



# GROUNDWATER MONITORING REPORT

## APRIL 2022 THROUGH SEPTEMBER 2023

Cascade Pole Site  
Olympia, Washington

December 15, 2023

Prepared for

Port of Olympia  
915 Washington Street NE  
Olympia, Washington

**Groundwater Monitoring Report  
April 2022 through September 2023  
Cascade Pole Site  
Olympia, Washington**

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## LIST OF ABBREVIATIONS AND ACRONYMS

°C	degrees centigrade
µg/L	micrograms per liter
µS/cm	microsiemens per centimeter
AR	Analytical Resources, LLC
Apex	Apex Laboratories
CMP	compliance monitoring plan
cPAH	carcinogenic polycyclic aromatic hydrocarbons
CPC	Cascade Pole Site
DNAPL	dense non-aqueous phase liquid
DRO	diesel-range organics
Ecology	Washington State Department of Ecology
EPA	US Environmental Protection Agency
ft	feet/foot
FS	feasibility study
GRO	gasoline-range organics
Landau	Landau Associates, Inc.
LTGCM	Long-Term Groundwater Compliance Monitoring
MLLW	mean lower low water
MTCA	Model Toxics Control Act
NAPL	non-aqueous phase liquid
NWTPH-Dx	Northwest oil-range total petroleum hydrocarbon extended
NWTPH-Gx	Northwest gasoline-range total petroleum hydrocarbon
ORO	oil-range organics
PAH	polycyclic aromatic hydrocarbon
PCP	pentachlorophenol
Port	Port of Olympia
RI	remedial investigation
SCF	sample collection form
SIM	selected ion monitoring
Site	Cascade Pole site
SOU	Sediments Operable Unit
TEF	toxicity equivalency factor
TEQ	toxicity equivalency quotients
WAC	Washington Administrative Code

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## 1.0 INTRODUCTION

This annual report, prepared by Landau Associates, Inc. (Landau) on behalf of the Port of Olympia (Port), summarizes groundwater monitoring activities conducted between April 1, 2022, and September 30, 2023, at the Cascade Pole site (CPC; Site) in Olympia, Washington. This is the sixteenth annual report summarizing the groundwater monitoring that has been conducted as part of the Long-Term Groundwater Compliance Monitoring (LTGCM) program outlined in the first amendment to Agreed Order Number DE 00TCPSR-753 (Washington State Department of Ecology [Ecology] 2004). The compliance monitoring plan (CMP; Landau 2007) identifies the processes for collecting groundwater samples and measuring groundwater elevations. The LTGCM program consists of the following elements:

- **Hydraulic Control Monitoring:** Monthly monitoring of groundwater elevations at perimeter and interior monitoring wells. The groundwater elevation data are used to monitor the effectiveness of the groundwater extraction and treatment system in achieving hydraulic control. The locations of monitoring wells are shown on Figures 1 and 2.
- **Perimeter Well Monitoring:** Semiannual collection of water quality samples from four paired monitoring wells located along the perimeter (inside and outside) of the slurry wall. The analytical results for the groundwater quality samples are used to evaluate the effectiveness of the extraction and treatment system in controlling horizontal migration of contaminants. Groundwater samples are collected from the following paired wells: PZ 12 and PZ-13, LW-3 and PZ-17, LW-4R and PZ-18, and MW-02S and PZ-19, as shown on Figure 1.
- **Interior Well Monitoring:** Semiannual collection of water quality samples from three paired upper and lower aquifer wells located within the interior of the containment area. The analytical results for the paired upper and lower aquifer wells are used in evaluating vertical containment. Groundwater samples are collected from the following paired interior wells: MW-01S and MW-01D, MW-02S and MW-02D, and MW-05S and MW-05D, as shown on Figure 2. In addition to the paired upper and lower aquifer wells, water quality samples are collected semiannually from well CW-13, as requested by Ecology.
- **Reporting:** The results of semiannual groundwater monitoring are presented in an annual report and submitted to Ecology.

### 1.1 Background

The former CPC wood-treatment Site is located approximately 1 mile north of downtown Olympia, at the northern end of the peninsula that extends into Budd Inlet. The Port owns the property, adjacent parcels, and adjacent in-waterway sediments area. A detailed history of the Site can be found in the CPC remedial investigation (RI) and feasibility study (FS) reports for the Sediments Operable Unit (SOU; Landau 1993a; Landau 1993b), which is located within Budd Inlet directly north of the CPC upland area. Environmental cleanup of the Site is proceeding under the Washington State Model Toxics Control Act (MTCA) regulations.

The Port implemented several interim remedial actions in the upland area of the Site to address contamination from the former wood-treatment activities. These interim actions prevented further migration of hazardous substances from contaminated soil and groundwater into the adjacent

groundwater, surface water, and sediment. A groundwater extraction and non-aqueous phase liquid (NAPL) recovery and treatment system was installed in 1991 and 1992. In early 1993, a dense NAPL (DNAPL) recovery trench and an associated sheet pile cutoff wall were installed along a portion of the shoreline to eliminate the migration of DNAPL into Budd Inlet. The cutoff wall was extended to encircle the Site through installation of a soil-bentonite slurry wall in 1996 and 1997. The cutoff wall was keyed into the aquitard and encompasses the former wood -treating facility and treated pole storage yards; areas where NAPL has been observed and impacted groundwater. The trench was abandoned in 2001 due to low DNAPL recovery rates.

In 2001, approximately 40,000 cubic yards of environmentally impacted marine sediment was removed from the SOU and placed in an upland containment cell, which is located in the northeast portion of the site. A second steel sheet pile cutoff wall was installed seaward of the first sheet pile wall in 2002 to isolate impacted sediment between the two walls that was not practicable to remove. This second sheet pile cutoff wall was keyed into the existing slurry wall on each end and into the underlying aquitard, forming a shoreline containment cell. The groundwater extraction and NAPL recovery and treatment system was expanded in 1999 and modified in 2001 in conjunction with the construction of the upland sediment containment cell.

A major portion of the Site was paved between fall 1997 and summer 1998 to assist with stormwater runoff control and to reduce surface water infiltration. The Site was capped in three phases: Phase I was conducted in 2004, Phase II was conducted in 2009, and Phase III was completed in 2010. Upon completion of the capping activities, a new groundwater treatment system was installed to replace the 1993 system and to increase the Site treatment capacity. The new treatment system began operation in January 2012. In 2019, a system evaluation was conducted which identified several potential improvements to the groundwater extraction well system/components to be completed (Landau 2019). In response to the groundwater extraction system evaluation, the Port began testing various models of flow meters and transducers at well CW-5 and modified the well cap to allow for manual data collection. Due in part to the COVID-19 pandemic and the resulting reduced workforce availability, testing and evaluation of the components has not been completed; however, once finalized, the approved modifications will be conducted at other extraction wells to improve system performance. A separate report will be developed to summarize completed treatment system optimization activities.

## 1.2 Hydraulic Control Goals

The goal of the hydraulic control system at the Site is to prevent overtopping of the cutoff wall throughout the containment area. The performance criterion goal consists of maximum groundwater elevations within the cutoff wall, depending on adjacent cutoff wall top elevations (Landau 2000). The groundwater elevation performance criteria are 15.5 feet mean lower low water (ft MLLW) along the majority of the cutoff wall alignment and 16.5 ft MLLW along wall alignment sections adjacent to Budd Inlet.

### 1.3 Groundwater Quality Compliance Monitoring Goals

The purpose of the groundwater quality compliance monitoring is to assess the effectiveness of the groundwater extraction and treatment system. The CMP identifies four pairs of shallow monitoring wells located along the perimeter (inside and outside) of the bentonite cutoff wall and three shallow and deep well pairs within the containment area to monitor the effectiveness of the containment system. One additional shallow extraction well not currently being operated, CW-13, is also being sampled at Ecology's request.

Groundwater quality results are compared to MTCA Method B values for the protection of marine surface water, with the exception of petroleum hydrocarbons, which are compared to MTCA Method A cleanup levels. Beginning in March 2023, groundwater samples analyzed by Method Northwest oil-range total petroleum hydrocarbon extended (NWTPH-Dx) do not include a silica gel cleanup preparation step, per Ecology request. To evaluate the analytical data for carcinogenic polycyclic aromatic hydrocarbons (cPAHs), the toxicity equivalency quotients (TEQs) of individual cPAHs were calculated and summed for comparison to the benzo(a)pyrene cleanup level using the methodology established in Washington Administrative Code (WAC) 173-340-708. To calculate the TEQ, the toxicity equivalency factor (TEF) for a given cPAH compound was multiplied by the compound concentration, or half the reporting limit for compounds that were not detected above the laboratory reporting limit, and the resulting values were summed. The resulting TEQ was compared to the MTCA Method B cleanup level for benzo(a)pyrene of 0.1 microgram per liter ( $\mu\text{g/L}$ ). Pentachlorophenol (PCP) is initially analyzed using US Environmental Protection Agency (EPA) Method 8270 with a reporting limit of 10.0  $\mu\text{g/L}$ . If the initial PCP results are not detected at the reporting limit, then samples are selected for follow-up analysis using EPA Method 8041 with a lower reporting limit of 0.25  $\mu\text{g/L}$ . This PCP analysis sequence is conducted to allow for initial screening for elevated detections of the compound without damage to laboratory equipment while the follow-up analysis allows for comparison of results to MTCA Method B cleanup levels.

## 2.0 COMPLIANCE MONITORING PROCEDURES

Three semiannual groundwater quality monitoring events were conducted at the Site during this reporting period (September 2022, March 2023, and September 2023). Monthly groundwater elevation data is also collected to evaluate system hydraulic control measures in accordance with the CMP (Landau 2007). The following sections describe the sampling methods for collection of water level measurements and groundwater sampling.

### 2.1 Hydraulic Control Measurements

Monthly groundwater level measurements from the selected compliance perimeter well pairs (PZ-12 and PZ-13, LW-3 and PZ-17, LW-4R and PZ-18, and MW-02S and PZ-19) and from interior monitoring well shallow and deep aquifer pairs (MW-01S and MW-01D, MW-02S and MW-02D, and MW-05S and MW5D) have been collected throughout the reporting period.

The depth to groundwater measurements were collected using an electronic water level meter and measurements were recorded to the nearest 0.01 ft. Measurements were made from surveyed reference points on the top of the well casing. Depth to groundwater was converted to groundwater elevation for each well using a surveyed reference elevation at the top of the casing. At Ecology's request, monthly groundwater level measurements starting in April 2023 have been submitted within 15 days of the data measurements and are presented in Appendix A. Groundwater elevation data collected during this reporting period are summarized in Table 1.

### 2.2 Groundwater Sampling

Groundwater quality monitoring events were conducted in September 2022 and September 2023 during a time of low groundwater elevations, which corresponded to a typical "dry season," and in March 2023 at a time when high groundwater elevations corresponded to a typical "wet season." Groundwater samples were collected using low-flow sampling techniques as described in the CMP. Groundwater was purged from the selected wells using a non-dedicated peristaltic pump and dedicated sampling tubing. Field parameters (pH, conductivity, dissolved oxygen, and temperature), along with groundwater levels, were monitored every 3 to 5 minutes during the purge process to verify the flow rate and to minimize groundwater level drawdown. Groundwater samples were collected directly into laboratory-prepared containers, labeled, stored in a cooler with a maintained temperature of 4 to 6 degrees centigrade (°C), and transported to the laboratory in accordance with proper chain-of-custody procedures. Sample collection forms (SCFs) are located in Appendix B.

Beginning in September 2023, wells located near Budd Inlet (CW-13, MW-2S, MW-2D, MW-5S, MW-5D, and PZ-19) were sampled following the high tide to reduce the potential impacts of saltwater intrusion. During the September 2023 sampling event, the high tides were early in the morning (05:44 on September 14, 2023, and 06:23 on September 15, 2023) while low tides lagged by approximately 6.5 to 7 hours. Sampling activities for the above-identified wells were completed within 4 hours following the high tide with the exception of well MW-5D, which was sampled 6 hours following the high tide. Although MW-5D was sampled at a longer time following the high tide, sampling was still completed

prior to low tide and field data showed no indications of saltwater intrusion as conductivity levels ranged from 198 to 205.6 microsiemens per centimeter (uS/cm). Future sampling at wells located near Budd Inlet (CW-13, MW-2S, MW-2D, MW-5S, MW-5D, and PZ-19) will continue to be conducted following the predicted high tide window to minimize saltwater intrusion.

Groundwater samples were submitted to Analytical Resources, LLC (AR) located in Tukwila, Washington. Samples were analyzed for polycyclic aromatic hydrocarbons (PAHs) using EPA Method 8270 with selected ion monitoring (SIM); gasoline-range organics (GRO) using Method Northwest gasoline-range total petroleum hydrocarbon (NWTPH-Gx); and diesel- and oil-range organics (DRO and ORO, respectively) and creosote using NWTPH-Dx. As per Ecology's request, no silica gel cleanup preparation step will be conducted on the NWTPH-Dx analyses starting in March 2023. Follow-up PCP analysis was conducted using low reporting limit testing (EPA Method 8041) if results from the PAH testing using EPA Method 8270 indicated results were below the associated method reporting limit.

## 3.0 COMPLIANCE MONITORING RESULTS

The following sections discuss the performance of the system relative to the hydraulic control and groundwater quality criteria. Groundwater elevation data collected during this reporting period is summarized in Table 1. Groundwater quality compliance monitoring data collected during this reporting period is summarized in Table 2. Historical data (groundwater elevation and groundwater analytical results) are presented in Tables C-1 and C-2 of Appendix C. Laboratory reports for the sampling events conducted during this reporting period are presented in Appendix D.

### 3.1 Hydraulic Control

The LTGCM plan dictates that hydraulic control for the Site will be conducted by pumping groundwater from a series of shallow extraction wells and directing water to the onsite treatment system. The groundwater elevation performance goals are set to maintain groundwater levels below the top of the perimeter cutoff wall, which requires maintaining groundwater elevations below 15.5 ft MLLW along the majority of the cutoff wall alignment and below 16.5 ft MLLW along wall alignment sections adjacent to Budd Inlet. The monthly hydraulic control data is summarized in Table 1 and monthly groundwater elevation field forms are provided in Appendix A. Historical groundwater elevation data is summarized in Table C-2 of Appendix C.

Available groundwater elevation data collected during this reporting period indicate that the performance elevation goals were not met at every well at various times, and that more exceedances are observed during the typical dry season, as detailed below:

- Groundwater elevations observed at perimeter wells where the hydraulic goal was exceeded during the typical “2022 dry season” (April 2022 through September 2022) were recorded at five wells (PZ-12, LW-3, LW-4R, MW-02S, and MW-05S). During the 2022 dry season period, the percentage of times that individual wells exceeded the hydraulic containment goal ranged from 66.7 percent of the dry season period at PZ-12 to 16.7 percent of the time at MW-05S.
- Groundwater elevations observed at perimeter wells where the goal was exceeded during the “2022-2023 wet season” (October 2022 through March 2023) were recorded at three wells (PZ-12, LW-4R, and MW-02S). The hydraulic containment goal was exceeded at wells MW-02S and LW-4R 83.3 percent of the time. Wells MW-05S, which is located closest to Budd Inlet met the hydraulic containment goal 100 percent of the time during this wet season.
- Groundwater elevations observed at perimeter wells where the goal was exceeded during the “2023 dry season” (April 2023 through September 2023) include all five of the wells. The percentage of time individual wells exceeded the hydraulic containment goal during the 2023 dry season ranged from 100 percent of the time at LW-4R to 16.7 at MW-05S.

The extraction system was operated under the condition of the discharge permit (Ecology 2021) during this reporting period. According to the Port, extraction wells CW-3, CW-9, and CW-10 operated nearly full-time during this reporting period while extraction well CW-4 operated between 75 and 90 percent of the time and CW-8 operated 10 to 15 percent of the time. Extraction wells CW-1, CW-2, CW-5, CW-6, CW-11, CW-12, and CW-13 were not operational during this reporting period. The monthly average flow volume for the system ranged from 3,668 gallons in March 2023 to 6,275 gallons in January 2023, as

presented in Table 3. Monthly discharge monitoring reports for the Site are included in Appendix E. Future system optimization of the extraction well system toward full containment capacity should increase the extraction volume and improve the hydraulic containment performance toward the groundwater elevation performance criteria.

## 3.2 Groundwater Analytical Results

The groundwater analytical results for the three sampling events (September 15 - 16 2022, March 8 - 9 2023, and September 14 - 15 2023) are summarized in Table 2. Analytical results for constituents detected above the cleanup screening levels during this reporting period are shown on Figure 3. Historical compliance groundwater quality data is summarized in Table C-1 of Appendix C. The following paragraphs summarize the analytical results for this reporting period.

### 3.2.1 Exterior Shallow Wells

Exterior shallow wells (PZ-13, PZ-17, PZ-18, and PZ-19) represent groundwater outside of the hydraulic containment system and, as such, exceedance of screening levels in these wells may indicate a lack of hydraulic containment in the vicinity of the subject exterior well or an external source/release.

Analytical results for the exterior shallow wells (located outside of the slurry wall) were below the laboratory reporting limits during this reporting period for wells PZ-13 and PZ-18. Low-level concentrations of GRO and ORO were reported at well PZ-17 during the September 2023 event while low-level concentrations of PCP (1.28 µg/L in September 2023) and naphthalene (1.8 µg/L in September 2022) were reported at well PZ-18. These concentrations are all below the respective cleanup screening levels.

The observed concentrations during this reporting period were within historical ranges for each of the exterior shallow wells with one recent higher detection of PCP concentrations at PZ-18; however, these results remain below the cleanup screening level.

### 3.2.2 Interior Shallow Wells

Interior shallow wells (PZ-12, LW-3, LW-4R, MW-01S, MW-02S, MW-05S, and CW-13) represent the groundwater that is being contained by the hydraulic containment system. As a result, exceedances of groundwater screening levels are anticipated.

No constituents were detected above laboratory reporting limits at PZ-12 or LW-4R during the reporting period. Low-level concentrations (below the respective screening levels) of various PAH compounds were detected at LW-3, MW-02S, MW-05S, and CW-13; however, no detected concentrations were above the applicable screening levels. Low-level concentrations of DRO and ORO were detected at CW-13, none of which were above the groundwater cleanup screening levels.

The following compounds were detected at concentrations above the respective groundwater cleanup screening levels:

- Well LW-3, which is located along the southern portion of the containment area:
  - Results from the September 2022 event indicate that DRO, ORO, and creosote were detected at concentrations of 32,500 µg/L, 10,400 µg/L, and 206,000 µg/L, respectively.
  - Results from the March 2023 event indicate that creosote was detected at a concentration of 2,490 µg/L.
  - Results from the September 2023 event indicate that DRO, ORO, and creosote were detected at concentrations of 3,570 µg/L, 4,080 µg/L, and 12,100 µg/L, respectively.
- Well MW-01S, which is located towards the center of the containment area and has historically had the highest reported concentrations:
  - Results from the September 2022 event indicate that naphthalene (5,810 µg/L), pentachlorophenol (1,400 µg/L), total cPAH TEQ values (22.7 µg/L), GRO (33,100 µg/L), DRO (4,740 µg/L), and creosote (31,500 µg/L) exceed the groundwater cleanup screening levels.
  - Results from the March 2023 event indicate that pentachlorophenol (3.80 µg/L), total cPAH TEQ values (0.84 µg/L), GRO (26,300 µg/L), DRO (2,580 µg/L), and creosote (14,900 µg/L) exceed the groundwater cleanup screening levels.
  - Results from the September 2023 event indicate that pentachlorophenol (1,580 µg/L), total cPAH TEQ values (0.92 µg/L), GRO (26,000 µg/L), DRO (8,220 µg/L), and creosote (33,400 µg/L) exceed the groundwater cleanup screening levels.
- Wells MW-02S and MW-05S reported concentrations of creosote at concentrations above the screening level for the September 2023 event (791 µg/L and 557 µg/L, respectively).

The observed concentrations during this reporting period were within historical ranges for each of the interior shallow wells with some recent variability in concentrations at LW-3.

### 3.2.3 Deep Wells

Deep wells MW-01D, MW-02D, and MW-05D were monitored for groundwater quality during the reporting period on a semiannual basis. These wells are screened in the lower aquifer and the aquitard, which separates the shallow and deep aquifer at the Site. The wells are located within the interior of the slurry wall, in close proximity to the shallow interior wells. The intent of the deep wells is to monitor potential vertical migration of contaminants from the overlying containment system.

Analytical results for the deep wells indicate that concentrations of Site constituents of concern were below the respective cleanup screening levels for wells MW-01D and MW-02D during this reporting period. Well MW-01D, which is located vertically downgradient of MW-01S (historically the well with the most elevated concentrations), reported low-level naphthalene concentrations (1.9 µg/L in September 2022 and 0.7 µg/L in September 2023); however, these concentrations are below the cleanup screening level (4,900 µg/L). In addition to the naphthalene concentrations, MW-01D had low-level detections of acenaphthene (0.3 µg/L) and phenanthrene (0.3 µg/L) during the September 2023 event; these compounds have been detected at similar ranges in the past and continue to be below the cleanup screening levels.



Well MW-02D reported low-level concentrations of naphthalene, 2-methylnaphthalene, acenaphthene, dibenzofuran, fluorene, phenanthrene, anthracene, pentachlorophenol, 1-methylnaphthalene, GRO, DRO, and creosote during one or all sampling events; however, the low-level concentrations are all below the respective cleanup screening levels.

Well MW-05D reported low-level detections of acenaphthylene, acenaphthene, dibenzofuran, fluorene, phenanthrene, anthracene, fluoranthene, pentachlorophenol, phenanthrene, anthracene, fluoranthene, pyrene, chrysene, 1-methylnaphthalene, and cPAH TEQ during one or all sampling events for this reporting period; however, the low-level concentrations are all below the respective cleanup screening levels. Well MW-05D reported concentrations of GRO (3,950 µg/L in September 2022 and 3,090 µg/L in September 2023), DRO (985 µg/L in September 2023), and creosote (4,040 µg/L in September 2023) that exceeded the applicable cleanup screening levels.

Most analytical results for the deep wells are consistent with historical concentrations. Concentrations at well MW-05D were elevated compared to historical concentrations and GRO detections are identified as naphthalene. MW-05D will continue to be closely monitored and is further discussed in the section below.

### 3.2.4 Naphthalene Concentrations at Well MW-05D

During the dry season 2021, water quality samples were collected from interior monitoring well MW-05D during regular semiannual monitoring in September. Based on the results, a verification sample was collected at MW-05D in October 2021 (see Table C-1 in Appendix C). Groundwater analytical results for MW-05D indicated GRO concentrations of 1,580 µg/L (September 2021) and 3,120 µg/L (October 2021), which were the first occurrences during which GRO had been detected at this well. The data results are anomalous to historical trends at the well. Upon review of the laboratory chromatographs, this peak in the carbon range was identified by the laboratory as naphthalene for both samples; however, naphthalene detections were not confirmed for the same samples analyzed by EPA Method 8270. The concentrations observed in the gasoline organics range are below the naphthalene project cleanup screening level of 4,900 µg/L.

Although concentrations at MW-05D were below the naphthalene cleanup screening level, additional evaluations at well MW-05D were completed during the 2022 wet season sampling (March 2022 event) as outlined in the work plan (Landau 2022). The sampling in March 2022 at MW-05D was conducted to confirm whether sampling procedures, such as the volume of water purged from the well before sampling, affected the analytical results. Prior to collecting samples from MW-05D, the well was redeveloped and iterative samples were collected from the well throughout the purging process. Split samples were submitted to both AR and Apex Laboratories (Apex), located in Tigard, Oregon, for analysis. The analytical data is presented in Appendix F.

GRO results for March 2022 samples ranged from 951 to 1,190 µg/L. There was not a significant difference in the results between laboratories or throughout the well purging process. Neither laboratory was able to provide an explanation as to why the sample chromatograms clearly identified the detected compound as naphthalene in the NWTPH-Gx analyses while the EPA 8270 analyses for

PAHs were either consistently detected at much lower concentrations or not detected above the laboratory reporting limits. AR and Apex analytes both indicated that the preparation process for the various analytes may be the root cause. Samples for NWTPH-Gx analysis use a purge-and-trap method while samples prepared for the EPA Method 8270 include an extraction step.

Since March 2022, GRO concentrations at MW-05D have continued to be reported at concentrations above the gasoline range hydrocarbon cleanup screening level during dry season events, but the 2023 wet season result was not detected above the laboratory reporting limit. However, both laboratories have reviewed the chromatograms and clearly identified the detected constituent as naphthalene and, as such, the detected concentrations are below the cleanup screening level (4,900 µg/L). Naphthalene has not been detected above the laboratory reporting limit using EPA Method 8270 since March 2022. The analytical results for MW-05D continue to be closely monitored during each semiannual sampling event and naphthalene will continue to be analyzed by both NWTPH-Gx and EPA 8270 testing methods .

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

Evaluation of groundwater elevations for shallow monitoring wells located along the perimeter of the bentonite slurry wall indicates that the hydraulic control system achieved the hydraulic containment goals for the majority of the reporting period, but not throughout an entire 18-month period for any well. Reoccurring exceedances of the hydraulic containment goals occurred at LW-4R, MW-02S, and PZ-12 during this reporting period while the performance elevation goals were also exceeded at LW-3 and MW-05S for one or more measurements. Maintenance of the extraction wells, testing and evaluation of system components, and identification of potential treatment system optimization are recommended to increase the individual well operational time and efficiency.

Analytical results indicate no exceedances of the groundwater screening levels in the majority of the wells (PZ-12, PZ-13, PZ-17, PZ-18, PZ-19, LW-4R, MW-01D, MW-02D, and CW-13). Four shallow-interior wells (LW-3, MW-01S, MW-02S, and MW-05S) and one deep-interior well (MW-05D) reported concentrations above the individual groundwater cleanup screening levels during one or more sampling event conducted during this reporting period. DRO, ORO, and creosote were detected at concentrations exceeding the cleanup screening levels at well LW-3. Wells MW-05D, MW-05S, and MW-02S had detected concentrations for DRO and/or creosote for the September 2023 sampling event. Groundwater screening levels were exceeded at MW-01S for PCP, total cPAHs, GRO, DRO, creosote, and naphthalene for one or more of the sampling events during the reporting period. No exceedances of the cleanup screening levels were observed in the paired deeper well MW-01D, which would indicate no downward migration of impacted conditions observed at MW-01S. GRO was detected at concentrations exceeding the cleanup screening level at MW-05D during both the September 2022 and September 2023 sampling events; however, the laboratory identified these detections as naphthalene-range and not gasoline-range organics. Exceedances at MW-01S and LW-3 are anticipated as these wells are located inside the containment system. Concentrations of Site constituents of concern will continue to be monitored at MW-05D.

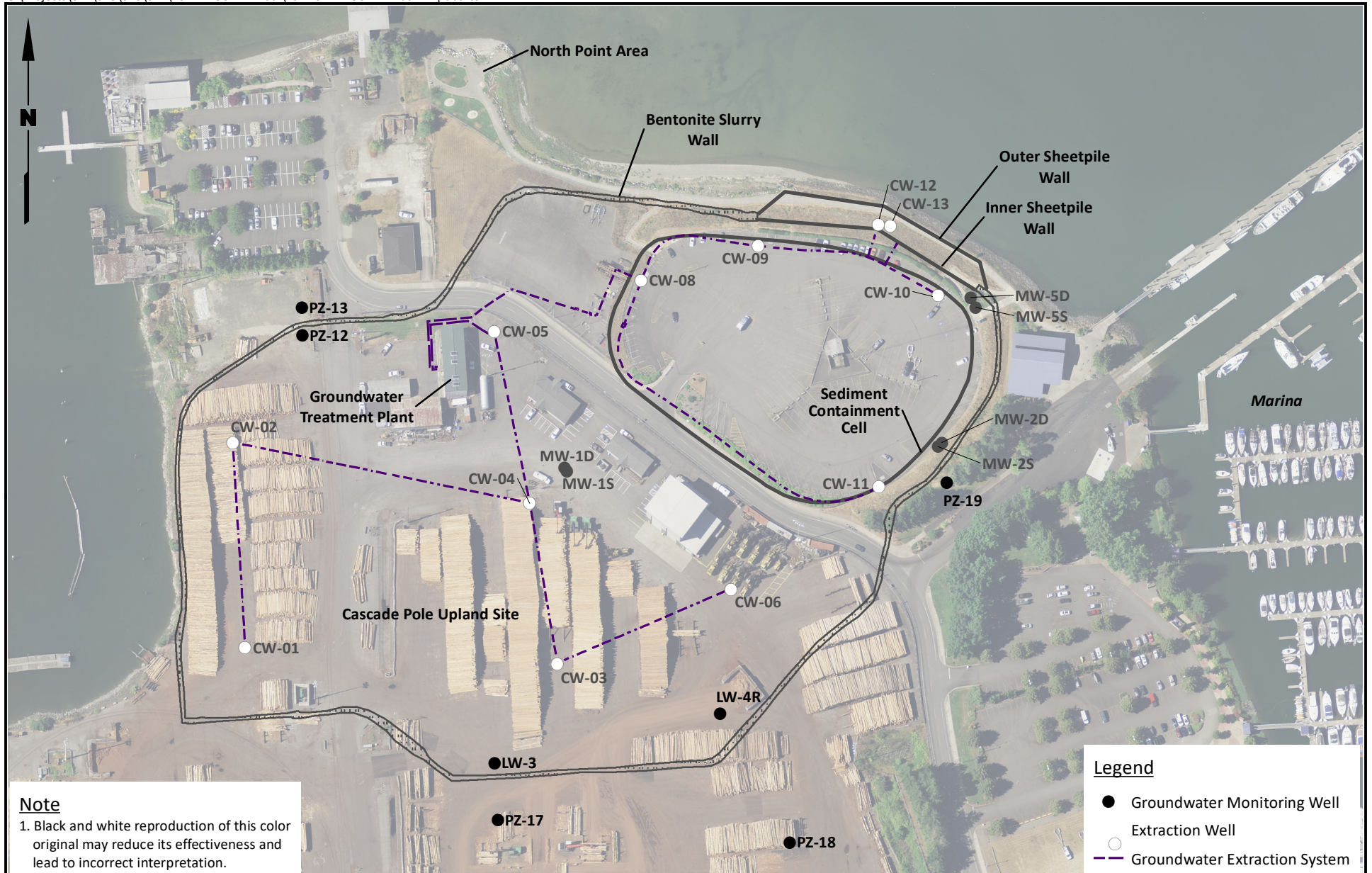
The next semiannual sampling event is currently scheduled for late March or April 2024 to coincide with typical high groundwater elevations representative of a “wet season” event, depending on precipitation rates. The “dry season” event will be conducted in September 2024.

## 5.0 LIMITATIONS

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

## 6.0 REFERENCES

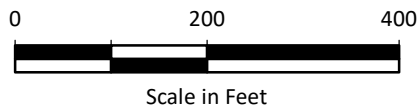
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**Note**

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

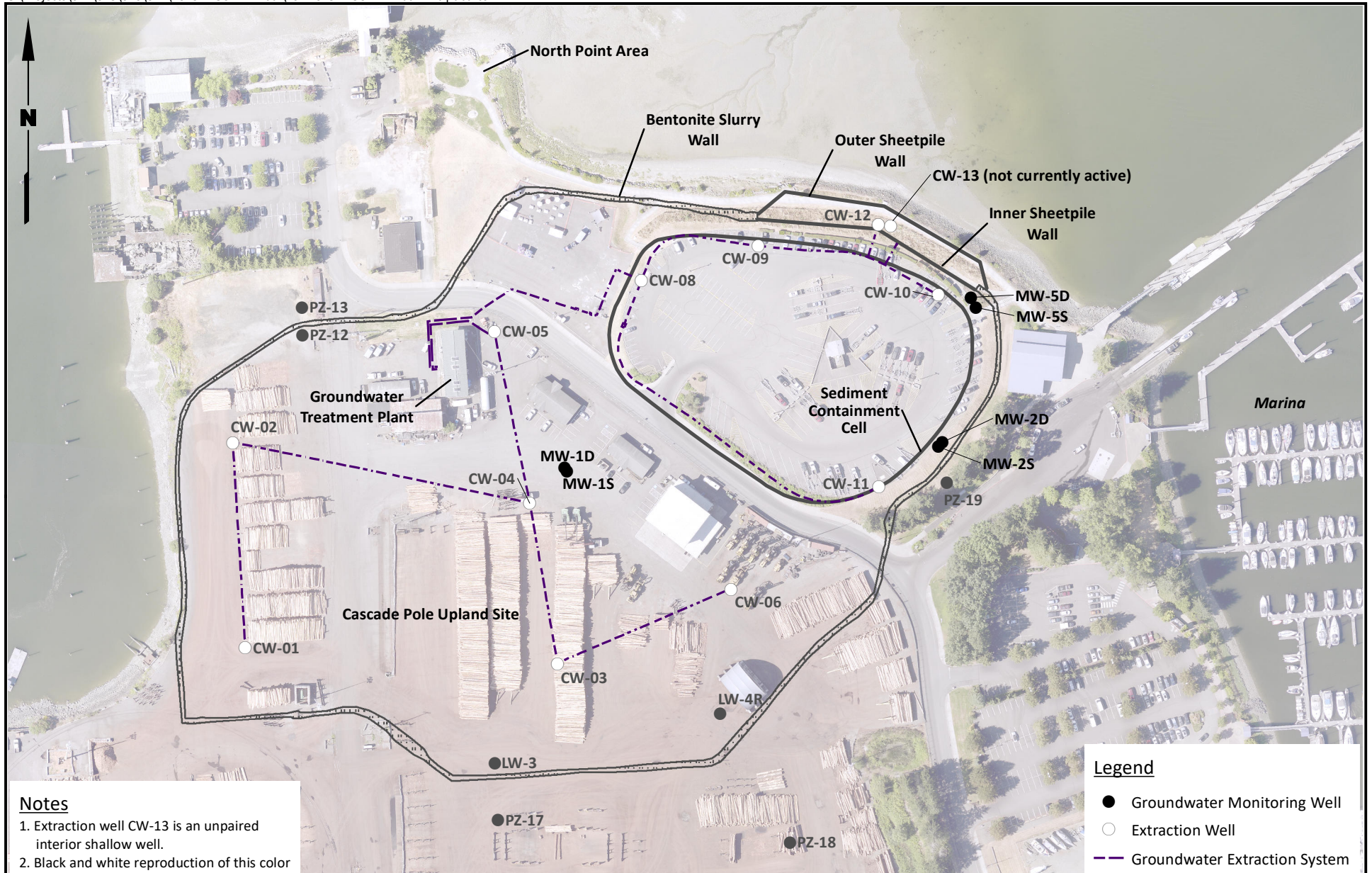
Source: Thurston County Aerial, 2018



Port of Olympia  
Olympia, Washington

**Monitoring Network  
Well Locations**

Figure  
**1**



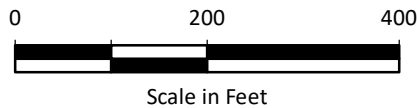
**Notes**

1. Extraction well CW-13 is an unpaired interior shallow well.
2. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

**Legend**

- Groundwater Monitoring Well
- Extraction Well
- Groundwater Extraction System

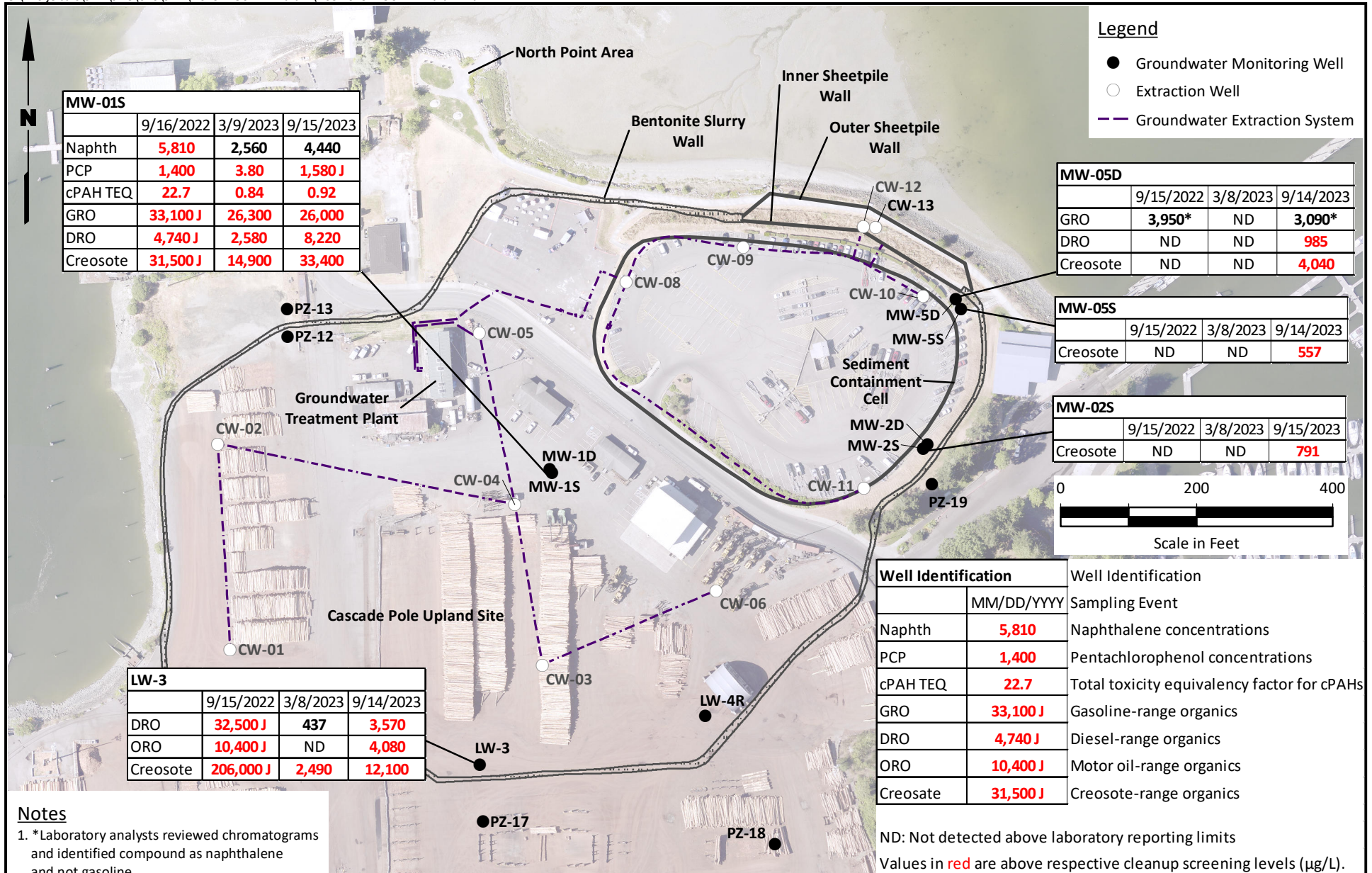
Source: Thurston County Aerial, 2022.



