October 17, 2022

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

Attn: Li Ma

**Transmitted via email to: *lima461@ecy.wa.gov***

**Re: Status Report No. 80, July through September 2022 Activity Period**
**Boeing Auburn Facility**
**WAD 041337130, RCRA Corrective Action Agreed Order No. 01HWTRNR-3345**
**Auburn, Washington**
**Project No. 0025164.190.501**

Dear Mr. Ma:

The Resource Conservation and Recovery Act (RCRA) Corrective Action Agreed Order (Auburn Agreed Order) became effective on August 14, 2002. As required under Section VI.13 of the Auburn Agreed Order, Landau Associates, Inc. (Landau) is providing Status Report No. 80 on behalf of The Boeing Company (Boeing), which covers the 3-month activity period of July through September 2022.

## References


1. July 8, 2022. Email: Boeing Auburn dCAP. From Li Ma, Ecology, to Debbie Taege, Boeing, and Sarah Fees, Landau.
2. July 19, 2022. Email: Boeing Auburn Public Notice Fact Sheet for Public Comment Period. From Janelle Anderson, Ecology, to Debbie Taege, Boeing.
3. July 25, 2022. Email: RE: Boeing Auburn Public Notice Fact Sheet for Public Comment Period. From Debbie Taege, Boeing, to Janelle Anderson, Ecology.
4. July 28, 2022. File Transfer: Revised Boeing Auburn dCAP. From Sarah Fees, Landau, to Li Ma, Ecology.
5. July 29, 2022. Letter: Status Report No. 79, April through June 2022 Activity Period, Boeing Auburn Facility, WAD 041337130, RCRA Correction Action Agreed Order No. 01HWTRNR-3345, Auburn, Washington. From Sarah Fees, Landau, to Li Ma, Ecology.
6. August 1, 2022. Email: Boeing Fabrication Auburn Site – Status Report 79, April through June 2022 Activity Period. From Li Ma, Ecology, to Representatives of City of Algona, City of Auburn, City of Pacific, Ecology, and Boeing.
7. August 3, 2022. Email: Revised Boeing Auburn dCAP – EDR schedule discussion. From Li Ma, Ecology, to Debbie Taege, Boeing, and Sarah Fees, Landau.

8. August 3, 2022. Email: Mailers for CAP Public Comment Period. From Sarah Fees, Landau, to Janelle Anderson, Ecology.
9. August 4, 2022. Email: RE: Mailers for CAP Public Comment Period. From Janelle Anderson, Ecology, to Sarah Fees, Landau.
10. August 5, 2022. Conference Call: Boeing Auburn Schedule. Attendees: Li Ma and Christa Colouzis, Ecology, Debbie Taege, Boeing, and Sarah Fees, Landau.
11. August 8, 2022. Email: Revised Boeing Auburn dCAP. From Li Ma, Ecology, to Debbie Taege, Boeing, and Sarah Fees, Landau.
12. August 8, 2022. Email: EIM Data Submission – Study ID FS2018. From Nevan Baus, Ecology, to Kristi Schultz, Landau.
13. August 9, 2022. Email: Boeing Auburn EO. From Li Ma, Ecology, to Debbie Taege, Boeing, and Sarah Fees, Landau.
14. August 12, 2022. Email: Boeing Auburn Permit. From Li Ma, Ecology, to Debbie Taege, Boeing, and Sarah Fees, Landau.
15. August 15, 2022. Email: RE: Mailers for CAP Public Comment Period. From Sarah Fees, Landau, to Janelle Anderson, Ecology.
16. August 15, 2022. Email: RE: Mailers for CAP Public Comment Period. From Janelle Anderson, Ecology, to Sarah Fees, Landau.
17. August 17, 2022. Email: Boeing Auburn DNS. From Li Ma, Ecology, to Debbie Taege, Boeing, and Sarah Fees, Landau.
18. August 19, 2022. Email: RE: Revised Boeing Auburn dCAP. From Sarah Fees, Landau, to Li Ma, Ecology.
19. August 19, 2022. Letter: Groundwater Monitoring Results: Fourth Quarter 2021 and Second Quarter 2022 Auburn School District Warehouse Property Wells, Auburn, Washington. From Sarah Fees, Landau, to Cindi Blansfield, Assistant Superintendent of Business and Operations, Auburn School District.
20. August 19, 2022. Letter: Groundwater Monitoring Results: Fourth Quarter 2021 and Second Quarter 2022, City of Auburn Wells, Auburn, Washington. From Sarah Fees, Landau, to Chris Thorn, Water Quality Program Coordinator, City of Auburn.
21. August 19, 2022. Letter: Groundwater and Stormwater Feature Monitoring Results, Third and Fourth Quarter 2021, First and Second Quarter 2022, City of Algona Right-Of-Way, Algona, Washington. From Sarah Fees, Landau, to David Hill, Mayor, City of Algona.
22. August 19, 2022. Letter: Groundwater Monitoring Results: Second Quarter 2022, Sentry Wells, Auburn, Washington. From Sarah Fees, Landau, to Jim Morgan, Public Works Manager, City of Pacific.
23. August 19, 2022. Letter: Groundwater Monitoring Results: Second Quarter 2022, Coastal Farm and Ranch Well, Auburn, Washington. From Sarah Fees, Landau, to Byron Baule, Operations Manager, Coastal Farm and Ranch.
24. August 19, 2022. Letter: Groundwater Monitoring Results: Fourth Quarter 2021 and Second Quarter 2022, Boeing Wells on Fana Auburn 234 LLC Property, Auburn, Washington. From Sarah Fees, Landau, to John Powers, Fana Group of Companies.

25. August 19, 2022. Letter: Groundwater Monitoring Results: Second Quarter 2022, Boeing Wells on Fana Auburn LLC Property, Auburn, Washington. From Sarah Fees, Landau, to John Powers, Fana Group of Companies.
26. August 19, 2022. Letter: Groundwater Monitoring Results: Second Quarter 2022, Industrial Realty Group, LLC Wells, Auburn, Washington. From Sarah Fees, Landau, to Josh Holmes, Property Manager, IRG Realty Advisors LLC.
27. August 19, 2022. Letter: Groundwater Monitoring Results: Second Quarter 2022, Primus Wells, Algona, Washington. From Sarah Fees, Landau, to Peter Wazlawek, Primus International, Inc (Primus).
28. August 19, 2022. Letter: Groundwater Monitoring Results: Fourth Quarter 2021 and Second Quarter 2022, 840 Industry Drive North Well, Algona, Washington. From Sarah Fees, Landau, to Janet Frentzel, Vice President, Global Environmental and Engineering, Prologis.
29. August 19, 2022. Letter: Groundwater Monitoring Results: Fourth Quarter 2021 and Second Quarter 2022, Boeing Well along the Interurban Trail, Auburn and Algona, Washington. From Sarah Fees, Landau, to Kurt Krebs, Puget Sound Energy (PSE).
30. August 19, 2022. Letter: Groundwater Monitoring Results: Fourth Quarter 2021 and Second Quarter 2022, WP Glimcher Wells, Auburn Washington. From Sarah Fees, Landau, to Christian Faltenberger, General Manager, WP Glimcher.
31. August 25, 2022. Email: Boeing/Landau Comments on Public Comment Period Documents. From Sarah Fees, Landau, to Li Ma, Ecology. (Attachments: Boeing/Landau comments on the Enforcement Order, Permit, and SEPA Determination of Non-significance.)
32. September 2, 2022. Email: Boeing Auburn EO, Permit and DNS. From Li Ma, Ecology, to Debbie Taege, Boeing, and Sarah Fees, Landau. (Attachments: Final copies of the Boeing Auburn Enforcement Order, RCRA Permit, and SEPA Determination of Non-significance.)
33. September 30, 2022. Email: EIM data submission – FS2018. From Nevan Baus, Ecology, to Kristi Schultz, Landau.

# Work Conducted

## General Site-wide Corrective Action Activities

On July 29, 2022, Landau submitted Status Report No. 79 regarding second quarter 2022 activities to Washington State Department of Ecology (Ecology) and other stakeholders[1] for their records (Reference #5). Boeing and Ecology project managers continue to have monthly technical conference calls to discuss current project items.

As part of various off-site monitoring well access agreement and right-of-way (ROW) permits, Boeing provides annual individualized letters with groundwater monitoring results. The following groundwater data letters were distributed during the third quarter 2022:

[1] A list of stakeholders that receive copies of the quarterly status reports is provided at the end of this document. Ecology also forwards quarterly status reports via email to representatives of the cities of Algona, Auburn, and Pacific (Reference #6).

- Data for AGW237(D), AGW238(I), and AGW239(S) located on the Auburn School District warehouse property to the Auburn School District (Reference #19)
- Data for 24 wells located on City of Auburn ROW and City of Auburn property to the City of Auburn (Reference #20)
- Data for 30 wells and one stormwater feature located on City of Algona ROW to the City of Algona (Reference #21)
- Sentry well data to the City of Pacific (Reference #22)
- AGW236(S) data to Coastal Farm and Ranch (Reference #23)
- AGW179(I) and AGW180(D) data to Fana Auburn 234 LLC (Reference #24)
- AGW177(I) and AGW178(D) data to Fana Auburn LLC (Reference #25)
- Data for AGW256(I) and AGW257(S) to Industrial Realty Group, LLC (IRG) (Reference #26)
- Data for 10 wells to Primus (Reference #27)
- AGW276(M) data to Prologis (Reference #28)
- Data for 14 wells located on the Interurban Trail to PSE (Reference #29)
- Data for 17 wells located on The Outlet Collection property to WP Glimcher (Reference #30).

## Surface Water and Stormwater Feature Sampling

Dry season surface water sampling in Mill Creek and sampling of stormwater conveyance, treatment, and control structures (Chicago Avenue Ditch and Auburn 400 stormwater basins) took place on September 1 and 2, 2022. The dry season sampling data are provided in Attachment 1. The current surface water and stormwater feature sample locations are shown on Figure 1-1. A complete summary of analytical results is presented in Table 1-1.

## Pore Water Sampling

Dry season pore water sampling beneath Mill Creek occurred on September 1, 2022. Pore water samples are considered groundwater, but sampling occurs during dry season surface water sampling in Mill Creek for comparison to co-located surface water sampling locations. The dry season pore water sampling data are provided in Attachment 1. Pore water sample locations are shown on Figure 1-1. Analytical results are presented in Table 1-2.

## Building 17-06 Ongoing Monitoring

Boeing is conducting semiannual (June and September) monitoring for petroleum hydrocarbons in wells AGW128, AGW277, and AGW281, located in Building 17-06. Monitoring was completed on September 9, 2022. Free-phase product has been periodically detected in well AGW128; the thickness during the September 2022 monitoring event was 0.29 feet. Free-phase product has not been detected in any of the other wells in Building 17-06. Boeing maintains a sorbent sock in AGW128 to remove the product. The sorbent sock is replaced semiannually during monitoring.

## Data Management

Boeing and Ecology have agreed on annual submittals of data to Ecology's Environmental Information Management (EIM) database. On July 26, 2022, Boeing submitted required EIM data for the past year of data collected (July 2021 through June 2022). The data was reviewed by the Ecology EIM coordinator and was loaded to the EIM database on August 8, 2022 (Reference #12).

Boeing identified that incorrect volatile organic compound data was presented for monitoring wells AGW201, AGW202, and AGW276 in the fourth quarter 2021 status report. The laboratory reports were re-issued by the laboratory with the corrected data, and the fourth quarter 2021 data tables have been revised. The revised laboratory report and data tables are provided in Attachment 3. An additional submittal was completed on August 29, 2022 for the missing December 2021 data. The data was reviewed by the Ecology EIM coordinator and was loaded to the EIM database on September 30, 2022 (Reference #33).

## Cleanup Action Plan Report and Associated Documentation

Boeing submitted the draft cleanup action plan (dCAP) to Ecology in the first quarter 2022. Ecology provided revisions to the dCAP and Boeing provided additional revisions in the second quarter 2022. Ecology provided additional comments and revisions to the dCAP on July 8, 2022 (Reference #1). Boeing submitted the revised dCAP to Ecology on July 28, 2022 (Reference #4). Ecology provided a clean copy of the document to Boeing on August 8, 2022 (Reference #11). Boeing provided Ecology with final minor comments on the dCAP on August 19, 2022 (Reference #18). Ecology requested a meeting to discuss the schedule for implementation of the CAP on August 3, 2022 (Reference #7), and the meeting occurred on August 5, 2022 (Reference #10).

Additional documents associated with the dCAP include a cleanup action State Environmental Policy Act (SEPA) checklist and Ecology determination of non-significance (DNS), an Enforcement Order (EO) for implementation of the cleanup, and updates to the RCRA permit to include the cleanup action activities. Boeing completed the cleanup action State Environmental Policy Act (SEPA) checklist in the second quarter 2022. Ecology provided Boeing with drafts of the SEPA DNS on August 17, 2022 (Reference #17), the draft EO on August 9, 2022 (Reference #13), and the RCRA permit on August 12, 2022 (Reference #14). Boeing provided comments on the EO, RCRA permit, and SEPA DNS on August 25, 2022 (Reference #31). On September 2, 2022, Ecology determined Prologis would be removed as a potentially liable party for the Boeing Auburn Site, and provided copies of the final EO, RCRA permit, and SEPA DNS (Reference #32).

