

Memorandum

To: Sunny Becker and Bonnie Brooks, Washington State Department of Ecology
Copies: Scott Adamek and Ryan Roberts, City of Bothell
From: Gabe Cisneros and Danielle Gallaher, Floyd|Snider
Date: July 16, 2025
Project No: COB-OnCall 2717
Re: Vapor Intrusion Assessment

This technical memorandum presents a summary and additional comments of the vapor intrusion (VI) assessment completed at the City of Bothell's Bothell Service Center (BSC) Simon & Son Site (Site; Cleanup Site ID No. 427) located at 9911 Main Street, formerly identified as 18107 Bothell Way NE in Bothell, Washington (Figure 1). The VI assessment was conducted in accordance with Consent Decree No. 18-2-02852-3 SEA. Indoor air and soil gas sampling was conducted by Terracon Consultants, Inc (Terracon) on behalf of the owner, Trammell Crow, and completed in accordance with a Washington State Department of Ecology (Ecology)-approved VI Work Plan (2024 Work Plan; Terracon 2024). The indoor air and soil gas sampling was performed at the Alexan Main Street Apartments (Alexan Multi-Use) in November 2024 prior to being occupied. Sampling details and results are included in Terracon's Indoor Air and Soil Gas Sampling Report, which is included as Attachment 1. The following sections provide additional comments on VI risk evaluation, conclusions, and next steps.

BACKGROUND

The property containing the source of contamination was previously owned by Bothell Service Center Associates. The Site was once three separate parcels that included the following:

- A former dry cleaning facility, BSC, located in the northwestern portion of the Site
- A former gasoline station and automotive repair facility, Al's Auto Bothell Wexler, in the northeastern portion of the Site
- A former automotive repair facility, Bothell Former Hertz/AARenco/AA Rentals of Bothell Inc., in the southern portion of the Site

All three former parcels are currently located within one city block (Bothell Lot D) that consists of one parcel (King County Tax Parcel No. 945720-0050) totaling approximately 2.6 acres. Prior to 2016, several environmental investigations were completed and interim actions were taken to address high tetrachloroethene concentrations at the Site.

Since 2016, several remedial actions have been implemented, including a thermal and soil vapor extraction system in 2018 and a groundwater bioremediation and recirculation system that commenced in 2020. Although soil above the water table has been remediated, the Site contaminants of concern (COCs), including total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene, total xylenes, and naphthalene (BTEXN); chlorinated VOCs (CVOCs); and arsenic remain in groundwater at concentrations exceeding cleanup levels (CULs).

New Alexan Multi-Use Building Construction and Vapor Barrier

The redevelopment of the Site into Alexan Multi-Use (began in 2022 and was substantially completed in 2024). Alexan Multi-Use is a six-story apartment building with residential and commercial spaces. The first level of the building consists of a parking garage on the interior, residential apartments along 98th Avenue and Main Street and commercial space along Bothell Way NE and SR 522. During the construction of the foundation and vapor barrier of the building, groundwater bioremediation treatment system operation was briefly paused to bury all treatment system piping between the injection and extraction wells and the treatment system. The bioremediation treatment system shed is now located in the northwest corner of the garage level contained within a fenced-off area consisting of three parking spaces. Figure 2 is a Site map that shows the building footprint, layout, and the monitoring, injection, and extraction wells.

In accordance with the restrictions and requirements outlined in the environmental covenant (EC) implemented for the property, and as part of the redevelopment of the Site, Terracon oversaw the installation of a VI mitigation system that includes subgrade vent piping and two vapor membranes rated to mitigate vapor intrusion of CVOCs in either passive or active modes.

POST-CONSTRUCTION VAPOR INTRUSION ASSESSMENT SAMPLING

Terracon conducted an indoor air building survey, indoor air/ambient air sampling, and subslab soil vapor sampling within the Alexan Multi-Use building in November 2024, after construction on the building was almost completed. Attachment 1 is Terracon's report that describes the sampling protocols and data interpretation in detail. The following sections summarize Terracon's findings.

Indoor Air Building Survey

On November 22, 2024, Terracon field personnel visited the Alexan Multi-Use building to assess potential sources of indoor air chemicals of concern. The following potential sources were identified: adhesives, paints, spray-on wall texture, spackling, and deodorizers. Terracon personnel noted that some of these materials were actively in use during the site visit and sampling event (Attachment 1).

Indoor Air Sampling

On November 25, 2024, five 24-hour indoor air samplers (Summa[®] canisters) were placed by Terracon at locations IA1 through IA6. Samplers were retrieved the following day after a 24-hour period. Indoor air sampling was conducted concurrently with ambient air background sampling.

A site map with the sample locations relative to the VI mitigation system is included in Attachment 1 as Exhibit 2, and a photo log of the sample locations is included in Appendix C. Refer to the Terracon report for further details (Attachment 1).

Ambient Air Background Sampling

Five ambient air background samples were collected by Terracon concurrently with the indoor air samples for the same 24-hour period. Summa samplers were deployed at background locations BA1 through BA 5. Four background samplers were placed on the roof within the immediate vicinity to the heating, ventilating, and air-conditioning intake system, and a fifth background sampler was placed along the property boundary at an appropriate upwind location. Attachment 1 includes a site map with the background air sample locations included as Exhibit 3 of Appendix A, and a photo log of the sample locations is included in Appendix C. Refer to the Terracon report for further details (Attachment 1).

Subslab Soil Vapor Sampling

Subslab soil vapor samples were collected by Terracon on November 26, 2024, immediately following the indoor air and ambient background sampling. Subslab soil vapor samples were collected from permanent soil-gas vapor monitoring points (VMPs): VMP3, VMP5, VMP7, VMP8, and VMP11. Refer to the Terracon report for further details (Attachment 1).

SUMMARY OF RESULTS

Field observations of weather during the sampling period and laboratory analytical results are presented in the Terracon report (Attachment 1), which are briefly summarized below.

Weather Conditions

The atmospheric barometric pressure data collected by the National Weather Service (Everett Paine Field, Washington Station SainLogic WS0310/Station ID KWAEVERE321) are presented in Attachment 2. These data tables and plots present the pressure differential (in inches of water) and barometric pressure during the monitoring period. During the sampling event, there was less than 0.01 inches of rain and atmospheric pressure slightly rose from 29.29 to 29.50 inches.

Analytical Data

Samples were analyzed by Friedman & Bruya Inc. for Terracon for the targeted list of CVOCs specified in the 2024 Work Plan, volatile compounds by Method MA air-phase hydrocarbons, and BTEXN. Results for analytes in indoor and background ambient air samples are presented in Table 1 of Attachment 1, and results for analytes in subslab soil vapor are presented in Table 2 of Attachment 1. The laboratory analytical reports are provided in Attachment 1.

In the original analytical laboratory report, TPH detections in the indoor air samples and subslab soil gas samples were flagged by the analytical laboratory and qualified as not indicative of a common petroleum product. Specifically, the chromatograms were reviewed by a lab technician and the observed TPH patterns were determined to be not consistent with TPH chromatogram standards. As a result, the lab recommended reprocessing the data for soil gas samples VMP7, VMP8, and VMP11 and for indoor air samples IA1 and IA6. Based on this recommendation, Terracon had the laboratory reprocess the data. Refer to the Terracon report in Attachment 1 for details. Table 1 presents both the original and reprocessed results for IA1 and IA6. The chromatograms are included as Attachment 3.

The reprocessed laboratory results for the indoor air samples indicate that total TPH concentrations were less than the indoor air cleanup for all indoor air locations. The average background concentration for total TPH was subtracted from the total TPH concentrations for IA2 through IA5. Note that the average background concentrations for total TPH were not subtracted from the reprocessed indoor air samples IA1 and IA6 because the background samples were not reprocessed.

Of most importance to the ongoing cleanup of the Site, all CVOC results were either less than their respective laboratory reporting limits or less than their respective CULs, which indicate that CVOCs present in groundwater and soil beneath the property are not an indoor air risk to occupants. Naphthalene results for IA1 and IA6 were at concentrations greater than the indoor air CUL (Table 1 of Attachment 1). However, the background ambient air results for all locations show detections of total TPH, naphthalene, and benzene concentrations greater than their respective indoor air CULs. These results, in addition to naphthalene not being detected in the subslab samples at concentrations greater than the laboratory detection limit (as detailed in the next paragraph), indicate that naphthalene concentrations detected in the indoor air samples are from background sources, not from subsurface soil gas related to the Site.

A summary of the subslab soil gas results indicate that the only location with total TPH detections (reprocessed) was at VMP7 but at a concentration less than the screening level (SL) of 1,500 micrograms per cubic meter. All VOC and CVOC detections were less than their respective SLs. Only one location contained a CVOC detection of trichloroethene (TCE), but less than both the residential SL and short-term VI SL for TCE, indicating that there is no VI risk to occupants or women of childbearing age. Furthermore, there were no detections of benzene or naphthalene in any of the subslab vapor points, indicating that the benzene and naphthalene detections in the indoor air samples were likely from ambient air and not VI from the subsurface.

VI Individual Chemical and Additive Hazard Risk Evaluation

This section summarizes the results of a risk evaluation following the protocol detailed in the draft Ecology guidance Vapor Intrusion: Individual Chemical and Additive Hazard and Risk (Ecology 2025a), provided as Attachment 4.

The Ecology protocol uses indoor air results to calculate cancer and noncancer risk ratios for each key VI analyte at each sampling location. The results of each evaluation are summarized below and presented in Table 1.

Background Correction

The average background concentrations from the sampling event are shown in Table 1. As described in the draft Ecology guidance, it is acceptable to subtract ambient background concentrations from sample results if subsurface vapor results are non-detect and the background readings were gathered contemporaneously with the other ambient air samples. Therefore, the ambient air analytical results at each monitoring location are presented in Table 1, with both the actual detections and the background-corrected values.

Individual Chemical Noncancer Hazard and Additive Chemical Hazard

The non-cancer hazard posed by individual chemicals is evaluated by calculating hazard quotients (HQs) for each chemical. HQs are calculated by comparing the background-corrected analytical results to the applicable Method B Indoor Air CUL protective of noncancer risk. The total TPH results for indoor air sample locations IA1 and IA6 were not corrected for background contributions because the TPH results were re-processed; however, the VOC results for IA1 and IA6 were corrected for background because those results were not re-processed. Each HQ is compared to the acceptable non-cancer human risk level of 1. If the HQ exceeds 1, the chemical may cause adverse effects to humans. The additive noncancer risk is calculated by evaluating the risk posed by each chemical to individual human organ/system. The HQ ratios impacting each system/organ are summed to calculate a hazard index (HI) for that system/organ, which is then compared to a risk level of 1.

Table 1 contains a summary of the HQs and HIs for each chemical and impacted human system/organ (Ecology 2025b). The VI chemicals analyzed at the Site do not pose individual or cumulative noncancer risks to humans.

Excess Lifetime Cancer Risk and Additive Excess Lifetime Cancer Risk

Ecology's draft guidance (included as Attachment 4) provides two different cancer risks: one for individual chemicals that is the more stringent of the two and one accumulative risk for all chemicals that is less stringent. The more stringent risk, excess lifetime cancer risk (ELCR) ratios, are calculated by comparing the background-corrected analytical results to the applicable Method B Indoor Air CUL protective of cancer risk. The resulting ELCR ratios are compared individually to a human risk level of 1E-06 (or a 1 in 1 million probability). If the ELCR ratio exceeds the acceptable risk level, the chemical poses an unacceptable cancer risk at that location. To calculate the less-stringent cumulative risk posed by VI chemicals at each location, the ELCR ratios are summed to generate an additive ELCR (AELCR) ratio. AELCR ratios are compared to a risk level of 1E-05 (or a 1 in 100,000 probability). If the AELCR ratio exceeds the risk level, the cumulative impacts from detected VI chemicals pose an unacceptable cancer risk at that location. An ELCR

ratio for an individual chemical may exceed the acceptable risk threshold individually, but not cumulatively, due to the higher risk threshold for AELCR ratios.

Table 1 contains a summary of the ELCR ratios for the average background concentrations and each VI sampling location. The average background concentration ELCR ratios exceed the acceptable cancer risk level of $1E-06$ for benzene and naphthalene. Additionally, the ELCR ratio for naphthalene at IA1 and IA6 exceed the acceptable risk level. However, the cumulative AELCR ratios do not exceed the acceptable cancer risk level at any location.

CONCLUSIONS AND RECOMMENDATIONS

In accordance with the requirements outlined in the EC implemented for the property and in accordance with the Cleanup Action Plan, a total of two rounds of indoor air sampling will be conducted. The first was conducted immediately at post-construction and pre-occupancy, and the second will be completed prior to the completion of the groundwater closure report. The first round was collected during the wetter winter season and the second round is tentatively scheduled to be performed by Trammell Crow and Terracon in August 2025, during the drier summer season.

There were no TPH, VOC, or CVOC SL exceedances in the subslab soil gas samples. In addition, there were no benzene or naphthalene detections in the subslab samples, which indicate that the benzene and naphthalene detections in the indoor air and ambient air background samples were not from subsurface soil gas.

The individual chemical and additive hazard and risk were evaluated using the results each indoor air sampling location. The HI and HQ calculations for noncancer risk showed that there is unlikely to be a risk posed by VI chemicals to human organs/systems.

The average ambient air background results for benzene and naphthalene yielded exceedances of the Method B CULs protective of cancer risks. The average background concentrations yielded ELCR ratios greater than the acceptable risk threshold for cancer risks; however, the AELCR for the average background location does not exceed the risk threshold.

Indoor air results from the first sampling event show that total TPH, BTEX, and CVOC concentrations are less than MTCA Method B CULs for residential exposure; however, naphthalene concentrations at IA1 and IA6 locations exceed the indoor air CUL for residents. ELCR calculations for benzene at all indoor air sample locations show that there is not a potential cancer risk to human receptors. The ELCR calculations for naphthalene at indoor air sample locations IA1 and IA6 show there is a potential cancer risk to human receptors; however, the AECLR results show there is unlikely to be cumulative risk for lifetime exposure to cancer-causing contaminants at these locations. Because there were no naphthalene detections in the subsurface soil gas, the elevated naphthalene concentrations at these indoor air locations are likely a result of the remaining building construction that was being performed at the time of the

sampling events. During the building survey, adhesives, paint, spackling, and other materials were in use.

The first round of subslab, indoor air, and ambient air sampling at the Site indicates that there is unlikely to be a VI risk to residential human receptors in the building from subsurface soil gas.

REFERENCES

Terracon. 2024. *Indoor Air and Soil Gas Sampling Work Plan, 9911 Main Street, Bothell, Washington*. Prepared for Maple Multi-Family Land TX L.P. 26 August.

Washington State Department of Ecology (Ecology). 2022. *Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action*. March.

_____. 2025a. *Draft Vapor Intrusion: Individual Chemical and Additive Hazard and Risk Guidance*. Email Draft Guidance from Bonnie Brooks, Washington State Department of Ecology. 10 February.

_____. 2025b. *Cleanup Levels and Risk Calculation (CLARC) Tables*. February.

LIST OF ATTACHMENTS

Table 1 Individual Chemical and Additive Hazards and Risks

Figure 1 Vicinity Map

Figure 2 Site Map

Attachment 1 Terracon's Draft Indoor Air and Soil Gas Sampling Report

Attachment 2 Weather Plots and Data Tables

Attachment 3 Lab Chromatograms

Attachment 4 Draft: VI Individual Chemical and Additive Hazard Risk Evaluation

Table

Table 1
Individual Chemical and Additive Hazards and Risks ⁽¹⁾

| Chemical | Impacted Organ/System ⁽³⁾ | Indoor Air CUL Noncancer (Method B) (µg/m ³) | Indoor Air CUL Cancer (Method B) (µg/m ³) | Average Site Background (µg/m ³) | Average Background | | | | IA1 ⁽²⁾ | | | | | |
|-------------------------------------|--------------------------------------|--|---|--|--|----------------|------------------------------|----------|--|---|----------------|------------------------------|----------|----------|
| | | | | | Actual Detections (µg/m ³) | HQ (Noncancer) | HI for Impacted Organ/System | ELCR | Actual Detections (µg/m ³) | Result Adjusted for Background (µg/m ³) | HQ (Noncancer) | HI for Impacted Organ/System | ELCR | |
| APH EC5-8 aliphatics ⁽⁴⁾ | NA | 2,740 | NA | 87.6 | 88 | 0.0320 | NA | NA | 38 U | NA ⁽⁵⁾ U | 0.0137 | NA | NA | |
| APH EC9-10 aromatics ⁽⁶⁾ | NA | 182 | NA | 0.00 | 0 | 0.0000 | NA | NA | 22 | NA ⁽⁵⁾ | 0.1214 | NA | NA | |
| APH EC9-12 aliphatics | NA | 46 | NA | 33.8 | 33.8 | 0.7380 | NA | NA | 13 U | NA ⁽⁵⁾ U | 0.2729 | NA | NA | |
| Benzene | Immune System | 13.71 | 0.321 | 0.50 | 0.5 | 0.0365 | 0.0365 | 1.56E-06 | 0.59 | 0.09 | 0.0066 | 0.0066 | 2.81E-07 | |
| Toluene ⁽⁵⁾ | Urinary | 2,286 | NA | 0.00 | 0 | 0.0000 | 0.0000 | NA | 3.8 U | 0.00 U | 0.0000 | 0.0000 | NA | |
| Ethylbenzene | Liver | 457.14 | NA | 0.00 | 0 | 0.0000 | 0.0000 | NA | 0.67 | 0.67 | 0.0015 | 0.0015 | NA | |
| | Kidney | | | | | | 0.0000 | | | | | 0.0015 | | |
| Total Xylenes | Other | 45.71 | NA | 1.38 | 1.38 | 0.0302 | 0.1425 | NA | 3.2 | 1.9 | 0.0405 | 0.1032 | NA | |
| Naphthalene | Other | 1.37 | 0.074 | 0.154 | 0.15 | 0.1123 | | 2.09E-06 | 0.24 | 0.086 | 0.0627 | | 1.17E-06 | |
| | | | | | AELCR | | | 3.65E-06 | AELCR | | | | | 1.45E-06 |

Notes:

- All chemistry results are rounded to two significant figures.
- Zero was used if a negative value was calculated when adjusting results for background.
- Background samples and primary samples were collected concurrently on November 25, 2024, over a 24-hour time period.
- Italic* The result was less than the laboratory detection limit; therefore, a value equal to half the detection limit was used.
- Hazard quotient or hazard index greater than 1; ELCR greater than 1E-6; AELCR greater than 1E-5, adverse effects to humans are likely.
- Hazard quotient or hazard index less than 1; ELCR less than 1E-6; AELCR less than 1E-5, adverse effects to humans are not likely.
- 1 All data provided by Terracon's Indoor Air and Soil Gas Sampling Report dated 4/30/2025
- 2 Air-phase petroleum hydrocarbon background concentrations were not subtracted from results because the results were reprocessed to remove nonpetrogenic compounds and because background results were not reprocessed using similar methods.
- 3 Noncancer Effects table within Cleanup Levels and Risk Calculation (CLARC; Ecology 2025b)
- 4 Hexane subtracted from result.
- 5 Ethylbenzene and xylene subtracted from result.
- 6 Toluene was not detected in any sample; therefore, 0 value was used.

Abbreviations:

- AELCR Additive excess lifetime cancer risk
- CUL Cleanup level
- ELCR Excess lifetime cancer risk
- HI Hazard Index
- HQ Hazard Quotient
- µg/m³ Micrograms per cubic meter
- NA Not applicable

Qualifier:

- U Analyte was not detected at the associated reporting limit.

Table 1
Individual Chemical and Additive Hazards and Risks ⁽¹⁾

| Chemical | Impacted Organ/System ⁽³⁾ | Indoor Air CUL Noncancer (Method B) (µg/m ³) | Indoor Air CUL Cancer (Method B) (µg/m ³) | IA2 | | | | | IA3 | | | | | | |
|-------------------------------------|--------------------------------------|--|---|--|---|----------------|------------------------------|----------|--|---|----------------|------------------------------|----------|--|----------|
| | | | | Actual Detections (µg/m ³) | Result Adjusted for Background (µg/m ³) | HQ (Noncancer) | HI for Impacted Organ/System | ELCR | Actual Detections (µg/m ³) | Result Adjusted for Background (µg/m ³) | HQ (Noncancer) | HI for Impacted Organ/System | ELCR | | |
| APH EC5-8 aliphatics ⁽⁴⁾ | NA | 2,740 | NA | 83 | 0.00 | 0.0000 | NA | NA | 100 | 12 | 0.0045 | NA | NA | | |
| APH EC9-10 aromatics ⁽⁶⁾ | NA | 182 | NA | 13 U | 0.00 U | 0.0000 | NA | NA | 13 U | 0 U | 0.0000 | NA | NA | | |
| APH EC9-12 aliphatics | NA | 46 | NA | 26 | 0.00 | 0.0000 | NA | NA | 13 U | 0 U | 0.0000 | NA | NA | | |
| Benzene | Immune System | 13.71 | 0.321 | 0.73 | 0.23 | 0.0168 | 0.0168 | 7.18E-07 | 0.79 | 0.29 | 0.0211 | 0.0211 | 9.05E-07 | | |
| Toluene ⁽⁵⁾ | Urinary | 2,286 | NA | 3.8 U | 0.00 U | 0.0000 | 0.0000 | NA | 3.8 U | 0 U | 0.0000 | 0.0000 | NA | | |
| Ethylbenzene | Liver | 457.14 | NA | 0.22 U | 0.22 U | 0.0005 | 0.0005 | NA | 0.44 | 0.44 | 0.0010 | 0.0010 | NA | | |
| | Kidney | | | | | | 0.0005 | | | | | 0.0010 | | | |
| Total Xylenes | Other | 45.71 | NA | 1.2 | 0.00 | 0.0000 | 0.0000 | NA | 2.1 | 0.8 | 0.0164 | 0.0164 | NA | | |
| Naphthalene | Other | 1.37 | 0.074 | 0.073 | 0.00 | 0.0000 | | 0.00E+00 | 0.15 | 0 | 0.0000 | | 0.00E+00 | | |
| | | | | AELCR | | | | | 7.18E-07 | AELCR | | | | | 9.05E-07 |

Notes:

- All chemistry results are rounded to two significant figures.
- Zero was used if a negative value was calculated when adjusting results for background.
- Background samples and primary samples were collected concurrently on November 25, 2024, over a 24-hour time period.
- Italic* The result was less than the laboratory detection limit; therefore, a value equal to half the detection limit was used.
- Hazard quotient or hazard index greater than 1; ELCR greater than 1E-6; AELCR greater than 1E-5, adverse effects to humans are likely.
- Hazard quotient or hazard index less than 1; ELCR less than 1E-6; AELCR less than 1E-5, adverse effects to humans are not likely.

- 1 All data provided by Terracon's Indoor Air and Soil Gas Sampling Report dated 4/30/2025
- 2 Air-phase petroleum hydrocarbon background concentrations were not subtracted from results because the results were reprocessed to remove nonpetrogenic compounds and because background results were not reprocessed using similar methods.
- 3 Noncancer Effects table within Cleanup Levels and Risk Calculation (CLARC; Ecology 2025b)
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- NA Not applicable

Qualifier:

- U Analyte was not detected at the associated reporting limit.

Table 1
Individual Chemical and Additive Hazards and Risks ⁽¹⁾

| | Impacted Organ/System ⁽³⁾ | Indoor Air CUL Noncancer (Method B) (µg/m ³) | Indoor Air CUL Cancer (Method B) (µg/m ³) | IA4 | | | | | IA5 | | | | | IA6 ⁽²⁾ | | | | | | | |
|-------------------------------------|---|---|--|--|--|-------------------|---------------------------------|----------|--|--|-------------------|---------------------------------|----------|--|--|-------------------|---------------------------------|----------|--|--|----------|
| | | | | Actual Detections (µg/m ³) | Result Adjusted for Background (µg/m ³) | HQ (Noncancer) | HI for Impacted Organ/System | ELCR | Actual Detections (µg/m ³) | Result Adjusted for Background (µg/m ³) | HQ (Noncancer) | HI for Impacted Organ/System | ELCR | Actual Detections (µg/m ³) | Result Adjusted for Background (µg/m ³) | HQ (Noncancer) | HI for Impacted Organ/System | ELCR | | | |
| Chemical | | | | | | | | | | | | | | | | | | | | | |
| APH EC5-8 aliphatics ⁽⁴⁾ | NA | 2,740 | NA | 38 <i>U</i> | 0 U | 0.0000 | NA | NA | 100 | 12 | 0.0045 | NA | NA | 38 <i>U</i> | NA ⁽⁴⁾ U | 0.0137 | NA | NA | | | |
| APH EC9-10 aromatics ⁽⁶⁾ | NA | 182 | NA | 13 <i>U</i> | 0 U | 0.0000 | NA | NA | 13 <i>U</i> | 0 U | 0.0000 | NA | NA | 28 | NA ⁽⁴⁾ | 0.1525 | NA | NA | | | |
| APH EC9-12 aliphatics | NA | 46 | NA | 26 | 0 | 0.0000 | NA | NA | 39 | 5.2 | 0.1135 | NA | NA | 13 <i>U</i> | NA ⁽⁴⁾ U | 0.2729 | NA | NA | | | |
| Benzene | Immune System | 13.71 | 0.321 | 0.59 | 0.09 | 0.0066 | 0.0066 | 2.81E-07 | 0.57 | 0.070 | 0.0051 | 0.0051 | 2.18E-07 | 0.58 | 0.08 | 0.0058 | 0.0058 | 2.50E-07 | | | |
| Toluene ⁽⁵⁾ | Urinary | 2,286 | NA | 3.8 <i>U</i> | 0 U | 0.0000 | 0.0000 | NA | 3.8 <i>U</i> | 0 U | 0.0000 | 0.0000 | NA | 3.8 <i>U</i> | 3.8 U | 0.0016 | 0.0016 | NA | | | |
| Ethylbenzene | Liver | 457.14 | NA | 0.55 | 0.55 | 0.0012 | 0.0012 | NA | 0.22 <i>U</i> | 0.22 U | 0.0005 | 0.0005 | NA | 0.64 | 0.64 | 0.0014 | 0.0014 | NA | | | |
| | Kidney | | | | | | 0.0012 | | | | | 0.0005 | | | | | 0.0014 | | | | |
| Total Xylenes | Other | 45.71 | NA | 3.2 | 1.9 | 0.0405 | 0.0813 | NA | 2.1 | 0.7 | 0.0149 | 0.0484 | NA | 3.6 | 2.2 | 0.0486 | 0.2425 | NA | | | |
| Naphthalene | Other | 1.37 | 0.074 | 0.21 | 0.056 | 0.0408 | | 7.62E-07 | 0.2 | 0.046 | 0.0335 | | 6.26E-07 | 0.42 | 0.27 | 0.1940 | | 3.62E-06 | | | |
| | | | | AELCR | | | | | 1.04E-06 | AELCR | | | | | 8.44E-07 | AELCR | | | | | 3.87E-06 |

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- Hazard quotient or hazard index less than 1; ELCR less than 1E-6; AELCR less than 1E-5, adverse effects to humans are not likely.

- 1 All data provided by Terracon's Indoor Air and Soil Gas Sampling Report dated 4/30/2025
- 2 Air-phase petroleum hydrocarbon background concentrations were not subtracted from results because the results were reprocessed to remove nonpetrogenic compounds and because background results were not reprocessed using similar methods.
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- 4 Hexane subtracted from result.
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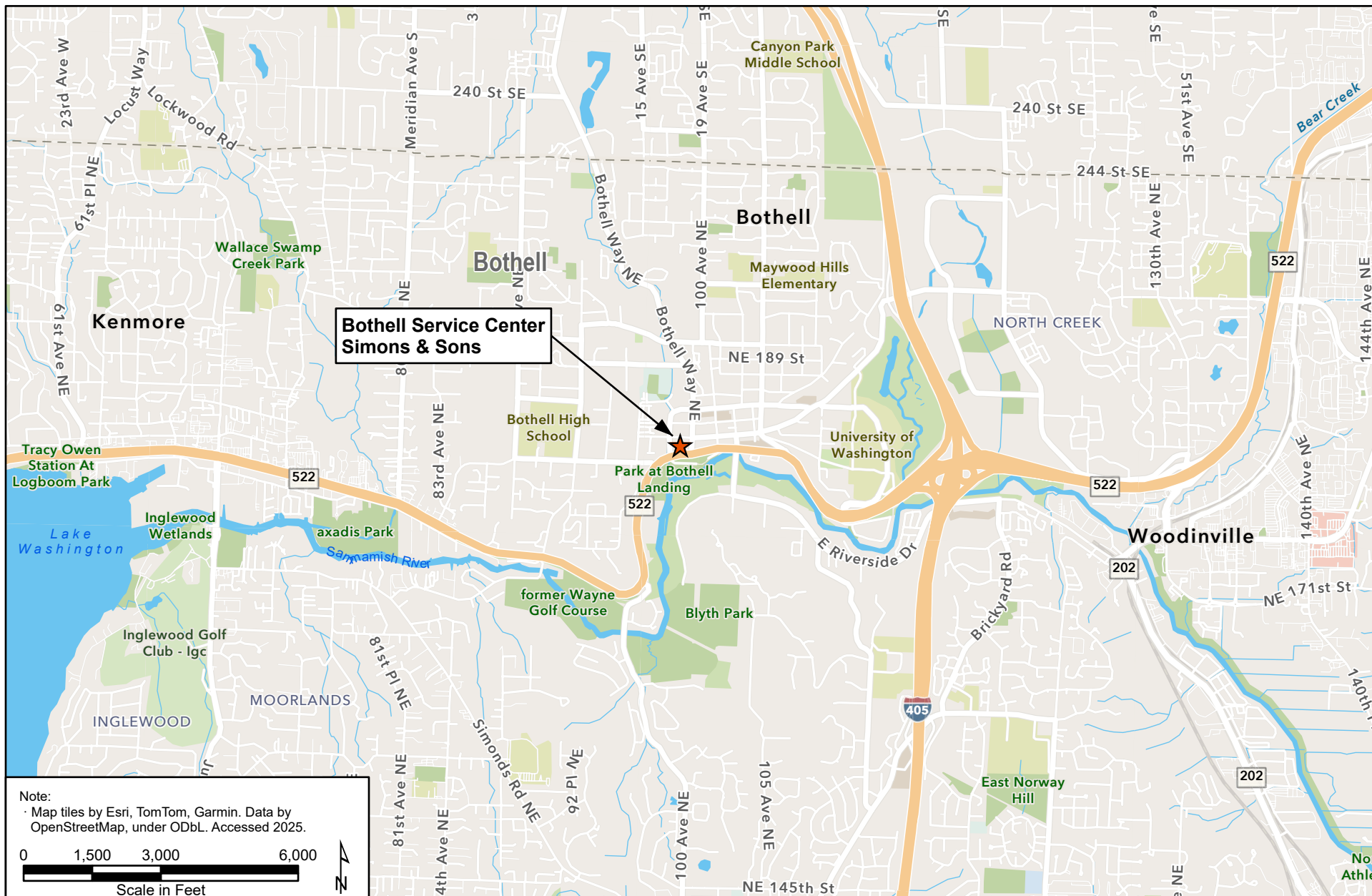
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- NA Not applicable

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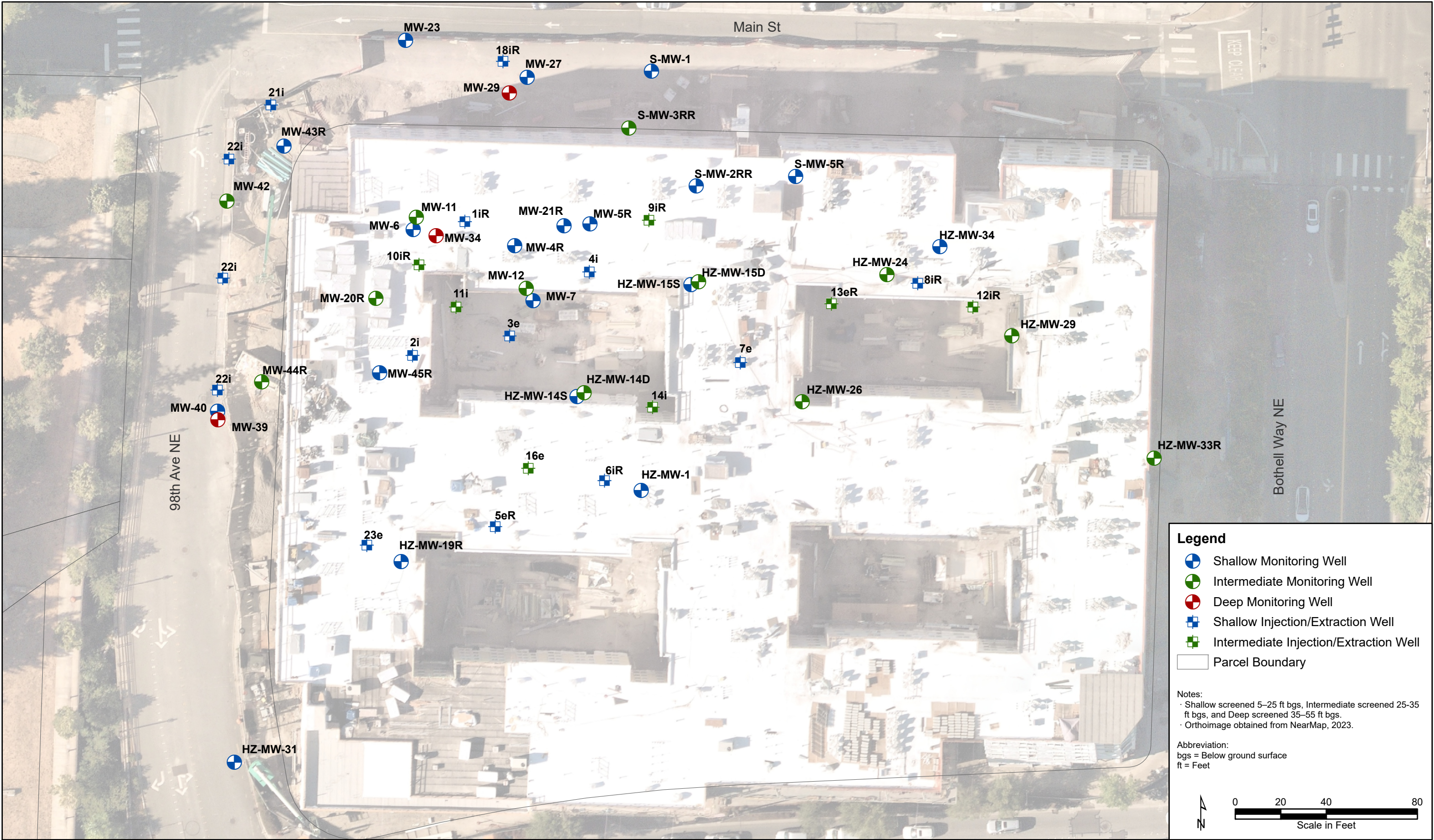
Figures



Note:
 · Map tiles by Esri, TomTom, Garmin. Data by OpenStreetMap, under ODbL. Accessed 2025.

0 1,500 3,000 6,000
 Scale in Feet

North Arrow



Attachment 1
Terracon's Draft Indoor Air
and Soil Gas Sampling Report

Indoor Air and Soil Gas Sampling Report

Bothell Lot D

9911 Main Street

Bothell, King County, Washington

April 30, 2025 | Terracon Project No. 81207336

Prepared for:

Maple Multi-Family Land TX L.P.
C/O Ms. Annemargaret Connolly
Weil, Gotshal & Manges, LLP
Washington DC

Prepared by:

Terracon Consultants, Inc.
Mountlake Terrace, Washington



Nationwide
Terracon.com

- Facilities
- Environmental
- Geotechnical
- Materials



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April 30, 2025

Maple Multi-Family Land TX L.P.
C/O Ms. Annemargaret Connolly
Weil, Gotshal & Manges, LLP
2001 M Street NW, Ste 600
Washington DC, 20036

Re: Indoor Air and Soil Gas Sampling Report
Bothell Lot D
9911 Main Street
Bothell, King County, Washington
Terracon Project No. 81207336

Dear Ms. Connolly:

Terracon Consultants, Inc. (Terracon) is pleased to submit this Indoor Air and Soil Gas Sampling Report (Report) for the above-referenced Site. Terracon completed the activities detailed in this Report in accordance with Terracon's Indoor Air and Soil Gas Sampling Work Plan, dated August 26, 2024, Terracon's Proposal No. P81207336D, dated April 17, 2023, and Terracon's Change Order dated February 3, 2025.