Port of Olympia  
Olympia, Washington

**Deep and Shallow  
Groundwater Monitoring Well Pairs**

Figure  
**2**





**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
4/7/2022	--	PZ-13	5.91	19.50	13.59	--		
4/7/2022	--	PZ-12	2.97	19.00	16.03	15.50	Yes	
5/25/2022	--	PZ-13	6.26	19.50	13.24	--		
5/25/2022	--	PZ-12	3.12	19.00	15.88	15.50	Yes	
6/11/2022	--	PZ-13	5.81	19.50	13.69	--		
6/11/2022	--	PZ-12	2.86	19.00	16.14	15.50	Yes	
7/4/2022	--	PZ-13	6.58	19.50	12.92	--		
7/4/2022	--	PZ-12	3.33	19.00	15.67	15.50	Yes	
8/6/2022	--	PZ-13	7.02	19.50	12.48	--		
8/6/2022	--	PZ-12	3.68	19.00	15.32	15.50	No	
9/15/2022	9:01	PZ-13	7.03	19.50	12.47	--		
9/15/2022	9:00	PZ-12	4.00	19.00	15.00	15.50	No	
10/21/2022	(c)	PZ-13	7.54	19.50	11.96	--		
10/21/2022	(c)	PZ-12	4.23	19.00	14.77	15.50	No	
11/5/2022	(d)	PZ-13	5.97	19.50	13.53	--		
11/5/2022	(d)	PZ-12	3.30	19.00	15.70	15.50	Yes	
12/17/2022	(e)	PZ-13	6.05	19.50	13.45	--		
12/17/2022	(e)	PZ-12	3.64	19.00	15.36	15.50	No	
1/7/2023	(f)	PZ-13	4.72	19.50	14.78	--		
1/7/2023	(f)	PZ-12	3.06	19.00	15.94	15.50	Yes	
2/19/2023	(g)	PZ-13	6.31	19.50	13.19	--		
2/19/2023	(g)	PZ-12	3.34	19.00	15.66	15.50	Yes	
3/10/2023	8:41	PZ-13	3.13	19.50	16.37	--		
3/10/2023	8:40	PZ-12	6.00	19.00	13.00	15.50	No	
4/22/2023	15:40	PZ-13	5.22	19.50	14.28	--		

**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
4/22/2023	15:45	PZ-12	2.80	19.00	16.20	15.50	Yes	
5/6/2023	10:48	PZ-13	6.05	19.50	13.45	--		
5/6/2023	10:53	PZ-12	3.07	19.00	15.93	15.50	Yes	
6/27/2023	18:03	PZ-13	7.11	19.50	12.39	--		
6/27/2023	18:10	PZ-12	3.52	19.00	15.48	15.50	No	
7/4/2023	10:21	PZ-13	6.75	19.50	12.75	--		
7/4/2023	10:27	PZ-12	3.61	19.00	15.39	15.50	No	
8/19/2023	13:04	PZ-13	6.98	19.50	12.52	--		
8/19/2023	13:13	PZ-12	3.93	19.00	15.07	15.50	No	
9/14/2023	12:36	PZ-13	7.30	19.50	12.20	--		
9/14/2023	12:39	PZ-12	4.16	19.00	14.84	15.50	No	
4/7/2022	--	PZ-17	5.84	20.48	14.64	--		
4/7/2022	--	LW-3	3.84	19.83	15.99	15.50	Yes	
5/25/2022	--	PZ-17	NA	20.48	--	--		Not accessible.
5/25/2022	--	LW-3	3.47	19.83	16.36	15.50	Yes	
6/11/2022	--	PZ-17	5.99	20.48	14.49	--		
6/11/2022	--	LW-3	4.39	19.83	15.44	15.50	No	
7/4/2022	--	PZ-17	6.17	20.48	14.31	--		
7/4/2022	--	LW-3	4.99	19.83	14.84	15.50	No	
8/6/2022	--	PZ-17	6.51	20.48	13.97	--		
8/6/2022	--	LW-3	4.79	19.83	15.04	15.50	No	
9/15/2022	8:42	PZ-17	6.25	20.48	14.23	--		
9/15/2022	8:40	LW-3	5.32	19.83	14.51	15.50	No	
10/21/2022	10:10	PZ-17	6.98	20.48	13.50	--		
10/21/2022	(c)	LW-3	4.73	19.83	15.10	15.50	No	
11/5/2022	13:56	PZ-17	6.98	20.48	13.50	--		

**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
11/5/2022	(d)	LW-3	4.98	19.83	14.85	15.50	No	
12/17/2022	14:35	PZ-17	6.58	20.48	13.90	--		
12/17/2022	(e)	LW-3	4.62	19.83	15.21	15.50	No	
1/7/2023	15:43	PZ-17	6.16	20.48	14.32	--		
1/7/2023	(f)	LW-3	4.52	19.83	15.31	15.50	No	
2/19/2023	15:15	PZ-17	6.17	20.48	14.31	--		
2/19/2023	(g)	LW-3	4.45	19.83	15.38	15.50	No	
3/10/2023	11:38	PZ-17	6.60	20.48	13.88	--		
3/10/2023	11:49	LW-3	4.26	19.83	15.57	15.50	Yes	
4/22/2023	15:58	PZ-17	5.86	20.48	14.62	--		
4/22/2023	16:05	LW-3	4.25	19.83	15.58	15.50	Yes	
5/6/2023	11:14	PZ-17	6.00	20.48	14.48	--		
5/6/2023	11:07	LW-3	3.92	19.83	15.91	15.50	Yes	
6/27/2023	18:43	PZ-17	6.29	20.48	14.19	--		
6/27/2023	18:35	LW-3	4.40	19.83	15.43	15.50	No	
7/4/2023	10:36	PZ-17	6.39	20.48	14.09	--		
7/4/2023	10:51	LW-3	4.05	19.83	15.78	15.50	Yes	
8/19/2023	13:21	PZ-17	6.65	20.48	13.83	--		
8/19/2023	13:32	LW-3	4.78	19.83	15.05	15.50	No	
9/14/2023	15:17	PZ-17	6.87	20.48	13.61	--		
9/14/2023	15:19	LW-3	5.00	19.83	14.83	15.50	No	
4/7/2022	--	PZ-18	6.37	21.2	14.83	--		
4/7/2022	--	LW-4R	5.36	22.02	16.66	15.50	Yes	
5/25/2022	--	PZ-18	NA	21.2	--	--		Not accessible.
5/25/2022	--	LW-4R	6.81	22.02	15.21	15.50	No	
6/11/2022	--	PZ-18	6.47	21.2	14.73	--		

**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
6/11/2022	--	LW-4R	5.43	22.02	16.59	15.50	Yes	
7/4/2022	--	PZ-18	6.07	21.2	15.13	--		
7/4/2022	--	LW-4R	5.56	22.02	16.46	15.50	Yes	
8/6/2022	--	PZ-18	6.13	21.2	15.07	--		
8/6/2022	--	LW-4R	NA	22.02	--	--	--	Monument lid damaged, unable to open.
9/15/2022	8:49	PZ-18	7.24	21.2	13.96	--		
9/15/2022	8:50	LW-4R	7.00	22.02	15.02	15.50	No	
10/21/2022	(c)	PZ-18	6.48	21.2	14.72	--		
10/21/2022	(c)	LW-4R	6.35	22.02	15.67	15.50	Yes	
11/5/2022	--	PZ-18	NA	21.2	--	--		monument damaged
11/5/2022	14:22	LW-4R	6.07	22.02	15.95	15.50	Yes	
12/17/2022	(e)	PZ-18	6.27	21.2	14.93	--		
12/17/2022	(e)	LW-4R	6.18	22.02	15.84	15.50	Yes	
1/7/2023	(g)	PZ-18	6.35	21.2	14.85	--		
1/7/2023	15:56	LW-4R	6.11	22.02	15.91	15.50	Yes	
2/19/2023	--	PZ-18	NA	21.2	--	--		covered by logs
2/19/2023	15:46	LW-4R	6.13	22.02	15.89	15.50	Yes	
3/10/2023	12:30	PZ-18	7.38	21.2	13.82	--		
3/10/2023	11:48	LW-4R	8.41	22.02	13.61	15.50	No	
4/22/2023	16:15	PZ-18	6.96	21.2	14.24	--		
4/22/2023	16:23	LW-4R	6.32	22.02	15.70	15.50	Yes	
5/6/2023	11:34	PZ-18	6.99	21.2	14.21	--		
5/6/2023	11:43	LW-4R	5.84	22.02	16.18	15.50	Yes	
6/27/2023	19:34	PZ-18	9.12	21.2	12.08	--		
6/27/2023	19:37	LW-4R	5.32	22.02	16.70	15.50	Yes	

**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
7/4/2023	11:02	PZ-18	7.27	21.2	13.93	--		
7/4/2023	11:27	LW-4R	5.46	22.02	16.56	15.50	Yes	
8/19/2023	13:41	PZ-18	6.54	21.2	14.66	--		
8/19/2023	13:49	LW-4R	5.32	22.02	16.70	15.50	Yes	
9/14/2023	16:37	PZ-18	9.65	21.2	11.55	--		
9/14/2023	16:43	LW-4R	5.64	22.02	16.38	15.50	Yes	
4/7/2022	--	PZ-19	15.35	23.67	8.32	--		
4/7/2022	--	MW-02S	15.60	31.96	16.36	15.50	Yes	
5/25/2022	--	PZ-19	13.93	23.67	9.74	--		
5/25/2022	--	MW-02S	15.77	31.96	16.19	15.50	Yes	
6/11/2022	--	PZ-19	14.20	23.67	9.47	--		
6/11/2022	--	MW-02S	15.58	31.96	16.38	15.50	Yes	
7/4/2022	--	PZ-19	14.77	23.67	8.90	--		
7/4/2022	--	MW-02S	16.13	31.96	15.83	15.50	Yes	
8/6/2022	--	PZ-19	15.80	23.67	7.87	--		
8/6/2022	--	MW-02S	16.93	31.96	15.03	15.50	No	
9/15/2022	6:53	PZ-19	14.79	23.67	8.88	--		
9/15/2022	9:06	MW-02S	17.52	31.96	14.44	15.50	No	
10/21/2022	(c)	PZ-19	14.98	23.67	8.69	--		
10/21/2022	(c)	MW-02S	17.78	31.96	14.18	15.50	No	
11/5/2022	(d)	PZ-19	14.96	23.67	8.71	--		
11/5/2022	(d)	MW-02S	16.22	31.96	15.74	15.50	Yes	
12/17/2022	(e)	PZ-19	12.62	23.67	11.05	--		
12/17/2022	(e)	MW-02S	16.18	31.96	15.78	15.50	Yes	

**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
1/7/2023	(f)	PZ-19	11.40	23.67	12.27	--		
1/7/2023	(f)	MW-02S	15.44	31.96	16.52	15.50	Yes	
2/19/2023	(g)	PZ-19	13.52	23.67	10.15	--		
2/19/2023	(g)	MW-02S	15.92	31.96	16.04	15.50	Yes	
3/10/2023	8:52	PZ-19	11.78	23.67	11.89	--		
3/10/2023	8:48	MW-02S	15.58	31.96	16.38	15.50	Yes	
4/22/2023	15:26	PZ-19	14.94	23.67	8.73	--		
4/22/2023	15:17	MW-02S	14.46	31.96	17.50	15.50	Yes	
5/6/2023	10:37	PZ-19	12.47	23.67	11.20	--		
5/6/2023	10:27	MW-02S	15.29	31.96	16.67	15.50	Yes	
6/27/2023	17:51	PZ-19	14.32	23.67	9.35	--		
6/27/2023	17:37	MW-02S	15.88	31.96	16.08	15.50	Yes	
7/4/2023	10:08	PZ-19	12.39	23.67	11.28	--		
7/4/2023	9:59	MW-02S	16.21	31.96	15.75	15.50	Yes	
8/19/2023	12:51	PZ-19	13.64	23.67	10.03	--		
8/19/2023	12:40	MW-02S	17.03	31.96	14.93	15.50	No	
9/14/2023	11:04	PZ-19	14.00	23.67	9.67	--		
9/14/2023	10:51	MW-02S	17.29	31.96	14.67	15.50	No	
4/7/2022	--	MW-02S	15.60	31.96	16.36	15.50	Yes	
4/7/2022	--	MW-02D	21.39	31.81	10.42	--		
5/25/2022	--	MW-02S	15.77	31.96	16.19	15.50	Yes	
5/25/2022	--	MW-02D	18.68	31.81	13.13	--		
6/11/2022	--	MW-02S	15.58	31.96	16.38	15.50	Yes	
6/11/2022	--	MW-02D	17.32	31.81	14.49	--		
7/4/2022	--	MW-02S	16.13	31.96	15.83	15.50	Yes	

**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
7/4/2022	--	MW-02D	20.84	31.81	10.97	--		
8/6/2022	--	MW-02S	16.93	31.96	15.03	15.50	No	
8/6/2022	--	MW-02D	20.10	31.81	11.71	--		
9/15/2022	9:06	MW-02S	17.52	31.96	14.44	15.50	No	
9/15/2022	6:49	MW-02D	19.94	31.81	11.87	--		
10/21/2022	(c)	MW-02S	17.78	31.96	14.18	15.50	No	
10/21/2022	(c)	MW-02D	20.47	31.81	11.34	--		
11/5/2022	(d)	MW-02S	16.22	31.96	15.74	15.50	Yes	
11/5/2022	(d)	MW-02D	19.21	31.81	12.60	--		
12/17/2022	(e)	MW-02S	16.18	31.96	15.78	15.50	Yes	
12/17/2022	(e)	MW-02D	16.28	31.81	15.53	--		
1/7/2023	(f)	MW-02S	15.44	31.96	16.52	15.50	Yes	
1/7/2023	(f)	MW-02D	16.37	31.81	15.44	--		
2/19/2023	(g)	MW-02S	15.92	31.96	16.04	15.50	Yes	
2/19/2023	(g)	MW-02D	17.64	31.81	14.17	--		
3/10/2023	8:48	MW-02S	15.58	31.96	16.38	15.50	Yes	
3/10/2023	8:49	MW-02D	16.90	31.81	14.91	--		
4/22/2023	15:17	MW-02S	14.46	31.96	17.50	15.50	Yes	
4/22/2023	15:13	MW-02D	21.84	31.81	9.97	--		
5/6/2023	10:27	MW-02S	15.29	31.96	16.67	15.50	Yes	
5/6/2023	10:20	MW-02D	18.41	31.81	13.40	--		
6/27/2023	17:37	MW-02S	15.88	31.96	16.08	15.50	Yes	
6/27/2023	17:51	MW-02D	14.32	31.81	17.49	--		
7/4/2023	9:59	MW-02S	16.21	31.96	15.75	15.50	Yes	
7/4/2023	9:51	MW-02D	18.47	31.81	13.34	--		

**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
8/19/2023	12:40	MW-02S	17.03	31.96	14.93	15.50	No	
8/19/2023	12:32	MW-02D	19.45	31.81	12.36	--		
9/14/2023	10:51	MW-02S	17.29	31.96	14.67	15.50	No	
9/14/2023	11:01	MW-02D	20.07	31.81	11.74	--		
4/7/2022	--	MW-01S	5.08	21.64	16.56	--		
4/7/2022	--	MW-01D	10.12	21.72	11.60	--		
5/25/2022	--	MW-01S	5.19	21.64	16.45	--		
5/25/2022	--	MW-01D	8.38	21.72	13.34	--		
6/11/2022	--	MW-01S	5.06	21.64	16.58	--		
6/11/2022	--	MW-01D	7.81	21.72	13.91	--		
7/4/2022	--	MW-01S	5.57	21.64	16.07	--		
7/4/2022	--	MW-01D	9.53	21.72	12.19	--		
8/6/2022	--	MW-01S	5.89	21.64	15.75	--		
8/6/2022	--	MW-01D	9.56	21.72	12.16	--		
9/15/2022	11:23	MW-01S	6.35	21.64	15.29	--		
9/15/2022	11:24	MW-01D	7.88	21.72	13.84	--		
10/21/2022	(c)	MW-01S	6.56	21.64	15.08	--		
10/21/2022	(c)	MW-01D	9.39	21.72	12.33	--		
11/5/2022	(d)	MW-01S	6.27	21.64	15.37	--		
11/5/2022	(d)	MW-01D	8.76	21.72	12.96	--		
12/17/2022	(e)	MW-01S	5.94	21.64	15.70	--		
12/17/2022	(e)	MW-01D	6.98	21.72	14.74	--		
1/7/2023	(f)	MW-01S	5.47	21.64	16.17	--		
1/7/2023	(f)	MW-01D	6.48	21.72	15.24	--		
2/19/2023	(g)	MW-01S	5.48	21.64	16.16	--		



**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
2/19/2023	(g)	MW-01D	7.79	21.72	13.93	--		
3/10/2023	12:21	MW-01S	5.42	21.64	16.22	--		
3/10/2023	12:20	MW-01D	8.00	21.72	13.72	--		
4/22/2023	16:32	MW-01S	4.89	21.64	16.75	--		
4/22/2023	16:28	MW-01D	10.14	21.72	11.58	--		
5/6/2023	12:00	MW-01S	5.07	21.64	16.57	--		
5/6/2023	11:54	MW-01D	7.98	21.72	13.74	--		
6/27/2023	19:45	MW-01S	5.81	21.64	15.83	--		
6/27/2023	19:18	MW-01D	8.77	21.72	12.95	--		
7/4/2023	11:33	MW-01S	5.98	21.64	15.66	--		
7/4/2023	11:19	MW-01D	7.96	21.72	13.76	--		
8/19/2023	14:03	MW-01S	6.29	21.64	15.35	--		
8/19/2023	13:58	MW-01D	8.69	21.72	13.03	--		
9/14/2023	17:41	MW-01S	6.48	21.64	15.16	--		
9/14/2023	17:44	MW-01D	9.22	21.72	12.50	--		
4/7/2022	--	MW-05S	14.37	29.45	15.08	16.50	No	
4/7/2022	--	MW-05D	16.16	26.50	10.34	--		
5/25/2022	--	MW-05S	14.61	29.45	14.84	16.50	No	
5/25/2022	--	MW-05D	13.12	26.50	13.38	--		
6/11/2022	--	MW-05S	13.93	29.45	15.52	16.50	No	
6/11/2022	--	MW-05D	10.88	26.50	15.62	--		
7/4/2022	--	MW-05S	14.83	29.45	14.62	16.50	No	
7/4/2022	--	MW-05D	15.69	26.50	10.81	--		
8/6/2022	--	MW-05S	15.89	29.45	13.56	16.50	No	
8/6/2022	--	MW-05D	14.36	26.50	12.14	--		

**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
9/15/2022	9:10	MW-05S	11.33	29.45	18.12	16.50	Yes	
9/15/2022	9:09	MW-05D	16.48	26.50	10.02	--		
10/21/2022	(c)	MW-05S	16.84	29.45	12.61	16.50	No	
10/21/2022	(c)	MW-05D	15.26	26.50	11.24	--		
11/5/2022	(d)	MW-05S	15.99	29.45	13.46	16.50	No	
11/5/2022	(d)	MW-05D	13.44	26.50	13.06	--		
12/17/2022	(e)	MW-05S	14.60	29.45	14.85	16.50	No	
12/17/2022	(e)	MW-05D	10.09	26.50	16.41	--		
1/7/2023	(f)	MW-05S	13.94	29.45	15.51	16.50	No	
1/7/2023	(f)	MW-05D	10.58	26.50	15.92	--		
2/19/2023	(g)	MW-05S	14.50	29.45	14.95	16.50	No	
2/19/2023	(g)	MW-05D	11.64	26.50	14.86	--		
3/10/2023	9:06	MW-05S	14.17	29.45	15.28	16.50	No	
3/10/2023	9:02	MW-05D	11.36	26.50	15.14	--		
4/22/2023	15:02	MW-05S	12.79	29.45	16.66	16.50	Yes	
4/22/2023	14:58	MW-05D	16.73	26.50	9.77	--		
5/6/2023	10:03	MW-05S	13.79	29.45	15.66	16.50	No	
5/6/2023	9:58	MW-05D	13.18	26.50	13.32	--		
6/27/2023	17:05	MW-05S	14.11	29.45	15.34	16.50	No	
6/27/2023	16:57	MW-05D	13.30	26.50	13.20	--		
7/4/2023	9:39	MW-05S	14.55	29.45	14.90	16.50	No	
7/4/2023	9:34	MW-05D	13.31	26.50	13.19	--		
8/19/2023	12:17	MW-05S	15.67	29.45	13.78	16.50	No	
8/19/2023	12:11	MW-05D	13.92	26.50	12.58	--		

**TABLE 1  
GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
9/14/2023	8:52	MW-05S	15.70	29.45	13.75	16.50	No	
9/14/2023	10:52	MW-05D	14.97	26.50	11.53	--		

**Note:** Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft).

- (a) Below top of PVC well casing.
- (b) Short-term hydraulic control goal is 15.5 ft along the majority of the cutoff wall alignment and 16.5 ft adjacent to Budd Inlet.
- (c) Collection times for individual wells not recorded. Overall water level measurement window on 10/21/2022 was from 9:07-10:36.
- (d) Collection times for individual wells not recorded. Overall water level measurement window on 11/5/2022 was from 12:35-14:20.
- (e) Collection times for individual wells not recorded. Overall water level measurement window on 12/17/2022 was from 13:36-15:01.
- (f) Collection times for individual wells not recorded. Overall water level measurement window on 1/7/2023 was from 14:42-16:08.
- (g) Collection times for individual wells not recorded. Overall water level measurement window on 2/19/2023 was from 14:05-15:38.

NM = Not measured.  
 NA = Not available.  
 MLLW = Mean low low water.

**TABLE 2  
SUMMARY OF CURRENT ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels (a)	PZ-12 22I0247-11 9/15/2022	PZ-12 23C0181-13 3/8/2023	PZ-12 23I0388-05 9/14/2023	PZ-13 22I0247-12 9/15/2022	PZ-13 23C0181-11 3/8/2023	PZ-13 23I0388-06 9/14/2023	PZ-17 22I0247-13 9/15/2022	PZ-17 23C0181-08 3/8/2023	PZ-17 23I0388-08 9/14/2023	PZ-18 22I0247-14 9/15/2022	PZ-18 23C0181-07 3/8/2023	PZ-18 23I0388-09 9/14/2023	PZ-19 22I0247-15 9/16/2022	PZ-19 23C0181-14 3/8/2023	PZ-19 23I0388-13 9/15/2023	LW-3 22I0247-09 9/15/2022
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																	
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																	
Naphthalene	4,900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.9 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.3 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.6
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																	
<b>EPA Method SW8041A</b>																	
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.28	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																	
<b>Method NWTPH-Gx (µg/L)</b>																	
Gasoline Range Organics	1,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	350
<b>Method NWTPH-Dx (µg/L)</b>																	
Diesel Range Organics	500	100 UJ	100 U	100 U	100 UJ	100 U	100 U	100 UJ	100 U	110	100 UJ	100 U	100 U	100 UJ	100 U	100 U	32,500 J
Motor Oil Organics	500	200 UJ	200 U	200 U	200 UJ	200 U	200 U	200 UJ	200 U	200 U	200 UJ	200 U	200 U	200 UJ	200 U	200 U	10,400 J
Creosote Oil Organics	500	200 UJ	200 U	200 U	200 UJ	200 U	200 U	200 UJ	200 U	364	200 UJ	200 U	200 U	200 UJ	200 U	200 U	206,000 J
<b>Field Parameters</b>																	
Temperature (°C)		NM	12.0	20.9	20.70	11.2	21.40	18.1	11.0	20.30	18.20	9.9	19.20	14.1	11.3	13.70	18.3
Conductivity (µS/cm)		NM	857.0	1269.00	486.6	421.0	534.00	1898.0	2985.00	3175.00	7055.0	9664.0	10316.00	10749.0	3791.00	12696.00	1985.0
Dissolved Oxygen (DO; mg/L)		NM	0.1	0.33	0.0	2.31	0.2	0.1	0.59	0.3	0.9	0.47	0.3	0.5	0.24	0.5	0.18
pH (S.U.)		NM	7.64	7.6	7.5	7.16	7.3	6.94	7.0	6.99	7.0	6.96	7.0	7.98	7.1	6.8	7.29
Oxygen Reduction Potential (ORP; mV)		NM	-99.80	110.0	58.50	-107.9	-124.7	63.70	-26.1	-101.3	69.00	-94.1	-114.4	118.50	-59	-40.9	-7.7

**TABLE 2  
SUMMARY OF CURRENT ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels (a)	LW-3 23C0181-03 3/8/2023	LW-3 23I0388-07 9/14/2023	LW-4R 22I0247-10 9/15/2022	LW-4R 23C0181-04 3/8/2023	LW-4R 23I0388-10 9/14/2023	MW-01S 22I0247-04 9/16/2022	Dup of MW-01S PZ-30 22I0247-16 9/16/2022	MW-01S 23C0181-10 3/9/2023	MW-01S 23I0388-14 9/15/2023	MW-02S 22I0247-08 9/15/2022	MW-02S 23C0181-16 3/8/2023	MW-02S 23I0388-11 9/15/2023	MW-05S 22I0247-06 9/15/2022	MW-05S 23C0181-01 3/8/2023	Dup of MW-05S PZ-30 23C0181-02 3/8/2023	MW-05S 23I0388-01 9/14/2023
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																	
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																	
Naphthalene	4,900	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5,810	5,000	2,560	4,440	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	7.2
2-Methylnaphthalene		5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	437	407	259	392	1.0 U	1.0 U	0.4 J	1.0 U	1.0 UJ	1.0 U	1.3
Acenaphthylene		5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.5	4.2	10.0 U	5.9 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Acenaphthene		5.0 U	0.3 J	1.0 U	1.0 U	1.0 U	208	207	162	209	4.7	1.6	5.8	8.6	5.8 J	5.5	14.0
Dibenzofuran		5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	72.5	70.6	57.0	75.5	1.1	1.0 U	1.1	1.0 U	1.0 UJ	1.0 U	0.7 J
Fluorene		5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	63.4	63.6	53.2	72.6	1.3	1.0 U	1.5	1.0 U	1.0 UJ	1.0 U	1.1
Pentachlorophenol	3	50.0 U	10.0 U	10.0 U	10.0 U	10.0 U	1,400	1,310	100 U	1,580 J	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U
Phenanthrene		5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	73.5	80.7	69.3	91.7	1.0 U	1.0 U	0.4 J	1.0 U	1.0 UJ	1.0 U	0.7 J
Anthracene		5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	11.2	12.7	13.3	18.7	1.0 U	1.0 U	0.6 J	1.0 U	1.0 UJ	1.0 U	0.4 J
Fluoranthene		5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.9 J	15.7 J	18.4	25.6	1.0 U	1.0 U	0.3 J	1.0 U	1.0 UJ	1.0 U	0.5 J
Pyrene	2,600	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.2 J	11.8 J	13.5	20.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.30 UJ	0.10 U	0.10 U	0.10 U	30.0 U	10.0 U	1.28	1.99	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.30 UJ	0.10 U	0.10 U	0.10 U	30.0 U	10.0 U	1.30	1.89	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.30 UJ	0.10 U	0.10 U	0.10 U	30.0 U	10.0 U	1.00 U	1.00 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.30 UJ	0.10 U	0.10 U	0.10 U	30.0 U	10.0 U	1.00 U	1.00 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.30 UJ	0.10 U	0.10 U	0.10 U	30.0 U	10.0 U	1.00 U	1.00 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	3.0 U	10.0 U	10.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U
1-Methylnaphthalene		5.0 U	1.3	1.0 U	1.0 U	1.0 U	186	174	173	278	2.0	1.0 U	1.4	2.9	1.0 UJ	1.0 U	4.3
Total Benzo(a)fluoranthenes		0.20 U	0.60 UJ	0.20 U	0.20 U	0.20 U	60.0 U	20.0 U	2.00 U	2.00 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	0.14	0.22	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.23 U	0.076	0.076	0.076	22.7	7.6	0.84	0.92	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																	
<b>EPA Method SW8041A</b>																	
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	NA	NA	3.80	NA	0.25 U	0.25 U	0.25 U	0.25 U	0.52 J	0.25 UJ	0.47
<b>PETROLEUM HYDROCARBONS</b>																	
<b>Method NWTPH-Gx (µg/L)</b>																	
Gasoline Range Organics	1,000	100 U	100 U	100 U	100 U	100 U	33,100 J	19,300 EJ	26,300	26,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>Method NWTPH-Dx (µg/L)</b>																	
Diesel Range Organics	500	437	3,570	100 UJ	100 U	100 U	4,740 J	7,460 J	2,580	8,220	100 UJ	100 U	233	100 UJ	100 U	100 U	153
Motor Oil Organics	500	200 U	4,080	200 UJ	200 U	200 U	381 J	793 J	1,000 U	5,000 U	200 UJ	200 U	204	200 UJ	200 U	200 U	200 U
Creosote Oil Organics	500	2,490	12,100	200 UJ	200 U	200 U	31,500 J	49,700 J	14,900	33,400	200 UJ	200 U	791	200 UJ	200 U	200 U	557
<b>Field Parameters</b>																	
Temperature (°C)		11.70	19.3	17.6	12.10	18.5	18.8	18.80	13.3	19.10	19.2	10.60	14.9	16.70	12.2	12.2	16.1
Conductivity (µS/cm)		1187.00	2213.0	5271.00	5122.0	13731.0	2688.0	2650.0	920	1930.0	2607.0	1292.00	2905.0	2902.00	818.0	818.0	2372.00
Dissolved Oxygen (DO; mg/L)		0.1	0.3	0.26	0.1	0.32	0.25	0.2	0.13	0.3	0.02	0.4	0.4	0.3	0.1	0.15	0.52
pH (S.U.)		6.9	6.88	7.9	7.1	7.21	7.64	7.6	6.38	6.8	6.71	6.6	6.68	44.6	7.46	7.46	7.0
Oxygen Reduction Potential (ORP; mV)		-170.0	-9.50	27.9	-122.80	60.6	122.2	117.00	-83.8	76.00	62.7	-108.6	11.30	7.4	-126.00	-126.0	54.1

**TABLE 2  
SUMMARY OF CURRENT ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels (a)	Dup of MW-05S PZ-30 2310388-02 9/14/2023	MW-01D 2210247-03 9/16/2022	MW-01D 23C0181-05 3/9/2023	MW-01D 2310388-15 9/15/2023	MW-02D 2210247-07 9/15/2022	MW-02D 23C0181-12 3/8/2023	MW-02D 2310388-12 9/15/2023	MW-05D 2210247-05 9/15/2022	MW-05D 23C0181-06 3/8/2023	MW-05D 2310388-04 9/14/2023	CW-13 2210247-02 9/16/2022	CW-13 23C0181-09 3/8/2023	CW-13 2310388-03 9/14/2023
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>														
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>														
Naphthalene	4,900	7.3	1.9	1.0 U	0.7 J	25.4	2.2	55.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13.2
2-Methylnaphthalene		1.3	1.0 U	1.0 U	1.0 U	4.3	1.0 U	9.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.7	1.0 U	3.1	1.0 U	1.0 U	1.0 U
Acenaphthene		14.1	1.0 U	1.0 U	0.3 J	13.3	3.5	18.6	16.8	1.0 U	51.3	1.0 U	1.0 U	7.3
Dibenzofuran		0.7 J	1.0 U	1.0 U	1.0 U	4.3	1.2	6.0	5.5	1.0 U	22.7	1.0 U	1.0 U	2.2
Fluorene		1.2	1.0 U	1.0 U	1.0 U	4.6	1.2	6.8	5.3	1.0 U	40.0	1.0 U	1.0 U	1.6
Pentachlorophenol	3	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Phenanthrene		0.7 J	1.0 U	1.0 U	0.3 J	3.9	1.0 U	5.5	1.0 U	1.0 U	18.2	1.0 U	1.0 U	0.4 J
Anthracene		0.4 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.4 J	1.0 U	1.0 U	3.4	1.0 U	1.0 U	1.0 U
Fluoranthene		0.4 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.1	1.0 U	3.8	1.0 U	1.0 U	1.0 U
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.9	1.0 U	2.6	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.30 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.30 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 J	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.30 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.30 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.30 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		4.2	1.0 U	1.0 U	1.0 U	7.1	1.0	10.6	1.0 U	1.0 U	7.2	1.0 U	1.0 U	3.1
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.60 U	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 UJ	0.20 U	0.20 U	0.20 U
cPAH TEQ (b)	0.1 (c)	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.001	ND	ND	ND
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	0.076	0.076	0.227	0.076	0.076	0.076	0.076	0.076	0.08	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>														
<b>EPA Method SW8041A</b>														
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.77	1.31 J+	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>														
<b>Method NWTPH-Gx (µg/L)</b>														
Gasoline Range Organics	1,000	100 U	100 U	100 U	100 U	227	100 U	137	3,950 (e)	100 U	3,090 (e)	100 U	100 U	100 U
<b>Method NWTPH-Dx (µg/L)</b>														
Diesel Range Organics	500	168	100 UJ	100 U	100 U	100 UJ	100 U	122	100 UJ	100 U	985	100 UJ	100 U	108
Motor Oil Organics	500	200 U	200 UJ	200 U	200 U	200 UJ	200 U	200 U	200 UJ	200 U	1,000 U	200 UJ	200 U	200 U
Creosote Oil Organics	500	599	200 UJ	200 U	200 U	305 J	200 U	490	200 UJ	200 U	4,040	200 UJ	200 U	411
<b>Field Parameters</b>														
Temperature (°C)		16.30	18.0	10.55	20.3	19.4	8.13	15.2	16.7	10.2	17.40	17.20	9.4	21.40
Conductivity (µS/cm)		2365.00	2529.0	2961.00	3908.0	645.50	489.0	647.0	158.3	167.00	198.0	394.0	367.0	30.87
Dissolved Oxygen (DO; mg/L)		0.5	0.55	0.3	0.3	0.22	7.7	0.81	0.5	2.30	0.4	1.0	0.56	0.2
pH (S.U.)		7.0	8.12	8.3	8.29	7.5	7.4	7.18	7.19	7.5	7.8	8.1	7.60	7.9
Oxygen Reduction Potential (ORP; mV)		55.9	39.7	-80.1	-216.70	14.0	-5.80	-112.9	25.00	-41.8	-174.30	26.10	-22.9	-243.0

**TABLE 2  
SUMMARY OF CURRENT ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

## NOTES

cPAH = carcinogenic polycyclic aromatic hydrocarbon  
 µg/L = micrograms per liter  
 EPA = US Environmental Protection Agency  
 MTCA = Model Toxics Control Act  
 NA = not analyzed  
 ND = Not Detected.  
 NWTPH-Dx = total petroleum hydrocarbons diesel range  
 NWTPH-Gx = TPH gasoline range  
 PCP = pentachlorophenol  
 RL = reporting limit  
 SIM = select ion monitoring  
 WAC = Washington Administrative Code

U = Indicates the compound was undetected at the given reporting limit.  
 J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.  
 J+ = The result is an estimated quantity and the result may be biased high.  
 UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.  
 E = The reported concentration is an estimate; the result exceeded the instrument calibration range.  
 Bold indicates detected compound. Box indicates exceedance of screening levels.  
 Box indicates exceedance of screening level.

- (a) Groundwater screening levels are MTCA Method B for marine surface water for cPAHs and PCP; MTCA Method A for TPH-Gx/TPH-Dx.
- (b) Toxicity equivalency factor (TEQ) as described in WAC 173-340-708 (8).
- (c) cPAH cleanup screening levels based on practical quantitation limit (PQL) for individual cPAHs.
- (d) Verification sample analyzed using SW8270-SIM.
- (e) Follow up data review of laboratory chromatograms by ARI analysts identified the peak in the gasoline range as naphthalene.