## Public Comment Period

The public comment period was scheduled to begin in the third quarter 2022. Boeing and Ecology worked together to complete documentation required for the public comment period as described above. In addition, Ecology prepared a public notice fact sheet and provided a draft for Boeing's review on July 19, 2022 (Reference #2). Boeing provided comments on the fact sheet on July 25, 2022

(Reference #3). Boeing and Ecology confirmed the mailing list for recipients of the public comment period fact sheet (References #8, #9, #15, and #16).

The public comment period began on September 12, 2022 and will continue until November 11, 2022.

### Communications

Ecology and Boeing are working together to ensure that all stakeholders are aware of the progress of investigation and cleanup activities at the Boeing Auburn Site. Status conference calls occur quarterly to provide general updates on the project schedule, reporting, and public outreach. These quarterly calls are attended by technical and communication personnel from Ecology, Boeing, Landau, City of Auburn, and the City of Algona's environmental consultant, ICF International.

## Occurrence of Problems

In the second quarter 2022, monitoring well AGW079 was extended due to construction of a new concrete ramp in the vicinity of Building 17-15. A new 12-inch monument was installed flush with the new concrete ramp, and the well elevation was resurveyed on July 29, 2022.

During the annual groundwater monitoring event in the second quarter 2022, it was observed that wells AGW148 and AGW174 required monument repair. Repairs were conducted on July 11, 2022 and monitoring well AGW174 was resurveyed on July 29, 2022. Monitoring well AGW148 did not require resurvey as no modifications were made to the well PVC.

## Projected Work for Next Reporting Period October through December 2022

Activities projected for the next reporting period pertain to CAP finalization and semiannual groundwater monitoring. Tasks anticipated during fourth quarter 2022 include:

- The public comment period for cleanup actions will be completed.
- Ecology will incorporate public comments and finalize the CAP and associated documents.
- Boeing will conduct semiannual groundwater monitoring, if required based on progress of CAP finalization.

## Other Significant Findings, Changes, and Contacts

None to report.

If you have any questions regarding this status report, or need any other information, please do not hesitate to contact Boeing or Landau.

LANDAU ASSOCIATES, INC.

Sarah Fees

Sarah Fees, LG
Associate Geologist

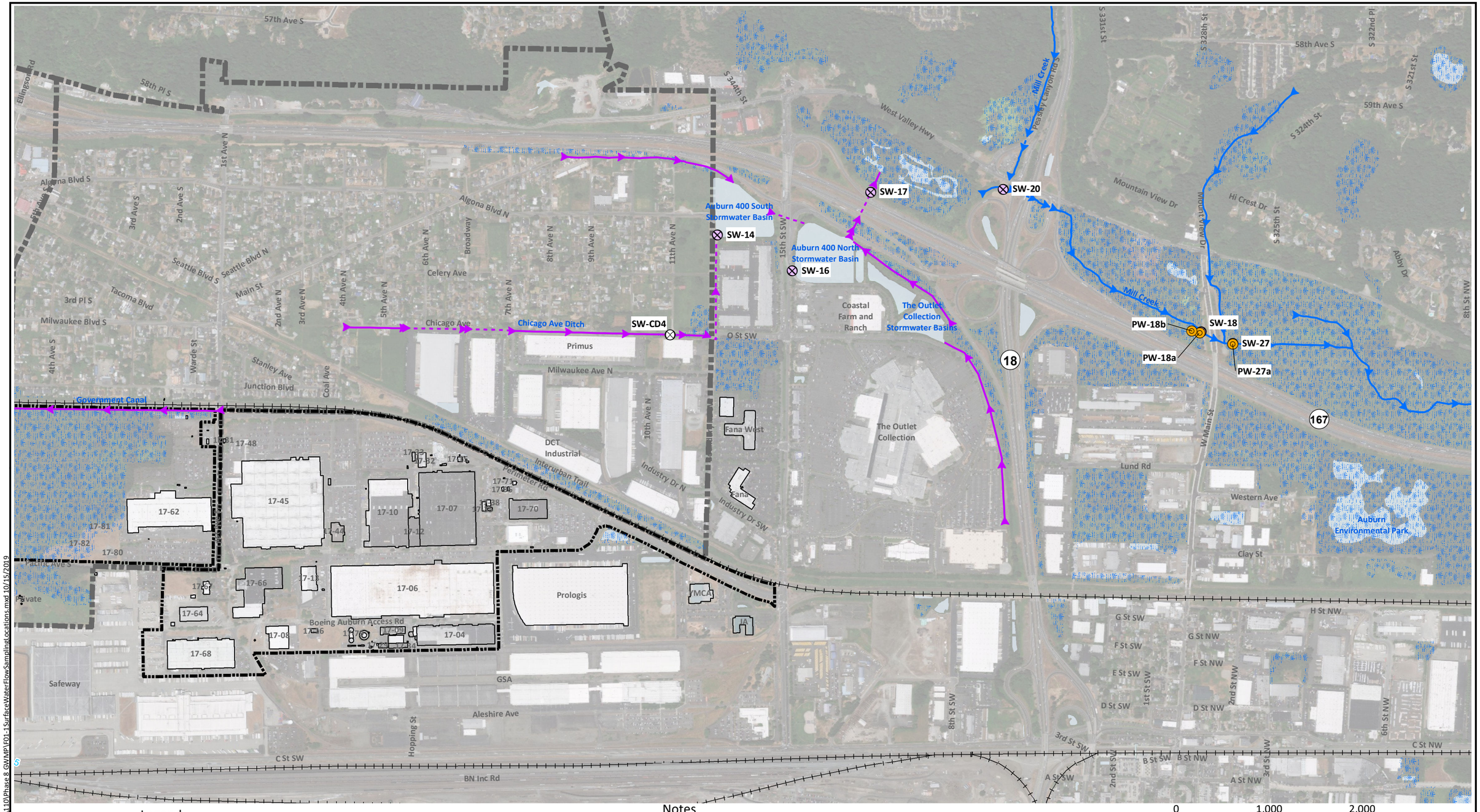
KMG/SEF/kjg
[Y:\025\164\R\QUARTERLY PROGRESS RPTS\2022\2Q22\LANDAU_BOA_2Q2022 STATUS RPT NO. 79 LETTER_DRAFT.DOCX)

cc: Debbie Taege (email only)
Thomas MacMannis, Boeing (email only)
Kamara Sams, Boeing (email only)
James Swortz, Boeing (email only)
Kathryn Moxley, Boeing (email only)
Patrick McCabe, Boeing Realty (email only)
Brett Richer, Prologis (email only)
Steve Campbell, Prologis (email only)
Jason Berry, YMCA Auburn (email only)
Christa Colouzis, Ecology (email only)
Janelle Anderson, Ecology (email only)

Attachments: Attachment 1: Surface Water, Stormwater Feature, and Pore Water Sampling Results
Attachment 2: Laboratory Data Packages
Attachment 3: Fourth Quarter 2021 Revised Data Tables and Revised Laboratory Data Package

ATTACHMENT 1

# Surface Water, Stormwater Feature, and Pore Water Sampling Results




## Legend

- Annual Stormwater/Surface Water Sample Location
- Semiannual Stormwater/Surface Water Sampling Location
- Annual Pore Water Sample Location
- Boeing Property
- City Limits
- Wetland Areas
- Open Surface Water Waterway
- Open Stormwater Waterway
- Piped Surface Water Waterway
- Piped Stormwater Waterway

## Notes

1. Stormwater/surface water sampling locations are designated by SW. Pore water sampling locations are designated by PW.
2. The locations of surface water features are approximate.
3. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

N

0 1,000 2,000

Scale in Feet

Base Map Source: Geometrix 2003; Parcel Data Source: King County 2015; Aerial Photo Source: Esri World Imagery.

LANDAU ASSOCIATES

| | | |
|---|---|---|
| Boeing Auburn<br>Remedial Investigation<br>Auburn, Washington | **Stormwater and Surface Water Features and Pore Water Sampling Locations** | Figure<br>1-1 |

G:\Project\s\025\164\150\110\Phase B GWMP\F01-1SurfaceWaterFlowSamplingLocations.mxd 10/15/2019

**Table 1-1**
**3Q2022 Surface Water, Stormwater, and Pore Water Analytical Results**
**Boeing Auburn Facility**
**Auburn, Washington**

| Sample Location: | Laboratory SDG: | Sample Date: | Sample Type: | Select VOCs by SW-846 8260D-SIM (µg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | 1,1-Dichloroethene | cis-1,2-Dichloroethene | Tetrachloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride |
| PW-18a-2.5 | 22I0053 | 9/1/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| PW-18a-5 | 22I0053 | 9/1/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | **0.0338** |
| PW-18b-2.5 | 22I0053 | 9/1/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| PW-18b-5 | 22I0053 | 9/1/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| PW-27a-2.5 | 22I0053 | 9/1/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| PW-27a-5 | 22I0053 | 9/1/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| SW-14 | 22I0037 | 9/2/2022 | N | 0.200 U | **0.441** | 0.200 U | 0.200 U | **0.425** | **0.0741** |
| SW-16 | 22I0053 | 9/1/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| SW-17 | 22I0037 | 9/2/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | **0.0486** |
| SW-18 | 22I0053 | 9/1/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| SW-18 | 22I0053 | 9/1/2022 | FD | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| SW-20 | 22I0037 | 9/2/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| SW-27 | 22I0053 | 9/1/2022 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| SW-CD4 | 22I0053 | 9/1/2022 | N | 0.200 U | **0.683** | 0.200 U | 0.200 U | **0.722** | **0.0912** |

**Notes:**

**Bold** text indicates detected analyte.

U = The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.

**Abbreviations/Acronyms:**

FD = field duplicate
µg/L = micrograms per liter
N = primary sample
SDG = sample delivery group
VOC = volatile organic compound

ATTACHMENT 2

# Laboratory Data Packages

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

12 September 2022

Debbie Taege
The Boeing Company
Bldg 10-20, MC 9U4-26
Renton, WA 98055-1409

RE: Boeing Auburn 3Q SW Sampling

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

| Associated Work Order(s) | Associated SDG ID(s) |
|---|---|
| 22I0037 | N/A |

---

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

2210037

13.5°

# LANDAU ASSOCIATES Chain-of-Custody Record

- [ ] North Seattle (206) 631-8660
- [x] Tacoma (253) 926-2493
- [ ] Olympia (360) 791-3178
- [ ] Spokane (509) 327-9737
- [ ] Portland (503) 542-1080
- [ ] _____

Date 9/2/22

Page 1 of 1

Turnaround Time: Standard / Accelerated

Project Name BOA Project No. 0075164.190.101

Project Location/Event Boeing of Auburn / 3Q22 SW

Sampler's Name SMR / JBD

Project Contact S. Fees (Landau); D. Taege (Boeing)

Send Results To data@landauinc.com; (sec lims list)

Special Handling Requirements: _____

Shipment Method: _____

Stored on ice: (Yes) / No

| Sample I.D. | Date | Time | Matrix | No. of Containers | Testing Parameters: Boeing 6 VOCs 8260D SIM |
|---|---|---|---|---|---|
| SW-14-20220902 | 9/2/22 | 9:10 | Aq | 3 | X |
| SW-17-20220902 | 9/2/22 | 1000 | Aq | 3 | X |
| SW-20-20220902 | 9/2/22 | 8:20 | Aq | 3 | X |
| TripblankI-20220902 | — | — | Aq | 1 | X |

Observations/Comments

- ___ Allow water samples to settle, collect aliquot from clear portion ☐
- ___ NWTPH-Dx - Acid wash cleanup ☐
  - Silica gel cleanup ☐
- ___ Dissolved metal samples were field filtered

Other ~~X~~ HCl pres.

| Relinquished by | Received by | Relinquished by | Received by |
|---|---|---|---|
| Signature SMR | Signature [illegible] | Signature | Signature |
| Printed Name Simone Ridriguez | Printed Name BOB CONGLETON | Printed Name | Printed Name |
| Company Landau Associates | Company ARLLC | Company | Company |
| Date 9/2/22 Time 1028 | Date 9-2-22 Time 1028 | Date Time | Date Time |

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

10/2018

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| SW-14-20220902 | 22I0037-01 | Water | 02-Sep-2022 09:10 | 02-Sep-2022 10:28 |
| SW-17-20220902 | 22I0037-02 | Water | 02-Sep-2022 10:00 | 02-Sep-2022 10:28 |
| SW-20-20220902 | 22I0037-03 | Water | 02-Sep-2022 08:20 | 02-Sep-2022 10:28 |
| Tripblank1-20220902 | 22I0037-04 | Water | 02-Sep-2022 08:20 | 02-Sep-2022 10:28 |

Analytical Resources, LLC
Analytical Chemists and Consultants

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

## Work Order Case Narrative

**Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)**

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Analytical Resources, LLC
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: BOEING
COC No(s): _____ NA
Assigned ARI Job No: 211037

Project Name: 0075164.190.101
Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____
Tracking No: _____ NA

**Preliminary Examination Phase:**

| | | |
|---|---|---|
| Were intact, properly signed and dated custody seals attached to the outside of the cooler? | YES | NO |
| Were custody papers included with the cooler? | YES | NO |
| Were custody papers properly filled out (ink, signed, etc.) | YES | NO |