Terracon appreciates this opportunity to provide environmental consulting services to Maple Multi-Family Land TX L.P. c/o Weil, Gotshal & Manges, LLP (our Client). Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,

Terracon Consultants, Inc.

Sydney K. Pazera, E.I.T.
Staff Environmental Engineer

Kyle Bennett, L.G.
Group Manager

Matt Wheaton, L.G., P.E.
Senior Principal



Explore with us

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1.0 Site Description and Background Information

The approximate 2.6-acre Site is located at 9911 Main Street, formerly identified as 18107 Bothell Way Northeast, in Bothell, Washington (King County Tax Parcel No. 945720-0050). The Site is developed with an approximate 105,000-square foot mixed-use, six-story multi-family apartment building, with construction completed in late 2024. The ground floor consists of a partial open-air parking garage, residential apartments to the north and west, and commercial tenant spaces to the east (along Bothell Way Northeast). The second floor consists of an open-air parking garage and residential apartments, and the third through sixth floors consist of residential apartments. The Site building was unoccupied at the time of Terracon's field activities.

The Site was formerly occupied by a dry cleaner known as Bothell Service Center Simon & Sons (BSCSS) in the northwestern portion of the Site, a former gasoline station and automotive repair known as Al's Auto Bothell Wexler (Wexler) in the northeastern portion of the Site, and a former automotive repair on the southern portion of the Site known as Bothell Former Hertz/AARenco/AA Rentals of Bothel Inc (Hertz). The BSCSS and Wexler properties have been combined and are collectively referred to as the BSCSS. All three former facilities have been merged to form the current Site, referred to as the Bothell Lot D.

From the 1990s to present, numerous subsurface investigations and remedial actions have been performed on-Site. As a part of these remedial actions, all historical documented underground storage tanks and associated piping have been removed from the Site. Furthermore, soil above the groundwater table previously impacted with total petroleum hydrocarbons (TPH), metals, and volatile organic compounds (VOCs) at concentrations exceeding cleanup levels have been remediated via excavation and/or by soil vapor extraction. Although soil above the water table has been remediated, the Site contaminants of concern (COCs), including TPH, benzene, toluene, ethylbenzene, total xylenes, and naphthalene (BTEXN), chlorinated VOCs (cVOCs) and arsenic, remain in groundwater at concentrations exceeding cleanup levels. Impacted groundwater has been documented at numerous locations across the Site.

The Site is currently being managed under a Consent Decree (CD) between the Washington State Department of Ecology (Ecology) and the City of Bothell (City). As a part of the CD, the City has characterized impacts and conducted remedial actions at the Site associated with the BSCSS under the oversight of Ecology.

An environmental covenant (EC) was executed on April 26, 2020 for the Site, which encompasses all three sites. The Client purchased the Site from the City in 2020, following the filing of the EC, at which time Terracon was contracted as the Client's consultant.

In accordance with the requirements outlined in the EC implemented for the property, and out of the as a part of the redevelopment of the Site, Terracon oversaw the installation of a

Vapor Intrusion Mitigation System (VIMS) that consists of subgrade vent piping and a vapor membrane rated to impede cVOCs and other COCs associated with the Site (e.g. TPH).

At the request of the City, Terracon prepared a Work Plan, dated August 26, 2024, to perform indoor air and sub slab soil gas sampling via existing sampling ports prior to occupancy of the Site building in general accordance with the CD, which was approved by Ecology.

At the request of the Client, Terracon has prepared this Indoor Air and Soil Gas Assessment report in general accordance with Terracon's 2024 Work Plan. A summary of the indoor air and soil gas assessment activities is provided in the following sections.

2.0 Indoor Air and Soil Gas Sampling

This section summarizes the indoor air quality sampling of the first floor of the Site building and the sub slab soil gas monitoring results at existing soil vapor points completed at the Site prior to building occupancy.

2.1 Site Visit and Reconnaissance

On November 22, 2024, a Terracon field representative mobilized to the Site to inspect potential indoor air sampling locations on the first floor of the Site building, and to assess the feasibility of sampling at these locations. In addition, Terracon conducted an Indoor Air Building Survey, included as Appendix D, which included assessing for potential indoor sources of the chemicals of concern. Several potential sources were identified, including but not limited to the following: adhesives, paints, spray on wall texture, spackling, and deodorizers, some of which were in use on November 22. The identified products were removed from public spaces of the building prior to sampling, and were not in use at least 24-hours prior to sampling. It should be noted that the building is newly constructed, and painting, flooring, adhesives, caulking, and other processes associated with building construction has been conducted in the last 6 months. Furthermore, the parking garage for the Site building is connected to commercial tenant spaces and communal spaces, which includes hallways, main entrances, and the leasing office spaces where the indoor air samples (IA1 through IA6) were located.

The number of indoor air samples were selected based on the first-floor square-footage area using the New Jersey Department of Environmental Protection *Vapor Intrusion Technical Guidance, Recommended Minimum Number of Indoor Air Samples Table 3-3*, dated May 2021, in accordance with Ecology's *Guidance for Evaluating Vapor Intrusion in Washington State: Investigation and Remedial Action*, dated March 2022.

The indoor air sample locations were selected in publicly accessible areas most representative of indoor occupied spaces with the highest probability of vapor intrusion

issues. Occupied spaces included residential tenant spaces, commercial tenant spaces, and communal spaces (i.e. leasing office, mail room, stairwells and elevator lobbies, and tenant amenity rooms). Specifically, IA1 was sampled in the leasing office near the elevator in the northeast portion of the Site building; IA2 was sampled in the stairwell west adjacent to the commercial tenant spaces in the southeast portion of the Site building; IA3 was sampled in the stairwell/elevator lobby in the southwest portion of the Site building; IA4 and IA5 were sampled in the hallway next to the residential tenant spaces, and are representative of the residentially occupied spaces, on the northwest portion of the Site building; and IA6 was sampled in the entranceway/lobby along the northern portion of the Site building. A general floor plan of the residential, commercial, communal, and garage space and sample locations are depicted on Exhibit 1.

2.2 Indoor Air Sampling

Following the site reconnaissance, on November 25, 2024, Terracon deployed six 24-hour Summa® canisters for indoor air samples (IA1 through IA6), and five 24-hour Summa canisters for background air samples, identified as BA1 through BA5. As noted above, the indoor air samples were placed throughout the site building either in communal spaces or in spaces representative of residential tenants. Background air samples BA1 through BA4 were collected on the roof, in the vicinity of the HVAC intake system in an upwind direction, and sample BA5 was collected on the ground floor, in the vicinity of the entrance to the garage in an upwind direction. Terracon researched prevailing wind patterns in the vicinity of the Site and checked the wind direction immediately prior to sampling. The indoor air sample canister intakes were set at breathing height, approximately 3 to 5 feet above ground surface. A site map with the sample locations relative to the VIMS is included as Exhibit 2 and a site map with the background air sample locations is included as Exhibit 3 of Appendix A. A photo log of the sample locations is included in Appendix C.

The six-liter Summa® canisters used for the air sampling during this sampling event were pre-tested and individually-certified as free of COCs by the analytical laboratory. The canisters were equipped with laboratory-supplied 24-hour Time Weighted Average (TWA) flow regulators, allowing for sample collection at a low flow rate over the 24-hour period. An “in line” vacuum gauge was installed at the sample controller to verify initial vacuum levels within the canister and as an indicator of the final vacuum level at the end of the sampling period. The Summa canister gauge was monitored closely to ensure that a minimum negative pressure of 6 inches of mercury (in Hg) was remaining on the dedicated gauge at the time the Summa canister was closed.

After the 24-hour collection period, Terracon returned to the Site to finalize sample collection and retrieve the samples. The canisters were closed, secured, and appropriately labeled with pertinent sample information. Canister pressures were recorded upon initiating sample collection, after sample collection, and after receipt at the laboratory. All air samples were labeled accordingly and submitted under standard chain-of-custody

procedures to Friedman & Bruya, Inc. (FBI), a Washington-certified laboratory, and analyzed for COCs. The air samples requested for analysis are presented in Table 1 of Appendix B.

2.3 Soil Gas Sampling

Following the indoor air sampling, Terracon proposed to collect soil gas samples from seven permanent soil-gas vapor monitoring points (VMP), identified as VMP2, VMP3, VMP5, VMP7, VMP8, VMP10, and VMP11. The VMPs were installed during the construction of the building in the aggregate soils below the floor slab and VMS membrane, as a part of the VIMS. Sample locations relative to Site features are depicted on Exhibit 2 of Appendix A.

The VMPs were accessed via panels that conceal and protect the locations of the ball valves with barbed hose fittings. During sampling activities, VMP2 and VMP10 were not able to be sampled, due to blockages. These blockages have since been corrected, however these two VMPs were not sampled as a part of this sampling event.

Prior to sampling, dedicated Teflon® sample tubing with a dedicated quick-connect valve was connected to the VMP valves to allow for purging and collection of the soil gas samples. Approximately three air volumes or greater were purged from the sub-slab VMP piping and sampling tubing. During the purge process, Terracon field-screened for organic vapors using a calibrated photoionization detector (PID). This device provides a direct reading in parts per million (ppm). PID readings were reported below 1.0 ppm from VMP3 and VMP5, and PID readings were reported at 2.3 ppm, 2.7 ppm, and 24.1 ppm from VMP8, VMP7, and VMP11, respectively.

Once the VMP and tubing were purged, the inline quick-connect valve was closed to begin the equilibration process. The completely assembled sampling train was leak tested by using the low flow purge pump [~ 200 milliliter per minute (mL/min)] to generate a vacuum on the system, then allowing the sealed sampling train to sit with an approximate 10 in Hg negative pressure vacuum during the 10-minute shut-in test period. Once the sampling train had been confirmed to be leak-free based on the vacuum test, each soil gas sample was collected.

The 1-liter Summa canisters used for this sampling event were pre-tested and individually-certified as free of COCs by the analytical laboratory. All canisters were equipped with laboratory-supplied flow regulators, allowing for sample collection at a low-flow rate (i.e., 150-200 mL/min). An "in line" vacuum gauge was installed at the sample controller to verify initial vacuum levels within the canister and as an indicator of the final vacuum level at the end of the sampling period. The flow regulator valve was opened to start sub-slab soil vapor collection for approximately five to six minutes. In addition, as a leak check to the valve connected to the tubing connection at the sampling point, a rag soaked in isopropyl alcohol (tracer gas) was placed near the valve and sample train connections at the time of sample collection.

Upon completion of sample collection, the Summa canisters were closed with at least 6 in Hg remaining within the Summa canister, secured, and appropriately labeled with pertinent sample information. Canister pressures were recorded upon initiating sample collection, after sample collection, and after receipt at the laboratory. All soil gas samples were submitted to FBI under standard chain-of-custody procedures for chemical analysis. The sub-slab soil gas samples requested for analysis are presented on Table 2 of Appendix B.

2.4 Analytical Results

The indoor air, background air, and soil gas samples collected were analyzed for TPH by method MA-APH and for benzene, toluene, ethylbenzene, total xylenes, and naphthalene (BTEXN) and cVOCs by EPA Method TO-15. The soil gas samples were additionally analyzed for 2-propanol (isopropyl alcohol) by EPA Method TO-15. Reported indoor air and soil gas concentrations were compared with Ecology's Cleanup Levels and Risk Calculation (CLARC) Model Toxics Control Act (MTCA) Indoor Air Cleanup Levels and Soil Gas Screening Levels, updated January 2025.

To determine the total TPH concentrations in the soil gas samples, the sum of APHs EC5-8 aliphatics, EC9-12 aliphatics, and EC9-10 aromatics was calculated. The TPH results for each soil gas sample were x-flagged by the laboratory, which indicates that the compounds identified in the EC5-8 and EC9-12 aliphatic ranges do not resemble the fuel standard used by the lab for quantitation. Therefore, Terracon requested the laboratory to reprocess the air phase hydrocarbon (APH) analytical data for soil gas samples VMP7, VMP8, and VMP11, and indoor air samples IA1 and IA6 and calculate the TPH compounds via EPA Method TO-15 to assess and quantify the petroleum constituents, which is discussed further in Section 2.4.3 of this report. Following the further evaluation of TPH when analyzed via EPA Method TO-15, the reprocessed analytical report included x-flags for the indoor air samples APH fractions.

Indoor air concentrations were adjusted by subtracting the average background air concentration for each detected compound in accordance with Ecology's March 2022 vapor guidance. However, the average background air TPH concentration was not subtracted from the reprocessed TPH indoor air results, discussed further in Section 2.4.3.

Data packages were checked for completeness immediately upon receipt from the laboratory to ensure that data and QA/QC information requested were present. Data quality was assessed by considering holding times, surrogate recovery, method blanks, matrix spike and matrix spike duplicate recovery, and detection limits. Based upon our interpretation of quality control information provided by the laboratories, it is our opinion that the overall dataset is useable as qualified for the purposes of this report.

It should be noted that 2-propanol (isopropyl alcohol) was detected in VMP3 at a concentration of 140 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), which is below the industry-

accepted threshold concentration of 100,000 $\mu\text{g}/\text{m}^3$ for tracer gas concentrations in soil gas samples, in accordance with the 2021 New Jersey guidance document. Therefore, it is our opinion that the data is representative and usable.

The laboratory analytical report and chain-of-custody record are attached in Appendix E.

2.4.1 Indoor and Background Air Analytical Results

The concentrations of analytes in indoor air detected above laboratory method reporting limits were calculated by subtracting the average background air sample concentration from the indoor air concentration, in accordance with the Ecology's March 2022 vapor guidance.

Following this methodology, TPH was detected at a concentration of 94 $\mu\text{g}/\text{m}^3$ in indoor air sample IA1 and 102 $\mu\text{g}/\text{m}^3$ in indoor air sample IA6, which is above the MTCA Method B Cleanup Level of 46 $\mu\text{g}/\text{m}^3$. Following the correction for background, the remaining indoor air samples IA2 through IA5 did not report concentrations of TPH above the MTCA Method B Cleanup Level.

Naphthalene was corrected to a concentration of 0.09 $\mu\text{g}/\text{m}^3$ in indoor air sample IA1 and 0.27 $\mu\text{g}/\text{m}^3$ in indoor air sample IA6, which is above the MTCA Cleanup Level of 0.074 $\mu\text{g}/\text{m}^3$. Following the correction for background, the remaining indoor air samples IA2 through IA5 did not report concentrations of naphthalene above the MTCA Method B Cleanup Level.

The remaining analytes were not reported above their respective MTCA Cleanup Levels and/or laboratory method reporting limits in indoor air samples IA1 through IA6.

It should be noted that TPH, benzene, and naphthalene was detected in all five background air samples at concentrations exceeding their MTCA Method B Cleanup Levels. Specifically, TPH was detected at concentrations ranging from 104 $\mu\text{g}/\text{m}^3$ in sample BA3 to 126 $\mu\text{g}/\text{m}^3$ in sample BA5, benzene was detected at concentrations ranging from 0.44 $\mu\text{g}/\text{m}^3$ in sample BA4 to 0.61 $\mu\text{g}/\text{m}^3$ in sample BA1, and naphthalene was detected at concentrations ranging from 0.10 $\mu\text{g}/\text{m}^3$ in sample BA1 to 0.29 $\mu\text{g}/\text{m}^3$ in sample BA2.

The remaining analytes were not reported above their respective MTCA Cleanup Levels and/or laboratory method reporting limits in background air samples BA1 through BA5.

2.4.2 Soil Gas Analytical Results

TPH was detected in soil gas at the Site at 2,900 $\mu\text{g}/\text{m}^3$ in VMP7 and 2,070 $\mu\text{g}/\text{m}^3$ in VMP11, which is above the MTCA Method B Screening Level of 1,500 $\mu\text{g}/\text{m}^3$. TPH was detected below the MTCA Screening Level for the remaining soil gas samples collected and analyzed at the Site. As noted in Section 2.4, the TPH results for the soil gas samples do not resemble the fuel standard used by the lab for quantitation.

The remaining constituents were not reported above their respective MTCA Screening Levels and/or laboratory method reporting limits.

Soil gas analytical results are summarized on Table 2 of Appendix B.

2.4.3 Reprocessed APH Analysis and TPH Assessment

According to the analytical report, TPH detections in the sub slab soil gas samples were flagged by the analytical laboratory and qualified as not indicative of a common petroleum product. In addition, the laboratory noted elevated concentrations of tetrahydrofuran (THF) and cyclohexanone were detected in soil gas samples VMP7, VMP8, and VMP11, which may have contributed to the elevated TPH concentrations.

Therefore, Terracon requested review of the chromatograms from an analytical laboratory chemist, Eric Young of FBI. Mr. Young additionally recommended reprocessing the data by manually subtracting the non-petroleum related compounds and reporting additional analytes from the EPA Method TO-15 analysis not reported in the initial laboratory report. The TPH data was reprocessed for soil gas samples VMP7, VMP8, and VMP11, and for indoor air samples IA1 and IA6.

To reprocess the data, FBI first quantified every peak present in the APH range, with an area greater than 0.1 percent, using the EPA Method TO-15 analysis. Each peak was then evaluated to assess if they resembled a petroleum compound and peaks which did not resemble petroleum related compounds were subtracted from the total. Following this methodology allowed for subtracting instrument background contribution, or “noise” from the chromatograms and high concentration analytes which are non-petroleum related compounds.

The TPH detections using the reprocessed TPH analytical methods resulted in concentrations of 26 $\mu\text{g}/\text{m}^3$ and 31 $\mu\text{g}/\text{m}^3$ in indoor air samples IA1 and IA6, respectively, below the MTCA Cleanup Level for TPH. It should be noted that the average background air TPH concentration was not subtracted from the reprocessed TPH indoor air results. Soil gas concentrations were detected at 240 $\mu\text{g}/\text{m}^3$ in sample VMP7 and were not detected above the laboratory method reporting limits in soil gas samples VMP8 and VMP11.

In addition to the reprocessed TPH results, Terracon reviewed the full TO-15 analytical results, in an effort to speciate which compounds may be contributing to the initial TPH results using the MA-APH analytical methods and to assess for potential vapor intrusion. In sub slab soil gas, concentrations of THF and/or 2-butanone or methyl ethyl ketone (MEK) were detected in samples VMP7, VMP8, and VMP11. THF was detected at concentrations of 3,100 $\mu\text{g}/\text{m}^3$, 190 $\mu\text{g}/\text{m}^3$, and 140,000 $\mu\text{g}/\text{m}^3$ in samples VMP7, VMP8, and VMP11, respectively, and MEK was detected at concentrations of 150 $\mu\text{g}/\text{m}^3$ in VMP7 and 170 $\mu\text{g}/\text{m}^3$ in VMP8. THF was not reported in indoor air in samples IA1 and IA6 above laboratory method reporting limits, and MEK was detected at a concentration of 6.4 $\mu\text{g}/\text{m}^3$ in IA6, and

was not detected above laboratory method reporting limits in indoor air sample IA1. THF is used extensively in plumbing and is the primary compound in Polyvinyl Chloride (PVC) pipe adhesives and primers. Based on the elevated concentrations of THF in the sub slab soil gas and absence of THF in the indoor air samples, it is Terracon's opinion that the TPH concentrations detected in indoor air are not associated with the sub slab soil gas concentrations and can be attributed to indoor ambient air sources from the newly constructed building.

Furthermore, Terracon evaluated the lack of correlation between naphthalene and benzene in soil gas and indoor air. Specifically, concentrations of benzene and naphthalene were not detected above laboratory reporting limits in the soil gas samples collected from the site, including the soil gas samples VMP7, VMP8, and VMP11 with elevated concentrations of TPH. However, all background air and indoor air samples detected concentrations of benzene and naphthalene. Based on the elevated concentrations of benzene and naphthalene in indoor air and non-detect in soil gas, it is Terracon's opinion that the TPH, benzene, and naphthalene concentrations detected in indoor air are not associated with the sub slab soil gas concentrations and can be attributed to indoor ambient air sources from the newly constructed building.

In summary, using EPA Method TO-15 to reprocess the TPH data, concentrations of TPH were not detected above MTCA Cleanup Levels in indoor air or above MTCA Screening Levels in sub slab soil gas. Additionally, concentrations of THF were detected in the sub slab soil gas samples, but were not detected in the indoor air samples, which suggests that the TPH concentrations detected using the MA-APH analytical method are likely attributed primarily to non-petroleum compounds derived from anthropogenic sources, and not associated with vapor intrusion from the sub slab soil gas. Therefore, it is Terracon's opinion that the reprocessed TPH data using EPA Method TO-15 is representative of TPH concentrations in the indoor air and sub slab soil gas. Furthermore, it is Terracon's opinion that the VIMS is performing and functioning as designed, and the vapor intrusion pathway is incomplete.

3.0 Findings and Conclusions

Terracon performed this Indoor Air and Soil Gas Sampling in an effort to evaluate the efficacy of the VIMS following the completion of the Site building and prior to occupancy.

Following installation of the VIMS and completion of the Site building, Terracon conducted a Site reconnaissance prior to sampling activities. Based on observations during the reconnaissance, several potential indoor air sources of the chemicals of concern were identified, most of which were associated with the buildings new construction (e.g. paints, adhesives, spray on wall texture, etc.). Additionally, the occupied spaces are connected to an open-air parking garage, which consists over 70 percent of the buildings interior on the first floor.

Based on the analytical results, concentrations of TPH and naphthalene were detected above MTCA Cleanup Levels in indoor air samples IA1 and IA6, and in all of the background air samples (BA1 through BA5). Benzene was also detected above cleanup levels in all five background air samples.

TPH was detected above the MTCA Screening Levels in soil gas samples VMP7 and VMP11. As noted, the TPH results did not resemble the fuel standard used by the lab for quantitation.

Using the reprocessed TPH analytical results via EPA Method TO-15, concentrations of TPH were not detected above MTCA Cleanup Levels in indoor air samples IA1 and IA6. TPH was not detected above MTCA Screening Levels in soil gas sample VMP7, and was not detected above laboratory method reporting limits in soil gas samples VMP8 and VMP11.

Additionally, based on Terracon's review of the full method TO-15 analytical results, concentrations of THF were detected in the sub slab soil gas samples, and were not detected in indoor air. Conversely, concentrations of benzene and naphthalene were detected in indoor and background air samples but were not detected in the sub slab soil gas. Therefore, it is Terracon's opinion that the TPH, benzene, and naphthalene concentrations detected in indoor air are not associated with the sub slab soil gas concentrations and can be attributed to indoor ambient air sources from the newly constructed building.

Based on the inclusion of a vapor mitigation membrane and passive vapor venting system below the occupied spaces (commercial, residential, communal spaces, elevator shafts and stairwells), the two levels of ventilated parking garage, and the findings from Terracon's indoor air sampling event, the combination of the VIMS and parking structure have closed the vapor intrusion pathway. Therefore, it is Terracon's opinion that the soil gas to indoor air pathway is incomplete and will likely remain incomplete. Terracon anticipates completing a summer soil gas and indoor air sampling event to evaluate seasonal fluctuations.

4.0 Standard of Care, Limitations, and Reliance

4.1 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, express or implied, regarding the findings, conclusions, or recommendations. Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not intended to be in strict conformance with ASTM E1903-19.

4.2 Additional Scope Limitations

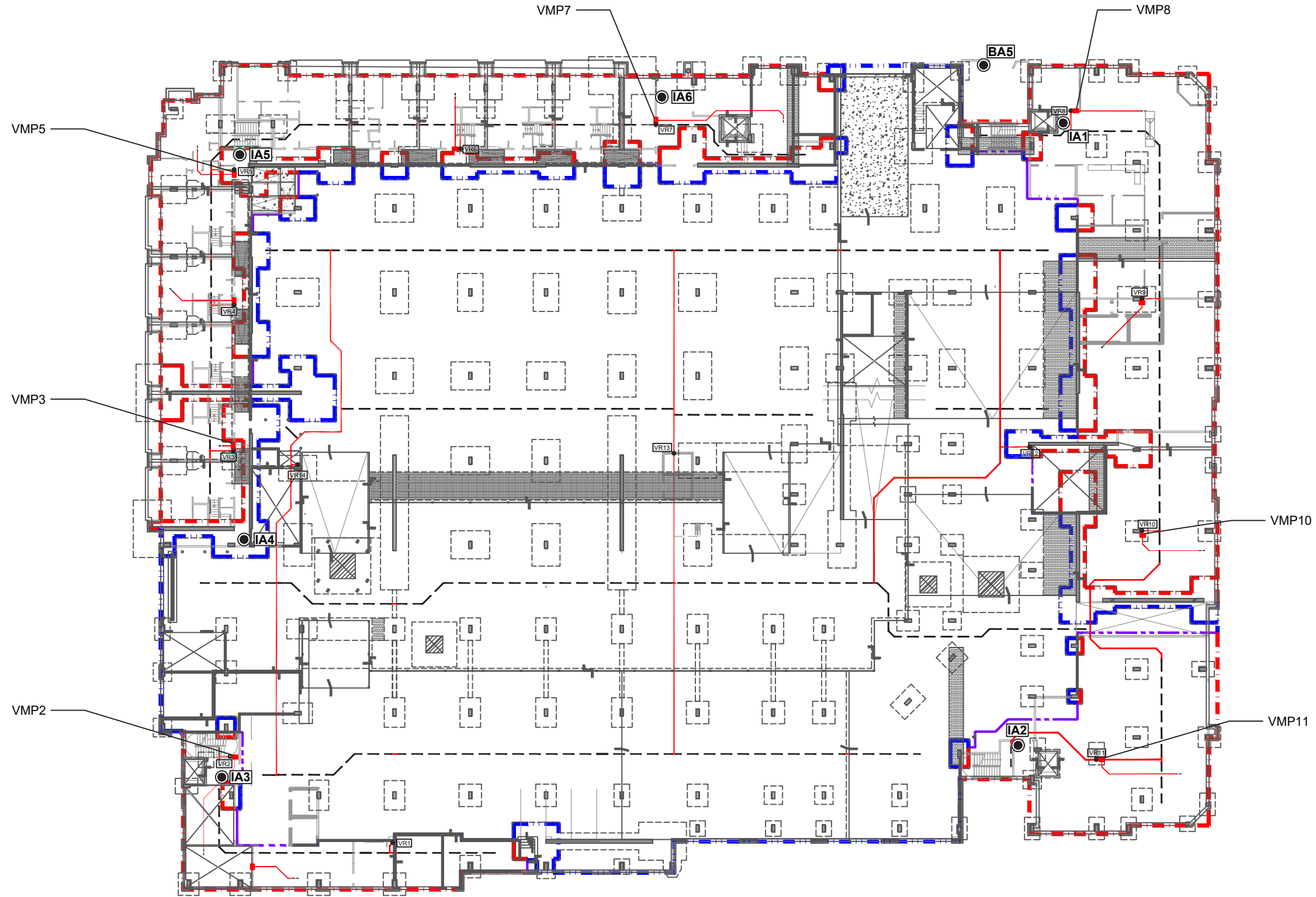
Findings, conclusions, and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services. We cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this Indoor Air and Soil Gas Sampling Report. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations, or exploratory services. The data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

4.3 Reliance

This report has been prepared for the exclusive use of Maple Multi-Family Land TX L.P. and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of Maple Multi-Family Land TX L.P. and Terracon. Any unauthorized distribution or reuse is at Maple Multi-Family Land TX L.P.'s sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and Terracon's Agreement for Services. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to Mason's Resort Inc and all relying parties unless otherwise agreed in writing.

APPENDIX A

EXHIBITS



LEGEND

- 4-INCH I.D. 0.020-INCH SLOTTED SCH 40 PVC VAPOR COLLECTION PIPING
- 4-INCH I.D. SOLID SCH 40 PVC BELOW SLAB CONVEYANCE PIPE
- EXTENT OF 60-MIL MIN SPRAY-APPLIED VAPOR INTRUSION MITIGATION SYSTEM MEMBRANE
- EXTENT OF 20-MIL MIN. SHEET VAPOR INTRUSION MITIGATION SYSTEM MEMBRANE
- LOCATION WHERE 60-MIL MIN. MEMBRANE AND 20-MIL MIN. MEMBRANE JOIN

IA1

APPROXIMATE LOCATION AND NUMBER OF INDOOR AIR SAMPLE LOCATION

BA5

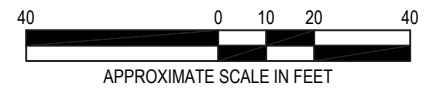
APPROXIMATE LOCATION AND NUMBER OF BACKGROUND AIR SAMPLE LOCATION

VMP2

APPROXIMATE LOCATION AND NUMBER OF SUB-SLAB VACUUM MONITORING PROBE WITH ACCESS PANEL

VR1

VENT RISER TO LEVEL 1 LOCATION



Project Mng: KSB
Drawn By: SKP
Checked By: KSB
Approved By: MYW

Project No. 81207336
Scale: AS SHOWN
File No. Exhibit 1
Date: February 2025

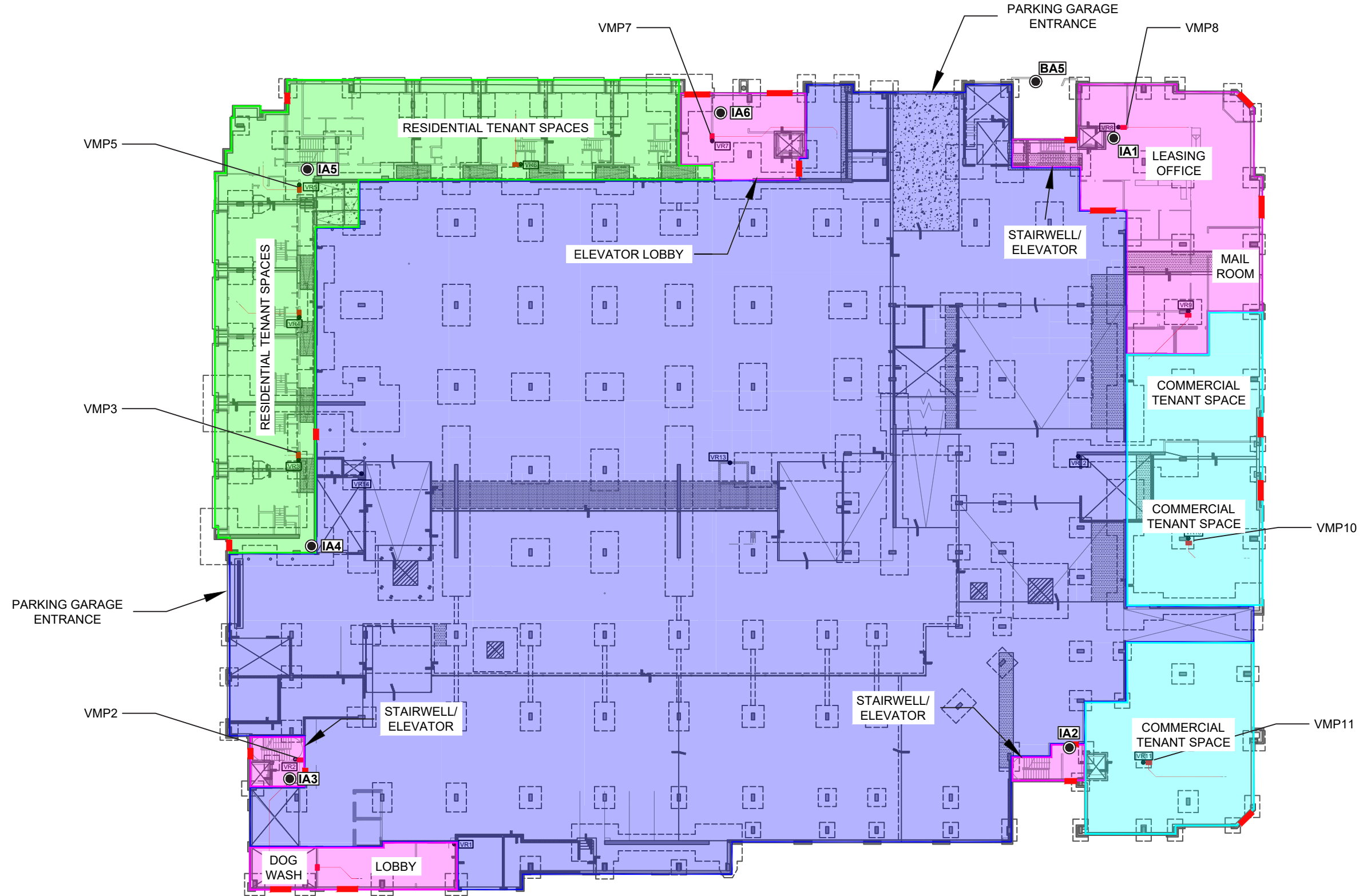
Terracon
Explore with us
21905 64TH AVENUE W, STE 100 MOUNTLAKE TERRACE, WA 98043
PH. (425) 771-3304 FAX. (425) 771-3549

VAPOR INTRUSION MITIGATION SYSTEM - LEVEL 1

Alexan Bothell
9911 Main Street
Bothell, Washington

EXHIBIT

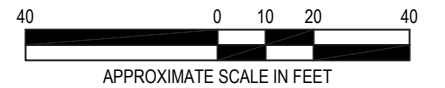
1



LEGEND

- APPROXIMATE AREA OF RESIDENTIAL SPACES
- APPROXIMATE AREA OF COMMERCIAL SPACES
- APPROXIMATE AREA OF COMMUNAL SPACES
- APPROXIMATE AREA OF GARAGE AND OPEN AIR SPACES

- IA1** APPROXIMATE LOCATION AND NUMBER OF INDOOR AIR SAMPLE LOCATION
- BA5** APPROXIMATE LOCATION AND NUMBER OF BACKGROUND AIR SAMPLE LOCATION
- VMP2** APPROXIMATE LOCATION AND NUMBER OF SUB-SLAB VACUUM MONITORING PROBE WITH ACCESS PANEL
- APPROXIMATE LOCATION OF EXTERIOR DOORS



| | | | |
|--------------|-----|-------------|---------------|
| Project Mng: | KSB | Project No. | 81207336 |
| Drawn By: | SKP | Scale: | AS SHOWN |
| Checked By: | KSB | File No. | Exhibit 1 |
| Approved By: | MYW | Date: | February 2025 |



