.84	0.464	2	26.86	NA

5-Sample

Date	02/13/2025	Time	16:03
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	02/13/2025
Sample Time	16:45	Sample ID	RGW172S-20250213
Duplicate Sample ID	DUP1-20250213	Dup Sample Time	0:00
Sampler's Name	Lindsey Wielick	No. of Containers	5
Matrix	Water	Filtered?	NO
Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW173S

1-Well Integrity

Date	02/13/2025	Time	15:03
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	No	No Apparent Physical Damage	Yes
Any cleanup performed (explain)	NA	Any repairs/replacement (explain)	No
Pump	QED Bladder Pump	Total drawdown	0.26
Did well meet SAP/WP stabilization requirements before sampling?	No, ORP, Turbidity	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	No exterior/interior id, interior of wellhead rusted out and flaking off and cracked, 1 bolt missing, bolt holes dethreaded		

2-Gauging

Date	02/13/2025	Time	15:03
Top of Casing	26.51	PID	NA
Initial DTW (ft)	9.07	Final DTW (ft)	9.33
Groundwater elevation	17.44	Well Depth (ft)	17.2
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	15:03
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)	9.07	Measured Well Depth (ft bmp)	17.2
Water Column in Well	8.13	Gallons in Well	1.32605
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	15:07	150	150	150	9.29	1.42	11.2	6.45	0.404	93	464.74	Organic material
02/13/25	15:12	150	750	900	9.35	0.56	11.5	6.41	0.372	65.2	335.46	NA
02/13/25	15:16	150	600	1500	9.28	0.35	11.4	6.43	0.365	21.3	147.86	NA
02/13/25	15:21	150	750	2250	9.26	0.34	11.4	6.44	0.365	15.6	132.52	NA
02/13/25	15:27	150	900	3150	9.16	0.32	9.8	6.47	0.365	0	154.16	NA
02/13/25	15:31	200	900	4050	9.21	0.29	11.5	6.49	0.363	-9.8	73.01	NA
02/13/25	15:35	200	600	4650	9.29	0.28	11.5	6.51	0.362	-19.4	51.64	NA
02/13/25	15:39	200	600	5250	9.31	0.28	11.5	6.53	0.359	-29.1	29.75	NA

5-Sample

Date	02/13/2025	Time	15:04
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	02/13/2025	Sample Time	15:45
Sample ID	RGW173S-R-20250213	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	5	Matrix	Water
Filtered?	NO	Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly
Remarks	NA		



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

Project No: US0041831.2092

RGW226S

1-Well Integrity

Date	02/13/2025	Time	15:22
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	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)	No	Pump	QED Bladder Pump
Total drawdown	0.1	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	Missing all 3 bolts		

2-Gauging

Date	02/13/2025	Time	15:22
Top of Casing	26.86	PID	NA
Initial DTW (ft)	8.93	Final DTW (ft)	9.03
Groundwater elevation	17.93	Well Depth (ft)	20
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/13/2025	Time	15:22
Weather Conditions	Cold, 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)	12.5	Depth to Water (ft bmp)	8.93
Measured Well Depth (ft bmp)	20	Water Column in Well	11.07
Gallons in Well	1.80558		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/13/25	15:28	200	200	200	9.09	2.74	13.1	6.61	0.31	-7	306.01	NA
02/13/25	15:32	200	800	1000	9.01	0.84	14.1	6.65	0.316	-21.5	223.22	NA
02/13/25	15:36	200	800	1800	9.02	0.42	14.3	6.58	0.298	-30.5	119.2	NA
02/13/25	15:40	200	800	2600	9.01	1.02	14.4	6.53	0.289	-32.9	51.02	NA
02/13/25	15:44	200	800	3400	9.02	0.7	14.5	6.51	0.288	-33.9	52.58	NA
02/13/25	15:48	200	800	4200	9.01	0.48	14.5	6.5	0.288	-34.8	55.63	NA
02/13/25	15:52	200	800	5000	9.01	0.24	14.5	6.49	0.289	-35.8	89.89	NA
02/13/25	15:56		800	5800	9.03	0.3	14.6	6.49	0.291	-36.9	93.75	NA

5-Sample

Date	02/13/2025	Time	15:22
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	02/13/2025	Sample Time	16:00
Sample ID	RGW226S-R-20250213	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Lindsey Wielick
No. of Containers	4	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly
Remarks	NA		



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

Project No: US0041831.2092

RGW232S

1-Well Integrity

Date	02/14/2025	Time	10:16
Inspector Name	Lindsey Wielick, Gordon Davies	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	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)	No	Pump	QED Bladder Pump
Total drawdown	3.25	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, SPC, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	2 bolts missing		

2-Gauging

Date	02/14/2025	Time	10:16
Top of Casing	24.45	PID	NA
Initial DTW (ft)	7.26	Final DTW (ft)	10.51
Groundwater elevation	17.19	Well Depth (ft)	14
Free Product?	No	Well Dry?	N
Remarks	Final DTW hit the pump		

3-Wellhead

Date	02/14/2025	Time	10:16
Weather Conditions	Cloudy, Cold	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	75
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)	7.26
Measured Well Depth (ft bmp)	14	Water Column in Well	6.74
Gallons in Well	1.09933		
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/14/25	10:16	75	75	75	7.3	2.45	11.1	6.18	0.327	31.9	66.58	NA
02/14/25	10:21	75	375	450	8.06	0.53	12.1	6.29	0.335	-12	37.33	NA
02/14/25	10:24	75	675	1125	8.44	0.41	11.9	6.3	0.339	-21.3	30.29	NA
02/14/25	10:28	75	975	2100	9.04	0.28	11.7	6.32	0.346	-33.4	28.52	NA
02/14/25	10:32	75	1275	3375	9.48	0.23	11.5	6.33	0.348	-37.8	27.79	NA
02/14/25	10:36	75	1575	4950	9.95	0.2	11.6	6.34	0.354	-42.5	28.69	NA
02/14/25	10:40	75	1875	6825	10.51	0.18	11.7	6.34	0.359	-45.7	22.99	Didn't stabilize to sample due to quick drawdov and slow recharge

5-Sample

Date	02/14/2025	Time	10:16
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	02/14/2025	Sample Time	10:50
Sample ID	RGW232S-20250214	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	4	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly
Remarks	NA		



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

Project No: US0041831.2092

RGW234S

1-Well Integrity

Date	02/14/2025	Time	10:16
Well Permit Number	BID-841	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	Yes	No Apparent Physical Damage	Yes
Any cleanup performed (explain)	Water pumped out of monument, sheen on ponded water	Any repairs/replacement (explain)	No
Pump	QED Bladder Pump	Total drawdown	0
Did well meet SAP/WP stabilization requirements before sampling?	No, Turbidity	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	NA		

2-Gauging

Date	02/14/2025	Time	10:16
Top of Casing	24.95	PID	NA
Initial DTW (ft)	8	Final DTW (ft)	8
Groundwater elevation	16.95	Well Depth (ft)	13
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/14/2025	Time	10:16
Weather Conditions	Cloudy, Cold	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)	8	Depth to Water (ft bmp)	8
Measured Well Depth (ft bmp)	13	Water Column in Well	5
Gallons in Well	0.81553		
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/14/25	10:16	250	250	250	8	3.72	9.5	6.53	0.259	42.6	499.87	Organic material
02/14/25	10:22	225	1350	1600	8	0.99	10.3	6.43	0.232	33.6	256.27	NA
02/14/25	10:25	225	675	2275	8	0.58	10.5	6.42	0.227	21.3	98.52	NA
02/14/25	10:28	225	675	2950	8	0.45	10.6	6.43	0.225	7.6	52.07	NA
02/14/25	10:31	200	600	3550	8	0.41	10.5	6.43	0.224	4.2	35.22	NA
02/14/25	10:34	200	600	4150	8	0.37	10.6	6.42	0.224	-2.2	25.95	NA
02/14/25	10:38	200	800	4950	8	0.33	10.6	6.42	0.224	-8	25.09	NA
02/14/25	10:41	200	600	5550	8	0.32	10.7	6.42	0.224	-11.1	23.49	NA
02/14/25	10:43	200	400	5950	8	0.3	10.7	6.42	0.224	-13.6	22.98	NA

5-Sample

Date	02/14/2025	Time	10:16
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	02/14/2025	Sample Time	10:45
Sample ID	RGW234S-20250214	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	4	Matrix	Water
Filtered?	NO	Bottles	3x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly
Remarks	NA		



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

Project No: US0041831.2092

RGW235I

1-Well Integrity

Date	02/14/2025	Time	11:06
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	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)	No	Pump	QED Bladder Pump
Total drawdown	0.15	Did well meet SAP/WP stabilization requirements before sampling?	No, DO
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	All 3 bolts missing		