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1028 13.5°

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: T009708

Cooler Accepted by: BL Date: 9-2-22 Time: 1028

***Complete custody forms and attach all shipping documents***

## Log-In Phase:

| | | | |
|---|---|---|---|
| Was a temperature blank included in the cooler? | | | YES NO |
| What kind of packing material was used? | Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: | | |
| Was sufficient ice used (if appropriate)? | NA | YES | NO |
| How were bottles sealed in plastic bags? | Individually | Grouped | Not |
| Did all bottles arrive in good condition (unbroken)? | | YES | NO |
| Were all bottle labels complete and legible? | | YES | NO |
| Did the number of containers listed on COC match with the number of containers received? | | YES | NO |
| Did all bottle labels and tags agree with custody papers? | | YES | NO |
| Were all bottles used correct for the requested analyses? | | YES | NO |
| Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) | NA | YES | NO |
| Were all VOC vials free of air bubbles? | NA | YES | NO |
| Was sufficient amount of sample sent in each bottle? | | YES | NO |
| Date VOC Trip Blank was made at ARI | NA | 8/23/22 | |

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: DB Date: 9/2/22 Time: 13:56 Labels checked by: _____

***** Notify Project Manager of discrepancies or concerns *****

| Sample ID on Bottle | Sample ID on COC | Sample ID on Bottle | Sample ID on COC |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

***Additional Notes, Discrepancies, & Resolutions:***

By: Date:

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

**SW-14-20220902**

**22I0037-01 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/02/2022 09:10

Instrument: NT16 Analyst: KOTT — Analyzed: 09/06/2022 19:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0037-01 A

Preparation Batch: BKI0045 — Sample Size: 10 mL

Prepared: 09/06/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.0741 | ug/L | |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | 0.441 | ug/L | |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | 0.425 | ug/L | |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *96.8* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *97.7* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

**SW-17-20220902**

**22I0037-02 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/02/2022 10:00

Instrument: NT16 Analyst: KOTT — Analyzed: 09/06/2022 20:13

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0037-02 A

Preparation Batch: BKI0045 — Sample Size: 10 mL

Prepared: 09/06/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.0486 | ug/L | |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *96.2* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *96.3* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

**SW-20-20220902**

**22I0037-03 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/02/2022 08:20

Instrument: NT16 Analyst: KOTT — Analyzed: 09/06/2022 20:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0037-03 A

Preparation Batch: BKI0045 — Sample Size: 10 mL

Prepared: 09/06/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *97.1* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *96.4* | *%* | |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

## Tripblank1-20220902

**22I0037-04 (Water)**

### Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/02/2022 08:20
Instrument: NT16 Analyst: KOTT — Analyzed: 09/06/2022 17:00

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0037-04 A
Preparation Batch: BKI0045 — Sample Size: 10 mL
Prepared: 09/06/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *98.4* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *96.7* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

**Analysis by: Analytical Resources, LLC**

## Volatile Organic Compounds - SIM - Quality Control

### Batch BKI0045 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BKI0045-BLK1)** | | | | Prepared: 06-Sep-2022 Analyzed: 06-Sep-2022 14:57 | | | | | | |
| Vinyl chloride | ND | 0.0200 | ug/L | | | | | | | U |
| 1,1-Dichloroethene | ND | 0.200 | ug/L | | | | | | | U |
| cis-1,2-Dichloroethene | ND | 0.200 | ug/L | | | | | | | U |
| trans-1,2-Dichloroethene | ND | 0.200 | ug/L | | | | | | | U |
| Trichloroethene | ND | 0.200 | ug/L | | | | | | | U |
| Tetrachloroethene | ND | 0.200 | ug/L | | | | | | | U |
| *Surrogate: Toluene-d8* | 4890 | | ug/L | *5000* | | *97.8* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 4830 | | ug/L | *5000* | | *96.5* | *75-125* | | | |
| **LCS (BKI0045-BS1)** | | | | Prepared: 06-Sep-2022 Analyzed: 06-Sep-2022 12:33 | | | | | | |
| Vinyl chloride | 2.09 | 0.0200 | ug/L | 2.00 | | 104 | 62-141 | | | |
| 1,1-Dichloroethene | 1.94 | 0.200 | ug/L | 2.00 | | 96.8 | 80-125 | | | |
| cis-1,2-Dichloroethene | 1.88 | 0.200 | ug/L | 2.00 | | 94.1 | 74-120 | | | |
| trans-1,2-Dichloroethene | 1.92 | 0.200 | ug/L | 2.00 | | 95.9 | 80-122 | | | |
| Trichloroethene | 1.84 | 0.200 | ug/L | 2.00 | | 91.8 | 75-122 | | | |
| Tetrachloroethene | 1.85 | 0.200 | ug/L | 2.00 | | 92.7 | 76-127 | | | |
| *Surrogate: Toluene-d8* | 5100 | | ug/L | *5000* | | *102* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 5190 | | ug/L | *5000* | | *104* | *75-125* | | | |
| **LCS Dup (BKI0045-BSD1)** | | | | Prepared: 06-Sep-2022 Analyzed: 06-Sep-2022 14:16 | | | | | | |
| Vinyl chloride | 2.24 | 0.0200 | ug/L | 2.00 | | 112 | 62-141 | 6.90 | 30 | |
| 1,1-Dichloroethene | 2.09 | 0.200 | ug/L | 2.00 | | 105 | 80-125 | 7.66 | 30 | |
| cis-1,2-Dichloroethene | 2.02 | 0.200 | ug/L | 2.00 | | 101 | 74-120 | 7.12 | 30 | |
| trans-1,2-Dichloroethene | 2.05 | 0.200 | ug/L | 2.00 | | 103 | 80-122 | 6.75 | 30 | |
| Trichloroethene | 1.88 | 0.200 | ug/L | 2.00 | | 93.9 | 75-122 | 2.26 | 30 | |
| Tetrachloroethene | 1.91 | 0.200 | ug/L | 2.00 | | 95.5 | 76-127 | 2.94 | 30 | |
| *Surrogate: Toluene-d8* | 5080 | | ug/L | *5000* | | *102* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 5170 | | ug/L | *5000* | | *103* | *75-125* | | | |
| **Matrix Spike (BKI0045-MS2)** | **Source: 22I0037-01** | | | Prepared: 06-Sep-2022 Analyzed: 06-Sep-2022 19:30 | | | | | | |
| Vinyl chloride | 2.12 | 0.0200 | ug/L | 2.00 | 0.0741 | 102 | 62-141 | | | |
| 1,1-Dichloroethene | 2.07 | 0.200 | ug/L | 2.00 | ND | 103 | 80-125 | | | |
| cis-1,2-Dichloroethene | 2.52 | 0.200 | ug/L | 2.00 | 0.441 | 104 | 74-120 | | | |
| trans-1,2-Dichloroethene | 2.07 | 0.200 | ug/L | 2.00 | ND | 102 | 80-122 | | | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

**Analysis by: Analytical Resources, LLC**

## Volatile Organic Compounds - SIM - Quality Control

### Batch BKI0045 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike (BKI0045-MS2)** | **Source: 22I0037-01** | | Prepared: 06-Sep-2022 Analyzed: 06-Sep-2022 19:30 | | | | | | | |
| Trichloroethene | 2.45 | 0.200 | ug/L | 2.00 | 0.425 | 101 | 75-122 | | | |
| Tetrachloroethene | 2.05 | 0.200 | ug/L | 2.00 | ND | 102 | 76-127 | | | |
| *Surrogate: Toluene-d8* | 5020 | | ug/L | *5000* | *4840* | *100* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 5210 | | ug/L | *5000* | *4890* | *104* | *75-125* | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike Dup (BKI0045-MSD2)** | **Source: 22I0037-01** | | Prepared: 06-Sep-2022 Analyzed: 06-Sep-2022 19:52 | | | | | | | |
| Vinyl chloride | 2.01 | 0.0200 | ug/L | 2.00 | 0.0741 | 96.8 | 62-141 | 5.14 | 30 | |
| 1,1-Dichloroethene | 1.88 | 0.200 | ug/L | 2.00 | ND | 93.5 | 80-125 | 9.43 | 30 | |
| cis-1,2-Dichloroethene | 2.23 | 0.200 | ug/L | 2.00 | 0.441 | 89.7 | 74-120 | 11.90 | 30 | |
| trans-1,2-Dichloroethene | 1.89 | 0.200 | ug/L | 2.00 | ND | 92.9 | 80-122 | 8.92 | 30 | |
| Trichloroethene | 2.24 | 0.200 | ug/L | 2.00 | 0.425 | 90.8 | 75-122 | 9.07 | 30 | |
| Tetrachloroethene | 1.88 | 0.200 | ug/L | 2.00 | ND | 93.3 | 76-127 | 8.90 | 30 | |
| *Surrogate: Toluene-d8* | 5020 | | ug/L | *5000* | *4840* | *100* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 5220 | | ug/L | *5000* | *4890* | *104* | *75-125* | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

## Certified Analyses included in this Report

| Analyte | Certifications |
|---|---|
| ***EPA 8260D-SIM in Water*** | |
| Acrylonitrile | NELAP,WADOE |
| Vinyl chloride | NELAP,WADOE |
| 1,1-Dichloroethene | NELAP,WADOE |
| cis-1,2-Dichloroethene | NELAP,WADOE |
| trans-1,2-Dichloroethene | NELAP,WADOE |
| Trichloroethene | NELAP,WADOE |
| Tetrachloroethene | NELAP,WADOE |
| 1,1,2,2-Tetrachloroethane | NELAP,WADOE |
| 1,2-Dichloroethane | NELAP,WADOE |
| Benzene | NELAP,WADOE |

| Code | Description | Number | Expires |
|---|---|---|---|
| ADEC | Alaska Dept of Environmental Conservation | 17-015 | 03/28/2023 |
| NELAP | ORELAP - Oregon Laboratory Accreditation Program | WA100006-012 | 05/12/2023 |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 12-Sep-2022 14:08 |

## Notes and Definitions

| | |
|---|---|
| U | This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD). |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |
| [2C] | Indicates this result was quantified on the second column on a dual column analysis. |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

13 September 2022

Debbie Taege
The Boeing Company
Bldg 10-20, MC 9U4-26
Renton, WA 98055-1409

RE: Boeing Auburn 3Q SW Sampling

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

| Associated Work Order(s) | Associated SDG ID(s) |
|---|---|
| 22I0053 | N/A |

---

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

# Landau Associates — Chain-of-Custody Record

221053

☐ North Seattle (206) 631-8660 ☒ Tacoma (253) 926-2493 ☐ Olympia (360) 791-3178
☐ Spokane (509) 327-9737 ☐ Portland (503) 542-1080 ☐ _____

Date 9/1/22
Page 1 of 1

Turnaround Time: Standard / Accelerated

Project Name Boeing of Auburn Project No. 002504.190.101
Project Location/Event BOA / 3Q22 SW sampling
Sampler's Name SMR/JBD
Project Contact S. Fees (Landau), D. Taege (Boeing)
Send Results To data@landauinc.com; (lims list)

Special Handling Requirements: _____
Shipment Method: _____
Stored on ice: Yes / No

Testing Parameters

| Sample I.D. | Date | Time | Matrix | No. of Containers | Boeing 6 VOCs 8260D SIM | Observations/Comments |
|---|---|---|---|---|---|---|
| (SMR) PW-18a-5-20220901 | 9/1/22 | 9:20 | Aq | 3 | X | |
| ~~B~~ PW-18a-2.5-20220901 | 9/1/22 | 9:47 | Aq | 3 | X | |
| PW-18b-5-20220901 | 9/1/22 | 10:50 | Aq | 3 | X | |
| PW-18b-2.5-20220901 | 9/1/22 | 11:15 | Aq | 3 | X | |
| SW-18-20220901 | 9/1/22 | 11:43 | Aq | 3 | X | |
| SW-900-20220901 | 9/1/22 | 11:46 | Aq | 3 | X | |
| PW-27a-2.5-20220901 | 9/1/22 | 12:41 | Aq | 3 | X | |
| PW-27a-5-20220901 | 9/1/22 | 1300 | Aq | 3 | X | |
| SW-27-20220901 | 9/1/22 | 1332 | Aq | 3 | X | |
| SW-CD4-20220901 | 9/1/22 | 1405 | Aq | (SMR) ~~3~~ 9 | X | |
| SW-16-20220901 | 9/1/22 | 1503 | Aq | 3 | X | |
| Triplblank1-20220901 | — | — | Aq | 1 | X | |

Allow water samples to settle, collect aliquot from clear portion ☐
NWTPH-Dx - Acid wash cleanup ☐ - Silica gel cleanup ☐
Dissolved metal samples were field filtered

Other ☆ HCl pres.

| Relinquished by | Received by | Relinquished by | Received by |
|---|---|---|---|
| Signature SMR | Signature [illegible] | Signature | Signature |
| Printed Name Simone Rodriguez | Printed Name [illegible] | Printed Name | Printed Name |
| Company Landau Associates | Company [illegible] | Company | Company |
| Date 9/1/22 Time 1600 | Date 9/2/22 Time 943 | Date Time | Date Time |

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

10/2018

# Chain-of-Custody Record

LANDAU ASSOCIATES

☐ North Seattle (206) 631-8660 ☒ Tacoma (253) 926-2493 ☐ Olympia (360) 791-3178
☐ Spokane (509) 327-9737 ☐ Portland (503) 542-1080 ☐ _____