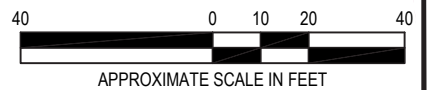
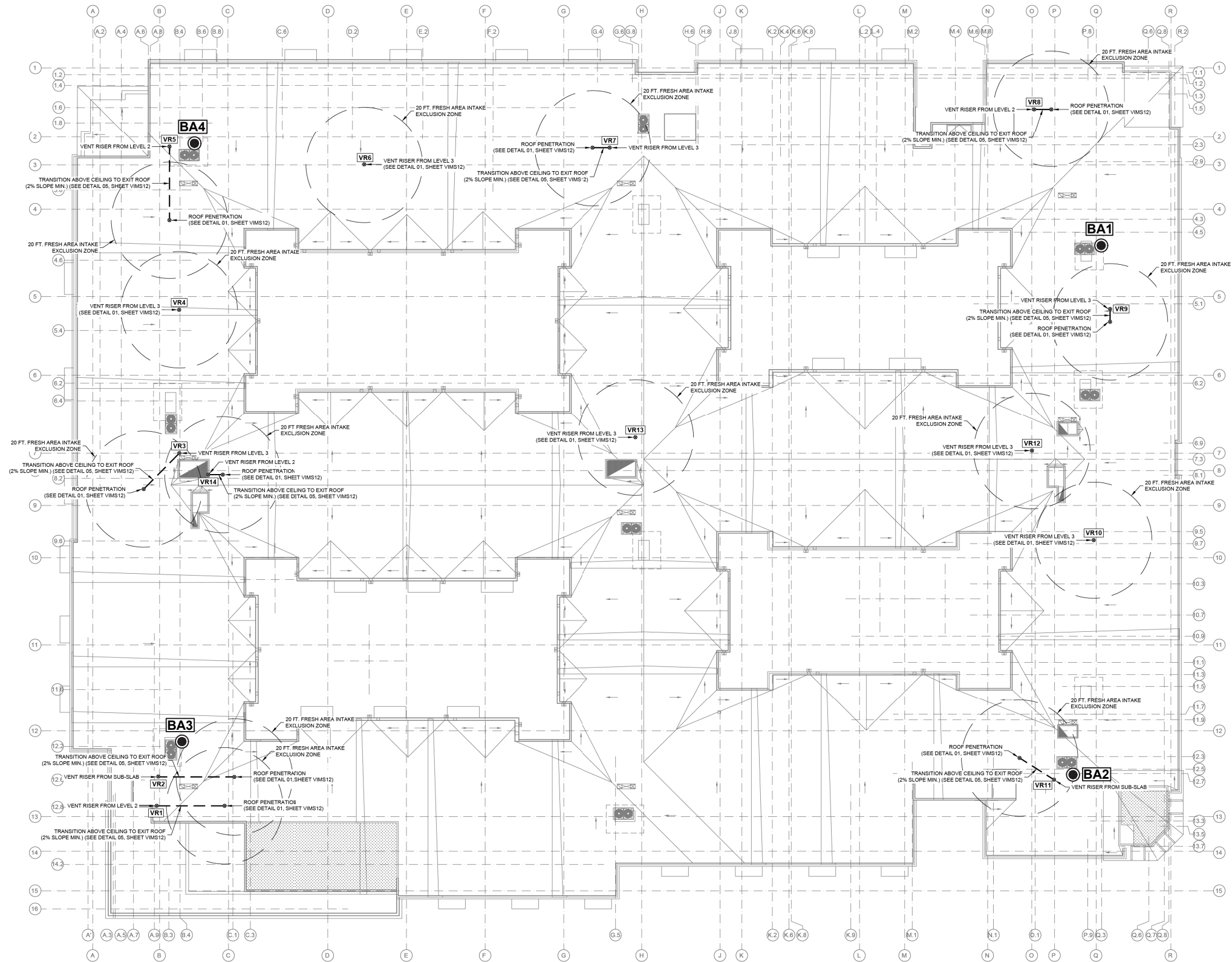
Explore with us

21905 64TH AVENUE W, STE 100 MOUNTLAKE TERRACE, WA 98043
PH. (425) 771-3304 FAX. (425) 771-3549

SAMPLING LOCATIONS RELATIVE TO SITE FEATURES

Alexan Bothell
9911 Main Street
Bothell, Washington

EXHIBIT



LEGEND

BA1 APPROXIMATE LOCATION AND NUMBER OF BACKGROUND AIR SAMPLE LOCATION

| | | | |
|--------------|-----|-------------|--------------|
| Project Mgr: | KSB | Project No. | 81207336 |
| Drawn By: | SKP | Scale: | AS SHOWN |
| Checked By: | KSB | File No. | Exhibit 3 |
| Approved By: | MYW | Date: | January 2025 |



BACKGROUND AIR SAMPLING LOCATIONS

Alexan Bothell
9911 Main Street
Bothell, Washington

EXHIBIT

3

APPENDIX B

TABLES

TABLE 1
SUMMARY OF INDOOR/OUTDOOR AIR ANALYTICAL RESULTS
Bothell Lot D
9911 Main Street
Bothell, King County, Washington
Terracon Project No. 81207336

all concentrations are in micrograms per cubic meter (µg/m³)

| Sample ID | Sample Location | Sample Date | TPH ¹ | Reprocessed TPH ² | VOCs | | | | | | | | | | | | | | | |
|---|-------------------------------|-------------|------------------|------------------------------|---------|-----------|--------------|----------------------|-------------|----------------|--------------|--------------------|--------------------|--------------------------|------------------------|--------------------------|-----------------------|-----------------------|-----------------------|-------------------------|
| | | | | | Benzene | Toluene | Ethylbenzene | Xylenes ¹ | Naphthalene | cVOCs | | | | | | | | | | |
| | | | | | | | | | | Vinyl Chloride | Chloroethane | 1,1-Dichloroethene | 1,1-Dichloroethane | 1,2-Dichloroethane (EDC) | Cis-1,2-Dichloroethene | Trans-1,2-Dichloroethene | 1,1,1-Trichloroethane | Trichloroethene (TCE) | 1,1,2-Trichloroethane | Tetrachloroethene (PCE) |
| Indoor Air Monitoring - November 2024 | | | | | | | | | | | | | | | | | | | | |
| IA1 | Leasing Office | 11/25/24 | 94 | 26 | 0.09 | ND (<7.5) | 0.67 | 1.85 | 0.09 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.008 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| IA2 | Southeast portion elevator | 11/25/24 | 0 | -- | 0.23 | ND (<7.5) | ND (<0.43) | 0.00 | 0.00 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.000 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| IA3 | Southwest portion elevator | 11/25/24 | 0 | -- | 0.29 | ND (<7.5) | 0.44 | 0.75 | 0.00 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.004 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| IA4 | West portion hallway | 11/25/24 | 0 | -- | 0.09 | ND (<7.5) | 0.55 | 1.85 | 0.06 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.063 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| IA5 | Northwest portion hallway | 11/25/24 | 24 | -- | 0.07 | ND (<7.5) | ND (<0.43) | 0.68 | 0.05 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.073 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| IA6 | North portion elevator lobby | 11/25/24 | 102 | 32 | 0.08 | ND (<7.5) | 0.64 | 2.22 | 0.27 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.028 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| Outdoor Ambient/Background Air Analytical Results - November 2024 | | | | | | | | | | | | | | | | | | | | |
| BA1 | Northeast portion roof | 11/25/24 | 110 | -- | 0.61 | ND (<7.5) | ND (<0.43) | 0.94 | 0.10 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.053 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| BA2 | Southeast portion roof | 11/25/24 | 120 | -- | 0.51 | ND (<7.5) | ND (<0.43) | 2.33 | 0.29 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.069 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| BA3 | Southwest portion roof | 11/25/24 | 104 | -- | 0.45 | ND (<7.5) | ND (<0.43) | ND (<0.87) | 0.11 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.053 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| BA4 | Northwest portion roof | 11/25/24 | 113 | -- | 0.44 | ND (<7.5) | ND (<0.43) | ND (<0.87) | 0.14 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.061 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| BA5 | Northern portion ground floor | 11/25/24 | 126 | -- | 0.49 | ND (<7.5) | ND (<0.43) | 0.88 | 0.13 | ND (<0.26) | ND (<2.6) | ND (<0.4) | ND (<0.4) | 0.049 | ND (<0.4) | ND (<0.4) | ND (<0.55) | ND (<0.11) | ND (<0.055) | ND (<6.8) |
| Average Background | | | 115 | -- | 0.50 | ND | ND | 1.38 | 0.15 | ND | ND | ND | ND | 0.057 | ND | ND | ND | ND | ND | ND |
| 2025 MTCA Method B Indoor Air Cancer Cleanup Level | | | 46* | 46* | 0.32 | 2,300* | 460* | 46* | 0.074 | 0.28 | 4,600* | 91* | 1.6 | 0.096 | 18* | 18* | 2,300* | 0.33 | 0.091* | 9.6 |

Note: Concentrations detected above laboratory reporting limits are in **BOLD** type.

Concentrations above screening levels are in **BOLD RED** type and a shaded cell.

Please refer to the laboratory report for a complete list of detections.

The indoor air sample concentrations are calculated by subtracting the average outdoor/background air concentration from the indoor air concentration for each analyte, except for reprocessed TPH.

The average background air TPH concentration was not subtracted from the reprocessed TPH indoor air results.

TPH - Total petroleum hydrocarbons

1 - Determined by the sum of air-phase petroleum hydrocarbons (APHs) EC5-8 aliphatics, EC9-12 aliphatics, and EC9-10 aromatics.

2 - Determined by the laboratory technician from the sum of petroleum-related APHs.

VOCs - Volatile organic compounds

cVOCs - Chlorinated VOCs

MTCA - Model Toxics Control Act

EPA - Environmental Protection Agency

IA - Indoor air sample

BA - Background air sample

ND - Not detected above laboratory reporting limit

-- - Not analyzed

* - Method B non-cancer level

‡ - Combined m-, o-, and p-xylenes

TABLE 2
SUMMARY OF SUB SLAB SOIL GAS ANALYTICAL RESULTS

Bothell Lot D
9911 Main Street
Bothell, King County, Washington

Terracon Project No. 81207336

all concentrations are in micrograms per cubic meter (µg/m³)

| Sample ID | Sample Date | PID (ppm) | TPH ¹ | Reprocessed TPH | VOCs | | | | | | | | | | | | | | | | |
|--|-------------|-----------|------------------|-----------------|-----------|----------|--------------|----------------------|-------------|------------|----------------|--------------|--------------------|--------------------|--------------------------|------------------------|--------------------------|-----------------------|-----------------------|-----------------------|-------------------------|
| | | | | | Benzene | Toluene | Ethylbenzene | Xylenes ¹ | Naphthalene | 2-Propanol | cVOCs | | | | | | | | | | |
| | | | | | | | | | | | Vinyl Chloride | Chloroethane | 1,1-Dichloroethene | 1,1-Dichloroethane | 1,2-Dichloroethane (EDC) | Cis-1,2-Dichloroethene | Trans-1,2-Dichloroethene | 1,1,1-Trichloroethane | Trichloroethene (TCE) | 1,1,2-Trichloroethane | Tetrachloroethene (PCE) |
| VMP3 | 11/26/24 | 0.2 | 930 x | -- | ND (<2) | ND (<47) | 2.9 | 16.8 | ND (<1.6) | 140 | ND (<1.6) | ND (<16) | ND (<2.5) | ND (<2.5) | ND (<0.25) | ND (<2.5) | ND (<2.5) | ND (3.4) | 3.4 | ND (<0.34) | 68 |
| VMP5 | 11/26/24 | 0.7 | 500 x | -- | ND (<1.6) | ND (<38) | ND (<2.2) | ND (<4.4) | ND (<1.3) | ND (<44) | ND (<1.3) | ND (<13) | ND (<2) | ND (<2.1) | ND (<0.21) | ND (<2) | ND (<2) | ND (<2.8) | ND (<0.55) | ND (<0.28) | ND (<35) |
| VMP7 | 11/26/24 | 2.7 | 2,900 x | 240 | ND (<2.5) | ND (<60) | ND (<3.4) | 16.5 | ND (<2.1) | ND (<68) | ND (<2) | ND (<21) | ND (<3.1) | ND (<3.2) | ND (<0.32) | ND (<3.1) | ND (<3.1) | ND (<4.3) | ND (<0.85) | ND (<0.43) | ND (<54) |
| VMP8 | 11/26/24 | 2.3 | 1,390 x | ND (<420) | ND (<1.8) | ND (<41) | 3.9 | 18.6 | ND (<1.4) | ND (<47) | ND (<1.4) | ND (<15) | ND (<2.2) | ND (<2.2) | ND (<0.22) | ND (<2.2) | ND (<2.2) | ND (<3) | ND (<0.59) | ND (<0.3) | ND (<37) |
| VMP11 | 11/26/24 | 24.1 | 2,070 x | ND (<610) | ND (<2.6) | ND (<61) | ND (<3.5) | ND (<7) | ND (<2.1) | ND (<70) | ND (<2.1) | ND (<21) | ND (<3.2) | ND (<3.3) | ND (<0.33) | ND (<3.2) | ND (<3.2) | ND (<4.4) | ND (<0.87) | ND (<0.44) | ND (<55) |
| 2025 MTCA Method B Sub-Slab Cancer Screening Level | | | 1,500* | 1,500* | 11 | 76,000* | 15,000* | 1,500* | 2.5 | N/E | 9.5 | 150,000* | 3,000* | 52 | 3.2 | 610* | 610* | 76,000* | 11 | 3* | 320 |

Note: Concentrations detected above laboratory reporting limits are in **BOLD** type.

Concentrations above screening levels are in **BOLD RED** type and a shaded cell.

Compounds for which no screening level has been established are not included in this table.

Please refer to the laboratory report for a complete list of detections.

TPH - Total petroleum hydrocarbons

1 - Determined by the sum of air-phase petroleum hydrocarbons (APHs) EC5-8 aliphatics, EC9-12 aliphatics, and EC9-10 aromatics.

VOCs - Volatile organic compounds

cVOCs - Chlorinated VOCs

MTCA - Model Toxics Control Act

EPA - Environmental Protection Agency

PID - Photoionization detector

ppm - Parts per million

VMP - Vapor Monitoring Point

ND - Not detected above laboratory reporting limit

N/E - Not established

-- - Not analyzed

* - Method B non-cancer level

‡ - Combined m-, o-, and p-xylenes

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

APPENDIX C

PHOTO LOG

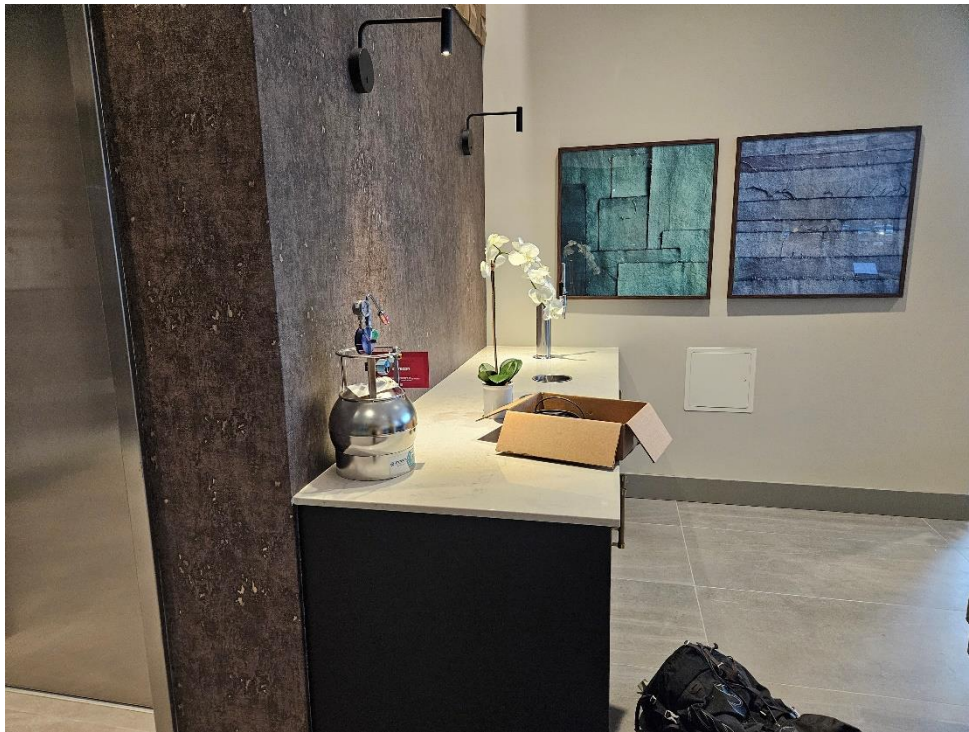


Photo 1 View of indoor air sample IA1



Photo 2 View of indoor air sample IA2

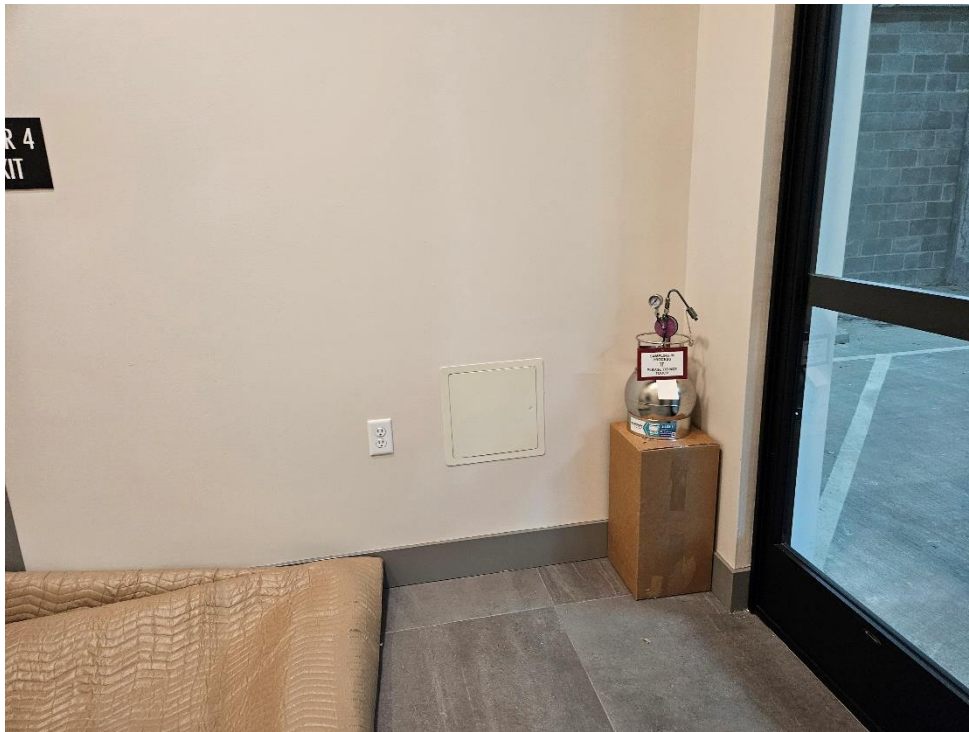


Photo 3 View of indoor air sample IA3

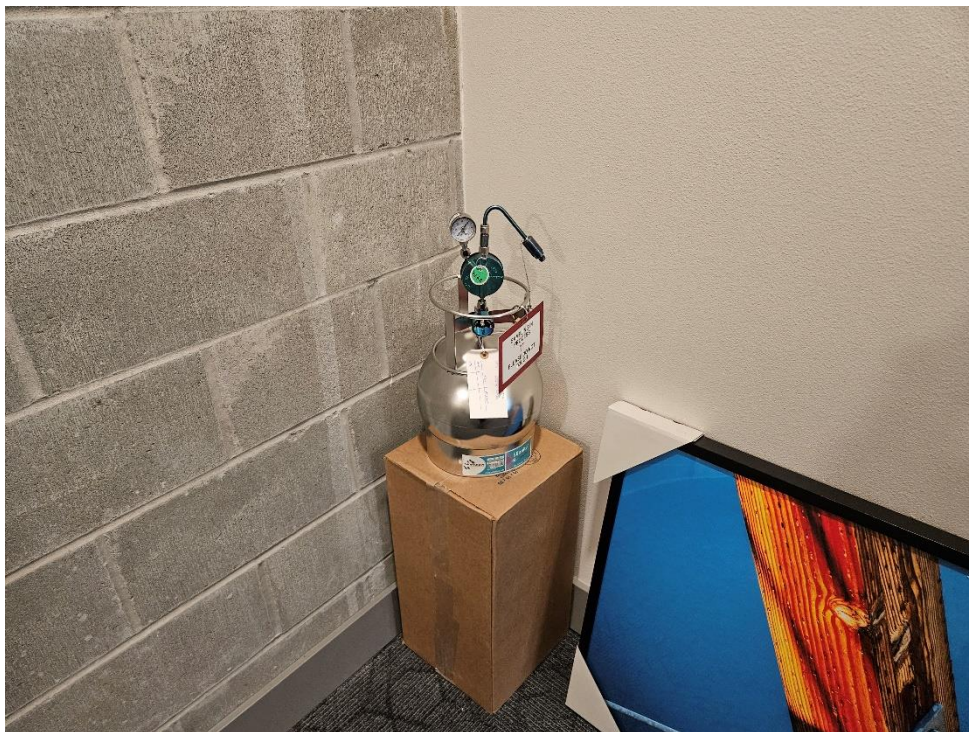


Photo 4 View of indoor air sample IA4



Photo 5 View of indoor air sample IA5



Photo 6 View of indoor air sample IA6



Photo 7 View of background air sample BA1



Photo 8 View of background air sample BA2



Photo 9 View of background air sample BA3



Photo 10 View of background air sample BA4



Photo 11 View of background air sample BA5

APPENDIX D

INDOOR AIR BUILDING SURVEY

Indoor Air Building Survey and Sample Form

Preparers Name: Sydney Pazera Date: 11/22/2024

Preparer's affiliation: Consultant Phone #: 425-697-1125

Site Name: Alexan Bothell Lot D Project No.: 81207336

1.0 Occupants

Building Address: 9911 Main Street, Bothell, WA

Property Contact: Scott Bevan Owner/Renter/other: _____

Contact Phone: _____

2.0 Building Characteristics

Building type: mixed use commercial/residential

Describe building: six-story apartment building with open-air parking garage, residential, and commercial tenant spaces on first floor

Sensitive population: day care/nursing home/hospital/other (specify) N/A

Number of floors below grade: none (full basement / crawlspace / slab-on-grade)

Approx. depth of basement below grade surface: _____ ft.

Basement floor construction and thickness: _____

Foundation Walls: _____

Basement sump present: (yes / no) Sump pump: (yes / no) Water in sump: (yes / no)

Are the basement walls or floor sealed with waterproof paint or epoxy? (yes / no)

Type of ground cover outside of building: grass / concrete / asphalt / other: _____

Existing subsurface depressurization system in place? (yes / no) active / passive

Sub-slab vapor/moisture barrier in place? (yes / no)

Type of barrier: _____

Type of heating system for the building: roof mounted HVAC

3.0 Indoor Contaminant Sources

Identify all potential indoor sources found in the building (including attached garages), the location of the source (floor and room), and whether the item was removed from the building 48 hours prior to indoor air sampling event. Any ventilation implemented after removal of the items should be completed at least 24 hours prior to the commencement of the indoor air sampling event.

| Potential Sources | Location(s) | Removed (yes/no/NA) |
|-------------------------------|--|---------------------|
| Gasoline storage cans | | |
| Gas-powered equipment | Forklift in garage - gas powered | no |
| Kerosene storage cans | | |
| Moth balls | | |
| Air fresheners | | |
| Fuel tank (inside building) | | |
| Wood stove or fireplace | Fire happened in SE commercial unit | attempted |
| New furniture/upholstery | | |
| New carpeting/flooring | Yes, throughout | No |
| Hobbies – glues, paints, etc. | Adhesives, touch ups, paints, orange peel wall texture, and spackling throughout | Stopped Friday EOD |

LIST OTHER IMPORTANT SOURCES IDENTIFIED

| | | |
|------------------------------|------------|-----|
| Swiffer wet jet – deodorizer | NW hallway | yes |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

4.0 Miscellaneous Items

Do any occupants of the building smoke? (yes / no) How often? _____

Does the building have an attached garage directly connected to living space? (yes / no)

 If so, is a car usually parked in the garage? (yes / no)

 Are gas-powered equipment or cans of fuel stored in the garage? (yes / no)

Do the occupants of the building have their clothes dry cleaned? (yes / no)

 If yes, how often? Weekly / monthly / 3-4 times a year

Do any of the occupants use solvents in work? (yes / no)

 If yes, what types of solvents are used: _____

 If yes, are their clothes washed at work? (yes / no)

Has painting or staining been done in the building in the last 6 months? (yes / no)

 If yes, when today – 11/22/24 and where throughout building

Provide any information that may be pertinent to the sampling event and may assist in the data interpretation process: _____

5.0 Sampling Information

Sampling Personnel: S. Pazera & M. Hummer Phone: _____

Company: Terracon Consultants

Sample Source: Indoor Air / Sub-Slab / Exterior Soil Gas

Were "Instructions for Occupants" followed? (yes / no)

If not, describe modifications: _____

6.0 Meteorological Conditions

Was there significant precipitation within 12 hours prior to (or during) the sampling event? (yes / no) _____

Describe the general weather conditions: wind from NE to SW, 3 inches of light rain, overcast

APPENDIX E
ANALYTICAL REPORTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

December 3, 2024

Sydney Pazera, Project Manager
Terracon
Pacific Cascade Building
21905 64th Ave W, Suite 100
Mountlake Terrace, WA 98043

Dear Ms Pazera:

Included are the results from the testing of material submitted on November 26, 2024 from the 81207336, F&BI 411434 project. There are 42 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Terracon A/P (TRR), Kyle Bennett
TRR1203R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 26, 2024 by Friedman & Bruya, Inc. from the Terracon 81207336, F&BI 411434 project. Samples were logged in under the laboratory ID's listed below.

| <u>Laboratory ID</u> | <u>Terracon</u> |
|----------------------|-----------------|
| 411434 -01 | IA1 |
| 411434 -02 | IA2 |
| 411434 -03 | IA3 |
| 411434 -04 | IA4 |
| 411434 -05 | IA5 |
| 411434 -06 | IA6 |
| 411434 -07 | BA1 |
| 411434 -08 | BA2 |
| 411434 -09 | BA3 |
| 411434 -10 | BA4 |
| 411434 -11 | BA5 |
| 411434 -12 | VMP2 |
| 411434 -13 | VMP3 |
| 411434 -14 | VMP5 |
| 411434 -15 | VMP7 |
| 411434 -16 | VMP8 |
| 411434 -17 | VMP11 |

Non-petroleum compounds identified in the air phase hydrocarbon (APH) ranges were subtracted per the MA-APH method.

The MA-APH concentrations reported in samples VMP3, VMP5, VMP7, VMP8, and VMP11 were qualified as not indicative of a common petroleum product. Elevated concentrations of tetrahydrofuran and cyclohexanone were present in samples VMP7, VMP8 and VMP11.

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA1 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-01 |
| Date Analyzed: | 11/26/24 | Data File: | 112619.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 94 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | 140 |
| APH EC9-12 aliphatics | 69 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA2 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-02 |
| Date Analyzed: | 11/27/24 | Data File: | 112620.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 94 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | 83 |
| APH EC9-12 aliphatics | 26 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA3 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-03 |
| Date Analyzed: | 11/27/24 | Data File: | 112621.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 94 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | 100 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA4 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-04 |
| Date Analyzed: | 11/27/24 | Data File: | 112622.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 96 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | <75 |
| APH EC9-12 aliphatics | 26 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA5 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-05 |
| Date Analyzed: | 11/27/24 | Data File: | 112623.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 87 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|-----------------------|------------------------|
| APH EC5-8 aliphatics | 100 |
| APH EC9-12 aliphatics | 39 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA6 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-06 |
| Date Analyzed: | 11/27/24 | Data File: | 112624.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 91 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|-----------------------|------------------------|
| APH EC5-8 aliphatics | 110 |
| APH EC9-12 aliphatics | 70 |
| APH EC9-10 aromatics | 37 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA1 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-07 |
| Date Analyzed: | 11/26/24 | Data File: | 112615.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 89 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|------------|------------------------|
|------------|------------------------|

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | 110 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA2 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-08 |
| Date Analyzed: | 11/26/24 | Data File: | 112616.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 91 | 70 | 130 |

| Compounds: | Concentration |
|------------|---------------|
| | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | 89 |
| APH EC9-12 aliphatics | 31 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA3 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-09 |
| Date Analyzed: | 11/26/24 | Data File: | 112614.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 90 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | 76 |
| APH EC9-12 aliphatics | 28 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA4 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-10 |
| Date Analyzed: | 11/26/24 | Data File: | 112617.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 93 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | 81 |
| APH EC9-12 aliphatics | 32 |
| APH EC9-10 aromatics | <25 |

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA5 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-11 |
| Date Analyzed: | 11/26/24 | Data File: | 112618.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 91 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | 82 |
| APH EC9-12 aliphatics | 44 |
| APH EC9-10 aromatics | <25 |

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP3 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-13 1/6.2 |
| Date Analyzed: | 11/27/24 | Data File: | 112714.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 100 | 70 | 130 |

| | Concentration |
|-----------------------|---------------|
| Compounds: | ug/m3 |
| APH EC5-8 aliphatics | 680 x |
| APH EC9-12 aliphatics | 250 x |
| APH EC9-10 aromatics | <150 |

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP5 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-14 1/5.1 |
| Date Analyzed: | 11/27/24 | Data File: | 112715.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 91 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-------|
| APH EC5-8 aliphatics | 500 x |
| APH EC9-12 aliphatics | <130 |
| APH EC9-10 aromatics | <130 |

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP7 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-15 1/7.9 |
| Date Analyzed: | 11/27/24 | Data File: | 112717.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 102 | 70 | 130 |

| Compounds: | Concentration |
|------------|---------------|
| | ug/m3 |

| | |
|-----------------------|---------|
| APH EC5-8 aliphatics | 1,800 x |
| APH EC9-12 aliphatics | 1,100 x |
| APH EC9-10 aromatics | <200 |

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP8 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-16 1/5.5 |
| Date Analyzed: | 11/27/24 | Data File: | 112716.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 96 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|-----------------------|------------------------|
| APH EC5-8 aliphatics | 890 x |
| APH EC9-12 aliphatics | 500 x |
| APH EC9-10 aromatics | <140 |

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP11 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-17 1/8.1 |
| Date Analyzed: | 11/27/24 | Data File: | 112718.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 102 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|---------|
| APH EC5-8 aliphatics | 1,100 x |
| APH EC9-12 aliphatics | 970 x |
| APH EC9-10 aromatics | <200 |

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------------|-------------|-----------------------|
| Client Sample ID: | Method Blank | Client: | Terracon |
| Date Received: | Not Applicable | Project: | 81207336, F&BI 411434 |
| Date Collected: | Not Applicable | Lab ID: | 04-2863 MB |
| Date Analyzed: | 11/26/24 | Data File: | 112613.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 85 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | <75 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | <25 |

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ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------------|-------------|-----------------------|
| Client Sample ID: | Method Blank | Client: | Terracon |
| Date Received: | Not Applicable | Project: | 81207336, F&BI 411434 |
| Date Collected: | Not Applicable | Lab ID: | 04-2868 MB |
| Date Analyzed: | 11/27/24 | Data File: | 112712.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 83 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | <75 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA1 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-01 |
| Date Analyzed: | 11/26/24 | Data File: | 112619.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 98 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|-------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.065 | 0.016 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.59 | 0.18 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | 0.67 | 0.15 |
| m,p-Xylene | 2.3 | 0.54 |
| o-Xylene | 0.93 | 0.21 |
| Naphthalene | 0.24 | 0.045 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA2 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-02 |
| Date Analyzed: | 11/27/24 | Data File: | 112620.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 97 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|-------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.057 | 0.014 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.73 | 0.23 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | <0.43 | <0.1 |
| m,p-Xylene | 1.2 | 0.27 |
| o-Xylene | <0.43 | <0.1 |
| Naphthalene | 0.073 | 0.014 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA3 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-03 |
| Date Analyzed: | 11/27/24 | Data File: | 112621.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 98 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|-------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.061 | 0.015 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.79 | 0.25 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | 0.44 | 0.10 |
| m,p-Xylene | 1.6 | 0.37 |
| o-Xylene | 0.53 | 0.12 |
| Naphthalene | 0.15 | 0.028 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA4 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-04 |
| Date Analyzed: | 11/27/24 | Data File: | 112622.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 99 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|-------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.12 | 0.029 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.59 | 0.18 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | 0.55 | 0.13 |
| m,p-Xylene | 2.3 | 0.53 |
| o-Xylene | 0.93 | 0.21 |
| Naphthalene | 0.21 | 0.041 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA5 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-05 |
| Date Analyzed: | 11/27/24 | Data File: | 112623.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 90 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|-------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.13 | 0.032 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.57 | 0.18 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | <0.43 | <0.1 |
| m,p-Xylene | 1.5 | 0.34 |
| o-Xylene | 0.56 | 0.13 |
| Naphthalene | 0.20 | 0.038 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA6 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-06 |
| Date Analyzed: | 11/27/24 | Data File: | 112624.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 95 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|-------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.085 | 0.021 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.58 | 0.18 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | 0.64 | 0.15 |
| m,p-Xylene | 2.5 | 0.58 |
| o-Xylene | 1.1 | 0.24 |
| Naphthalene | 0.42 | 0.080 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA1 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-07 |
| Date Analyzed: | 11/26/24 | Data File: | 112615.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 92 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|-------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.053 | 0.013 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.61 | 0.19 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | <0.43 | <0.1 |
| m,p-Xylene | 0.94 | 0.22 |
| o-Xylene | <0.43 | <0.1 |
| Naphthalene | 0.10 | 0.019 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA2 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-08 |
| Date Analyzed: | 11/26/24 | Data File: | 112616.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 94 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|-------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.069 | 0.017 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.51 | 0.16 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | <0.43 | <0.1 |
| m,p-Xylene | 1.7 | 0.38 |
| o-Xylene | 0.63 | 0.14 |
| Naphthalene | 0.29 | 0.056 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA3 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-09 |
| Date Analyzed: | 11/26/24 | Data File: | 112614.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 93 | 70 | 130 |

| Compounds: | Concentration | |
|--------------------------|---------------|-------|
| | ug/m3 | ppbv |
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.053 | 0.013 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.45 | 0.14 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | <0.43 | <0.1 |
| m,p-Xylene | <0.87 | <0.2 |
| o-Xylene | <0.43 | <0.1 |
| Naphthalene | 0.11 | 0.021 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA4 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-10 |
| Date Analyzed: | 11/26/24 | Data File: | 112617.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 96 | 70 | 130 |