2-Gauging

Date	02/14/2025	Time	11:06
Top of Casing	24.9	PID	NA
Initial DTW (ft)	6.95	Final DTW (ft)	7.1
Groundwater elevation	17.95	Well Depth (ft)	25
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/14/2025	Time	11:06
Weather Conditions	Cold, 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)	6.95
Measured Well Depth (ft bmp)	25	Water Column in Well	18.05
Gallons in Well	2.94406		
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/14/25	11:06	200	200	200	7.1	0.9	11.4	6.63	0.192	9.2	50.43	NA
02/14/25	11:13	200	1400	1600	7.01	0.52	11.7	6.67	0.189	0.6	31.64	NA
02/14/25	11:17	200	800	2400	6.99	0.38	11.5	6.72	0.188	-13	13.2	NA
02/14/25	11:21	150	600	3000	7	0.32	11.5	6.73	0.188	-19.9	6.63	NA
02/14/25	11:25	150	600	3600	7.06	0.29	11.4	6.74	0.188	-24.1	3.77	NA
02/14/25	11:29	150	600	4200	7.06	0.27	11.5	6.73	0.188	-27	3.29	NA
02/14/25	11:33	150	600	4800	7.1	0.26	11.5	6.73	0.188	-29.4	3.12	NA
02/14/25	11:37	150	600	5400	7.09	0.24	11.6	6.73	0.188	-31.4	3.11	NA

5-Sample

Date	02/14/2025	Time	11:06
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	02/14/2025
Sample Time	11:45	Sample ID	RGW235I-20250214
Duplicate Sample ID	NA	Dup Sample Time	NA
Sampler's Name	Gordon Davies	No. of Containers	4
Matrix	Water	Filtered?	NO
Bottles	2x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly		
Remarks	NA		



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

Project No: US0041831.2092

RGW236S

1-Well Integrity

Date	02/14/2025	Time	09:14
Inspector Name	Gordon Davies	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	Yes
No Apparent Physical Damage	Yes	Any cleanup performed (explain)	NA
Any repairs/replacement (explain)	No	Pump	QED Bladder Pump
Total drawdown	0.48	Did well meet SAP/WP stabilization requirements before sampling?	No, DO, Turbidity
Instrument calibration date	02/11/2025	Instrument calibration time	8:20
Comments	NA		

2-Gauging

Date	02/14/2025	Time	09:14
Top of Casing	24.36	PID	NA
Initial DTW (ft)	7.26	Final DTW (ft)	7.74
Groundwater elevation	17.1	Well Depth (ft)	15
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	02/14/2025	Time	09:14
Weather Conditions	Cloudy, Cold	Purge Method	Low-flow Bladder Pump
Purge Volume Units	mL	Purge Rate	175
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)	7.26
Measured Well Depth (ft bmp)	15	Water Column in Well	7.74
Gallons in Well	1.26244		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/14/25	09:14	175	175	175	7.51	4.48	9	6.9	0.337	14.9	243.07	NA
02/14/25	09:20	175	1050	1225	7.51	0.66	10.6	6.56	0.378	-15.6	368.14	NA
02/14/25	09:22	175	350	1575	7.66	0.95	10.6	6.57	0.379	-20.2	295.33	NA
02/14/25	09:26	175	700	2275	7.67	0.58	10.6	6.58	0.382	-27.3	126.99	NA
02/14/25	09:30	175	700	2975	7.71	0.54	10.6	6.57	0.386	-29.2	94.36	NA
02/14/25	09:34	175	700	3675	7.72	0.54	10.5	6.56	0.388	-29.4	93.27	NA
02/14/25	09:38	175	700	4375	7.71	0.57	10.5	6.55	0.392	-28.6	55.62	NA
02/14/25	09:42	175	700	5075	7.71	0.64	10.5	6.54	0.395	-27.2	43.59	NA

5-Sample

Date	02/14/2025	Time	09:14
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	02/14/2025	Sample Time	9:45
Sample ID	RGW236S-20250214	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Gordon Davies
No. of Containers	4	Matrix	Water
Filtered?	NO	Bottles	2x HCl VOA, 1x 250mL H2SO4 amber, 1x 250mL HNO3 poly
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW009S

1-Well Integrity

Date	02/09/2025	Time	21:30
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)	No
Pump	QED Bladder Pump	Total drawdown	0.06
Did well meet SAP/WP stabilization requirements before sampling?	Yes	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	No internal or external id, underneath carpet tile under desk #1B14.11		

2-Gauging

Date	02/12/2025	Time	09:11
Top of Casing	19.36	PID	NA
Initial DTW (ft)	5.48	Final DTW (ft)	5.54
Groundwater elevation	13.88	Well Depth (ft)	14.5
Free Product?	No	Well Dry?	N
Remarks	NA		

3-Wellhead

Date	01/31/2025	Time	13:36
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)	9.5
Depth to Water (ft bmp)	NA	Measured Well Depth (ft bmp)	14.5
Water Column in Well	NA	Gallons in Well	NA
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

4-Stabilization Parameters

Date	Time	Flow Rate	Purge Volume	Cuml Vol Purged	DTW (ft)	Dissolve Oxygen (mg/L)	Tempera (C)	pH (SU)	Spec Cond (mS/cm)	ORP (mV)	Turbidity (NTU)	Remarks
02/12/25	9:14	200	200	200	5.54	0.75	19.2	6.42	0.353	-79.1	2.18	NA
02/12/25	09:17	200	800	1000	5.54	0.46	19.3	6.46	0.35	-95.4	1.2	NA
02/12/25	09:20	200	800	1800	5.54	0.37	19.4	6.47	0.345	-101.8	0.9	NA
02/12/25	09:23	200	800	2600	5.54	0.33	19.3	6.48	0.349	-105.8	0.9	NA
02/12/25	09:27	200	800	3400	5.54	0.29	19.3	6.5	0.362	-110.1	0.73	NA
02/12/25	09:31	200	800	4200	5.54	0.27	19.3	6.51	0.365	-112	0.63	NA
02/12/25	09:34	200	800	5000	5.54	0.25	19.3	6.51	0.369	-113.3	0.64	NA
02/12/25	09:38	200	800	5800	5.54	0.25	19.3	6.52	0.37	-114.1	0.5	NA

5-Sample

Date	02/12/2025	Time	9:39
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	02/12/2025	Sample Time	9:45
Sample ID	RGW009S-20250212	Duplicate Sample ID	NA
Dup Sample Time	NA	Sampler's Name	Jacklyn Perkins
No. of Containers	6	Matrix	Water
Filtered?	NO	Bottles	3x HCl VOA, 1x 250mL H2SO4 amber
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

RGW010S

1-Well Integrity

Date	02/12/2025	Time	10:03
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)	No
Pump	NA	Total drawdown	NA
Did well meet SAP/WP stabilization requirements before sampling?	NA	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	Missing all 3 bolts, no interior ID tag, lid likely switched with RGW011, under carpet in aisle in office		

2-Gauging

Date	02/12/2025	Time	10:03
Top of Casing	19.47	PID	NA
Initial DTW (ft)	5.67	Final DTW (ft)	NA
Groundwater elevation	13.8	Well Depth (ft)	14.5
Free Product?	No	Well Dry?	N
Remarks	Not sampled, northern, 2 screws dethreaded		

3-Wellhead

Date	02/12/2025	Time	10:03
Purge Method	Low-flow Bladder Pump	Purge Volume Units	mL
Purge Rate	275	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)	5.67	Measured Well Depth (ft bmp)	14.5
Water Column in Well	8.83	Gallons in Well	1.44022
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

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

5-Sample

Date	02/12/2025	Time	10:03
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 ID	NA
Duplicate Sample ID	NA	Dup Sample Time	NA
Sampler's Name	NA	No. of Containers	NA
Matrix	Water	Filtered?	NO
Bottles	NA		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW011D

1-Well Integrity

Date	02/11/2025	Time	18:28
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)	No
Pump	NA	Total drawdown	NA
Did well meet SAP/WP stabilization requirements before sampling?	NA	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	Under carpet in aisle, old lock 1g032- did not replace, missing 2 of 3 bolts, no exterior ID		

2-Gauging

Date	02/12/2025	Time	10:09
Top of Casing	19.49	PID	NA
Initial DTW (ft)	5.65	Final DTW (ft)	NA
Groundwater elevation	13.84	Well Depth (ft)	39
Free Product?	No	Well Dry?	N
Remarks	Not sampled		

3-Wellhead

Date	02/14/2025	Time	15:42
Purge Method	Low-flow Bladder Pump	Purge Volume Units	mL
Purge Rate	275	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)	NA	Measured Well Depth (ft bmp)	39
Water Column in Well	NA	Gallons in Well	NA
Remarks	NA		



Detailed Low Flow Sampling Info

Project No: US0041831.2092

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

4-Stabilization Parameters

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

5-Sample

Date	02/04/2025	Time	15:42
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 ID	NA
Duplicate Sample ID	NA	Dup Sample Time	NA
Sampler's Name	NA	No. of Containers	NA
Matrix	Water	Filtered?	NO
Bottles	NA		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW263S

1-Well Integrity

Date	02/13/2025	Time	14:30
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)	Water pumped out of monument, sheen on ponded water	Any repairs/replacement (explain)	No
Pump	NA	Total drawdown	NA
Did well meet SAP/WP stabilization requirements before sampling?	NA	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	NA		