Date 9/1/22 Page 1 of 1

Turnaround Time: Standard _____ Accelerated _____

Project Name Boeing of Auburn Project No. 0025164.190.101

Project Location/Event BOA / 3Q22 SW sampling

Sampler's Name SMR/JBD

Project Contact S. Fees (Landau), D. Taege (Boeing)

Send Results To data@landauinc.com; (lims list)

Special Handling Requirements: _____

Shipment Method: _____

Stored on ice: Yes / No

| Sample I.D. | Date | Time | Matrix | No. of Containers | Testing Parameters: Boeing 6 Vocs 8260D SIM | ms/msd | | | | | | | | | | Observations/Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PW-18a-5-20220901 (SMR) | 9/1/22 | 9:20 | Aq | 3 | X | | | | | | | | | | | |
| PW-18a-2.5-20220901 | 9/1/22 | 9:47 | Aq | 3 | X | | | | | | | | | | | |
| PW-18b-5-20220901 | 9/1/22 | 10:50 | Aq | 3 | X | | | | | | | | | | | |
| PW-18b-2.5-20220901 | 9/1/22 | 11:15 | Aq | 3 | X | | | | | | | | | | | |
| SW-18-20220901 | 9/1/22 | 11:43 | Aq | 3 | X | | | | | | | | | | | |
| SW-900-20220901 | 9/1/22 | 11:46 | Aq | 3 | X | | | | | | | | | | | |
| PW-27a-2.5-20220901 | 9/1/22 | 12:41 | Aq | 3 | X | | | | | | | | | | | |
| PW-27a-5-20220901 | 9/1/22 | 1300 | Aq | 3 | X | | | | | | | | | | | |
| SW-27-20220901 | 9/1/22 | 1332 | Aq | 3 | X | | | | | | | | | | | |
| SW-CD4-20220901 | 9/1/22 | 1405 | Aq | (SMR) 3 9 | X | X | | | | | | | | | | |
| SW-16-20220901 | 9/1/22 | 1503 | Aq | 3 | X | | | | | | | | | | | |
| Tripblank1-20220901 | — | — | Aq | 1 | X | | | | | | | | | | | |

☐ Allow water samples to settle, collect aliquot from clear portion ☐

☐ NWTPH-Dx - Acid wash cleanup ☐ - Silica gel cleanup ☐

☐ Dissolved metal samples were field filtered

Other ☆ HCl pres.

| Relinquished by | Received by | Relinquished by | Received by |
|---|---|---|---|
| Signature SMR | Signature | Signature | Signature |
| Printed Name Simone Rodriguez | Printed Name | Printed Name | Printed Name |
| Company Landau Associates | Company | Company | Company |
| Date 9/1/22 Time 1600 | Date Time | Date Time | Date Time |

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

10/2018

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| PW-18a-5-20220901 | 22I0053-01 | Water | 01-Sep-2022 09:20 | 02-Sep-2022 10:45 |
| PW-18a-2.5-20220901 | 22I0053-02 | Water | 01-Sep-2022 09:47 | 02-Sep-2022 10:45 |
| PW-18b-5-20220901 | 22I0053-03 | Water | 01-Sep-2022 10:56 | 02-Sep-2022 10:45 |
| PW-18b-2.5-20220901 | 22I0053-04 | Water | 01-Sep-2022 11:15 | 02-Sep-2022 10:45 |
| SW-18-20220901 | 22I0053-05 | Water | 01-Sep-2022 11:43 | 02-Sep-2022 10:45 |
| SW-900-20220901 | 22I0053-06 | Water | 01-Sep-2022 11:46 | 02-Sep-2022 10:45 |
| PW-27a-2.5-20220901 | 22I0053-07 | Water | 01-Sep-2022 12:41 | 02-Sep-2022 10:45 |
| PW-27a-5-20220901 | 22I0053-08 | Water | 01-Sep-2022 13:00 | 02-Sep-2022 10:45 |
| SW-27-20220901 | 22I0053-09 | Water | 01-Sep-2022 13:32 | 02-Sep-2022 10:45 |
| SW-CD4-20220901 | 22I0053-10 | Water | 01-Sep-2022 14:05 | 02-Sep-2022 10:45 |
| SW-16-20220901 | 22I0053-11 | Water | 01-Sep-2022 15:03 | 02-Sep-2022 10:45 |
| Tripblank1-20220901 | 22I0053-12 | Water | 01-Sep-2022 00:00 | 02-Sep-2022 10:45 |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

# Work Order Case Narrative

**Volatiles - EPA Method 8260D-SIM (Selected Ion Monitoring)**

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and relative percent difference (RPD) were within advisory control limits.

Analytical Resources, LLC
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: Landau/Boeing  Project Name: 3Q22 SW sampling

COC No(s): _____ NA  Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 221053  Tracking No: _____ NA

**Preliminary Examination Phase:**

| | | |
|---|---|---|
| Were intact, properly signed and dated custody seals attached to the outside of the cooler? | YES | NO |
| Were custody papers included with the cooler? | YES | NO |
| Were custody papers properly filled out (ink, signed, etc.) | YES | NO |

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry) 4.2

Time 1045

If cooler temperature is out of compliance fill out form 00070F  Temp Gun ID#: 300978

Cooler Accepted by: LB  Date: 9/2/22  Time: 943

***Complete custody forms and attach all shipping documents***

## Log-In Phase:

| | | | |
|---|---|---|---|
| Was a temperature blank included in the cooler? | | YES | NO |
| What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____ | | | |
| Was sufficient ice used (if appropriate)? | NA | YES | NO |
| How were bottles sealed in plastic bags? | Individually | Grouped | Not |
| Did all bottles arrive in good condition (unbroken)? | | YES | NO |
| Were all bottle labels complete and legible? | | YES | NO |
| Did the number of containers listed on COC match with the number of containers received? | | YES | NO |
| Did all bottle labels and tags agree with custody papers? | | YES | NO |
| Were all bottles used correct for the requested analyses? | | YES | NO |
| Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... | NA | YES | NO |
| Were all VOC vials free of air bubbles? | NA | YES | NO |
| Was sufficient amount of sample sent in each bottle? | | YES | NO |
| Date VOC Trip Blank was made at ARI | NA | _____ | |

Were the sample(s) split by ARI? NA YES Date/Time: _____ Equipment: _____ Split by: _____

Samples Logged by: [signature]  Date: 09/07/22  Time: 10:14  Labels checked by: _____

***** Notify Project Manager of discrepancies or concerns *****

| Sample ID on Bottle | Sample ID on COC | Sample ID on Bottle | Sample ID on COC |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

***Additional Notes, Discrepancies, & Resolutions:***

By: Date:

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**PW-18a-5-20220901**

**22I0053-01 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 09:20

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 17:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-01 A

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.0338 | ug/L | |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *97.6* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *97.3* | *%* | |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**PW-18a-2.5-20220901**

**22I0053-02 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 09:47

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 17:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-02 A

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *97.7* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *96.4* | *%* | |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**PW-18b-5-20220901**

**22I0053-03 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 10:56

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 17:44

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-03 A

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *98.0* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *95.8* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**PW-18b-2.5-20220901**

**22I0053-04 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 11:15

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 18:05

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-04 A

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *97.1* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *95.5* | *%* | |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**SW-18-20220901**

**22I0053-05 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 11:43

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 18:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-05 A

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *97.5* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *96.7* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**SW-900-20220901**

**22I0053-06 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 11:46

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 18:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-06 A

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *96.8* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *95.5* | *%* | |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**PW-27a-2.5-20220901**

**22I0053-07 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 12:41

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 19:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-07 A

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *96.9* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *95.6* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**PW-27a-5-20220901**

**22I0053-08 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 13:00

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 19:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-08 A

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *96.2* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *95.7* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**SW-27-20220901**

**22I0053-09 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 13:32

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 19:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-09 B

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *96.5* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *95.1* | *%* | |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**SW-CD4-20220901**

**22I0053-10 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 14:05

Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 20:13

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-10 F

Preparation Batch: BKI0135 — Sample Size: 10 mL

Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | 0.0912 | ug/L | |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | 0.683 | ug/L | |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | 0.722 | ug/L | |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *96.8* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *95.5* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**SW-16-20220901**

**22I0053-11 (Water)**

## Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM
Instrument: NT16 Analyst: KOTT

Sampled: 09/01/2022 15:03
Analyzed: 09/07/2022 21:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)
Preparation Batch: BKI0135
Prepared: 09/07/2022
Sample Size: 10 mL
Final Volume: 10 mL

Extract ID: 22I0053-11 A

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *96.7* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *96.0* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

## Tripblank1-20220901

**22I0053-12 (Water)**

### Volatile Organic Compounds - SIM

Method: EPA 8260D-SIM — Sampled: 09/01/2022 00:00
Instrument: NT16 Analyst: KOTT — Analyzed: 09/07/2022 21:39

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 22I0053-12 A
Preparation Batch: BKI0135 — Sample Size: 10 mL
Prepared: 09/07/2022 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl chloride | 75-01-4 | 1 | 0.0200 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.200 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.200 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.200 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.200 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.200 | ND | ug/L | U |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *96.3* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *75-125 %* | *95.1* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**Analysis by: Analytical Resources, LLC**

## Volatile Organic Compounds - SIM - Quality Control

### Batch BKI0135 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BKI0135-BLK1)** | | | | Prepared: 07-Sep-2022 Analyzed: 07-Sep-2022 16:16 | | | | | | |
| Vinyl chloride | ND | 0.0200 | ug/L | | | | | | | U |
| 1,1-Dichloroethene | ND | 0.200 | ug/L | | | | | | | U |
| cis-1,2-Dichloroethene | ND | 0.200 | ug/L | | | | | | | U |
| trans-1,2-Dichloroethene | ND | 0.200 | ug/L | | | | | | | U |
| Trichloroethene | ND | 0.200 | ug/L | | | | | | | U |
| Tetrachloroethene | ND | 0.200 | ug/L | | | | | | | U |
| *Surrogate: Toluene-d8* | 4910 | | ug/L | *5000* | | *98.3* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 4800 | | ug/L | *5000* | | *96.0* | *75-125* | | | |
| **LCS (BKI0135-BS1)** | | | | Prepared: 07-Sep-2022 Analyzed: 07-Sep-2022 13:15 | | | | | | |
| Vinyl chloride | 2.36 | 0.0200 | ug/L | 2.00 | | 118 | 62-141 | | | |
| 1,1-Dichloroethene | 2.23 | 0.200 | ug/L | 2.00 | | 112 | 80-125 | | | |
| cis-1,2-Dichloroethene | 2.20 | 0.200 | ug/L | 2.00 | | 110 | 74-120 | | | |
| trans-1,2-Dichloroethene | 2.22 | 0.200 | ug/L | 2.00 | | 111 | 80-122 | | | |
| Trichloroethene | 2.07 | 0.200 | ug/L | 2.00 | | 103 | 75-122 | | | |
| Tetrachloroethene | 2.11 | 0.200 | ug/L | 2.00 | | 105 | 76-127 | | | |
| *Surrogate: Toluene-d8* | 5120 | | ug/L | *5000* | | *102* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 5170 | | ug/L | *5000* | | *103* | *75-125* | | | |
| **LCS Dup (BKI0135-BSD1)** | | | | Prepared: 07-Sep-2022 Analyzed: 07-Sep-2022 15:17 | | | | | | |
| Vinyl chloride | 1.85 | 0.0200 | ug/L | 2.00 | | 92.5 | 62-141 | 24.10 | 30 | |
| 1,1-Dichloroethene | 1.78 | 0.200 | ug/L | 2.00 | | 89.0 | 80-125 | 22.50 | 30 | |
| cis-1,2-Dichloroethene | 1.91 | 0.200 | ug/L | 2.00 | | 95.6 | 74-120 | 14.00 | 30 | |
| trans-1,2-Dichloroethene | 1.83 | 0.200 | ug/L | 2.00 | | 91.5 | 80-122 | 19.30 | 30 | |
| Trichloroethene | 1.72 | 0.200 | ug/L | 2.00 | | 85.8 | 75-122 | 18.70 | 30 | |
| Tetrachloroethene | 1.68 | 0.200 | ug/L | 2.00 | | 84.1 | 76-127 | 22.50 | 30 | |
| *Surrogate: Toluene-d8* | 5090 | | ug/L | *5000* | | *102* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 5170 | | ug/L | *5000* | | *103* | *75-125* | | | |
| **Matrix Spike (BKI0135-MS1)** | **Source: 22I0053-10** | | | Prepared: 07-Sep-2022 Analyzed: 07-Sep-2022 20:35 | | | | | | |
| Vinyl chloride | 1.97 | 0.0200 | ug/L | 2.00 | 0.0912 | 93.7 | 62-141 | | | |
| 1,1-Dichloroethene | 1.80 | 0.200 | ug/L | 2.00 | ND | 89.2 | 80-125 | | | |
| cis-1,2-Dichloroethene | 2.49 | 0.200 | ug/L | 2.00 | 0.683 | 90.5 | 74-120 | | | |
| trans-1,2-Dichloroethene | 1.79 | 0.200 | ug/L | 2.00 | ND | 87.3 | 80-122 | | | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