**TABLE 3**  
**TREATMENT SYSTEM AVERAGE MONTHLY VOLUME**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

Month	Average Volume (Gallons/Month)
April 2022	5171
May 2022	4989
June 2022	4445
July 2022	4726
August 2022	4331
September 2022	4058
October 2022	3814
November 2022	4096
December 2022	4167
January 2023	6275
February 2023	4144
March 2023	3668
April 2023	4290
May 2023	4047
June 2023	4144
July 2023	3860
August 2023	3832
September 2023	3765



# **April through September 2023 Monthly Groundwater Elevation Measurements**

Cascade Pole Groundwater Elevation Field Measurements

Collection Date	Collection Time	Well ID	Total Depth of Well	Depth to Groundwater (ft) (a)	Depth to LNAPL (ft)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	LNAPL Elevation (MLLW)	Short Term Compliance Goal	Goal Achieved? (Yes/No)	Comments and Observations of DNAPL
4/22/23	14:58	MW-05D	48.50	16.73	NA	26.50	9.77	NA	--		No DNAPL measurement this event
4/22/23	15:02	MW-05S (b)	30.72	12.79	NA	29.45	16.66	NA	16.50	No	No DNAPL measurement this event
4/22/23	15:13	MW-02D	51.30	21.84	NA	31.81	9.97	NA	--		No DNAPL measurement this event
4/22/23	15:17	MW-02S (b)	35.47	14.46	NA	31.96	17.50	NA	15.50	No	No DNAPL measurement this event
4/22/23	15:26	PZ-19	22.67	14.94	NA	23.67	8.73	NA	--		No DNAPL measurement this event
4/22/23	15:17	MW-02S (b)	35.47	14.46	NA	31.96	17.50	NA	15.50	No	No DNAPL measurement this event
4/22/23	15:40	PZ-13	14.5	5.22	NA	19.5	14.28	NA	--		No DNAPL measurement this event
4/22/23	15:45	PZ-12 (b)	14.6	2.80	NA	19	16.20	NA	15.50	No	No DNAPL measurement this event
4/22/23	15:58	PZ-17	17	5.86	NA	20.48	14.62	NA	--		No DNAPL measurement this event
4/22/23	16:05	LW-3 (b)	20.16	4.25	NA	19.83	15.58	NA	15.50	No	No DNAPL measurement this event
4/22/23	16:15	PZ-18	19.01	6.96	NA	21.2	14.24	NA	--		No DNAPL measurement this event
4/22/23	16:23	LW-4R (b)	16.42	6.32	NA	22.02	15.70	NA	15.50	No	No DNAPL measurement this event
4/22/23	16:28	MW-01D	44.3	10.14	NA	21.72	11.58	NA	--		No DNAPL measurement this event
4/22/23	16:32	MW-01S (b)	24.93	4.89	NA	21.64	16.75	NA	--		No DNAPL measurement this event

Tide range during monitoring event (MLLW ft): -1.69 to 0.32

Notes

MLLW= mean low low water.

NA = No LNAPL observed on water level meter

ND = No Data available as well was not accessible

Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft)

(a) Below top of inner casing.

LW-3, MW-02(s,d), MW-05(s,d) were modified and resurveyed in January and February 2009

MW-02D/S resurveyed October 2011.

Cascade Pole Groundwater Elevation Field Measurements

Collection Date	Collection Time	Well ID	Total Depth of Well	Depth to Groundwater (ft) (a)	Depth to LNAPL (ft)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	LNAPL Elevation (MLLW)	Short Term Compliance Goal	Goal Achieved (Yes/No)	Comments and Observations of DNAPL
5/6/23	9:58	MW-05D	48.50	13.18	NA	26.50	13.32	NA	--		No DNAPL. TD of 47.54, soft.
5/6/23	10:03	MW-05S (b)	30.72	13.79	NA	29.45	15.66	NA	16.50	Yes	No DNAPL. TD of 30.37, soft.
5/6/23	10:20	MW-02D	51.30	18.41	NA	31.81	13.40	NA	--		No DNAPL
5/6/23	10:27	MW-02S (b)	34.43	15.29	NA	31.96	16.67	NA	15.50	No	No DNAPL. TD of 34.43, hard
5/6/23	10:37	PZ-19	22.67	12.47	NA	23.67	11.20	NA	--		No DNAPL. TD of 22.67, hard.
5/6/23	10:27	MW-02S (b)	34.43	15.29	NA	31.96	16.67	NA	15.50	No	
5/6/23	10:48	PZ-13	14.5	6.05	NA	19.5	13.45	NA	--		No DNAPL. TD of 14.36, hard.
5/6/23	10:53	PZ-12 (b)	13.4	3.07	NA	19	15.93	NA	15.50	No	No DNAPL. TD of 13.39, hard.
5/6/23	11:14	PZ-17	17	6.00	NA	20.48	14.48	NA	--		Well under pressure upon opening at 11:02. No DNAPL. TD of 17.02, hard.
5/6/23	11:07	LW-3 (b)	20.16	3.92	NA	19.83	15.91	NA	15.50	No	No DNAPL. TD of 19.48, soft.
5/6/23	11:34	PZ-18	19.01	6.99	NA	21.2	14.21	NA	--		Plus pressure on opening at 11:23. No DNAPL. TD of 18.87, hard.
5/6/23	11:43	LW-4R (b)	16.42	5.84	NA	22.02	16.18	NA	15.50	No	Plus pressure on opening at 11:29. No DNAPL. TD of 16.11, hard.
5/6/23	11:54	MW-01D	44.3	7.98	NA	21.72	13.74	NA	--		No DNAPL. TD of 44.47, soft.
5/6/23	12:00	MW-01S (b)	24.93	5.07	NA	21.64	16.57	NA	--		No DNAPL. TD of 24.92, soft. Very slight chemical odor

Tide range during monitoring event (MLLW ft):     +3.9     to     -1.28    

Notes

MLLW= mean low low water.

NA = No LNAPL observed on water level meter

ND = No Data available as well was not accessible

Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft)

(a) Below top of inner casing.

(b) Well is inside slurry wall.

LW-3, MW-02(s,d), MW-05(s,d) were modified and resurveyed in January and February 2009

MW-02D/S resurveyed October 2011.

Cascade Pole Groundwater Elevation Field Form

Collection Date	Collection Time	Well ID	Total Depth of Well	Depth to Groundwater (ft) (a)	Depth to LNAPL (ft)	Depth to DNAPL (ft)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	LNAPL Elevation (MLLW)	Short Term Compliance Goal	Goal Achieved (Yes/No)	Comments
6/27/23	16:57	MW-05D	48.50	13.30	NP	NP	26.50	13.20	NA	--		
6/27/23	17:05	MW-05S (b)	30.72	14.11	NP	NP	29.45	15.34	NA	16.50	YES	
6/27/23	17:33	MW-02D	51.30	19.04	NP	NP	31.81	12.77	NA	--		
6/27/23	17:37	MW-02S (b)	34.43	15.88	NP	NP	31.96	16.08	NA	15.50	NO	
6/27/23	17:51	PZ-19	22.67	14.32	NP	NP	23.67	9.35	NA	--		
6/27/23	17:37	MW-02S (b)	34.43	15.88	NP	NP	31.96	16.08	NA	15.50	NO	
6/27/23	18:03	PZ-13	14.5	7.11	NP	NP	19.5	12.39	NA	--		
6/27/23	18:10	PZ-12 (b)	13.4	3.52	NP	NP	19	15.48	NA	15.50	YES	
6/27/23	18:43	PZ-17	17	6.29	NP	NP	20.48	14.19	NA	--		Pressure on open at 18:19
6/27/23	18:35	LW-3 (b)	20.16	4.40	NP	NP	19.83	15.43	NA	15.50	YES	
6/27/23	19:34	PZ-18	19.01	9.12	NP	NP	21.2	12.08	NA	--		Positive pressure @ 19:00 (open well)
6/27/23	19:37	LW-4R (b)	16.42	5.32	NP	NP	22.02	16.70	NA	15.50	NO	Positive pressure at 19:07 (open well)
6/27/23	19:18	MW-01D	44.3	8.77	NP	NP	21.72	12.95	NA	--		Light tan/brown silt/slime on probe tip. No sheen.
6/27/23	19:45	MW-01S (b)	24.93	5.81	NP	NP	21.64	15.83	NA	--		Chemical odor on opening.

Tide range during monitoring event (MLLW ft): 6.8' to 6.2'  
 Time 16:57 19:45

Notes  
 MLLW= mean low low water. NP = No LNAPL/DNAPL observed on water level meter ND = No Data available as well was not accessible  
 Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft)  
 (a) Below top of inner casing.  
 (b) Well is inside slurry wall.  
 LW-3, MW-02(s,d), MW-05(s,d) were modified and resurveyed in January and February 2009  
 MW-02D/S resurveyed October 2011.  
 Total Depth of wells verified in May 2023

Cascade Pole Groundwater Elevation Field Form

Collection Date	Collection Time	Well ID	Total Depth of Well	Depth to Groundwater (ft) (a)	Depth to LNAPL (ft)	Depth to DNAPL (ft)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	LNAPL Elevation (MLLW)	Short Term Compliance Goal	Goal Achieved (Yes/No)	Comments
7/4/23	9:34	MW-05D	48.50	13.31	NP	NP	26.50	13.19	NA	--		
7/4/23	9:39	MW-05S (b)	30.72	14.55	NP	NP	29.45	14.90	NA	16.50	YES	
7/4/23	9:51	MW-02D	51.30	18.47	NP	NP	31.81	13.34	NA	--		
7/4/23	9:59	MW-02S (b)	34.43	16.21	NP	NP	31.96	15.75	NA	15.50	NO	
7/4/23	10:08	PZ-19	22.67	12.39	NP	NP	23.67	11.28	NA	--		
7/4/23	9:59	MW-02S (b)	34.43	16.21	NP	NP	31.96	15.75	NA	15.50	NO	
7/4/23	10:21	PZ-13	14.5	6.75	NP	NP	19.5	12.75	NA	--		
7/4/23	10:27	PZ-12 (b)	13.4	3.61	NP	NP	19	15.39	NA	15.50	YES	
7/4/23	10:36	PZ-17	17	6.39	NP	NP	20.48	14.09	NA	--		
7/4/23	10:51	LW-3 (b)	20.16	4.05	NP	NP	19.83	15.78	NA	15.50	NO	
7/4/23	11:02	PZ-18	19.01	7.27	NP	NP	21.2	13.93	NA	--		
7/4/23	11:27	LW-4R (b)	16.42	5.46	NP	NP	22.02	16.56	NA	15.50	NO	Positive pressure at 11:17 (open well)
7/4/23	11:19	MW-01D	44.3	7.96	NP	NP	21.72	13.76	NA	--		No material on probe tip.
7/4/23	11:33	MW-01S (b)	24.93	5.98	NP	NP	21.64	15.66	NA	--		

Tide range during monitoring event (MLLW ft): +5' to -1.7'  
 Time 9:34 11:33

Notes  
 MLLW= mean low low water. NP = No LNAPL/DNAPL observed on water level meter ND = No Data available as well was not accessible  
 Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft)  
 (a) Below top of inner casing.  
 (b) Well is inside slurry wall.  
 LW-3, MW-02(s,d), MW-05(s,d) were modified and resurveyed in January and February 2009  
 MW-02D/S resurveyed October 2011.  
 Total Depth of wells verified in May 2023

Cascade Pole Groundwater Elevation Field Form

Collection Date	Collection Time	Well ID	Total Depth of Well	Depth to Groundwater (ft) (a)	Depth to LNAPL (ft)	Depth to DNAPL (ft)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	LNAPL Elevation (MLLW)	Short Term Compliance Goal	Goal Achieved (Yes/No)	Comments
8/19/23	12:11	MW-05D	48.50	13.92	NP	NP	26.50	12.58	NA	--		
8/19/23	12:17	MW-05S (b)	30.72	15.67	NP	NP	29.45	13.78	NA	16.50	YES	
8/19/23	12:32	MW-02D	51.30	19.45	NP	NP	31.81	12.36	NA	--		
8/19/23	12:40	MW-02S (b)	34.43	17.03	NP	NP	31.96	14.93	NA	15.50	YES	
8/19/23	12:51	PZ-19	22.67	13.64	NP	NP	23.67	10.03	NA	--		
8/19/23	12:40	MW-02S (b)	34.43	17.03	NP	NP	31.96	14.93	NA	15.50	YES	
8/19/23	13:04	PZ-13	14.5	6.98	NP	NP	19.5	12.52	NA	--		
8/19/23	13:13	PZ-12 (b)	13.4	3.93	NP	NP	19	15.07	NA	15.50	YES	
8/19/23	13:21	PZ-17	17	6.65	NP	NP	20.48	13.83	NA	--		
8/19/23	13:32	LW-3 (b)	20.16	4.78	NP	NP	19.83	15.05	NA	15.50	YES	
8/19/23	13:41	PZ-18	19.01	6.54	NP	NP	21.2	14.66	NA	--		
8/19/23	13:49	LW-4R (b)	16.42	5.32	NP	NP	22.02	16.70	NA	15.50	NO	Positive pressure at 13:26 (open well)
8/19/23	13:58	MW-01D	44.3	8.69	NP	NP	21.72	13.03	NA	--		
8/19/23	14:03	MW-01S (b)	24.93	6.29	NP	NP	21.64	15.35	NA	--		

Tide range during monitoring event (MLLW ft): " +4.1 ft " to " +1.19 "  
 Time 12:11 hrs 14:03 hrs

Notes

MLLW= mean low low water.

NP = No LNAPL/DNAPL observed on water level meter

ND = No Data available as well was not accessible

Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft)

(a) Below top of inner casing.

(b) Well is inside slurry wall.

LW-3, MW-02(s,d), MW-05(s,d) were modified and resurveyed in January and February 2009

MW-02D/S resurveyed October 2011.

Total Depth of wells verified in May 2023

Cascade Pole Groundwater Elevation Field Form

Collection Date	Collection Time	Well ID	Total Depth of Well	Depth to Groundwater (ft) (a)	Depth to LNAPL (ft)	Depth to DNAPL (ft)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	LNAPL Elevation (MLLW)	Short Term Compliance Goal	Goal Achieved (Yes/No)
9/15/23	12:04	MW-05D	48.50	15.25	NP	NP	26.50	11.25	NA	--	
9/15/23	12:03	MW-05S (b)	30.72	17.62	NP	NP	29.45	11.83	NA	16.50	YES
9/15/23	11:58	MW-02D	51.30	20.33	NP	NP	31.81	11.48	NA	--	
9/15/23	12:01	MW-02S (b)	34.43	17.26	NP	NP	31.96	14.70	NA	15.50	YES
9/15/23	12:00	PZ-19	22.67	14.15	NP	NP	23.67	9.52	NA	--	
9/15/23	12:01	MW-02S (b)	34.43	17.26	NP	NP	31.96	14.70	NA	15.50	YES
9/15/23	11:53	PZ-13	14.5	7.28	NP	NP	19.5	12.22	NA	--	
9/15/23	11:54	PZ-12 (b)	13.4	4.17	NP	NP	19	14.83	NA	15.50	YES
9/15/23	11:50	PZ-17	17.0	6.86	NP	NP	20.48	13.62	NA	--	
9/15/23	11:42	LW-3 (b)	20.16	4.64	NP	NP	19.83	15.19	NA	15.50	YES
9/15/23	11:45	PZ-18	19.01	6.36	NP	NP	21.2	14.84	NA	--	
9/15/23	11:47	LW-4R (b)	16.42	5.43	NP	NP	22.02	16.59	NA	15.50	NO
9/15/23	11:37	MW-01D	44.3	10.25	NP	NP	21.72	11.47	NA	--	
9/15/23	11:51	MW-01S (b)	24.93	6.59	NP	NP	21.64	15.05	NA	--	

Tide range during monitoring event (MLLW ft): +2.5 to +1.5  
 Time 11:37 hrs 12:04 hrs

Notes  
 MLLW= mean low low water. NP = No LNAPL/DNAPL observed on water level meter ND = No Data available as well was not accessible  
 Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft)  
 (a) Below top of inner casing.  
 (b) Well is inside slurry wall.  
 LW-3, MW-02(s,d), MW-05(s,d) were modified and resurveyed in January and February 2009  
 MW-02D/S resurveyed October 2011.  
 Total Depth of wells verified in May 2023

## Sample Collection Forms



# Groundwater Low-Flow Sample Collection Form

Project Name: Port of Olympia Project Number: 00241043.010.011  
 Event: Cascade Pole Dry Season GW Sampling Date/Time: 9/14/2023 9:24  
 Sample Number: PZ-30-20230914 Weather: sunny 60s  
 Landau Representative: JDB/DJP

**WATER LEVEL/WELL/PURGE DATA**

Well Condition: Secure YES Damaged NO Describe: SURFACE MOUNT  
 DTW Before Purging (ft) 15.7 Time: 8:52 GW Meter No.(s) PoO Oil/Water Interface  
 Begin Purge: Date/Time: 9/14/2023 8:58 End Purge: Date/Time: 9/14/2023 9:23 Gallons Purged: <1  
 Purge water disposed to:  55-gal Drum  Storage Tank  Ground  Other Onsite treatment

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Purge Volume (gal)	Comments/Observations
<b>Purge Goals: Stabilization of Parameters for three consecutive readings within the following</b>								<b>&gt;= 1 flow through cell vol.</b>	
	<b>+/- 3%</b>	<b>+/- 3%</b>	<b>+/- 10%</b>	<b>+/- 0.1 units</b>	<b>+/- 10 mV</b>	<b>+/- 10%</b>	<b>&lt; 0.3 ft</b>		
9:01	15.5	2210	0.83	7.00	114.8	7.53	15.7	<1	c,c,no,ns
9:04	15.7	2245	0.70	7.01	110.7	4.98	15.7	<1	c,c,no,ns
9:07	15.9	2302	0.80	7.00	100.7	5.09	15.7	<1	c,c,no,ns
9:10	15.9	2358	0.74	7.00	87.8	4.49	15.7	<1	c,c,no,ns
9:13	15.9	2369	0.65	7.01	77.9	4.06	15.7	<1	c,c,no,ns
9:16	16.1	2363	0.59	7.01	70.7	4.67	15.7	<1	c,c,no,ns
9:19	16.1	2364	0.55	7.01	60.9	6.05	15.7	<1	c,c,no,ns
9:22	16.3	2361	0.53	7.01	57.6	5.37	15.7	<1	c,c,no,ns

**SAMPLE COLLECTION DATA**

Sample Collected With:  Bailer  Pump/Pump Type peristaltic  
 Made of:  Stainless Steel  PVC  Teflon  Polyethylene  Other  Dedicated  
 Decon Procedure:  Alconox Wash  Tap Rinse  DI Water  Dedicated  
 (By Numerical Order)  Other \_\_\_\_\_ **Ferrous Iron (Fe<sup>2+</sup>):** N/A  
 Sample Description (color, turbidity, odor, sheen, etc.): Colorless, effervescent, no odor, no sheen

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Comments/Observations
1	16.3	2363	0.53	7.01	56.6			
2	16.3	2364	0.53	7.01	56.1			
3	16.3	2366	0.53	7.01	55.7			
4	16.3	2368	0.52	7.01	55.2			
Average:	16.3	2365	0.53	7.01	55.9			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
2 VOAs	NWTPH-Gx <span style="float: right;">WA <input type="checkbox"/></span>
2 Ambers	NWTPH-Dx + Creosote <span style="float: right;">WA <input type="checkbox"/></span>
3 Ambers	PAHs/cPAHs SIM
3 Ambers	PCP/PCP Follow-Ups
	others

Duplicate Sample No(s): MW-05S-20230914  
 Comments: \_\_\_\_\_  
 Signature: JDB Date: 9/14/2023

# Groundwater Low-Flow Sample Collection Form

Project Name: Port of Olympia Project Number: 0021041.010.016  
 Event: Cascade Pole Wet/Dry Season GW Sampling Date/Time: 3/8/2023 14:18  
 Sample Number: PZ-19- 20230308 Weather: Sunny, 30s  
 Landau Representative: SJL

**WATER LEVEL/WELL/PURGE DATA**

Well Condition: Secure (YES or NO) Damaged (YES or NO) Describe: flush mount, "water" monument lid  
 DTW Before Purging (ft) 14.22 Time: 13:56 GW Meter No.(s) Slope - Tac  
 Begin Purge: Date/Time: 3/8/2023 13:58 End Purge: Date/Time: 3/8/2023 14:17 Gallons Purged: 1.25  
 Purge water disposed to:  55-gal Drum  Storage Tank  Ground  Other Onsite treatment

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Purge Volume (gal)	Comments/ Observations
<b>Purge Goals: Stabilization of Parameters for three consecutive readings within the following</b>								<b>&gt;= 1 flow through</b>	
	<b>+/- 3%</b>	<b>+/- 3%</b>	<b>+/- 10%</b>	<b>+/- 0.1 units</b>	<b>+/- 10 mV</b>	<b>+/- 10%</b>	<b>&lt; 0.3 ft</b>	<b>cell vol.</b>	
13:59	11.8	3967	0.64	7.16	-65.1	2.55	14.24	0.25	
14:02	11.6	3930	0.33	7.11	-63.3	2.71	14.26	0.25	
14:05	11.3	3857	0.27	7.10	-61.1	3.04	14.22	0.25	
14:08	11.3	3827	0.27	7.11	-60.6	2.86		0.25	
14:11	11.2	3798	0.25	7.10	-59.6	2.64		0.25	

**SAMPLE COLLECTION DATA**

Sample Collected With:  Bailer  Pump/Pump Type peristaltic  
 Made of:  Stainless Steel  PVC  Teflon  Polyethylene  Other  Dedicated  
 Decon Procedure:  Alconox Wash  Tap Rinse  DI Water  Dedicated  
 (By Numerical Order)  Other \_\_\_\_\_ Ferrous Iron (Fe<sup>2+</sup>): N/A  
 Sample Description (color, turbidity, odor, sheen, etc.): Clear, colorless, no/ns

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Comments/Observations
1	11.2	3791	0.23	7.11	-59.2			
2	11.2	3789	0.24	7.11	-59.0			
3	11.3	3791	0.24	7.11	-58.9			
4	11.3	3792	0.24	7.10	-59.0			
Average:	11.3	3791	0.24	7.11	-59.0			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
2 VOAs	NWTPH-Gx <span style="float: right;">WA <input type="checkbox"/></span>
2 Ambers	NWTPH-Dx + Creosote <span style="float: right;">WA <input type="checkbox"/></span>
3 Ambers	PAHs/cPAHs SIM
3 Ambers	PCP/PCP Follow-Ups
	others

Duplicate Sample No(s): \_\_\_\_\_  
 Comments: \_\_\_\_\_  
 Signature: Samantha Lindstrom Date: 3.9.23

# Groundwater Low-Flow Sample Collection Form

Project Name: Port of Olympia Project Number: 0021043.000.010.011  
 Event: Cascade Pole Dry Season GW Sampling Date/Time: 9/16/2022 8:11  
 Sample Number: PZ-30- 20220916 Weather: Sunny + 70 F  
 Landau Representative: SMR

**WATER LEVEL/WELL/PURGE DATA**

Well Condition:  Secure (YES)  Damged (NO) Describe: flush mount vault  
 DTW Before Purging (ft) 6.32 Time: 7:41 GW Meter No.(s) PoO Oil/Water Interface  
 Begin Purge: Date/Time: 9/16/2022 7:45 End Purge: Date/Time: 9/16/2022 8:03 Gallons Purged: 1  
 Purge water disposed to:  55-gal Drum  Storage Tank  Ground  Other Onsite treatment

Time	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Purge Volume (gal)	Comments/ Observations
<b>Purge Goals: Stabilization of Parameters for three consecutive readings within the following</b>								<b>&gt;= 1 flow through</b>	
	<b>+/- 3%</b>	<b>+/- 3%</b>	<b>+/- 10%</b>	<b>+/- 0.1 units</b>	<b>+/- 10 mV</b>	<b>+/- 10%</b>	<b>&lt; 0.3 ft</b>	<b>cell vol.</b>	
7:48	18.3	2879	1.35	7.56	185.9	15.9	6.53		
7:51	18.7	2890	0.46	7.59	161.4	12.6	5.62		
7:54	18.8	2889	0.43	7.65	155.6	9.68	5.61		
7:57	18.8	2848	0.31	7.63	144	9.83	5.61		
8:00	18.8	2755	0.26	7.61	127.8	9.61	5.61		
8:03	18.8	2741	0.25	7.65	125.7	9.34	5.61		

**SAMPLE COLLECTION DATA**

Sample Collected With:  Bailer  Pump/Pump Type peristaltic  
 Made of:  Stainless Steel  PVC  Teflon  Polyethylene  Other  Dedicated  
 Decon Procedure:  Alconox Wash  Tap Rinse  DI Water  Dedicated  
 (By Numerical Order)  Other \_\_\_\_\_ **Ferrous Iron (Fe<sup>2+</sup>):** N/A  
 Sample Description (color, turbidity, odor, sheen, etc.): Clear, colorless, w/ strong petroleum odor; sheen observed in bucket

Replicate	Temp (°F/°C)	Cond. (uS/cm)	D.O. (mg/L)	pH	ORP (mV)	Turbidity (NTU)	DTW (ft)	Comments/Observations
1	18.8	2655	0.24	7.62	117.6			
2	18.8	2653	0.24	7.65	117.1			
3	18.8	2647	0.24	7.62	116.8			
4	18.8	2645	0.25	7.64	116.6			
Average:	18.8	2650	0.24	7.63	117.0			

QUANTITY	TYPICAL ANALYSIS ALLOWED PER BOTTLE TYPE (Circle applicable or write non-standard analysis below)
2 VOAs	NWTPH-Gx
2 Ambers	NWTPH-Dx + Creosote
3 Ambers	PAHs/cPAHs SIM
3 Ambers	PCP/PCP Follow-Ups
	others

Duplicate Sample No(s): MW-01S-20220916  
 Comments: \_\_\_\_\_  
 Signature: smr Date: 9/16/2022

# Historical Analytical Results and Groundwater Elevations

**TABLE C-1**  
**HISTORICAL ANALYTICAL RESULTS**  
**GROUNDWATER COMPLIANCE MONITORING**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	
		2005060439-08 6/27/2005	2006030253-01 3/20/2006	2006110182-02 11/11/2006	LS10B 10/1/2007	MO26G 3/20/2008	NH92A 7/29/2008	OH11B 1/8/2009	PK28A 8/11/2009	QF84J 1/15/2010	RS33A 10/18/2010	SO90O 3/24/2011	TH68B 8/8/2011	UL19B 3/7/2012	VP53F 10/25/2012	WF57A 2/27/2013	XC89D 8/29/2013	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																		
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																		
Naphthalene	4,900	0.10 U	NA	<b>0.30</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.8</b>
2-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U
Phenanthrene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Anthracene		<b>0.20</b>	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2,600	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.071	0.071	0.071	0.076	0.076	0.076	
<b>PENTACHLOROPHENOL (µg/L)</b>																		
<b>EPA Method SW8041A</b>																		
Pentachlorophenol	3	10 U	0.10 U	0.1 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	1.8	0.25 U	0.25 U	0.31	0.25 U	<b>5.8</b>	
<b>PETROLEUM HYDROCARBONS</b>																		
<b>Method NWTPH-Gx (µg/L)</b>																		
Gasoline Range Organics	1,000	50 U	50 U	50 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	
<b>Method NWTPH-DxSG (µg/L) (g)</b>																		
Diesel Range Organics	500	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	110 U	100 U	100 U	100 U	100 U	100 U	
Motor Oil Range Organics	500	500 U	500 U	500 U	500 U	500 U	500 U	500 U	250 U	500 U	200 U	220 U	200 U	200 U	200 U	200 U	200 U	
Creosote Oil Range Organics	500	NA	NA	NA	NA	250 U	500 U	250 U	500 U	250 U	100 U	220 U	200 U	200 U	100 U	<b>100</b>	100 U	
<b>BTEX (µg/L)</b>																		
<b>Method SW8021B/SW021B MOD</b>																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Field Parameters</b>																		
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON

	Cleanup Screening Levels for Groundwater	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12	PZ-12		
		YA02K 2/19/2014	ZB62K 9/24/2014	ZZ61A 3/9/2015	ANH7L 9/25/2015	AWD0J 2/17/2016	16I0325-11 9/20/2016	17C0014-16 3/1/2017	17J0190-16 10/12/2017	18C0203-13 3/9/2018	18I0183-13 9/12/2018	19C0223-13 3/11/2019	19I0442-13 9/25/2019	20C0265-13 3/19/2020	20I0229-13 9/17/2020	21C0181-04 3/10/2021	21I0239-12 9/16/2021	22C0440-09 3/23/2022	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																			
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																			
Naphthalene	4,900	1.0 U	2.7	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Pentachlorophenol	3	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Carbazole		NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	
Total Benzofluoranthenes		0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	
<b>PENTACHLOROPHENOL (µg/L)</b>																			
<b>EPA Method SW8041A</b>																			
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 UJ	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																			
<b>Method NWTPH-Gx (µg/L)</b>																			
Gasoline Range Organics	1,000	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																			
Diesel Range Organics	500	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil Range Organics	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil Range Organics	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
<b>BTEX (µg/L)</b>																			
<b>Method SW8021B/SW021B MOD</b>																			
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																			
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE C-1**  
**HISTORICAL ANALYTICAL RESULTS**  
**GROUNDWATER COMPLIANCE MONITORING**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-12 22I0247-11 9/15/2022	PZ-12 23C0181-13 3/8/2023	PZ-12 23I0388-05 9/14/2023	PZ-13 2005060392-01 6/27/2005	PZ-13 2006030241-01 3/19/2006	PZ-13 2006110182-01 11/11/2006	PZ-13 LS10A 9/30/2007	PZ-13 MO26H 3/19/2008	PZ-13 NH92B 7/29/2008	PZ-13 OH11A 1/8/2009	PZ-13 PK28B 8/11/2009	PZ-13 PP40A 9/21/2009	PZ-13 QF84F 1/14/2010	PZ-13 RS33B 10/18/2010	PZ-13 SO90E 3/24/2011	PZ-13 TH68A 8/8/2011	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (μg/L)</b>																		
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																		
Naphthalene	4,900	1.0 U	1.0 U	1.0 U	0.10 U	NA	<b>10.2</b>	1.0 U	1.0 U	1.0 U	1.0 U	<b>9.1</b>	<b>4.0</b>	<b>2.2</b>	1.0 U	1.0 U	1.0 U	
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthylene		1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthene		1.0 U	1.0 U	1.0 U	0.10 U	NA	0.75	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Dibenzofuran		1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluorene		1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pentachlorophenol	3	10.0 U	10.0 U	10.0 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5 U	NA	5.0 U	5.0 U	5.0 U	5.0 U	
Phenanthrene		1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Carbazole		1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	
Anthracene		1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluoranthene		1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pyrene	2,600	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	NA	NA	NA	
Benzo(k)Fluoranthene		NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	NA	NA	NA	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.071	0.071	
<b>PENTACHLOROPHENOL (μg/L)</b>																		
<b>EPA Method SW8041A</b>																		
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	10 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U	NA	0.25 U	0.25 U	0.25 U	0.25 U	
<b>PETROLEUM HYDROCARBONS</b>																		
<b>Method NWTPH-Gx (μg/L)</b>																		
Gasoline Range Organics	1,000	100 U	100 U	100 U	50 U	50 U	<b>112</b>	250 U	250 U	250 U	250 U	<b>1,900</b>	<b>310</b>	250 U	250 U	250 U	250 U	
<b>Method NWTPH-DxSG (μg/L) (g)</b>																		
Diesel Range Organics	500	100 U	100 U	100 U	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U	NA	250 U	100 U	100 U	100 U	
Motor Oil Range Organics	500	200 U	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	250 U	NA	500 U	200 U	200 U	200 U	
Creosote Oil Range Organics	500	200 U	200 U	200 U	NA	NA	NA	NA	250 U	500 U	250 U	500 U	NA	250 U	100 U	200 U	200 U	
<b>BTEX (μg/L)</b>																		
<b>Method SW8021B/SW021B MOD</b>																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<b>56</b>	NA	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1 U	NA	NA	NA	NA	
<b>Field Parameters</b>																		
Temperature (°C)		NM	12.0	20.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Conductivity (μS/cm)		NM	857.0	1269.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dissolved Oxygen (DO; mg/L)		NM	0.1	0.33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
pH (SU)		NM	7.64	7.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oxygen Reduction Potential (ORP; mV)		NM	-99.80	110.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

TABLE C-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON

Table with 19 columns: Cleanup Screening Levels for Groundwater, 18 monitoring wells (PZ-13 UL19F to PZ-13 19I0442-14), and various rows for chemical groups including POLYCYCLIC AROMATIC HYDROCARBONS (PAHs), PENTACHLOROPHENOL, PETROLEUM HYDROCARBONS, and BTEX. Values include detection limits (U) and specific concentrations (e.g., 5.9, 2.6, 1.4, 250, 100 U).