2-Gauging

Date	02/13/2025	Time	14:30
Top of Casing	21.68	PID	NA
Initial DTW (ft)	7.11	Final DTW (ft)	NA
Groundwater elevation	14.57	Well Depth (ft)	18
Free Product?	No	Well Dry?	N
Remarks	Not sampled		

3-Wellhead

Date	02/13/2025	Time	14:30
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)	7.11	Measured Well Depth (ft bmp)	18
Water Column in Well	10.89	Gallons in Well	1.77622
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

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

5-Sample

Date	02/13/2025	Time	14:30
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 ID	NA
Duplicate Sample ID	NA	Dup Sample Time	NA
Sampler's Name	NA	No. of Containers	NA
Matrix	Water	Filtered?	NO
Bottles	NA		
Remarks	NA		



Detailed Low Flow Sampling Info

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

Project No: US0041831.2092

RGW265S

1-Well Integrity

Date	02/13/2025	Time	14:31
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)	Water pumped out of casing	Any repairs/replacement (explain)	No
Pump	NA	Total drawdown	NA
Did well meet SAP/WP stabilization requirements before sampling?	NA	Instrument calibration date	02/11/2025
Instrument calibration time	8:20		
Comments	Pressure build up inside casing		

2-Gauging

Date	02/13/2025	Time	14:31
Top of Casing	21.64	PID	NA
Initial DTW (ft)	5.61	Final DTW (ft)	NA
Groundwater elevation	16.03	Well Depth (ft)	18
Free Product?	No	Well Dry?	N
Remarks	Not sampled		

3-Wellhead

Date	02/13/2025	Time	14:31
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)	NA	Measured Well Depth (ft bmp)	18
Water Column in Well	NA	Gallons in Well	NA
Remarks	NA		



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

Project No: US0041831.2092

4-Stabilization Parameters

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

5-Sample

Date	02/13/2025	Time	14:31
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 ID	NA
Duplicate Sample ID	NA	Dup Sample Time	NA
Sampler's Name	NA	No. of Containers	NA
Matrix	Water	Filtered?	NO
Bottles	NA		
Remarks	NA		

APPENDIX C

DATA VALIDATION MEMOS



Memo

To: Patrick McCarthy, Project Manager Project: PS24206850.03
From: Morgan Schimelfenig c: Project File
Tel: (503) 207-9629
Date: March 18, 2025
Subject: Summary Data Quality Review
February 2025 Boeing Renton Groundwater Sampling
SWMU-168
ARI Work Order Number: 25B0244

This memo presents the summary data quality review of one primary groundwater sample collected on February 11, 2025. 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 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-20250211	25B0244-01	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 document (EPA, 2020).

ARI received the sample on February 13, 2025. 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.



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 25B0244 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-08132024	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: PS24206850.03
From: Morgan Schimelfenig c: Project File
Tel: (503) 207-9629
Date: March 18, 2025
Subject: Summary Data Quality Review
February 2025 Boeing Renton Groundwater Sampling
SWMU-172/174
ARI Group Number: 25B0278

This memo presents the summary data quality review of nine primary groundwater samples, one groundwater field duplicate, and two trip blank samples collected between February 13 and 14, 2025. 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 Methods for the Examination of Water and Wastewater 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
RGW173S-20250213	25B0278-01	all
RGW172S-20250213	25B0278-02	all
RGW226S-20250213	25B0278-03	all
RGW153S-20250213	25B0278-04	all
RGW234S-20250214	25B0278-05	all
RGW232S-20250214	25B0278-06	all
RGW152S-20250214	25B0278-07	all
RGW236S-20250214	25B0278-08	all
RGW235I-20250214	25B0278-09	all
DUP1-20250213	25B0278-10	all
Trip Blank	25B0278-11	VOCs
Trip Blank 2	25B0278-12	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 14, 2025. 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 cooler receipt form, the samples recorded on the COC as RGW226S-20250213 and RGW152S-20250214 were labeled RGW226S-R-20250213 and RGW152S-R-20250214. ARI logged the samples in according to the COC. According to the cooler receipt form, three extra trip blanks were received that were not on the COC, ARI logged these trip blanks in as Trip Blank 2 (25B0278-12).

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

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 (%)
RGW172S-20250213/ DUP1-20250213	Vinyl chloride	81.6	88.3	20	NC
	cis-1,2-Dichloroethene	362	384	20	5.9
	Trichloroethene	135	144	20	6.5
	Tetrachloroethene	30.2	31.5	20	NC

Abbreviations

ng/L = nanograms per liter

RPD = relative percent difference

NC = not calculated

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 except as noted:

TOC was detected at a concentration of 0.52 milligrams per liter (mg/L) in the method blank associated with all samples reviewed in this report. Data limitations are summarized below.



- WSP J qualified the TOC results from samples RGW173S-20250213, RGW153S-20250213, RGW234S-20250214, RGW152S-20250214, RGW236S-20250214, and RGW235I-20250214 because the detected concentrations were less than 10 times the blank detection. (J, MB)
- TOC was detected in the remaining associated samples at concentrations greater than 10 times the blank detection and data usability is not adversely affected by the blank detection.

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 samples reviewed in this report.

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-20250213/ DUP1-20250213	TOC	193.3 mg/L	183.7 mg/L	1.50 mg/L	5.1
	total arsenic	5.13 µg/L	5.88 µg/L	1.20 µg/L	NC
	total copper	0.654 µg/L	0.794 µg/L	1.00 µg/L	NC
	total lead	0.348 µg/L	0.402 µg/L	0.400 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

ARI J qualified the detected total copper results from samples RGW172S-20250213, RGW226S-20250213, and DUP1-20250213 because the detected results were less than the reporting limit. WSP agrees that these results are quantitatively uncertain and has maintained ARI’s J qualifiers. (J, DL)

ARI J qualified the detected total lead results from samples RGW172S-20250213, RGW232S-20250214, and RGW152S-20250214 because the detected results were less than the reporting limit. WSP agrees that these results are quantitatively uncertain and has maintained ARI’s J qualifiers. (J, DL)

ARI J qualified the detected total arsenic result from sample RGW235I-20250214 because the detected result was less than the reporting limit. WSP agrees that this result is quantitatively uncertain and has maintained ARI’s J qualifier. (J, DL)

OVERALL ASSESSMENT OF DATA

The table below summarizes the data assessment. The completeness of work order numbers 25B0278 is 100 percent. The usefulness of these data was evaluated based on EPA guidance documents listed in the introduction to this report. Few problems were identified, and analytical performance was generally within specified limits. The data meet the project’s data quality objectives.



Sample ID	Qualified Analyte	Reason for Qualifier	Qualified Result
RGW173S-20250213	TOC	Method blank contamination	4.96 mg/L J
RGW172S-20250213	Total Copper	Detected result less than the RL	0.654 µg/L J
RGW172S-20250213	Total Lead	Detected result less than the RL	0.348 µg/L J
RGW226S-20250213	Total Copper	Detected result less than the RL	0.492 µg/L J
RGW153S-20250213	TOC	Method blank contamination	3.48 mg/L J
RGW234S-20250214	TOC	Method blank contamination	2.37 mg/L J
RGW232S-20250214	Total Lead	Detected result less than the RL	0.362 µg/L J
RGW152S-20250214	Total Lead	Detected result less than the RL	1.58 µg/L J
RGW152S-20250214	TOC	Method blank contamination	3.08 mg/L J
RGW236S-20250214	TOC	Method blank contamination	1.67 mg/L J
RGW235I-20250214	Total Arsenic	Detected result less than the RL	0.232 µg/L J
RGW235I-20250214	TOC	Method blank contamination	0.88 mg/L J
DUP1-20250213	Total Copper	Detected result less than the RL	0.794 µg/L J
Trip Blank	None	NA	NA
Trip Blank 2	None	NA	NA

Abbreviation

µg/L = micrograms per liter

mg/L = milligram per liter

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: PS24206850.03
From: Morgan Schimelfenig c: Project File
Tel: (503) 207-9629
Date: March 18, 2025
Subject: Summary Data Quality Review
February 2025 Boeing Renton Groundwater Sampling
Building 4-78/79 SWMU/AOC Group
ARI Work Order Number: 25B0275

This memo presents the summary data quality review of seven primary groundwater samples, one field duplicate, and one trip blank collected on February 13, 2025. 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
RGW031S-R-20250213	25B0275-01	all
RGW244S-R-20250213	25B0275-02	all
RGW033S-20250213	25B0275-03	all
RGW237S-20250213	25B0275-04	all
RGW240D-20250213	25B0275-05	all
RGW034S-20250213	25B0275-06	all
RGW143S-20250213	25B0275-07	all
DUP2-20250213	25B0275-08	all
TRIP BLANK	25B0275-09	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 14, 2025. The temperature of the cooler was recorded upon receipt and the cooler was below the maximum acceptable temperature of 6 degrees Celsius (°C).