**Analysis by: Analytical Resources, LLC**

## Volatile Organic Compounds - SIM - Quality Control

### Batch BKI0135 - EPA 5030C (Purge and Trap)

Instrument: NT16 Analyst: KOTT

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike (BKI0135-MS1)** | **Source: 22I0053-10** | | Prepared: 07-Sep-2022 Analyzed: 07-Sep-2022 20:35 | | | | | | | |
| Trichloroethene | 2.55 | 0.200 | ug/L | 2.00 | 0.722 | 91.6 | 75-122 | | | |
| Tetrachloroethene | 1.81 | 0.200 | ug/L | 2.00 | ND | 89.6 | 76-127 | | | |
| *Surrogate: Toluene-d8* | 4990 | | ug/L | *5000* | *4840* | *99.8* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 5170 | | ug/L | *5000* | *4770* | *103* | *75-125* | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike Dup (BKI0135-MSD1)** | **Source: 22I0053-10** | | Prepared: 07-Sep-2022 Analyzed: 07-Sep-2022 20:56 | | | | | | | |
| Vinyl chloride | 2.01 | 0.0200 | ug/L | 2.00 | 0.0912 | 95.9 | 62-141 | 2.16 | 30 | |
| 1,1-Dichloroethene | 1.84 | 0.200 | ug/L | 2.00 | ND | 91.0 | 80-125 | 1.98 | 30 | |
| cis-1,2-Dichloroethene | 2.51 | 0.200 | ug/L | 2.00 | 0.683 | 91.2 | 74-120 | 0.56 | 30 | |
| trans-1,2-Dichloroethene | 1.82 | 0.200 | ug/L | 2.00 | ND | 89.0 | 80-122 | 1.85 | 30 | |
| Trichloroethene | 2.56 | 0.200 | ug/L | 2.00 | 0.722 | 91.9 | 75-122 | 0.25 | 30 | |
| Tetrachloroethene | 1.82 | 0.200 | ug/L | 2.00 | ND | 90.3 | 76-127 | 0.81 | 30 | |
| *Surrogate: Toluene-d8* | 5020 | | ug/L | *5000* | *4840* | *100* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 5190 | | ug/L | *5000* | *4770* | *104* | *75-125* | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

## Certified Analyses included in this Report

| Analyte | Certifications |
|---|---|
| ***EPA 8260D-SIM in Water*** | |
| Acrylonitrile | NELAP,WADOE |
| Vinyl chloride | NELAP,WADOE |
| 1,1-Dichloroethene | NELAP,WADOE |
| cis-1,2-Dichloroethene | NELAP,WADOE |
| trans-1,2-Dichloroethene | NELAP,WADOE |
| Trichloroethene | NELAP,WADOE |
| Tetrachloroethene | NELAP,WADOE |
| 1,1,2,2-Tetrachloroethane | NELAP,WADOE |
| 1,2-Dichloroethane | NELAP,WADOE |
| Benzene | NELAP,WADOE |

| Code | Description | Number | Expires |
|---|---|---|---|
| ADEC | Alaska Dept of Environmental Conservation | 17-015 | 03/28/2023 |
| NELAP | ORELAP - Oregon Laboratory Accreditation Program | WA100006-012 | 05/12/2023 |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 3Q SW Sampling | |
| Bldg 10-20, MC 9U4-26 | Project Number: [none] | **Reported:** |
| Renton WA, 98055-1409 | Project Manager: Debbie Taege | 13-Sep-2022 12:04 |

## Notes and Definitions

| | |
|---|---|
| U | This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD). |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |
| [2C] | Indicates this result was quantified on the second column on a dual column analysis. |

ATTACHMENT 3

# Fourth Quarter 2021 Revised Data Tables and Revised Laboratory Data Package

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

09 August 2022

Jennifer Parsons
The Boeing Company
PO Box 3703 MS 2R-96
Seattle, WA 98124

RE: Boeing Auburn 4Q 2021 Regional GWM (0025164.170.101)

Please find enclosed sample receipt documentation and analytical results for samples from the project referenced above.

Sample analyses were performed according to ARI's Quality Assurance Plan and any provided project specific Quality Assurance Plan. Each analytical section of this report has been approved and reviewed by an analytical peer, the appropriate Laboratory Supervisor or qualified substitute, and a technical reviewer.

Should you have any questions or problems, please feel free to contact us at your convenience.

| Associated Work Order(s) | Associated SDG ID(s) |
|---|---|
| 21L0059 | N/A |

---

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the enclose Narrative. ARI, an accredited laboratory, certifies that the report results for which ARI is accredited meets all the requirements of the accrediting body. A list of certified analyses, accreditations, and expiration dates is included in this report.

Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his/her designee, as verified by the following signature.

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*

ACCREDITED IN ACCORDANCE WITH nelac
Cert# 100006-012

21L0059

LANDAU ASSOCIATES

# Chain-of-Custody Record

☐ Seattle/Edmonds (425) 778-0907 ☐ Spokane (509) 327-9737
☒ Tacoma (253) 926-2493 ☐ Portland (503) 542-1080

Date 12/1/2021
Page 1 of 1

Turnaround Time: (Standard) / Accelerated

Project Name Boeing Regional GWM Project No. 0025217.099.029
Project Location/Event Boeing of Auburn / Semiannual GW 2021
Sampler's Name JDB
Project Contact CKimmel (LAI), JParsons (Boeing)
Send Results To CKimmel@landauinc.com (and others, see lims list)

Special Handling Requirements:
Shipment Method:
Stored on ice: (Yes) / No

| Sample I.D. | Date | Time | Matrix | No. of Containers | Testing Parameters: BTEX 8260D SIM | Testing Parameters: MS/MSD |
|---|---|---|---|---|---|---|
| TripblnK3-20211201 | — | — | aq | 2 | X | |
| AGW276-2-25-20211201 | 12/1/21 | 1048 | aq | 9 | X | X |
| AGW201-2-30-20211201 | 12/1/21 | 1425 | aq | 3 | X | |
| AGW202-2-30-20211201 | 12/1/21 | 1515 | aq | 3 | X | |

Observations/Comments

___ Allow water samples to settle, collect aliquot from clear portion ☐
___ NWTPH-Dx - Acid wash cleanup ☐
- Silica gel cleanup ☐
___ Dissolved metal samples were field filtered

Other

| Relinquished by | Received by | Relinquished by | Received by |
|---|---|---|---|
| Signature | Signature D Lam | Signature | Signature |
| Printed Name Joshua Burbach | Printed Name Dimitri Lamakhov | Printed Name | Printed Name |
| Company Landau Associates | Company ARI | Company | Company |
| Date 12/1/21 Time 1537 | Date 12/2/21 Time 1511 | Date Time | Date Time |

WHITE COPY - Laboratory YELLOW COPY - Project File PINK COPY - Client Representative

10/2018

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

## ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|---|---|---|---|---|
| Tripblank3-20211201 | 21L0059-01 | Water | 01-Dec-2021 10:48 | 02-Dec-2021 15:11 |
| AGW276-2-25-20211201 | 21L0059-02 | Water | 01-Dec-2021 10:48 | 02-Dec-2021 15:11 |
| AGW201-2-30-20211201 | 21L0059-03 | Water | 01-Dec-2021 14:25 | 02-Dec-2021 15:11 |
| AGW202-2-30-20211201 | 21L0059-04 | Water | 01-Dec-2021 15:15 | 02-Dec-2021 15:11 |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

# Work Order Case Narrative

**Volatiles - EPA Method SW8260D**

The sample(s) were analyzed within the recommended holding times.

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

The method blank(s) were clean at the reporting limits.

The blank spike and blank spike duplicate (BS/LCS and BSD/LCSD) spike recoveries and relative percent difference (RPD) were within control limits.

The matrix spike/matrix spike duplicate (MS/MSD) spike recoveries and relative percent difference (RPD) were within advisory control limits.

Per the client request on 8/4/22 additional analytes were reported due to a COC request error. Vinyl Chloride will not meet historical reporting limit criteria due to this COC error.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

# Cooler Receipt Form

ARI Client: Landau / Boeing  Project Name: Semi anual GW 2021

COC No(s): _____ NA  Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: 2120059  Tracking No: _____ NA

**Preliminary Examination Phase:**

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES NO

Were custody papers included with the cooler? ..... YES NO

Were custody papers properly filled out (ink, signed, etc.) ..... YES NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 1621  1.3

If cooler temperature is out of compliance fill out form 00070F  Temp Gun ID#: D00256S

Cooler Accepted by: DL  Date: 12/02/21  Time: 1511

***Complete custody forms and attach all shipping documents***

## Log-In Phase:

Was a temperature blank included in the cooler? ..... YES NO

What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: _____

Was sufficient ice used (if appropriate)? ..... NA YES NO

How were bottles sealed in plastic bags? ..... Individually Grouped Not

Did all bottles arrive in good condition (unbroken)? ..... YES NO

Were all bottle labels complete and legible? ..... YES NO

Did the number of containers listed on COC match with the number of containers received? ..... YES NO

Did all bottle labels and tags agree with custody papers? ..... YES NO

Were all bottles used correct for the requested analyses? ..... YES NO

Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ... NA YES NO

Were all VOC vials free of air bubbles? ..... NA YES NO

Was sufficient amount of sample sent in each bottle? ..... YES NO

Date VOC Trip Blank was made at ARI..... NA 11/30/21 DL 12/02/21

Were the sample(s) split by ARI? NA YES  Date/Time: _____  Equipment: _____  Split by: _____

Samples Logged by: DL  Date: 12/03/21  Time: 1419  Labels checked by: _____

*** Notify Project Manager of discrepancies or concerns ****

| Sample ID on Bottle | Sample ID on COC | Sample ID on Bottle | Sample ID on COC |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |

***Additional Notes, Discrepancies, & Resolutions:***

By:  Date:

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

## Tripblank3-20211201

**21L0059-01 (Water)**

### Volatile Organic Compounds

Method: EPA 8260D — Sampled: 12/01/2021 10:48

Instrument: NT2 Analyst: LH — Analyzed: 12/09/2021 16:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21L0059-01 A

Preparation Batch: BJL0212 — Sample Size: 10 mL

Prepared: 12/09/2021 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl Chloride | 75-01-4 | 1 | 0.20 | ND | ug/L | U |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.20 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.20 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | ND | ug/L | U |
| Benzene | 71-43-2 | 1 | 0.20 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.20 | ND | ug/L | U |
| Toluene | 108-88-3 | 1 | 0.20 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.20 | ND | ug/L | U |
| Ethylbenzene | 100-41-4 | 1 | 0.20 | ND | ug/L | U |
| m,p-Xylene | 179601-23-1 | 1 | 0.40 | ND | ug/L | U |
| o-Xylene | 95-47-6 | 1 | 0.20 | ND | ug/L | U |
| Xylenes, total | 1330-20-7 | 1 | 0.60 | ND | ug/L | U |
| *Surrogate: 1,2-Dichloroethane-d4* | | | *80-129 %* | *104* | *%* | |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *97.9* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *80-120 %* | *94.2* | *%* | |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

**AGW276-2-25-20211201**

**21L0059-02 (Water)**

## Volatile Organic Compounds

Method: EPA 8260D — Sampled: 12/01/2021 10:48

Instrument: NT2 Analyst: LH — Analyzed: 12/09/2021 17:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21L0059-02 C

Preparation Batch: BJL0212 — Sample Size: 10 mL

Prepared: 12/09/2021 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl Chloride | 75-01-4 | 1 | 0.20 | 1.17 | ug/L | |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.20 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.20 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | 1.22 | ug/L | |
| Benzene | 71-43-2 | 1 | 0.20 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.20 | 0.20 | ug/L | |
| Toluene | 108-88-3 | 1 | 0.20 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.20 | ND | ug/L | U |
| Ethylbenzene | 100-41-4 | 1 | 0.20 | ND | ug/L | U |
| m,p-Xylene | 179601-23-1 | 1 | 0.40 | ND | ug/L | U |
| o-Xylene | 95-47-6 | 1 | 0.20 | ND | ug/L | U |
| Xylenes, total | 1330-20-7 | 1 | 0.60 | ND | ug/L | U |
| *Surrogate: 1,2-Dichloroethane-d4* | | | *80-129 %* | *99.9* | *%* | |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *97.7* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *80-120 %* | *96.3* | *%* | |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

**AGW201-2-30-20211201**

**21L0059-03 (Water)**

## Volatile Organic Compounds

Method: EPA 8260D — Sampled: 12/01/2021 14:25

Instrument: NT2 Analyst: LH — Analyzed: 12/09/2021 17:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21L0059-03 C

Preparation Batch: BJL0212 — Sample Size: 10 mL

Prepared: 12/09/2021 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl Chloride | 75-01-4 | 1 | 0.20 | 1.84 | ug/L | |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.20 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.20 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | 1.53 | ug/L | |
| Benzene | 71-43-2 | 1 | 0.20 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.20 | 0.26 | ug/L | |
| Toluene | 108-88-3 | 1 | 0.20 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.20 | ND | ug/L | U |
| Ethylbenzene | 100-41-4 | 1 | 0.20 | ND | ug/L | U |
| m,p-Xylene | 179601-23-1 | 1 | 0.40 | ND | ug/L | U |
| o-Xylene | 95-47-6 | 1 | 0.20 | ND | ug/L | U |
| Xylenes, total | 1330-20-7 | 1 | 0.60 | ND | ug/L | U |
| *Surrogate: 1,2-Dichloroethane-d4* | | | *80-129 %* | *101* | *%* | |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *97.9* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *80-120 %* | *93.7* | *%* | |