| Compounds: | Concentration | |
|--------------------------|---------------|-------|
| | ug/m3 | ppbv |
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.061 | 0.015 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.44 | 0.14 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | <0.43 | <0.1 |
| m,p-Xylene | <0.87 | <0.2 |
| o-Xylene | <0.43 | <0.1 |
| Naphthalene | 0.14 | 0.027 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | BA5 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-11 |
| Date Analyzed: | 11/26/24 | Data File: | 112618.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 94 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|-------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.049 | 0.012 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | 0.49 | 0.15 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | <0.43 | <0.1 |
| m,p-Xylene | 0.88 | 0.20 |
| o-Xylene | <0.43 | <0.1 |
| Naphthalene | 0.13 | 0.025 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP3 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-13 1/6.2 |
| Date Analyzed: | 11/27/24 | Data File: | 112714.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 104 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|--------|
| Vinyl chloride | <1.6 | <0.62 |
| Chloroethane | <16 | <6.2 |
| 2-Propanol | 140 | 58 |
| 1,1-Dichloroethene | <2.5 | <0.62 |
| trans-1,2-Dichloroethene | <2.5 | <0.62 |
| 1,1-Dichloroethane | <2.5 | <0.62 |
| cis-1,2-Dichloroethene | <2.5 | <0.62 |
| 1,2-Dichloroethane (EDC) | <0.25 | <0.062 |
| 1,1,1-Trichloroethane | <3.4 | <0.62 |
| Benzene | <2 | <0.62 |
| Trichloroethene | 3.4 | 0.63 |
| Toluene | <47 | <12 |
| 1,1,2-Trichloroethane | <0.34 | <0.062 |
| Tetrachloroethene | 68 | 10 |
| Ethylbenzene | 2.9 | 0.66 |
| m,p-Xylene | 12 | 2.8 |
| o-Xylene | 4.8 | 1.1 |
| Naphthalene | <1.6 | <0.31 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP5 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-14 1/5.1 |
| Date Analyzed: | 11/27/24 | Data File: | 112715.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 94 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|--------|
| Vinyl chloride | <1.3 | <0.51 |
| Chloroethane | <13 | <5.1 |
| 2-Propanol | <44 | <18 |
| 1,1-Dichloroethene | <2 | <0.51 |
| trans-1,2-Dichloroethene | <2 | <0.51 |
| 1,1-Dichloroethane | <2.1 | <0.51 |
| cis-1,2-Dichloroethene | <2 | <0.51 |
| 1,2-Dichloroethane (EDC) | <0.21 | <0.051 |
| 1,1,1-Trichloroethane | <2.8 | <0.51 |
| Benzene | <1.6 | <0.51 |
| Trichloroethene | <0.55 | <0.1 |
| Toluene | <38 | <10 |
| 1,1,2-Trichloroethane | <0.28 | <0.051 |
| Tetrachloroethene | <35 | <5.1 |
| Ethylbenzene | <2.2 | <0.51 |
| m,p-Xylene | <4.4 | <1 |
| o-Xylene | <2.2 | <0.51 |
| Naphthalene | <1.3 | <0.25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP7 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-15 1/7.9 |
| Date Analyzed: | 11/27/24 | Data File: | 112717.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 105 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|--------|
| Vinyl chloride | <2 | <0.79 |
| Chloroethane | <21 | <7.9 |
| 2-Propanol | <68 | <28 |
| 1,1-Dichloroethene | <3.1 | <0.79 |
| trans-1,2-Dichloroethene | <3.1 | <0.79 |
| 1,1-Dichloroethane | <3.2 | <0.79 |
| cis-1,2-Dichloroethene | <3.1 | <0.79 |
| 1,2-Dichloroethane (EDC) | <0.32 | <0.079 |
| 1,1,1-Trichloroethane | <4.3 | <0.79 |
| Benzene | <2.5 | <0.79 |
| Trichloroethene | <0.85 | <0.16 |
| Toluene | <60 | <16 |
| 1,1,2-Trichloroethane | <0.43 | <0.079 |
| Tetrachloroethene | <54 | <7.9 |
| Ethylbenzene | <3.4 | <0.79 |
| m,p-Xylene | 9.7 | 2.2 |
| o-Xylene | 6.8 | 1.6 |
| Naphthalene | <2.1 | <0.39 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP8 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-16 1/5.5 |
| Date Analyzed: | 11/27/24 | Data File: | 112716.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 99 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|--------|
| Vinyl chloride | <1.4 | <0.55 |
| Chloroethane | <15 | <5.5 |
| 2-Propanol | <47 | <19 |
| 1,1-Dichloroethene | <2.2 | <0.55 |
| trans-1,2-Dichloroethene | <2.2 | <0.55 |
| 1,1-Dichloroethane | <2.2 | <0.55 |
| cis-1,2-Dichloroethene | <2.2 | <0.55 |
| 1,2-Dichloroethane (EDC) | <0.22 | <0.055 |
| 1,1,1-Trichloroethane | <3 | <0.55 |
| Benzene | <1.8 | <0.55 |
| Trichloroethene | <0.59 | <0.11 |
| Toluene | <41 | <11 |
| 1,1,2-Trichloroethane | <0.3 | <0.055 |
| Tetrachloroethene | <37 | <5.5 |
| Ethylbenzene | 3.9 | 0.90 |
| m,p-Xylene | 14 | 3.2 |
| o-Xylene | 4.6 | 1.1 |
| Naphthalene | <1.4 | <0.28 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP11 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-17 1/8.1 |
| Date Analyzed: | 11/27/24 | Data File: | 112718.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 106 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|--------|
| Vinyl chloride | <2.1 | <0.81 |
| Chloroethane | <21 | <8.1 |
| 2-Propanol | <70 | <28 |
| 1,1-Dichloroethene | <3.2 | <0.81 |
| trans-1,2-Dichloroethene | <3.2 | <0.81 |
| 1,1-Dichloroethane | <3.3 | <0.81 |
| cis-1,2-Dichloroethene | <3.2 | <0.81 |
| 1,2-Dichloroethane (EDC) | <0.33 | <0.081 |
| 1,1,1-Trichloroethane | <4.4 | <0.81 |
| Benzene | <2.6 | <0.81 |
| Trichloroethene | <0.87 | <0.16 |
| Toluene | <61 | <16 |
| 1,1,2-Trichloroethane | <0.44 | <0.081 |
| Tetrachloroethene | <55 | <8.1 |
| Ethylbenzene | <3.5 | <0.81 |
| m,p-Xylene | <7 | <1.6 |
| o-Xylene | <3.5 | <0.81 |
| Naphthalene | <2.1 | <0.4 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------------|-------------|-----------------------|
| Client Sample ID: | Method Blank | Client: | Terracon |
| Date Received: | Not Applicable | Project: | 81207336, F&BI 411434 |
| Date Collected: | Not Applicable | Lab ID: | 04-2863 MB |
| Date Analyzed: | 11/26/24 | Data File: | 112613.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| 4-Bromofluorobenzene | 88 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv |
|--------------------------|------------------------|--------|
| Vinyl chloride | <0.26 | <0.1 |
| Chloroethane | <2.6 | <1 |
| 1,1-Dichloroethene | <0.4 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,1-Dichloroethane | <0.4 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 |
| 1,2-Dichloroethane (EDC) | <0.04 | <0.01 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 |
| Benzene | <0.32 | <0.1 |
| Trichloroethene | <0.11 | <0.02 |
| Toluene | <7.5 | <2 |
| 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Tetrachloroethene | <6.8 | <1 |
| Ethylbenzene | <0.43 | <0.1 |
| m,p-Xylene | <0.87 | <0.2 |
| o-Xylene | <0.43 | <0.1 |
| Naphthalene | <0.073 | <0.014 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------------|-------------|-----------------------|
| Client Sample ID: | Method Blank | Client: | Terracon |
| Date Received: | Not Applicable | Project: | 81207336, F&BI 411434 |
| Date Collected: | Not Applicable | Lab ID: | 04-2868 MB |
| Date Analyzed: | 11/27/24 | Data File: | 112712.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 86 | 70 | 130 |

| | Concentration | | |
|--------------------------|---------------|-------|--|
| Compounds: | ug/m3 | ppbv | |
| Vinyl chloride | <0.26 | <0.1 | |
| Chloroethane | <2.6 | <1 | |
| 2-Propanol | <8.6 | <3.5 | |
| 1,1-Dichloroethene | <0.4 | <0.1 | |
| trans-1,2-Dichloroethene | <0.4 | <0.1 | |
| 1,1-Dichloroethane | <0.4 | <0.1 | |
| cis-1,2-Dichloroethene | <0.4 | <0.1 | |
| 1,2-Dichloroethane (EDC) | <0.04 | <0.01 | |
| 1,1,1-Trichloroethane | <0.55 | <0.1 | |
| Benzene | <0.32 | <0.1 | |
| Trichloroethene | <0.11 | <0.02 | |
| Toluene | <7.5 | <2 | |
| 1,1,2-Trichloroethane | <0.055 | <0.01 | |
| Tetrachloroethene | <6.8 | <1 | |
| Ethylbenzene | <0.43 | <0.1 | |
| m,p-Xylene | <0.87 | <0.2 | |
| o-Xylene | <0.43 | <0.1 | |
| Naphthalene | <0.26 | <0.05 | |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/03/24

Date Received: 11/26/24

Project: 81207336, F&BI 411434

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD MA-APH**

Laboratory Code: 411385-01 1/5.0 (Duplicate)

| Analyte | Reporting Units | Sample Result | Duplicate Result | RPD (Limit 30) |
|-----------------------|--------------------|------------------|---------------------|-------------------|
| APH EC5-8 aliphatics | ug/m3 | 1,100 | 1,000 | 10 |
| APH EC9-12 aliphatics | ug/m3 | 530 | 600 | 12 |
| APH EC9-10 aromatics | ug/m3 | <120 | <120 | nm |

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|-----------------------|--------------------|----------------|----------------------------|------------------------|
| APH EC5-8 aliphatics | ug/m3 | 67 | 84 | 70-130 |
| APH EC9-12 aliphatics | ug/m3 | 67 | 95 | 70-130 |
| APH EC9-10 aromatics | ug/m3 | 67 | 91 | 70-130 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/03/24

Date Received: 11/26/24

Project: 81207336, F&BI 411434

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD MA-APH**

Laboratory Code: 411434-13 1/6.2 (Duplicate)

| Analyte | Reporting Units | Sample Result | Duplicate Result | RPD (Limit 30) |
|-----------------------|--------------------|------------------|---------------------|-------------------|
| APH EC5-8 aliphatics | ug/m3 | 680 | 630 | 8 |
| APH EC9-12 aliphatics | ug/m3 | <150 | <150 | nm |
| APH EC9-10 aromatics | ug/m3 | <150 | <150 | nm |

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|-----------------------|--------------------|----------------|----------------------------|------------------------|
| APH EC5-8 aliphatics | ug/m3 | 67 | 87 | 70-130 |
| APH EC9-12 aliphatics | ug/m3 | 67 | 94 | 70-130 |
| APH EC9-10 aromatics | ug/m3 | 67 | 89 | 70-130 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/03/24

Date Received: 11/26/24

Project: 81207336, F&BI 411434

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD TO-15**

Laboratory Code: 411385-01 1/5.0 (Duplicate)

| Analyte | Reporting Units | Sample Result | Duplicate Result | RPD (Limit 30) |
|--------------------------|--------------------|------------------|---------------------|-------------------|
| Vinyl chloride | ug/m3 | <1.3 | <1.3 | nm |
| Chloroethane | ug/m3 | <13 | <13 | nm |
| 1,1-Dichloroethene | ug/m3 | <2 | <2 | nm |
| trans-1,2-Dichloroethene | ug/m3 | <2 | <2 | nm |
| 1,1-Dichloroethane | ug/m3 | <2 | <2 | nm |
| cis-1,2-Dichloroethene | ug/m3 | <2 | <2 | nm |
| 1,2-Dichloroethane (EDC) | ug/m3 | <0.2 | <0.2 | nm |
| 1,1,1-Trichloroethane | ug/m3 | <2.7 | <2.7 | nm |
| Benzene | ug/m3 | 5.0 | 5.3 | 6 |
| Trichloroethene | ug/m3 | 6.6 | 6.2 | 6 |
| Toluene | ug/m3 | <38 | <38 | nm |
| 1,1,2-Trichloroethane | ug/m3 | <0.27 | <0.27 | nm |
| Tetrachloroethene | ug/m3 | <34 | <34 | nm |
| Ethylbenzene | ug/m3 | <2.2 | <2.2 | nm |
| m,p-Xylene | ug/m3 | <4.3 | <4.3 | nm |
| o-Xylene | ug/m3 | <2.2 | <2.2 | nm |
| Naphthalene | ug/m3 | <1.3 | <1.3 | nm |

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|--------------------------|--------------------|----------------|----------------------------|------------------------|
| Vinyl chloride | ug/m3 | 35 | 91 | 70-130 |
| Chloroethane | ug/m3 | 36 | 89 | 70-130 |
| 1,1-Dichloroethene | ug/m3 | 54 | 93 | 70-130 |
| trans-1,2-Dichloroethene | ug/m3 | 54 | 92 | 70-130 |
| 1,1-Dichloroethane | ug/m3 | 55 | 94 | 70-130 |
| cis-1,2-Dichloroethene | ug/m3 | 54 | 92 | 70-130 |
| 1,2-Dichloroethane (EDC) | ug/m3 | 55 | 105 | 70-130 |
| 1,1,1-Trichloroethane | ug/m3 | 74 | 102 | 70-130 |
| Benzene | ug/m3 | 43 | 94 | 70-130 |
| Trichloroethene | ug/m3 | 73 | 101 | 70-130 |
| Toluene | ug/m3 | 51 | 105 | 70-130 |
| 1,1,2-Trichloroethane | ug/m3 | 74 | 106 | 70-130 |
| Tetrachloroethene | ug/m3 | 92 | 106 | 70-130 |
| Ethylbenzene | ug/m3 | 59 | 98 | 70-130 |
| m,p-Xylene | ug/m3 | 120 | 100 | 70-130 |
| o-Xylene | ug/m3 | 59 | 102 | 70-130 |
| Naphthalene | ug/m3 | 71 | 86 | 70-130 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 12/03/24
 Date Received: 11/26/24
 Project: 81207336, F&BI 411434

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 411434-13 1/6.2 (Duplicate)

| Analyte | Reporting Units | Sample Result | Duplicate Result | RPD (Limit 30) |
|--------------------------|--------------------|------------------|---------------------|-------------------|
| Vinyl chloride | ug/m3 | <1.6 | <1.6 | nm |
| Chloroethane | ug/m3 | <16 | <16 | nm |
| 2-Propanol | ug/m3 | 140 | 140 | 0 |
| 1,1-Dichloroethene | ug/m3 | <2.5 | <2.5 | nm |
| trans-1,2-Dichloroethene | ug/m3 | <2.5 | <2.5 | nm |
| 1,1-Dichloroethane | ug/m3 | <2.5 | <2.5 | nm |
| cis-1,2-Dichloroethene | ug/m3 | <2.5 | <2.5 | nm |
| 1,2-Dichloroethane (EDC) | ug/m3 | <0.25 | <0.25 | nm |
| 1,1,1-Trichloroethane | ug/m3 | <3.4 | <3.4 | nm |
| Benzene | ug/m3 | <2 | <2 | nm |
| Trichloroethene | ug/m3 | 3.4 | 3.3 | 3 |
| Toluene | ug/m3 | <47 | <47 | nm |
| 1,1,2-Trichloroethane | ug/m3 | <0.34 | <0.34 | nm |
| Tetrachloroethene | ug/m3 | 68 | 67 | 1 |
| Ethylbenzene | ug/m3 | 2.9 | <2.7 | nm |
| m,p-Xylene | ug/m3 | 12 | 11 | 9 |
| o-Xylene | ug/m3 | 4.8 | 4.4 | 9 |
| Naphthalene | ug/m3 | <1.6 | <1.6 | nm |

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|--------------------------|--------------------|----------------|----------------------------|------------------------|
| Vinyl chloride | ug/m3 | 35 | 95 | 70-130 |
| Chloroethane | ug/m3 | 36 | 98 | 70-130 |
| 2-Propanol | ug/m3 | 33 | 96 | 70-130 |
| 1,1-Dichloroethene | ug/m3 | 54 | 101 | 70-130 |
| trans-1,2-Dichloroethene | ug/m3 | 54 | 102 | 70-130 |
| 1,1-Dichloroethane | ug/m3 | 55 | 101 | 70-130 |
| cis-1,2-Dichloroethene | ug/m3 | 54 | 101 | 70-130 |
| 1,2-Dichloroethane (EDC) | ug/m3 | 55 | 115 | 70-130 |
| 1,1,1-Trichloroethane | ug/m3 | 74 | 112 | 70-130 |
| Benzene | ug/m3 | 43 | 101 | 70-130 |
| Trichloroethene | ug/m3 | 73 | 97 | 70-130 |
| Toluene | ug/m3 | 51 | 101 | 70-130 |
| 1,1,2-Trichloroethane | ug/m3 | 74 | 101 | 70-130 |
| Tetrachloroethene | ug/m3 | 92 | 100 | 70-130 |
| Ethylbenzene | ug/m3 | 59 | 96 | 70-130 |
| m,p-Xylene | ug/m3 | 120 | 99 | 70-130 |
| o-Xylene | ug/m3 | 59 | 100 | 70-130 |
| Naphthalene | ug/m3 | 71 | 81 | 70-130 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported between the method detection limit and the lowest calibration point. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

ME 11-26-24

Page # 1 of 3

ME

411434
Report To Sydney PATERA
Company TERACON
Address 21905 Burn Ave W Ste 200
City, State, ZIP Mountlake Terrace WA
Phone 425 771 3304 Email Sydney.patera@teracon.com

| | | |
|---|--|------------|
| SAMPLETERS (signature) <u>SKP</u> | | PO # |
| PROJECT NAME & ADDRESS <u>61207336</u> | | INVOICE TO |
| NOTES: cc: <u>Kyle.barnett@teracon.com</u> | | |

| | |
|---|--|
| SAMPLE DISPOSAL Default: Clean following final report delivery Hold (Fee may apply): | |
| <input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH 2-Day per L&B 11/26/24 Rush charges authorized by: | |

| SAMPLE INFORMATION | | | | | | | | | | ANALYSIS REQUESTED | | | |
|--------------------|--------|-------------|---------------|--|--------------|--------------------|--------------------|------------------|------------------|--------------------|------------|-----|------------------|
| Sample Name | Lab ID | Canister ID | Flow Cont. ID | Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One) | Date Sampled | Initial Vac. ("Hg) | Field Initial Time | Final Vac. ("Hg) | Field Final Time | TO15 Full Scan | TO15 BTEXN | APH | Chlorinated VOCs |
| 1A1 | 01 | 35339 | 20499 | IA / SG | 11/25/24 | 30 | 1155 | 8 | 0949 | X | X | X | X |
| 1A2 | 02 | 20550 | 0607 | IA / SG | 1 | 30.5 | 1200 | 8.5 | 0952 | X | X | X | X |
| 1A3 | 03 | 37228 | 15214 | IA / SG | | 30 | 1203 | 7 | 0955 | X | X | X | X |
| 1A4 | 04 | 21440 | 20466 | IA / SG | | 30 | 1207 | 6 | 0958 | X | X | X | X |
| 1A5 | 05 | 21453 | 20445 | IA / SG | | 31 | 1209 | 8 | 0959 | X | X | X | X |
| 1A6 | 06 | 12576 | 20434 | IA / SG | | 32 | 1211 | 9.5 | 1001 | X | X | X | X |
| BA1 | 07 | 35332 | 20466 | IA / SG | | 30 | 1142 | 5 | 0931 | X | X | X | X |
| BA2 | 08 | 40405 | 20444 | IA / SG | ↓ | 30 | 1144 | 6 | 0933 | X | X | X | X |
| | | | | | | | | | | Notes | | | |

| SIGNATURE | | PRINT NAME | | COMPANY | | DATE | TIME |
|------------------|------------|---------------|---------|----------|------|------|------|
| Relinquished by: | <u>SKP</u> | Sydney PATERA | TERACON | 11/26/24 | 1430 | | |
| Received by: | <u>SKP</u> | VINH | FB1 | 11-20-24 | 1430 | | |
| Relinquished by: | | | | | | | |
| Received by: | | | | | | | |

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COG\COGTO-15.DOC

411434

SAMPLE CHAIN OF CUSTODY

ME 11-26-24

Page # 2 of 3

Report To SYDNEY PATENACompany TEPERA CONAddress 21905 BUTTE AVE IN JHE 200City, State, ZIP Mountlake Terrace WAPhone 425 771 3844 Email sydney.patena@tepera.comtepera.comSAMPLERS (signature) SEP

PROJECT NAME & ADDRESS

81207336

PO #

NOTES:

cc: kyle.bennett@tepera.com
com

INVOICE TO

TURNAROUND TIME

☐ Standard
☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

☐ Default: Clean following final report delivery
☐ Hold (Fee may apply): _____

SAMPLE INFORMATION

ANALYSIS REQUESTED

| Sample Name | Lab ID | Canister ID | Flow Cont. ID | Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One) | Date Sampled | Initial Vac. ("Hg) | Field Initial Time | Final Vac. ("Hg) | Field Final Time | TO15 Full Scan | TO15 BTEXN | APH | Chlorinated VOCs | Helium | isopropyl alcohol | Notes |
|-------------|--------|-------------|---------------|---|--------------|--------------------|--------------------|------------------|------------------|----------------|------------|-----|------------------|--------|-------------------|-------------------------|
| BA3 | 09 | 40713 | 20490 | IA / SG | 11/25/24 | 31 | 1147 | 10 | 0935 | X | X | X | X | | | |
| BA4 | 10 | 20544 | 20488 | IA / SG | 11/25/24 | 30 | 1149 | 8 | 0936 | X | X | X | X | | | |
| BA5 | 11 | 32098 | 20483 | IA / SG | 11/25/24 | 31 | 1217 | 9.5 | 1003 | X | X | X | X | | | |
| VMP2 | 12 | 3250 | 52 | IA / SG | 11/26/24 | | | | | X | X | X | X | | | Cage 11/26 Per SB 11/26 |
| VMP3 | 13 | 2301 | 70 | IA / SG | | 29 | 1219 | 6 | 1223 | X | X | X | X | | | |
| VMP5 | 14 | 4180 | 242 | IA / SG | | 30 | 1226 | 6 | 1231 | X | X | X | X | | | |
| VMP7 | 15 | 8532 | 76 | IA / SG | | 30 | 1235 | 6 | 1240 | X | X | X | X | | | |
| VMP8 | 16 | 9565 | 68 | IA / SG | | 30 | 1158 | 6 | 1206 | X | X | X | X | | | |

Friedman & Bruya, Inc.

5500 4th Avenue South

Seattle, WA 98108

Ph. (206) 285-8282

Fax (206) 283-5044

FORMS\COCC\COCTO-15.DOC

| SIGNATURE | PRINT NAME | COMPANY | DATE | TIME |
|-----------------------------|---------------|------------------------|----------|------|
| Relinquished by: <u>SEP</u> | SYDNEY PATENA | TEPERA CON | 11/26/24 | 1430 |
| Received by: <u>WVH</u> | VIN H | FB1 | 11/26/24 | 1430 |
| Relinquished by: | | Samples received at JL | | |
| Received by: | | | | |

SAMPLE CHAIN OF CUSTODY

ME 11-26-24

411434

Report To SYDNEY PATENA

Company TERPACON

Address 21903 64th Ave in Ste 200

City, State, ZIP Mountlake Terrace WA

Phone 425 711 3004 Email sydney.patena@terpac.com

SAMPLETERS (signature) [Signature]

PROJECT NAME & ADDRESS

61204 336

PO #

NOTES:

cc: Walt Bennett @terpac.com

INVOICE TO

Page # 3 of 3

TURNAROUND TIME

☐ Standard

☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

Default: Clean following final report delivery Hold (Fee may apply): _____

SAMPLE INFORMATION

| Sample Name | Lab ID | Canister ID | Flow Cont. ID | Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One) | Date Sampled | Initial Vac. ("Hg) | Field Initial Time | Final Vac. ("Hg) | Field Final Time | TO15 Full Scan | TO15 BTEXN | APH | Chlorinated VOCs | Helium | Notes |
|-------------|--------|-------------|---------------|---|--------------|--------------------|--------------------|------------------|------------------|----------------|------------|-----|------------------|--------|-------------|
| VAP to | | 8535 | 302 | IA / (SG) | 11/26/24 | | | | | | X | X | X | X | not sampled |
| VMP 11 | 17 | 8528 | 302 | IA / (SG) | 11/26/24 | 30 | 1212 | 6 | 1217 | | X | X | X | X | PID=24.3 |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |

ANALYSIS REQUESTED

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by:

Received by:

Relinquished by:

Received by:

SYDNEY PATENA

TERPACON

11/26/24 1430

WALT

FB/

11-26-24 1430

Pl. (206) 285-8282

Fax (206) 283-5044

FORMS\COC\COC10-15.DOC

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 411434 CLIENT Terracon INITIALS/ AP
DATE: 11/26/24

If custody seals are present on cooler, are they intact? ☒ NA ☐ YES ☐ NO

Cooler/Sample temperature 17 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? ☐ YES ☒ NO

How did samples arrive?
☐ Over the Counter ☒ Picked up by F&BI ☐ FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? ☒ YES ☐ NO Initials/ AP
*or other representative documents, letters, and/or shipping memos Date: 11/26/24

Number of days samples have been sitting prior to receipt at laboratory 8-1 days

Are the samples clearly identified? (explain "no" answer below) ☒ YES ☐ NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☒ YES ☐ NO

Were appropriate sample containers used? ☒ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☒ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☒ NA ☐ YES ☐ NO

Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below).

| | | |
|--------------------|--|---|
| Sample ID's | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Not on COC/label |
| Date Sampled | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Not on COC/label |
| Time Sampled | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Not on COC/label |
| # of Containers | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| Relinquished | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| Requested analysis | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> On Hold | |

Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? ☐ NA ☒ YES ☐ NO

Number of unused TO15 canisters 03 Number of unused TO17 tubes 1

APPENDIX F

SUPPORTING DOCUMENTATION

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Vineta Mills, M.S.
Eric Young, B.S.

5500 4th Ave South
Seattle, WA 98108-2419
(206) 285-8282
office@friedmanandbruya.com
www.friedmanandbruya.com

March 18, 2025

Sydney Pazera, Project Manager
Terracon
Pacific Cascade Building
21905 64th Ave W, Suite 100
Mountlake Terrace, WA 98043

Dear Ms Pazera:

Included are the results from the testing of material submitted on November 26, 2024 from the 81207336, F&BI 411434 project. There are 18 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Michael Erdahl
Project Manager

Enclosures

c: Terracon A/P (TRR), Kyle Bennett
TRR0318R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on November 26, 2024 by Friedman & Bruya, Inc. from the Terracon 81207336, F&BI 411434 project. Samples were logged in under the laboratory ID's listed below.

| <u>Laboratory ID</u> | <u>Terracon</u> |
|----------------------|-----------------|
| 411434 -01 | IA1 |
| 411434 -02 | IA2 |
| 411434 -03 | IA3 |
| 411434 -04 | IA4 |
| 411434 -05 | IA5 |
| 411434 -06 | IA6 |
| 411434 -07 | BA1 |
| 411434 -08 | BA2 |
| 411434 -09 | BA3 |
| 411434 -10 | BA4 |
| 411434 -11 | BA5 |
| 411434 -12 | VMP2 |
| 411434 -13 | VMP3 |
| 411434 -14 | VMP5 |
| 411434 -15 | VMP7 |
| 411434 -16 | VMP8 |
| 411434 -17 | VMP11 |

Per request, the data associated with the air phase hydrocarbon (APH) concentrations reported for samples IA1, IA6, VMP7, VMP8, and VMP11 were reviewed for possible high bias. Based on the review, it was noted that the samples do not contain a pattern of peaks correlating with common petroleum distillates and that high bias was likely present. To characterize this high bias, F&B quantified compounds with a peak area greater than 0.1% of the relevant internal standard and qualitatively evaluated each compound. Compounds which did not qualitatively identify as petrogenic were excluded and compounds which did identify as petrogenic were included in the APH calculation.

Qualitative evaluation of non-APH compounds was performed based on mass spectra. In cases where mass spectral libraries were unavailable, such as silicon interferences, identification was performed using the expected isotopic abundance of ionized silicon species. Low level compounds, with area counts between 0.1% and 5% of the nearest internal standard, were also present. Because they could not be qualitatively identified, they were also excluded.

Both data sets are included in this report. The reprocessed APH ranges are reported by method TO-15 modified. The MA-APH concentrations were qualified accordingly.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 Modified

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA1 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-01 |
| Date Analyzed: | 11/26/24 | Data File: | 112619.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 94 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|------------|------------------------|
|------------|------------------------|

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | <75 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | 26 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 Modified

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA6 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-06 |
| Date Analyzed: | 11/27/24 | Data File: | 112624.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 91 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|------------|------------------------|
|------------|------------------------|

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | <75 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | 32 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 Modified

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP7 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-15 1/7.9 |
| Date Analyzed: | 11/27/24 | Data File: | 112717.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 102 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|------|
| APH EC5-8 aliphatics | <600 |
| APH EC9-12 aliphatics | <200 |
| APH EC9-10 aromatics | 240 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 Modified

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP8 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-16 1/5.5 |
| Date Analyzed: | 11/27/24 | Data File: | 112716.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 96 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|------|
| APH EC5-8 aliphatics | <420 |
| APH EC9-12 aliphatics | <140 |
| APH EC9-10 aromatics | <140 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 Modified

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP11 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-17 1/8.1 |
| Date Analyzed: | 11/27/24 | Data File: | 112718.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 102 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|------|
| APH EC5-8 aliphatics | <610 |
| APH EC9-12 aliphatics | <200 |
| APH EC9-10 aromatics | <200 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 Modified

| | | | |
|-------------------|----------------|-------------|-----------------------|
| Client Sample ID: | Method Blank | Client: | Terracon |
| Date Received: | Not Applicable | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 04-2863 MB |
| Date Analyzed: | 11/26/24 | Data File: | 112613.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 85 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|------------|------------------------|
|------------|------------------------|

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | <75 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method TO-15 Modified

| | | | |
|-------------------|----------------|-------------|-----------------------|
| Client Sample ID: | Method Blank | Client: | Terracon |
| Date Received: | Not Applicable | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/27/24 | Lab ID: | 04-2868 MB |
| Date Analyzed: | 11/27/24 | Data File: | 112712.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 83 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|------------|------------------------|
|------------|------------------------|

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | <75 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA1 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-01 |
| Date Analyzed: | 11/26/24 | Data File: | 112619.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 94 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-------|
| APH EC5-8 aliphatics | 140 x |
| APH EC9-12 aliphatics | 69 x |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA6 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-06 |
| Date Analyzed: | 11/27/24 | Data File: | 112624.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 91 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-------|
| APH EC5-8 aliphatics | 110 x |
| APH EC9-12 aliphatics | 70 x |
| APH EC9-10 aromatics | 37 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP7 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-15 1/7.9 |
| Date Analyzed: | 11/27/24 | Data File: | 112717.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 102 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|-----------------------|------------------------|
| APH EC5-8 aliphatics | 1,800 x |
| APH EC9-12 aliphatics | 1,100 x |
| APH EC9-10 aromatics | <200 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP8 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-16 1/5.5 |
| Date Analyzed: | 11/27/24 | Data File: | 112716.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 96 | 70 | 130 |

| Compounds: | Concentration ug/m3 |
|-----------------------|------------------------|
| APH EC5-8 aliphatics | 890 x |
| APH EC9-12 aliphatics | 500 x |
| APH EC9-10 aromatics | <140 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP11 | Client: | Terracon |
| Date Received: | 11/26/24 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 411434-17 1/8.1 |
| Date Analyzed: | 11/27/24 | Data File: | 112718.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 102 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|---------|
| APH EC5-8 aliphatics | 1,100 x |
| APH EC9-12 aliphatics | 970 x |
| APH EC9-10 aromatics | <200 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------------|-------------|-----------------------|
| Client Sample ID: | Method Blank | Client: | Terracon |
| Date Received: | Not Applicable | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/26/24 | Lab ID: | 04-2863 MB |
| Date Analyzed: | 11/26/24 | Data File: | 112613.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 85 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | <75 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By Method MA-APH

| | | | |
|-------------------|----------------|-------------|-----------------------|
| Client Sample ID: | Method Blank | Client: | Terracon |
| Date Received: | Not Applicable | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/27/24 | Lab ID: | 04-2868 MB |
| Date Analyzed: | 11/27/24 | Data File: | 112712.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 83 | 70 | 130 |

| | Concentration |
|------------|---------------|
| Compounds: | ug/m3 |

| | |
|-----------------------|-----|
| APH EC5-8 aliphatics | <75 |
| APH EC9-12 aliphatics | <25 |
| APH EC9-10 aromatics | <25 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/25

Date Received: 11/26/24

Project: 81207336, F&BI 411434

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD MA-APH**

Laboratory Code: 411385-01 1/5.0 (Duplicate)

| Analyte | Reporting Units | Sample Result | Duplicate Result | RPD (Limit 30) |
|-----------------------|--------------------|------------------|---------------------|-------------------|
| APH EC5-8 aliphatics | ug/m3 | 1,100 | 1,000 | 10 |
| APH EC9-12 aliphatics | ug/m3 | 530 | 600 | 12 |
| APH EC9-10 aromatics | ug/m3 | <120 | <120 | nm |

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|-----------------------|--------------------|----------------|----------------------------|------------------------|
| APH EC5-8 aliphatics | ug/m3 | 67 | 84 | 70-130 |
| APH EC9-12 aliphatics | ug/m3 | 67 | 95 | 70-130 |
| APH EC9-10 aromatics | ug/m3 | 67 | 91 | 70-130 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/18/25

Date Received: 11/26/24

Project: 81207336, F&BI 411434

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES
FOR VOLATILES BY METHOD MA-APH**

Laboratory Code: 411434-13 1/6.2 (Duplicate)

| Analyte | Reporting Units | Sample Result | Duplicate Result | RPD (Limit 30) |
|-----------------------|--------------------|------------------|---------------------|-------------------|
| APH EC5-8 aliphatics | ug/m3 | 680 | 630 | 8 |
| APH EC9-12 aliphatics | ug/m3 | <150 | <150 | nm |
| APH EC9-10 aromatics | ug/m3 | <150 | <150 | nm |

Laboratory Code: Laboratory Control Sample

| Analyte | Reporting Units | Spike Level | Percent Recovery LCS | Acceptance Criteria |
|-----------------------|--------------------|----------------|----------------------------|------------------------|
| APH EC5-8 aliphatics | ug/m3 | 67 | 87 | 70-130 |
| APH EC9-12 aliphatics | ug/m3 | 67 | 94 | 70-130 |
| APH EC9-10 aromatics | ug/m3 | 67 | 89 | 70-130 |

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria, biased low; or, the calibration results for the analyte were outside of acceptance criteria, biased high, with a detection for the analyte in the sample. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht - The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported between the method detection limit and the lowest calibration point. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

k - The calibration results for the analyte were outside of acceptance criteria, biased high, and the analyte was not detected in the sample.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

411434

SAMPLE CHAIN OF CUSTODY

ME 11-26-24

Page # 2 of 3

Report To SYDNEY PATENACompany TEPERA CONAddress 21905 Lure Ave in JTC 200City, State, ZIP Mountlake Terrace WAPhone 425 771 3844 Email sydney.patena@tepera.com

turnaround time

SAMPLERS (signature)

PROJECT NAME & ADDRESS

81207336

PO #

NOTES:

cc: Kyle Bennett @ tepera.com.
Can

INVOICE TO

☐ Standard
☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

 Default: Clean following
 final report delivery
 Hold (Fee may apply): _____

SAMPLE INFORMATION

ANALYSIS REQUESTED

| Sample Name | Lab ID | Canister ID | Flow Cont. ID | Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One) | Date Sampled | Initial Vac. (Hg) | Field Initial Time | Final Vac. (Hg) | Field Final Time | TO15 Full Scan | TO15 BTEXN | APH | Chlorinated VOCs | Helium | Notes |
|-------------|--------|-------------|---------------|--|--------------|-------------------|--------------------|-----------------|------------------|----------------|------------|-----|------------------|--------|---|
| B A 3 | 09 | 40713 | 20490 | IA / SG | 11/25/24 | 31 | 1147 | 10 | 0935 | X | X | X | X | | (X) - Reprocess Rever APT - per Notes KLB |
| B A 4 | 10 | 20544 | 20488 | IA / SG | 11/25/24 | 30 | 1149 | 8 | 0936 | X | X | X | X | | 4/03/18/25 |
| B A 5 | 11 | 32698 | 20483 | IA / SG | 11/25/24 | 31 | 1217 | 9.5 | 1003 | X | X | X | X | | Cancelled Per SB 11/26 |
| VMP 2 | 12 | 3250 | 52 | IA / SG | 11/26/24 | | | | | X | X | X | X | | |
| VMP 3 | 13 | 2301 | 70 | IA / SG | | 29 | 1219 | 6 | 1223 | X | X | X | X | | |
| VMP 5 | 14 | 4180 | 242 | IA / SG | | 30 | 1226 | 6 | 1231 | X | X | X | X | | |
| VMP 7 | 15 | 8532 | 76 | IA / SG | | 36 | 1235 | 6 | 1240 | X | X | X | X | | |
| VMP 8 | 16 | 9565 | 66 | IA / SG | | 30 | 1158 | 6 | 1266 | X | X | X | X | | |

Friedman & Bruja, Inc.