**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-13	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17
		20C0265-14 3/19/2020	20I0229-14 9/17/2020	21C0181-05 3/10/2021	21I0239-13 9/16/2021	22C0440-02 3/23/2022	22I0247-12 9/15/2022	23C0181-11 3/8/2023	23I0388-06 9/14/2023	2005060439-04 6/28/2005	2006030253-02 3/20/2006	2006110200-01 11/13/2006	LS10E 10/1/2007	MO07B 3/19/2008	NH70B 7/28/2008	OH11C 1/8/2009	PJ99B 8/10/2009
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																	
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																	
Naphthalene	4,900	1.0 U	1.0 U	1.0 U	1.4	1.0 U	1.0 U	1.0 U	0.9 J	0.10 U	NA	0.11	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.23	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Pentachlorophenol	3	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.9 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.2 U
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																	
<b>EPA Method SW8041A</b>																	
Pentachlorophenol	3	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10 U	0.10 U	0.10 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																	
<b>Method NWTPH-Gx (µg/L)</b>																	
Gasoline Range Organics	1,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	50 U	50 U	50 U	250 U	250 U	250 U	250 U	250 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																	
Diesel Range Organics	500	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 U	100 U	250 U	250 U	250 U	250 U	250 U
Motor Oil Range Organics	500	200 U	200 U	200 U	200 U	200 U	200 UJ	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
Creosote Oil Range Organics	500	200 U	200 U	200 U	200 U	200 U	200 UJ	200 U	200 U	NA	NA	NA	NA	250 U	500 U	250 U	250 U
<b>BTEX (µg/L)</b>																	
<b>Method SW8021B/SW021B MOD</b>																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																	
Temperature (°C)		NA	NA	NA	NA	NA	20.70	11.2	21.40	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	486.6	421.0	534.00	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	0.0	2.31	0.2	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	7.5	7.16	7.3	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	58.50	-107.9	-124.7	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17 (e)	
		QF84C 1/14/2010	RS33D 10/18/2010	SO90L 3/24/2011	TH68C 8/8/2011	UL19C 3/7/2012	VP53G 10/26/2012	WF57G 2/27/2013	XC81H 8/28/2013	YA02O 2/19/2014	ZB62F 9/23/2014	ZF85A 10/16/2014	ZZ61H 3/9/2015	ANH7B 9/24/2015	APW3B 11/3/2015	AWD0H 2/16/2016	16I0325-13 9/20/2016	16K0034-01 11/1/2016	2016110077 11/1/2016	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																				
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																				
Naphthalene	4,900	1.0 U	1.0 U	<b>3.2</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	<b>1.9</b>	<b>4.8</b>	1.0 U	1.0 U	1.0 U	NA	NA
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	<b>2.6</b>	<b>18</b>	<b>1.9</b>	<b>2.3</b>	NA	NA	NA
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	<b>1.4</b>	1.0 U	1.0 U	1.0 U	NA	NA
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	<b>3.2</b>	1.0 U	1.0 U	1.0 U	NA	NA
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 U	NA	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
Benzo(a)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	NA	NA
Chrysene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	NA	NA
Benzo(b)Fluoranthene		0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	NA	NA
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	NA	NA
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	NA	0.10 U	0.10 U	1.0 U	0.10 U	0.10 U	0.10 U	NA	NA
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	<b>6.7</b>	<b>27</b>	<b>2.4</b>	<b>2.8</b>	NA	NA	NA
Total Benzofluoranthenes		NA	0.10 U	0.11 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U	NA	0.20 U	0.10 U	NA	0.10 U	0.20 U	0.20 U	NA	NA
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	NA	NA
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.071	0.078	0.071	0.071	0.076	0.076	0.076	0.071	0.078	NA	0.076	0.076	0.760	0.076	0.076	0.076	NA	NA
<b>PENTACHLOROPHENOL (µg/L)</b>																				
<b>EPA Method SW8041A</b>																				
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.8 U	0.25 U	NA	0.25 U	0.25 U	NA	0.26 U	<b>5.42</b>	0.25 U	0.100 U	0.100 U
<b>PETROLEUM HYDROCARBONS</b>																				
<b>Method NWTPH-Gx (µg/L)</b>																				
Gasoline Range Organics	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	NA	250 U	<b>300</b>	<b>590</b>	100 U	<b>154</b>	NA	NA	NA
<b>Method NWTPH-DxSG (µg/L) (g)</b>																				
Diesel Range Organics	500	250 U	100 U	100 U	110 U	100 U	100 U	100 U	100 U	100 U	<b>110</b>	100 U	100 U	100 U	100 U	NA	100 U	100 U	NA	NA
Motor Oil Range Organics	500	500 U	200 U	200 U	220 U	200 U	200 U	200 U	200 U	200 U	<b>640</b>	200 U	200 U	200 U	NA	200 U	200 U	200 U	NA	NA
Creosote Oil Range Organics	500	250 U	100 U	200 U	220 U	200 U	100 U	<b>150</b>	100 U	100 U	<b>310</b>	100 U	100 U	<b>210</b>	NA	100 U	<b>126</b>	NA	NA	NA
<b>BTEX (µg/L)</b>																				
<b>Method SW8021B/SW021B MOD</b>																				
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																				
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-17	PZ-18	
		17C0014-07 2/28/2017	17J0190-07 10/11/2017	18C0203-05 3/8/2018	18I0183-05 9/12/2018	19C0223-05 3/11/2019	19I0442-05 9/25/2019	20C0265-05 3/19/2020	20I0229-05 9/17/2020	21C0181-12 3/10/2021	21I0239-05 9/17/2021	22C0440-03 3/23/2022	22I0247-13 9/15/2022	23C0181-08 3/8/2023	23I0388-08 9/14/2023	2005060439-01 6/29/2005
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																
Naphthalene	4,900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	0.10 U	
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	NA	
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	0.10 U	
Acenaphthene		1.0 U	1.5	1.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	0.10 U	
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	NA	
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	0.10 U	
Pentachlorophenol	3	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	30.0 U	10.0 U	10.0 U	10.0 U	NA	
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	0.10 U	
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	NA	
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	0.10 U	
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	0.10 U	
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	0.10 U	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	0.10 U	
1-Methylnaphthalene		1.0 U	1.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	1.0 U	1.0 U	1.0 U	NA	
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	
<b>PENTACHLOROPHENOL (µg/L)</b>																
<b>EPA Method SW8041A</b>																
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	10 U
<b>PETROLEUM HYDROCARBONS</b>																
<b>Method NWTPH-Gx (µg/L)</b>																
Gasoline Range Organics	1,000	100 U	100 U	344	100 U	443	318	942	100 U	830	100 U	100 U	100 U	100 U	100 U	50 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																
Diesel Range Organics	500	100 U	100 U	100 U	100 U	182	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	110	100 U
Motor Oil Range Organics	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	500 U
Creosote Oil Range Organics	500	100 U	200 U	200 U	374	1,210	200 U	281	200 U	200 U	200 U	200 U	200 U	200 U	364	NA
<b>BTEX (µg/L)</b>																
<b>Method SW8021B/SW021B MOD</b>																
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.1	11.0	20.30	NA	
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1898.0	2985.00	3175.00	NA	
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.1	0.59	0.3	NA	
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.94	6.98	6.99	NA	
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	63.70	-26.1	-101.3	NA	

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18
		2006030261-01 3/21/2006	2006110239-01 11/14/2006	LS10C 10/1/2007	MO07C 3/19/208	NH70C 7/28/2008	NM64A 8/28/2008	OH11E 1/8/2009	PJ99C 8/10/2009	PP40B 9/21/2009	QF84K 1/15/2010	RS33L 10/19/2010	SO90F 3/24/2011	TH68F 8/8/2011	UL19E 3/7/2012	UO79A 3/30/2012	VP10B 10/24/2012	WF72G 2/28/2013
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																		
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																		
Naphthalene	4,900	NA	<b>0.13</b>	1.0 U	1.0 U	1.0 U	NA	1.0 U	<b>3.2</b>	1.0 U	<b>2.8</b>	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U
2-Methylnaphthalene		NA	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U
Acenaphthylene		NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
Acenaphthene		NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
Dibenzofuran		NA	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
Fluorene		NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
Pentachlorophenol	3	NA	NA	5.0 U	5.0 U	5.0 U	NA	5.0 U	5.6 U	NA	5.0 U	5.0 U	5.0 U	15 U	NA	1.0 U	1.0 U	
Phenanthrene		NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
Carbazole		NA	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	NA	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	NA	
Anthracene		NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
Fluoranthene		NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
Pyrene	2,600	NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	NA	NA	NA	NA	NA	NA	
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	NA	NA	NA	NA	NA	NA	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		NA	0.10 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
1-Methylnaphthalene		NA	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	NA	1.0 U	1.0 U	
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	NA	0.076	0.076	0.76	0.083	0.071	0.071	0.071	0.071	NA	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																		
<b>EPA Method SW8041A</b>																		
Pentachlorophenol	3	0.10 U	0.10 U	0.25 U	0.25 U	<b>1.8</b>	0.25 U	0.25 U	0.25 U	NA	<b>0.41</b>	<b>0.91</b>	0.25 U	0.31 U	0.25 U	NA	0.25 U	<b>0.48</b>
<b>PETROLEUM HYDROCARBONS</b>																		
<b>Method NWTPH-Gx (µg/L)</b>																		
Gasoline Range Organics	1,000	50 U	50 U	250 U	250 U	250 U	NA	250 U	250 U	NA	250 U	250 U	250 U	250 U	<b>270</b>	250 U	250 U	250 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																		
Diesel Range Organics	500	100 U	100 U	250 U	250 U	250 U	NA	250 U	250 U	NA	250 U	100 U	110 U	120 U	<b>130</b>	100 U	100 U	100 U
Motor Oil Range Organics	500	500 U	500 U	500 U	500 U	500 U	NA	500 U	500 U	NA	500 U	200 U	220 U	240 U	200 U	200 U	200 U	200 U
Creosote Oil Range Organics	500	<b>140</b>	NA	NA	250 U	500 U	NA	250 U	250 U	NA	250 U	100 U	220 U	240 U	<b>470</b>	200 U	100 U	<b>140</b>
<b>BTEX (µg/L)</b>																		
<b>Method SW8021B/SW021B MOD</b>																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																		
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18	PZ-18
		XC81I 8/28/2013	YA02F 2/18/2014	ZB62G 9/23/2014	ZZ61G 3/9/2015	ANH7A 9/24/2015	AWDOI 2/16/2016	16I0325-14 9/20/2016	17C0014-08 2/28/2017	17I0190-08 10/11/2017	18C0203-04 3/8/2018	18I0183-04 9/12/2018	19C0223-04 3/11/2019	19I0442-04 9/25/2019	20C0265-04 3/19/2020	20I0229-04 9/17/2020	21C0181-13 3/10/2021	21I0239-04 9/16/2021
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																		
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																		
Naphthalene	4,900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.071	0.078	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																		
<b>EPA Method SW8041A</b>																		
Pentachlorophenol	3	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																		
<b>Method NWTPH-Gx (µg/L)</b>																		
Gasoline Range Organics	1,000	250 U	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																		
Diesel Range Organics	500	110 U	100 U	100 U	110 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil Range Organics	500	210 U	200 U	200 U	220 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil Range Organics	500	110 U	100 U	100 U	110 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>BTEX (µg/L)</b>																		
<b>Method SW8021B/SW021B MOD</b>																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																		
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-18	PZ-18	PZ-18	PZ-18	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	
		22C0440-04 3/23/2022	22I0247-14 9/15/2022	23C0181-07 3/8/2023	23I0388-09 9/14/2023	2005060439-03 6/29/2005	2006030294-04 3/22/2006	2006110239-04 11/14/2006	LS21E 10/2/2007	MO26B 3/20/2008	NH70E 7/28/2008	NM64B 8/28/2008	OH25C 1/9/2009	PK28E 8/11/2009	QG15C 1/18/2010	RS33H 10/19/2010	SO90H 3/25/2011	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																		
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																		
Naphthalene	4,900	1.0 U	1.0 U	1.0 U	1.0 U	0.13	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10.0 U	10.0 U	10.0 U	10.0 U	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	NA	0.076	0.076	0.076	0.071	0.071
<b>PENTACHLOROPHENOL (µg/L)</b>																		
<b>EPA Method SW8041A</b>																		
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	10 U	0.10 U	0.10 U	0.21 U	0.25 U	0.70 J	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																		
<b>Method NWTPH-Gx (µg/L)</b>																		
Gasoline Range Organics	1,000	100 U	100 U	100 U	100 U	50 U	50 U	50 U	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U	250 U	250 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																		
Diesel Range Organics	500	100 U	100 U	100 U	100 U	106	100 U	100 U	250 U	250 U	250 U	NA	250 U	250 U	250 U	250 U	100 U	110 U
Motor Oil Range Organics	500	200 U	200 U	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	NA	500 U	250 U	500 U	500 U	200 U	230 U
Creosote Oil Range Organics	500	200 U	200 U	200 U	200 U	NA	NA	NA	NA	250 U	500 U	NA	250 U	500 U	250 U	100 U	230 U	
<b>BTEX (µg/L)</b>																		
<b>Method SW8021B/SW021B MOD</b>																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																		
Temperature (°C)		NA	18.20	9.9	19.20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	7055.0	9664.0	10316.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	0.9	0.47	0.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	7.0	6.96	7.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	69.00	-94.1	-114.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19	PZ-19
		T117B 8/9/2011	UL56G 3/8/2012	VP10C 10/24/2012	WF72C 2/28/2013	XC81E 8/28/2013	YA02E 2/18/2014	ZB62O 9/24/2014	ZZ61L 3/10/2015	ANH7C 9/24/2015	AWDOG 2/16/2016	16I0325-15 9/21/2016	17C0014-09 3/1/2017	17J0190-09 10/12/2017	18C0203-12 3/9/2018	18I0183-12 9/13/2018	19C0223-12 3/12/2019	19I0442-12 9/25/2019
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																		
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																		
Naphthalene	4,900	1.0 U	2.8	1.0 U	3.8	1.0 U	1.0 U	3.8	3.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U
Benzo(a)Anthracene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.11 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.10 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.078	0.071	0.076	0.076	0.076	0.071	0.071	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																		
<b>EPA Method SW8041A</b>																		
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ
<b>PETROLEUM HYDROCARBONS</b>																		
<b>Method NWTPH-Gx (µg/L)</b>																		
Gasoline Range Organics	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																		
Diesel Range Organics	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil Range Organics	500	200 U	200 U	100 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil Range Organics	500	200 U	200 U	200 U	140	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	200 U	200 U	200 U	200 U	200 U
<b>BTEX (µg/L)</b>																		
<b>Method SW8021B/SW021B MOD</b>																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																		
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Cleanup Screening Levels for Groundwater	PZ-19 20C0265-12 3/19/2020	PZ-19 20I0229-12 9/18/2020	PZ-19 21C0181-16 3/11/2021	PZ-19 21I0239-11 9/17/2021	PZ-19 22C0440-13 3/24/2022	PZ-19 22I0247-15 9/16/2022	PZ-19 23C0181-14 3/8/2023	PZ-19 23I0388-13 9/15/2023	LW-3 2005060439-05 6/28/2005	LW-3 2006030316-02 3/23/2006	LW-3 2006110200-02 11/13/2006	Dup of LW-3						
												PZ30 2006110200-04 11/13/2006	LW-3 LS10G 10/1/2007	LW-3 MO07A 3/19/2008	LW-3 NH70A 7/28/2008	LW-3 OH11D 1/8/2009		
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																		
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																		
Naphthalene	4,900	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0 U	0.21	NA	0.12	0.13	1.0 U	1.0 U	1.0 U	1.0 U	
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pentachlorophenol	3	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	NA	NA	NA	NA	5.0 U	5.0 U	5.0 U	5.0 U	
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.10 U	NA	0.10 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	
<b>PENTACHLOROPHENOL (µg/L)</b>																		
<b>EPA Method SW8041A</b>																		
Pentachlorophenol	3	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	1.28	10 U	0.10 U	0.10 U	0.10 U	0.10 U	3.6J	0.25 U	0.57	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																		
<b>Method NWTPH-Gx (µg/L)</b>																		
Gasoline Range Organics	1,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	1,750 (c) T	53	50 U	50 U	250 U	250 U	250 U	250 U	
<b>Method NWTPH-DxSG (µg/L) (g)</b>																		
Diesel Range Organics	500	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 U	100 U	100 U	250 U	250 U	250 U	250 U	
Motor Oil Range Organics	500	200 U	200 U	200 U	200 U	200 U	200 UJ	200 U	200 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U	
Creosote Oil Range Organics	500	200 U	200 U	200 U	200 U	200 U	200 UJ	200 U	200 U	NA	NA	NA	NA	NA	250 U	500 U	250 U	
<b>BTEX (µg/L)</b>																		
<b>Method SW8021B/SW021B MOD</b>																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Field Parameters</b>																		
Temperature (°C)		NA	NA	NA	NA	NA	14.1	11.3	13.70	NA	NA	NA	NA	NA	NA	NA	NA	
Conductivity (µS/cm)		NA	NA	NA	NA	NA	10749.0	3791.00	12696.00	NA	NA	NA	NA	NA	NA	NA	NA	
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	0.5	0.24	0.5	NA	NA	NA	NA	NA	NA	NA	NA	
pH (SU)		NA	NA	NA	NA	NA	7.98	7.1	6.8	NA	NA	NA	NA	NA	NA	NA	NA	
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	118.50	-59	-40.9	NA	NA	NA	NA	NA	NA	NA	NA	













**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S	MW-01S
		XC89C 8/29/2013	YA02M 2/19/2014	ZB62M 9/24/2014	ZZ61N 3/10/2015	ANH7N 9/25/2015	AWD0L 2/17/2016	16I0325-06 9/21/2016	17C0014-12 3/1/2017	17J0190-12 10/12/2017	18C0203-16 3/9/2018	18I0183-16 9/13/2018	19C0223-16 3/12/2019	19I0442-16 9/26/2019	20C0265-16 3/19/2020	20I0229-16 9/18/2020	21C0181-15 3/11/2021	21I0239-15 9/17/2021
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																		
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																		
Naphthalene	4,900	6,800	6,800	10,000	8,000	17,000	5,200	6,790	4,400	5,080	3,560	4,230	1,620	5,820	2,690	7,790	3,480	5,850
2-Methylnaphthalene		780	1,200	550	720	1100	850	654	587	618	644	555	329	427	302	381	358	510
Acenaphthylene		10 U	10 U	10 U	10 U	1.0 U	1.0 U	30 U	10 U	7.8	1.0 U	7.2	3.0 U	10.0 U	6.6	10.0 U	4.0	5.9
Acenaphthene		270	330	240	280	360	220	221	263	255	334	260	201	236	206	222	256	289
Dibenzofuran		140	160	71	110	130	110	97.6	118	76.0	120	98.2	79.9	85.6	71.3	78.9	84.8	97.3
Fluorene		110	120	66	73	61	74	63.5	112	75.6	122	92.5	74.2	81.7	68.1	69.2	79.4	93.4
Pentachlorophenol	3	4,000	6,600	4,900 J	2,900 J	13,000	1,300	3,950	1,290	5,510 J	1,260	6,190	426	2,580	405	3,110	78.0 J	3,640
Phenanthrene		130	120	68	69	92 J	69	52.6	114	69.3	169	89.2	93.8	73.8	68.3	81.4	104	106
Carbazole		NA	NA	100	53	290	68	51.1	43.5	30.3	27.2	42.5	26.3	49.5	35.8	45.0	16.1	31.6
Anthracene		39	27	17	16	27	16	30 U	27.6	14.5	31.8	15.5	20.1	16.8	16.6	13.4	15.7	15.6
Fluoranthene		56	44	10 U	10 U	12	20	30 U	30.8	16.7	51.3	11.0	26.0	14.4	15.6	15.8	29.0	19.2
Pyrene	2,600	34	22	10 U	10 U	5.3	12	30 U	20.8	7.9	43.4	8.2	17.5	10.5	9.1	12.3	24.7 J	13.8
Benzo(a)Anthracene		4.1	2.1	0.83	1.5	1.0 U	2.3	2.5 U	1.54	1.33	12.2	0.61	2.52	0.70	0.92	10.0 U	2.10	1.32
Chrysene		3.4	2.2	0.82	1.6	1.0 U	2.3	2.5 U	1.42	1.26	12.0	0.65	2.84	0.77	0.92	10.0 U	2.04	1.49
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		1.4	0.69	0.3 U	0.54	1.0 U	0.81	2.5 U	0.54	0.44	4.29	0.30 U	0.91	0.26	0.34	10.0 U	0.85	1.00 U
Indeno(1,2,3-cd)Pyrene		0.58	0.15	0.3 U	0.13	1.0 U	0.30 U	2.5 U	0.14	0.12	1.08	0.30 U	0.22	0.10 U	0.12	10.0 U	0.21	1.00 U
Dibenz(a,h)Anthracene		0.53	0.10 U	0.3 U	0.10 U	1.0 U	0.30 U	2.5 U	0.10 U	0.10 U	0.50 U	0.30 U	0.10 U	0.10 U	0.10 U	10.0 U	0.10 U	1.00 U
Benzo(g,h,i)Perylene		10 U	10 U	10 U	10 U	1.0 U	1.0 U	30 U	10 U	1.0 U	1.0 U	3.0 U	3.0 U	10.0 U	1.0 U	10.0 U	1.0 U	1.0 U
1-Methylnaphthalene		580	580	450	420	710	460	373	399	418	449	391	237	338	212	261	251	366
Total Benzofluoranthenes		2.7	1.4	0.55	1.1	1.0 U	1.6	5.0 U	1.1	1.03	8.89	0.60 U	2.00	0.67 J	0.79	20.0 U	1.68	2.00 U
cPAH TEQ (a)	0.1 (b)	2.2	1.1	0.146	0.829	ND	1.22	ND	0.83	0.70	6.63	0.07	1.41	0.41	0.53	ND	1.27	0.15
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	2.2	1.1	0.326	0.834	0.71 U	1.25	1.89	0.84	0.71	6.65	0.28	1.42	0.42	0.54	7.55	1.27	0.85
<b>PENTACHLOROPHENOL (µg/L)</b>																		
<b>EPA Method SW8041A</b>																		
Pentachlorophenol	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>PETROLEUM HYDROCARBONS</b>																		
<b>Method NWTPH-Gx (µg/L)</b>																		
Gasoline Range Organics	1,000	48,000	47,000	52,000	44,000	41,000	28,000	37,200	24,200	33,900	25,900	27,000	16,700	39,100	30,100	31,400	36,100	31,000
<b>Method NWTPH-DxSG (µg/L) (g)</b>																		
Diesel Range Organics	500	9,400	7,300	11,000	3,700	10,000	6,000	6,110 J	4,790	10,300	5,610	8,670	5,150	4,720	2,630	4,690	3,370	100 U
Motor Oil Range Organics	500	280	390	690	300	10000 U	690	1000 U	412	774	446	4,000 U	234	538	200 U	417	2,000 U	200 U
Creosote Oil Range Organics	500	39,000	34,000	59,000	16,000	55,000	24,000	23,700	24,900	40,300	28,600	53,000	35,000	16,900	9,930	12,600	15,300	11,900
<b>BTEX (µg/L)</b>																		
<b>Method SW8021B/SW021B MOD</b>																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																		
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA



TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON

	Cleanup Screening Levels for Groundwater	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	MW-02S	
		SO90I 3/25/2011	TI17E 8/9/2011	UL56D 3/8/2012	VP10H 10/24/2012	WF72B 2/28/2013	XC81F 8/28/2013	YA02J 2/19/2014	ZB62A 9/23/2014	ZZ61I 3/9/2015	ANH7E 9/24/2015	AWD0A 2/16/2016	16I0325-08 9/20/2016	17C0014-13 2/28/2017	17J0190-13 10/11/2017	18C0203-10 3/8/2018	18I0183-10 9/13/2018	19C0223-10 3/12/2019	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																			
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																			
Naphthalene	4,900	1.0 U	1.0 U	1.0 U	1.0 U	1.9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.7	1.3	2.8	1.0 U	1.0 U	1.0 UJ
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.2	1.2	1.0	1.0 U	1.4	1.0 U	1.6	1.0 U	1.9	1.0 U	1.3	1.0 UJ	
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Pentachlorophenol	3	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Anthracene		1.0 U	1.1	1.0 U	1.0 U	1.0	1.0 U	1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Benzo(a)Anthracene		0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ
Total Benzofluoranthenes		0.12 U	0.10 U	0.10 U	0.20 U	0.20 U	0.22 U	0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.085	0.071	0.071	0.076	0.076	0.083	0.071	0.078	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																			
<b>EPA Method SW8041A</b>																			
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.28 U	0.25 U	0.83	0.25 U	0.25 U	0.43 U	0.25 U	0.34	0.36	0.25 U	0.25 U	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																			
<b>Method NWTPH-Gx (µg/L)</b>																			
Gasoline Range Organics	1,000	250 U	480	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																			
Diesel Range Organics	500	120 U	130	100 U	100 U	100 U	130 U	100 U	100 U	120 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	311	100 U
Motor Oil Range Organics	500	240 U	990	200 U	200 U	210 U	260 U	240	200 U	230 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil Range Organics	500	240 U	200 U	200 U	110	210	130 U	100 U	100 U	120 U	190	100 U	100 U	100 U	200 U	200 U	1,930	200 U	200 U
<b>BTEX (µg/L)</b>																			
<b>Method SW8021B/SW021B MOD</b>																			
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																			
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA



TABLE C-1
HISTORICAL ANALYTICAL RESULTS
GROUNDWATER COMPLIANCE MONITORING
CASCADE POLE SITE
PORT OF OLYMPIA, WASHINGTON

Table with 17 columns: Cleanup Screening Levels for Groundwater, 10 monitoring wells (MW-02S), and 6 monitoring wells (MW-05S). Rows include various hydrocarbon compounds (PAHs, Chlorophenol, BTEX), field parameters (Temperature, Conductivity, pH, etc.), and their respective concentrations and units over time.

TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON

Table with columns for Cleanup Screening Levels for Groundwater, Dup of MW-055 (PZ30, MW-055), and various monitoring wells (MO26A, NH92E, NH92F, OG76C, PK28H, PK28I, QF84B, QF84G, RS33I, RS33J, SO90C, SO90B, T117C, T117A, UL56E, UL56F, VP10E). Rows include POLYCYCLIC AROMATIC HYDROCARBONS (PAHs), PENTACHLOROPHENOL, PETROLEUM HYDROCARBONS, and BTEX.

**TABLE C-1**  
**HISTORICAL ANALYTICAL RESULTS**  
**GROUNDWATER COMPLIANCE MONITORING**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S		Dup of MW-05S	
		PZ-30 VP10D 10/24/2012	MW-05S WF57E 2/27/2013	PZ-30 WF57F 2/27/2013	MW-05S XC81D 8/28/2013	PZ-30 XC81G 8/28/2013	MW-05S YA02B 2/18/2014	PZ-30 YA02A 2/18/2014	MW-05S ZB62B 9/23/2014	PZ-30 ZB62C 9/23/2014	MW-05S ZZ61D 3/9/2015	PZ-30 ZZ61C 3/9/2015	MW-05S ANH7H 9/24/2015	PZ-30 ANH7G 9/24/2015	MW-05S AWD0D 2/16/2016	PZ-30 AWD0E 2/16/2016	MW-05S 16I0325-10 9/20/2016	PZ-30 16I0325-16 9/20/2016	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																			
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																			
Naphthalene	4,900	1.0 U	<b>1.6</b>	<b>1.6</b>	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.7</b>	<b>1.4</b>	<b>1.4</b>	<b>1.4</b>	<b>5.0 J</b>	<b>2.8 J</b>	1.0 U	1.0 U	1.0 U	1.0 U	
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthene		<b>10</b>	<b>10</b>	<b>11</b>	<b>8.7</b>	<b>9.4</b>	<b>9.0</b>	<b>10</b>	<b>8.6</b>	<b>9.4</b>	<b>6.5</b>	<b>7.1</b>	<b>7.9</b>	<b>7.2</b>	<b>6.2</b>	<b>6.6</b>	<b>10.8</b>	<b>10.1</b>	
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pentachlorophenol	3	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10 U	
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Carbazole		1.0 U	NA	NA	NA	NA	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Anthracene		<b>1.2</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.0</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U	0.12 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.10 U	0.10 U	0.11 U	0.12 U	0.20 U	0.20 U	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.071	0.071	0.078	0.085	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	
<b>PENTACHLOROPHENOL (µg/L)</b>																			
<b>EPA Method SW8041A</b>																			
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.52 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
<b>PETROLEUM HYDROCARBONS</b>																			
<b>Method NWTPH-Gx (µg/L)</b>																			
Gasoline Range Organics	1,000	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	
<b>Method NWTPH-DxSG (µg/L) (g)</b>																			
Diesel Range Organics	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	110 U	100 U	100 U	<b>120</b>	100 U	100 UJ	100 UJ	100 UJ	
Motor Oil Range Organics	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 UJ	220 U	200 U	200 U	<b>740 J</b>	200 UJ	200 U	200 U	200 U	
Creosote Oil Range Organics	500	<b>170</b>	<b>230</b>	<b>210</b>	100 U	100 U	100 U	100 U	<b>100</b>	<b>130</b>	100 UJ	110 U	<b>280</b>	<b>230</b>	<b>230 J</b>	100 UJ	<b>121</b>	<b>153</b>	
<b>BTEX (µg/L)</b>																			
<b>Method SW8021B/SW021B MOD</b>																			
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Field Parameters</b>																			
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON

Table with columns for Cleanup Screening Levels for Groundwater, monitoring wells (MW-055, PZ-30), and various chemical compounds including POLYCYCLIC AROMATIC HYDROCARBONS (PAHs), PENTACHLOROPHENOL, PETROLEUM HYDROCARBONS, and BTEX. Results are shown as numerical values or 'U'/'J'/'ND'/'NA' for different wells and dates.

**TABLE C-1**  
**HISTORICAL ANALYTICAL RESULTS**  
**GROUNDWATER COMPLIANCE MONITORING**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

Cleanup Screening Levels for Groundwater	MW-055 21C0181-08 3/10/2021	Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		Dup of MW-055		MW-01D 10/7/1998	MW-01D 2006030261-02 3/21/2006	MW-01D 2006110251-02 11/15/2006	MW-01D LS10H 10/1/2007	MW-01D MO07E 3/19/2008	
		PZ-30 21C0181-09 3/10/2021	MW-055 21I0239-02 9/16/2021	PZ-30 21I0239-03 9/16/2021	MW-055 22C0440-05 3/23/2022	PZ-30 22C0440-06 3/23/2022	MW-055 22I0247-06 9/15/2022	MW-055 23C0181-01 3/8/2023	PZ-30 23C0181-02 3/8/2023	MW-055 23I0388-01 9/14/2023	PZ-30 23I0388-02 9/14/2023						
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																	
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																	
Naphthalene	4,900	7.5	7.3	14.6 J	11.1 J	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	7.2	7.3	91	NA	1.24	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.4	1.1	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.3	1.3	NA	NA	NA	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.2 U	NA	0.10 U	1.0 U	1.0 U
Acenaphthene		5.7	5.8	10.3 J	8.1 J	5.3	5.7 J	8.6	5.8 J	5.5	14.0	14.1	58	NA	0.48	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	0.7 J	0.7 J	NA	NA	NA	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.1	1.2	30	NA	0.31	1.0 U	1.0 U
Pentachlorophenol	3	10.0 UJ	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	NA	NA	NA	5.0 U	5.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	0.7 J	0.7 J	56	NA	1.42	1.0 U	1.0 U
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	0.3 J	1.0 U	NA	NA	NA	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	0.4 J	0.4 J	8.7	NA	0.39	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	0.5 J	0.4 J	9.4	NA	0.89	1.0 U	1.0 U
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	7.6	NA	0.39	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.0	0.10 U	0.10 U	0.11	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	1.2	0.10 U	0.10 U	0.11	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.3	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.3	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.2 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	0.2 U	NA	0.10 U	1.0 U	1.0 U
1-Methylnaphthalene		1.1	1.2	4.3	3.3	1.0 U	1.6 J	2.9	1.0 UJ	1.0 U	4.3	4.2	NA	NA	NA	1.0 U	1.0 U
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	NA	NA	NA	NA	NA
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.172	ND	ND	0.0121	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.292	0.076	0.076	0.082	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>																	
<b>EPA Method SW8041A</b>																	
Pentachlorophenol	3	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.52 J	0.25 UJ	0.47	0.25 U	18	0.10 U	0.10 U	0.2 UJ	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																	
<b>Method NWTPH-Gx (µg/L)</b>																	
Gasoline Range Organics	1,000	100 U	100 U	122	122	100 U	100 U	100 U	100 U	100 U	100 U	100 U	NA	50 U	50 U	250 U	250 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																	
Diesel Range Organics	500	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	153	168	2,500	100 U	100 U	250 U	250 U
Motor Oil Range Organics	500	200 U	200 U	200 U	200 U	200 U	200 U	200 UJ	200 U	200 U	200 U	200 U	2,800	500 U	500 U	500 U	500 U
Creosote Oil Range Organics	500	200 U	200 U	215	200 U	200 U	200 U	200 UJ	200 U	200 U	557	599	NA	106	NA	NA	250 U
<b>BTEX (µg/L)</b>																	
<b>Method SW8021B/SW021B MOD</b>																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																	
Temperature (°C)		NA	NA	NA	NA	NA	NA	16.70	12.2	12.2	16.1	16.30	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	2902.00	818.0	818.0	2372.00	2365.00	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	0.3	0.1	0.15	0.52	0.5	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	44.6	7.46	7.46	7.0	7.0	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	7.4	-126.00	-126.0	54.1	55.9	NA	NA	NA	NA	NA



**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Cleanup Screening Levels for Groundwater	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-01D	MW-02D	MW-02D	
	17C0014-03 3/1/2017	17J0190-03 10/12/2017	18C0203-15 3/9/2018	18I0183-15 9/13/2018	19C0223-15 3/12/2019	19I0442-15 9/26/2019	20C0265-15 3/19/2020	20I0229-15 9/18/2020	21C0181-14 3/11/2021	21I0239-14 9/17/2021	22C0440-17 3/24/2022	22I0247-03 9/16/2022	23C0181-05 3/9/2023	23I0388-15 9/15/2023	10/7/1998	2006030294-02 3/22/2006	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																	
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																	
Naphthalene	4,900	1.0 U	1.0 U	1.7	1.1	1.0 U	2.2	1.4	1.5	1.0 U	1.2	1.0 UJ	1.9	1.0 U	0.7 J	600	NA
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	NA	NA
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0	NA
Acenaphthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	0.3 J	54	NA
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	NA	NA
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	18	NA
Pentachlorophenol	3	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	NA	NA
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	0.3 J	7.1	NA
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	NA	NA
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	NA
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	2.0	NA
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.7	NA
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 U	1.0 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	0.30 U	1.0 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	0.10 U	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0 U	0.10 U	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 U	1.0 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 U	1.0 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 U	1.0 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	NA
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	NA	NA
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 UJ	0.20 U	0.20 U	0.60 U	NA	NA
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	15	ND	NA
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.227	ND	0.076	ND
<b>PENTACHLOROPHENOL (µg/L)</b>																	
<b>EPA Method SW8041A</b>																	
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	5.0 U	0.10 U
<b>PETROLEUM HYDROCARBONS</b>																	
<b>Method NWTPH-Gx (µg/L)</b>																	
Gasoline Range Organics	1,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	NA	495
<b>Method NWTPH-DxSG (µg/L) (g)</b>																	
Diesel Range Organics	500	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	100 U	1,800	100 U	NA
Motor Oil Range Organics	500	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 UJ	200 U	200 U	5,200	500 U	NA
Creosote Oil Range Organics	500	100 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 UJ	200 U	200 U	NA	790	NA
<b>BTEX (µg/L)</b>																	
<b>Method SW8021B/SW021B MOD</b>																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																	
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18.0	10.55	20.3	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2529.0	2961.00	3908.0	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.55	0.3	0.3	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.12	8.3	8.29	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	39.7	-80.1	-216.70	NA	NA

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	Dup of MW-02D																
		MW-02D 2006110251-05 11/15/2006	MW-02D LS21B 10/2/2007	PZ30 LS21F 10/2/2007	MW-02D MO26I 3/19/2008	MW-02D NH92H 7/29/2008	MW-02D OH25A 1/9/2009	MW-02D PK28D 8/11/2009	MW-02D QG15A 1/18/2010	MW-02D RS33F 10/18/2010	MW-02D SO90G 3/25/2011	MW-02D TI17D 8/9/2011	MW-02D UL56A 3/8/2012	MW-02D VP10A 10/24/2012	MW-02D WF72A 2/28/2013	MW-02D XC81B 8/28/2013	MW-02D YA02D 2/18/2014	MW-02D ZB62I 9/23/2014
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																		
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																		
Naphthalene	4,900	143	680 J	500 J	380	1.1 U	210	230	180	1.0 U	76	110	19	43	1.0	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		NA	120	85	94	1.1 U	26	38	36	1.0 U	13	9.4	1.5	11	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		0.95	1.6	1.3	1.2	1.1 U	1.0 U	1.0 U	1.0 U	1.9	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U	2.3
Acenaphthene		96	86 J	67 J	70	1.1 U	26	35	34	8.8	21	18	9.3	26	7.2	4.7	6.6	3.8
Dibenzofuran		NA	35	26	30	1.1 U	8.1	12	14	3.0	7.9	6.1	3.2	11	2.8	1.0	2.3	1.0 U
Fluorene		40	37 J	28 J	30	1.1 U	9.3	12	15	11	8.4	5.8	3.8	13	4.7	3.3	3.2	1.0
Pentachlorophenol	3	NA	5.0 U	5.0 U	5.0 U	5.5 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene		27	23 J	18 J	22	1.1 U	6.0	7.2	9.1	5.0	5.1	3.9	2.3	8.3	2.2	1.0 U	2.0	1.0 U
Carbazole		NA	23	16	21	1.5	8.0	9.0	9.1	8.3 J	5.7	4.9	1.4	9.0	NA	NA	NA	4.0
Anthracene		0.50	1.0 U	1.0 U	1.0	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		0.10 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2,600	0.10 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Benzo(b)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.11 U
Benzo(g,h,i)Perylene		0.10 U	1.0 U	1.0 U	1.0 U	1.1 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		NA	77	68	66	1.1 U	22	32	30	1.0 U	15	13	5.1	19	1.9	1.0 U	2.1	1.0 U
Total Benzofluoranthenes		NA	NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.10 U	0.11 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.071	0.071	0.071	0.071	0.076	0.076	0.076	0.071	0.078
<b>PENTACHLOROPHENOL (µg/L)</b>																		
<b>EPA Method SW8041A</b>																		
Pentachlorophenol	3	10 U	0.23 U	0.25 U	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.26 U	0.25 U	0.25 U	0.25 U	0.37	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																		
<b>Method NWTPH-Gx (µg/L)</b>																		
Gasoline Range Organics	1,000	830	3,100	2,900	1,700	980	760	790	600	420	620	250 U	250 U	510	250 U	620	250 U	250 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>																		
Diesel Range Organics	500	100 U	290	280	540	250 U	250 U	250 U	250 U	100 U	120 U	140	100 U	130	100 U	160	100 U	100 U
Motor Oil Range Organics	500	500 U	500 U	500 U	500 U	500 U	500 U	250 U	500 U	200 U	230 U	200 U	210	200 U	200 U	470	200 U	200 U
Creosote Oil Range Organics	500	1,710	NA	NA	4,200	500 U	990	600	700	270	280	440	200 U	910	270	530	100 U	130
<b>BTEX (µg/L)</b>																		
<b>Method SW8021B/SW021B MOD</b>																		
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																		
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA



**TABLE C-1**  
**HISTORICAL ANALYTICAL RESULTS**  
**GROUNDWATER COMPLIANCE MONITORING**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	MW-02D	
		ZZ61M 3/10/2015	ANH7D 9/24/2015	AWDOF 2/16/2016	16I0325-07 9/20/2016	17C0014-04 2/28/2017	17J0190-04 10/11/2017	18C0203-11 3/8/2018	18I0183-11 9/13/2018	19C0223-11 3/12/2019	19I0442-11 9/25/2019	20C0265-11 3/19/2020	20I0229-11 9/17/2020	21C0181-02 3/10/2021	21I0239-10 9/17/2021	22C0440-12 3/24/2022	22I0247-07 9/15/2022	23C0181-12 3/8/2023	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (μg/L)</b>																			
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																			
Naphthalene	4,900	6	1.0 U	1.0 U	1.7	1.0 U	75.0	5.6	37.6	4.3	8.2	2.9	23.9	2.7	22.3	1.2	25.4	2.2	
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	11.0	1.6	6.7	1.3	1.6	1.0 U	3.8	1.0 U	4.1	1.0 U	4.3	1.0 U	
Acenaphthylene		1.0 U	3.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthene		3.8	2.2	1.0 U	1.0 U	1.0 U	4.7	17.2	4.6	12.7	3.6	4.5	3.0	7.7	3.5	9.7	2.7	13.3	
Dibenzofuran		1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.3	5.2	1.3	3.8	1.2	1.2	1.0 U	2.2	1.0 U	2.8	1.0 U	4.3	
Fluorene		1.9	1.5	1.0 U	1.0 U	1.0 U	2.1	5.4	1.6	4.1	1.3	1.4	1.0 U	2.5	1.0	3.0	1.0 U	4.6	
Pentachlorophenol	3	10 UJ	10 UJ	10 U	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	
Phenanthrene		1.4	1.0 U	1.0 U	1.0 U	1.0 U	1.5	4.4	1.4	4.9	1.2	1.1	1.0 U	1.9	1.0 U	2.3	1.0 U	3.9	
Carbazole		1.0 U	1.6	1.0 U	1.1	1.0 U	5.3	1.0 U	2.8	1.0 UJ	1.2	1.0 U	2.4	1.0 U	2.6	1.0 U	3.5	1.0 U	
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		1.2	1.0 U	1.0 U	1.0 U	1.6	12.7	1.8	7.7	1.5	1.8	1.0 U	4.5	1.0	5.7	1.0 U	7.1	1.0	
Total Benzofluoranthenes		0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	
<b>PENTACHLOROPHENOL (μg/L)</b>																			
<b>EPA Method SW8041A</b>																			
Pentachlorophenol	3	0.25 U	0.25 U	0.31 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
<b>PETROLEUM HYDROCARBONS</b>																			
<b>Method NWTPH-Gx (μg/L)</b>																			
Gasoline Range Organics	1,000	250 U	250 U	100 U	140	100 U	188	100 U	131	100 U	100 U	100 U	100 U	100 U	100 U	100 U	227	100 U	
<b>Method NWTPH-DxSG (μg/L) (g)</b>																			
Diesel Range Organics	500	120 U	100 U	100 U	100 UJ	100 U	100 U	100 U	109	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 UJ	100 U	
Motor Oil Range Organics	500	230 U	200 U	210 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 UJ	200 U	
Creosote Oil Range Organics	500	120 U	140	110 U	100 U	100 U	299	100 U	694	200 U	200 U	200 U	235	200 U	200 U	200 U	305 J	200 U	
<b>BTEX (μg/L)</b>																			
<b>Method SW8021B/SW021B MOD</b>																			
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Field Parameters</b>																			
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	19.4	8.13	
Conductivity (μS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	645.50	489.0	
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.22	7.7	
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.5	7.4	
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14.0	-5.80	

TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON

Table with columns for Cleanup Screening Levels for Groundwater, MW-02D (2310388-12, 9/15/2023), MW-05D (10/7/1998), MW-05D (2006030294-06, 3/22/2006), MW-05D (2006110275-02, 11/16/2006), MW-05D (LS21D, 10/2/2007), MW-05D (MO26F, 3/20/2008), MW-05D (NH92G, 7/29/2008), MW-05D (OH25B, 1/9/2009), MW-05D (PK28G, 8/11/2009), MW-05D (QF84A, 1/14/2010), MW-05D (RS33K, 10/19/2010), MW-05D (SO90D, 3/25/2011), MW05D (TI17I, 8/9/2011), MW-05D (UL56C, 3/8/2012), MW-05D (VP53E, 10/25/2012), MW-05D (WF57D, 2/27/2013), MW-05D (XC81A, 8/28/2013). Rows include POLYCYCLIC AROMATIC HYDROCARBONS (PAHs), PENTACHLOROPHENOL, PETROLEUM HYDROCARBONS, and BTEX.

TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
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	Cleanup Screening Levels for Groundwater	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D	MW-05D
		YA02G 2/19/2014	ZB62J 9/23/2014	ZZ61F 3/9/2015	ANH7F 9/24/2015	AWD0B 2/16/2016	16I0325-09 9/20/2016	17C0014-05 2/28/2017	17J0190-05 10/11/2017	18C0203-07 3/8/2018	18I0183-07 9/12/2018	19C0223-07 3/11/2019	19I0442-07 9/25/2019	20C0265-07 3/19/2020	20I0229-07 9/17/2020	21C0181-07 3/10/2021	21I0239-06 9/16/2021
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																	
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																	
Naphthalene	4,900	1.0 U	<b>1.1</b>	1.0 U	1.0 U	1.0 U	1.0 U	<b>3.1</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		1.0 U	<b>2.5</b>	1.0 U	<b>3.2</b>	1.0 U	<b>3.2</b>	1.0 U	<b>7.0</b>	1.0 U	<b>4.6</b>	1.0 U	<b>3.4</b>	1.0 U	1.0 U	1.0 U	1.0 U
Dibenzofuran		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluorene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.9</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pentachlorophenol	3	10 U	10 UJ	10 UJ	10 UJ	10 U	10 U	10 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 UJ	10.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbazole		NA	1.0 U	1.0 U	<b>1.7</b>	1.0 U	1.0 U	1.0 U	<b>3.0</b>	1.0 U	<b>1.6</b>	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.3</b>
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 U
Chrysene		0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 U
Dibenz(a,h)Anthracene		0.10 U	0.11 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.30 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	<b>1.2</b>	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Benzofluoranthenes		0.10 U	0.11 U	0.20 U	0.10 U	0.10 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.60 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.071	0.078	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.076	0.23
<b>PENTACHLOROPHENOL (µg/L)</b>																	
<b>EPA Method SW8041A</b>																	
Pentachlorophenol	3	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	<b>0.79 J</b>	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 UJ	0.25 U	0.25 UJ	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>																	
<b>Method NWTPH-Gx (µg/L)</b>																	
Gasoline Range Organics	1,000	250 U	250 U	250 U	250 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	<b>162</b>	100 U	<b>1,580 (f)</b>
<b>Method NWTPH-DxSG (µg/L) (g)</b>																	
Diesel Range Organics	500	100 U	100 U	110 U	100 U	100 U	100 UJ	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U
Motor Oil Range Organics	500	200 U	200 U	220 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U
Creosote Oil Range Organics	500	100 U	100 U	110 U	<b>130</b>	100 U	100 U	100 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	200 U	<b>202</b>
<b>BTEX (µg/L)</b>																	
<b>Method SW8021B/SW021B MOD</b>																	
Benzene	5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>																	
Temperature (°C)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Conductivity (µS/cm)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH (SU)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	MW-05D	MW-05D	MW-05D-2	MW-05D-BC	MW-05D	MW-05D	MW-05D	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	
		21J0448-02 10/28/2021	22C0440-16 3/24/2022	22C0440-15 3/24/2022	22C0440-14 3/24/2022	22I0247-05 9/15/2022	23C0181-06 3/8/2023	23I0388-04 9/14/2023	2006110275-04 11/16/2006	LS22A 10/2/2007	MO26D 3/20/2008	NH70F 7/28/2008	PK28F 8/11/2009	QF84D 1/14/2010	RS33G 10/19/2010	SO90K 3/25/2011	TI17H 8/9/2011	UL56B 3/8/2012	
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>																			
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>																			
Naphthalene	4,900	NA	157	NA	NA	1.0 U	1.0 U	1.0 U	1.54	8.7	11	30	4.8	1.0 U	1.0 U	1.0 U	5.2	1.0 U	
2-Methylnaphthalene		NA	37.0	NA	NA	1.0 U	1.0 U	1.0 U	NA	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthylene		NA	1.0 U	NA	NA	5.7	1.0 U	3.1	0.48	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Acenaphthene		NA	41.9	NA	NA	16.8	1.0 U	51.3	50.0	64	44	51	25	1.0 U	5.4	1.0 U	4.3	1.0 U	
Dibenzofuran		NA	16.0	NA	NA	5.5	1.0 U	22.7	NA	19	15	18	7.6	1.0 U	1.5	1.0 U	1.0 U	1.0 U	
Fluorene		NA	18.0	NA	NA	5.3	1.0 U	40.0	20.7	25	16	21	8.7	1.0 U	2.4	1.0 U	1.0 U	1.0 U	
Pentachlorophenol	3	NA	10.0 U	NA	NA	10.0 U	10.0 U	10.0 U	NA	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	
Phenanthrene		NA	19.7	NA	NA	1.0 U	1.0 U	18.2	34.5	31	14	21	8.2	1.0 U	1.2	1.0 U	1.0 U	1.0 U	
Carbazole		NA	5.8	NA	NA	17.7	1.0 U	14.0	NA	14	11	13	3.0	1.0 U	1.0 U	1.0 U	1.4	1.0 U	
Anthracene		NA	2.2	NA	NA	1.0 U	1.0 U	3.4	4.38	3.3	1.8	2.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Fluoranthene		NA	3.4	NA	NA	4.1	1.0 U	3.8	5.47	5.9	1.8	3.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Pyrene	2,600	NA	1.8 J	NA	NA	2.9	1.0 U	2.6	2.44	2.2	1.0 U	1.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Benzo(a)Anthracene		NA	0.10 UJ	NA	NA	0.10 UJ	0.10 U	0.10 UJ	0.37	0.24	0.14	0.13	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Chrysene		NA	0.10 UJ	NA	NA	0.10 UJ	0.10 U	0.10 J	0.25	0.24	0.10	0.12	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	NA	NA	NA	NA	
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	0.10 UJ	0.10 U	NA	NA	NA	NA	
Benzo(a)Pyrene		NA	0.10 UJ	NA	NA	0.10 UJ	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Indeno(1,2,3-cd)Pyrene		NA	0.10 UJ	NA	NA	0.10 UJ	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Dibenz(a,h)Anthracene		NA	0.10 UJ	NA	NA	0.10 UJ	0.10 U	0.10 UJ	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	
Benzo(g,h,i)Perylene		NA	1.0 U	NA	NA	1.0 U	1.0 U	1.0 U	0.10 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
1-Methylnaphthalene		NA	31.1	NA	NA	1.0 U	1.0 U	7.2	NA	34	27	34	12	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Total Benzofluoranthenes		NA	0.20 UJ	NA	NA	0.20 UJ	0.20 U	0.20 UJ	0.10 U	NA	NA	NA	NA	NA	0.10 U	0.10 U	0.10 U	0.10 U	
cPAH TEQ (a)	0.1 (b)	NA	ND	NA	NA	ND	ND	0.001	0.040	0.0264	0.015	0.014	ND	ND	ND	ND	ND	ND	
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	NA	0.076	NA	NA	0.076	0.076	0.08	0.110	0.096	0.085	0.084	0.076	0.076	0.071	0.071	0.071	0.071	
<b>PENTACHLOROPHENOL (µg/L)</b>																			
<b>EPA Method SW8041A</b>																			
Pentachlorophenol	3	NA	0.25 U	NA	NA	1.31 J+	0.25 U	0.25 U	0.10 U	0.22 U	0.25 U	2.9	0.26 U	0.25 U	0.25 U	0.25 U	1.0	0.25 U	
<b>PETROLEUM HYDROCARBONS</b>																			
<b>Method NWTPH-Gx (µg/L)</b>																			
Gasoline Range Organics	1,000	3,120 (f)	1,090 (f)	1,060 (f)	951 (f)	3,950 (f)	100 U	3,090 (f)	83	750	630	1,000	250 U	250 U	250 U	250 U	250 U	250 U	
<b>Method NWTPH-DxSG (µg/L) (g)</b>																			
Diesel Range Organics	500	NA	412	NA	NA	100 UJ	100 U	985	100 U	250 U	290	270	250 U	250 U	100 U	100 U	100 U	100 U	
Motor Oil Range Organics	500	NA	200 U	NA	NA	200 UJ	200 U	1,000 U	500 U	500 U	500 U	500 U	250 U	500 U	200 U	200 U	200 U	200 U	
Creosote Oil Range Organics	500	NA	2,460	NA	NA	200 UJ	200 U	4,040	471	NA	1,100	960	500 U	250 U	100 U	200 U	200 U	200 U	
<b>BTEX (µg/L)</b>																			
<b>Method SW8021B/SW021B MOD</b>																			
Benzene	5	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Toluene	1,000	0.20 U	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Ethylbenzene	700	3.71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
m, p-Xylene	1,000	2.98	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
o-Xylene	1,000	2.28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
<b>Field Parameters</b>																			
Temperature (°C)		NA	NA	NA	NA	16.7	10.2	17.40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Conductivity (µS/cm)		NA	NA	NA	NA	158.3	167.00	198.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	0.5	2.30	0.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
pH (SU)		NA	NA	NA	NA	7.19	7.5	7.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	25.00	-41.8	-174.30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	

TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON

Table with columns for Cleanup Screening Levels for Groundwater and 18 monitoring wells (VP53B through 20C0265-06). Rows list various pollutants including POLYCYCLIC AROMATIC HYDROCARBONS (PAHs), PENTACHLOROPHENOL, PETROLEUM HYDROCARBONS, and BTEX, along with their respective concentrations and units.

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

	Cleanup Screening Levels for Groundwater	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13	CW-13
		2010229-06 9/17/2020	21C0181-06 3/10/2021	2110239-16 9/16/2021	22C0440-01 3/23/2022	2210247-02 9/16/2022	23C0181-09 3/8/2023	2310388-03 9/14/2023
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>								
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>								
Naphthalene	4,900	1.2	1.0 U	1.7	1.0 U	1.0 U	1.0 U	13.2
2-Methylnaphthalene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acenaphthene		4.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.3
Dibenzofuran		2.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.2
Fluorene		1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.6
Pentachlorophenol	3	10.0 U	10.0 UJ	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Phenanthrene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.4 J
Carbazole		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3
Anthracene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Fluoranthene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Pyrene	2,600	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	1.0 U	1.0 U
Benzo(a)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Chrysene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(b)Fluoranthene		NA	NA	NA	NA	NA	NA	NA
Benzo(k)Fluoranthene		NA	NA	NA	NA	NA	NA	NA
Benzo(a)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Indeno(1,2,3-cd)Pyrene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Dibenz(a,h)Anthracene		0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Benzo(g,h,i)Perylene		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1-Methylnaphthalene		1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.1
Total Benzofluoranthenes		0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
cPAH TEQ (a)	0.1 (b)	ND	ND	ND	ND	ND	ND	ND
cPAH TEQ (a) (Using 1/2 RL for ND)	0.1 (b)	0.076	0.076	0.076	0.076	0.076	0.076	0.076
<b>PENTACHLOROPHENOL (µg/L)</b>								
<b>EPA Method SW8041A</b>								
Pentachlorophenol	3	0.25 UJ	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
<b>PETROLEUM HYDROCARBONS</b>								
<b>Method NWTPH-Gx (µg/L)</b>								
Gasoline Range Organics	1,000	100 U	100 U	100 U	100 U	100 U	100 U	100 U
<b>Method NWTPH-DxSG (µg/L) (g)</b>								
Diesel Range Organics	500	100 U	100 U	100 U	100 U	100 UJ	100 U	108
Motor Oil Range Organics	500	200 U	200 U	200 U	200 U	200 UJ	200 U	200 U
Creosote Oil Range Organics	500	200 U	200 U	200 U	200 U	200 UJ	200 U	411
<b>BTEX (µg/L)</b>								
<b>Method SW8021B/SW021B MOD</b>								
Benzene	5	NA	NA	NA	NA	NA	NA	NA
Toluene	1,000	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	700	NA	NA	NA	NA	NA	NA	NA
m, p-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA
o-Xylene	1,000	NA	NA	NA	NA	NA	NA	NA
<b>Field Parameters</b>								
Temperature (°C)		NA	NA	NA	NA	17.20	9.4	21.40
Conductivity (µS/cm)		NA	NA	NA	NA	394.0	367.0	30.87
Dissolved Oxygen (DO; mg/L)		NA	NA	NA	NA	1.0	0.56	0.2
pH (SU)		NA	NA	NA	NA	8.1	7.60	7.9
Oxygen Reduction Potential (ORP; mV)		NA	NA	NA	NA	26.10	-22.9	-243.0

**TABLE C-1  
HISTORICAL ANALYTICAL RESULTS  
GROUNDWATER COMPLIANCE MONITORING  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

BTEX = benzene, toluene, ethylbenzene, and xylenes

cPAH = carcinogenic polycyclic aromatic hydrocarbon

µg/L = micrograms per liter

µS/cm = microSiemens per centimeter

mg/L = milligrams per liter

mV = millivolt

EPA = US Environmental Protection Agency

MTCA = Model Toxics Control Act

NA = not analyzed

ND = not detected

NM = not measured

NWTPH-Dx = total petroleum hydrocarbons diesel range

NWTPH-Gx = TPH gasoline range

PCP = pentachlorophenol

RL = reporting limit

SIM = select ion monitoring

SU = standard units

WAC = Washington Administrative Code

U = Indicates the compound was undetected at the given reporting limit.

J = Indicates the analyte was positively identified; the associated numerical

value is the approximate concentration of the analyte in the sample.

J+ = The result is an estimated quantity and the result may be biased high.

UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

E = The reported concentration is an estimate; the result exceeded the instrument calibration range.

**Bold** indicates detected compound. **Box** indicates exceedance of screening levels.

**Box** indicates exceedance of screening level.

(a) Toxicity equivalency factor (TEQ) as described in WAC 173-340-708 (8).

(b) cPAH cleanup screening levels based on practical quantitation limit (PQL) for individual cPAHs.

(c) The gasoline-range organics result for this sample consisted of a solitary peak, identified by GCMS as toluene.

(d) The sample contains gasoline-range organics, which do not appear to be automotive gasoline.

(e) Verification sample analyzed using SW8270-SIM.

(f) Follow up data review of laboratory chromatograms by ARL analysts identified the peak in the gasoline range organics as naphthalene.

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
1	11/8/2006	--	PZ-13	4.67	19.50	14.83	--		
	11/8/2006	--	PZ-12	4.02	19.00	14.98	15.50	No	
	12/31/2006	--	PZ-13	5.56	19.50	13.94	--		
	12/31/2006	--	PZ-12	3.91	19.00	15.09	15.50	No	
	3/2/2007	--	PZ-13	6.06	19.50	13.44	--		
	3/2/2007	--	PZ-12	4.04	19.00	14.96	15.50	No	
	3/31/2007	--	PZ-13	6.39	19.50	13.11	--		
	3/31/2007	--	PZ-12	4.03	19.00	14.97	15.50	No	
	4/23/2007	--	PZ-13	6.58	19.50	12.92	--		
	4/23/2007	--	PZ-12	4.42	19.00	14.58	15.50	No	
	5/28/2007	--	PZ-13	7.36	19.50	12.14	--		
	5/28/2007	--	PZ-12	4.88	19.00	14.12	15.50	No	
	6/30/2007	--	PZ-13	7.33	19.50	12.17	--		
	6/30/2007	--	PZ-12	5.11	19.00	13.89	15.50	No	
	8/1/2007	--	PZ-13	7.19	19.50	12.31	--		
	8/1/2007	--	PZ-12	5.10	19.00	13.90	15.50	No	
	9/29/2007	--	PZ-13	7.32	19.50	12.18	--		
	9/29/2007	--	PZ-12	5.63	19.00	13.37	15.50	No	
	11/22/2007	--	PZ-13	6.91	19.50	12.59	--		
	11/22/2007	--	PZ-12	5.27	19.00	13.73	15.50	No	
	1/26/2008	--	PZ-13	5.99	19.50	13.51	--		
	1/26/2008	--	PZ-12	3.93	19.00	15.07	15.50	No	
	2/28/2008	--	PZ-13	6.44	19.50	13.06	--		
	2/28/2008	--	PZ-12	3.69	19.00	15.31	15.50	No	
	3/19/2008	--	PZ-13	6.71	19.50	12.79	--		
	3/19/2008	--	PZ-12	3.84	19.00	15.16	15.50	No	
	4/28/2008	--	PZ-13	7.19	19.50	12.31	--		
	4/28/2008	--	PZ-12	4.00	19.00	15.00	15.50	No	
	5/31/2008	--	PZ-13	7.39	19.50	12.11	--		
	5/31/2008	--	PZ-12	4.43	19.00	14.57	15.50	No	
	6/30/2008	--	PZ-13	7.26	19.50	12.24	--		
	6/30/2008	--	PZ-12	4.58	19.00	14.42	15.50	No	
	7/12/2008	--	PZ-13	7.36	19.50	12.14	--		
	7/12/2008	--	PZ-12	4.72	19.00	14.28	15.50	No	
	8/28/2008	--	PZ-13	7.34	19.50	12.16	--		
	8/28/2008	--	PZ-12	5.23	19.00	13.77	15.50	No	
	9/20/2008	--	PZ-13	7.32	19.50	12.18	--		
	9/20/2008	--	PZ-12	5.39	19.00	13.61	15.50	No	
	10/12/2008	--	PZ-13	8.36	19.50	11.14	--		
	10/12/2008	--	PZ-12	5.51	19.00	13.49	15.50	No	
	11/30/2008	--	PZ-13	6.42	19.50	13.08	--		



**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	11/30/2008	--	PZ-12	4.83	19.00	14.17	15.50	No	
	12/31/2008	--	PZ-13	6.42	19.50	13.08	--		
	12/31/2008	--	PZ-12	4.83	19.00	14.17	15.50	No	
	1/31/2009	--	PZ-13	6.57	19.50	12.93	--		
	1/31/2009	--	PZ-12	4.39	19.00	14.61	15.50	No	
	2/23/2009	--	PZ-13	6.95	19.50	12.55	--		
	2/23/2009	--	PZ-12	4.59	19.00	14.41	15.50	No	
	3/29/2009	--	PZ-13	6.68	19.50	12.82	--		
	3/29/2009	--	PZ-12	4.28	19.00	14.72	15.50	No	
	4/18/2009	--	PZ-13	7.61	19.50	11.89	--		
	4/18/2009	--	PZ-12	4.31	19.00	14.69	15.50	No	
	5/16/2009	--	PZ-13	6.62	19.50	12.88	--		
	5/16/2009	--	PZ-12	4.10	19.00	14.90	15.50	No	
	6/21/2009	--	PZ-13	7.03	19.50	12.47	--		
	6/21/2009	--	PZ-12	4.58	19.00	14.42	15.50	No	
	7/20/2009	--	PZ-13	7.09	19.50	12.41	--		
	7/20/2009	--	PZ-12	4.94	19.00	14.06	15.50	No	
	8/10/2009	--	PZ-13	7.31	19.50	12.19	--		
	8/10/2009	--	PZ-12	5.18	19.00	13.82	15.50	No	
	9/7/2009	--	PZ-13	7.91	19.50	11.59	--		
	9/7/2009	--	PZ-12	5.33	19.00	13.67	15.50	No	
	10/10/2009	--	PZ-13	7.45	19.50	12.05	--		
	10/10/2009	--	PZ-12	5.85	19.00	13.15	15.50	No	
	11/28/2009	--	PZ-13	5.99	19.50	13.51	--		
	11/28/2009	--	PZ-12	4.74	19.00	14.26	15.50	No	
	12/31/2009	--	PZ-13	6.06	19.50	13.44	--		
	12/31/2009	--	PZ-12	4.70	19.00	14.30	15.50	No	
	1/14/2010	--	PZ-13	5.20	19.50	14.30	--		
	1/14/2010	--	PZ-12	4.16	19.00	14.84	15.50	No	
	2/21/2010	--	PZ-13	6.04	19.50	13.46	--		
	2/21/2010	--	PZ-12	4.01	19.00	14.99	15.50	No	
	3/17/2010	--	PZ-13	6.40	19.50	13.10	--		
	3/17/2010	--	PZ-12	3.98	19.00	15.02	15.50	No	
	4/25/2010	--	PZ-13	6.65	19.50	12.85	--		
	4/25/2010	--	PZ-12	4.06	19.00	14.94	15.50	No	
	5/16/2010	--	PZ-13	6.99	19.50	12.51	--		
	5/16/2010	--	PZ-12	4.15	19.00	14.85	15.50	No	
	6/26/2010	--	PZ-13	6.83	19.50	12.67	--		
	6/26/2010	--	PZ-12	4.47	19.00	14.53	15.50	No	
	7/23/2010	--	PZ-13	7.33	19.50	12.17	--		
	7/23/2010	--	PZ-12	4.91	19.00	14.09	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/30/2010	--	PZ-13	7.49	19.50	12.01	--		
	8/30/2010	--	PZ-12	5.17	19.00	13.83	15.50	No	
	9/30/2010	--	PZ-13	6.98	19.50	12.52	--		
	9/30/2010	--	PZ-12	5.17	19.00	13.83	15.50	No	
	10/18/2010	--	PZ-13	7.11	19.50	12.39	--		
	10/18/2010	--	PZ-12	4.91	19.00	14.09	15.50	No	
	11/29/2010	--	PZ-13	6.23	19.50	13.27	--		
	11/29/2010	--	PZ-12	4.40	19.00	14.60	15.50	No	
	12/25/2010	--	PZ-13	5.21	19.50	14.29	--		
	12/25/2010	--	PZ-12	4.08	19.00	14.92	15.50	No	
	1/29/2011	--	PZ-13	6.01	19.50	13.49	--		
	1/29/2011	--	PZ-12	4.18	19.00	14.82	15.50	No	
	2/20/2011	--	PZ-13	6.13	19.50	13.37	--		
	2/20/2011	--	PZ-12	4.28	19.00	14.72	15.50	No	
	3/24/2011	--	PZ-13	5.23	19.50	14.27	--		
	3/24/2011	--	PZ-12	3.72	19.00	15.28	15.50	No	
	4/23/2011	--	PZ-13	6.18	19.50	13.32	--		
	4/23/2011	--	PZ-12	3.84	19.00	15.16	15.50	No	
	5/30/2011	--	PZ-13	6.75	19.50	12.75	--		
	5/30/2011	--	PZ-12	4.25	19.00	14.75	15.50	No	
	6/26/2011	--	PZ-13	7.21	19.50	12.29	--		
	6/26/2011	--	PZ-12	4.78	19.00	14.22	15.50	No	
	7/30/2011	--	PZ-13	7.26	19.50	12.24	--		
	7/30/2011	--	PZ-12	5.00	19.00	14.00	15.50	No	
	8/8/2011	--	PZ-13	7.17	19.50	12.33	--		
	8/8/2011	--	PZ-12	4.96	19.00	14.04	15.50	No	
	9/24/2011	--	PZ-13	7.61	19.50	11.89	--		
	9/24/2011	--	PZ-12	5.31	19.00	13.69	15.50	No	
	10/29/2011	--	PZ-13	6.85	19.50	12.65	--		
	10/29/2011	--	PZ-12	5.45	19.00	13.55	15.50	No	
	11/26/2011	--	PZ-13	4.98	19.50	14.52	--		
	11/26/2011	--	PZ-12	4.05	19.00	14.95	15.50	No	
	12/26/2011	--	PZ-13	6.87	19.50	12.63	--		
	12/26/2011	--	PZ-12	5.27	19.00	13.73	15.50	No	
	1/28/2012	--	PZ-13	4.60	19.50	14.90	--		
	1/28/2012	--	PZ-12	3.55	19.00	15.45	15.50	No	
	2/26/2012	--	PZ-13	5.77	19.50	13.73	--		
	2/26/2012	--	PZ-12	3.95	19.00	15.05	15.50	No	
	3/7/2012	--	PZ-13	6.64	19.50	12.86	--		
	3/7/2012	--	PZ-12	4.20	19.00	14.80	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/21/2012	--	PZ-13	6.15	19.50	13.35	--		
	4/21/2012	--	PZ-12	4.09	19.00	14.91	15.50	No	
	5/19/2012	--	PZ-13	6.83	19.50	12.67	--		
	5/19/2012	--	PZ-12	4.32	19.00	14.68	15.50	No	
	6/30/2012	--	PZ-13	6.89	19.50	12.61	--		
	6/30/2012	--	PZ-12	4.12	19.00	14.88	15.50	No	
	7/27/2012	--	PZ-13	7.15	19.50	12.35	--		
	7/27/2012	--	PZ-12	4.05	19.00	14.95	15.50	No	
	8/12/2012	--	PZ-13	7.29	19.50	12.21	--		
	8/12/2012	--	PZ-12	3.93	19.00	15.07	15.50	No	
	9/30/2012	--	PZ-13	7.22	19.50	12.28	--		
	9/30/2012	--	PZ-12	3.97	19.00	15.03	15.50	No	
	10/24/2012	--	PZ-13	6.81	19.50	12.69	--		
	10/24/2012	--	PZ-12	4.13	19.00	14.87	15.50	No	
	11/24/2012	--	PZ-13	5.04	19.50	14.46	--		
	11/24/2012	--	PZ-12	3.52	19.00	15.48	15.50	No	
	12/30/2012	--	PZ-13	5.15	19.50	14.35	--		
	12/30/2012	--	PZ-12	3.56	19.00	15.44	15.50	No	
	1/25/2013	--	PZ-13	6.57	19.50	12.93	--		
	1/25/2013	--	PZ-12	4.11	19.00	14.89	15.50	No	
	2/9/2013	--	PZ-13	6.68	19.50	12.82	--		
	2/9/2013	--	PZ-12	4.38	19.00	14.62	15.50	No	
	3/31/2013	--	PZ-13	6.85	19.50	12.65	--		
	3/31/2013	--	PZ-12	NA	19.00	NA	15.50	--	covered with railcar
	4/29/2013	--	PZ-13	6.90	19.50	12.60	--		
	4/29/2013	--	PZ-12	NA	19.00	NA	15.50	--	rail cars over well
	5/31/2013	--	PZ-13	6.96	19.50	12.54	--		
	5/31/2013	--	PZ-12	5.09	19.00	13.91	15.50	No	
	6/9/2013	--	PZ-13	7.17	19.50	12.33	--		
	6/9/2013	--	PZ-12	5.16	19.00	13.84	15.50	No	
	7/21/2013	--	PZ-13	7.07	19.50	12.43	--		
	7/21/2013	--	PZ-12	5.47	19.00	13.53	15.50	No	
	8/29/2013	--	PZ-13	7.37	19.50	12.13	--		
	8/29/2013	--	PZ-12	5.76	19.00	13.24	15.50	No	
	9/21/2013	--	PZ-13	7.00	19.50	12.50	--		
	9/21/2013	--	PZ-12	5.71	19.00	13.29	15.50	No	
	10/6/2013	--	PZ-13	5.69	19.50	13.81	--		
	10/6/2013	--	PZ-12	4.85	19.00	14.15	15.50	No	
	11/10/2013	--	PZ-13	6.67	19.50	12.83	--		
	11/10/2013	--	PZ-12	5.69	19.00	13.31	15.50	No	
	12/15/2013	--	PZ-13	7.05	19.50	12.45	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/15/2013	--	PZ-12	5.90	19.00	13.10	15.50	No	
	1/5/2014	--	PZ-13	7.03	19.50	12.47	--		
	1/5/2014	--	PZ-12	6.05	19.00	12.95	15.50	No	
	2/1/2014	--	PZ-13	6.53	19.50	12.97	--		
	2/1/2014	--	PZ-12	5.69	19.00	13.31	15.50	No	
	3/1/2014	--	PZ-13	5.59	19.50	13.91	--		
	3/1/2014	--	PZ-12	5.03	19.00	13.97	15.50	No	
	4/6/2014	--	PZ-13	6.08	19.50	13.42	--		
	4/6/2014	--	PZ-12	4.90	19.00	14.10	15.50	No	
	5/17/2014	--	PZ-13	6.49	19.50	13.01	--		
	5/17/2014	--	PZ-12	4.88	19.00	14.12	15.50	No	
	6/22/2014	--	PZ-13	7.19	19.50	12.31	--		
	6/22/2014	--	PZ-12	5.41	19.00	13.59	15.50	No	
	7/5/2014	--	PZ-13	7.34	19.50	12.16	--		
	7/5/2014	--	PZ-12	5.57	19.00	13.43	15.50	No	
	8/12/2014	--	PZ-13	7.19	19.50	12.31	--		
	8/12/2014	--	PZ-12	5.97	19.00	13.03	15.50	No	
	9/23/2014	--	PZ-13	7.32	19.50	12.18	--		
	9/23/2014	--	PZ-12	6.20	19.00	12.80	15.50	No	
	10/11/2014	--	PZ-13	6.83	19.50	12.67	--		
	10/11/2014	--	PZ-12	6.20	19.00	12.80	15.50	No	
	11/9/2014	--	PZ-13	5.79	19.50	13.71	--		
	11/9/2014	--	PZ-12	5.71	19.00	13.29	15.50	No	
	12/7/2014	--	PZ-13	5.93	19.50	13.57	--		
	12/7/2014	--	PZ-12	5.56	19.00	13.44	15.50	No	
	1/3/2015	--	PZ-13	6.17	19.50	13.33	--		
	1/3/2015	--	PZ-12	5.34	19.00	13.66	15.50	No	
	2/14/2015	--	PZ-13	5.90	19.50	13.60	--		
	2/14/2015	--	PZ-12	5.05	19.00	13.95	15.50	No	
	3/9/2015	--	PZ-13	7.01	19.50	12.49	--		
	3/9/2015	--	PZ-12	5.46	19.00	13.54	15.50	No	
	4/5/2015	--	PZ-13	6.74	19.50	12.76	--		
	4/5/2015	--	PZ-12	5.18	19.00	13.82	15.50	No	
	5/16/2015	--	PZ-13	7.21	19.50	12.29	--		
	5/16/2015	--	PZ-12	5.71	19.00	13.29	15.50	No	
	6/7/2015	--	PZ-13	7.21	19.50	12.29	--		
	6/7/2015	--	PZ-12	5.90	19.00	13.10	15.50	No	
	7/7/2015	--	PZ-13	7.02	19.50	12.48	--		
	7/7/2015	--	PZ-12	6.16	19.00	12.84	15.50	No	
	8/1/2015	--	PZ-13	7.23	19.50	12.27	--		
	8/1/2015	--	PZ-12	6.38	19.00	12.62	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	9/24/2015	--	PZ-13	7.49	19.50	12.01	--		
	9/24/2015	--	PZ-12	6.76	19.00	12.24	15.50	No	
	10/16/2015	--	PZ-13	7.08	19.50	12.42	--		
	10/16/2015	--	PZ-12	6.64	19.00	12.36	15.50	No	
	11/3/2015	--	PZ-13	6.41	19.50	13.09	--		
	11/3/2015	--	PZ-12	6.22	19.00	12.78	15.50	No	
	12/4/2015	--	PZ-13	5.77	19.50	13.73	--		
	12/4/2015	--	PZ-12	5.41	19.00	13.59	15.50	No	
	1/15/2016	--	PZ-13	5.71	19.50	13.79	--		
	1/15/2016	--	PZ-12	4.84	19.00	14.16	15.50	No	
	2/16/2016	--	PZ-13	5.30	19.50	14.20	--		
	2/16/2016	--	PZ-12	5.35	19.00	13.65	15.50	No	
	3/19/2016	--	PZ-13	5.00	19.50	14.50	--		
	3/19/2016	--	PZ-12	3.81	19.00	15.19	15.50	No	
	4/3/2016	--	PZ-13	6.31	19.50	13.19	--		
	4/3/2016	--	PZ-12	4.01	19.00	14.99	15.50	No	
	5/14/2016	--	PZ-13	7.04	19.50	12.46	--		
	5/14/2016	--	PZ-12	4.64	19.00	14.36	15.50	No	
	6/12/2016	--	PZ-13	7.07	19.50	12.43	--		
	6/12/2016	--	PZ-12	4.70	19.00	14.30	15.50	No	
	7/5/2016	--	PZ-13	7.11	19.50	12.39	--		
	7/5/2016	--	PZ-12	4.87	19.00	14.13	15.50	No	
	8/6/2016	--	PZ-13	7.30	19.50	12.20	--		
	8/6/2016	--	PZ-12	5.02	19.00	13.98	15.50	No	
	9/4/2016	--	PZ-13	7.32	19.50	12.18	--		
	9/4/2016	--	PZ-12	5.14	19.00	13.86	15.50	No	
	10/1/2016	--	PZ-13	7.27	19.50	12.23	--		
	10/1/2016	--	PZ-12	5.26	19.00	13.74	15.50	No	Downpour of rain from 1155-1225 halted work.
	11/6/2016	--	PZ-13	7.43	19.50	12.07	--		
	11/6/2016	--	PZ-12	4.11	19.00	14.89	15.50	No	
	12/17/2016	--	PZ-13	5.44	19.50	14.06	--		
	12/17/2016	--	PZ-12	4.02	19.00	14.98	15.50	No	
	1/21/2017	--	PZ-13	5.34	19.50	14.16	--		
	1/21/2017	--	PZ-12	3.65	19.00	15.35	15.50	No	
	2/2/2017	--	PZ-13	5.94	19.50	13.56	--		
	2/2/2017	--	PZ-12	4.06	19.00	14.94	15.50	No	
	2/28/2017	--	PZ-13	5.36	19.50	14.14	--		
	2/28/2017	--	PZ-12	3.69	19.00	15.31	15.50	No	
	3/30/2017	--	PZ-13	4.34	19.50	15.16	--		
	3/30/2017	--	PZ-12	3.14	19.00	15.86	15.50	Yes	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/30/2017	--	PZ-13	5.69	19.50	13.81	--		
	4/30/2017	--	PZ-12	3.50	19.00	15.50	15.50	Yes	
	5/21/2017	--	PZ-13	6.27	19.50	13.23	--		
	5/21/2017	--	PZ-12	3.64	19.00	15.36	15.50	No	
	6/6/2017	--	PZ-13	6.64	19.50	12.86	--		
	6/6/2017	--	PZ-12	3.87	19.00	15.13	15.50	No	
	7/8/2017	--	PZ-13	7.06	19.50	12.44	--		
	7/8/2017	--	PZ-12	4.17	19.00	14.83	15.50	No	
	8/4/2017	--	PZ-13	7.18	19.50	12.32	--		
	8/4/2017	--	PZ-12	4.43	19.00	14.57	15.50	No	
	9/9/2017	--	PZ-13	7.12	19.50	12.38	--		
	9/9/2017	--	PZ-12	4.77	19.00	14.23	15.50	No	
	10/11/2017	--	PZ-13	7.32	19.50	12.18	--		
	10/11/2017	--	PZ-12	5.04	19.00	13.96	15.50	No	
	11/12/2017	--	PZ-13	6.01	19.50	13.49	--		
	11/12/2017	--	PZ-12	4.15	19.00	14.85	15.50	No	
	12/16/2017	--	PZ-13	6.34	19.50	13.16	--		
	12/16/2017	--	PZ-12	4.07	19.00	14.93	15.50	No	
	1/1/2018	--	PZ-13	5.12	19.50	14.38	--		
	1/1/2018	--	PZ-12	3.62	19.00	15.38	15.50	No	
	2/10/2018	--	PZ-13	5.73	19.50	13.77	--		
	2/10/2018	--	PZ-12	3.61	19.00	15.39	15.50	No	
	3/8/2018	--	PZ-13	6.19	19.50	13.31	--		
	3/8/2018	--	PZ-12	3.61	19.00	15.39	15.50	No	
	4/27/2018	--	PZ-13	5.99	19.50	13.51	--		
	4/27/2018	--	PZ-12	3.65	19.00	15.35	15.50	No	
	5/28/2018	--	PZ-13	6.93	19.50	12.57	--		
	5/28/2018	--	PZ-12	4.06	19.00	14.94	15.50	No	
	6/29/2018	--	PZ-13	7.15	19.50	12.35	--		
	6/29/2018	--	PZ-12	4.31	19.00	14.69	15.50	No	
	7/15/2018	--	PZ-13	6.93	19.50	12.57	--		
	7/15/2018	--	PZ-12	4.34	19.00	14.66	15.50	No	
	8/12/2018	--	PZ-13	6.94	19.50	12.56	--		
	8/12/2018	--	PZ-12	4.58	19.00	14.42	15.50	No	
	9/12/2018	--	PZ-13	7.06	19.50	12.44	--		
	9/12/2018	--	PZ-12	4.74	19.00	14.26	15.50	No	
	10/6/2018	--	PZ-13	7.12	19.50	12.38	--		
	10/6/2018	--	PZ-12	4.77	19.00	14.23	15.50	No	
	11/4/2018	--	PZ-13	6.63	19.50	12.87	--		
	11/4/2018	--	PZ-12	4.44	19.00	14.56	15.50	No	