**Analytical Resources, LLC**
**Analytical Chemists and Consultants**

# Analytical Report

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

**AGW202-2-30-20211201**

**21L0059-04 (Water)**

## Volatile Organic Compounds

Method: EPA 8260D — Sampled: 12/01/2021 15:15

Instrument: NT2 Analyst: LH — Analyzed: 12/09/2021 17:51

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap) — Extract ID: 21L0059-04 C

Preparation Batch: BJL0212 — Sample Size: 10 mL

Prepared: 12/09/2021 — Final Volume: 10 mL

| Analyte | CAS Number | Dilution | Reporting Limit | Result | Units | Notes |
|---|---|---|---|---|---|---|
| Vinyl Chloride | 75-01-4 | 1 | 0.20 | 0.94 | ug/L | |
| 1,1-Dichloroethene | 75-35-4 | 1 | 0.20 | ND | ug/L | U |
| trans-1,2-Dichloroethene | 156-60-5 | 1 | 0.20 | ND | ug/L | U |
| cis-1,2-Dichloroethene | 156-59-2 | 1 | 0.20 | 2.10 | ug/L | |
| Benzene | 71-43-2 | 1 | 0.20 | ND | ug/L | U |
| Trichloroethene | 79-01-6 | 1 | 0.20 | 0.97 | ug/L | |
| Toluene | 108-88-3 | 1 | 0.20 | ND | ug/L | U |
| Tetrachloroethene | 127-18-4 | 1 | 0.20 | ND | ug/L | U |
| Ethylbenzene | 100-41-4 | 1 | 0.20 | ND | ug/L | U |
| m,p-Xylene | 179601-23-1 | 1 | 0.40 | ND | ug/L | U |
| o-Xylene | 95-47-6 | 1 | 0.20 | ND | ug/L | U |
| Xylenes, total | 1330-20-7 | 1 | 0.60 | ND | ug/L | U |
| *Surrogate: 1,2-Dichloroethane-d4* | | | *80-129 %* | *103* | *%* | |
| *Surrogate: Toluene-d8* | | | *80-120 %* | *97.3* | *%* | |
| *Surrogate: 4-Bromofluorobenzene* | | | *80-120 %* | *94.0* | *%* | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

**Analysis by: Analytical Resources, LLC**

## Volatile Organic Compounds - Quality Control

### Batch BJL0212 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Blank (BJL0212-BLK1)** | | | | Prepared: 09-Dec-2021 | Analyzed: 09-Dec-2021 15:19 | | | | | |
| Vinyl Chloride | ND | 0.20 | ug/L | | | | | | | U |
| 1,1-Dichloroethene | ND | 0.20 | ug/L | | | | | | | U |
| trans-1,2-Dichloroethene | ND | 0.20 | ug/L | | | | | | | U |
| cis-1,2-Dichloroethene | ND | 0.20 | ug/L | | | | | | | U |
| Benzene | ND | 0.20 | ug/L | | | | | | | U |
| Trichloroethene | ND | 0.20 | ug/L | | | | | | | U |
| Toluene | ND | 0.20 | ug/L | | | | | | | U |
| Tetrachloroethene | ND | 0.20 | ug/L | | | | | | | U |
| Ethylbenzene | ND | 0.20 | ug/L | | | | | | | U |
| m,p-Xylene | ND | 0.40 | ug/L | | | | | | | U |
| o-Xylene | ND | 0.20 | ug/L | | | | | | | U |
| Xylenes, total | ND | 0.60 | ug/L | | | | | | | U |
| *Surrogate: 1,2-Dichloroethane-d4* | 5.15 | | ug/L | *5.00* | | *103* | *80-129* | | | |
| *Surrogate: Toluene-d8* | 4.86 | | ug/L | *5.00* | | *97.2* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 4.87 | | ug/L | *5.00* | | *97.3* | *80-120* | | | |
| **LCS (BJL0212-BS1)** | | | | Prepared: 09-Dec-2021 | Analyzed: 09-Dec-2021 14:17 | | | | | |
| Vinyl Chloride | 10.6 | 0.20 | ug/L | 10.0 | | 106 | 66-133 | | | |
| 1,1-Dichloroethene | 10.3 | 0.20 | ug/L | 10.0 | | 103 | 69-135 | | | |
| trans-1,2-Dichloroethene | 10.2 | 0.20 | ug/L | 10.0 | | 102 | 78-128 | | | |
| cis-1,2-Dichloroethene | 10.2 | 0.20 | ug/L | 10.0 | | 102 | 80-121 | | | |
| Benzene | 10.4 | 0.20 | ug/L | 10.0 | | 104 | 80-120 | | | |
| Trichloroethene | 10.3 | 0.20 | ug/L | 10.0 | | 103 | 80-120 | | | |
| Toluene | 10.3 | 0.20 | ug/L | 10.0 | | 103 | 80-120 | | | |
| Tetrachloroethene | 10.1 | 0.20 | ug/L | 10.0 | | 101 | 80-120 | | | |
| Ethylbenzene | 10.5 | 0.20 | ug/L | 10.0 | | 105 | 80-120 | | | |
| m,p-Xylene | 21.1 | 0.40 | ug/L | 20.0 | | 106 | 80-121 | | | |
| o-Xylene | 10.5 | 0.20 | ug/L | 10.0 | | 105 | 80-121 | | | |
| Xylenes, total | 31.6 | 0.60 | ug/L | 30.0 | | 105 | 76-127 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | 5.05 | | ug/L | *5.00* | | *101* | *80-129* | | | |
| *Surrogate: Toluene-d8* | 4.98 | | ug/L | *5.00* | | *99.6* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 5.02 | | ug/L | *5.00* | | *100* | *80-120* | | | |
| **LCS Dup (BJL0212-BSD1)** | | | | Prepared: 09-Dec-2021 | Analyzed: 09-Dec-2021 14:37 | | | | | |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

**Analysis by: Analytical Resources, LLC**

## Volatile Organic Compounds - Quality Control

### Batch BJL0212 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **LCS Dup (BJL0212-BSD1)** | | | | Prepared: 09-Dec-2021 Analyzed: 09-Dec-2021 14:37 | | | | | | |
| Vinyl Chloride | 10.5 | 0.20 | ug/L | 10.0 | | 105 | 66-133 | 0.49 | 30 | |
| 1,1-Dichloroethene | 10.5 | 0.20 | ug/L | 10.0 | | 105 | 69-135 | 1.68 | 30 | |
| trans-1,2-Dichloroethene | 10.3 | 0.20 | ug/L | 10.0 | | 103 | 78-128 | 0.65 | 30 | |
| cis-1,2-Dichloroethene | 10.2 | 0.20 | ug/L | 10.0 | | 102 | 80-121 | 0.09 | 30 | |
| Benzene | 10.3 | 0.20 | ug/L | 10.0 | | 103 | 80-120 | 0.57 | 30 | |
| Trichloroethene | 10.3 | 0.20 | ug/L | 10.0 | | 103 | 80-120 | 0.47 | 30 | |
| Toluene | 10.2 | 0.20 | ug/L | 10.0 | | 102 | 80-120 | 1.17 | 30 | |
| Tetrachloroethene | 10.0 | 0.20 | ug/L | 10.0 | | 100 | 80-120 | 1.26 | 30 | |
| Ethylbenzene | 10.4 | 0.20 | ug/L | 10.0 | | 104 | 80-120 | 1.17 | 30 | |
| m,p-Xylene | 20.9 | 0.40 | ug/L | 20.0 | | 104 | 80-121 | 1.09 | 30 | |
| o-Xylene | 10.4 | 0.20 | ug/L | 10.0 | | 104 | 80-121 | 1.14 | 30 | |
| Xylenes, total | 31.3 | 0.60 | ug/L | 30.0 | | 104 | 76-127 | 1.10 | 30 | |
| *Surrogate: 1,2-Dichloroethane-d4* | 5.05 | | ug/L | *5.00* | | *101* | *80-129* | | | |
| *Surrogate: Toluene-d8* | 4.99 | | ug/L | *5.00* | | *99.7* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 4.98 | | ug/L | *5.00* | | *99.5* | *80-120* | | | |
| **Matrix Spike (BJL0212-MS1)** | **Source: 21L0059-02** | | | Prepared: 09-Dec-2021 Analyzed: 09-Dec-2021 19:39 | | | | | | |
| Vinyl Chloride | 11.9 | 0.20 | ug/L | 10.0 | 1.17 | 108 | 66-133 | | | |
| 1,1-Dichloroethene | 11.0 | 0.20 | ug/L | 10.0 | ND | 110 | 69-135 | | | |
| trans-1,2-Dichloroethene | 10.2 | 0.20 | ug/L | 10.0 | ND | 101 | 78-128 | | | |
| cis-1,2-Dichloroethene | 11.7 | 0.20 | ug/L | 10.0 | 1.22 | 105 | 80-121 | | | |
| Benzene | 10.4 | 0.20 | ug/L | 10.0 | ND | 104 | 80-120 | | | |
| Trichloroethene | 10.4 | 0.20 | ug/L | 10.0 | 0.20 | 102 | 80-120 | | | |
| Toluene | 10.4 | 0.20 | ug/L | 10.0 | ND | 104 | 80-120 | | | |
| Tetrachloroethene | 10.0 | 0.20 | ug/L | 10.0 | ND | 100 | 80-120 | | | |
| Ethylbenzene | 10.4 | 0.20 | ug/L | 10.0 | ND | 104 | 80-120 | | | |
| m,p-Xylene | 20.8 | 0.40 | ug/L | 20.0 | ND | 104 | 80-121 | | | |
| o-Xylene | 10.4 | 0.20 | ug/L | 10.0 | ND | 104 | 80-121 | | | |
| Xylenes, total | 31.2 | 0.60 | ug/L | 30.0 | ND | 104 | 76-127 | | | |
| *Surrogate: 1,2-Dichloroethane-d4* | 5.23 | | ug/L | *5.00* | *5.00* | *105* | *80-129* | | | |
| *Surrogate: Toluene-d8* | 5.01 | | ug/L | *5.00* | *4.88* | *100* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 4.93 | | ug/L | *5.00* | *4.81* | *98.5* | *80-120* | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

**Analysis by: Analytical Resources, LLC**

## Volatile Organic Compounds - Quality Control

### Batch BJL0212 - EPA 5030C (Purge and Trap)

Instrument: NT2 Analyst: LH

| QC Sample/Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| **Matrix Spike Dup (BJL0212-MSD1)** | **Source: 21L0059-02** | | Prepared: 09-Dec-2021 Analyzed: 09-Dec-2021 20:01 | | | | | | | |
| Vinyl Chloride | 12.6 | 0.20 | ug/L | 10.0 | 1.17 | 114 | 66-133 | 5.15 | 30 | |
| 1,1-Dichloroethene | 11.7 | 0.20 | ug/L | 10.0 | ND | 117 | 69-135 | 5.78 | 30 | |
| trans-1,2-Dichloroethene | 10.8 | 0.20 | ug/L | 10.0 | ND | 107 | 78-128 | 5.63 | 30 | |
| cis-1,2-Dichloroethene | 11.9 | 0.20 | ug/L | 10.0 | 1.22 | 107 | 80-121 | 1.92 | 30 | |
| Benzene | 10.9 | 0.20 | ug/L | 10.0 | ND | 109 | 80-120 | 4.66 | 30 | |
| Trichloroethene | 11.0 | 0.20 | ug/L | 10.0 | 0.20 | 108 | 80-120 | 4.82 | 30 | |
| Toluene | 10.8 | 0.20 | ug/L | 10.0 | ND | 108 | 80-120 | 4.00 | 30 | |
| Tetrachloroethene | 10.6 | 0.20 | ug/L | 10.0 | ND | 106 | 80-120 | 5.33 | 30 | |
| Ethylbenzene | 11.0 | 0.20 | ug/L | 10.0 | ND | 110 | 80-120 | 5.46 | 30 | |
| m,p-Xylene | 21.9 | 0.40 | ug/L | 20.0 | ND | 110 | 80-121 | 5.23 | 30 | |
| o-Xylene | 10.9 | 0.20 | ug/L | 10.0 | ND | 109 | 80-121 | 4.86 | 30 | |
| Xylenes, total | 32.8 | 0.60 | ug/L | 30.0 | ND | 109 | 76-127 | 5.11 | 30 | |
| *Surrogate: 1,2-Dichloroethane-d4* | 5.15 | | ug/L | *5.00* | *5.00* | *103* | *80-129* | | | |
| *Surrogate: Toluene-d8* | 4.91 | | ug/L | *5.00* | *4.88* | *98.1* | *80-120* | | | |
| *Surrogate: 4-Bromofluorobenzene* | 4.90 | | ug/L | *5.00* | *4.81* | *98.1* | *80-120* | | | |

Recovery limits for target analytes in MS/MSD QC samples are advisory only.