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-20250213/ DUP2-20250213	Vinyl Chloride	1.49	1.48	0.2	0.67
	cis-1,2-Dichloroethene	1.14	1.05	0.2	8.2
	Benzene	6.39	6.48	0.2	1.4
	TPH-G	193	185	100	NC

Abbreviations

µg/L = micrograms per liter

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 except as noted:

TOC was detected at a concentration of 0.52 mg/L in the method blank associated with all samples reviewed in this report. Data limitations are summarized below.

- WSP J qualified the TOC results from samples RGW237S-20250213 and RGW240D-20250213 because the detected concentrations were less than 10 times the blank detection. (J, MB)
- TOC was detected in the remaining associated samples at concentrations greater than 10 times the blank detection and data usability is not adversely affected by the blank detection.



3. LCS – Acceptable
4. MS/MSD – 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-20250213/ DUP2-20250213	TOC	10.02	10.25	0.5	2.3

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 number 25B0275 is 100 percent. Evaluation of the usefulness of these data is based on EPA guidance documents identified in the introduction to this report. Few 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 (µg/L)
RGW031S-R-20250213	none	NA	none
RGW244S-R-20250213	none	NA	none
RGW033S-20250213	none	NA	none
RGW237S-20250213	TOC	Method blank contamination	5.17 J
RGW240D-20250213	TOC	Method blank contamination	4.31 J
RGW034S-20250213	none	NA	none
RGW143S-20250213	none	NA	none
DUP2-20250213	none	NA	none
TRIP BLANK	none	NA	none

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: PS24206850.03
From: Morgan Schimelfenig c: Project File
Tel: (503) 207-9629
Date: March 18, 2025
Subject: Summary Data Quality Review
February 2025 Boeing Renton Groundwater Sampling
Former Fuel Farm AOC Group
ARI Work Order Number: 25B0181

This memo presents the summary data quality review of three primary groundwater samples collected on February 11, 2025. 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
RGW211S-20250211	25B0181-01	all
RGW224S-20250211	25B0181-02	all
RGW221S-20250211	25B0181-03	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 11, 2025. 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
2. Blanks – Acceptable
3. Surrogates – Acceptable
4. LCS – Acceptable
5. MS/MSD – 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 table below summarizes the data review. The completeness of ARI work order numbers 25B0181 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 generally within specified limits. The data meet the project's data quality objectives.

Sample ID	Qualified Analyte
RGW211S-20250211	None
RGW224S-20250211	None
RGW221S-20250211	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.

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Memo

To: Patrick McCarthy, Project Manager Project: PS24206850.03
From: Morgan Schimelfenig c: Project File
Tel: (503) 207-9629
Date: March 19, 2025
Subject: Summary Data Quality Review
February 2025 Boeing Renton Groundwater Sampling
AOC-001, -002, and -003
ARI Work Order Numbers: 25B0178, 25B0179

This memo presents the summary data quality review of 17 primary groundwater samples and 2 trip blank samples collected between February 10 and 11, 2025. 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 (SIM); 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
RGW213S-R-20250210	25B0178-01	all
RGW185S-R-20250210	25B0178-02	all
RGW193S-R-20250210	25B0178-03	all
RGW191D-R-20250210	25B0178-04	all
RGW192S-R-20250210	25B0178-05	all
RGW190S-R-20250210	25B0178-06	all
RGW246S-R-20250210	25B0178-07	all
RGW245S-R-20250210	25B0178-08	all
RGW214S-R-20250210	25B0178-09	all
RGW215S-R-20250210	25B0178-10	all
RGW197S-R-20250210	25B0178-11	all
RGW196D-R-20250211	25B0178-12	all
RGW195S-R-20250211	25B0178-13	all
Trip Blank	25B0178-14	VOCs
RGW188S-20250211	25B0179-01	SIM VOCs, TOC
RGW249S-20250211	25B0179-02	SIM VOCs, TOC
RGW247S-R-20250211	25B0179-03	SIM VOCs, TOC



Sample ID	Laboratory Sample ID	Requested Analyses
RGW248I-20250211	25B0179-04	SIM VOCs, TOC
Trip Blank	25B0179-05	SIM 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 February 11, 2025. The temperature of the coolers was recorded upon receipt and all 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:

One of the VOA vials for samples RGW185S-R-20250210 and RGW193S-R-20250210 contained air bubbles upon laboratory receipt. There were sufficient remaining vials with acceptable preservation and ARI proceeded with analysis. No data were qualified.

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 except as noted:

Samples RGW213S-R-20250210, RGW245S-R-20250210, RGW214S-R-20250210, and RGW215S-R-20250210 were diluted due to foaming, reporting limits are elevated.

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

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 25B0178 and 25B0179 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
RGW213S-R-20250210	none
RGW185S-R-20250210	none
RGW193S-R-20250210	none
RGW191D-R-20250210	none
RGW192S-R-20250210	none
RGW190S-R-20250210	none
RGW246S-R-20250210	none
RGW245S-R-20250210	none
RGW214S-R-20250210	none
RGW215S-R-20250210	none
RGW197S-R-20250210	none
RGW196D-R-20250211	none
RGW195S-R-20250211	none
Trip Blank	none
RGW188S-20250211	none
RGW249S-20250211	none
RGW247S-R-20250211	none
RGW248I-20250211	none
Trip Blank	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: PS24206850.03
From: Morgan Schimelfenig c: Project File
Tel: (503) 207-9629
Date: March 18, 2025
Subject: Summary Data Quality Review
February 2025 Boeing Renton Groundwater Sampling
AOC-004
ARI Work Order Number: 25B0180

This memo presents the summary data quality review of one primary groundwater sample collected on February 11, 2025. 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-20250211	25B0180-01	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 11, 2025. 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
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 table below summarizes the data review. The completeness of work order number 25B0180 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-20250211	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: PS24206850.03
From: Morgan Schimelfenig c: Project File
Tel: (503) 207-9629
Date: March 18, 2025
Subject: Summary Data Quality Review
February 2025 Boeing Renton Groundwater Sampling
AOC-060
ARI Work Order Number: 25B0208

This memo presents the summary data quality review of six primary groundwater samples, one field duplicate, and one trip blank sample collected on February 12, 2025. 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
RGW014S-20250212	25B0208-01	all
RGW012S-20250212	25B0208-02	all
RGW253I-20250212	25B0208-03	all
RGW009S-20250212	25B0208-04	all
RGW147S-20250212	25B0208-05	all
RGW150S-20250212	25B0208-06	all
DUP3-20250212	25B0208-07	all
Trip Blank	25B0208-08	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 13, 2025. The temperature of the cooler was recorded upon receipt and was below the maximum acceptable temperature of 6 degrees Celsius. According to the cooler receipt, sample RGW012S-20250212 did not have the complete ID on the bottle, the sample was logged in according to the COC. The sample IDs had the month of January in the sample ID name on the COC, ARI logged the samples in with the month of February in the sample ID to follow the historical naming system.



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

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-20250212/ DUP3-20250212	vinyl chloride	209	229	20.0	9.1
	cis-1,2-dichloroethene	180	180	20.0	0
	trichloroethene	19.3	18.2	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 results from samples RGW014S-20250212, RGW253I-20250212, RGW150S-20250212, and DUP3-20250212 because the detected results were less than the reporting limit. WSP agrees that these results are quantitatively uncertain and has maintained ARI's J qualifiers. (J, DL)

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-20250212/ DUP3-20250212	TOC	3.91	4.25	0.50	8.3

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 25B0208 is 100 percent. Evaluation of the usefulness of these data is based on the EPA guidance document listed in the introduction to this report. Few problems were identified, and analytical performance was generally within specified limits. The data meet the project's data quality objectives.

Sample ID	Qualified Analyte	Reason for Qualifier	Qualified Result (ng/L)
RGW014S-20250212	Trichloroethene	Detected result less than the RL	19.3 J
RGW012S-20250212	None	NA	NA
RGW253I-20250212	Trichloroethene	Detected result less than the RL	13.0 J
RGW009S-20250212	None	NA	NA
RGW147S-20250212	None	NA	NA
RGW150S-20250212	Trichloroethene	Detected result less than the RL	13.2 J
DUP3-20250212	Trichloroethene	Detected result less than the RL	18.2 J
Trip Blank	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: PS24206850.03
From: Morgan Schimelfenig c: Project File
Tel: (503) 207-9629
Date: September 17, 2024
Subject: Summary Data Quality Review
February 2025 Boeing Renton Groundwater Sampling
AOC-090
ARI Work Order Number: 25B0205

This memo summarizes the data quality review of five primary groundwater samples and one trip blank sample collected on February 12, 2025. 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-dichloroethene, 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
RGW208S-20250212	25B0205-01	vinyl chloride
RGW178S-20250212	25B0205-02	vinyl chloride
RGW176S-20250212	25B0205-03	vinyl chloride
RGW207S-20250212	25B0205-04	vinyl chloride
RGW189S-20250212	25B0205-05	VOCs, TOC, TPH-G, TPH-D, TPH-MO, TOC
TRIP BLANK	25B0205-06	VOCs, TPH-G

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 13, 2024. The temperature of the cooler was recorded upon receipt and the cooler was below the maximum acceptable temperature of 6 degrees Celsius. According to the cooler receipt, the



COC used January date in the sample ID but the labels on the samples used February, ARI logged samples in with the February date on sample ID to match the sample labels.