5500 4th Avenue South

Seattle, WA 98108

Ph. (206) 285-8282

Fax (206) 283-5044

FORMS\COC\COC70-15.DOC

SIGNATURE

PRINT NAME

COMPANY

DATE

TIME

Relinquished by:

Received by:

Relinquished by:

Received by:

SYDNEY PATENA

VIN H

TEPERA CON

FBI

11/26/24 1430

11/26/24 1430

Samples received at JLC

SAMPLE CHAIN OF CUSTODY

ME 11-26-24

Page # 1 of 3

411434

Report To SYDNEY PATERA

Company TERRACON

Address 21905 Burn Ave W Ste 200

City, State, ZIP Mountlake Terrace WA

Phone 425 741 3304 Email sydney.patera@terracon.com

| | | |
|--|--|--|
| SAMPLERS (signature) <i>[Signature]</i> | | PO # |
| PROJECT NAME & ADDRESS 61207 336 | | INVOICE TO |
| NOTES: KYLE BARNETT @ terracon.com | | SAMPLE DISPOSAL Default: Clean following final report delivery Hold (Fee may apply): |
| TURNAROUND TIME Standard RUSH 2-Day per 11/24/24 | | |

| SAMPLE INFORMATION | | | | | | | | | | ANALYSIS REQUESTED | | | | | Notes |
|--------------------|--------|-------------|---------------|--|--------------|--------------------|--------------------|------------------|------------------|--------------------|------------|-----|------------------|--------|-------|
| Sample Name | Lab ID | Canister ID | Flow Cont. ID | Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One) | Date Sampled | Initial Vac. (°Hg) | Field Initial Time | Final Vac. (°Hg) | Field Final Time | TO15 Full Scan | TO15 BTEXN | APH | Chlorinated VOCs | Helium | |
| 1A1 | 01 | 35339 | 26449 | IA / SG | 11/25/24 | 30 | 1155 | 6 | 0949 | | X | ⊗ | X | | |
| 1A2 | 02 | 26550 | 06667 | IA / SG | | 30.5 | 1200 | 8.5 | 0952 | | X | X | X | | |
| 1A3 | 03 | 37228 | 15214 | IA / SG | | 30 | 1203 | 7 | 0955 | | X | X | X | | |
| 1A4 | 04 | 21440 | 26466 | IA / SG | | 30 | 1207 | 6 | 0958 | | X | X | X | | |
| 1A5 | 05 | 21453 | 26445 | IA / SG | | 31 | 1209 | 8 | 0959 | | X | X | X | | |
| 1A6 | 06 | 18576 | 26474 | IA / SG | | 32 | 1211 | 9.5 | 1001 | | X | ⊗ | X | | |
| BA1 | 07 | 35332 | 26466 | IA / SG | | 30 | 1142 | 5 | 0931 | | X | X | X | | |
| BA2 | 08 | 40705 | 26474 | IA / SG | ↓ | 30 | 1144 | 6 | 0933 | | X | X | X | | |

Friedman & Bruya, Inc.
5500 4th Avenue South
Seattle, WA 98108
Ph. (206) 285-8282
Fax (206) 283-5044
FORMS\COG\COGCTD-15.DOC

| SIGNATURE | PRINT NAME | COMPANY | DATE | TIME |
|-------------------------------------|---------------|------------------------|----------|------|
| Relinquished by: <i>[Signature]</i> | SYDNEY PATERA | TERRACON | 11/26/24 | 1430 |
| Received by: <i>[Signature]</i> | WIM H | FB1 | 11-20-24 | 1430 |
| Relinquished by: | | Samples received at 17 | | |
| Received by: | | | | |

SAMPLE CHAIN OF CUSTODY

ME 11-26-24

411434

Report To SYDNEY PATENA

Company TEPERACON

Address 21903 64th Ave W SE 200

City, State, ZIP Mountlake Terrace WA

Phone 425 741 3504 Email sydney.patena@teperacon.com

SAMPLERS (signature) [Signature]

PROJECT NAME & ADDRESS 61209 336

PO #

NOTES:

Call Bennett@teperacon.com

INVOICE TO

Page # 3 of 3
TURNAROUND TIME

☐ Standard
☐ RUSH

Rush charges authorized by: _____

SAMPLE DISPOSAL

Default: Clean following final report delivery
Hold (Fee may apply): _____

SAMPLE INFORMATION

| Sample Name | Lab ID | Canister ID | Flow Cont. ID | Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One) | Date Sampled | Initial Vac. ("Hg) | Field Initial Time | Final Vac. ("Hg) | Field Final Time | TO15 Full Scan | TO15 BTEXN | APH | Chlorinated VOCs | Helium | Notes |
|-------------|--------|-------------|---------------|---|--------------|--------------------|--------------------|------------------|------------------|----------------|------------|-----|------------------|--------|-------------|
| VHP 10 | | 8535 | 302 | IA / SG | 11/26/24 | | | | | X | X | X | X | X | not sampled |
| VMP 11 | 17 | 8528 | 303 | IA / SG | 11/26/24 | 30 | 1212 | 6 | 1217 | X | X | X | X | X | PID=24.3 |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |
| | | | | IA / SG | | | | | | | | | | | |

ANALYSIS REQUESTED

Friedman & Bruya, Inc.

5500 4th Avenue South

Seattle, WA 98108

Ph. (206) 285-8282

Fax (206) 283-5044

FORMS\COC\COCTD-15.DOC

| SIGNATURE | PRINT NAME | COMPANY | DATE | TIME |
|--------------------|---------------|---------------------|----------|------|
| <u>[Signature]</u> | SYDNEY PATENA | TEPERACON | 11/26/24 | 1430 |
| <u>[Signature]</u> | VINNY | FB | 11-26-24 | 1430 |
| Received by: | | Samples received at | 17 | 00 |

SAMPLE CONDITION UPON RECEIPT CHECKLIST

PROJECT # 411434 CLIENT Terracon INITIALS/ AP
DATE: 11/26/24

If custody seals are present on cooler, are they intact? ☒ NA ☐ YES ☐ NO

Cooler/Sample temperature 17 °C
Thermometer ID: Fluke 96312917

Were samples received on ice/cold packs? ☐ YES ☒ NO

How did samples arrive?
☐ Over the Counter ☒ Picked up by F&BI ☐ FedEx/UPS/GSO

Is there a Chain-of-Custody* (COC)? ☒ YES ☐ NO Initials/ AP
*or other representative documents, letters, and/or shipping memos Date: 11/26/24

Number of days samples have been sitting prior to receipt at laboratory 0-1 days

Are the samples clearly identified? (explain "no" answer below) ☒ YES ☐ NO

Were all sample containers received intact (i.e. not broken, leaking etc.)? (explain "no" answer below) ☒ YES ☐ NO

Were appropriate sample containers used? ☒ YES ☐ NO ☐ Unknown

If custody seals are present on samples, are they intact? ☒ NA ☐ YES ☐ NO

Are samples requiring no headspace, headspace free? ☒ NA ☐ YES ☐ NO

Is the following information provided on the COC, and does it match the sample label?
(explain "no" answer below).

| | | |
|--------------------|---|---|
| Sample ID's | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Not on COC/label |
| Date Sampled | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Not on COC/label |
| Time Sampled | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Not on COC/label |
| # of Containers | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| Relinquished | <input type="checkbox"/> Yes <input type="checkbox"/> No | |
| Requested analysis | <input type="checkbox"/> Yes <input type="checkbox"/> On Hold | |

Other comments (use a separate page if needed)

Air Samples: Were any additional canisters/tubes received? ☐ NA ☒ YES ☐ NO

Number of unused TO15 canisters 03 Number of unused TO17 tubes

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA1 | Client: | Terracon |
| Date Received: | 11/26/25 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-01 |
| Date Analyzed: | 11/26/24 | Data File: | 112619.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % | Lower | Upper |
|----------------------|-----------|--------|--------|
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 98 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv | Compounds: | Concentration ug/m3 | ppbv |
|-----------------------------|------------------------|----------|---------------------------|------------------------|--------|
| Propene | <1.4 | <0.8 | 1,2-Dichloropropane | <0.23 | <0.05 |
| Dichlorodifluoromethane | 2.2 | 0.44 | 1,4-Dioxane | <0.36 | <0.1 |
| Chloromethane | <3.7 ca | <1.8 ca | 2,2,4-Trimethylpentane | <4.7 | <1 |
| F-114 | <2.1 | <0.3 | Methyl methacrylate | <4.1 | <1 |
| Vinyl chloride | <0.26 | <0.1 | Heptane | <4.1 | <1 |
| 1,3-Butadiene | <0.044 | <0.02 | Bromodichloromethane | <0.067 | <0.01 |
| Butane | 5.5 | 2.3 | Trichloroethene | <0.11 | <0.02 |
| Bromomethane | <3.9 | <1 | cis-1,3-Dichloropropene | <0.91 | <0.2 |
| Chloroethane | <2.6 | <1 | 4-Methyl-2-pentanone | <8.2 | <2 |
| Vinyl bromide | <0.44 | <0.1 | trans-1,3-Dichloropropene | <0.45 | <0.1 |
| Ethanol | 34 ve ca | 18 ve ca | Toluene | <7.5 | <2 |
| Acrolein | 0.33 | 0.15 | 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Pentane | <5.9 | <2 | 2-Hexanone | <4.1 | <1 |
| Trichlorofluoromethane | <2.2 | <0.4 | Tetrachloroethene | <6.8 | <1 |
| Acetone | 42 ve | 18 ve | Dibromochloromethane | <0.085 | <0.01 |
| 2-Propanol | <8.6 | <3.5 | 1,2-Dibromoethane (EDB) | <0.077 | <0.01 |
| 1,1-Dichloroethene | <0.4 | <0.1 | Chlorobenzene | <0.46 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 | Ethylbenzene | 0.67 | 0.15 |
| Methylene chloride | <35 | <10 | 1,1,2,2-Tetrachloroethane | <0.14 | <0.02 |
| t-Butyl alcohol (TBA) | <12 | <4 | Nonane | <5.2 | <1 |
| 3-Chloropropene | <3.1 | <1 | Isopropylbenzene | <9.8 | <2 |
| CFC-113 | <1.5 | <0.2 | 2-Chlorotoluene | <5.2 | <1 |
| Carbon disulfide | <6.2 | <2 | Propylbenzene | <4.9 | <1 |
| Methyl t-butyl ether (MTBE) | <7.2 | <2 | 4-Ethyltoluene | <4.9 | <1 |
| Vinyl acetate | <7 | <2 | m,p-Xylene | 2.3 | 0.54 |
| 1,1-Dichloroethane | <0.4 | <0.1 | o-Xylene | 0.93 | 0.21 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 | Styrene | <0.85 | <0.2 |
| Hexane | <3.5 | <1 | Bromoform | <2.1 | <0.2 |
| Chloroform | 0.10 | 0.021 | Benzyl chloride | <0.052 | <0.01 |
| Ethyl acetate | <7.2 | <2 | 1,3,5-Trimethylbenzene | <4.9 | <1 |
| Tetrahydrofuran | <0.88 | <0.3 | 1,2,4-Trimethylbenzene | 5.6 | 1.1 |
| 2-Butanone (MEK) | <5.9 | <2 | 1,3-Dichlorobenzene | <0.6 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.065 | 0.016 | 1,4-Dichlorobenzene | <0.23 | <0.038 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 | 1,2-Dichlorobenzene | <0.6 | <0.1 |
| Carbon tetrachloride | 0.38 | 0.061 | 1,2,4-Trichlorobenzene | <0.74 | <0.1 |
| Benzene | 0.59 | 0.18 | Naphthalene | <0.26 | <0.05 |
| Cyclohexane | <6.9 | <2 | Hexachlorobutadiene | <0.21 | <0.02 |

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | IA6 | Client: | Terracon |
| Date Received: | 11/26/25 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-06 |
| Date Analyzed: | 11/27/24 | Data File: | 112624.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| Surrogates: | | | |
| 4-Bromofluorobenzene | 95 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv | Compounds: | Concentration ug/m3 | ppbv |
|-----------------------------|------------------------|----------|---------------------------|------------------------|--------|
| Propene | <1.4 | <0.8 | 1,2-Dichloropropane | <0.23 | <0.05 |
| Dichlorodifluoromethane | 2.3 | 0.46 | 1,4-Dioxane | <0.36 | <0.1 |
| Chloromethane | <3.7 ca | <1.8 ca | 2,2,4-Trimethylpentane | <4.7 | <1 |
| F-114 | <2.1 | <0.3 | Methyl methacrylate | <4.1 | <1 |
| Vinyl chloride | <0.26 | <0.1 | Heptane | <4.1 | <1 |
| 1,3-Butadiene | <0.044 | <0.02 | Bromodichloromethane | <0.067 | <0.01 |
| Butane | <4.8 | <2 | Trichloroethene | <0.11 | <0.02 |
| Bromomethane | <3.9 | <1 | cis-1,3-Dichloropropene | <0.91 | <0.2 |
| Chloroethane | <2.6 | <1 | 4-Methyl-2-pentanone | <8.2 | <2 |
| Vinyl bromide | <0.44 | <0.1 | trans-1,3-Dichloropropene | <0.45 | <0.1 |
| Ethanol | 37 ve ca | 20 ve ca | Toluene | <7.5 | <2 |
| Acrolein | 0.18 | 0.079 | 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Pentane | 7.3 | 2.5 | 2-Hexanone | <4.1 | <1 |
| Trichlorofluoromethane | <2.2 | <0.4 | Tetrachloroethene | <6.8 | <1 |
| Acetone | 82 ve | 34 ve | Dibromochloromethane | <0.085 | <0.01 |
| 2-Propanol | 14 | 5.7 | 1,2-Dibromoethane (EDB) | <0.077 | <0.01 |
| 1,1-Dichloroethene | <0.4 | <0.1 | Chlorobenzene | <0.46 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 | Ethylbenzene | 0.64 | 0.15 |
| Methylene chloride | <35 | <10 | 1,1,2,2-Tetrachloroethane | <0.14 | <0.02 |
| t-Butyl alcohol (TBA) | <12 | <4 | Nonane | <5.2 | <1 |
| 3-Chloropropene | <3.1 | <1 | Isopropylbenzene | <9.8 | <2 |
| CFC-113 | <1.5 | <0.2 | 2-Chlorotoluene | <5.2 | <1 |
| Carbon disulfide | <6.2 | <2 | Propylbenzene | <4.9 | <1 |
| Methyl t-butyl ether (MTBE) | <7.2 | <2 | 4-Ethyltoluene | <4.9 | <1 |
| Vinyl acetate | <7 | <2 | m,p-Xylene | 2.5 | 0.58 |
| 1,1-Dichloroethane | <0.4 | <0.1 | o-Xylene | 1.1 | 0.24 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 | Styrene | 0.97 | 0.23 |
| Hexane | <3.5 | <1 | Bromoform | <2.1 | <0.2 |
| Chloroform | 0.083 | 0.017 | Benzyl chloride | <0.052 | <0.01 |
| Ethyl acetate | <7.2 | <2 | 1,3,5-Trimethylbenzene | <4.9 | <1 |
| Tetrahydrofuran | <0.88 | <0.3 | 1,2,4-Trimethylbenzene | 6.9 | 1.4 |
| 2-Butanone (MEK) | 6.4 | 2.2 | 1,3-Dichlorobenzene | <0.6 | <0.1 |
| 1,2-Dichloroethane (EDC) | 0.085 | 0.021 | 1,4-Dichlorobenzene | <0.23 | <0.038 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 | 1,2-Dichlorobenzene | <0.6 | <0.1 |
| Carbon tetrachloride | 0.38 | 0.060 | 1,2,4-Trichlorobenzene | <0.74 | <0.1 |
| Benzene | 0.58 | 0.18 | Naphthalene | 0.42 | 0.080 |
| Cyclohexane | <6.9 | <2 | Hexachlorobutadiene | <0.21 | <0.02 |

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP7 | Client: | Terracon |
| Date Received: | 11/26/25 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-15 1/7.9 |
| Date Analyzed: | 11/27/24 | Data File: | 112717.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| Surrogates: | | | |
| 4-Bromofluorobenzene | 105 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv | Compounds: | Concentration ug/m3 | ppbv |
|-----------------------------|------------------------|----------|---------------------------|------------------------|--------|
| Propene | <11 | <6.3 | 1,2-Dichloropropane | <1.8 | <0.39 |
| Dichlorodifluoromethane | <7.8 | <1.6 | 1,4-Dioxane | <2.8 | <0.79 |
| Chloromethane | <29 | <14 | 2,2,4-Trimethylpentane | <37 | <7.9 |
| F-114 | <17 | <2.4 | Methyl methacrylate | <32 | <7.9 |
| Vinyl chloride | <2 | <0.79 | Heptane | <32 | <7.9 |
| 1,3-Butadiene | <0.35 | <0.16 | Bromodichloromethane | <0.53 | <0.079 |
| Butane | <38 | <16 | Trichloroethene | <0.85 | <0.16 |
| Bromomethane | <31 | <7.9 | cis-1,3-Dichloropropene | <7.2 | <1.6 |
| Chloroethane | <21 | <7.9 | 4-Methyl-2-pentanone | <65 ca | <16 ca |
| Vinyl bromide | <3.5 | <0.79 | trans-1,3-Dichloropropene | <3.6 | <0.79 |
| Ethanol | <60 ca | <32 ca | Toluene | <60 | <16 |
| Acrolein | <0.91 | <0.39 | 1,1,2-Trichloroethane | <0.43 | <0.079 |
| Pentane | <47 | <16 | 2-Hexanone | <32 | <7.9 |
| Trichlorofluoromethane | <18 | <3.2 | Tetrachloroethene | <54 | <7.9 |
| Acetone | 250 | 110 | Dibromochloromethane | <0.67 | <0.079 |
| 2-Propanol | <68 | <28 | 1,2-Dibromoethane (EDB) | <0.61 | <0.079 |
| 1,1-Dichloroethene | <3.1 | <0.79 | Chlorobenzene | <3.6 | <0.79 |
| trans-1,2-Dichloroethene | <3.1 | <0.79 | Ethylbenzene | <3.4 | <0.79 |
| Methylene chloride | <270 | <79 | 1,1,2,2-Tetrachloroethane | <1.1 | <0.16 |
| t-Butyl alcohol (TBA) | <96 | <32 | Nonane | <41 | <7.9 |
| 3-Chloropropene | <25 | <7.9 | Isopropylbenzene | <78 | <16 |
| CFC-113 | <12 | <1.6 | 2-Chlorotoluene | <41 | <7.9 |
| Carbon disulfide | <49 | <16 | Propylbenzene | <39 | <7.9 |
| Methyl t-butyl ether (MTBE) | <57 | <16 | 4-Ethyltoluene | <39 | <7.9 |
| Vinyl acetate | <56 | <16 | m,p-Xylene | 9.7 | 2.2 |
| 1,1-Dichloroethane | <3.2 | <0.79 | o-Xylene | 6.8 | 1.6 |
| cis-1,2-Dichloroethene | <3.1 | <0.79 | Styrene | <6.7 | <1.6 |
| Hexane | <28 | <7.9 | Bromoform | <16 | <1.6 |
| Chloroform | 3.3 | 0.68 | Benzyl chloride | <0.41 | <0.079 |
| Ethyl acetate | <57 | <16 | 1,3,5-Trimethylbenzene | <39 | <7.9 |
| Tetrahydrofuran | 3,100 ve | 1,100 ve | 1,2,4-Trimethylbenzene | 44 | 8.9 |
| 2-Butanone (MEK) | 150 | 50 | 1,3-Dichlorobenzene | <4.7 | <0.79 |
| 1,2-Dichloroethane (EDC) | <0.32 | <0.079 | 1,4-Dichlorobenzene | <1.8 | <0.3 |
| 1,1,1-Trichloroethane | <4.3 | <0.79 | 1,2-Dichlorobenzene | <4.7 | <0.79 |
| Carbon tetrachloride | <2.5 | <0.39 | 1,2,4-Trichlorobenzene | <5.9 | <0.79 |
| Benzene | <2.5 | <0.79 | Naphthalene | <2.1 | <0.39 |
| Cyclohexane | <54 | <16 | Hexachlorobutadiene | <1.7 | <0.16 |

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP8 | Client: | Terracon |
| Date Received: | 11/26/25 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-16 1/5.5 |
| Date Analyzed: | 11/27/24 | Data File: | 112716.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| Surrogates: | | | |
| 4-Bromofluorobenzene | 99 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv | Compounds: | Concentration ug/m3 | ppbv |
|-----------------------------|------------------------|----------|---------------------------|------------------------|--------|
| Propene | <7.6 | <4.4 | 1,2-Dichloropropane | <1.3 | <0.28 |
| Dichlorodifluoromethane | <5.4 | <1.1 | 1,4-Dioxane | <2 | <0.55 |
| Chloromethane | <20 | <9.9 | 2,2,4-Trimethylpentane | <26 | <5.5 |
| F-114 | <12 | <1.6 | Methyl methacrylate | <23 | <5.5 |
| Vinyl chloride | <1.4 | <0.55 | Heptane | <23 | <5.5 |
| 1,3-Butadiene | <0.24 | <0.11 | Bromodichloromethane | <0.37 | <0.055 |
| Butane | <26 | <11 | Trichloroethene | <0.59 | <0.11 |
| Bromomethane | <21 | <5.5 | cis-1,3-Dichloropropene | <5 | <1.1 |
| Chloroethane | <15 | <5.5 | 4-Methyl-2-pentanone | <45 ca | <11 ca |
| Vinyl bromide | <2.4 | <0.55 | trans-1,3-Dichloropropene | <2.5 | <0.55 |
| Ethanol | 170 ve ca | 89 ve ca | Toluene | <41 | <11 |
| Acrolein | <0.63 | <0.28 | 1,1,2-Trichloroethane | <0.3 | <0.055 |
| Pentane | <32 | <11 | 2-Hexanone | <23 | <5.5 |
| Trichlorofluoromethane | <12 | <2.2 | Tetrachloroethene | <37 | <5.5 |
| Acetone | 130 | 55 | Dibromochloromethane | <0.47 | <0.055 |
| 2-Propanol | <47 | <19 | 1,2-Dibromoethane (EDB) | <0.42 | <0.055 |
| 1,1-Dichloroethene | <2.2 | <0.55 | Chlorobenzene | <2.5 | <0.55 |
| trans-1,2-Dichloroethene | <2.2 | <0.55 | Ethylbenzene | 3.9 | 0.90 |
| Methylene chloride | <190 | <55 | 1,1,2,2-Tetrachloroethane | <0.76 | <0.11 |
| t-Butyl alcohol (TBA) | <67 | <22 | Nonane | <29 | <5.5 |
| 3-Chloropropene | <17 | <5.5 | Isopropylbenzene | <54 | <11 |
| CFC-113 | <8.4 | <1.1 | 2-Chlorotoluene | <28 | <5.5 |
| Carbon disulfide | <34 | <11 | Propylbenzene | <27 | <5.5 |
| Methyl t-butyl ether (MTBE) | <40 | <11 | 4-Ethyltoluene | <27 | <5.5 |
| Vinyl acetate | <39 | <11 | m,p-Xylene | 14 | 3.2 |
| 1,1-Dichloroethane | <2.2 | <0.55 | o-Xylene | 4.6 | 1.1 |
| cis-1,2-Dichloroethene | <2.2 | <0.55 | Styrene | <4.7 | <1.1 |
| Hexane | <19 | <5.5 | Bromoform | <11 | <1.1 |
| Chloroform | 0.35 | 0.071 | Benzyl chloride | <0.28 | <0.055 |
| Ethyl acetate | <40 | <11 | 1,3,5-Trimethylbenzene | <27 | <5.5 |
| Tetrahydrofuran | 190 | 66 | 1,2,4-Trimethylbenzene | <27 | <5.5 |
| 2-Butanone (MEK) | 170 | 58 | 1,3-Dichlorobenzene | <3.3 | <0.55 |
| 1,2-Dichloroethane (EDC) | <0.22 | <0.055 | 1,4-Dichlorobenzene | <1.3 | <0.21 |
| 1,1,1-Trichloroethane | <3 | <0.55 | 1,2-Dichlorobenzene | <3.3 | <0.55 |
| Carbon tetrachloride | <1.7 | <0.28 | 1,2,4-Trichlorobenzene | <4.1 | <0.55 |
| Benzene | <1.8 | <0.55 | Naphthalene | <1.4 | <0.28 |
| Cyclohexane | <38 | <11 | Hexachlorobutadiene | <1.2 | <0.11 |

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------|-------------|-----------------------|
| Client Sample ID: | VMP11 | Client: | Terracon |
| Date Received: | 11/26/25 | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/25/24 | Lab ID: | 411434-17 1/8.1 |
| Date Analyzed: | 11/27/24 | Data File: | 112718.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|-------------|--------------|--------------|
| Surrogates: | | | |
| 4-Bromofluorobenzene | 106 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv | Compounds: | Concentration ug/m3 | ppbv |
|-----------------------------|------------------------|-----------|---------------------------|------------------------|--------|
| Propene | <11 | <6.5 | 1,2-Dichloropropane | <1.9 | <0.4 |
| Dichlorodifluoromethane | <8 | <1.6 | 1,4-Dioxane | <2.9 | <0.81 |
| Chloromethane | <30 | <15 | 2,2,4-Trimethylpentane | <38 | <8.1 |
| F-114 | <17 | <2.4 | Methyl methacrylate | <33 | <8.1 |
| Vinyl chloride | <2.1 | <0.81 | Heptane | <33 | <8.1 |
| 1,3-Butadiene | <0.36 | <0.16 | Bromodichloromethane | <0.54 | <0.081 |
| Butane | <39 | <16 | Trichloroethene | <0.87 | <0.16 |
| Bromomethane | <31 | <8.1 | cis-1,3-Dichloropropene | <7.4 | <1.6 |
| Chloroethane | <21 | <8.1 | 4-Methyl-2-pentanone | <66 ca | <16 ca |
| Vinyl bromide | <3.5 | <0.81 | trans-1,3-Dichloropropene | <3.7 | <0.81 |
| Ethanol | <61 ca | <32 ca | Toluene | <61 | <16 |
| Acrolein | <0.93 | <0.4 | 1,1,2-Trichloroethane | <0.44 | <0.081 |
| Pentane | <48 | <16 | 2-Hexanone | <33 | <8.1 |
| Trichlorofluoromethane | <18 | <3.2 | Tetrachloroethene | <55 | <8.1 |
| Acetone | 51 | 21 | Dibromochloromethane | <0.69 | <0.081 |
| 2-Propanol | <70 | <28 | 1,2-Dibromoethane (EDB) | <0.62 | <0.081 |
| 1,1-Dichloroethene | <3.2 | <0.81 | Chlorobenzene | <3.7 | <0.81 |
| trans-1,2-Dichloroethene | <3.2 | <0.81 | Ethylbenzene | <3.5 | <0.81 |
| Methylene chloride | <280 | <81 | 1,1,2,2-Tetrachloroethane | <1.1 | <0.16 |
| t-Butyl alcohol (TBA) | <98 | <32 | Nonane | <42 | <8.1 |
| 3-Chloropropene | <25 | <8.1 | Isopropylbenzene | <80 | <16 |
| CFC-113 | <12 | <1.6 | 2-Chlorotoluene | <42 | <8.1 |
| Carbon disulfide | <50 | <16 | Propylbenzene | <40 | <8.1 |
| Methyl t-butyl ether (MTBE) | <58 | <16 | 4-Ethyltoluene | <40 | <8.1 |
| Vinyl acetate | <57 | <16 | m,p-Xylene | <7 | <1.6 |
| 1,1-Dichloroethane | <3.3 | <0.81 | o-Xylene | <3.5 | <0.81 |
| cis-1,2-Dichloroethene | <3.2 | <0.81 | Styrene | <6.9 | <1.6 |
| Hexane | <29 | <8.1 | Bromoform | <17 | <1.6 |
| Chloroform | <0.4 | <0.081 | Benzyl chloride | <0.42 | <0.081 |
| Ethyl acetate | <58 | <16 | 1,3,5-Trimethylbenzene | <40 | <8.1 |
| Tetrahydrofuran | 140,000 ve | 49,000 ve | 1,2,4-Trimethylbenzene | <40 | <8.1 |
| 2-Butanone (MEK) | <48 | <16 | 1,3-Dichlorobenzene | <4.9 | <0.81 |
| 1,2-Dichloroethane (EDC) | <0.33 | <0.081 | 1,4-Dichlorobenzene | <1.9 | <0.31 |
| 1,1,1-Trichloroethane | <4.4 | <0.81 | 1,2-Dichlorobenzene | <4.9 | <0.81 |
| Carbon tetrachloride | <2.5 | <0.4 | 1,2,4-Trichlorobenzene | <6 | <0.81 |
| Benzene | <2.6 | <0.81 | Naphthalene | <2.1 | <0.4 |
| Cyclohexane | <56 | <16 | Hexachlorobutadiene | <1.7 | <0.16 |

Analysis For Volatile Compounds By Method TO-15

| | |
|--------------------------------|--------------------------------|
| Client Sample ID: Method Blank | Client: Terracon |
| Date Received: Not Applicable | Project: 81207336, F&BI 411434 |
| Date Collected: 11/26/24 | Lab ID: 04-2863 MB |
| Date Analyzed: 11/26/24 | Data File: 112613.D |
| Matrix: Air | Instrument: GCMS7 |
| Units: ug/m3 | Operator: bat |

| | | | |
|----------------------|-----------|--------|--------|
| | % | Lower | Upper |
| Surrogates: | Recovery: | Limit: | Limit: |
| 4-Bromofluorobenzene | 88 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv | Compounds: | Concentration ug/m3 | ppbv |
|-----------------------------|------------------------|---------|---------------------------|------------------------|--------|
| Propene | <1.4 | <0.8 | 1,2-Dichloropropane | <0.23 | <0.05 |
| Dichlorodifluoromethane | <0.99 | <0.2 | 1,4-Dioxane | <0.36 | <0.1 |
| Chloromethane | <3.7 ca | <1.8 ca | 2,2,4-Trimethylpentane | <4.7 | <1 |
| F-114 | <2.1 | <0.3 | Methyl methacrylate | <4.1 | <1 |
| Vinyl chloride | <0.26 | <0.1 | Heptane | <4.1 | <1 |
| 1,3-Butadiene | <0.044 | <0.02 | Bromodichloromethane | <0.067 | <0.01 |
| Butane | <4.8 | <2 | Trichloroethene | <0.11 | <0.02 |
| Bromomethane | <3.9 | <1 | cis-1,3-Dichloropropene | <0.91 | <0.2 |
| Chloroethane | <2.6 | <1 | 4-Methyl-2-pentanone | <8.2 ca | <2 ca |
| Vinyl bromide | <0.44 | <0.1 | trans-1,3-Dichloropropene | <0.45 | <0.1 |
| Ethanol | <7.5 | <4 | Toluene | <7.5 | <2 |
| Acrolein | <0.11 | <0.05 | 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Pentane | <5.9 | <2 | 2-Hexanone | <4.1 | <1 |
| Trichlorofluoromethane | <2.2 | <0.4 | Tetrachloroethene | <6.8 | <1 |
| Acetone | <4.8 | <2 | Dibromochloromethane | <0.085 | <0.01 |
| 2-Propanol | <8.6 | <3.5 | 1,2-Dibromoethane (EDB) | <0.077 | <0.01 |
| 1,1-Dichloroethene | <0.4 | <0.1 | Chlorobenzene | <0.46 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 | Ethylbenzene | <0.43 | <0.1 |
| Methylene chloride | <35 | <10 | 1,1,2,2-Tetrachloroethane | <0.14 | <0.02 |
| t-Butyl alcohol (TBA) | <12 | <4 | Nonane | <5.2 | <1 |
| 3-Chloropropene | <3.1 | <1 | Isopropylbenzene | <9.8 | <2 |
| CFC-113 | <1.5 | <0.2 | 2-Chlorotoluene | <5.2 | <1 |
| Carbon disulfide | <6.2 | <2 | Propylbenzene | <4.9 | <1 |
| Methyl t-butyl ether (MTBE) | <7.2 | <2 | 4-Ethyltoluene | <4.9 | <1 |
| Vinyl acetate | <7 | <2 | m,p-Xylene | <0.87 | <0.2 |
| 1,1-Dichloroethane | <0.4 | <0.1 | o-Xylene | <0.43 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 | Styrene | <0.85 | <0.2 |
| Hexane | <3.5 | <1 | Bromoform | <2.1 | <0.2 |
| Chloroform | <0.049 | <0.01 | Benzyl chloride | <0.052 | <0.01 |
| Ethyl acetate | <7.2 | <2 | 1,3,5-Trimethylbenzene | <4.9 | <1 |
| Tetrahydrofuran | <0.88 | <0.3 | 1,2,4-Trimethylbenzene | <4.9 | <1 |
| 2-Butanone (MEK) | <5.9 | <2 | 1,3-Dichlorobenzene | <0.6 | <0.1 |
| 1,2-Dichloroethane (EDC) | <0.04 | <0.01 | 1,4-Dichlorobenzene | <0.23 | <0.038 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 | 1,2-Dichlorobenzene | <0.6 | <0.1 |
| Carbon tetrachloride | <0.31 | <0.05 | 1,2,4-Trichlorobenzene | <0.74 | <0.1 |
| Benzene | <0.32 | <0.1 | Naphthalene | <0.26 | <0.05 |
| Cyclohexane | <6.9 | <2 | Hexachlorobutadiene | <0.21 | <0.02 |

Analysis For Volatile Compounds By Method TO-15

| | | | |
|-------------------|----------------|-------------|-----------------------|
| Client Sample ID: | Method Blank | Client: | Terracon |
| Date Received: | Not Applicable | Project: | 81207336, F&BI 411434 |
| Date Collected: | 11/27/24 | Lab ID: | 04-2868 MB |
| Date Analyzed: | 11/27/24 | Data File: | 112712.D |
| Matrix: | Air | Instrument: | GCMS7 |
| Units: | ug/m3 | Operator: | bat |

| | % Recovery: | Lower Limit: | Upper Limit: |
|----------------------|----------------|-----------------|-----------------|
| Surrogates: | | | |
| 4-Bromofluorobenzene | 86 | 70 | 130 |

| Compounds: | Concentration ug/m3 | ppbv | Compounds: | Concentration ug/m3 | ppbv |
|-----------------------------|------------------------|-------|---------------------------|------------------------|--------|
| Propene | <1.4 | <0.8 | 1,2-Dichloropropane | <0.23 | <0.05 |
| Dichlorodifluoromethane | <0.99 | <0.2 | 1,4-Dioxane | <0.36 | <0.1 |
| Chloromethane | <3.7 | <1.8 | 2,2,4-Trimethylpentane | <4.7 | <1 |
| F-114 | <2.1 | <0.3 | Methyl methacrylate | <4.1 | <1 |
| Vinyl chloride | <0.26 | <0.1 | Heptane | <4.1 | <1 |
| 1,3-Butadiene | <0.044 | <0.02 | Bromodichloromethane | <0.067 | <0.01 |
| Butane | <4.8 | <2 | Trichloroethene | <0.11 | <0.02 |
| Bromomethane | <3.9 | <1 | cis-1,3-Dichloropropene | <0.91 | <0.2 |
| Chloroethane | <2.6 | <1 | 4-Methyl-2-pentanone | <8.2 ca | <2 ca |
| Vinyl bromide | <0.44 | <0.1 | trans-1,3-Dichloropropene | <0.45 | <0.1 |
| Ethanol | <7.5 ca | <4 ca | Toluene | <7.5 | <2 |
| Acrolein | <0.11 | <0.05 | 1,1,2-Trichloroethane | <0.055 | <0.01 |
| Pentane | <5.9 | <2 | 2-Hexanone | <4.1 | <1 |
| Trichlorofluoromethane | <2.2 | <0.4 | Tetrachloroethene | <6.8 | <1 |
| Acetone | <4.8 | <2 | Dibromochloromethane | <0.085 | <0.01 |
| 2-Propanol | <8.6 | <3.5 | 1,2-Dibromoethane (EDB) | <0.077 | <0.01 |
| 1,1-Dichloroethene | <0.4 | <0.1 | Chlorobenzene | <0.46 | <0.1 |
| trans-1,2-Dichloroethene | <0.4 | <0.1 | Ethylbenzene | <0.43 | <0.1 |
| Methylene chloride | <35 | <10 | 1,1,2,2-Tetrachloroethane | <0.14 | <0.02 |
| t-Butyl alcohol (TBA) | <12 | <4 | Nonane | <5.2 | <1 |
| 3-Chloropropene | <3.1 | <1 | Isopropylbenzene | <9.8 | <2 |
| CFC-113 | <1.5 | <0.2 | 2-Chlorotoluene | <5.2 | <1 |
| Carbon disulfide | <6.2 | <2 | Propylbenzene | <4.9 | <1 |
| Methyl t-butyl ether (MTBE) | <7.2 | <2 | 4-Ethyltoluene | <4.9 | <1 |
| Vinyl acetate | <7 | <2 | m,p-Xylene | <0.87 | <0.2 |
| 1,1-Dichloroethane | <0.4 | <0.1 | o-Xylene | <0.43 | <0.1 |
| cis-1,2-Dichloroethene | <0.4 | <0.1 | Styrene | <0.85 | <0.2 |
| Hexane | <3.5 | <1 | Bromoform | <2.1 | <0.2 |
| Chloroform | <0.049 | <0.01 | Benzyl chloride | <0.052 | <0.01 |
| Ethyl acetate | <7.2 | <2 | 1,3,5-Trimethylbenzene | <4.9 | <1 |
| Tetrahydrofuran | <0.88 | <0.3 | 1,2,4-Trimethylbenzene | <4.9 | <1 |
| 2-Butanone (MEK) | <5.9 | <2 | 1,3-Dichlorobenzene | <0.6 | <0.1 |
| 1,2-Dichloroethane (EDC) | <0.04 | <0.01 | 1,4-Dichlorobenzene | <0.23 | <0.038 |
| 1,1,1-Trichloroethane | <0.55 | <0.1 | 1,2-Dichlorobenzene | <0.6 | <0.1 |
| Carbon tetrachloride | <0.31 | <0.05 | 1,2,4-Trichlorobenzene | <0.74 | <0.1 |
| Benzene | <0.32 | <0.1 | Naphthalene | <0.26 | <0.05 |
| Cyclohexane | <6.9 | <2 | Hexachlorobutadiene | <0.21 | <0.02 |