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CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/2/2018	--	PZ-13	5.72	19.50	13.78	--		
	12/2/2018	--	PZ-12	4.38	19.00	14.62	15.50	No	
	1/1/2019	--	PZ-13	5.44	19.50	14.06	--		
	1/1/2019	--	PZ-12	4.12	19.00	14.88	15.50	No	
	2/2/2019	--	PZ-13	5.89	19.50	13.61	--		
	2/2/2019	--	PZ-12	4.02	19.00	14.98	15.50	No	
	3/11/2019	--	PZ-13	6.45	19.50	13.05	--		
	3/11/2019	--	PZ-12	4.10	19.00	14.90	15.50	No	
	4/7/2019	--	PZ-13	6.57	19.50	12.93	--		
	4/7/2019	--	PZ-12	4.05	19.00	14.95	15.50	No	
	5/19/2019	--	PZ-13	6.80	19.50	12.70	--		
	5/19/2019	--	PZ-12	4.50	19.00	14.50	15.50	No	
	6/9/2019	--	PZ-13	7.23	19.50	12.27	--		
	6/9/2019	--	PZ-12	4.71	19.00	14.29	15.50	No	
	7/30/2019	--	PZ-13	7.44	19.50	12.06	--		
	7/30/2019	--	PZ-12	4.95	19.00	14.05	15.50	No	
	8/27/2019	--	PZ-13	7.60	19.50	11.90	--		
	8/27/2019	--	PZ-12	5.10	19.00	13.90	15.50	No	
	9/25/2019	--	PZ-13	7.37	19.50	12.13	--		
	9/25/2019	--	PZ-12	5.02	19.00	13.98	15.50	No	
	10/22/2019	--	PZ-13	6.70	19.50	12.80	--		
	10/22/2019	--	PZ-12	4.45	19.00	14.55	15.50	No	
	11/8/2019	--	PZ-13	7.28	19.50	12.22	--		
	11/8/2019	--	PZ-12	4.92	19.00	14.08	15.50	No	
	12/8/2019	--	PZ-13	6.92	19.50	12.58	--		
	12/8/2019	--	PZ-12	5.17	19.00	13.83	15.50	No	
	1/5/2020	--	PZ-13	5.50	19.50	14.00	--		
	1/5/2020	--	PZ-12	4.17	19.00	14.83	15.50	No	
	2/21/2020	--	PZ-13	6.24	19.50	13.26	--		
	2/21/2020	--	PZ-12	3.81	19.00	15.19	15.50	No	
	3/19/2020	--	PZ-13	6.79	19.50	12.71	--		
	3/19/2020	--	PZ-12	4.30	19.00	14.70	15.50	No	
	4/5/2020	--	PZ-13	6.62	19.50	12.88	--		
	4/5/2020	--	PZ-12	3.90	19.00	15.10	15.50	No	
	5/10/2020	--	PZ-13	6.59	19.50	12.91	--		
	5/10/2020	--	PZ-12	4.04	19.00	14.96	15.50	No	
	6/13/2020	--	PZ-13	6.83	19.50	12.67	--		
	6/13/2020	--	PZ-12	4.10	19.00	14.90	15.50	No	
	7/4/2020	--	PZ-13	6.90	19.50	12.60	--		
	7/4/2020	--	PZ-12	4.21	19.00	14.79	15.50	No	
	8/9/2020	--	PZ-13	7.26	19.50	12.24	--		

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CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/9/2020	--	PZ-12	4.44	19.00	14.56	15.50	No	
	9/17/2020	--	PZ-13	7.17	19.50	12.33	--		
	9/17/2020	--	PZ-12	4.57	19.00	14.43	15.50	No	
	10/22/2020	--	PZ-13	6.37	19.50	13.13	--		
	10/22/2020	--	PZ-12	4.12	19.00	14.88	15.50	No	
	11/14/2020	--	PZ-13	5.85	19.50	13.65	--		
	11/14/2020	--	PZ-12	3.57	19.00	15.43	15.50	No	
	12/12/2020	--	PZ-13	6.49	19.50	13.01	--		
	12/12/2020	--	PZ-12	3.82	19.00	15.18	15.50	No	
	1/16/2021	--	PZ-13	3.74	19.50	15.76	--		
	1/16/2021	--	PZ-12	2.82	19.00	16.18	15.50	Yes	
	2/6/2021	--	PZ-13	4.61	19.50	14.89	--		
	2/6/2021	--	PZ-12	2.82	19.00	16.18	15.50	Yes	
	3/10/2021	--	PZ-13	5.54	19.50	13.96	--		
	3/10/2021	--	PZ-12	2.97	19.00	16.03	15.50	Yes	
	4/23/2021	--	PZ-13	6.96	19.50	12.54	--		
	4/23/2021	--	PZ-12	3.39	19.00	15.61	15.50	Yes	
	5/16/2021	--	PZ-13	7.03	19.50	12.47	--		
	5/16/2021	--	PZ-12	3.54	19.00	15.46	15.50	No	
	6/5/2021	--	PZ-13	6.94	19.50	12.56	--		
	6/5/2021	--	PZ-12	3.67	19.00	15.33	15.50	No	
	7/24/2021	--	PZ-13	6.81	19.50	12.69	--		
	7/24/2021	--	PZ-12	3.90	19.00	15.10	15.50	No	
	8/19/2021	--	PZ-13	4.05	19.50	15.45	--		
	8/19/2021	--	PZ-12	7.17	19.00	11.83	15.50	No	
	9/16/2021	--	PZ-13	7.41	19.50	12.09	--		
	9/16/2021	--	PZ-12	4.30	19.00	14.70	15.50	No	
	10/2/2021	--	PZ-13	7.34	19.50	12.16	--		
	10/2/2021	--	PZ-12	4.11	19.00	14.89	15.50	No	
	11/13/2021	--	PZ-13	4.15	19.50	15.35	--		
	11/13/2021	--	PZ-12	3.04	19.00	15.96	15.50	Yes	
	12/5/2021	--	PZ-13	5.19	19.50	14.31	--		
	12/5/2021	--	PZ-12	3.17	19.00	15.83	15.50	Yes	
	1/8/2022	--	PZ-13	2.81	19.50	16.69	--		
	1/8/2022	--	PZ-12	2.21	19.00	16.79	15.50	Yes	
	2/20/2022	--	PZ-13	6.57	19.50	12.93	--		
	2/20/2022	--	PZ-12	3.25	19.00	15.75	15.50	Yes	
	3/24/2022	--	PZ-13	5.81	19.50	13.69	--		
	3/24/2022	--	PZ-12	2.99	19.00	16.01	15.50	Yes	
	4/7/2022	--	PZ-13	5.91	19.50	13.59	--		
	4/7/2022	--	PZ-12	2.97	19.00	16.03	15.50	Yes	



**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	5/25/2022	--	PZ-13	6.26	19.50	13.24	--		
	5/25/2022	--	PZ-12	3.12	19.00	15.88	15.50	Yes	
	6/11/2022	--	PZ-13	5.81	19.50	13.69	--		
	6/11/2022	--	PZ-12	2.86	19.00	16.14	15.50	Yes	
	7/4/2022	--	PZ-13	6.58	19.50	12.92	--		
	7/4/2022	--	PZ-12	3.33	19.00	15.67	15.50	Yes	
	8/6/2022	--	PZ-13	7.02	19.50	12.48	--		
	8/6/2022	--	PZ-12	3.68	19.00	15.32	15.50	No	
	9/15/2022	9:01	PZ-13	7.03	19.50	12.47	--		
	9/15/2022	9:00	PZ-12	4.00	19.00	15.00	15.50	No	
	10/21/2022	(g)	PZ-13	7.54	19.50	11.96	--		
	10/21/2022	(g)	PZ-12	4.23	19.00	14.77	15.50	No	
	11/5/2022	(h)	PZ-13	5.97	19.50	13.53	--		
	11/5/2022	(h)	PZ-12	3.30	19.00	15.70	15.50	Yes	
	12/17/2022	(i)	PZ-13	6.05	19.50	13.45	--		
	12/17/2022	(i)	PZ-12	3.64	19.00	15.36	15.50	No	
	1/7/2023	(j)	PZ-13	4.72	19.50	14.78	--		
	1/7/2023	(j)	PZ-12	3.06	19.00	15.94	15.50	Yes	
	2/19/2023	(k)	PZ-13	6.31	19.50	13.19	--		
	2/19/2023	(k)	PZ-12	3.34	19.00	15.66	15.50	Yes	
	3/10/2023	8:41	PZ-13	3.13	19.50	16.37	--		
	3/10/2023	8:40	PZ-12	6.00	19.00	13.00	15.50	No	
	4/22/2023	15:40	PZ-13	5.22	19.50	14.28	--		
	4/22/2023	15:45	PZ-12	2.80	19.00	16.20	15.50	Yes	
	5/6/2023	10:48	PZ-13	6.05	19.50	13.45	--		
	5/6/2023	10:53	PZ-12	3.07	19.00	15.93	15.50	Yes	
	6/27/2023	18:03	PZ-13	7.11	19.50	12.39	--		
	6/27/2023	18:10	PZ-12	3.52	19.00	15.48	15.50	No	
	7/4/2023	10:21	PZ-13	6.75	19.50	12.75	--		
	7/4/2023	10:27	PZ-12	3.61	19.00	15.39	15.50	No	
	8/19/2023	13:04	PZ-13	6.98	19.50	12.52	--		
	8/19/2023	13:13	PZ-12	3.93	19.00	15.07	15.50	No	
	9/14/2023	12:36	PZ-13	7.30	19.50	12.20	--		
	9/14/2023	12:39	PZ-12	4.16	19.00	14.84	15.50	No	
2	11/8/2006	--	PZ-17	7.58	20.48	12.90	--		
	11/8/2006	--	LW-3	5.62	20.36	14.74	15.50	No	
	12/31/2006	--	PZ-17	6.98	20.48	13.50	--		
	12/31/2006	--	LW-3	4.97	20.36	15.39	15.50	No	
	3/2/2007	--	PZ-17	6.94	20.48	13.54	--		
	3/2/2007	--	LW-3	4.97	20.36	15.39	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/31/2007	--	PZ-17	6.87	20.48	13.61	--		
	3/31/2007	--	LW-3	4.79	20.36	15.57	15.50	Yes	
	4/23/2007	--	PZ-17	7.05	20.48	13.43	--		
	4/23/2007	--	LW-3	4.84	20.36	15.52	15.50	Yes	
	5/28/2007	--	PZ-17	7.31	20.48	13.17	--		
	5/28/2007	--	LW-3	5.43	20.36	14.93	15.50	No	
	6/30/2007	--	PZ-17	7.48	20.48	13.00	--		
	6/30/2007	--	LW-3	5.35	20.36	15.01	15.50	No	
	8/1/2007	--	PZ-17	7.73	20.48	12.75	--		
	8/1/2007	--	LW-3	5.78	20.36	14.58	15.50	No	
	9/29/2007	--	PZ-17	7.83	20.48	12.65	--		
	9/29/2007	--	LW-3	6.38	20.36	13.98	15.50	No	
	11/22/2007	--	PZ-17	7.89	20.48	12.59	--		
	11/22/2007	--	LW-3	6.18	20.36	14.18	15.50	No	
	1/26/2008	--	PZ-17	6.87	20.48	13.61	--		
	1/26/2008	--	LW-3	4.70	20.36	15.66	15.50	Yes	
	2/28/2008	--	PZ-17	6.69	20.48	13.79	--		
	2/28/2008	--	LW-3	4.47	20.36	15.89	15.50	Yes	
	3/19/2008	--	PZ-17	6.84	20.48	13.64	--		
	3/19/2008	--	LW-3	4.58	20.36	15.78	15.50	Yes	
	4/28/2008	--	PZ-17	7.13	20.48	13.35	--		
	4/28/2008	--	LW-3	4.63	20.36	15.73	15.50	Yes	
	5/31/2008	--	PZ-17	7.68	20.48	12.80	--		
	5/31/2008	--	LW-3	5.34	20.36	15.02	15.50	No	
	6/30/2008	--	PZ-17	7.57	20.48	12.91	--		
	6/30/2008	--	LW-3	5.54	20.36	14.82	15.50	No	
	7/12/2008	--	PZ-17	7.63	20.48	12.85	--		
	7/12/2008	--	LW-3	5.70	20.36	14.66	15.50	No	
	8/28/2008	--	PZ-17	7.91	20.48	12.57	--		
	8/28/2008	--	LW-3	5.31	20.36	15.05	15.50	No	
	9/20/2008	--	PZ-17	7.99	20.48	12.49	--		
	9/20/2008	--	LW-3	6.37	20.36	13.99	15.50	No	
	10/12/2008	--	PZ-17	8.21	20.48	12.27	--		
	10/12/2008	--	LW-3	6.59	20.36	13.77	15.50	No	
	11/30/2008	--	PZ-17	8.01	20.48	12.47	--		
	11/30/2008	--	LW-3	5.73	20.36	14.63	15.50	No	
	12/31/2008	--	PZ-17	7.95	20.48	12.53	--		
	12/31/2008	--	LW-3	NM	20.36	--	15.50	--	
	1/31/2009	--	PZ-17	7.77	20.48	12.71	--		
	1/31/2009	--	LW-3	5.07	20.03	(c) 14.96	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/23/2009	--	PZ-17	7.71	20.48	12.77	--		
	2/23/2009	--	LW-3	5.58	20.03	(c) 14.45	15.50	No	
	3/29/2009	--	PZ-17	NM	20.48	--	--		
	3/29/2009	--	LW-3	6.62	20.03	(c) 13.41	15.50	--	
	4/18/2009	--	PZ-17	7.73	20.48	12.75	--		
	4/18/2009	--	LW-3	6.63	20.03	(c) 13.40	15.50	No	
	5/16/2009	--	PZ-17	7.60	20.48	12.88	--		
	5/16/2009	--	LW-3	5.05	20.03	(c) 14.98	15.50	No	
	6/21/2009	--	PZ-17	7.61	20.48	12.87	--		
	6/21/2009	--	LW-3	7.28	20.03	(c) 12.75	15.50	No	
	7/20/2009	--	PZ-17	7.79	20.48	12.69	--		
	7/20/2009	--	LW-3	6.07	20.03	(c) 13.96	15.50	No	
	8/10/2009	--	PZ-17	7.86	20.48	12.62	--		
	8/10/2009	--	LW-3	6.55	20.03	(c) 13.48	15.50	No	
	9/7/2009	--	PZ-17	8.04	20.48	12.44	--		
	9/7/2009	--	LW-3	6.69	20.03	(c) 13.34	15.50	No	
	10/10/2009	--	PZ-17	8.13	20.48	12.35	--		
	10/10/2009	--	LW-3	7.01	20.03	(c) 13.02	15.50	No	
	11/28/2009	--	PZ-17	7.77	20.48	12.71	--		
	11/28/2009	--	LW-3	7.26	20.03	(c) 12.77	15.50	No	
	12/31/2009	--	PZ-17	7.61	20.48	12.87	--		
	12/31/2009	--	LW-3	7.06	20.03	(c) 12.97	15.50	No	
	1/14/2010	--	PZ-17	7.46	20.48	13.02	--		
	1/14/2010	--	LW-3	6.81	20.03	(c) 13.22	15.50	No	
	2/21/2010	--	PZ-17	7.17	20.48	13.31	--		
	2/21/2010	--	LW-3	6.94	20.03	(c) 13.09	15.50	No	
	3/17/2010	--	PZ-17	7.22	20.48	13.26	--		
	3/17/2010	--	LW-3	6.37	20.03	(c) 13.66	15.50	--	
	4/25/2010	--	PZ-17	7.04	20.48	13.44	--		
	4/25/2010	--	LW-3	6.18	20.03	(c) 13.85	15.50	No	
	5/16/2010	--	PZ-17	7.14	20.48	13.34	--		
	5/16/2010	--	LW-3	6.22	20.03	(c) 13.81	15.50	No	
	6/26/2010	--	PZ-17	7.21	20.48	13.27	--		
	6/26/2010	--	LW-3	6.87	20.03	(c) 13.16	15.50	No	
	7/23/2010	--	PZ-17	7.35	20.48	13.13	--		
	7/23/2010	--	LW-3	6.26	20.03	(c) 13.77	15.50	No	
	8/30/2010	--	PZ-17	7.61	20.48	12.87	--		
	8/30/2010	--	LW-3	NA	19.83	(c) NA	15.50	--	
	9/30/2010	--	PZ-17	7.64	20.48	12.84	--		
	9/30/2010	--	LW-3	6.63	19.83	(c) 13.20	15.50	No	
	10/18/2010	--	PZ-17	7.76	20.48	12.72	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/18/2010	--	LW-3	5.90	19.83	(c) 13.93	15.50	No	
	11/29/2010	--	PZ-17	7.50	20.48	12.98	--		
	11/29/2010	--	LW-3	NA	19.83	(c) NA	15.50	--	
	12/25/2010	--	PZ-17	7.00	20.48	13.48	--		
	12/25/2010	--	LW-3	6.63	19.83	(c) 13.20	15.50	No	
	1/29/2011	--	PZ-17	7.00	20.48	13.48	--		
	1/29/2011	--	LW-3	6.13	19.83	(c) 13.70	15.50	No	
	2/20/2011	--	PZ-17	7.02	20.48	13.46	--		
	2/20/2011	--	LW-3	5.96	19.83	(c) 13.87	15.50	No	
	3/24/2011	--	PZ-17	6.55	20.48	13.93	--		
	3/24/2011	--	LW-3	5.72	19.83	(c) 14.11	15.50	No	
	4/23/2011	--	PZ-17	6.54	20.48	13.94	--		
	4/23/2011	--	LW-3	6.04	19.83	(c) 13.79	15.50	No	
	5/30/2011	--	PZ-17	6.70	20.48	13.78	--		
	5/30/2011	--	LW-3	5.79	19.83	(c) 14.04	15.50	No	
	6/26/2011	--	PZ-17	6.95	20.48	13.53	--		
	6/26/2011	--	LW-3	6.16	19.83	(c) 13.67	15.50	No	
	7/30/2011	--	PZ-17	7.16	20.48	13.32	--		
	7/30/2011	--	LW-3	5.30	19.83	(c) 14.53	15.50	No	
	8/8/2011	--	PZ-17	7.24	20.48	13.24	--		
	8/8/2011	--	LW-3	5.51	19.83	(c) 14.32	15.50	No	
	9/24/2011	--	PZ-17	7.45	20.48	13.03	--		
	9/24/2011	--	LW-3	5.85	19.83	(c) 13.98	15.50	No	
	10/29/2011	--	PZ-17	7.63	20.48	12.85	--		
	10/29/2011	--	LW-3	5.98	19.83	(c) 13.85	15.50	No	
	11/26/2011	--	PZ-17	7.04	20.48	13.44	--		
	11/26/2011	--	LW-3	6.83	19.83	(c) 13.00	15.50	No	
	12/26/2011	--	PZ-17	7.63	20.48	12.85	--		
	12/26/2011	--	LW-3	6.10	19.83	(c) 13.73	15.50	No	Lid stuck.
	1/28/2012	--	PZ-17	7.14	20.48	13.34	--		
	1/28/2012	--	LW-3	5.18	19.83	(c) 14.65	15.50	No	Well covered.
	2/26/2012	--	PZ-17	7.09	20.48	13.39	--		
	2/26/2012	--	LW-3	4.70	19.83	(c) 15.13	15.50	No	
	3/7/2012	--	PZ-17	7.22	20.48	13.26	--		
	3/7/2012	--	LW-3	5.17	19.83	(c) 14.66	15.50	No	
	4/21/2012	--	PZ-17	6.72	20.48	13.76	--		
	4/21/2012	--	LW-3	5.63	19.83	(c) 14.20	15.50	No	
	5/19/2012	--	PZ-17	6.88	20.48	13.60	--		
	5/19/2012	--	LW-3	5.12	19.83	(c) 14.71	15.50	No	
	6/30/2012	--	PZ-17	7.08	20.48	13.40	--		
	6/30/2012	--	LW-3	NA	19.83	(c) NA	15.50	--	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/27/2012	--	PZ-17	7.20	20.48	13.28	--		
	7/27/2012	--	LW-3	NA	19.83	(c) NA	15.50	--	
	8/12/2012	--	PZ-17	7.21	20.48	13.27	--		
	8/12/2012	--	LW-3	5.22	19.83	(c) 14.61	15.50	No	
	9/30/2012	--	PZ-17	7.57	20.48	12.91	--		
	9/30/2012	--	LW-3	NA	19.83	(c) NA	15.50	--	
	10/24/2012	--	PZ-17	7.62	20.48	12.86	--		
	10/24/2012	--	LW-3	4.06	19.83	(c) 15.77	15.50	Yes	
	11/24/2012	--	PZ-17	7.21	20.48	13.27	--		
	11/24/2012	--	LW-3	5.88	19.83	(c) 13.95	15.50	No	
	12/30/2012	--	PZ-17	6.64	20.48	13.84	--		
	12/30/2012	--	LW-3	5.51	19.83	(c) 14.32	15.50	No	
	1/25/2013	--	PZ-17	6.79	20.48	13.69	--		
	1/25/2013	--	LW-3	5.61	19.83	(c) 14.22	15.50	No	
	2/9/2013	--	PZ-17	7.02	20.48	13.46	--		
	2/9/2013	--	LW-3	5.80	19.83	(c) 14.03	15.50	No	
	3/31/2013	--	PZ-17	7.07	20.48	13.41	--		
	3/31/2013	--	LW-3	5.81	19.83	(c) 14.02	15.50	No	
	4/29/2013	--	PZ-17	7.13	20.48	13.35	--		
	4/29/2013	--	LW-3	6.01	19.83	13.82	15.50	No	
	5/31/2013	--	PZ-17	NA	20.48	NA	--		
	5/31/2013	--	LW-3	6.24	19.83	13.59	15.50	--	
	6/9/2013	--	PZ-17	7.23	20.48	13.25	--		
	6/9/2013	--	LW-3	6.18	19.83	13.65	15.50	No	
	7/21/2013	--	PZ-17	7.31	20.48	13.17	--		
	7/21/2013	--	LW-3	6.26	19.83	13.57	15.50	No	
	8/29/2013	--	PZ-17	7.52	20.48	12.96	--		
	8/29/2013	--	LW-3	6.35	19.83	13.48	15.50	No	
	9/21/2013	--	PZ-17	7.52	20.48	12.96	--		
	9/21/2013	--	LW-3	6.44	19.83	13.39	15.50	No	
	10/6/2013	--	PZ-17	7.17	20.48	13.31	--		
	10/6/2013	--	LW-3	6.37	19.83	13.46	15.50	No	
	11/10/2013	--	PZ-17	7.49	20.48	12.99	--		
	11/10/2013	--	LW-3	6.30	19.83	13.53	15.50	No	
	12/15/2013	--	PZ-17	7.71	20.48	12.77	--		Covered with log bunks
	12/15/2013	--	LW-3	6.54	19.83	13.29	15.50	No	
	1/5/2014	--	PZ-17	7.76	20.48	12.72	--		
	1/5/2014	--	LW-3	6.54	19.83	13.29	15.50	No	
	2/1/2014	--	PZ-17	7.62	20.48	12.86	--		
	2/1/2014	--	LW-3	6.42	19.83	13.41	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/1/2014	--	PZ-17	7.20	20.48	13.28	--		
	3/1/2014	--	LW-3	6.18	19.83	13.65	15.50	No	
	4/6/2014	--	PZ-17	6.88	20.48	13.60	--		
	4/6/2014	--	LW-3	5.95	19.83	13.88	15.50	No	
	5/17/2014	--	PZ-17	6.55	20.48	13.93	--		
	5/17/2014	--	LW-3	4.98	19.83	14.85	15.50	No	
	6/22/2014	--	PZ-17	NA	20.48	NA	--		
	6/22/2014	--	LW-3	6.12	19.83	13.71	15.50	--	
	7/5/2014	--	PZ-17	7.96	20.48	12.52	--		
	7/5/2014	--	LW-3	6.14	19.83	13.69	15.50	No	
	8/12/2014	--	PZ-17	9.11	20.48	11.37	--		
	8/12/2014	--	LW-3	6.53	19.83	13.30	15.50	No	
	9/23/2014	--	PZ-17	9.38	20.48	11.10	--		
	9/23/2014	--	LW-3	6.71	19.83	13.12	15.50	No	
	10/11/2014	--	PZ-17	8.77	20.48	11.71	--		
	10/11/2014	--	LW-3	7.03	19.83	12.80	15.50	No	
	11/9/2014	--	PZ-17	7.87	20.48	12.61	--		
	11/10/2014	--	LW-3	6.73	19.83	13.10	15.50	No	
	12/7/2014	--	PZ-17	7.77	20.48	12.71	--		
	12/7/2014	--	LW-3	6.46	19.83	13.37	15.50	No	
	1/3/2015	--	PZ-17	7.96	20.48	12.52	--		
	1/3/2015	--	LW-3	6.36	19.83	13.47	15.50	No	
	2/14/2015	--	PZ-17	8.04	20.48	12.44	--		
	2/14/2015	--	LW-3	6.07	19.83	13.76	15.50	No	
	3/9/2015	--	PZ-17	8.51	20.48	11.97	--		
	3/9/2015	--	LW-3	6.07	19.83	13.76	15.50	No	
	4/5/2015	--	PZ-17	NA	20.48	NA	--		
	4/5/2015	--	LW-3	6.02	19.83	13.81	15.50	No	
	5/16/2015	--	PZ-17	9.04	20.48	11.44	--		
	5/16/2015	--	LW-3	6.35	19.83	13.48	15.50	No	
	6/7/2015	--	PZ-17	9.05	20.48	11.43	--		
	6/7/2015	--	LW-3	6.52	19.83	13.31	15.50	No	
	7/7/2015	--	PZ-17	9.08	20.48	11.40	--		
	7/7/2015	--	LW-3	6.73	19.83	13.10	15.50	No	
	8/1/2015	--	PZ-17	9.17	20.48	11.31	--		
	8/1/2015	--	LW-3	6.61	19.83	13.22	15.50	No	
	9/24/2015	--	PZ-17	8.60	20.48	11.88	--		
	9/24/2015	--	LW-3	7.10	19.83	12.73	15.50	No	
	10/16/2015	--	PZ-17	8.14	20.48	12.34	--		
	10/16/2015	--	LW-3	7.32	19.83	12.51	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	11/3/2015	--	PZ-17	7.92	20.48	12.56	--		
	11/3/2015	--	LW-3	7.29	19.83	12.54	15.50	No	
	12/4/2015	--	PZ-17	7.44	20.48	13.04	--		
	12/4/2015	--	LW-3	6.81	19.83	13.02	15.50	No	
	1/15/2016	--	PZ-17	6.86	20.48	13.62	--		
	1/15/2016	--	LW-3	5.97	19.83	13.86	15.50	No	
	2/16/2016	--	PZ-17	6.32	20.48	14.16	--		
	2/16/2016	--	LW-3	5.40	19.83	14.43	15.50	No	
	3/19/2016	--	PZ-17	6.19	20.48	14.29	--		
	3/19/2016	--	LW-3	4.74	19.83	15.09	15.50	No	
	4/3/2016	--	PZ-17	6.32	20.48	14.16	--		
	4/3/2016	--	LW-3	4.58	19.83	15.25	15.50	No	
	5/14/2016	--	PZ-17	6.84	20.48	13.64	--		
	5/14/2016	--	LW-3	5.27	19.83	14.56	15.50	No	
	6/12/2016	--	PZ-17	7.04	20.48	13.44	--		
	6/12/2016	--	LW-3	5.47	19.83	14.36	15.50	No	
	7/5/2016	--	PZ-17	7.21	20.48	13.27	--		
	7/5/2016	--	LW-3	5.61	19.83	14.22	15.50	No	
	8/6/2016	--	PZ-17	7.39	20.48	13.09	--		
	8/6/2016	--	LW-3	5.70	19.83	14.13	15.50	No	
	9/4/2016	--	PZ-17	7.37	20.48	13.11	--		
	9/4/2016	--	LW-3	5.88	19.83	13.95	15.50	No	
	10/1/2016	--	PZ-17	7.34	20.48	13.14	--		
	10/1/2016	--	LW-3	5.97	19.83	13.86	15.50	No	
	11/6/2016	--	PZ-17	6.87	20.48	13.61	--		
	11/6/2016	--	LW-3	5.36	19.83	14.47	15.50	No	
	12/17/2016	--	PZ-17	6.65	20.48	13.83	--		
	12/17/2016	--	LW-3	4.81	19.83	15.02	15.50	No	
	1/21/2017	--	PZ-17	6.46	20.48	14.02	--		
	1/21/2017	--	LW-3	4.78	19.83	15.05	15.50	No	
	2/2/2017	--	PZ-17	6.43	20.48	14.05	--		
	2/2/2017	--	LW-3	4.73	19.83	15.10	15.50	No	
	2/28/2017	--	PZ-17	6.18	20.48	14.30	--		
	2/28/2017	--	LW-3	4.60	19.83	15.23	15.50	No	
	3/30/2017	--	PZ-17	5.67	20.48	14.81	--		
	3/30/2017	--	LW-3	4.32	19.83	15.51	15.50	Yes	
	4/30/2017	--	PZ-17	5.62	20.48	14.86	--		
	4/30/2017	--	LW-3	3.73	19.83	16.10	15.50	Yes	
	5/21/2017	--	PZ-17	5.73	20.48	14.75	--		
	5/21/2017	--	LW-3	3.78	19.83	16.05	15.50	Yes	
	6/6/2017	--	PZ-17	5.80	20.48	14.68	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/6/2017	--	LW-3	3.85	19.83	15.98	15.50	Yes	
	7/8/2017	--	PZ-17	6.09	20.48	14.39	--		
	7/8/2017	--	LW-3	4.77	19.83	15.06	15.50	No	
	8/4/2017	--	PZ-17	6.42	20.48	14.06	--		
	8/4/2017	--	LW-3	4.92	19.83	14.91	15.50	No	
	9/9/2017	--	PZ-17	6.81	20.48	13.67	--		
	9/9/2017	--	LW-3	5.47	19.83	14.36	15.50	No	
	10/11/2017	--	PZ-17	7.04	20.48	13.44	--		
	10/11/2017	--	LW-3	5.55	19.83	14.28	15.50	No	
	11/12/2017	--	PZ-17	6.34	20.48	14.14	--		
	11/12/2017	--	LW-3	5.31	19.83	14.52	15.50	No	
	12/16/2017	--	PZ-17	6.04	20.48	14.44	--		
	12/16/2017	--	LW-3	5.07	19.83	14.76	15.50	No	
	1/1/2018	--	PZ-17	5.98	20.48	14.50	--		
	1/1/2018	--	LW-3	4.71	19.83	15.12	15.50	No	
	2/10/2018	--	PZ-17	5.60	20.48	14.88	--		
	2/10/2018	--	LW-3	4.50	19.83	15.33	15.50	No	
	3/8/2018	--	PZ-17	8.19	20.48	12.29	--		
	3/8/2018	--	LW-3	3.99	19.83	15.84	15.50	Yes	
	4/27/2018	--	PZ-17	5.83	20.48	14.65	--		
	4/27/2018	--	LW-3	4.57	19.83	15.26	15.50	No	
	5/28/2018	--	PZ-17	6.22	20.48	14.26	--		
	5/28/2018	--	LW-3	4.61	19.83	15.22	15.50	No	
	6/29/2018	--	PZ-17	6.57	20.48	13.91	--		
	6/29/2018	--	LW-3	5.06	19.83	14.77	15.50	No	
	7/15/2018	--	PZ-17	6.57	20.48	13.91	--		
	7/15/2018	--	LW-3	4.95	19.83	14.88	15.50	No	
	8/12/2018	--	PZ-17	6.77	20.48	13.71	--		
	8/12/2018	--	LW-3	5.09	19.83	14.74	15.50	No	
	9/12/2018	--	PZ-17	6.99	20.48	13.49	--		
	9/12/2018	--	LW-3	5.48	19.83	14.35	15.50	No	
	10/6/2018	--	PZ-17	7.15	20.48	13.33	--		
	10/6/2018	--	LW-3	5.53	19.83	14.30	15.50	No	
	11/4/2018	--	PZ-17	7.12	20.48	13.36	--		
	11/4/2018	--	LW-3	5.43	19.83	14.40	15.50	No	
	12/2/2018	--	PZ-17	7.08	20.48	13.40	--		
	12/2/2018	--	LW-3	5.70	19.83	14.13	15.50	No	
	1/1/2019	--	PZ-17	6.47	20.48	14.01	--		
	1/1/2019	--	LW-3	5.21	19.83	14.62	15.50	No	
	2/2/2019	--	PZ-17	ND	20.48	--	--		Inaccessible. Log bunk.
	2/2/2019	--	LW-3	4.87	19.83	14.96	15.50	No	