Sample, TRIP BLANK, was marked for analysis for vinyl chloride (SIM) and TOC on the COC, but the sample was run by ARI for all VOCs and TPH-G. Confirmed with WSP that it was analyzed correctly.

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
3. Surrogates – Acceptable
4. LCS/LCSD – Acceptable
5. MS/MSD – 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

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 25B0205 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.

Sample ID	Qualified Analyte
RGW208S-20250212	None
RGW178S-20250212	None
RGW176S-20250212	None



Sample ID	Qualified Analyte
RGW207S-20250212	None
RGW189S-20250212	None
TRIP BLANK	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: PS24206850.03
From: Morgan Schimelfenig c: Project File
Date: March 18, 2025
Tel: (503) 207-9629
Subject: Summary Data Quality Review
February 2025 Boeing Renton Groundwater Sampling
Apron A
ARI Work Order Number: 25B0276

This memo presents the summary data quality review of one primary groundwater sample and one trip blank sample collected on February 13, 2025. 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-20250213	25B0276-01	all
Trip Blank	25B0276-02	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 14, 2025. 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
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 except as noted:

TOC was detected at a concentration of 0.52 mg/L in the method blank associated with all samples reviewed in this report. TOC was detected in the associated sample at a concentration greater than 10 times the blank detection and data usability is not adversely affected by the blank detection.

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.

Reporting Limits and Laboratory Flags – Acceptable.

OVERALL ASSESSMENT OF DATA

The table below summarizes the data assessment. The completeness of work order number 25B0276 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-20250213	none
Trip Blank	none

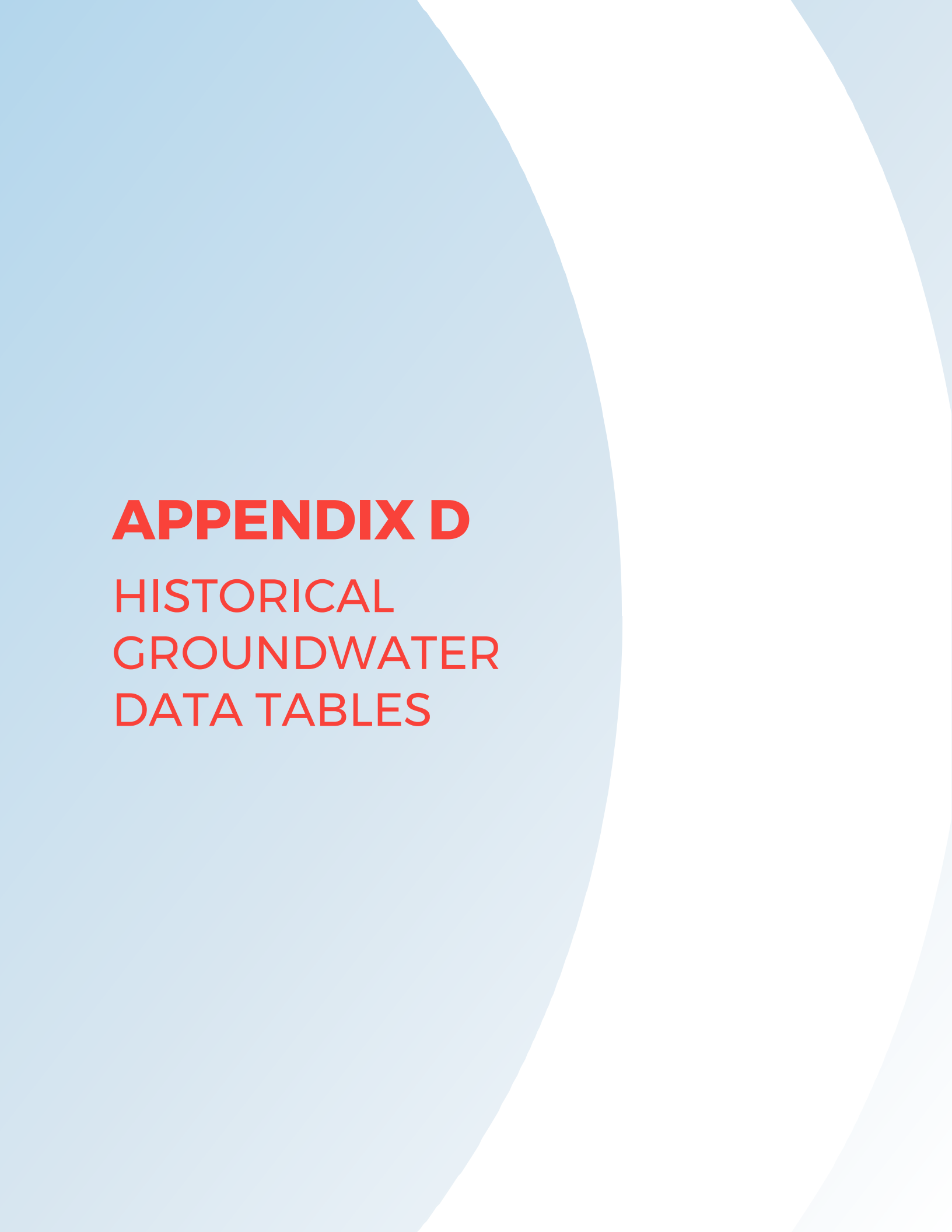
REFERENCES

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							
		8/10/2021	2/21/2022	8/17/2022	2/9/2023	8/24/2023	2/6/2024	8/13/2024	2/11/2025
		Volatile Organic Compounds (µg/L)							
Vinyl Chloride	0.11	0.359 J	0.164	0.539 J	0.146	0.101	0.087	0.0784	0.0428

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								
		8/10/2021	2/21/2022	2/21/2022	8/24/2022	2/8/2023	8/15/2023	2/5/2024	8/15/2024	2/14/2025	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/15/2023	2/2/2024	8/13/2024	2/13/2025
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.03	1.330	1.57	1.59	0.877	3.16 J	1.46	4.59	1.41	1.57	0.077	0.0582 J	0.0517	0.100	0.0569 J	0.053	0.068	0.0574	0.167
Tetrachloroethene	0.02	0.0872	1.84	1.71	1.05	0.234 J	1.06	0.238	0.848	0.188	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0200 UJ	0.0161 J	0.198	0.0200 U	0.352
Trichloroethene	0.02	0.129	0.522	0.497	0.534	0.101 J	0.412	0.104	0.303	0.0673	0.020 U	0.020 UJ	0.0200 U	0.0525	0.0200 UJ	0.0172 J	0.049	0.0200 U	0.242
Vinyl Chloride	0.11	0.506	0.200	0.219	0.346	0.195 J	0.209	0.264	0.152	0.0675	0.220	0.193 J	0.174	0.214	0.148 J	0.0881	0.108	0.153	0.0768
Total Metals (µg/L)																			
Arsenic	8.0	16.3	2.88	2.34	47.7	6.92	39.8	7.95	62.4	6.72	32.8	5.47	4.98	2.85	4.76	2.39	4.12	4.11	1.75
Copper	3.5	9.08 J	5.07	3.88	9.17	6.61	4.98 J	2.44	131	5.36	33.90	2.37	1.45	0.641	1.14	0.408 J	1.00 U	1.11	1.00 U
Lead	1.0	5.38 J	2.78 J	1.90 J	5.75	4.24 J	32.2	1.18	74.4	1.58 J	5.8	0.448	0.302	0.123	0.256	0.200 U	0.232	0.271	0.400 U

Analyte	Current Cleanup Level ⁴	Well ID ³ Downgradient Plume Area																	
		GW172S									GW173S								
		2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/16/2023	2/5/2024	8/13/2024	2/13/2025	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/17/2023	2/5/2024	8/15/2024	2/13/2025
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.03	0.108	0.0746	0.0532	0.0436	0.155 J	0.528	0.877	0.585	0.362	0.0505	0.0424 J	0.0280	0.168	0.0909 J	0.107	0.145	0.226	0.224
Tetrachloroethene	0.02	0.0624	0.020 U	0.0677	0.0200 U	0.0200 UJ	0.0237	0.0200 U	0.0417	0.0302	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0429 J	0.0102 J	0.0543	0.0257	0.0206
Trichloroethene	0.02	0.020 U	0.020 U	0.0201	0.0200 U	0.0200 UJ	0.199	0.266	0.185	0.135	0.020 U	0.020 UJ	0.0200 U	0.0496	0.0479 J	0.0262	0.0307	0.0706	0.0973
Vinyl Chloride	0.11	0.219	0.155	0.137	0.0887	0.601 J	0.277	0.907	0.180	0.0816	0.183	0.176 J	0.0696	0.175	0.210 J	0.132	0.280	0.214	0.0618
Total Metals (µg/L)																			
Arsenic	8.0	10.8	7.18	11.2	4.86	6.64	23.6	6.68	6.99	5.13	9.94	11.4	13.8	6.04	5.69	7.26	9.51	5.81	6.14
Copper	3.5	3.89	2.86	2.86	1.52	6.17	17.70	1.08	0.500 U	0.654 J	3.11	5.96	2.58	1.54	2.98	1.09	3.07	1.00 U	4.67
Lead	1.0	1.98	1.33	1.37	1.32	3.80	14.7 J	0.714	0.172 J	0.348 J	0.850	1.65	0.788	0.468	0.752	0.384	1.41	0.302	0.882