Attachment 2
Weather Plots and Data Tables

47.88 °N, 122.24 °W

Everett, WA Weather History ★ 🏠

☁ 48° SEATTLE PAINE FIELD INTL AIRPORT STATION (/DASHBOARD/PWS/KWAEVERE321?CM_VEN=LOCALWX_PWSDASH) | CHANGE ✓

HISTORY (/HISTORY/DAILY/US/WA/EVERETT/KPAE)

- [TODAY \(/WEATHER/US/WA/EVERETT/KPAE\)](/WEATHER/US/WA/EVERETT/KPAE)
- [HOURLY \(/HOURLY/US/WA/EVERETT/KPAE\)](/HOURLY/US/WA/EVERETT/KPAE)
- [10-DAY \(/FORECAST/US/WA/EVERETT/KPAE\)](/FORECAST/US/WA/EVERETT/KPAE)
- [CALENDAR \(/CALENDAR/US/WA/EVERETT/KPAE\)](/CALENDAR/US/WA/EVERETT/KPAE)
- [HISTORY \(/HISTORY/DAILY/US/WA/EVERETT/KPAE\)](/HISTORY/DAILY/US/WA/EVERETT/KPAE)
- [WUNDERMAP \(/WUNDERMAP?LAT=47.882&LON=-122.239\)](/WUNDERMAP?LAT=47.882&LON=-122.239)

Daily Weekly Monthly

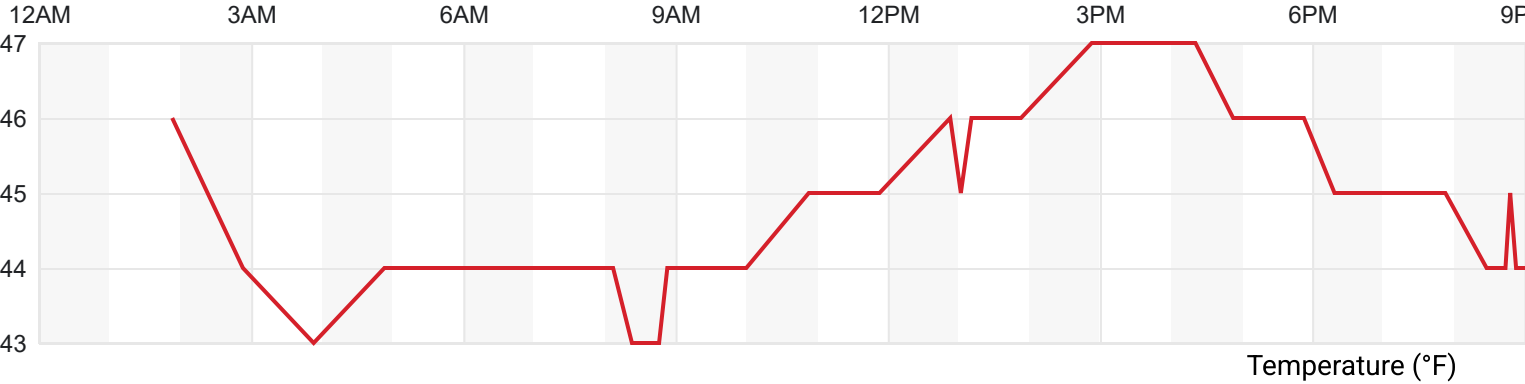
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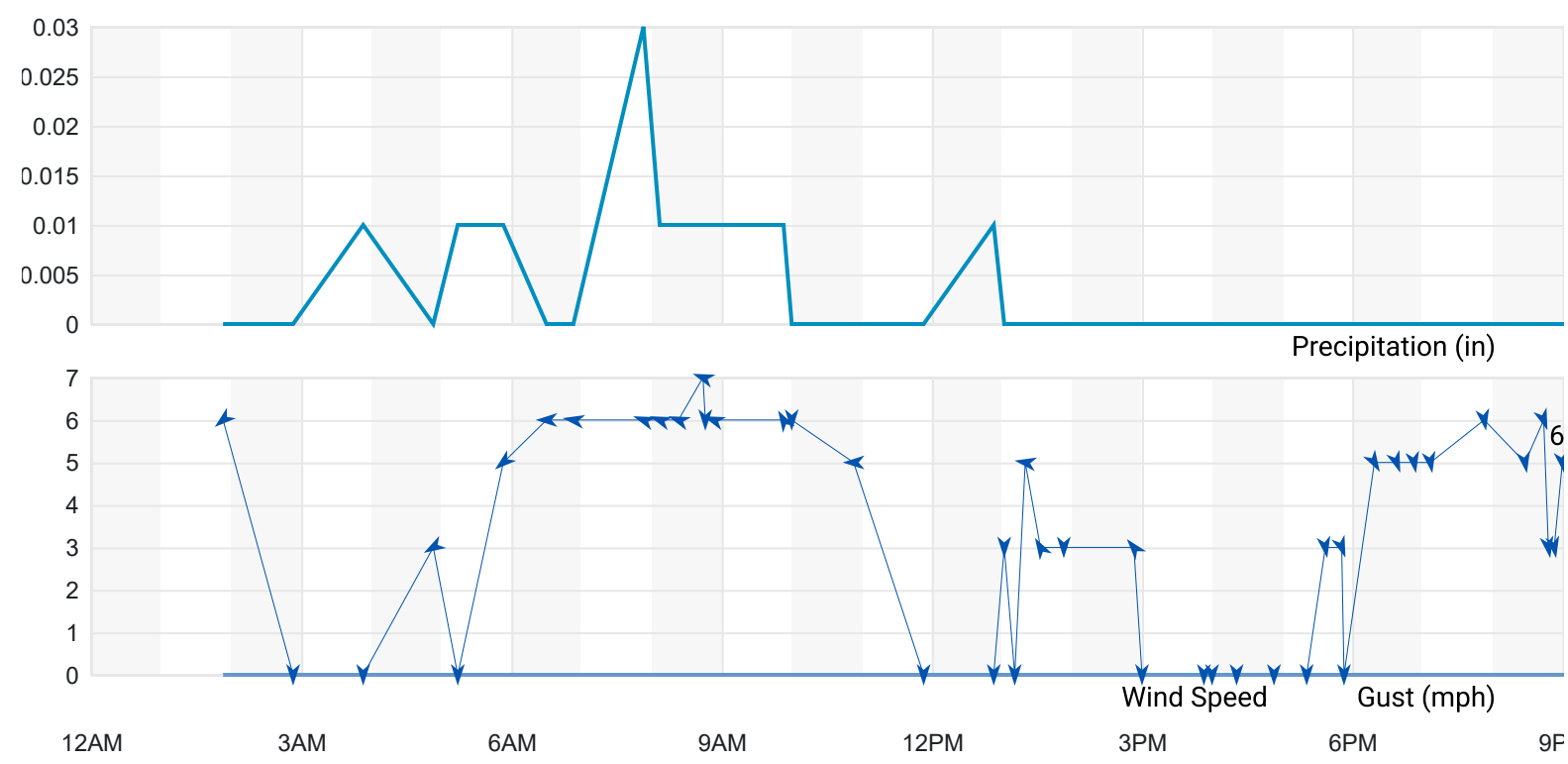
November

25

2024

View





Summary

| Temperature (°F) | Actual | Historic Avg. | Record | ▲ |
|---|--------|---------------|--------|---|
| High Temp | 47 | 49.9 | 63 | |
| Low Temp | 43 | 36 | -- | |
| Day Average Temp | 44.64 | 43 | - | |
| Precipitation (in) | Actual | Historic Avg. | Record | ▲ |
| Precipitation (past 24 hours from 11:53:00) | 0.01 | -- | - | |
| Dew Point (°F) | Actual | Historic Avg. | Record | ▲ |
| Dew Point | 41.78 | - | - | |
| High | 44 | - | - | |
| Low | 39 | - | - | |
| Average | 41.78 | - | - | |
| Wind (mph) | Actual | Historic Avg. | Record | ▲ |
| Max Wind Speed | 7 | - | - | |
| Visibility | 10 | - | - | |

| | | | | |
|-------------------------|------------|---------------|---------|---|
| Temperature (°F) | Actual | Historic Avg. | Record | ▲ |
| Sea Level Pressure (in) | Actual | Historic Avg. | Record | ▲ |
| Sea Level Pressure | 29.38 | - | - | |
| Astronomy | Day Length | Rise | Set | ▲ |
| Actual Time | 8h 52m | 7:31 AM | 4:23 PM | |
| Civil Twilight | | 6:56 AM | 4:58 PM | |
| Nautical Twilight | | 6:18 AM | 5:36 PM | |
| Astronomical Twilight | | 5:41 AM | 6:13 PM | |
| Moon: waning crescent | | 1:45 AM | 1:57 PM | |

Daily Observations

| Time | Temperature | Dew Point | Humidity | Wind | Wind Speed | Wind Gust | Pressure | Precip. | Condition |
|---------|-------------|-----------|----------|------|------------|-----------|----------|---------|------------|
| 1:53 AM | 46 °F | 39 °F | 76 % | NE | 6 mph | 0 mph | 29.22 in | 0.0 in | Light Rain |
| 2:53 AM | 44 °F | 39 °F | 82 % | CALM | 0 mph | 0 mph | 29.22 in | 0.0 in | Light Rain |
| 3:53 AM | 43 °F | 40 °F | 89 % | CALM | 0 mph | 0 mph | 29.23 in | 0.0 in | Light Rain |
| 4:53 AM | 44 °F | 40 °F | 85 % | ENE | 3 mph | 0 mph | 29.23 in | 0.0 in | Light Rain |
| 5:14 AM | 44 °F | 40 °F | 85 % | CALM | 0 mph | 0 mph | 29.24 in | 0.0 in | Light Rain |
| 5:53 AM | 44 °F | 40 °F | 85 % | NE | 5 mph | 0 mph | 29.24 in | 0.0 in | Light Rain |
| 6:30 AM | 44 °F | 40 °F | 85 % | E | 6 mph | 0 mph | 29.24 in | 0.0 in | Light Rain |
| 6:53 AM | 44 °F | 40 °F | 85 % | E | 6 mph | 0 mph | 29.24 in | 0.0 in | Light Rain |
| 7:53 AM | 44 °F | 41 °F | 89 % | ESE | 6 mph | 0 mph | 29.25 in | 0.0 in | Light Rain |
| 8:07 AM | 44 °F | 41 °F | 89 % | ESE | 6 mph | 0 mph | 29.25 in | 0.0 in | Light Rain |
| 8:23 AM | 43 °F | 41 °F | 93 % | ESE | 6 mph | 0 mph | 29.26 in | 0.0 in | Light Rain |
| 8:44 AM | 43 °F | 41 °F | 93 % | ESE | 7 mph | 0 mph | 29.26 in | 0.0 in | Light Rain |

| Time | Temperature | Dew Point | Humidity | Wind | Wind Speed | Wind Gust | Pressure | Precip. | Condition |
|----------|-------------|-----------|----------|------|------------|-----------|----------|---------|------------|
| 8:46 AM | 43 °F | 41 °F | 93 % | VAR | 6 mph | 0 mph | 29.26 in | 0.0 in | Light Rain |
| 8:53 AM | 44 °F | 41 °F | 89 % | ESE | 6 mph | 0 mph | 29.26 in | 0.0 in | Light Rain |
| 9:53 AM | 44 °F | 41 °F | 89 % | SSE | 6 mph | 0 mph | 29.28 in | 0.0 in | Light Rain |
| 10:00 AM | 44 °F | 41 °F | 89 % | VAR | 6 mph | 0 mph | 29.28 in | 0.0 in | Light Rain |
| 10:53 AM | 45 °F | 42 °F | 90 % | E | 5 mph | 0 mph | 29.29 in | 0.0 in | Light Rain |
| 11:53 AM | 45 °F | 42 °F | 90 % | CALM | 0 mph | 0 mph | 29.30 in | 0.0 in | Light Rain |
| 12:53 PM | 46 °F | 43 °F | 89 % | CALM | 0 mph | 0 mph | 29.30 in | 0.0 in | Mist |
| 1:02 PM | 45 °F | 42 °F | 90 % | VAR | 3 mph | 0 mph | 29.30 in | 0.0 in | Light Rain |
| 1:11 PM | 46 °F | 43 °F | 89 % | CALM | 0 mph | 0 mph | 29.30 in | 0.0 in | Light Rain |
| 1:20 PM | 46 °F | 43 °F | 89 % | E | 5 mph | 0 mph | 29.29 in | 0.0 in | Mist |
| 1:33 PM | 46 °F | 43 °F | 89 % | SSE | 3 mph | 0 mph | 29.29 in | 0.0 in | Mist |
| 1:53 PM | 46 °F | 43 °F | 89 % | VAR | 3 mph | 0 mph | 29.30 in | 0.0 in | Cloudy |
| 2:53 PM | 47 °F | 44 °F | 90 % | SE | 3 mph | 0 mph | 29.29 in | 0.0 in | Cloudy |
| 3:00 PM | 47 °F | 43 °F | 86 % | CALM | 0 mph | 0 mph | 29.29 in | 0.0 in | Mist |
| 3:53 PM | 47 °F | 44 °F | 90 % | CALM | 0 mph | 0 mph | 29.30 in | 0.0 in | Mist |
| 4:00 PM | 47 °F | 43 °F | 86 % | CALM | 0 mph | 0 mph | 29.30 in | 0.0 in | Mist |
| 4:21 PM | 47 °F | 44 °F | 90 % | CALM | 0 mph | 0 mph | 29.30 in | 0.0 in | Mist |
| 4:53 PM | 46 °F | 43 °F | 89 % | CALM | 0 mph | 0 mph | 29.31 in | 0.0 in | Mist |
| 5:21 PM | 46 °F | 43 °F | 89 % | CALM | 0 mph | 0 mph | 29.31 in | 0.0 in | Mist |
| 5:37 PM | 46 °F | 43 °F | 89 % | N | 3 mph | 0 mph | 29.32 in | 0.0 in | Mist |
| 5:51 PM | 46 °F | 43 °F | 87 % | NNW | 3 mph | 0 mph | 29.32 in | 0.0 in | Mist |
| 5:53 PM | 46 °F | 43 °F | 89 % | CALM | 0 mph | 0 mph | 29.32 in | 0.0 in | Fog |
| 6:19 PM | 45 °F | 43 °F | 93 % | NNW | 5 mph | 0 mph | 29.32 in | 0.0 in | Fog |
| 6:38 PM | 45 °F | 43 °F | 93 % | NNW | 5 mph | 0 mph | 29.32 in | 0.0 in | Fog |

| Time | Temperature | Dew Point | Humidity | Wind | Wind Speed | Wind Gust | Pressure | Precip. | Condition |
|----------|-------------|-----------|----------|------|------------|-----------|----------|---------|-----------|
| 6:53 PM | 45 °F | 43 °F | 93 % | N | 5 mph | 0 mph | 29.33 in | 0.0 in | Fog |
| 7:07 PM | 45 °F | 43 °F | 93 % | N | 5 mph | 0 mph | 29.33 in | 0.0 in | Fog |
| 7:53 PM | 45 °F | 43 °F | 93 % | N | 6 mph | 0 mph | 29.33 in | 0.0 in | Fog |
| 8:28 PM | 44 °F | 42 °F | 93 % | N | 5 mph | 0 mph | 29.34 in | 0.0 in | Fog |
| 8:44 PM | 44 °F | 42 °F | 93 % | NNW | 6 mph | 0 mph | 29.34 in | 0.0 in | Fog |
| 8:48 PM | 45 °F | 43 °F | 93 % | N | 3 mph | 0 mph | 29.34 in | 0.0 in | Fog |
| 8:53 PM | 44 °F | 42 °F | 93 % | N | 3 mph | 0 mph | 29.34 in | 0.0 in | Fog |
| 9:00 PM | 44 °F | 42 °F | 93 % | N | 5 mph | 0 mph | 29.34 in | 0.0 in | Fog |
| 9:18 PM | 44 °F | 42 °F | 93 % | NNW | 6 mph | 0 mph | 29.35 in | 0.0 in | Fog |
| 9:53 PM | 44 °F | 42 °F | 93 % | N | 3 mph | 0 mph | 29.35 in | 0.0 in | Fog |
| 10:00 PM | 44 °F | 42 °F | 93 % | CALM | 0 mph | 0 mph | 29.35 in | 0.0 in | Mist |
| 10:10 PM | 44 °F | 42 °F | 93 % | N | 5 mph | 0 mph | 29.35 in | 0.0 in | Mist |
| 10:16 PM | 44 °F | 42 °F | 93 % | N | 3 mph | 0 mph | 29.36 in | 0.0 in | Mist |
| 10:26 PM | 44 °F | 42 °F | 93 % | N | 5 mph | 0 mph | 29.36 in | 0.0 in | Mist |
| 10:48 PM | 45 °F | 41 °F | 87 % | NNW | 5 mph | 0 mph | 29.37 in | 0.0 in | Mist |
| 10:53 PM | 44 °F | 41 °F | 89 % | NNW | 6 mph | 0 mph | 29.36 in | 0.0 in | Cloudy |
| 11:39 PM | 43 °F | 41 °F | 93 % | NNW | 6 mph | 0 mph | 29.37 in | 0.0 in | Mist |
| 11:53 PM | 43 °F | 41 °F | 93 % | N | 6 mph | 0 mph | 29.37 in | 0.0 in | Mist |
| 12:04 AM | 43 °F | 41 °F | 93 % | N | 6 mph | 0 mph | 29.37 in | 0.0 in | Mist |
| 12:07 AM | 43 °F | 41 °F | 93 % | N | 6 mph | 0 mph | 29.38 in | 0.0 in | Mist |
| 12:50 AM | 43 °F | 39 °F | 87 % | N | 6 mph | 0 mph | 29.38 in | 0.0 in | Cloudy |
| 12:53 AM | 43 °F | 40 °F | 89 % | N | 6 mph | 0 mph | 29.38 in | 0.0 in | Cloudy |

47.88 °N, 122.24 °W

Everett, WA Weather History ★ 🏠

☁️ 48° SEATTLE PAINE FIELD INTL AIRPORT STATION (/DASHBOARD/PWS/KWAEVERE321?CM_VEN=LOCALWX_PWSDASH) | CHANGE ✓

HISTORY (/HISTORY/DAILY/US/WA/EVERETT/KPAE)

- [TODAY \(/WEATHER/US/WA/EVERETT/KPAE\)](/WEATHER/US/WA/EVERETT/KPAE)
- [HOURLY \(/HOURLY/US/WA/EVERETT/KPAE\)](/HOURLY/US/WA/EVERETT/KPAE)
- [10-DAY \(/FORECAST/US/WA/EVERETT/KPAE\)](/FORECAST/US/WA/EVERETT/KPAE)
- [CALENDAR \(/CALENDAR/US/WA/EVERETT/KPAE\)](/CALENDAR/US/WA/EVERETT/KPAE)
- [HISTORY \(/HISTORY/DAILY/US/WA/EVERETT/KPAE\)](/HISTORY/DAILY/US/WA/EVERETT/KPAE)
- [WUNDERMAP \(/WUNDERMAP?LAT=47.882&LON=-122.239\)](/WUNDERMAP?LAT=47.882&LON=-122.239)

Daily Weekly Monthly

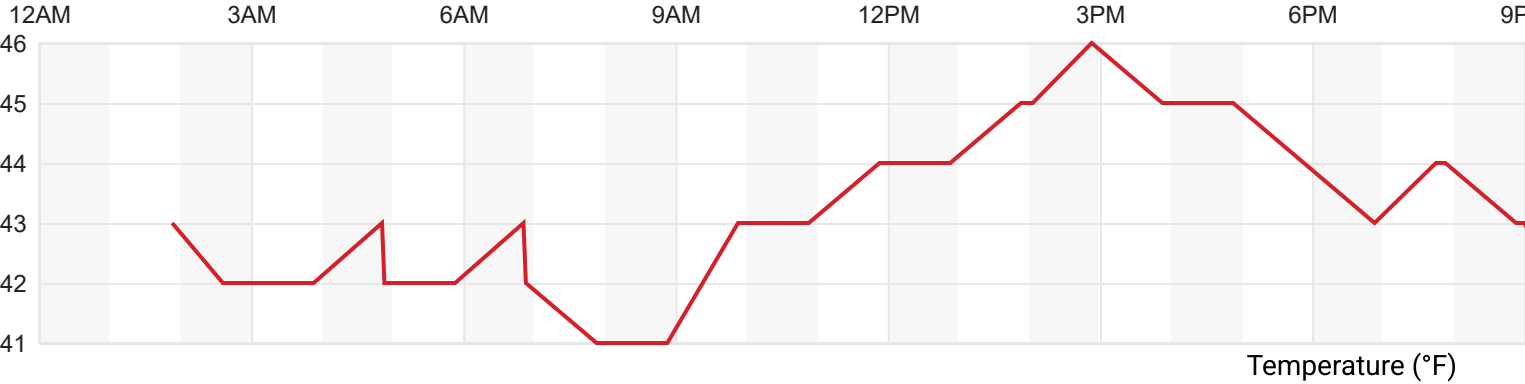
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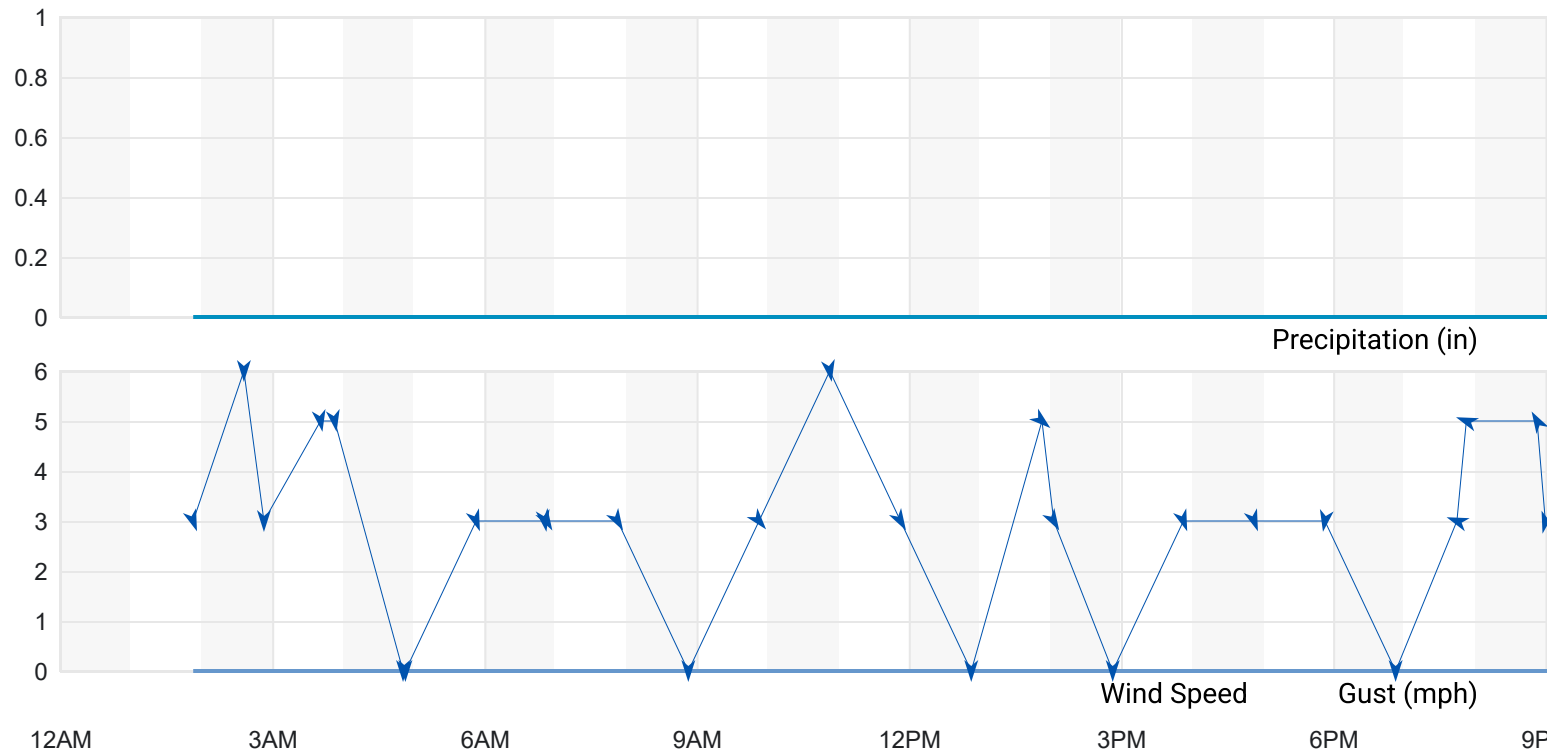
November

26

2024

View





Summary

| Temperature (°F) | Actual | Historic Avg. | Record | ▲ |
|---|--------|---------------|--------|---|
| High Temp | 46 | 49.7 | 66 | |
| Low Temp | 41 | 35.8 | -- | |
| Day Average Temp | 43.06 | 42.8 | - | |
| Precipitation (in) | Actual | Historic Avg. | Record | ▲ |
| Precipitation (past 24 hours from 11:53:00) | 0.07 | -- | - | |
| Dew Point (°F) | Actual | Historic Avg. | Record | ▲ |
| Dew Point | 37.74 | - | - | |
| High | 40 | - | - | |
| Low | 36 | - | - | |
| Average | 37.74 | - | - | |
| Wind (mph) | Actual | Historic Avg. | Record | ▲ |
| Max Wind Speed | 6 | - | - | |
| Visibility | 10 | - | - | |

| | | | | |
|-------------------------|------------|---------------|---------|---|
| Temperature (°F) | Actual | Historic Avg. | Record | ▲ |
| Sea Level Pressure (in) | Actual | Historic Avg. | Record | ▲ |
| Sea Level Pressure | 29.65 | - | - | |
| Astronomy | Day Length | Rise | Set | ▲ |
| Actual Time | 8h 49m | 7:32 AM | 4:22 PM | |
| Civil Twilight | | 6:58 AM | 4:57 PM | |
| Nautical Twilight | | 6:19 AM | 5:36 PM | |
| Astronomical Twilight | | 5:42 AM | 6:13 PM | |
| Moon: waning crescent | | 2:50 AM | 2:10 PM | |

Daily Observations

| Time | Temperature | Dew Point | Humidity | Wind | Wind Speed | Wind Gust | Pressure | Precip. | Condition |
|---------|-------------|-----------|----------|------|------------|-----------|----------|---------|---------------|
| 1:53 AM | 43 °F | 40 °F | 89 % | NNW | 3 mph | 0 mph | 29.38 in | 0.0 in | Light Rain |
| 2:36 AM | 42 °F | 39 °F | 89 % | N | 6 mph | 0 mph | 29.38 in | 0.0 in | Cloudy |
| 2:53 AM | 42 °F | 39 °F | 89 % | VAR | 3 mph | 0 mph | 29.39 in | 0.0 in | Cloudy |
| 3:41 AM | 42 °F | 39 °F | 89 % | N | 5 mph | 0 mph | 29.40 in | 0.0 in | Cloudy |
| 3:53 AM | 42 °F | 38 °F | 85 % | N | 5 mph | 0 mph | 29.40 in | 0.0 in | Cloudy |
| 4:51 AM | 43 °F | 37 °F | 81 % | CALM | 0 mph | 0 mph | 29.41 in | 0.0 in | Cloudy |
| 4:53 AM | 42 °F | 38 °F | 85 % | CALM | 0 mph | 0 mph | 29.41 in | 0.0 in | Cloudy |
| 5:53 AM | 42 °F | 38 °F | 85 % | NNW | 3 mph | 0 mph | 29.42 in | 0.0 in | Cloudy |
| 6:51 AM | 43 °F | 37 °F | 81 % | N | 3 mph | 0 mph | 29.43 in | 0.0 in | Cloudy |
| 6:53 AM | 42 °F | 38 °F | 85 % | NNW | 3 mph | 0 mph | 29.43 in | 0.0 in | Cloudy |
| 7:53 AM | 41 °F | 37 °F | 86 % | NNW | 3 mph | 0 mph | 29.44 in | 0.0 in | Cloudy |
| 8:53 AM | 41 °F | 36 °F | 82 % | CALM | 0 mph | 0 mph | 29.46 in | 0.0 in | Mostly Cloudy |

| Time | Temperature | Dew Point | Humidity | Wind | Wind Speed | Wind Gust | Pressure | Precip. | Condition |
|----------|-------------|-----------|----------|------|------------|-----------|----------|---------|---------------|
| 9:53 AM | 43 °F | 38 °F | 82 % | NW | 3 mph | 0 mph | 29.49 in | 0.0 in | Cloudy |
| 10:53 AM | 43 °F | 37 °F | 80 % | N | 6 mph | 0 mph | 29.50 in | 0.0 in | Cloudy |
| 11:53 AM | 44 °F | 37 °F | 76 % | NNW | 3 mph | 0 mph | 29.51 in | 0.0 in | Cloudy |
| 12:53 PM | 44 °F | 37 °F | 76 % | CALM | 0 mph | 0 mph | 29.52 in | 0.0 in | Light Rain |
| 1:53 PM | 45 °F | 38 °F | 76 % | NW | 5 mph | 0 mph | 29.53 in | 0.0 in | Cloudy |
| 2:03 PM | 45 °F | 37 °F | 74 % | NNW | 3 mph | 0 mph | 29.53 in | 0.0 in | Cloudy |
| 2:53 PM | 46 °F | 36 °F | 68 % | CALM | 0 mph | 0 mph | 29.54 in | 0.0 in | Cloudy |
| 3:53 PM | 45 °F | 38 °F | 76 % | NNW | 3 mph | 0 mph | 29.56 in | 0.0 in | Cloudy |
| 4:53 PM | 45 °F | 38 °F | 76 % | NNW | 3 mph | 0 mph | 29.57 in | 0.0 in | Cloudy |
| 5:53 PM | 44 °F | 38 °F | 79 % | N | 3 mph | 0 mph | 29.58 in | 0.0 in | Cloudy |
| 6:53 PM | 43 °F | 39 °F | 86 % | CALM | 0 mph | 0 mph | 29.60 in | 0.0 in | Cloudy |
| 7:45 PM | 44 °F | 38 °F | 79 % | ESE | 3 mph | 0 mph | 29.60 in | 0.0 in | Cloudy |
| 7:53 PM | 44 °F | 38 °F | 79 % | ESE | 5 mph | 0 mph | 29.60 in | 0.0 in | Cloudy |
| 8:53 PM | 43 °F | 37 °F | 80 % | SSE | 5 mph | 0 mph | 29.62 in | 0.0 in | Cloudy |
| 9:00 PM | 43 °F | 37 °F | 80 % | SSE | 3 mph | 0 mph | 29.62 in | 0.0 in | Partly Cloudy |
| 9:53 PM | 41 °F | 37 °F | 86 % | CALM | 0 mph | 0 mph | 29.62 in | 0.0 in | Cloudy |
| 10:53 PM | 43 °F | 37 °F | 80 % | CALM | 0 mph | 0 mph | 29.62 in | 0.0 in | Cloudy |
| 11:53 PM | 42 °F | 38 °F | 85 % | CALM | 0 mph | 0 mph | 29.64 in | 0.0 in | Cloudy |
| 12:53 AM | 43 °F | 39 °F | 86 % | CALM | 0 mph | 0 mph | 29.65 in | 0.0 in | Cloudy |

weatherchannel-wunderground&utm_medium=referral&utm_content=thumbnails-b:History Thumbnails:)
weatherchannel-wunderground&utm_medium=referral&utm_content=thumbnails-b:History Thumbnails:)
You May Like

(https://us.match.com/reg/registration/en-us)

Curious who's on Match?