**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/11/2019	--	PZ-17	5.99	20.48	14.49	--		
	3/11/2019	--	LW-3	4.73	19.83	15.10	15.50	No	
	4/7/2019	--	PZ-17	6.23	20.48	14.25	--		
	4/7/2019	--	LW-3	4.59	19.83	15.24	15.50	No	
	5/19/2019	--	PZ-17	6.46	20.48	14.02	--		
	5/19/2019	--	LW-3	4.88	19.83	14.95	15.50	No	
	6/9/2019	--	PZ-17	6.68	20.48	13.80	--		
	6/9/2019	--	LW-3	5.22	19.83	14.61	15.50	No	
	7/30/2019	--	PZ-17	6.90	20.48	13.58	--		
	7/30/2019	--	LW-3	5.50	19.83	14.33	15.50	No	
	8/27/2019	--	PZ-17	7.00	20.48	13.48	--		
	8/27/2019	--	LW-3	5.60	19.83	14.23	15.50	No	
	9/25/2019	--	PZ-17	7.26	20.48	13.22	--		
	9/25/2019	--	LW-3	5.84	19.83	13.99	15.50	No	
	10/22/2019	--	PZ-17	7.35	20.48	13.13	--		
	10/22/2019	--	LW-3	5.85	19.83	13.98	15.50	No	
	11/8/2019	--	PZ-17	6.30	20.48	14.18	--		
	11/8/2019	--	LW-3	5.48	19.83	14.35	15.50	No	
	12/8/2019	--	PZ-17	7.33	20.48	13.15	--		
	12/8/2019	--	LW-3	NA	19.83	--	15.50	--	Well cap pulled off before measurement
	1/5/2020	--	PZ-17	NA	20.48	--	--		Covered by log pile
	1/5/2020	--	LW-3	5.54	19.83	14.29	15.50	No	
	2/21/2020	--	PZ-17	NA	20.48	--	--		Covered by log pile
	2/21/2020	--	LW-3	4.75	19.83	15.08	15.50	No	
	3/19/2020	--	PZ-17	6.35	20.48	14.13	--		
	3/19/2020	--	LW-3	4.98	19.83	14.85	15.50	No	
	4/5/2020	--	PZ-17	6.28	20.48	14.20	--		
	4/5/2020	--	LW-3	4.50	19.83	15.33	15.50	No	
	5/10/2020	--	PZ-17	NA	20.48	--	--		Covered by logs
	5/10/2020	--	LW-3	5.04	19.83	14.79	15.50	No	
	6/13/2020	--	PZ-17	6.73	20.48	13.75	--		
	6/13/2020	--	LW-3	5.32	19.83	14.51	15.50	No	
	7/4/2020	--	PZ-17	NA	20.48	--	--		Covered by log deck
	7/4/2020	--	LW-3	5.42	19.83	14.41	15.50	No	
	8/9/2020	--	PZ-17	6.90	20.48	13.58	--		
	8/9/2020	--	LW-3	5.51	19.83	14.32	15.50	No	
	9/17/2020	--	PZ-17	7.18	20.48	13.30	--		
	9/17/2020	--	LW-3	5.53	19.83	14.30	15.50	No	
	10/22/2020	--	PZ-17	NA	20.48	--	--		Covered with logs
	10/22/2020	--	LW-3	5.33	19.83	14.50	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	11/14/2020	--	PZ-17	6.81	20.48	13.67	--		
	11/14/2020	--	LW-3	5.14	19.83	14.69	15.50	No	
	12/12/2020	--	PZ-17	6.58	20.48	13.90	--		
	12/12/2020	--	LW-3	4.96	19.83	14.87	15.50	No	
	1/16/2021	--	PZ-17	5.69	20.48	14.79	--		
	1/16/2021	--	LW-3	4.46	19.83	15.37	15.50	No	
	2/6/2021	--	PZ-17	5.65	20.48	14.83	--		
	2/6/2021	--	LW-3	3.84	19.83	15.99	15.50	Yes	
	3/10/2021	--	PZ-17	NA	20.48	--	--		
	3/10/2021	--	LW-3	4.61	19.83	15.22	15.50	No	
	4/23/2021	--	PZ-17	NA	20.48	--	--		Covered by log deck
	4/23/2021	--	LW-3	4.47	19.83	15.36	15.50	No	
	5/16/2021	--	PZ-17	NA	20.48	--	--		Covered by sorting bunks
	5/16/2021	--	LW-3	7.03	19.83	12.80	15.50	No	
	6/5/2021	--	PZ-17	6.90	20.48	13.58	--		
	6/5/2021	--	LW-3	4.12	19.83	15.71	15.50	Yes	
	7/24/2021	--	PZ-17	NA	20.48	--	--		Covered by log deck
	7/24/2021	--	LW-3	4.81	19.83	15.02	15.50	No	
	8/19/2021	--	PZ-17	6.65	20.48	13.83	--		
	8/19/2021	--	LW-3	4.96	19.83	14.87	15.50	No	
	9/16/2021	--	PZ-17	7.33	20.48	13.15	--		
	9/16/2021	--	LW-3	4.58	19.83	15.25	15.50	No	
	10/2/2021	--	PZ-17	7.05	20.48	13.43	--		
	10/2/2021	--	LW-3	4.68	19.83	15.15	15.50	No	
	11/13/2021	--	PZ-17	6.52	20.48	13.96	--		
	11/13/2021	--	LW-3	5.03	19.83	14.80	15.50	No	
	12/5/2021	--	PZ-17	6.15	20.48	14.33	--		
	12/5/2021	--	LW-3	4.89	19.83	14.94	15.50	No	
	1/8/2022	--	PZ-17	5.52	20.48	14.96	--		
	1/8/2022	--	LW-3	4.68	19.83	15.15	15.50	No	
	2/20/2022	--	PZ-17	5.94	20.48	14.54	--		
	2/20/2022	--	LW-3	4.77	19.83	15.06	15.50	No	
	3/24/2022	--	PZ-17	6.08	20.48	14.40	--		
	3/24/2022	--	LW-3	4.11	19.83	15.72	15.50	Yes	
	4/7/2022	--	PZ-17	5.84	20.48	14.64	--		
	4/7/2022	--	LW-3	3.84	19.83	15.99	15.50	Yes	
	5/25/2022	--	PZ-17	NA	20.48	--	--		Not accessible.
	5/25/2022	--	LW-3	3.47	19.83	16.36	15.50	Yes	
	6/11/2022	--	PZ-17	5.99	20.48	14.49	--		
	6/11/2022	--	LW-3	4.39	19.83	15.44	15.50	No	
	7/4/2022	--	PZ-17	6.17	20.48	14.31	--		
	7/4/2022	--	LW-3	4.99	19.83	14.84	15.50	No	
	8/6/2022	--	PZ-17	6.51	20.48	13.97	--		

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CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/6/2022	--	LW-3	4.79	19.83	15.04	15.50	No	
	9/15/2022	8:42	PZ-17	6.25	20.48	14.23	--		
	9/15/2022	8:40	LW-3	5.32	19.83	14.51	15.50	No	
	10/21/2022	10:10	PZ-17	6.98	20.48	13.50	--		
	10/21/2022	(g)	LW-3	4.73	19.83	15.10	15.50	No	
	11/5/2022	13:56	PZ-17	6.98	20.48	13.50	--		
	11/5/2022	(h)	LW-3	4.98	19.83	14.85	15.50	No	
	12/17/2022	14:35	PZ-17	6.58	20.48	13.90	--		
	12/17/2022	(i)	LW-3	4.62	19.83	15.21	15.50	No	
	1/7/2023	15:43	PZ-17	6.16	20.48	14.32	--		
	1/7/2023	(j)	LW-3	4.52	19.83	15.31	15.50	No	
	2/19/2023	15:15	PZ-17	6.17	20.48	14.31	--		
	2/19/2023	(k)	LW-3	4.45	19.83	15.38	15.50	No	
	3/10/2023	11:38	PZ-17	6.60	20.48	13.88	--		
	3/10/2023	11:49	LW-3	4.26	19.83	15.57	15.50	Yes	
	4/22/2023	15:58	PZ-17	5.86	20.48	14.62	--		
	4/22/2023	16:05	LW-3	4.25	19.83	15.58	15.50	Yes	
	5/6/2023	11:14	PZ-17	6.00	20.48	14.48	--		
	5/6/2023	11:07	LW-3	3.92	19.83	15.91	15.50	Yes	
	6/27/2023	18:43	PZ-17	6.29	20.48	14.19	--		
	6/27/2023	18:35	LW-3	4.40	19.83	15.43	15.50	No	
	7/4/2023	10:36	PZ-17	6.39	20.48	14.09	--		
	7/4/2023	10:51	LW-3	4.05	19.83	15.78	15.50	Yes	
	8/19/2023	13:21	PZ-17	6.65	20.48	13.83	--		
	8/19/2023	13:32	LW-3	4.78	19.83	15.05	15.50	No	
	9/14/2023	15:17	PZ-17	6.87	20.48	13.61	--		
	9/14/2023	15:19	LW-3	5.00	19.83	14.83	15.50	No	
3	11/8/2006	--	PZ-18	6.31	21.20	14.89	--		
	11/8/2006	--	LW-4R	7.73	22.02	14.29	15.50	No	
	12/31/2006	--	PZ-18	7.95	21.20	13.25	--		
	12/31/2006	--	LW-4R	6.77	22.02	15.25	15.50	No	
	3/2/2007	--	PZ-18	7.28	21.20	13.92	--		
	3/2/2007	--	LW-4R	4.91	22.02	17.11	15.50	Yes	
	3/31/2007	--	PZ-18	9.47	21.20	11.73	--		
	3/31/2007	--	LW-4R	6.07	22.02	15.95	15.50	Yes	
	4/23/2007	--	PZ-18	4.31	21.20	16.89	--		
	4/23/2007	--	LW-4R	5.32	22.02	16.70	15.50	Yes	
	5/28/2007	--	PZ-18	9.82	21.20	11.38	--		
	5/28/2007	--	LW-4R	8.12	22.02	13.90	15.50	No	
	6/30/2007	--	PZ-18	8.85	21.20	12.35	--		
	6/30/2007	--	LW-4R	6.07	22.02	15.95	15.50	Yes	

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CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/1/2007	--	PZ-18	5.16	21.20	16.04	--		
	8/1/2007	--	LW-4R	5.21	22.02	16.81	15.50	Yes	
	9/29/2007	--	PZ-18	4.84	21.20	16.36	--		
	9/29/2007	--	LW-4R	5.66	22.02	16.36	15.50	Yes	
	11/22/2007	--	PZ-18	5.87	21.20	15.33	--		
	11/22/2007	--	LW-4R	6.25	22.02	15.77	15.50	Yes	
	1/26/2008	--	PZ-18	6.42	21.20	14.78	--		
	1/26/2008	--	LW-4R	4.74	22.02	17.28	15.50	Yes	
	2/28/2008	--	PZ-18	6.86	21.20	14.34	--		
	2/28/2008	--	LW-4R	4.92	22.02	17.10	15.50	Yes	
	3/19/2008	--	PZ-18	7.58	21.20	13.62	--		
	3/19/2008	--	LW-4R	7.70	22.02	14.32	15.50	No	
	4/28/2008	--	PZ-18	6.72	21.20	14.48	--		
	4/28/2008	--	LW-4R	4.85	22.02	17.17	15.50	Yes	
	5/31/2008	--	PZ-18	7.46	21.20	13.74	--		
	5/31/2008	--	LW-4R	5.26	22.02	16.76	15.50	Yes	
	6/30/2008	--	PZ-18	7.44	21.20	16.36	--		
	6/30/2008	--	LW-4R	5.24	22.02	16.36	15.50	Yes	
	7/12/2008	--	PZ-18	6.52	21.20	14.68	--		
	7/12/2008	--	LW-4R	5.33	22.02	16.69	15.50	Yes	
	8/28/2008	--	PZ-18	6.55	21.20	14.65	--		
	8/28/2008	--	LW-4R	5.67	22.02	16.35	15.50	Yes	
	9/20/2008	--	PZ-18	6.53	21.20	14.67	--		
	9/20/2008	--	LW-4R	5.63	22.02	16.39	15.50	Yes	
	10/12/2008	--	PZ-18	7.83	21.20	13.37	--		
	10/12/2008	--	LW-4R	6.11	22.02	15.91	15.50	Yes	
	11/30/2008	--	PZ-18	6.52	21.20	14.68	--		
	11/30/2008	--	LW-4R	6.18	22.02	15.84	15.50	Yes	
	12/31/2008	--	PZ-18	7.01	21.20	14.19	--		
	12/31/2008	--	LW-4R	6.44	22.02	15.58	15.50	Yes	
	1/31/2009	--	PZ-18	6.46	21.20	14.74	--		
	1/31/2009	--	LW-4R	6.17	22.02	15.85	15.50	Yes	
	2/23/2009	--	PZ-18	6.26	21.20	14.94	--		
	2/23/2009	--	LW-4R	6.35	22.02	15.67	15.50	Yes	
	3/29/2009	--	PZ-18	6.29	21.20	14.91	--		
	3/29/2009	--	LW-4R	6.42	22.02	15.60	15.50	Yes	
	4/18/2009	--	PZ-18	6.28	21.20	14.92	--		
	4/18/2009	--	LW-4R	6.35	22.02	15.67	15.50	Yes	
	5/16/2009	--	PZ-18	6.21	21.20	14.99	--		
	5/16/2009	--	LW-4R	6.18	22.02	15.84	15.50	Yes	
	6/21/2009	--	PZ-18	6.66	21.20	14.54	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/21/2009	--	LW-4R	6.23	22.02	15.79	15.50	Yes	
	7/20/2009	--	PZ-18	9.93	21.20	11.27	--		
	7/20/2009	--	LW-4R	5.81	22.02	16.21	15.50	Yes	
	8/10/2009	--	PZ-18	6.55	21.20	14.65	--		
	8/10/2009	--	LW-4R	7.47	22.02	14.55	15.50	No	
	9/7/2009	--	PZ-18	8.77	21.20	12.43	--		
	9/7/2009	--	LW-4R	6.10	22.02	15.92	15.50	Yes	
	10/10/2009	--	PZ-18	6.88	21.20	14.32	--		
	10/10/2009	--	LW-4R	6.09	22.02	15.93	15.50	Yes	
	11/28/2009	--	PZ-18	9.25	21.20	11.95	--		
	11/28/2009	--	LW-4R	7.31	22.02	14.71	15.50	No	
	12/31/2009	--	PZ-18	7.61	21.20	13.59	--		
	12/31/2009	--	LW-4R	NM	22.02	--	15.50	--	
	1/14/2010	--	PZ-18	9.21	21.20	11.99	--		
	1/14/2010	--	LW-4R	7.46	22.02	14.56	15.50	No	
	2/21/2010	--	PZ-18	6.50	21.20	14.70	--		
	2/21/2010	--	LW-4R	6.66	22.02	15.36	15.50	No	
	3/17/2010	--	PZ-18	6.40	21.20	14.80	--		
	3/17/2010	--	LW-4R	7.07	22.02	14.95	15.50	No	
	4/25/2010	--	PZ-18	9.57	21.20	11.63	--		
	4/25/2010	--	LW-4R	NA	22.02	NA	15.50	--	
	5/16/2010	--	PZ-18	NA	21.20	NA	--		
	5/16/2010	--	LW-4R	6.30	22.02	15.72	15.50	--	
	6/26/2010	--	PZ-18	9.35	21.20	11.85	--		
	6/26/2010	--	LW-4R	6.68	22.02	15.34	15.50	No	
	7/23/2010	--	PZ-18	9.62	21.20	11.58	--		
	7/23/2010	--	LW-4R	6.73	22.02	15.29	15.50	No	
	8/30/2010	--	PZ-18	9.43	21.20	11.77	--		
	8/30/2010	--	LW-4R	6.57	22.02	15.45	15.50	No	
	9/30/2010	--	PZ-18	8.62	21.20	12.58	--		
	9/30/2010	--	LW-4R	6.24	22.02	15.78	15.50	Yes	
	10/18/2010	--	PZ-18	7.37	21.20	13.83	--		
	10/18/2010	--	LW-4R	6.36	22.02	15.66	15.50	Yes	
	11/29/2010	--	PZ-18	9.77	21.20	11.43	--		
	11/29/2010	--	LW-4R	7.06	22.02	14.96	15.50	No	
	12/25/2010	--	PZ-18	NA	21.20	NA	--		
	12/25/2010	--	LW-4R	7.11	22.02	14.91	15.50	--	
	1/29/2011	--	PZ-18	10.14	21.20	11.06	--		
	1/29/2011	--	LW-4R	NA	22.02	NA	15.50	--	
	2/20/2011	--	PZ-18	9.44	21.20	11.76	--		
	2/20/2011	--	LW-4R	NA	22.02	NA	15.50	--	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/24/2011	--	PZ-18	10.24	21.20	10.96	--		
	3/24/2011	--	LW-4R	6.45	22.02	15.57	15.50	Yes	
	4/23/2011	--	PZ-18	9.44	21.20	11.76	--		
	4/23/2011	--	LW-4R	6.62	22.02	15.40	15.50	No	
	5/30/2011	--	PZ-18	6.86	21.20	14.34	--		
	5/30/2011	--	LW-4R	6.37	22.02	15.65	15.50	Yes	
	6/26/2011	--	PZ-18	6.01	21.20	15.19	--		
	6/26/2011	--	LW-4R	NA	22.02	NA	15.50	--	Covered in bark pile.
	7/30/2011	--	PZ-18	6.43	21.20	14.77	--		
	7/30/2011	--	LW-4R	6.91	22.02	15.11	15.50	No	Well covered. Pressure on opening. Left open for +5 minutes before sampling.
	8/8/2011	--	PZ-18	6.11	21.20	15.09	--		
	8/8/2011	--	LW-4R	6.56	22.02	15.46	15.50	No	Pressure on opening. Left open for +5 minutes before sampling.
	9/24/2011	--	PZ-18	NA	21.20	NA	--		
	9/24/2011	--	LW-4R	6.75	22.02	15.27	15.50	--	
	10/29/2011	--	PZ-18	NA	21.20	NA	--		
	10/29/2011	--	LW-4R	NA	22.02	NA	15.50	--	
	11/26/2011	--	PZ-18	NA	21.20	NA	--		
	11/26/2011	--	LW-4R	NA	22.02	NA	15.50	--	Lid stuck Bark pile
	12/26/2011	--	PZ-18	7.21	21.20	13.99	--		
	12/26/2011	--	LW-4R	NA	22.02	NA	15.50	--	Bark pile
	1/28/2012	--	PZ-18	5.91	21.20	15.29	--		
	1/28/2012	--	LW-4R	8.35	22.02	13.67	15.50	No	
	2/26/2012	--	PZ-18	NA	21.20	NA	--		
	2/26/2012	--	LW-4R	NA	22.02	NA	15.50	--	
	3/7/2012	--	PZ-18	6.34	21.20	14.86	--		
	3/7/2012	--	LW-4R	8.40	22.02	13.62	15.50	No	logs over well
	4/21/2012	--	PZ-18	NA	21.20	NA	--		
	4/21/2012	--	LW-4R	8.16	22.02	13.86	15.50	--	logs over well
	5/19/2012	--	PZ-18	NA	21.20	NA	--		
	5/19/2012	--	LW-4R	8.02	22.02	14.00	15.50	--	logs over well
	6/30/2012	--	PZ-18	9.62	21.20	11.58	--		
	6/30/2012	--	LW-4R	NA	22.02	NA	15.50	--	
	7/27/2012	--	PZ-18	9.62	21.20	11.58	--		
	7/27/2012	--	LW-4R	6.95	22.02	15.07	15.50	No	log deck bark pile
	8/12/2012	--	PZ-18	9.78	21.20	11.42	--		
	8/12/2012	--	LW-4R	NA	22.02	NA	15.50	--	bark muck
	9/30/2012	--	PZ-18	NA	21.20	NA	--		
	9/30/2012	--	LW-4R	NA	22.02	NA	15.50	--	
	10/24/2012	--	PZ-18	6.90	21.20	14.30	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/24/2012	--	LW-4R	6.99	22.02	15.03	15.50	No	bark pile
	11/24/2012	--	PZ-18	NA	21.20	NA	--		
	11/24/2012	--	LW-4R	NA	22.02	NA	15.50	--	
	12/30/2012	--	PZ-18	8.03	21.20	13.17	--		
	12/30/2012	--	LW-4R	NA	22.02	NA	15.50	--	
	1/25/2013	--	PZ-18	7.25	21.20	13.95	--		
	1/25/2013	--	LW-4R	7.82	22.02	14.20	15.50	No	
	2/9/2013	--	PZ-18	8.34	21.20	12.86	--		
	2/9/2013	--	LW-4R	8.26	22.02	13.76	15.50	No	obstructed
	3/31/2013	--	PZ-18	NA	21.20	NA	--		
	3/31/2013	--	LW-4R	8.26	22.02	13.76	15.50	--	
	4/29/2013	--	PZ-18	NA	21.20	NA	--		
	4/29/2013	--	LW-4R	8.37	22.02	13.65	15.50	--	
	5/31/2013	--	PZ-18	NA	21.20	NA	--		
	5/31/2013	--	LW-4R	8.53	22.02	13.49	15.50	--	Covered with log bunks
	6/9/2013	--	PZ-18	10.11	21.20	11.09	--		
	6/9/2013	--	LW-4R	NA	22.02	NA	15.50	--	
	7/21/2013	--	PZ-18	NA	21.20	NA	--		
	7/21/2013	--	LW-4R	NA	22.02	NA	15.50	--	
	8/29/2013	--	PZ-18	8.91	21.20	12.29	--		
	8/29/2013	--	LW-4R	6.57	22.02	15.45	15.50	No	
	9/21/2013	--	PZ-18	9.30	21.20	11.90	--		
	9/21/2013	--	LW-4R	6.97	22.02	15.05	15.50	No	
	10/6/2013	--	PZ-18	8.04	21.20	13.16	--		
	10/6/2013	--	LW-4R	NA	22.02	NA	15.50	--	
	11/10/2013	--	PZ-18	8.40	21.20	12.80	--		
	11/10/2013	--	LW-4R	7.28	22.02	14.74	15.50	No	
	12/15/2013	--	PZ-18	8.26	21.20	12.94	--		
	12/15/2013	--	LW-4R	7.72	22.02	14.30	15.50	No	
	1/5/2014	--	PZ-18	10.28	21.20	10.92	--		
	1/5/2014	--	LW-4R	7.87	22.02	14.15	15.50	No	
	2/1/2014	--	PZ-18	NA	21.20	NA	--		
	2/1/2014	--	LW-4R	7.81	22.02	14.21	15.50	No	
	3/1/2014	--	PZ-18	10.11	21.20	11.09	--		
	3/1/2014	--	LW-4R	7.39	22.02	14.63	15.50	No	
	4/6/2014	--	PZ-18	10.11	21.20	11.09	--		
	4/6/2014	--	LW-4R	7.39	22.02	14.63	15.50	No	
	5/17/2014	--	PZ-18	7.53	21.20	NA	--		
	5/17/2014	--	LW-4R	6.61	22.02	15.41	15.50	--	
	6/22/2014	--	PZ-18	NA	21.20	NA	--		
	6/22/2014	--	LW-4R	7.35	22.02	14.67	15.50	--	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/5/2014	--	PZ-18	10.29	21.20	10.91	--		
	7/5/2014	--	LW-4R	6.92	22.02	15.10	15.50	No	
	8/12/2014	--	PZ-18	6.25	21.20	14.95	--		
	8/12/2014	--	LW-4R	6.56	22.02	15.46	15.50	No	
	9/23/2014	--	PZ-18	7.23	21.20	13.97	--		
	9/23/2014	--	LW-4R	6.65	22.02	15.37	15.50	No	
	10/11/2014	--	PZ-18	9.74	21.20	11.46	--		
	10/11/2014	--	LW-4R	6.68	22.02	15.34	15.50	No	
	11/9/2014	--	PZ-18	7.86	21.20	13.34	--		
	11/9/2014	--	LW-4R	6.9	22.02	15.12	15.50	No	
	12/7/2014	--	PZ-18	7.84	21.20	13.36	--		
	12/7/2014	--	LW-4R	NA	22.02	NA	15.50	--	
	1/3/2015	--	PZ-18	7.75	21.20	13.45	--		
	1/3/2015	--	LW-4R	7.16	22.02	14.86	15.50	No	
	2/14/2015	--	PZ-18	7.81	21.20	13.39	--		
	2/14/2015	--	LW-4R	7.4	22.02	14.62	15.50	No	
	3/9/2015	--	PZ-18	7.73	21.20	13.47	--		
	3/9/2015	--	LW-4R	6.89	22.02	15.13	15.50	No	
	4/5/2015	--	PZ-18	8.61	21.20	12.59	--		
	4/5/2015	--	LW-4R	6.85	22.02	15.17	15.50	No	
	5/16/2015	--	PZ-18	6.59	21.20	14.61	--		
	5/16/2015	--	LW-4R	6.74	22.02	15.28	15.50	No	
	6/7/2015	--	PZ-18	6.25	21.20	14.95	--		
	6/7/2015	--	LW-4R	6.34	22.02	15.68	15.50	Yes	
	7/7/2015	--	PZ-18	6.24	21.20	14.96	--		
	7/7/2015	--	LW-4R	6.47	22.02	15.55	15.50	Yes	
	8/1/2015	--	PZ-18	6.28	21.20	14.92	--		
	8/1/2015	--	LW-4R	6.31	22.02	15.71	15.50	Yes	
	9/24/2015	--	PZ-18	6.55	21.20	14.65	--		
	9/24/2015	--	LW-4R	6.70	22.02	15.32	15.50	No	
	10/16/2015	--	PZ-18	6.27	21.20	14.93	--		
	10/16/2015	--	LW-4R	6.94	22.02	15.08	15.50	No	
	11/3/2015	--	PZ-18	7.08	21.20	14.12	--		
	11/3/2015	--	LW-4R	7.81	22.02	14.21	15.50	No	
	12/4/2015	--	PZ-18	7.38	21.20	13.82	--		
	12/4/2015	--	LW-4R	7.61	22.02	14.41	15.50	No	
	1/15/2016	--	PZ-18	7.57	21.20	13.63	--		
	1/15/2016	--	LW-4R	7.54	22.02	14.48	15.50	No	
	2/16/2016	--	PZ-18	8.31	21.20	12.89	--		
	2/16/2016	--	LW-4R	7.35	22.02	14.67	15.50	No	



**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/19/2016	--	PZ-18	6.47	21.20	14.73	--		
	3/19/2016	--	LW-4R	7.18	22.02	14.84	15.50	No	
	4/3/2016	--	PZ-18	6.54	21.20	14.66	--		
	4/3/2016	--	LW-4R	6.40	22.02	15.62	15.50	Yes	
	5/14/2016	--	PZ-18	6.99	21.20	14.21	--		
	5/14/2016	--	LW-4R	6.74	22.02	15.28	15.50	No	
	6/12/2016	--	PZ-18	6.26	21.20	14.94	--		
	6/12/2016	--	LW-4R	7.33	22.02	14.69	15.50	No	
	7/5/2016	--	PZ-18	6.16	21.20	15.04	--		
	7/5/2016	--	LW-4R	6.11	22.02	15.91	15.50	Yes	
	8/6/2016	--	PZ-18	6.18	21.20	15.02	--		
	8/6/2016	--	LW-4R	6.02	22.02	16.00	15.50	Yes	
	9/4/2016	--	PZ-18	6.28	21.20	14.92	--		
	9/4/2016	--	LW-4R	6.23	22.02	15.79	15.50	Yes	
	10/1/2016	--	PZ-18	6.41	21.20	14.79	--		
	10/1/2016	--	LW-4R	6.17	22.02	15.85	15.50	Yes	
	11/6/2016	--	PZ-18	6.48	21.20	14.72	--		
	11/6/2016	--	LW-4R	7.12	22.02	14.90	15.50	No	
	12/17/2016	--	PZ-18	6.70	21.20	14.50	--		
	12/17/2016	--	LW-4R	7.03	22.02	14.99	15.50	No	
	1/21/2017	--	PZ-18	9.96	21.20	11.24	--		
	1/21/2017	--	LW-4R	6.67	22.02	15.35	15.50	No	
	2/2/2017	--	PZ-18	6.53	21.20	14.67	--		
	2/2/2017	--	LW-4R	6.41	22.02	15.61	15.50	Yes	
	2/28/2017	--	PZ-18	6.83	21.20	14.37	--		
	2/28/2017	--	LW-4R	7.55	22.02	14.47	15.50	No	
	3/30/2017	--	PZ-18	6.18	21.20	15.02	--		
	3/30/2017	--	LW-4R	6.22	22.02	15.80	15.50	Yes	
	4/30/2017	--	PZ-18	6.33	21.20	14.87	--		
	4/30/2017	--	LW-4R	6.14	22.02	15.88	15.50	Yes	
	5/21/2017	--	PZ-18	6.26	21.20	14.94	--		
	5/21/2017	--	LW-4R	5.68	22.02	16.34	15.50	Yes	
	6/6/2017	--	PZ-18	5.84	21.20	15.36	--		
	6/6/2017	--	LW-4R	5.71	22.02	16.31	15.50	Yes	
	7/8/2017	--	PZ-18	6.68	21.20	14.52	--		
	7/8/2017	--	LW-4R	5.24	22.02	16.78	15.50	Yes	
	8/4/2017	--	PZ-18	6.09	21.20	15.11	--		
	8/4/2017	--	LW-4R	5.27	22.02	16.75	15.50	Yes	
	9/9/2017	--	PZ-18	6.41	21.20	14.79	--		
	9/9/2017	--	LW-4R	5.77	22.02	16.25	15.50	Yes	
	10/11/2017	--	PZ-18	6.89	21.20	14.31	--		

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CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/11/2017	--	LW-4R	6.06	22.02	15.96	15.50	Yes	
	11/12/2017	--	PZ-18	6.66	21.20	14.54	--		
	11/12/2017	--	LW-4R	NA	22.02	NA	15.50	--	
	12/16/2017	--	PZ-18	7.37	21.20	13.83	--		
	12/16/2017	--	LW-4R	6.36	22.02	15.66	15.50	Yes	
	1/1/2018	--	PZ-18	NA	21.20	NA	--		
	1/1/2018	--	LW-4R	6.38	22.02	15.64	15.50	Yes	
	2/10/2018	--	PZ-18	NA	21.20	NA	--		
	2/10/2018	--	LW-4R	6.86	22.02	15.16	15.50	No	
	3/8/2018	--	PZ-18	5.75	21.20	15.45	--		
	3/8/2018	--	LW-4R	6.46	22.02	15.56	15.50	Yes	
	4/27/2018	--	PZ-18	ND	21.20	--	--		inaccessible; covered with logs
	4/27/2018	--	LW-4R	6.01	22.02	16.01	15.50	Yes	
	5/28/2018	--	PZ-18	ND	21.20	--	--		inaccessible; covered with logs
	5/28/2018	--	LW-4R	ND	22.02	--	15.50	Yes	inaccessible; covered with logs
	6/29/2018	--	PZ-18	9.32	21.20	11.88	--		
	6/29/2018	--	LW-4R	5.51	22.02	16.51	15.50	Yes	
	7/15/2018	--	PZ-18	6.07	21.20	15.13	--		
	7/15/2018	--	LW-4R	ND	22.02	--	15.50	Yes	inaccessible; bark pile over well
	8/12/2018	--	PZ-18	ND	21.20	--	--		inaccessible; covered with logs
	8/12/2018	--	LW-4R	5.49	22.02	16.53	15.50	Yes	
	9/12/2018	--	PZ-18	6.90	21.20	14.30	--		
	9/12/2018	--	LW-4R	5.93	22.02	16.09	15.50	Yes	
	10/6/2018	--	PZ-18	7.10	21.20	14.10	--		
	10/6/2018	--	LW-4R	6.04	22.02	15.98	15.50	Yes	
	11/4/2018	--	PZ-18	6.62	21.20	14.58	--		
	11/4/2018	--	LW-4R	--	22.02	--	15.50	Yes	Well covered in water and bark
	12/2/2018	--	PZ-18	6.61	21.20	14.59	--		
	12/2/2018	--	LW-4R	7.17	22.02	14.85	15.50	No	
	1/1/2019	--	PZ-18	6.86	21.20	14.34	--		
	1/1/2019	--	LW-4R	7.51	22.02	14.51	15.50	No	
	2/2/2019	--	PZ-18	7.08	21.20	14.12	--		
	2/2/2019	--	LW-4R	6.53	22.02	15.49	15.50	No	
	3/11/2019	--	PZ-18	7.80	21.20	13.40	--		
	3/11/2019	--	LW-4R	6.87	22.02	15.15	15.50	No	
	4/7/2019	--	PZ-18	5.72	21.20	15.48	--		
	4/7/2019	--	LW-4R	6.67	22.02	15.35	15.50	No	
	5/19/2019	--	PZ-18	6.98	21.20	14.22	--		
	5/19/2019	--	LW-4R	--	22.02	--	15.50	--	Covered
	6/9/2019	--	PZ-18	7.24	21.20	13.96	--		
	6/9/2019	--	LW-4R	6.42	22.02	15.60	15.50	Yes	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/30/2019	--	PZ-18	10.93	21.20	10.27	--		
	7/30/2019	--	LW-4R	6.27	22.02	15.75	15.50	Yes	
	8/27/2019	--	PZ-18	10.40	21.20	10.80	--		
	8/27/2019	--	LW-4R	4.90	22.02	17.12	15.50	Yes	
	9/25/2019	--	PZ-18	8.75	21.20	12.45	--		
	9/25/2019	--	LW-4R	6.27	22.02	15.75	15.50	Yes	
	10/22/2019	--	PZ-18	6.90	21.20	14.30	--		
	10/22/2019	--	LW-4R	6.80	22.02	15.22	15.50	No	
	11/8/2019	--	PZ-18	NA	21.20	--	--		Covered with log deck
	11/8/2019	--	LW-4R	6.25	22.02	15.77	15.50	Yes	
	12/8/2019	--	PZ-18	6.98	21.20	14.22	--		
	12/8/2019	--	LW-4R	7.24	22.02	14.78	15.50	No	
	1/5/2020	--	PZ-18	6.54	21.20	14.66	--		
	1/5/2020	--	LW-4R	7.32	22.02	14.70	15.50	No	
	2/21/2020	--	PZ-18	6.58	21.20	14.62	--		
	2/21/2020	--	LW-4R	6.81	22.02	15.21	15.50	No	
	3/19/2020	--	PZ-18	6.66	21.20	14.54	--		
	3/19/2020	--	LW-4R	6.43	22.02	15.59	15.50	Yes	
	4/5/2020	--	PZ-18	NA	21.20	--	--		Covered by logs
	4/5/2020	--	LW-4R	6.27	22.02	15.75	15.50	Yes	
	5/10/2020	--	PZ-18	6.12	21.20	15.08	--		
	5/10/2020	--	LW-4R	6.76	22.02	15.26	15.50	No	
	6/13/2020	--	PZ-18	6.67	21.20	14.53	--		
	6/13/2020	--	LW-4R	7.01	22.02	15.01	15.50	No	
	7/4/2020	--	PZ-18	6.58	21.20	14.62	--		
	7/4/2020	--	LW-4R	8.59	22.02	13.43	15.50	No	
	8/9/2020	--	PZ-18	6.31	21.20	14.89	--		
	8/9/2020	--	LW-4R	6.17	22.02	15.85	15.50	Yes	
	9/17/2020	--	PZ-18	6.42	21.20	14.78	--		
	9/17/2020	--	LW-4R	8.75	22.02	13.27	15.50	No	
	10/22/2020	--	PZ-18	6.82	21.20	14.38	--		
	10/22/2020	--	LW-4R	6.38	22.02	15.64	15.50	Yes	
	11/14/2020	--	PZ-18	6.56	21.20	14.64	--		
	11/14/2020	--	LW-4R	8.43	22.02	13.59	15.50	No	
	12/12/2020	--	PZ-18	6.49	21.20	14.71	--		
	12/12/2020	--	LW-4R	9.37	22.02	12.65	15.50	No	
	1/16/2021	--	PZ-18	6.17	21.20	15.03	--		
	1/16/2021	--	LW-4R	8.76	22.02	13.26	15.50	No	
	2/6/2021	--	PZ-18	6.47	21.20	14.73	--		
	2/6/2021	--	LW-4R	9.13	22.02	12.89	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/10/2021	--	PZ-18	6.52	21.20	14.68	--		
	3/10/2021	--	LW-4R	6.26	22.02	15.76	15.50	Yes	
	4/23/2021	--	PZ-18	6.29	21.2	14.91	--		
	4/23/2021	--	LW-4R	8.17	22.02	13.85	15.50	No	
	5/16/2021	--	PZ-18	6.46	21.2	14.74	--		
	5/16/2021	--	LW-4R	NA	22.02	--	--	--	covered by bark
	6/5/2021	--	PZ-18	6.47	21.2	14.73	--		
	6/5/2021	--	LW-4R	8.75	22.02	13.27	15.50	No	
	7/24/2021	--	PZ-18	6.29	21.2	14.91	--		
	7/24/2021	--	LW-4R	5.40	22.02	16.62	15.50	Yes	
	8/19/2021	--	PZ-18	6.14	21.2	15.06	--		
	8/19/2021	--	LW-4R	5.58	22.02	16.44	15.50	Yes	
	9/16/2021	--	PZ-18	7.93	21.2	13.27	--		
	9/16/2021	--	LW-4R	7.93	22.02	14.09	15.50	No	
	10/2/2021	--	PZ-18	7.00	21.2	14.20	--		
	10/2/2021	--	LW-4R	6.13	22.02	15.89	15.50	Yes	Plus pressure on opening. Left open for 10 min before sampling.
	11/13/2021	--	PZ-18	6.93	21.2	14.27	--		
	11/13/2021	--	LW-4R	6.51	22.02	15.51	15.50	Yes	Plus pressure on opening. Left open for 9 min before sampling.
	12/5/2021	--	PZ-18	7.01	21.2	14.19	--		
	12/5/2021	--	LW-4R	6.57	22.02	15.45	15.50	No	
	1/8/2022	--	PZ-18	7.07	21.2	14.13	--		
	1/8/2022	--	LW-4R	6.48	22.02	15.54	15.50	Yes	Pressure on opening. Let sit open 8 min.
	2/20/2022	--	PZ-18	7.72	21.2	13.48	--		
	2/20/2022	--	LW-4R	5.80	22.02	16.22	15.50	Yes	Pressure on opening. Let sit open 12 min.
	3/24/2022	--	PZ-18	16.25	21.2	4.95	--		
	3/24/2022	--	LW-4R	5.73	22.02	16.29	15.50	Yes	
	4/7/2022	--	PZ-18	6.37	21.2	14.83	--		
	4/7/2022	--	LW-4R	5.36	22.02	16.66	15.50	Yes	
	5/25/2022	--	PZ-18	NA	21.2	--	--		Not accessible.
	5/25/2022	--	LW-4R	6.81	22.02	15.21	15.50	No	
	6/11/2022	--	PZ-18	6.47	21.2	14.73	--		
	6/11/2022	--	LW-4R	5.43	22.02	16.59	15.50	Yes	
	7/4/2022	--	PZ-18	6.07	21.2	15.13	--		
	7/4/2022	--	LW-4R	5.56	22.02	16.46	15.50	Yes	
	8/6/2022	--	PZ-18	6.13	21.2	15.07	--		
	8/6/2022	--	LW-4R	NA	22.02	--	--	--	Monument lid damaged, unable to open.
	9/15/2022	8:49	PZ-18	7.24	21.2	13.96	--		
	9/15/2022	8:50	LW-4R	7.00	22.02	15.02	15.50	No	