Analyte	Current Cleanup Level ⁴	Well ID ³																	
		Downgradient Plume Area									CPOC Area								
		GW226S									GW232S								
		2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/16/2023	2/2/2024	8/13/2024	2/13/2025	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/16/2023	2/5/2024	8/13/2024	2/14/2025
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.03	0.020 U	0.0335 J	0.0363	0.0255	0.0431 J	0.0169 J	0.0465	0.0232	0.0412	0.219	0.464 J	0.197	0.325	0.206 J	0.236	0.167	0.238	0.179
Tetrachloroethene	0.02	0.020 U	0.0202 J	0.0200 U	0.0200 U	0.0200 UJ	0.0200 U	0.0200 U	0.0248	0.0200 U	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0200 UJ	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Trichloroethene	0.02	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0200 UJ	0.00910 J	0.0200 U	0.0200 U	0.0200 U	0.020 U	0.020 UJ	0.0200 U	0.0200 U	0.0200 UJ	0.0129 J	0.0200 U	0.0200 U	0.0200 U
Vinyl Chloride	0.11	0.0519	0.0516 J	0.0414	0.128	0.0734 J	0.0886	0.0394	0.0923	0.0638	0.263	0.653 J	0.307	0.558	0.290 J	0.348	0.187	0.256	0.144
Total Metals (µg/L)																			
Arsenic	8.0	8.12	5.57	7.33	3.09	4.28	5.22	9.01	6.74	3.55	4.78	6.19	3.75	3.83	3.51	6.16	2.19	6.92	2.29
Copper	3.5	3.92	1.48	2.40	0.500 U	0.500 U	1.31 J	6.69	2.17	0.492 J	2.09	1.79	1.09	0.500 U	0.915	1.26 J	1.00 U	2.04	1.00
Lead	1.0	0.513	0.124	0.237	0.100 U	0.100 U	0.500 U	0.95	0.324	0.400 U	0.318	0.262	0.234	0.122	0.124	0.285 J	0.200 U	0.680	0.362 J

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 CPOC Area																	
		GW234S									GW235I								
		2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/9/2023	8/16/2023	2/2/2024	8/13/2024	2/14/2025	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/9/2023	8/16/2023	2/2/2024	8/13/2024	2/14/2025
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.03	0.020 U	0.0892	0.0591	0.134	0.0581 J	0.103	0.0495	0.114	0.0692	0.128	0.179	0.175	0.227	0.235 J	0.225	0.229	0.240	0.302
Tetrachloroethene	0.02	0.020 U	0.020 U	0.0200 U	0.0200 U	0.0200 UJ	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0292	0.020 U	0.0200 U	0.0200 U	0.0200 UJ	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Trichloroethene	0.02	0.020 U	0.020 U	0.0200 U	0.0200 U	0.0200 UJ	0.0163 J	0.0200 U	0.0200 U	0.0200 U	0.020 U	0.0285	0.0253	0.0250	0.0296 J	0.0189 J	0.0207	0.0200 U	0.0239
Vinyl Chloride	0.11	0.020 U	0.0497	0.0318	0.170	0.0304 J	0.0726	0.0200 U	0.0981	0.0310	0.020 U	0.24	0.0259	0.0280	0.0310 J	0.0313	0.0215	0.0258	0.0221
Total Metals (µg/L)																			
Arsenic	8.0	6.29	1.18	1.76	0.974	5.90	0.93	0.626	1.05	0.876	0.200 U	0.200 U	0.200 U	0.200 U	0.283	0.318 J	0.400 U	0.200 U	0.232 J
Copper	3.5	11.4	2.58	2.13	2.31	16.6	1.3	2.26	0.639	1.76	0.727	0.689	0.687	0.500 U	1.23	0.676 J	1.00 U	0.500 U	1.00 U
Lead	1.0	4.13	1.01	0.930	0.830	6.75	0.27	0.876	0.256	0.522	0.174	0.179	0.159	0.100 U	0.332	0.224	0.200 U	0.100 U	0.400 U

Analyte	Current Cleanup Level ⁴	Well ID ³								
		CPOC Area								
		GW236S								
		2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/9/2023	8/17/2023	2/5/2024	8/13/2024	2/14/2025
Volatile Organic Compounds (µg/L)										
cis-1,2-Dichloroethene	0.03	0.020 U	0.0791	0.0200 U	0.0572	0.0364 J	0.0473	0.020 U	0.0523	0.0299
Tetrachloroethene	0.02	0.020 U	0.020 U	0.0206	0.0200 U	0.0200 UJ	0.0200 U	0.0262	0.0200 U	0.0200 U
Trichloroethene	0.02	0.020 U	0.020 U	0.0200 U	0.0200 U	0.0200 UJ	0.0187 J	0.0200 U	0.0200 U	0.0200 U
Vinyl Chloride	0.11	0.020 U	0.0223	0.0200 U	0.0200 U	0.0200 UJ	0.0128 J	0.0200 U	0.0200 U	0.0200 U
Total Metals (µg/L)										
Arsenic	8.0	2.89	5.49	1.97	0.995	1.64	1.55	1.00 U	4.17	1.33
Copper	3.5	9.70	2.47	5.27	1.22	2.07	1.00 U	2.50 U	1.63	1.16
Lead	1.0	6.31	1.79	3.32	0.798	1.38	0.160 J	0.795	1.29	0.420

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								
		8/11/2020	2/15/2021	8/11/2021	8/23/2022	2/7/2023	8/22/2023	2/6/2024	8/14/2024	2/13/2025	8/11/2021	2/22/2022	2/22/2022	8/17/2022	2/7/2023	8/18/2023	2/6/2024	8/14/2024	2/13/2025
Volatile Organic Compounds (µg/L)																			
Benzene	0.80	1.72 J	18.8 J	1.08	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U	14.5	8.41	8.57	14.2 J	0.20 U	8.85	6.49	7.27	6.39
cis-1,2-Dichloroethene	0.70	0.67 J	0.31 J	0.20 U	0.26	0.18 J	0.200 U	0.200 U	0.200 U	0.200 U	0.55	3.82	4.04	0.45 J	0.09 J	0.42	0.480	0.610	1.14
Trichloroethene	0.23	0.20 UJ	0.20 UJ	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U	0.20 U	0.200 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U
Vinyl Chloride	0.20	0.32 J	0.20 UJ	0.20 U	0.39	0.26	0.28	0.230	0.290	0.260	2.31	8.90	9.28	1.53 J	0.24	0.94	0.830	0.200 U	1.49
Total Petroleum Hydrocarbons (µg/L)																			
TPH-G (C7-C12)	800	1,160	2,340	1,540	100 U	100 U	100 U	100 U	100.0 U	100 U	360	168	166	300 J	100 U	223	141	202	193

Analyte	Current Cleanup Level ⁴	Well ID ³ Source Area																	
		GW034S									GW244S								
		2/15/2021	8/11/2021	2/22/2022	8/17/2022	2/8/2023	8/18/2023	2/6/2024	8/14/2024	2/13/2025	8/11/2020	2/15/2021	8/11/2021	8/23/2022	2/7/2023	8/22/2023	1/30/2024	8/14/2024	2/13/2025
Volatile Organic Compounds (µg/L)																			
Benzene	0.80	0.20 U	0.20 U	0.200 U	1.47	9.62	0.200 U	0.200 U	0.200 U	0.200 U	0.43	0.46	0.20 U	0.25	0.12 J	0.200 U	0.200 U	0.200 U	0.200 U
cis-1,2-Dichloroethene	0.70	0.20 U	0.20 U	0.200 U	2.03	0.74	0.110 J	0.200 U	0.200 U	0.200 U	1.12	0.68	0.22	0.25	0.25	0.22	0.340	0.520	0.200 U
Trichloroethene	0.23	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U	0.20 U	0.29	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.330	0.200 U
Vinyl Chloride	0.20	0.25	1.20	0.330	1.45	4.12	0.47	0.260	0.200 U	0.200 U	0.98	0.64	0.37	0.46	0.55	0.28	0.610	0.330	0.200 U
Total Petroleum Hydrocarbons (µg/L)																			
TPH-G (C7-C12)	800	100 U	100 U	100 U	100 U	350	100 U	100 U	100.0 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100.0 U	100 U