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

## Certified Analyses included in this Report

| Analyte | Certifications |
|---|---|
| ***EPA 8260D in Water*** | |
| Chloromethane | DoD-ELAP,ADEC,NELAP,WADOE |
| Vinyl Chloride | DoD-ELAP,ADEC,NELAP,WADOE |
| Bromomethane | DoD-ELAP,ADEC,NELAP,WADOE |
| Chloroethane | DoD-ELAP,ADEC,NELAP,WADOE |
| Trichlorofluoromethane | DoD-ELAP,ADEC,NELAP,WADOE |
| Acrolein | DoD-ELAP,NELAP,WADOE |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | DoD-ELAP,ADEC,NELAP,WADOE |
| Acetone | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,1-Dichloroethene | DoD-ELAP,ADEC,NELAP,WADOE |
| Iodomethane | DoD-ELAP,NELAP,WADOE |
| Methylene Chloride | DoD-ELAP,ADEC,NELAP,WADOE |
| Acrylonitrile | DoD-ELAP,NELAP,WADOE |
| Carbon Disulfide | DoD-ELAP,NELAP,WADOE |
| trans-1,2-Dichloroethene | DoD-ELAP,ADEC,NELAP,WADOE |
| Vinyl Acetate | DoD-ELAP,NELAP,WADOE |
| 1,1-Dichloroethane | DoD-ELAP,ADEC,NELAP,WADOE |
| 2-Butanone | DoD-ELAP,NELAP,WADOE |
| 2,2-Dichloropropane | DoD-ELAP,ADEC,NELAP,WADOE |
| cis-1,2-Dichloroethene | DoD-ELAP,ADEC,NELAP,WADOE |
| Chloroform | DoD-ELAP,ADEC,NELAP,WADOE |
| Bromochloromethane | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,1,1-Trichloroethane | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,1-Dichloropropene | DoD-ELAP,ADEC,NELAP,WADOE |
| Carbon tetrachloride | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,2-Dichloroethane | DoD-ELAP,ADEC,NELAP,WADOE |
| Benzene | DoD-ELAP,ADEC,NELAP,WADOE |
| Trichloroethene | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,2-Dichloropropane | DoD-ELAP,ADEC,NELAP,WADOE |
| Bromodichloromethane | DoD-ELAP,ADEC,NELAP,WADOE |
| Dibromomethane | DoD-ELAP,ADEC,NELAP,WADOE |
| 2-Chloroethyl vinyl ether | DoD-ELAP,ADEC,NELAP,WADOE |
| 4-Methyl-2-Pentanone | DoD-ELAP,NELAP,WADOE |
| cis-1,3-Dichloropropene | DoD-ELAP,ADEC,NELAP,WADOE |
| Toluene | DoD-ELAP,ADEC,NELAP,WADOE |
| trans-1,3-Dichloropropene | DoD-ELAP,ADEC,NELAP,WADOE |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

| | |
|---|---|
| 2-Hexanone | DoD-ELAP,NELAP,WADOE |
| 1,1,2-Trichloroethane | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,3-Dichloropropane | DoD-ELAP,ADEC,NELAP,WADOE |
| Tetrachloroethene | DoD-ELAP,ADEC,NELAP,WADOE |
| Dibromochloromethane | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,2-Dibromoethane | DoD-ELAP,NELAP,WADOE |
| Chlorobenzene | DoD-ELAP,ADEC,NELAP,WADOE |
| Ethylbenzene | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,1,1,2-Tetrachloroethane | DoD-ELAP,ADEC,NELAP,WADOE |
| m,p-Xylene | DoD-ELAP,ADEC,NELAP,WADOE |
| o-Xylene | DoD-ELAP,ADEC,NELAP,WADOE |
| Styrene | DoD-ELAP,NELAP,WADOE |
| Bromoform | DoD-ELAP,NELAP,WADOE |
| 1,1,2,2-Tetrachloroethane | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,2,3-Trichloropropane | DoD-ELAP,ADEC,NELAP,WADOE |
| trans-1,4-Dichloro 2-Butene | DoD-ELAP,ADEC,NELAP,WADOE |
| n-Propylbenzene | DoD-ELAP,NELAP,WADOE |
| Bromobenzene | DoD-ELAP,NELAP,WADOE |
| Isopropyl Benzene | DoD-ELAP,NELAP,WADOE |
| 2-Chlorotoluene | DoD-ELAP,ADEC,NELAP,WADOE |
| 4-Chlorotoluene | DoD-ELAP,ADEC,NELAP,WADOE |
| t-Butylbenzene | DoD-ELAP,NELAP,WADOE |
| 1,3,5-Trimethylbenzene | DoD-ELAP,NELAP,WADOE |
| 1,2,4-Trimethylbenzene | DoD-ELAP,NELAP,WADOE |
| s-Butylbenzene | DoD-ELAP,NELAP,WADOE |
| 4-Isopropyl Toluene | DoD-ELAP,NELAP,WADOE |
| 1,3-Dichlorobenzene | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,4-Dichlorobenzene | DoD-ELAP,ADEC,NELAP,WADOE |
| n-Butylbenzene | DoD-ELAP,NELAP,WADOE |
| 1,2-Dichlorobenzene | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,2-Dibromo-3-chloropropane | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,2,4-Trichlorobenzene | DoD-ELAP,ADEC,NELAP,WADOE |
| Hexachloro-1,3-Butadiene | DoD-ELAP,ADEC,NELAP,WADOE |
| Naphthalene | DoD-ELAP,ADEC,NELAP,WADOE |
| 1,2,3-Trichlorobenzene | DoD-ELAP,ADEC,NELAP,WADOE |
| Dichlorodifluoromethane | DoD-ELAP,ADEC,NELAP,WADOE |
| Methyl tert-butyl Ether | DoD-ELAP,ADEC,NELAP,WADOE |
| n-Hexane | WADOE |
| 2-Pentanone | WADOE |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

| Code | Description | Number | Expires |
|---|---|---|---|
| ADEC | Alaska Dept of Environmental Conservation | 17-015 | 03/28/2023 |
| DoD-ELAP | DoD-Environmental Laboratory Accreditation Program | 66169 | 02/28/2022 |
| NELAP | ORELAP - Oregon Laboratory Accreditation Program | WA100006-012 | 05/12/2023 |
| WADOE | WA Dept of Ecology | C558 | 06/30/2022 |
| WA-DW | Ecology - Drinking Water | C558 | 06/30/2022 |

| | | |
|---|---|---|
| The Boeing Company | Project: Boeing Auburn 4Q 2021 Regional GWM | |
| PO Box 3703 MS 2R-96 | Project Number: 0025164.170.101 | **Reported:** |
| Seattle WA, 98124 | Project Manager: Jennifer Parsons | 09-Aug-2022 13:54 |

## Notes and Definitions

| | |
|---|---|
| E | The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL) |
| U | This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD). |
| DET | Analyte DETECTED |
| ND | Analyte NOT DETECTED at or above the reporting limit |
| NR | Not Reported |
| dry | Sample results reported on a dry weight basis |
| RPD | Relative Percent Difference |
| [2C] | Indicates this result was quantified on the second column on a dual column analysis. |

**Table 1-1**
**4Q2021 Groundwater Sampling Matrix**
**Boeing Auburn Facility**
**Auburn, Washington**

| Sample Location | Field Sample ID: | Sample Date: | Sample Type: | Laboratory SDG: | Laboratory Sample ID: | Select VOCs by SW-846 8260D/8260D-SIM (a) | BTEX by SW-846 8260D | TPH-G by NWTPH-Gx | TPH-D by NWTPH-Dx | Dissolved Metals by SW-846 6020A | Free Cyanide by ASTM D7237 (b) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AGW006R | AGW006R-20211202 | 12/2/2021 | PDN | 21L0074 | 21L0074-09 | X | | | | | |
| AGW010 | AGW010-20211201 | 12/1/2021 | N | 21L0056 | 21L0056-01 | | X | X | X | | |
| AGW010 | AGW900-20211201 | 12/1/2021 | FD | 21L0056 | 21L0056-02 | | X | X | X | | |
| AGW024 | AGW024-20211202 | 12/2/2021 | PDN | 21L0074 | 21L0074-02 | X | | | | | |
| AGW026 | AGW026-20211202 | 12/2/2021 | PDN | 21L0074 | 21L0074-03 | X | | | | | |
| AGW027 | AGW027-20211202 | 12/2/2021 | PDN | 21L0074 | 21L0074-05 | X | | | | | |
| AGW031R | AGW031R-20211202 | 12/2/2021 | PDN | 21L0074 | 21L0074-10 | X | | | | | |
| AGW032 | AGW032-20211201 | 12/1/2021 | PDN | 21L0048 | 21L0048-03 | X | | | | | |
| AGW033 | AGW033-20211203 | 12/3/2021 | PDN | 21L0079 | 21L0079-05 | X | | | | | |
| AGW049 | AGW049-20211201 | 12/1/2021 | N | 21L0048 | 21L0048-04 | | | | | X | |
| AGW049 | AGW049-NAOH-20211201 | 12/1/2021 | N | A1L0089 | A1L0089-01 | | | | | | X |
| AGW049 | AGW901-20211201 | 12/1/2021 | FD | 21L0048 | 21L0048-05 | | | | | X | |
| AGW049 | AGW901-NAOH-2021201 | 12/1/2021 | FD | A1L0089 | A1L0089-03 | | | | | | X |
| AGW050 | AGW050-20211201 | 12/1/2021 | N | 21L0048 | 21L0048-06 | | | | | X | |
| AGW050 | AGW050-NAOH-20211201 | 12/1/2021 | N | A1L0089 | A1L0089-05 | | | | | | X |
| AGW085 | AGW085-20211202 | 12/2/2021 | PDN | 21L0074 | 21L0074-06 | X | | | | | |
| AGW112R | AGW112R-20211202 | 12/2/2021 | PDN | 21L0074 | 21L0074-08 | X | | | | | |
| AGW128 | AGW128-20211203 | 12/3/2021 | N | 21L0080 | 21L0080-04 | | | | X | | |
| AGW129 | AGW129-20211202 | 12/2/2021 | PDN | 21L0074 | 21L0074-07 | X | | | | | |
| AGW130 | AGW130-20211202 | 12/2/2021 | N | 21L0074 | 21L0074-11 | | | | X | | |
| AGW131 | AGW131-20211201 | 12/1/2021 | PDN | 21L0048 | 21L0048-02 | X | | | | | |
| AGW135 | AGW135-20211203 | 12/3/2021 | PDN | 21L0079 | 21L0079-04 | X | | | | | |
| AGW136 | AGW136-20211203 | 12/3/2021 | PDN | 21L0080 | 21L0080-12 | X | | | | | |
| AGW140 | AGW140-20211202 | 12/2/2021 | PDN | 21L0072 | 21L0072-04 | X | | | | | |
| AGW157 | AGW157-20211202 | 12/2/2021 | PDN | 21L0072 | 21L0072-03 | X | | | | | |
| AGW159 | AGW159-20211203 | 12/3/2021 | PDN | 21L0080 | 21L0080-10 | X | | | | | |
| AGW160 | AGW160-20211203 | 12/3/2021 | PDN | 21L0080 | 21L0080-11 | X | | | | | |
| AGW164 | AGW164-20211202 | 12/2/2021 | PDN | 21L0074 | 21L0074-04 | X | | | | | |
| AGW170 | AGW170-20211203 | 12/3/2021 | PDN | 21L0080 | 21L0080-08 | X | | | | | |
| AGW171 | AGW171-20211203 | 12/3/2021 | PDN | 21L0080 | 21L0080-09 | X | | | | | |
| AGW175 | AGW175-20211201 | 12/1/2021 | N | 21L0053 | 21L0053-03 | X | | | | | |
| AGW179 | AGW179-20211203 | 12/3/2021 | PDN | 21L0080 | 21L0080-06 | X | | | | | |
| AGW180 | AGW180-20211203 | 12/3/2021 | PDN | 21L0080 | 21L0080-07 | X | | | | | |
| AGW181 | AGW181-20211202 | 12/2/2021 | PDN | 21L0072 | 21L0072-06 | X | | | | | |

**Table 1-1**
**4Q2021 Groundwater Sampling Matrix**
**Boeing Auburn Facility**
**Auburn, Washington**

| Sample Location | Field Sample ID: | Sample Date: | Sample Type: | Laboratory SDG: | Laboratory Sample ID: | Select VOCs by SW-846 8260D/8260D-SIM (a) | BTEX by SW-846 8260D | TPH-G by NWTPH-Gx | TPH-D by NWTPH-Dx | Dissolved Metals by SW-846 6020A | Free Cyanide by ASTM D7237 (b) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| AGW187 | AGW187-20211201 | 12/1/2021 | PDN | 21L0053 | 21L0053-04 | X | | | | | |
| AGW201-2 | AGW201-2-30-20211201 | 12/1/2021 | N | 21L0059 | 21L0059-03 | X | | | | | |
| AGW202-2 | AGW202-2-30-20211201 | 12/1/2021 | N | 21L0059 | 21L0059-04 | X | | | | | |
| AGW207-2 | AGW207-2-30-20211203 | 12/3/2021 | N | 21L0080 | 21L0080-05 | X | | | | | |
| AGW208-4 | AGW208-4-49-20211203 | 12/3/2021 | N | 21L0079 | 21L0079-03 | X | | | | | |
| AGW210-5 | AGW210-5-60-20211203 | 12/3/2021 | N | 21L0080 | 21L0080-02 | X | | | | | |
| AGW210-5 | AGW902-20211203 | 12/3/2021 | FD | 21L0080 | 21L0080-03 | X | | | | | |
| AGW210-6 | AGW210-6-80-20211203 | 12/3/2021 | N | 21L0079 | 21L0079-02 | X | | | | | |
| AGW212-5 | AGW212-5-30-20211201 | 12/1/2021 | N | 21L0053 | 21L0053-02 | X | | | | | |
| AGW231 | AGW231-20211202 | 12/2/2021 | PDN | 21L0072 | 21L0072-05 | X | | | | | |
| AGW235-4 | AGW235-4-39-20211202 | 12/2/2021 | N | 21L0072 | 21L0072-02 | X | | | | | |
| AGW239 | AGW239-20211202 | 12/2/2021 | N | 21L0072 | 21L0072-07 | X | | | | | |
| AGW239 | AGW903-20211202 | 12/2/2021 | FD | 21L0072 | 21L0072-08 | X | | | | | |
| AGW276-2 | AGW276-2-25-20211201 | 12/1/2021 | N | 21L0059 | 21L0059-02 | X | | | | | |
| AGW277 | AGW277-20211202 | 12/2/2021 | N | 21L0073 | 21L0073-02 | | | | X | | |
| AGW281 | AGW281-20211202 | 12/2/2021 | N | 21L0073 | 21L0073-04 | | | | X | | |
| AGW282 | AGW282-20211202 | 12/2/2021 | N | 21L0073 | 21L0073-03 | | | | X | | |

**Notes:**

(a) Select VOCs consist of 1,1-dichloroethene, cis-1,2-dichloroethene, tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, and vinyl chloride.