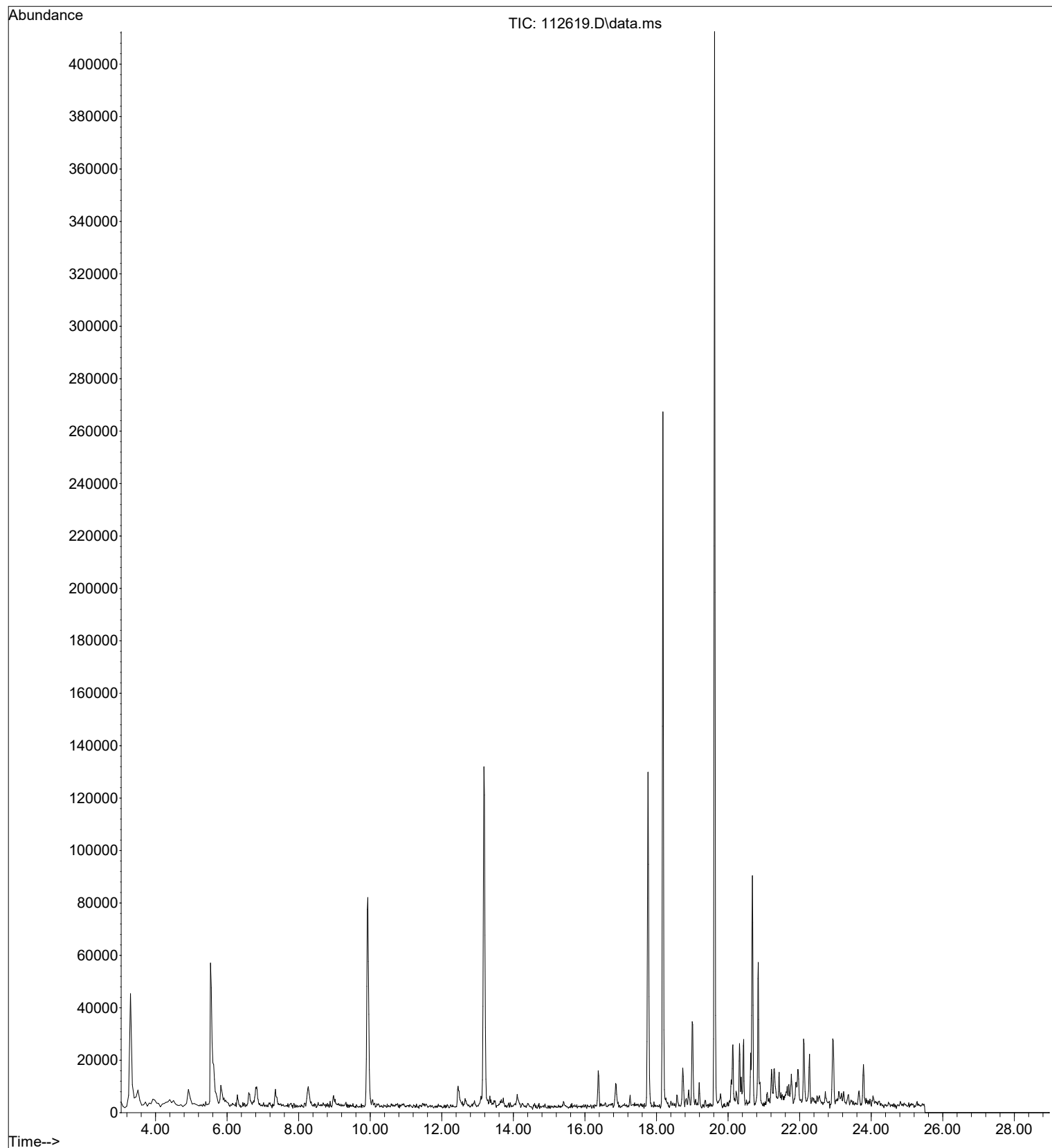
Match

Sign Up

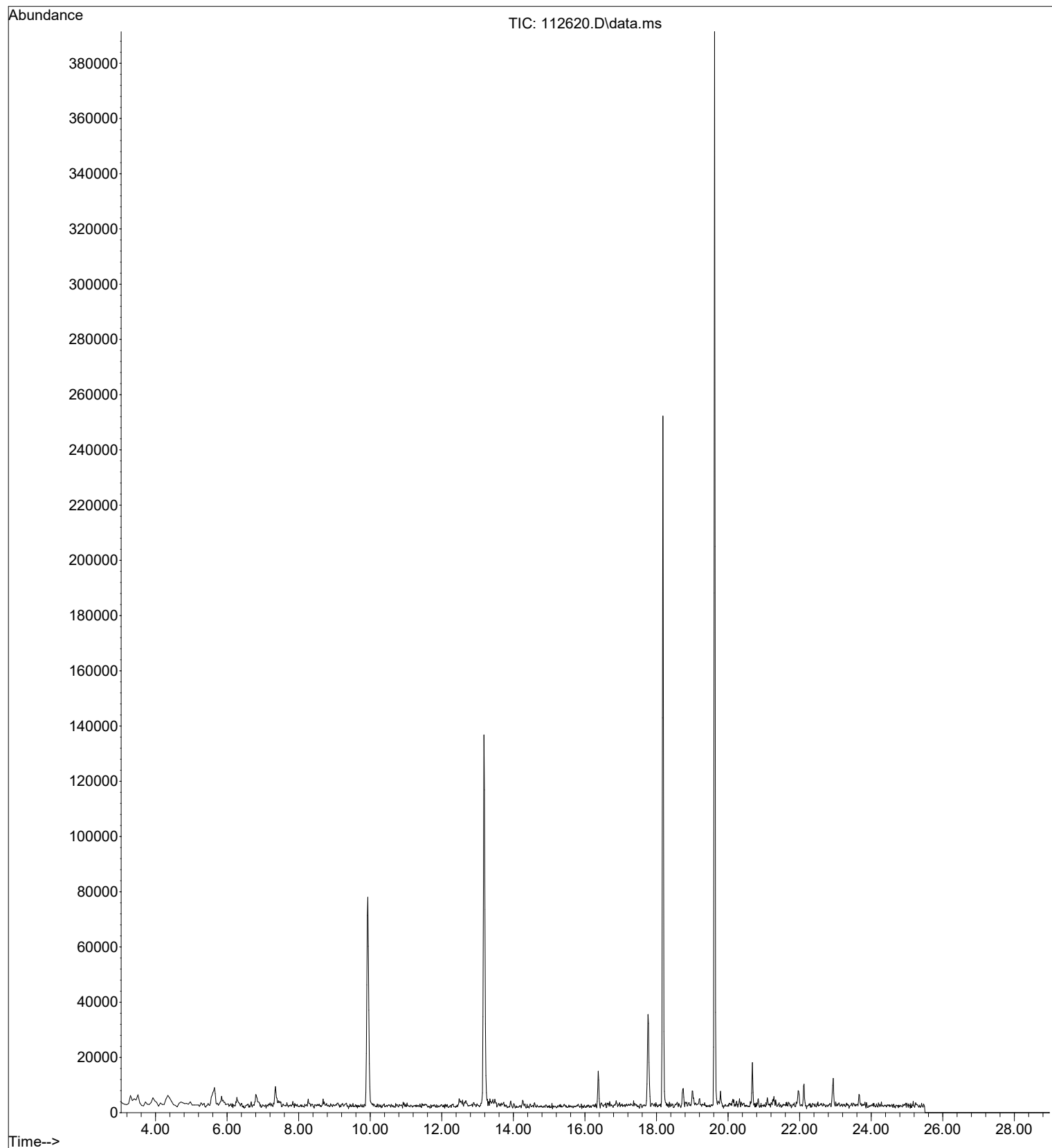
(https://us.match.com/reg/registration/en-us)

Attachment 3
Lab Chromatograms

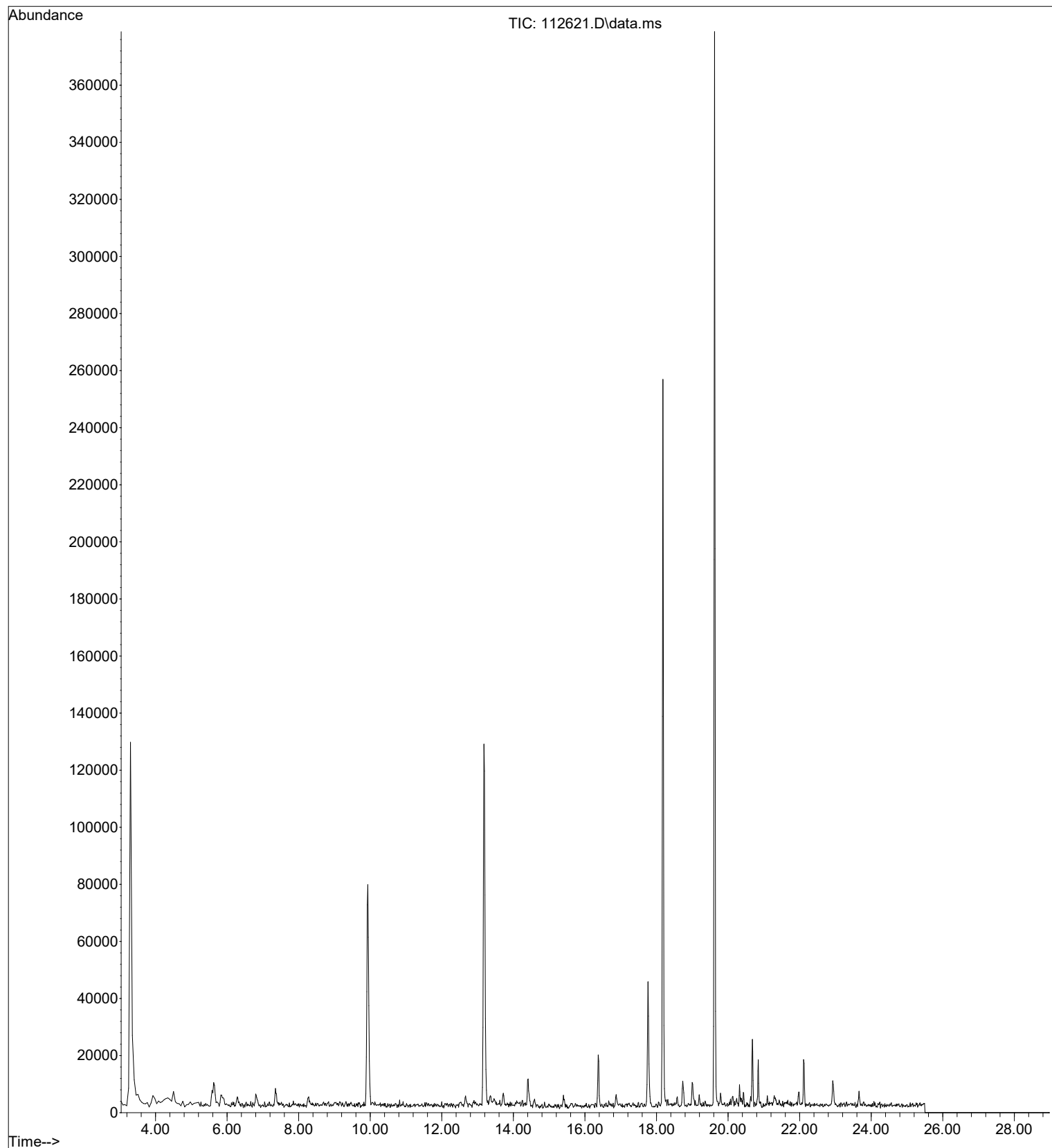
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Operator : bat
Acquired : 26 Nov 2024 11:37 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-01
Misc Info : T7
Vial Number: 19



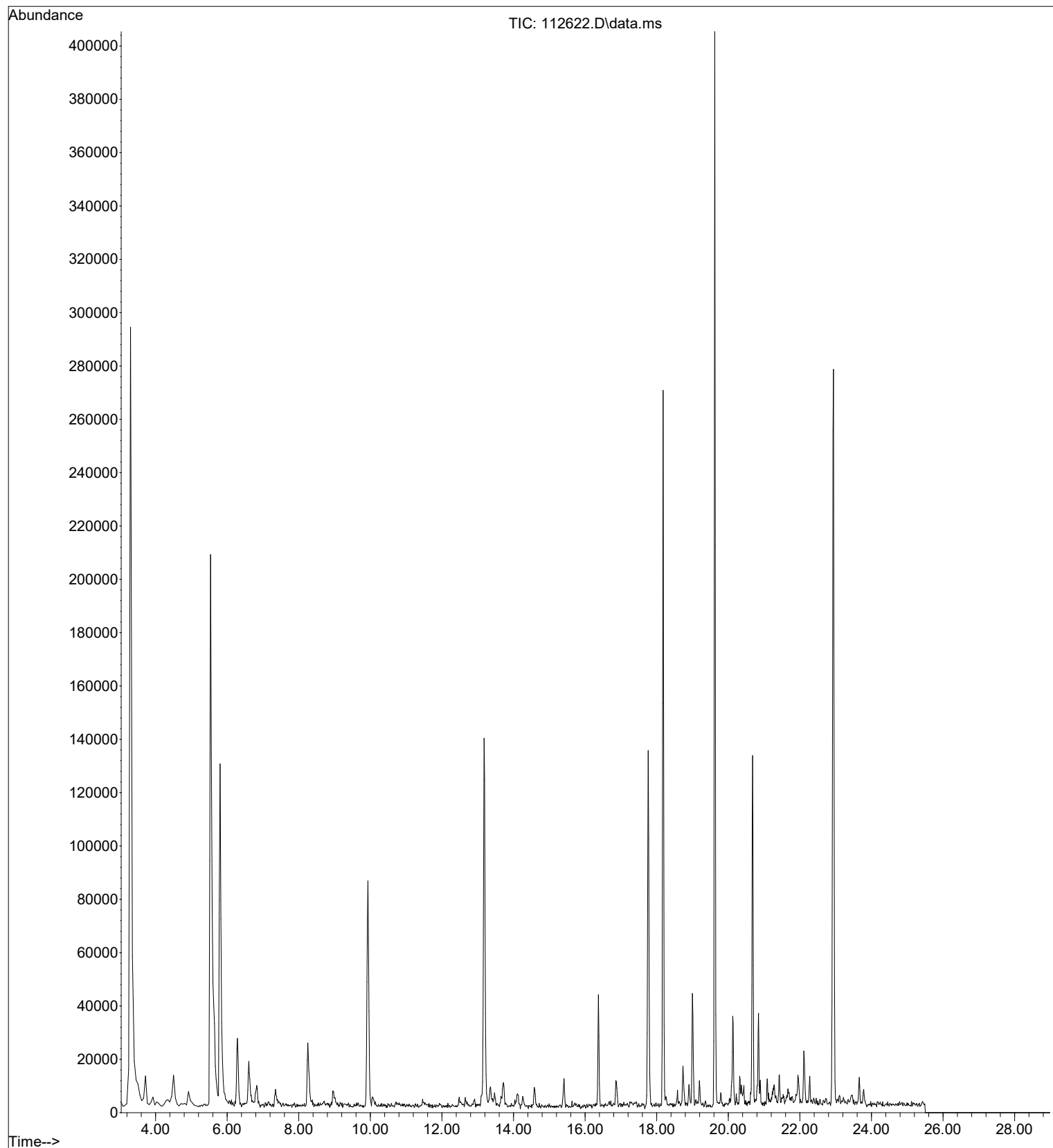
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Operator : bat
Acquired : 27 Nov 2024 12:30 am using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-02
Misc Info : T8
Vial Number: 20



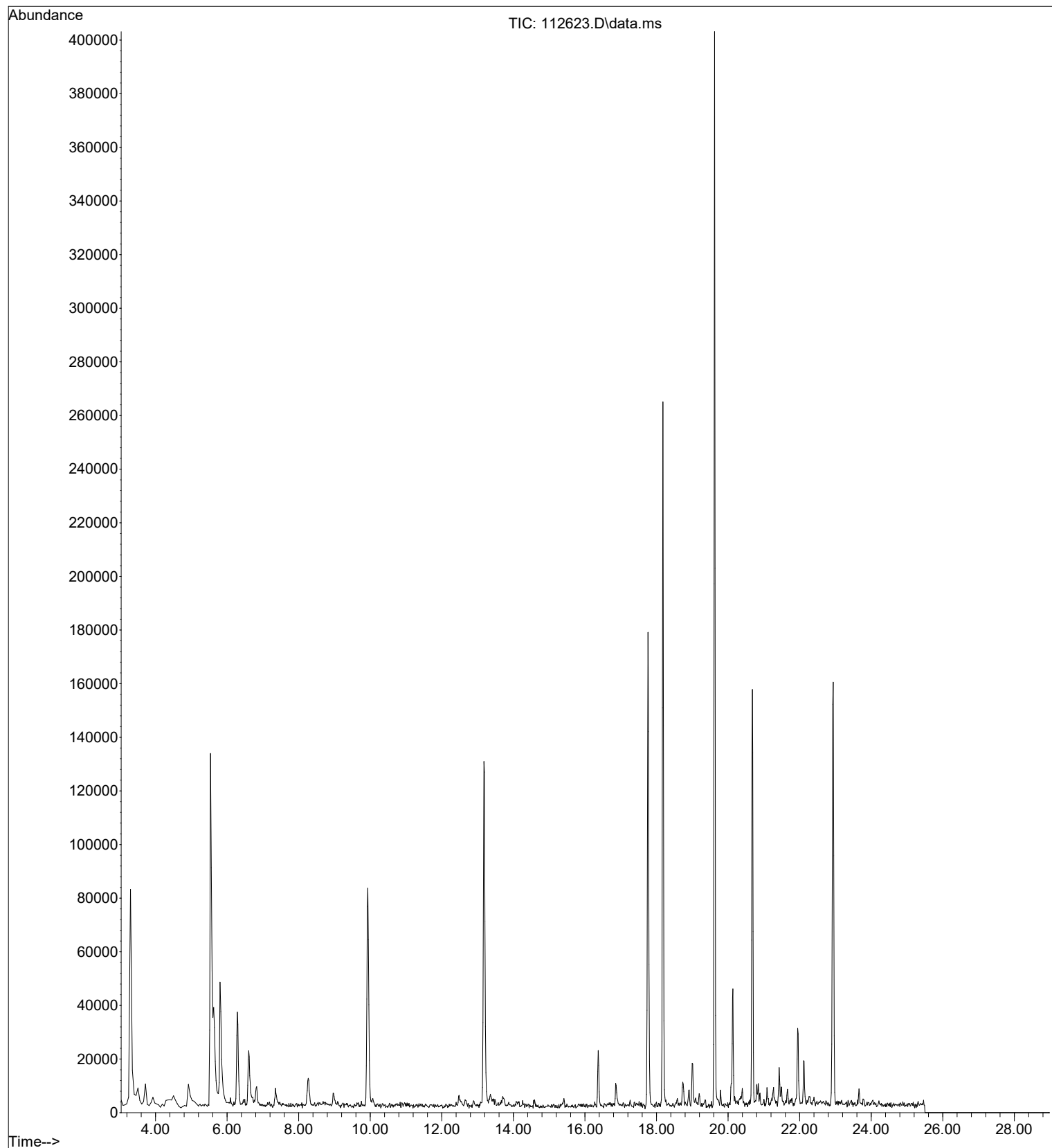
File : I:\Proc_GCMS7\11-26-24\112621.D
Operator : bat
Acquired : 27 Nov 2024 1:19 am using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-03
Misc Info : T9
Vial Number: 21



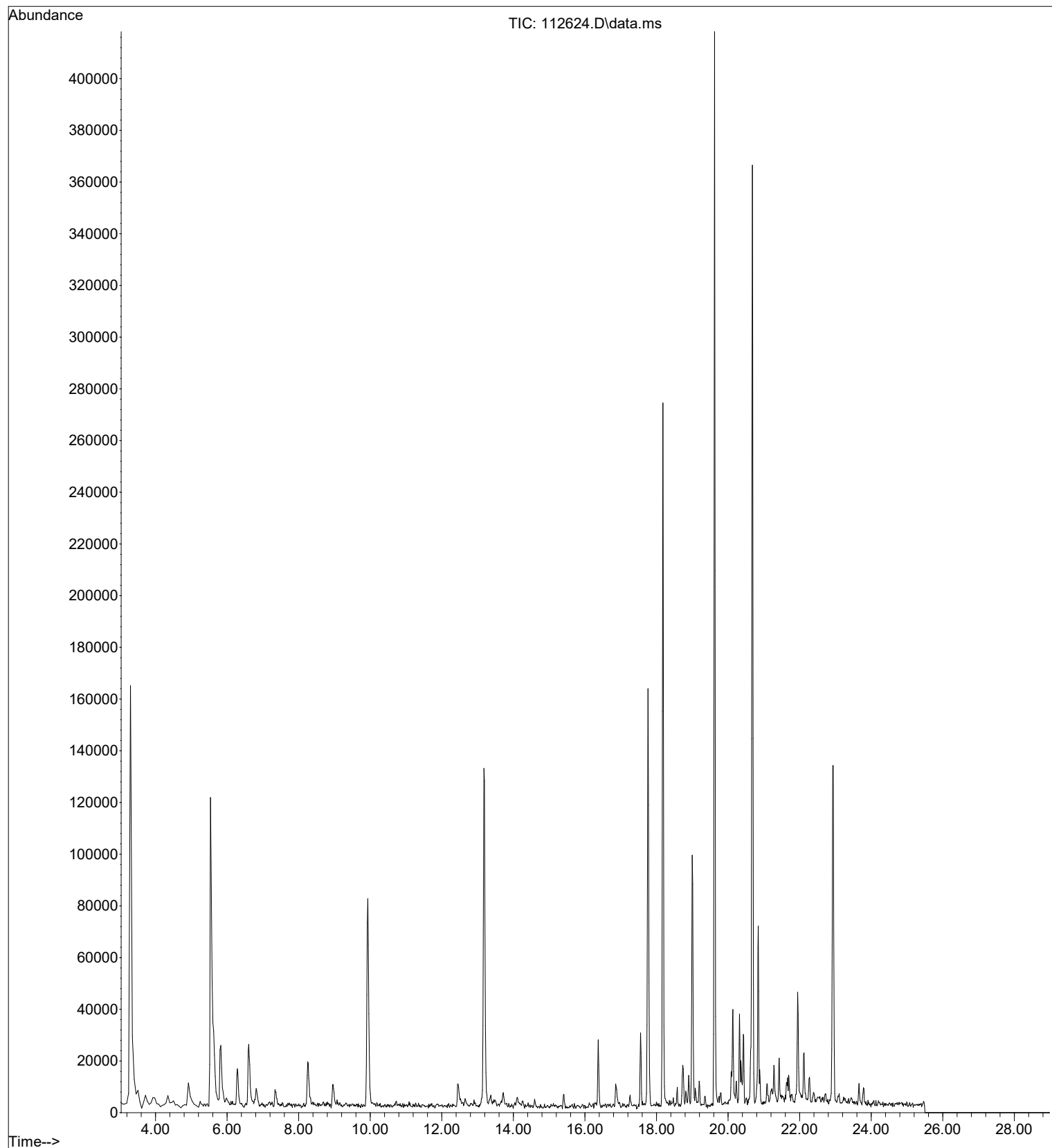
File : I:\Proc_GCMS7\11-26-24\112622.D
Operator : bat
Acquired : 27 Nov 2024 2:08 am using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-04
Misc Info : T10
Vial Number: 22



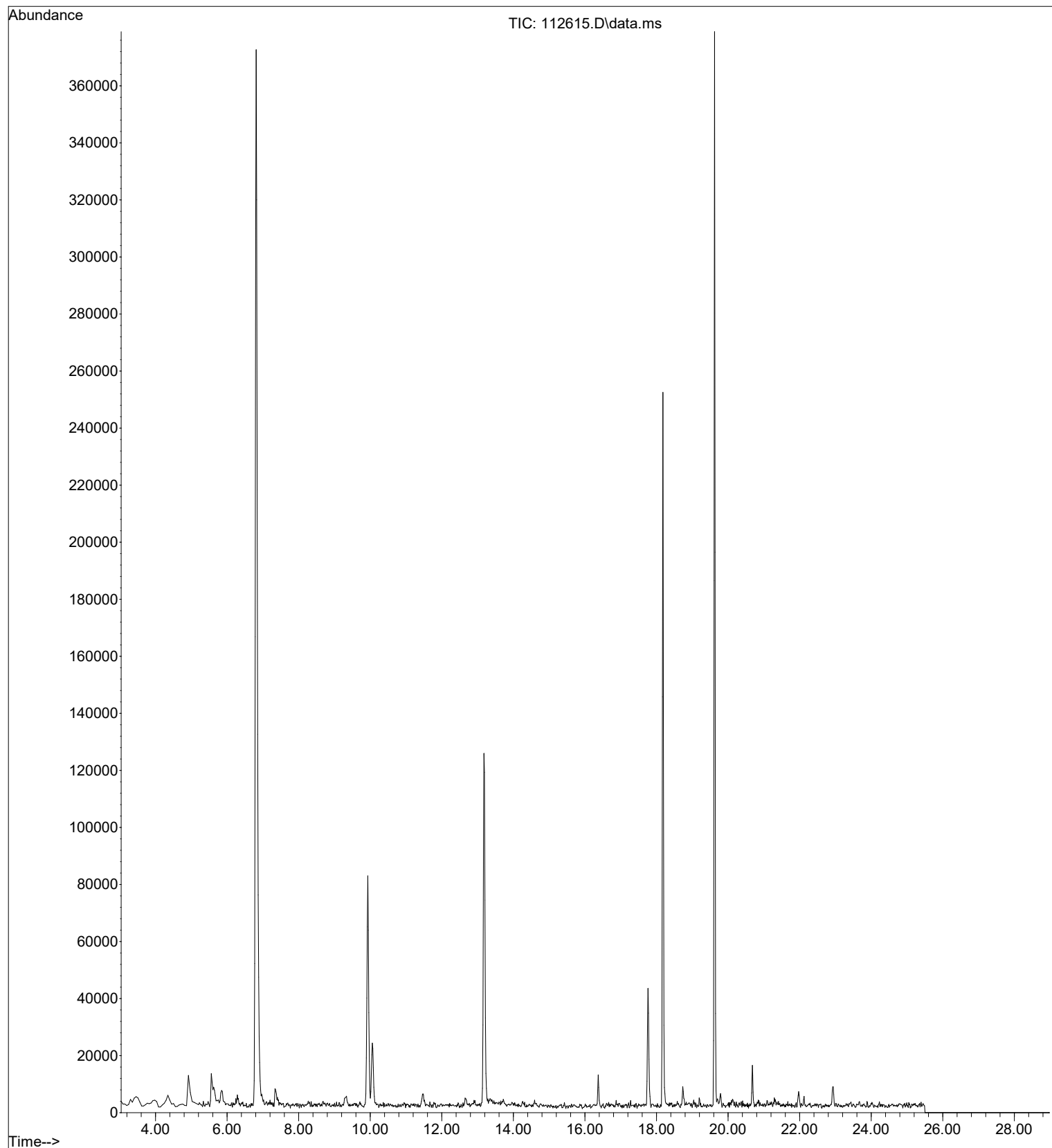
File : I:\Proc_GCMS7\11-26-24\112623.D
Operator : bat
Acquired : 27 Nov 2024 2:57 am using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-05
Misc Info : T11
Vial Number: 23



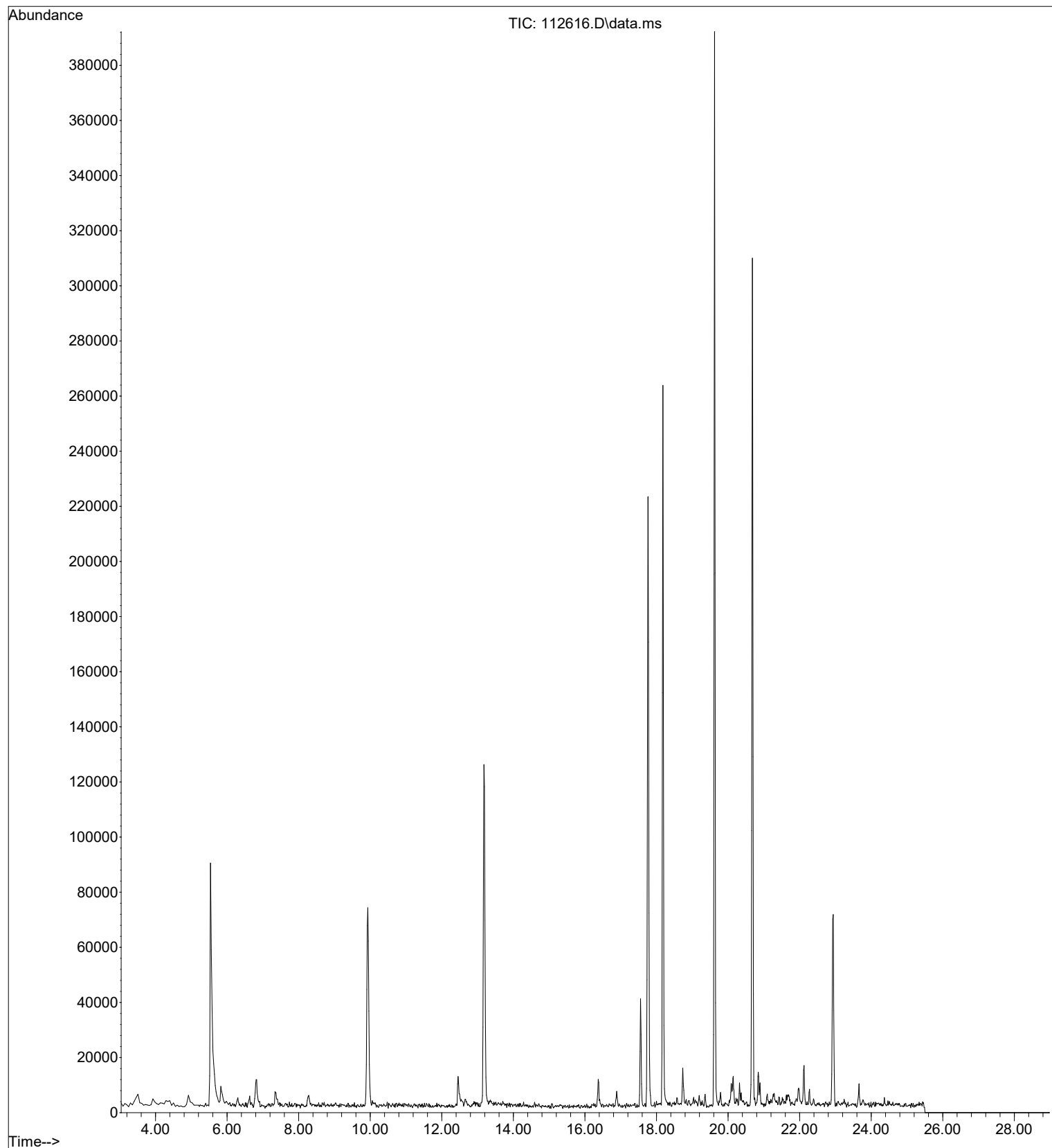
File : I:\Proc_GCMS7\11-26-24\112624.D
Operator : bat
Acquired : 27 Nov 2024 3:45 am using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-06
Misc Info : T12
Vial Number: 24



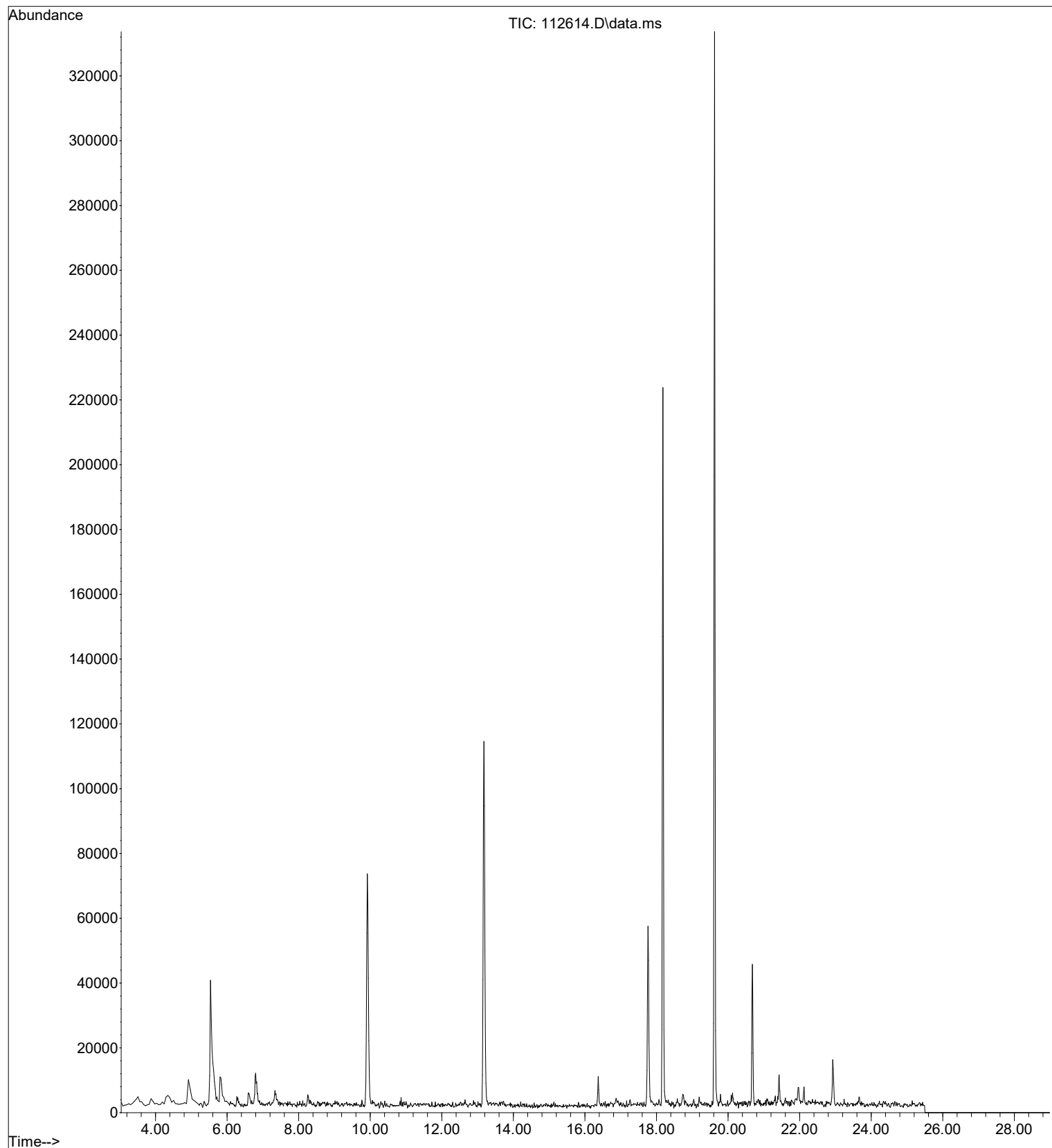
File :I:\Proc_GCMS7\11-26-24\112615.D
Operator : bat
Acquired : 26 Nov 2024 8:15 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-07
Misc Info : T3
Vial Number: 15



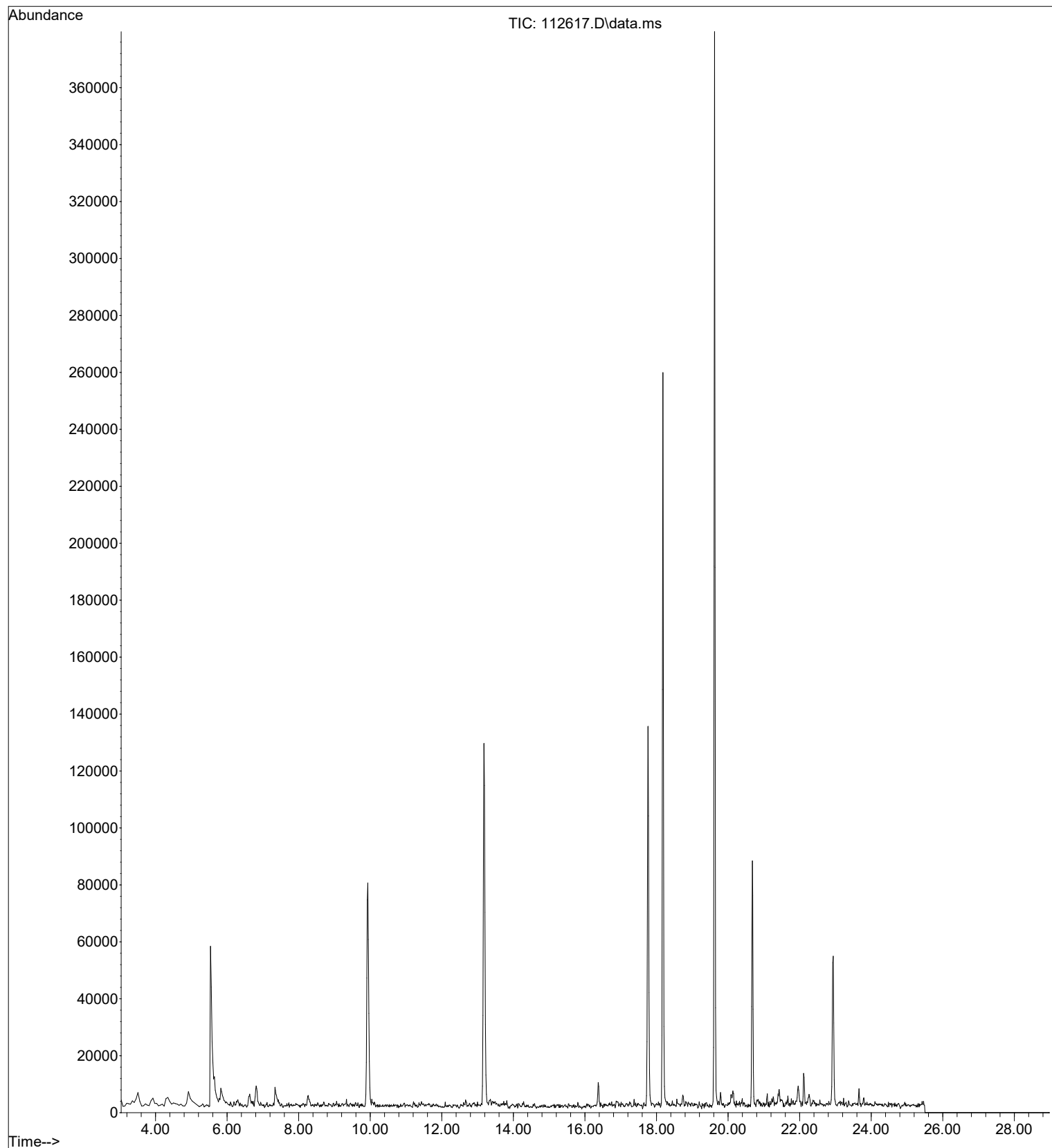
File : I:\Proc_GCMS7\11-26-24\112616.D
Operator : bat
Acquired : 26 Nov 2024 9:02 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-08
Misc Info : T4
Vial Number: 16