Analyte	Current Cleanup Level ⁴	Well ID ³ CPOC Area																	
		GW143S									GW237S								
		2/15/2021	8/11/2021	2/22/2022	8/17/2022	2/7/2023	8/18/2023	2/5/2024	8/14/2024	2/13/2025	2/16/2021	8/11/2021	2/22/2022	8/17/2022	2/6/2023	8/18/2023	2/5/2024	8/14/2024	2/13/2025
Volatile Organic Compounds (µg/L)																			
Benzene	0.80	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U	6.79 J	0.20 U	3.73	0.20 U	4.18	0.150 J	6.47	0.200 U	3.78
cis-1,2-Dichloroethene	0.70	0.26	0.65	0.430	0.76 J	0.36	0.30	0.280	0.980	0.200 U	0.20 UJ	0.20 U	0.200 U	0.20 U	0.22	0.0900 J	0.200 U	0.200 U	0.200 U
Trichloroethene	0.23	0.20 U	0.20 U	0.200 U	0.53 J	0.10 J	0.200 U	0.200 U	0.200 U	0.200 U	0.20 UJ	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U
Vinyl Chloride	0.20	0.20 U	0.20 U	0.200 U	0.20 U	0.09 J	0.120 J	0.200 U	0.200 U	0.200 U	0.31 J	0.20	0.200 U	0.20 U	0.26	0.25	0.290	0.210	0.230
Total Petroleum Hydrocarbons (µg/L)																			
TPH-G (C7-C12)	800	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100.0 U	100 U	100 UJ	360	664	100 U	805	100 U	915	100.0 U	576

Analyte	Current Cleanup Level ⁴	Well ID ³ CPOC Area								
		GW240D								
		2/15/2021	8/11/2021	2/22/2022	8/17/2022	2/7/2023	8/18/2023	2/5/2024	8/14/2024	2/13/2025
Volatile Organic Compounds (µg/L)										
Benzene	0.80	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U
cis-1,2-Dichloroethene	0.70	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U
Trichloroethene	0.23	0.20 U	0.20 U	0.200 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U
Vinyl Chloride	0.20	0.20 U	0.20 U	0.200 U	0.20 U	0.13 J	0.150 J	0.200 U	0.200 U	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	100.0 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								
		2/15/2021	8/10/2021	2/21/2022	8/19/2022	2/9/2023	8/15/2023	2/8/2024	8/15/2024	2/11/2025	2/15/2021	8/10/2021	2/21/2022	8/19/2022	2/9/2023	8/15/2023	2/6/2024	8/15/2024	2/11/2025
Total Petroleum Hydrocarbons (mg/L)																			
TPH-D (C12-C24)	0.5	0.284	0.140	1.00 U	0.100 U	0.100 U	0.100 U	0.100 U	0.548	0.321	1.22	1.02	0.575	0.940	1.75	0.258	3.57	0.974	0.422
TPH-O (C24-C38)	NE	0.225 U	0.200 U	2.00 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.215 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
Jet A	0.5	0.262	0.100 U	1.00 U	0.100 U	0.100 U	0.100 U	0.100 U	0.408	0.312	0.89	0.718	0.460	0.562	1.20	0.229	2.65	0.637	0.341

Analyte	Current Cleanup Level ³	Well ID ² CPOC Area								
		GW224S								
		8/10/2021	2/21/2022	2/21/2022	8/19/2022	2/9/2023	8/15/2023	2/6/2024	8/15/2024	2/11/2025
Total Petroleum Hydrocarbons (mg/L)										
TPH-D (C12-C24)	0.5	1.08	0.682	1.01	0.881	1.15	0.526 J	0.764	0.686 J	0.850
TPH-O (C24-C38)	NE	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	0.324	0.200 U	0.200 U	0.200 U
Jet A	0.5	1.47	1.04	1.76	1.25	1.61	0.913 J	1.27	0.943	1.43

- 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								
		2/16/2021	8/12/2021	2/23/2022	8/24/2022	2/6/2023	8/22/2023	2/1/2024	8/13/2024	2/11/2025	2/16/2021	8/12/2021	2/22/2022	8/23/2022	2/6/2023	8/23/2023	2/2/2024	8/13/2024	2/11/2025
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.78	NA	NA	NA	NA	NA	0.0529	0.0576	0.0566	0.0541	NA	NA	NA	NA	NA	0.0408	0.0315	0.0293	0.0373
Tetrachloroethene	0.02	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0200 U	0.0390
Trichloroethene	0.16	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0200 U	0.0353
Vinyl Chloride	0.24	0.366	0.517	0.359 J	0.404 J	0.217	0.263	0.214	0.291	0.243	0.107	0.698	0.141 J	0.404	0.104	0.197	0.207	0.229	0.0669

Analyte	Current Cleanup Level ⁴	Well ID ³																	
		CPOC Area																	
		GW247S									GW248I								
		2/16/2021	8/11/2021	2/23/2022	8/23/2022	2/6/2023	8/22/2023	2/2/2024	8/13/2024	2/11/2025	2/16/2021	8/11/2021	2/23/2022	8/23/2022	2/6/2023	8/22/2023	2/2/2024	8/13/2024	2/11/2025
Volatile Organic Compounds (µg/L)																			
cis-1,2-Dichloroethene	0.78	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA	NA	NA	NA	0.0219	0.0207	0.0200 U	0.0200 U
Tetrachloroethene	0.02	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Trichloroethene	0.16	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0200 U	0.0200 U	NA	NA	NA	NA	NA	0.0200 U	0.0200 U	0.0200 U	0.0200 U
Vinyl Chloride	0.24	0.405	0.678	0.127 J	0.379	NA	0.715	0.467	0.581	0.483	0.426	0.711	0.598 J	0.742	0.588	0.482	0.383	0.458	0.445

- Notes
- Data qualifiers are as follows:
U = The analyte was not detected at the reporting limit indicated.
 - Bolded** values exceed the cleanup levels.
 - S = shallow well; I = intermediate well.
 - 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										
		3/9/2020	8/12/2020	2/16/2021	8/12/2021	2/22/2022	8/23/2022	2/7/2023	8/14/2023	2/6/2024	8/12/2024	2/11/2025
Metals (mg/L)												
Lead	0.001	0.00119	0.000611	0.000564	0.000663	0.000588	0.00131	0.000820	0.0000570 J	0.000112	0.000062 J	0.0006

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								
		2/17/2021	8/11/2021	2/22/2022	8/19/2022	2/6/2023	8/18/2023	2/7/2024	8/15/2024	2/12/2025	2/17/2021	8/11/2021	2/22/2022	8/18/2022	2/6/2023	8/17/2023	2/7/2024	8/15/2024	2/12/2025
Volatile Organic Compounds (µg/L)																			
cis -1,2-Dichloroethene	0.08	0.139	0.368	0.15	0.229	0.231	0.157	0.165	0.170	0.169	1.260	2.210	0.693	1.91 J	2.78	2.46	1.45	1.83	0.696
Trichloroethene	0.02	0.0294	0.0316	0.0284	0.0288	0.0409	0.0292	0.0336	0.0346	0.0328	0.0454	0.0908	0.0506	1.02 J	0.208	1.61	0.143	0.0990	0.0604
Vinyl Chloride	0.26	0.300	0.160	0.434	0.570	0.550	0.371	0.353	0.439	0.333	0.180	0.795	1.57	0.294 J	0.881	0.625	0.632	0.936	0.911

Analyte	Current Cleanup Levels ⁴	Well ID ³																	
		Downgradient Plume Area																	
		GW014S									GW147S								
		2/17/2021	8/11/2021	2/22/2022	8/18/2022	2/6/2023	8/17/2023	2/7/2024	8/15/2024	2/12/2025	2/17/2021	8/11/2021	2/22/2022	8/19/2022	2/6/2023	8/17/2023	2/7/2024	8/15/2024	2/12/2025
Volatile Organic Compounds (µg/L)																			
cis -1,2-Dichloroethene	0.08	0.130	0.147	0.133	0.134 J	0.137	0.179	0.207	0.189	0.180	0.180	0.180	0.679	8.37	0.766	4.46	0.442	5.10	2.86
Trichloroethene	0.02	0.035	0.0227	0.020 U	0.0246 J	0.0200 U	0.0158 J	0.0247	0.0144 J	0.0193 J	0.498	0.498	0.425	0.937	0.376	2.76	0.0802	2.76	1.68
Vinyl Chloride	0.26	0.207	0.367	0.276	0.514 J	0.231	0.551	0.380	0.410	0.209	0.020 U	0.020 U	0.0623	3.39	0.0215	0.928	0.0638	1.61	0.395