(b) Samples were analyzed for cyanide by Apex Laboratories; all other analytical methods were performed by Analytical Resources, Incorporated.

**Abbreviations/Acronyms:**

BTEX = benzene, toluene, ethylbenzene, and xylenes
EPA = US Environmental Protection Agency
FD = field duplicate
ID = identification
N = primary sample
NWTPH = Northwest Total Petroleum Hydrocarbon
PDN = passive diffusion primary sample
SDG = sample delivery group
SIM = selected ion monitoring
TPH-Dx = total petroleum hydrocarbons diesel range
TPH-Gx = total petroleum hydrocarbons gasoline range
VOC = volatile organic compound

# Table 1-2
## 4Q2021 Semiannual Groundwater Sampling Analytical Results
## Volatile Organic Compounds
## Boeing Auburn Facility
## Auburn, Washington

| Sample Location | Zone | Laboratory SDG | Sample Date | Sample Type | Select VOCs by SW-846 8260D/8260D SIM (µg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1,1-Dichloroethene | cis-1,2-Dichloroethene | Tetrachloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride |
| AGW006R | Shallow | 21L0074 | 12/2/2021 | PDN | 0.200 U | **0.821** | 0.200 U | 0.200 U | **0.352** | **0.108** |
| AGW024 | Shallow | 21L0074 | 12/2/2021 | PDN | 0.200 U | **1.02** | 0.200 U | 0.200 U | 0.200 U | **2.04** |
| AGW026 | Shallow | 21L0074 | 12/2/2021 | PDN | 0.200 U | **0.790** | 0.200 U | 0.200 U | **0.687** | **0.0691** |
| AGW027 | Shallow-WT | 21L0074 | 12/2/2021 | PDN | 0.200 U | **1.42** | 0.200 U | 0.200 U | **0.238** | **1.06** |
| AGW031R | Shallow | 21L0074 | 12/2/2021 | PDN | 0.200 U | **2.58** | 0.200 U | 0.200 U | **0.744** | **0.0311** |
| AGW032 | Shallow-WT | 21L0048 | 12/1/2021 | PDN | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | **0.0473** |
| AGW033 | Shallow-WT | 21L0079 | 12/3/2021 | PDN | 0.200 U | **0.438** | 0.200 U | 0.200 U | **0.429** | **0.0626** |
| AGW085 | Shallow-WT | 21L0074 | 12/2/2021 | PDN | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.0200 U |
| AGW112R | Shallow | 21L0074 | 12/2/2021 | PDN | 0.200 U | **0.329** | 0.200 U | 0.200 U | **0.968** | **0.0623** |
| AGW129 | Shallow-WT | 21L0074 | 12/2/2021 | PDN | 0.200 U | 0.200 U | **0.387** | 0.200 U | **0.290** | 0.0200 U |
| AGW131 | Shallow | 21L0048 | 12/1/2021 | PDN | 0.200 U | **1.37** | 0.200 U | 0.200 U | **0.215** | **5.84** |
| AGW135 | Shallow | 21L0079 | 12/3/2021 | PDN | 0.200 U | **0.390** | 0.200 U | 0.200 U | **0.978** | 0.0200 U |
| AGW136 | Shallow | 21L0080 | 12/3/2021 | PDN | 0.200 U | **1.88** | 0.200 U | 0.200 U | **2.64** | **0.0232** |
| AGW140 | Intermediate | 21L0072 | 12/2/2021 | PDN | 0.200 U | **2.53** | 0.200 U | **0.237** | **3.19** | **0.361** |
| AGW157 | Intermediate | 21L0072 | 12/2/2021 | PDN | 0.200 U | **2.68** | 0.200 U | 0.200 U | **0.397** | **0.387** |
| AGW159 | Deep | 21L0080 | 12/3/2021 | PDN | 0.200 U | **0.912** | 0.200 U | 0.200 U | **3.21** | **0.104** |
| AGW160 | Intermediate | 21L0080 | 12/3/2021 | PDN | 0.200 U | **0.380** | 0.200 U | 0.200 U | **2.40** | 0.0200 U |
| AGW164 | Intermediate | 21L0074 | 12/2/2021 | PDN | 0.200 U | **0.396** | 0.200 U | 0.200 U | **1.20** | **0.0820** |
| AGW170 | Intermediate | 21L0080 | 12/3/2021 | PDN | 0.200 U | **0.373** | 0.200 U | 0.200 U | **1.83** | 0.0200 U |
| AGW171 | Deep | 21L0080 | 12/3/2021 | PDN | 0.200 U | 0.200 U | 0.200 U | 0.200 U | **1.34** | 0.0200 U |
| AGW175 | Intermediate | 21L0053 | 12/1/2021 | N | 0.200 U | **0.331** | 0.200 U | 0.200 U | **1.31** | 0.0200 U |
| AGW179 | Intermediate | 21L0080 | 12/3/2021 | PDN | 0.200 U | **5.83** | 0.200 U | 0.200 U | 0.200 U | **0.711** |
| AGW180 | Deep | 21L0080 | 12/3/2021 | PDN | 0.200 U | **0.742** | 0.200 U | 0.200 U | **2.74** | **0.0209** |

# Table 1-2
## 4Q2021 Semiannual Groundwater Sampling Analytical Results
## Volatile Organic Compounds
## Boeing Auburn Facility
## Auburn, Washington

| Sample Location | Zone | Laboratory SDG | Sample Date | Sample Type | Select VOCs by SW-846 8260D/8260D SIM (µg/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | 1,1-Dichloroethene | cis-1,2-Dichloroethene | Tetrachloroethene | trans-1,2-Dichloroethene | Trichloroethene | Vinyl Chloride |
| AGW181 | Intermediate | 21L0072 | 12/2/2021 | PDN | 0.200 U | **1.94** | 0.200 U | 0.200 U | **2.75** | **0.0423** |
| AGW187 | Intermediate | 21L0053 | 12/1/2021 | PDN | 0.200 U | **0.211** | 0.200 U | 0.200 U | **1.28** | 0.0200 U |
| AGW201-2 | Shallow | 21L0059 | 12/1/2021 | N | 0.20 U | **1.53** | 0.20 U | 0.20 U | **0.26** | **1.84** |
| AGW202-2 | Shallow | 21L0059 | 12/1/2021 | N | 0.20 U | **2.10** | 0.20 U | 0.20 U | **0.97** | **0.94** |
| AGW207-2 | Shallow | 21L0080 | 12/3/2021 | N | 0.200 U | **4.78** | 0.200 U | 0.200 U | **3.19** | **0.154** |
| AGW208-4 | Intermediate | 21L0079 | 12/3/2021 | N | 0.200 U | **2.01** | 0.200 U | 0.200 U | **1.86** | **0.0456** |
| AGW210-5 | Intermediate | 21L0080 | 12/3/2021 | N | 0.200 U | **1.68** | 0.200 U | 0.200 U | **0.774** | **0.0922** |
| AGW210-5 | Intermediate | 21L0080 | 12/3/2021 | FD | 0.200 U | **1.69** | 0.200 U | 0.200 U | **0.794** | **0.0951** |
| AGW210-6 | Deep | 21L0079 | 12/3/2021 | N | 0.200 U | **0.257** | 0.200 U | 0.200 U | **3.01** | 0.0200 U |
| AGW212-5 | Intermediate | 21L0053 | 12/1/2021 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | **1.14** | 0.0200 U |
| AGW231 | Shallow | 21L0072 | 12/2/2021 | PDN | 0.200 U | **1.90** | 0.200 U | 0.200 U | 0.200 U | **1.04** |
| AGW235-4 | Intermediate | 21L0072 | 12/2/2021 | N | 0.200 U | **12.1** | 0.200 U | 0.200 U | **1.14** | **0.142** |
| AGW239 | Shallow | 21L0072 | 12/2/2021 | N | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | **0.145** |
| AGW239 | Shallow | 21L0072 | 12/2/2021 | FD | 0.200 U | 0.200 U | 0.200 U | 0.200 U | 0.200 U | **0.150** |
| AGW276-2 | Off-Shallow | 21L0059 | 12/1/2021 | N | 0.20 U | **1.22** | 0.20 U | 0.20 U | **0.20** | **1.17** |

**Notes:**

**Bold** text indicates detected analyte.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.

U = The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.

**Abbreviations/Acronyms:**

EPA = US Environmental Protection Agency
FD = field duplicate
µg/L = micrograms per liter
N = primary sample
PDN = passive diffusion primary sample
SDG = sample delivery group
SIM = selected ion monitoring
VOCs = volatile organic compounds
WT = water table

**Table 1-3**
**4Q2021 Semiannual Groundwater Sampling Analytical Results**
**BTEX, Petroleum Hydrocarbons, Dissolved Metals, and Cyanide**
**Boeing Auburn Facility**
**Auburn, Washington**

| Sample Location | Zone | Laboratory SDG | Sample Date | Sample Type | BTEX by SW-846 8260D (µg/L) | | | | | | Petroleum Hydrocarbons by NWTPH-Gx/Dx (mg/L) | | | Dissolved Metals by SW-846 6020B (mg/L) | | | Cyanide by ASTM D7237-10 (mg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Benzene | Toluene | Ethylbenzene | m,p-Xylene | o-Xylene | Total Xylenes | Gasoline Range Organics (C7-C12) | Diesel Range Organics (C12-C24) | Oil Range Organics (C24-C40) | Cadmium | Copper | Nickel | Free Cyanide |
| AGW010 | Shallow-WT | 21L0056 | 12/1/2021 | N | **0.76** | **2.23** | **323** | **98.4** | **13.5** | **112 J** | **16.9** | **0.281 J** | 0.200 U | -- | -- | -- | -- |
| AGW010 | Shallow-WT | 21L0056 | 12/1/2021 | FD | **0.75** | **2.19** | **305** | **94.8** | **13.1** | **108 J** | **14.9** | **0.286 J** | 0.200 U | -- | -- | -- | -- |
| AGW049 | Shallow | 21L0048/A1L0089 | 12/1/2021 | N | -- | -- | -- | -- | -- | -- | -- | -- | -- | **0.0136** | **0.0977** | **0.0152** | 0.00500 U |
| AGW049 | Shallow | 21L0048/A1L0089 | 12/1/2021 | FD | -- | -- | -- | -- | -- | -- | -- | **--** | -- | **0.0137** | **0.108** | **0.0161** | 0.00500 U |
| AGW050 | Shallow | 21L0048/A1L0089 | 12/1/2021 | N | -- | -- | -- | -- | -- | -- | -- | -- | -- | **0.00856** | **--** | **0.0108** | 0.00500 U |
| AGW128 | Shallow-WT | 21L0080 | 12/3/2021 | N | -- | -- | -- | -- | -- | -- | -- | **0.675 J** | **3.75** | **--** | **--** | **--** | -- |
| AGW130 | Shallow-WT | 21L0074 | 12/2/2021 | N | -- | -- | -- | -- | -- | -- | -- | 0.100 UJ | 0.200 U | **--** | **--** | **--** | -- |
| AGW277 | Shallow-WT | 21L0073 | 12/2/2021 | N | -- | -- | -- | -- | -- | -- | -- | 0.100 UJ | 0.200 U | **--** | -- | **--** | **--** |
| AGW281 | Shallow-WT | 21L0073 | 12/2/2021 | N | -- | -- | -- | -- | -- | -- | -- | 0.100 UJ | 0.200 U | **--** | -- | -- | **--** |
| AGW282 | Shallow-WT | 21L0073 | 12/2/2021 | N | -- | -- | -- | -- | -- | -- | -- | 0.100 UJ | 0.200 U | -- | -- | -- | -- |

**Notes:**

**Bold** text indicates detected analyte.

J = The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample

U = The analyte was analyzed for but was not detected above the level of the reported sample quantitation limit.

UJ = The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

**Abbreviations/Acronyms:**

BTEX = benzene, toluene, ethylbenzene, and xylenes

FD = field duplicate

µg/L = micrograms per liter

mg/L = milligrams per liter

-- = not analyzed

N = primary sample

NWTPH = Northwest Total Petroleum Hydrocarbon

SDG = sample delivery group

WT = water table