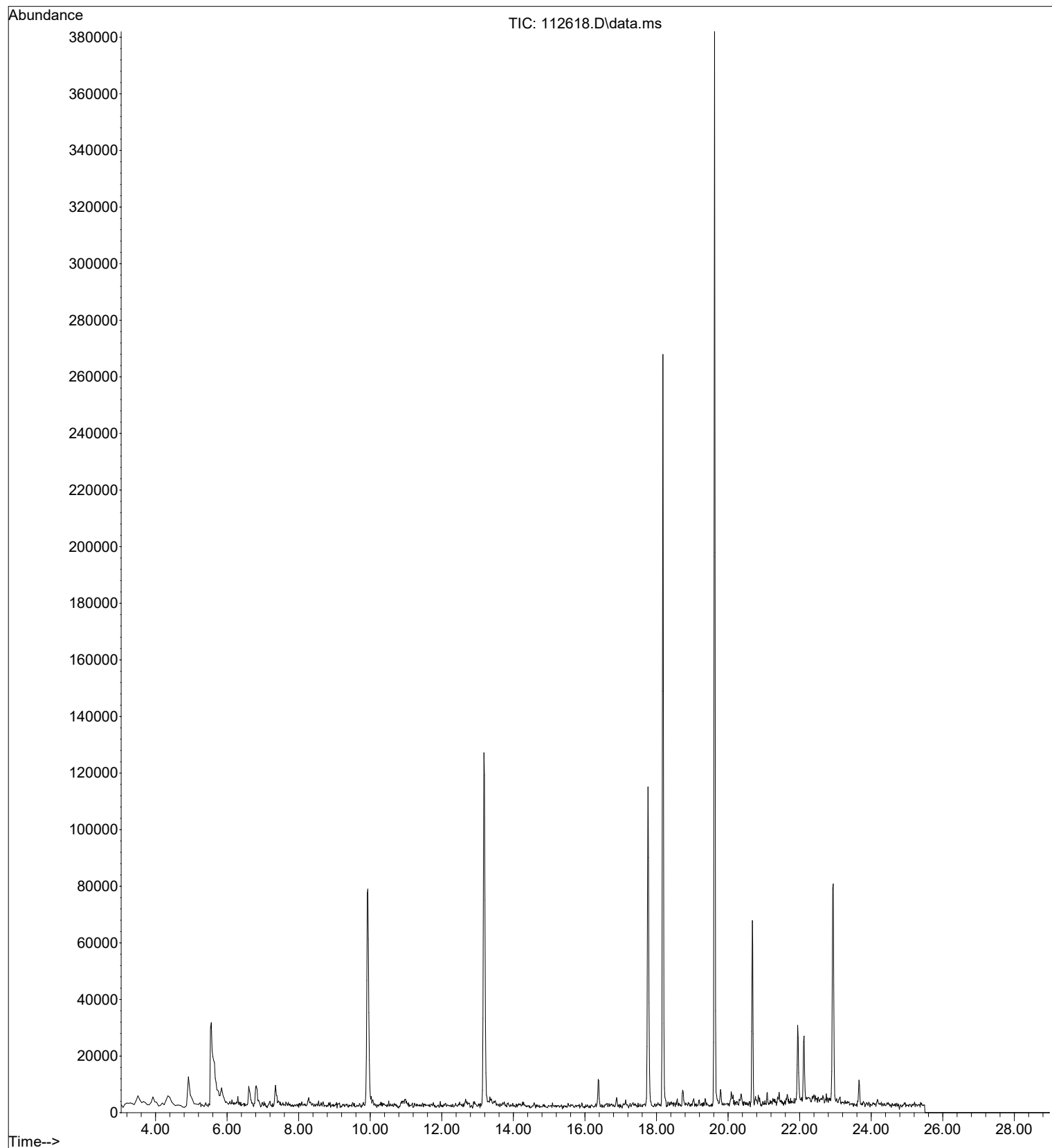
File : I:\Proc_GCMS7\11-26-24\112614.D
Operator : bat
Acquired : 26 Nov 2024 7:29 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-09
Misc Info : T2
Vial Number: 14



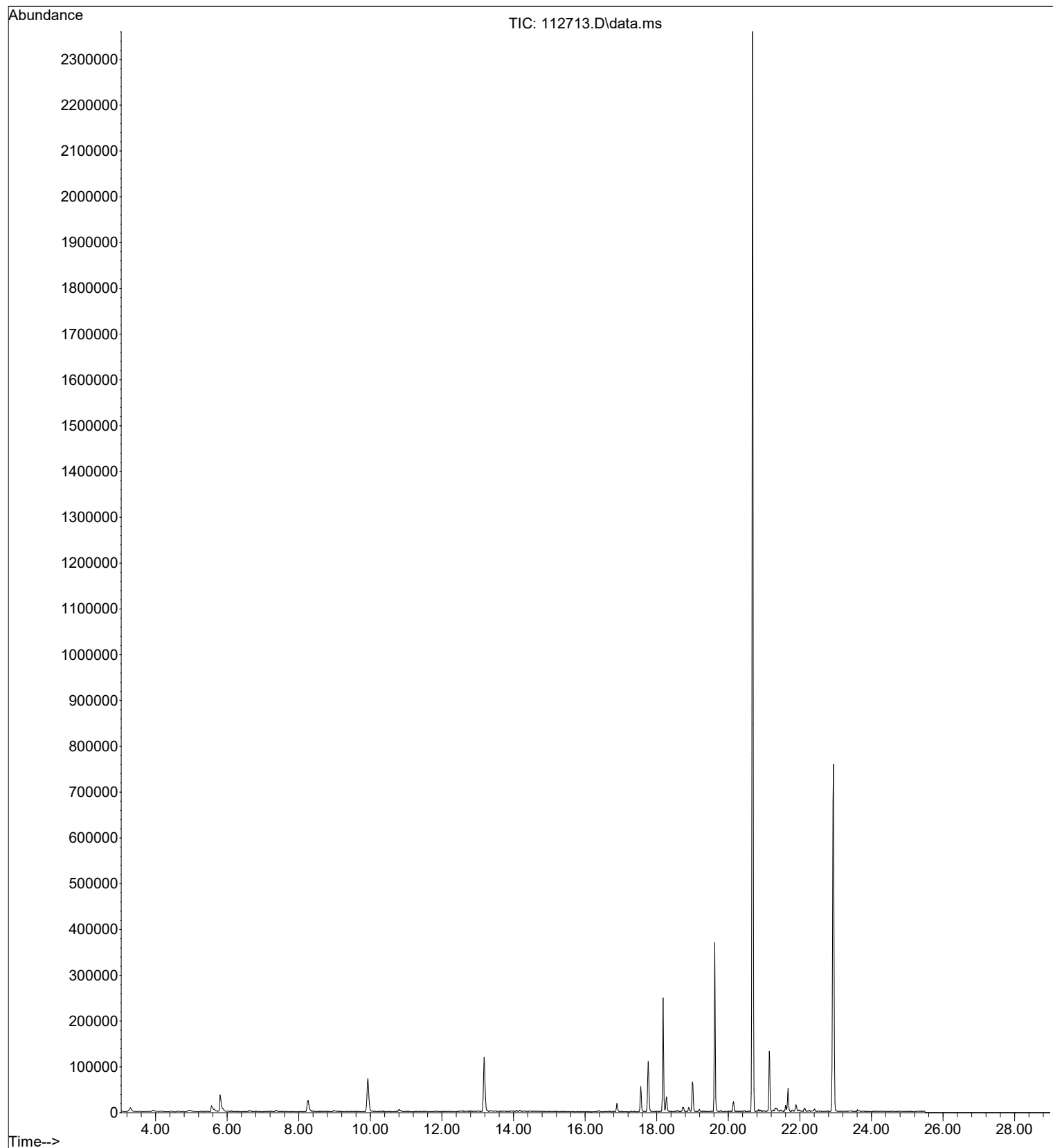
File :I:\Proc_GCMS7\11-26-24\112617.D
Operator : bat
Acquired : 26 Nov 2024 9:54 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-10
Misc Info : T5
Vial Number: 17



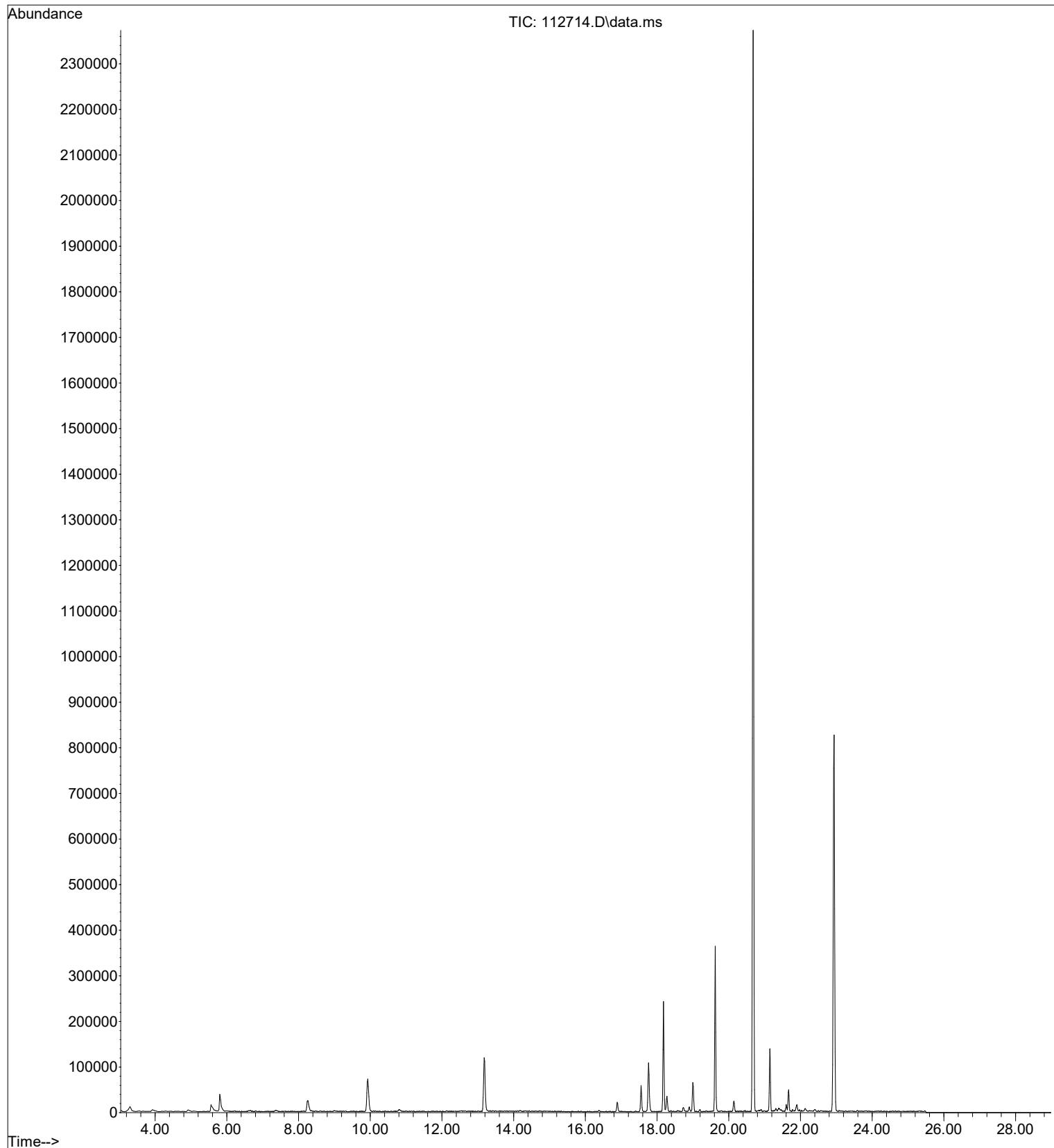
File : I:\Proc_GCMS7\11-26-24\112618.D
Operator : bat
Acquired : 26 Nov 2024 10:44 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-11
Misc Info : T6
Vial Number: 18



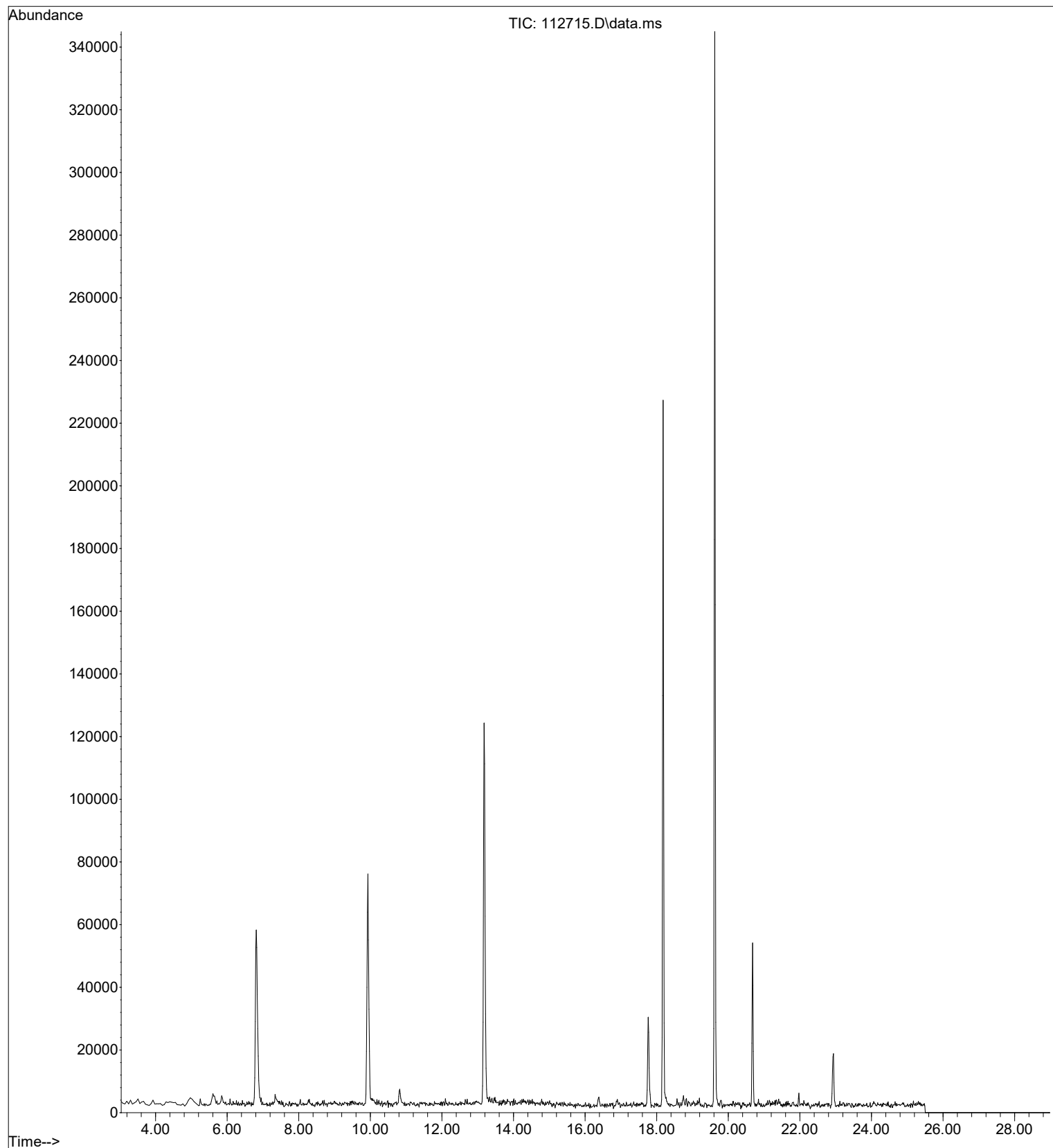
File : I:\Proc_GCMS7\11-27-24\112713.D
Operator : bat
Acquired : 27 Nov 2024 6:04 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-13 dup 1/6.2
Misc Info : T2
Vial Number: 13



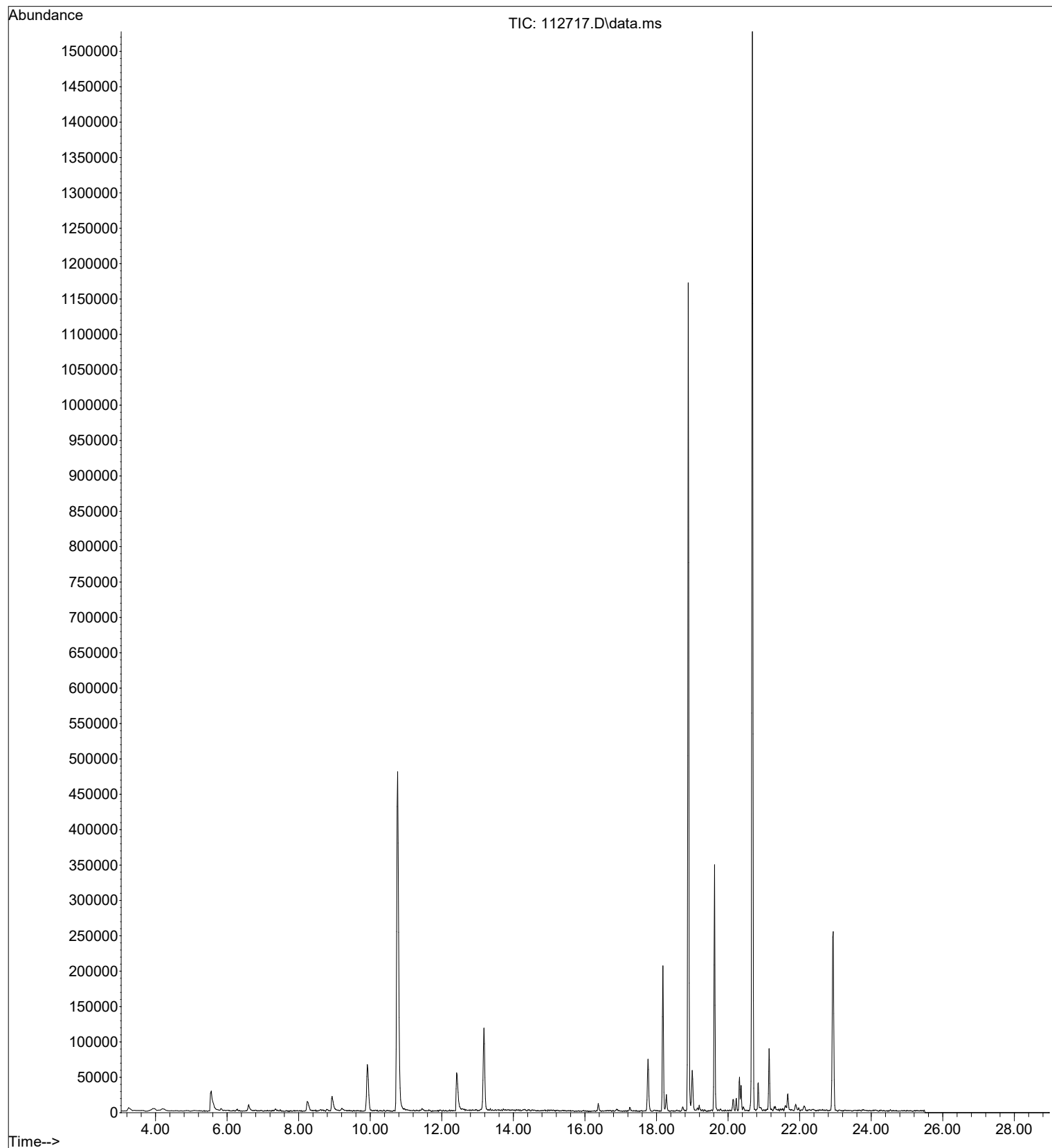
File :I:\Proc_GCMS7\11-27-24\112714.D
Operator : bat
Acquired : 27 Nov 2024 6:40 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-13 1/6.2
Misc Info : T2
Vial Number: 14



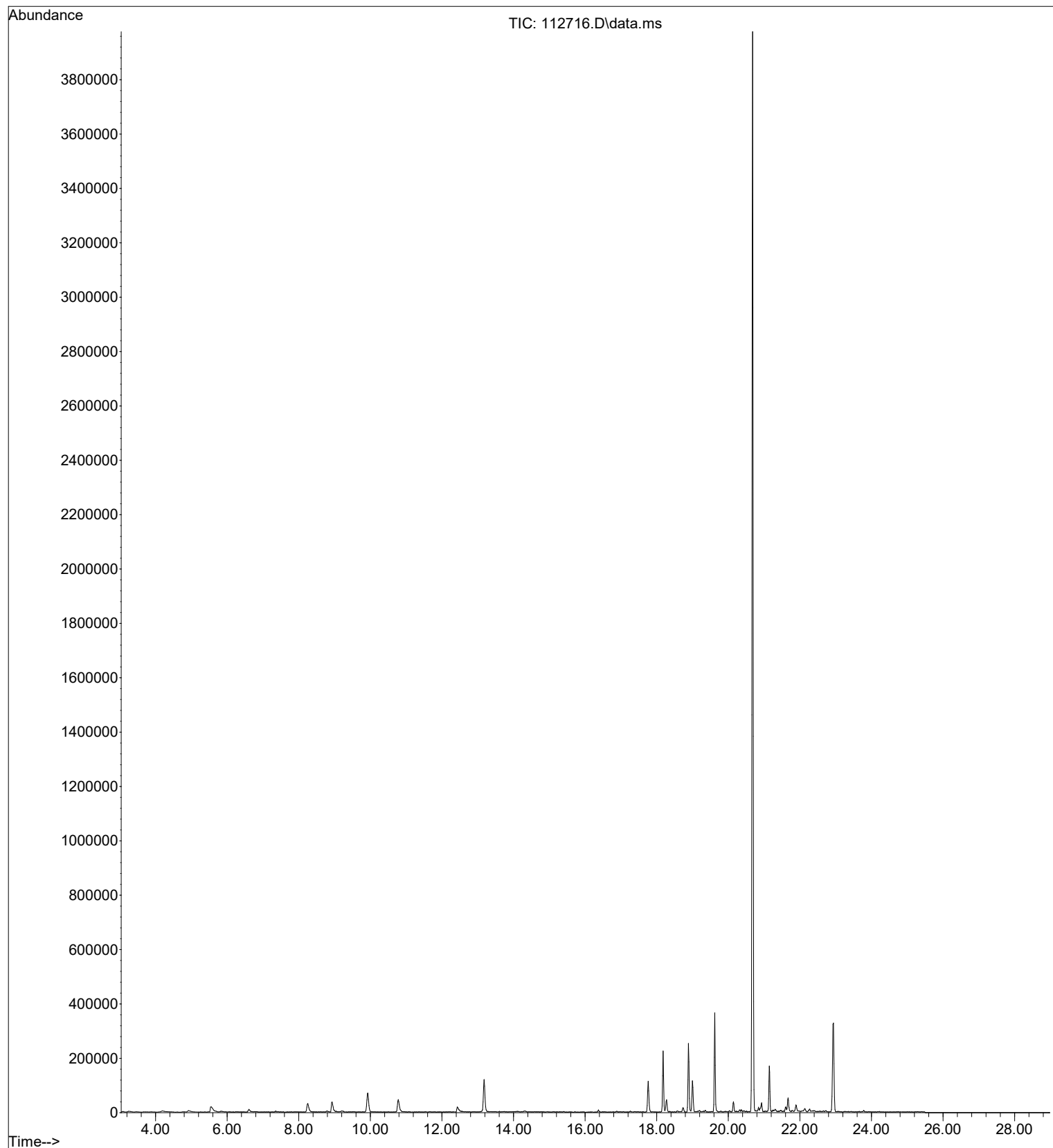
File : I:\Proc_GCMS7\11-27-24\112715.D
Operator : bat
Acquired : 27 Nov 2024 7:16 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-14 1/5.1
Misc Info : T3
Vial Number: 15



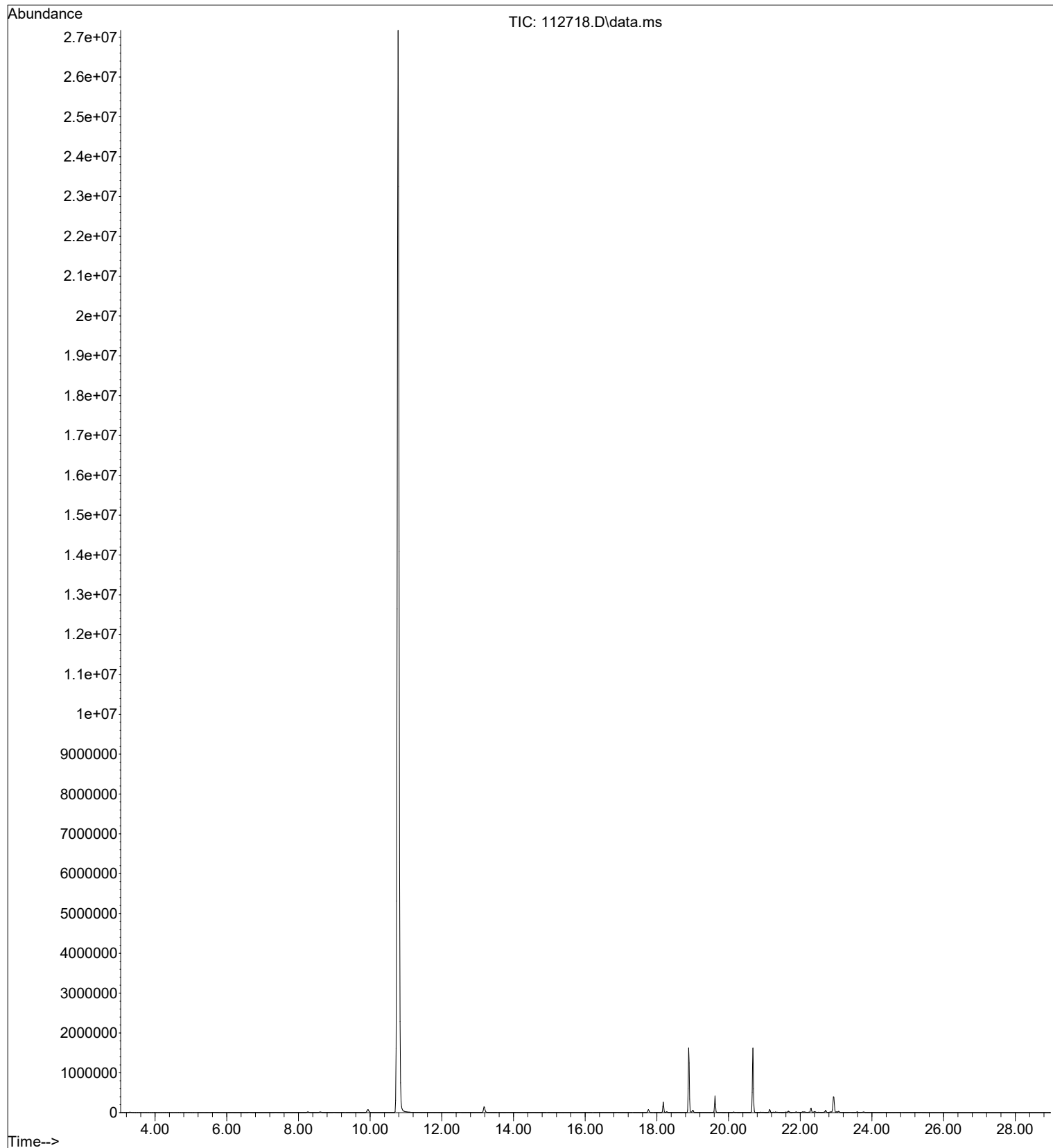
File : I:\Proc_GCMS7\11-27-24\112717.D
Operator : bat
Acquired : 27 Nov 2024 8:27 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-15 1/7.9
Misc Info : T5
Vial Number: 17



File : I:\Proc_GCMS7\11-27-24\112716.D
Operator : bat
Acquired : 27 Nov 2024 7:52 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-16 1/5.5
Misc Info : T4
Vial Number: 16



File : I:\Proc_GCMS7\11-27-24\112718.D
Operator : bat
Acquired : 27 Nov 2024 9:02 pm using AcqMethod T015DC.M
Instrument : GCMS7
Sample Name: 411434-17 1/8.1
Misc Info : T6
Vial Number: 18



Attachment 4
Draft: VI Individual Chemical
and Additive Hazard Risk Evaluation

Vapor Intrusion Individual Chemical and Additive Hazard and Risk

Individual Chemical Noncancer Hazard and Additive Chemical Hazard

- *Individual Chemical Hazard*

$$\text{Hazard Quotient (HQ)} = \frac{\text{Indoor Air Exposure Concentration}}{\text{Indoor Air Noncancer Cleanup Level}} * \text{noncancer hazard}$$

- Noncancer risk = 1
- **HQ = or < 1** indicates adverse effects from the individual chemical are **not likely**
- **HQ > 1** indicates adverse effects from the individual chemical **may be present**

- *Additive Chemical Hazard*

Hazard Index (HI) = HQ1 + HQ2 + HQ3 ...

- Add up all individual chemical HQs for chemicals that cause the same noncancer health effect.
 - Example: Add up all HQs for chemicals that effect the kidney. Do not include those that effect other organs or systems, such as nervous system, liver, etc. Those should be added up separately. If a chemical is listed as effecting more than one organ or system, include it in both.
 - The result should be HIs for each organ or system that is impacted by the chemicals present at the site.
 - For example,
 - HI (Kidney) = #
 - HI (Liver) = #
- **HI = or < 1** indicates adverse effects from all of the chemicals that have a noncancer effect on that same organ or system are **not likely**
- **HI > 1** indicates adverse effects from all of the chemicals that have a noncancer effect on that same organ or system **may be present**

- *Additional Information*

- Calculate the HQ and HI for each sample location for a given sampling event.
 - If you have 6 samples, calculate HQ for each chemical detected in all 6 samples.
 - Then calculate HI for each of the 6 samples for each organ or system that the chemicals effect.
- Indoor air exposure concentration = detected air concentration for that sample location
- Indoor air noncancer cleanup level = CLARC vapor intrusion indoor air **noncancer** cleanup level
- Health effects are listed in CLARC “Noncancer Effects Table” worksheet, “Noncancer Organ/System Affected Inhalation Route” column.

Vapor Intrusion

Individual Chemical and Additive Hazard and Risk

- Use 2 significant figure to determine if the HQ or HI of 1 is exceeded
 - For example,
 - An HQ of 1.1 or greater exceeds
 - 1.05 should be rounded up to 1.1
 - 1.04 should be rounded down to 1.0

Individual Chemical Cancer Risk and Additive Cancer Risk

- *Individual Chemical Risk*

$$\text{Excess Lifetime Cancer Risk (ELCR)} = \frac{\text{Indoor Air Exposure Concentration}}{\text{Indoor Air Cancer Cleanup Level}} * \text{cancer risk}$$

- **Cancer risk = 1E-06**
- ELCR = or < 1E-06 indicates that the individual chemical presents an **acceptable cancer risk**
- ELCR > 1E-06 indicates that the individual chemical presents an **unacceptable cancer risk**

- *Additive Chemical Risk*

$$\text{Additive Excess Lifetime Cancer Risk (AELCR)} = \text{ELCR1} + \text{ELCR2} + \text{ELCR3} \dots$$

- Add up all individual chemical ELCRs regardless of the type of cancer.
- AELCR = or < 1E-05 indicates that all of the chemicals that cause a cancer risk present an **acceptable cancer risk**
- AELCR > 1E-05 indicates that all of the chemicals that cause a cancer risk present an **unacceptable cancer risk**

- *Additional Information*

- Calculate the ELCR and AELCR for each sample location for a given sampling event.
 - If you have 6 samples, calculate ELCR for each chemical detected in all 6 samples.
 - Then calculate AELCR for each of the 6 samples.
- Indoor air exposure concentration = detected air concentration for that sample location
- Indoor air cancer cleanup level = CLARC vapor intrusion indoor air **cancer** cleanup level
- You do not need to know the type of cancer because you add up all the ELCRs regardless of what type of cancer is caused by the chemical.
- Use 2 significant figure to determine if the ELCR of 1E-06 or an AELCR of 1E-05 is exceeded
 - For example,
 - An ELCR of 1.1E-06 or greater exceeds
 - An AELCR of 1.1E-05 or greater exceeds
 - 1.05E-06 should be rounded up to 1.1E-06

Vapor Intrusion Individual Chemical and Additive Hazard and Risk

- 1.04E-06 should be rounded down to 1.0E-6

NonDetects

- Use ½ the detection limit as an indoor air concentration for any chemicals that are not detected if they have been detected in previous sampling events. This is especially important when it is a chemical that is not detected in upwind ambient outdoor air and is detected in the subslab since that implies it is only being released inside the building or intruding from the subsurface.
 - It is appropriate in some cases to provide 2 calculations: one using ½ the detection limit and another using 0 for the nondetects to provide an additional line of evidence. This is appropriate when there are upwind ambient outdoor air concentrations of this chemical and/or it is not detected in the subslab. In these cases, a site-specific decision can be made with all of the data taken into consideration based on sufficient rationale.

TPH Specific Information

- If TPH is present at the site, use the aliphatic and aromatic fractions in the additivity calculations along with the other chemicals present at the site. CLARC does not contain indoor air cleanup levels for the aliphatic and aromatics. Please use the ones in the table below. When there is a (minus ...) next to an aliphatic or aromatic, subtract the concentration of the chemical listed from the aliphatic or aromatic concentrations.
 - For example, for aliphatics EC>5-8 (minus hexane), take the concentration of hexane and subtract it from the concentration for the aliphatics EC>5-8 and use that adjusted concentration as your exposure concentration.

| Chemical | Method B | | Method C | | Commercial Worker | |
|--|-----------------------|--------------------|-----------------------|--------------------|-----------------------|--------------------|
| | Noncancer CUL (ug/m3) | Cancer CUL (ug/m3) | Noncancer CUL (ug/m3) | Cancer CUL (ug/m3) | Noncancer CUL (ug/m3) | Cancer CUL (ug/m3) |
| Aliphatics EC>5-8 (minus hexane) | 2.74E+03 | NA | 5.99E+03 | NA | 2.33E+04 | NA |
| Aliphatics EC>8-12 * | 4.58E+01 | NA | 1.00E+02 | NA | 3.90E+02 | NA |
| Aliphatics EC>12-16 | 4.58E+01 | NA | 1.00E+02 | NA | 3.90E+02 | NA |
| Aromatics EC>9-10 (minus xylene, ethylbenzene) | 1.82E+02 | NA | 3.99E+02 | NA | 1.55E+03 | NA |
| Aromatics EC>10-12 (minus naphthalene) | 1.37E+00 | NA | 3.00E+00 | NA | 1.17E+01 | NA |
| Aromatics EC>12-16 (minus 1-methylnaphthalene) | 1.82E-01 | NA | 3.99E-01 | NA | 1.55E+00 | NA |

CUL – Cleanup level

* Use the EC>8-12 CUL for the laboratory reported aliphatics range of EC>9-12

NA – not applicable; there is no cancer cleanup level

Vapor Intrusion
Individual Chemical and Additive Hazard and Risk

- As an additional line of evidence, additive cancer and noncancer hazard for petroleum chemicals (listed below) may be provided. This is not intended to replace total site additive cancer risk and noncancer hazard calculations. Total site additive cancer risk and noncancer hazard, which includes all the chemicals present at the site, must still be provided. The purpose of this additional line of evidence is to provide the risk present from petroleum chemicals only.
 - Aliphatics EC>5-8 (**minus hexane**)
 - Aliphatics EC>8-12
 - Aliphatics EC>12-16
 - Aromatics EC>9-10 (**minus xylene, ethylbenzene**)
 - Aromatics EC>10-12 (**minus naphthalene**)
 - Aromatics EC>12-16 (**minus 1-methylnaphthalene**)
 - Benzene
 - Ethylbenzene
 - Toluene
 - Total xylenes
 - Hexane
 - Naphthalene
 - 1-Methylnaphthalene
 - 1,2-Dichlorethane (EDC)
 - Ethylene dibromide (EDB)
 - Methyl tert-butyl ether (MTBE)