Analyte	Current Cleanup Levels ⁴	Well ID ³ CPOC Area																	
		GW150S									GW253I								
		2/17/2021	8/11/2021	2/22/2022	8/22/2022	2/6/2023	8/17/2023	2/7/2024	8/15/2024	2/12/2025	2/17/2021	8/11/2021	2/22/2022	8/22/2022	2/6/2023	8/17/2023	2/7/2024	8/15/2024	2/12/2025
Volatile Organic Compounds (µg/L)																			
cis -1,2-Dichloroethene	0.08	0.0393	0.0991	0.0547	0.126	0.0849	0.0901	0.0509	0.105	0.0859	0.140	0.106	0.0846	0.138	0.0991	0.0997	0.0929	0.0934	0.122
Trichloroethene	0.02	0.020 U	0.020 U	0.020 U	0.0212	0.0200 U	0.0115 J	0.0200 U	0.0106 J	0.0132 J	0.0272	0.0202	0.020 U	0.0205	0.0200 U	0.0147 J	0.0145 J	0.0137 J	0.013 J
Vinyl Chloride	0.26	0.0455	0.122	0.0969	0.100	0.138	0.15	0.0608	0.165	0.109	0.243	0.146	0.177	0.255	0.156	0.17	0.133	0.146	0.149

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

Analyte	Current Cleanup Levels ⁴	Well ID ³																		
		Source Area									Downgradient Plume Area									
		GW189S ⁵									GW176S									
		2/17/2021	8/12/2021	2/23/2022	8/24/2022	2/7/2023	8/24/2023	2/8/2024	8/14/2024	2/12/2025	2/17/2021	8/17/2021	2/23/2022	8/23/2022	2/7/2023	8/24/2023	2/8/2024	8/14/2024	2/12/2025	
Volatile Organic Compounds (µg/L)																				
1,1,2,2-Tetrachloroethane	0.17	0.020 U	0.020 U	0.24 U	0.158	0.153	0.153	0.158	0.181	0.131	NM	NM	NM	NM	NM	NA	NA	NA	NA	
1,1,2-Trichloroethane	0.2	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	NM	NM	NM	NM	NM	NA	NA	NA	NA	
1,1-Dichloroethene	0.057	0.020 U	0.020 U	0.0200 U	0.0432	0.0200 U	0.0322	0.0200 U	0.0338	0.0288	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Acetone	300	10.6 J	5.00 U	5.00 U	6.28	5.00 U	5.00 U	5.00 U	5.00 U	5.00 U	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Benzene	0.8	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Carbon Tetrachloride	0.23	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Chloroform	2	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.200 U	0.200 U	0.200 U	0.200 U	NM	NM	NM	NM	NM	NA	NA	NA	NA	
cis-1,2-Dichloroethene	2.4	0.47	3.15	0.20 U	1.78	0.230	1.7	0.200 U	1.15	1.60	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Methylene Chloride	2	1.00 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	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Tetrachloroethene	0.05	0.0283	0.020 U	0.0200 U	0.0206	0.200 U	17.2 J	0.0200 U	0.0200 U	0.0200 U	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Toluene	75	5.21	2.42	0.47 J	43.7	0.690 J	0.200 U	0.200 U	1.34	0.220	NM	NM	NM	NM	NM	NA	NA	NA	NA	
trans-1,2-Dichloroethene	53.9	0.20 U	0.20 U	0.20 U	0.20 U	0.200 U	0.0200 U	0.200 U	0.200 U	0.200 U	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Trichloroethene	0.08	0.143	0.386	0.0505 UJ	0.43	0.0593	0.511	0.0200 U	0.109	0.100	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Vinyl Chloride	0.13	0.0405	0.575	0.0867 J	0.460	0.0230	0.438	0.0200 U	0.121	0.162	0.138	0.431	0.311 J	0.364	0.349	0.314	0.21	0.287	0.287	
Total Petroleum Hydrocarbons (µg/L)																				
TPH-G (C7-C12)	800	507	504	370 J	555	246	288	100 U	470	170	NM	NM	NM	NM	NM	NA	NA	NA	NA	
TPH-D (C12-C24)	500	2160	390	192 J	521	648 J	100.0 U	100 U	427	100 U	NM	NM	NM	NM	NM	NA	NA	NA	NA	
TPH-O (C24-C40)	500	3990	689	263 J	586	1,120	211	200 U	838	200 U	NM	NM	NM	NM	NM	NA	NA	NA	NA	

Analyte	Current Cleanup Levels ⁴	Well ID ³																											
		Shallow Zone CPOC Area																											
		GW178S										GW207S										GW208S							
		2/17/2021	8/12/2021	2/23/2022	8/24/2022	2/7/2023	8/24/2023	2/8/2024	8/14/2024	2/12/2025	8/12/2021	2/23/2022	8/23/2022	2/7/2023	8/24/2023	2/8/2024	8/14/2024	2/12/2025	8/12/2020	2/17/2021	8/12/2021	2/23/2022	8/24/2022	2/7/2023	8/24/2023	2/8/2024	8/14/2024	2/12/2025	
Volatile Organic Compounds (µg/L)																													
1,1,2,2-Tetrachloroethane	0.17	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
1,1,2-Trichloroethane	0.2	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
1,1-Dichloroethene	0.057	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Acetone	300	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Benzene	0.8	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Carbon Tetrachloride	0.23	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Chloroform	2	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
cis-1,2-Dichloroethene	2.4	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Methylene Chloride	2	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Tetrachloroethene	0.05	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Toluene	75	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
trans-1,2-Dichloroethene	53.9	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Trichloroethene	0.08	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
Vinyl Chloride	0.13	0.224	0.182	0.361 J	0.390	0.531	0.343	0.27	0.395	0.395	0.232	0.356 J	0.326	0.0200 U	0.293	0.111	0.313	0.313	0.343	0.349	0.313	0.404 J	0.400	0.419	0.242	0.298	0.359	0.359	
Total Petroleum Hydrocarbons (µg/L)																													
TPH-G (C7-C12)	800	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
TPH-D (C12-C24)	500	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	
TPH-O (C24-C40)	500	NM	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NA	NA	NA	NA	NM	NM	NM	NM	NM	NM	NA	NA	NA	NA	

Notes:

- 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.
- Bolded** values exceed the cleanup levels.
- S = shallow well.
- Current cleanup levels obtained from Table 2 of the Cleanup Action Plan and are based on each individual SWMU or AOC.
- 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 CONCERN¹
Boeing Renton Facility, Renton, Washington

Analyte	Well ID ² GW264S								
	2/15/2021	8/10/2021	2/21/2022	8/24/2022	2/8/2023	8/14/2023	2/7/2024	8/15/2024	2/13/2025
Volatile Organic Compounds (µg/L)									
cis-1,2-Dichloroethene	0.20 U	0.20 U	0.200 U	0.200 U	2.00 U	2.00 U	0.200 U	0.200 U	0.200 U
Vinyl Chloride	1.49	1.37	2.54	1.41	2.00 U	2.00 U	0.810	0.480	0.200 U

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	
		8/12/2024	2/10/2025	8/12/2024	2/10/2025	8/12/2024	2/10/2025	8/12/2024	2/10/2025
Volatile Organic Compounds (µg/L)									
Benzene	0.80	0.200 U	0.200 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
1,1-Dichloroethene	0.057	0.0200 U	0.0200 U	0.0200 U	0.100 U	0.0200 U	0.100 U	0.0200 U	0.100 U
cis-1,2-Dichloroethene	0.020	2.19	2.38	0.134	0.111	0.0200 U	0.100 U	0.156	0.100 U
Trichloroethene	0.02	1.51	0.844	0.0266	0.100 U	0.0200 U	0.100 U	0.0200 U	0.100 U
Vinyl Chloride	0.05	1.21	0.460	0.0482	0.100 U	0.0200 U	0.100 U	0.0200 U	0.100 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	
		8/12/2024	2/10/2025	8/12/2024	2/10/2025	8/12/2024	2/10/2025	8/12/2024	2/10/2025
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
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
cis-1,2-Dichloroethene	0.020	0.194	0.0934	0.0200 U	0.0309	1.78	0.359	0.176	0.0932
Trichloroethene	0.02	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0538	0.0273	0.0200 U	0.0200 U
Vinyl Chloride	0.05	0.0818	0.0458	0.0934	0.0574	1.07	0.0842	0.181	0.122

Analyte	Current Cleanup Level ⁴	Well ID ³									
		AOC-001 / AOC-002 CPOC Wells									
		GW185S-R		GW195S-R		GW196D-R		GW197S-R		GW245S-R	
		8/12/2024	2/10/2025	8/12/2024	2/10/2025	8/12/2024	2/11/2025	8/12/2024	2/10/2025	8/12/2024	2/10/2025
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	0.760	0.650	0.390	1.00 U
1,1-Dichloroethene	0.057	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0468	0.107	0.0200 U	0.100 U
cis-1,2-Dichloroethene	0.020	0.240	0.172	0.102	0.0878	0.0250	0.0279	18.9	39.9	0.204	0.190
Trichloroethene	0.02	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.0200 U	0.268	0.181	0.0252	0.100 U
Vinyl Chloride	0.05	0.124	0.156	0.117	0.0936	0.0213	0.0200 U	12.6	26.3	0.141	0.100 U

Notes

- Data qualifiers are as follows:
U = The analyte was not detected at the reporting limit indicated.
- Bolded** values exceed the cleanup levels.
- S = shallow well; I = intermediate well.
- 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

wsp