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CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/21/2022	(g)	PZ-18	6.48	21.2	14.72	--		
	10/21/2022	(g)	LW-4R	6.35	22.02	15.67	15.50	Yes	
	11/5/2022	--	PZ-18	NA	21.2	--	--		Monument damaged.
	11/5/2022	14:22	LW-4R	6.07	22.02	15.95	15.50	Yes	
	12/17/2022	(i)	PZ-18	6.27	21.2	14.93	--		
	12/17/2022	(i)	LW-4R	6.18	22.02	15.84	15.50	Yes	
	1/7/2023	(j)	PZ-18	6.35	21.2	14.85	--		
	1/7/2023	15:56	LW-4R	6.11	22.02	15.91	15.50	Yes	
	2/19/2023	--	PZ-18	NA	21.2	--	--		Covered by logs
	2/19/2023	15:46	LW-4R	6.13	22.02	15.89	15.50	Yes	
	3/10/2023	12:30	PZ-18	7.38	21.2	13.82	--		
	3/10/2023	11:48	LW-4R	8.41	22.02	13.61	15.50	No	
	4/22/2023	16:15	PZ-18	6.96	21.2	14.24	--		
	4/22/2023	16:23	LW-4R	6.32	22.02	15.70	15.50	Yes	
	5/6/2023	11:34	PZ-18	6.99	21.2	14.21	--		
	5/6/2023	11:43	LW-4R	5.84	22.02	16.18	15.50	Yes	
	6/27/2023	19:34	PZ-18	9.12	21.2	12.08	--		
	6/27/2023	19:37	LW-4R	5.32	22.02	16.70	15.50	Yes	
	7/4/2023	11:02	PZ-18	7.27	21.2	13.93	--		
	7/4/2023	11:27	LW-4R	5.46	22.02	16.56	15.50	Yes	
	8/19/2023	13:41	PZ-18	6.54	21.2	14.66	--		
	8/19/2023	13:49	LW-4R	5.32	22.02	16.70	15.50	Yes	
	9/14/2023	16:37	PZ-18	9.65	21.2	11.55	--		
	9/14/2023	16:43	LW-4R	5.64	22.02	16.38	15.50	Yes	
4	11/8/2006	--	PZ-19	12.64	23.67	11.03	--		
	11/8/2006	--	MW-02S	12.71	30.47	17.76	15.50	Yes	
	12/31/2006	--	PZ-19	11.22	23.67	12.45	--		
	12/31/2006	--	MW-02S	11.96	30.47	18.51	15.50	Yes	
	3/2/2007	--	PZ-19	13.81	23.67	9.86	--		
	3/2/2007	--	MW-02S	13.04	30.47	17.43	15.50	Yes	
	3/31/2007	--	PZ-19	14.79	23.67	8.88	--		
	3/31/2007	--	MW-02S	12.93	30.47	17.54	15.50	Yes	
	4/23/2007	--	PZ-19	12.72	23.67	10.95	--		
	4/23/2007	--	MW-02S	14.42	30.47	16.05	15.50	Yes	
	5/28/2007	--	PZ-19	16.43	23.67	7.24	--		
	5/28/2007	--	MW-02S	15.51	30.47	14.96	15.50	No	
	6/30/2007	--	PZ-19	16.80	23.67	6.87	--		
	6/30/2007	--	MW-02S	15.92	30.47	14.55	15.50	No	
	8/1/2007	--	PZ-19	14.85	23.67	8.82	--		
	8/1/2007	--	MW-02S	16.02	30.47	14.45	15.50	No	

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CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
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Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	9/29/2007	--	PZ-19	14.17	23.67	9.50	--		
	9/29/2007	--	MW-02S	16.89	30.47	13.58	15.50	No	
	11/22/2007	--	PZ-19	13.95	23.67	9.72	--		
	11/22/2007	--	MW-02S	15.13	30.47	15.34	15.50	No	
	1/26/2008	--	PZ-19	12.86	23.67	10.81	--		
	1/26/2008	--	MW-02S	13.68	30.47	16.79	15.50	Yes	
	2/28/2008	--	PZ-19	14.95	23.67	8.72	--		
	2/28/2008	--	MW-02S	13.56	30.47	16.91	15.50	Yes	
	3/19/2008	--	PZ-19	13.33	23.67	10.34	--		
	3/19/2008	--	MW-02S	13.92	30.47	16.55	15.50	Yes	
	4/28/2008	--	PZ-19	14.03	23.67	9.64	--		
	4/28/2008	--	MW-02S	14.54	30.47	15.93	15.50	Yes	
	5/31/2008	--	PZ-19	14.13	23.67	9.54	--		
	5/31/2008	--	MW-02S	15.12	30.47	15.35	15.50	No	
	6/30/2008	--	PZ-19	13.22	23.67	9.50	--		
	6/30/2008	--	MW-02S	15.60	30.47	13.58	15.50	No	
	7/12/2008	--	PZ-19	16.34	23.67	7.33	--		
	7/12/2008	--	MW-02S	15.73	30.47	14.74	15.50	No	
	8/28/2008	--	PZ-19	15.77	23.67	7.90	--		
	8/28/2008	--	MW-02S	16.43	30.47	14.04	15.50	No	
	9/20/2008	--	PZ-19	13.78	23.67	9.89	--		
	9/20/2008	--	MW-02S	NM	30.47	--	15.50	--	
	10/12/2008	--	PZ-19	14.42	23.67	9.25	--		
	10/12/2008	--	MW-02S	NM	30.47	--	15.50	--	
	11/30/2008	--	PZ-19	13.42	23.67	10.25	--		
	11/30/2008	--	MW-02S	NM	30.47	--	15.50	--	
	12/31/2008	--	PZ-19	12.70	23.67	10.97	--		
	12/31/2008	--	MW-02S	NM	30.47	--	15.50	--	
	1/31/2009	--	PZ-19	15.00	23.67	8.67	--		
	1/31/2009	--	MW-02S	16.81	32.46	15.65	15.50	Yes	
	2/23/2009	--	PZ-19	13.63	23.67	10.04	--		
	2/23/2009	--	MW-02S	17.22	32.46	15.24	15.50	No	
	3/29/2009	--	PZ-19	16.13	23.67	7.54	--		
	3/29/2009	--	MW-02S	17.20	32.46	15.26	15.50	No	
	4/18/2009	--	PZ-19	14.78	23.67	8.89	--		
	4/18/2009	--	MW-02S	17.13	32.46	15.33	15.50	No	
	5/16/2009	--	PZ-19	14.16	23.67	9.51	--		
	5/16/2009	--	MW-02S	16.79	32.46	15.67	15.50	Yes	
	6/21/2009	--	PZ-19	14.53	23.67	9.14	--		
	6/21/2009	--	MW-02S	17.65	32.46	14.81	15.50	No	

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CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/20/2009	--	PZ-19	12.42	23.67	11.25	--		
	7/20/2009	--	MW-02S	18.00	32.46	14.46	15.50	No	
	8/10/2009	--	PZ-19	13.47	23.67	10.20	--		
	8/10/2009	--	MW-02S	18.37	32.46	14.09	15.50	No	
	9/7/2009	--	PZ-19	13.74	23.67	9.93	--		
	9/7/2009	--	MW-02S	18.85	32.46	13.61	15.50	No	
	10/10/2009	--	PZ-19	13.67	23.67	10.00	--		
	10/10/2009	--	MW-02S	19.26	32.46	13.20	15.50	No	
	11/28/2009	--	PZ-19	14.26	23.67	9.41	--		
	11/28/2009	--	MW-02S	18.17	32.46	14.29	15.50	No	
	12/31/2009	--	PZ-19	11.39	23.67	12.28	--		
	12/31/2009	--	MW-02S	18.02	32.46	14.44	15.50	No	
	1/14/2010	--	PZ-19	11.61	23.67	12.06	--		
	1/14/2010	--	MW-02S	17.27	32.46	15.19	15.50	No	
	2/21/2010	--	PZ-19	11.51	23.67	12.16	--		
	2/21/2010	--	MW-02S	16.79	32.46	15.67	15.50	Yes	
	3/17/2010	--	PZ-19	14.65	23.67	9.02	--		
	3/17/2010	--	MW-02S	16.39	32.46	16.07	15.50	Yes	
	4/25/2010	--	PZ-19	13.67	23.67	10.00	--		
	4/25/2010	--	MW-02S	17.23	32.46	15.23	15.50	No	
	5/16/2010	--	PZ-19	16.69	23.67	6.98	--		
	5/16/2010	--	MW-02S	17.59	32.46	14.87	15.50	No	
	6/26/2010	--	PZ-19	13.67	23.67	10.00	--		
	6/26/2010	--	MW-02S	18.16	32.46	14.30	15.50	No	
	7/23/2010	--	PZ-19	16.86	23.67	6.81	--		
	7/23/2010	--	MW-02S	18.51	32.46	13.95	15.50	No	
	8/30/2010	--	PZ-19	14.23	23.67	9.44	--		
	8/30/2010	--	MW-02S	18.04	32.46	14.42	15.50	No	
	9/30/2010	--	PZ-19	13.67	23.67	10.00	--		
	9/30/2010	--	MW-02S	17.27	32.46	15.19	15.50	No	
	10/18/2010	--	PZ-19	15.84	23.67	7.83	--		
	10/18/2010	--	MW-02S	17.72	32.46	14.74	15.50	No	
	11/29/2010	--	PZ-19	12.89	23.67	10.78	--		
	11/29/2010	--	MW-02S	17.13	32.46	15.33	15.50	No	
	12/25/2010	--	PZ-19	10.81	23.67	12.86	--		
	12/25/2010	--	MW-02S	15.90	32.46	16.56	15.50	Yes	
	1/29/2011	--	PZ-19	11.97	23.67	11.70	--		
	1/29/2011	--	MW-02S	16.18	32.46	16.28	15.50	Yes	
	2/20/2011	--	PZ-19	15.01	23.67	8.66	--		
	2/20/2011	--	MW-02S	16.99	32.46	15.47	15.50	No	
	3/24/2011	--	PZ-19	10.93	23.67	12.74	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/24/2011	--	MW-02S	15.15	32.46	17.31	15.50	Yes	
	4/23/2011	--	PZ-19	15.81	23.67	7.86	--		
	4/23/2011	--	MW-02S	15.62	32.46	16.84	15.50	Yes	
	5/30/2011	--	PZ-19	15.07	23.67	8.60	--		
	5/30/2011	--	MW-02S	16.23	32.46	16.23	15.50	Yes	
	6/26/2011	--	PZ-19	13.87	23.67	9.80	--		
	6/26/2011	--	MW-02S	16.88	32.46	15.58	15.50	Yes	
	7/30/2011	--	PZ-19	15.93	23.67	7.74	--		
	7/30/2011	--	MW-02S	17.08	32.46	15.38	15.50	No	
	8/8/2011	--	PZ-19	16.19	23.67	7.48	--		
	8/8/2011	--	MW-02S	17.26	32.46	15.20	15.50	No	
	9/24/2011	--	PZ-19	15.34	23.67	8.33	--		
	9/24/2011	--	MW-02S	17.52	31.96	(e) 14.44	15.50	No	
	10/29/2011	--	PZ-19	13.66	23.67	10.01	--		
	10/29/2011	--	MW-02S	17.77	31.96	(e) 14.19	15.50	No	
	11/26/2011	--	PZ-19	11.91	23.67	11.76	--		
	11/26/2011	--	MW-02S	16.08	31.96	(e) 15.88	15.50	Yes	
	12/26/2011	--	PZ-19	13.50	23.67	10.17	--		
	12/26/2011	--	MW-02S	17.45	31.96	(e) 14.51	15.50	No	
	1/28/2012	--	PZ-19	12.50	23.67	11.17	--		
	1/28/2012	--	MW-02S	15.33	31.96	(e) 16.63	15.50	Yes	
	2/26/2012	--	PZ-19	15.09	23.67	8.58	--		
	2/26/2012	--	MW-02S	15.75	31.96	(e) 16.21	15.50	Yes	
	3/7/2012	--	PZ-19	14.88	23.67	8.79	--		
	3/7/2012	--	MW-02S	16.28	31.96	(e) 15.68	15.50	Yes	
	4/21/2012	--	PZ-19	15.35	23.67	8.32	--		
	4/21/2012	--	MW-02S	15.85	31.96	(e) 16.11	15.50	Yes	
	5/19/2012	--	PZ-19	13.37	23.67	10.30	--		
	5/19/2012	--	MW-02S	16.37	31.96	(e) 15.59	15.50	Yes	
	6/30/2012	--	PZ-19	14.11	23.67	9.56	--		
	6/30/2012	--	MW-02S	16.13	31.96	(e) 15.83	15.50	Yes	
	7/27/2012	--	PZ-19	14.18	23.67	9.49	--		
	7/27/2012	--	MW-02S	16.02	31.96	(e) 15.94	15.50	Yes	
	8/12/2012	--	PZ-19	14.71	23.67	8.96	--		
	8/12/2012	--	MW-02S	15.80	31.96	(e) 16.16	15.50	Yes	
	9/30/2012	--	PZ-19	14.64	23.67	9.03	--		
	9/30/2012	--	MW-02S	16.09	31.96	(e) 15.87	15.50	Yes	
	10/24/2012	--	PZ-19	15.59	23.67	8.08	--		
	10/24/2012	--	MW-02S	16.50	31.96	(e) 15.46	15.50	No	
	11/24/2012	--	PZ-19	12.3	23.67	11.37	--		
	11/24/2012	--	MW-02S	14.72	31.96	(e) 17.24	15.50	Yes	



**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/30/2012	--	PZ-19	13.21	23.67	10.46	--		
	12/30/2012	--	MW-02S	15.19	31.96	(e) 16.77	15.50	Yes	
	1/25/2013	--	PZ-19	12.46	23.67	11.21	--		
	1/25/2013	--	MW-02S	16.61	31.96	(e) 15.35	15.50	No	
	2/9/2013	--	PZ-19	12.81	23.67	10.86	--		
	2/9/2013	--	MW-02S	16.57	31.96	(e) 15.39	15.50	No	
	3/31/2013	--	PZ-19	15.91	23.67	7.76	--		
	3/31/2013	--	MW-02S	16.57	31.96	(e) 15.39	15.50	No	
	4/29/2013	--	PZ-19	16.38	23.67	7.29	--		
	4/29/2013	--	MW-02S	16.71	31.96	15.25	15.50	No	
	5/31/2013	--	PZ-19	16.38	23.67	7.29	--		
	5/31/2013	--	MW-02S	17.48	31.96	14.48	15.50	No	
	6/9/2013	--	PZ-19	16.24	23.67	7.43	--		
	6/9/2013	--	MW-02S	17.48	31.96	14.48	15.50	No	
	7/21/2013	--	PZ-19	15.27	23.67	8.40	--		
	7/21/2013	--	MW-02S	18.11	31.96	13.85	15.50	No	
	8/29/2013	--	PZ-19	15.83	23.67	7.84	--		
	8/29/2013	--	MW-02S	17.89	31.96	14.07	15.50	No	
	9/21/2013	--	PZ-19	14.94	23.67	8.73	--		
	9/21/2013	--	MW-02S	17.63	31.96	14.33	15.50	No	
	10/6/2013	--	PZ-19	14.58	23.67	9.09	--		
	10/6/2013	--	MW-02S	16.03	31.96	15.93	15.50	Yes	
	11/10/2013	--	PZ-19	12.74	23.67	10.93	--		
	11/10/2013	--	MW-02S	17.11	31.96	14.85	15.50	No	
	12/15/2013	--	PZ-19	13.08	23.67	10.59	--		
	12/15/2013	--	MW-02S	17.50	31.96	14.46	15.50	No	
	1/5/2014	--	PZ-19	14.24	23.67	9.43	--		
	1/5/2014	--	MW-02S	17.67	31.96	14.29	15.50	No	
	2/1/2014	--	PZ-19	14.13	23.67	9.54	--		
	2/1/2014	--	MW-02S	17.21	31.96	14.75	15.50	No	
	3/1/2014	--	PZ-19	13.53	23.67	10.14	--		
	3/1/2014	--	MW-02S	15.96	31.96	16.00	15.50	Yes	
	4/6/2014	--	PZ-19	13.46	23.67	10.21	--		
	4/6/2014	--	MW-02S	16.15	31.96	15.81	15.50	Yes	
	5/17/2014	--	PZ-19	15.88	23.67	7.79	--		
	5/17/2014	--	MW-02S	16.14	31.96	15.82	15.50	Yes	
	6/22/2014	--	PZ-19	14.82	23.67	8.85	--		
	6/22/2014	--	MW-02S	16.94	31.96	15.02	15.50	No	
	7/5/2014	--	PZ-19	14.13	23.67	9.54	--		
	7/5/2014	--	MW-02S	17.16	31.96	14.80	15.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/12/2014	--	PZ-19	15.96	23.67	7.71	--		
	8/12/2014	--	MW-02S	17.39	31.96	14.57	15.50	No	
	9/23/2014	--	PZ-19	13.34	23.67	10.33	--		
	9/23/2014	--	MW-02S	17.69	31.96	14.27	15.50	No	
	10/11/2014	--	PZ-19	13.57	23.67	10.10	--	--	
	10/11/2014	--	MW-02S	17.84	31.96	14.12	15.50	No	
	11/9/2014	--	PZ-19	13.31	23.67	10.36	--		
	11/9/2014	--	MW-02S	16.84	31.96	15.12	15.50	No	
	12/7/2014	--	PZ-19	12.72	23.67	10.95	--		
	12/7/2014	--	MW-02S	16.71	31.96	15.25	15.50	No	
	1/3/2015	--	PZ-19	11.98	23.67	11.69	--		
	1/3/2015	--	MW-02S	16.46	31.96	15.50	15.50	No	
	2/14/2015	--	PZ-19	12.33	23.67	11.34	--		
	2/14/2015	--	MW-02S	16.02	31.96	15.94	15.50	Yes	
	3/9/2015	--	PZ-19	12.81	23.67	10.86	--		
	3/9/2015	--	MW-02S	16.71	31.96	15.25	15.50	No	
	4/5/2015	--	PZ-19	14.61	23.67	9.06	--		
	4/5/2015	--	MW-02S	17.03	31.96	14.93	15.50	No	
	5/16/2015	--	PZ-19	15.88	23.67	7.79	--		
	5/16/2015	--	MW-02S	17.28	31.96	14.68	15.50	No	
	6/7/2015	--	PZ-19	16.00	23.67	7.67	--		
	6/7/2015	--	MW-02S	17.44	31.96	14.52	15.50	No	
	7/7/2015	--	PZ-19	12.56	23.67	11.11	--		
	7/7/2015	--	MW-02S	17.73	31.96	14.23	15.50	No	
	8/1/2015	--	PZ-19	15.09	23.67	8.58	--		
	8/1/2015	--	MW-02S	17.88	31.96	14.08	15.50	No	
	9/24/2015	--	PZ-19	15.40	23.67	8.27	--		
	9/24/2015	--	MW-02S	18.22	31.96	13.74	15.50	No	
	10/16/2015	--	PZ-19	14.03	23.67	9.64	--		
	10/16/2015	--	MW-02S	18.34	31.96	13.62	15.50	No	
	11/3/2015	--	PZ-19	13.20	23.67	10.47	--		
	11/3/2015	--	MW-02S	17.88	31.96	14.08	15.50	No	
	12/4/2015	--	PZ-19	10.90	23.67	12.77	--		
	12/4/2015	--	MW-02S	16.99	31.96	14.97	15.50	No	
	1/15/2016	--	PZ-19	12.09	23.67	11.58	--		
	1/15/2016	--	MW-02S	16.09	31.96	15.87	15.50	Yes	
	2/16/2016	--	PZ-19	13.04	23.67	10.63	--		
	2/16/2016	--	MW-02S	14.93	31.96	17.03	15.50	Yes	
	3/19/2016	--	PZ-19	13.48	23.67	10.19	--		
	3/19/2016	--	MW-02S	14.44	31.96	17.52	15.50	Yes	
	4/3/2016	--	PZ-19	13.28	23.67	10.39	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/3/2016	--	MW-02S	14.98	31.96	16.98	15.50	Yes	
	5/14/2016	--	PZ-19	14.65	23.67	9.02	--		
	5/14/2016	--	MW-02S	16.12	31.96	15.84	15.50	Yes	
	6/12/2016	--	PZ-19	15.00	23.67	8.67	--		
	6/12/2016	--	MW-02S	16.51	31.96	15.45	15.50	No	
	7/5/2016	--	PZ-19	13.33	23.67	10.34	--		
	7/5/2016	--	MW-02S	16.68	31.96	15.28	15.50	No	
	8/6/2016	--	PZ-19	15.79	23.67	7.88	--		
	8/6/2016	--	MW-02S	16.83	31.96	15.13	15.50	No	
	9/4/2016	--	PZ-19	15.37	23.67	8.30	--		
	9/4/2016	--	MW-02S	17.09	31.96	14.87	15.50	No	
	10/1/2016	--	PZ-19	13.64	23.67	10.03	--		
	10/1/2016	--	MW-02S	17.16	31.96	14.80	15.50	No	
	11/6/2016	--	PZ-19	11.94	23.67	11.73	--		
	11/6/2016	--	MW-02S	15.33	31.96	16.63	15.50	Yes	
	12/17/2016	--	PZ-19	13.19	23.67	10.48	--		
	12/17/2016	--	MW-02S	15.18	31.96	16.78	15.50	Yes	
	1/21/2017	--	PZ-19	9.80	23.67	13.87	--		
	1/21/2017	--	MW-02S	14.44	31.96	17.52	15.50	Yes	
	2/2/2017	--	PZ-19	13.94	23.67	9.73	--		
	2/2/2017	--	MW-02S	15.28	31.96	16.68	15.50	Yes	
	2/28/2017	--	PZ-19	12.04	23.67	11.63	--		
	2/28/2017	--	MW-02S	14.26	31.96	17.70	15.50	Yes	
	3/30/2017	--	PZ-19	14.85	23.67	8.82	--		
	3/30/2017	--	MW-02S	13.02	31.96	18.94	15.50	Yes	
	4/30/2017	--	PZ-19	15.80	23.67	7.87	--		
	4/30/2017	--	MW-02S	14.18	31.96	17.78	15.50	Yes	
	5/21/2017	--	PZ-19	13.84	23.67	9.83	--		
	5/21/2017	--	MW-02S	14.27	31.96	17.69	15.50	Yes	
	6/6/2017	--	PZ-19	15.33	23.67	8.34	--		
	6/6/2017	--	MW-02S	14.77	31.96	17.19	15.50	Yes	
	7/8/2017	--	PZ-19	16.06	23.67	7.61	--		
	7/8/2017	--	MW-02S	15.54	31.96	16.42	15.50	Yes	
	8/4/2017	--	PZ-19	16.10	23.67	7.57	--		
	8/4/2017	--	MW-02S	15.94	31.96	16.02	15.50	Yes	
	9/9/2017	--	PZ-19	13.48	23.67	10.19	--		
	9/9/2017	--	MW-02S	16.43	31.96	15.53	15.50	Yes	
	10/11/2017	--	PZ-19	14.91	23.67	8.76	--		
	10/11/2017	--	MW-02S	16.64	31.96	15.32	15.50	No	
	11/12/2017	--	PZ-19	13.48	23.67	10.19	--		
	11/12/2017	--	MW-02S	15.59	31.96	16.37	15.50	Yes	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/16/2017	--	PZ-19	13.45	23.67	10.22	--		
	12/16/2017	--	MW-02S	15.20	31.96	16.76	15.50	Yes	
	1/1/2018	--	PZ-19	12.79	23.67	10.88	--		
	1/1/2018	--	MW-02S	14.12	31.96	17.84	15.50	Yes	
	2/10/2018	--	PZ-19	12.54	23.67	11.13	--		
	2/10/2018	--	MW-02S	14.25	31.96	17.71	15.50	Yes	
	3/8/2018	--	PZ-19	12.16	23.67	11.51	--		
	3/8/2018	--	MW-02S	14.24	31.96	17.72	15.50	Yes	
	4/27/2018	--	PZ-19	12.97	23.67	10.70	--		
	4/27/2018	--	MW-02S	14.26	31.96	17.70	15.50	Yes	
	5/28/2018	--	PZ-19	16.16	23.67	7.51	--		
	5/28/2018	--	MW-02S	15.53	31.96	16.43	15.50	Yes	
	6/29/2018	--	PZ-19	15.62	23.67	8.05	--		
	6/29/2018	--	MW-02S	15.93	31.96	16.03	15.50	Yes	
	7/15/2018	--	PZ-19	16.23	23.67	7.44	--		
	7/15/2018	--	MW-02S	15.96	31.96	16.00	15.50	Yes	
	8/12/2018	--	PZ-19	15.42	23.67	8.25	--		
	8/12/2018	--	MW-02S	16.26	31.96	15.70	15.50	Yes	
	9/12/2018	--	PZ-19	13.09	23.67	10.58	--		
	9/12/2018	--	MW-02S	16.47	31.96	15.49	15.50	No	
	10/6/2018	--	PZ-19	13.89	23.67	9.78	--		
	10/6/2018	--	MW-02S	16.73	31.96	15.23	15.50	No	
	11/4/2018	--	PZ-19	12.94	23.67	10.73	--		
	11/4/2018	--	MW-02S	16.62	31.96	15.34	15.50	No	
	12/2/2018	--	PZ-19	12.15	23.67	11.52	--		
	12/2/2018	--	MW-02S	16.16	31.96	15.80	15.50	Yes	
	1/1/2019	--	PZ-19	14.21	23.67	9.46	--		
	1/1/2019	--	MW-02S	15.13	31.96	16.83	15.50	Yes	
	2/2/2019	--	PZ-19	12.72	23.67	10.95	--		
	2/2/2019	--	MW-02S	15.11	31.96	16.85	15.50	Yes	
	3/11/2019	--	PZ-19	13.31	23.67	10.36	--		
	3/11/2019	--	MW-02S	15.32	31.96	16.64	15.50	Yes	
	4/7/2019	--	PZ-19	15.07	23.67	8.60	--		
	4/7/2019	--	MW-02S	16.01	31.96	15.95	15.50	Yes	
	5/19/2019	--	PZ-19	15.49	23.67	8.18	--		
	5/19/2019	--	MW-02S	16.13	31.96	15.83	15.50	Yes	
	6/9/2019	--	PZ-19	15.24	23.67	8.43	--		
	6/9/2019	--	MW-02S	17.03	31.96	14.93	15.50	No	
	7/30/2019	--	PZ-19	14.03	23.67	9.64	--		
	7/30/2019	--	MW-02S	17.07	31.96	14.89	15.50	No	

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CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/27/2019	--	PZ-19	15.60	23.67	8.07	--		
	8/27/2019	--	MW-02S	16.90	31.96	15.06	15.50	No	
	9/25/2019	--	PZ-19	15.16	23.67	8.51	--		
	9/25/2019	--	MW-02S	16.98	31.96	14.98	15.50	No	
	10/22/2019	--	PZ-19	16.30	23.67	7.37	--		
	10/22/2019	--	MW-02S	16.65	31.96	15.31	15.50	No	
	11/8/2019	--	PZ-19	15.34	23.67	8.33	--		
	11/8/2019	--	MW-02S	16.63	31.96	15.33	15.50	No	
	12/8/2019	--	PZ-19	12.14	23.67	11.53	--		
	12/8/2019	--	MW-02S	17.30	31.96	14.66	15.50	No	
	1/5/2020	--	PZ-19	11.38	23.67	12.29	--		
	1/5/2020	--	MW-02S	16.19	31.96	15.77	15.50	Yes	
	2/21/2020	--	PZ-19	12.94	23.67	10.73	--		
	2/21/2020	--	MW-02S	15.83	31.96	16.13	15.50	Yes	
	3/19/2020	--	PZ-19	13.19	23.67	10.48	--		
	3/19/2020	--	MW-02S	16.68	31.96	15.28	15.50	No	
	4/5/2020	--	PZ-19	13.78	23.67	9.89	--		
	4/5/2020	--	MW-02S	16.60	31.96	15.36	15.50	No	
	5/10/2020	--	PZ-19	14.14	23.67	9.53	--		
	5/10/2020	--	MW-02S	17.41	31.96	14.55	15.50	No	
	6/13/2020	--	PZ-19	15.08	23.67	8.59	--		
	6/13/2020	--	MW-02S	17.88	31.96	14.08	15.50	No	
	7/4/2020	--	PZ-19	16.42	23.67	7.25	--		
	7/4/2020	--	MW-02S	18.03	31.96	13.93	15.50	No	
	8/9/2020	--	PZ-19	14.75	23.67	8.92	--		
	8/9/2020	--	MW-02S	20.08	31.96	11.88	15.50	No	
	9/17/2020	--	PZ-19	12.84	23.67	10.83	--		
	9/17/2020	--	MW-02S	17.93	31.96	14.03	15.50	No	
	10/22/2020	--	PZ-19	13.66	23.67	10.01	--		
	10/22/2020	--	MW-02S	17.81	31.96	14.15	15.50	No	
	11/14/2020	--	PZ-19	14.38	23.67	9.29	--		
	11/14/2020	--	MW-02S	17.69	31.96	14.27	15.50	No	
	12/12/2020	--	PZ-19	14.02	23.67	9.65	--		
	12/12/2020	--	MW-02S	16.91	31.96	15.05	15.50	No	
	1/16/2021	--	PZ-19	13.09	23.67	10.58	--		
	1/16/2021	--	MW-02S	13.91	31.96	18.05	15.50	Yes	
	2/6/2021	--	PZ-19	11.66	23.67	12.01	--		
	2/6/2021	--	MW-02S	14.34	31.96	17.62	15.50	Yes	
	3/10/2021	--	PZ-19	12.94	23.67	10.73	--		
	3/10/2021	--	MW-02S	14.99	31.96	16.97	15.50	Yes	
	4/23/2021	--	PZ-19	13.55	23.67	10.12	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/23/2021	--	MW-02S	16.02	31.96	15.94	15.50	Yes	
	5/16/2021	--	PZ-19	16.38	23.67	7.29	--		
	5/16/2021	--	MW-02S	16.48	31.96	15.48	15.50	No	
	6/5/2021	--	PZ-19	14.63	23.67	9.04	--		
	6/5/2021	--	MW-02S	16.83	31.96	15.13	15.50	No	
	7/24/2021	--	PZ-19	14.39	23.67	9.28	--		
	7/24/2021	--	MW-02S	17.37	31.96	14.59	15.50	No	
	8/19/2021	--	PZ-19	14.29	23.67	9.38	--		
	8/19/2021	--	MW-02S	17.68	31.96	14.28	15.50	No	
	9/16/2021	--	PZ-19	15.95	23.67	7.72	--		
	9/16/2021	--	MW-02S	18.07	31.96	13.89	15.50	No	
	10/2/2021	--	PZ-19	14.40	23.67	9.27	--		
	10/2/2021	--	MW-02S	18.02	31.96	13.94	15.50	No	
	11/13/2021	--	PZ-19	12.80	23.67	10.87	--		
	11/13/2021	--	MW-02S	15.18	31.96	16.78	15.50	Yes	
	12/5/2021	--	PZ-19	13.28	23.67	10.39	--		
	12/5/2021	--	MW-02S	15.98	31.96	15.98	15.50	Yes	
	1/8/2022	--	PZ-19	11.30	23.67	12.37	--		
	1/8/2022	--	MW-02S	12.73	31.96	19.23	15.50	Yes	
	2/20/2022	--	PZ-19	13.94	23.67	9.73	--		
	2/20/2022	--	MW-02S	15.91	31.96	16.05	15.50	Yes	
	3/24/2022	--	PZ-19	12.63	23.67	11.04	--		
	3/24/2022	--	MW-02S	15.51	31.96	16.45	15.50	Yes	
	4/7/2022	--	PZ-19	15.35	23.67	8.32	--		
	4/7/2022	--	MW-02S	15.60	31.96	16.36	15.50	Yes	
	5/25/2022	--	PZ-19	13.93	23.67	9.74	--		
	5/25/2022	--	MW-02S	15.77	31.96	16.19	15.50	Yes	
	6/11/2022	--	PZ-19	14.20	23.67	9.47	--		
	6/11/2022	--	MW-02S	15.58	31.96	16.38	15.50	Yes	
	7/4/2022	--	PZ-19	14.77	23.67	8.90	--		
	7/4/2022	--	MW-02S	16.13	31.96	15.83	15.50	Yes	
	8/6/2022	--	PZ-19	15.80	23.67	7.87	--		
	8/6/2022	--	MW-02S	16.93	31.96	15.03	15.50	No	
	9/15/2022	6:53	PZ-19	14.79	23.67	8.88	--		
	9/15/2022	9:06	MW-02S	17.52	31.96	14.44	15.50	No	
	10/21/2022	(g)	PZ-19	14.98	23.67	8.69	--		
	10/21/2022	(g)	MW-02S	17.78	31.96	14.18	15.50	No	
	11/5/2022	(h)	PZ-19	14.96	23.67	8.71	--		
	11/5/2022	(h)	MW-02S	16.22	31.96	15.74	15.50	Yes	
	12/17/2022	(i)	PZ-19	12.62	23.67	11.05	--		
	12/17/2022	(i)	MW-02S	16.18	31.96	15.78	15.50	Yes	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/7/2023	(j)	PZ-19	11.40	23.67	12.27	--		
	1/7/2023	(j)	MW-02S	15.44	31.96	16.52	15.50	Yes	
	2/19/2023	(k)	PZ-19	13.52	23.67	10.15	--		
	2/19/2023	(k)	MW-02S	15.92	31.96	16.04	15.50	Yes	
	3/10/2023	8:52	PZ-19	11.78	23.67	11.89	--		
	3/10/2023	8:48	MW-02S	15.58	31.96	16.38	15.50	Yes	
	4/22/2023	15:26	PZ-19	14.94	23.67	8.73	--		
	4/22/2023	15:17	MW-02S	14.46	31.96	17.50	15.50	Yes	
	5/6/2023	10:37	PZ-19	12.47	23.67	11.20	--		
	5/6/2023	10:27	MW-02S	15.29	31.96	16.67	15.50	Yes	
	6/27/2023	17:51	PZ-19	14.32	23.67	9.35	--		
	6/27/2023	17:37	MW-02S	15.88	31.96	16.08	15.50	Yes	
	7/4/2023	10:08	PZ-19	12.39	23.67	11.28	--		
	7/4/2023	9:59	MW-02S	16.21	31.96	15.75	15.50	Yes	
	8/19/2023	12:51	PZ-19	13.64	23.67	10.03	--		
	8/19/2023	12:40	MW-02S	17.03	31.96	14.93	15.50	No	
	9/14/2023	11:04	PZ-19	14.00	23.67	9.67	--		
	9/14/2023	10:51	MW-02S	17.29	31.96	14.67	15.50	No	
5	11/8/2006	--	MW-02S	12.74	30.47	17.76	--		
	11/8/2006	--	MW-02D	18.24	31.79	13.55	--		
	12/31/2006	--	MW-02S	11.96	30.47	18.51	--		
	12/31/2006	--	MW-02D	16.29	31.79	15.50	--		
	3/2/2007	--	MW-02S	13.04	30.47	17.43	--		
	3/2/2007	--	MW-02D	19.51	31.79	12.28	--		
	3/31/2007	--	MW-02S	12.93	30.47	17.54	--		
	3/31/2007	--	MW-02D	20.11	31.79	11.68	--		
	4/23/2007	--	MW-02S	14.42	30.47	16.05	--		
	4/23/2007	--	MW-02D	17.72	31.79	14.07	--		
	5/28/2007	--	MW-02S	15.51	30.47	14.96	--		
	5/28/2007	--	MW-02D	20.60	31.79	11.19	--		
	6/30/2007	--	MW-02S	15.92	30.47	14.55	--		
	6/30/2007	--	MW-02D	22.15	31.79	9.64	--		
	8/1/2007	--	MW-02S	16.02	30.47	14.45	--		
	8/1/2007	--	MW-02D	21.70	31.79	10.09	--		
	9/29/2007	--	MW-02S	16.89	30.47	13.58	--		
	9/29/2007	--	MW-02D	19.82	31.79	11.97	--		
	11/22/2007	--	MW-02S	15.13	30.47	15.34	--		
	11/22/2007	--	MW-02D	17.61	31.79	14.18	--		
	1/26/2008	--	MW-02S	13.68	30.47	16.79	--		
	1/26/2008	--	MW-02D	18.57	31.79	13.22	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/28/2008	--	MW-02S	13.56	30.47	16.91	--		
	2/28/2008	--	MW-02D	21.25	31.79	10.54	--		
	3/19/2008	--	MW-02S	13.92	30.47	16.55	--		
	3/19/2008	--	MW-02D	17.87	31.79	13.92	--		
	4/28/2008	--	MW-02S	14.54	30.47	15.93	--		
	4/28/2008	--	MW-02D	19.45	31.79	12.34	--		
	5/31/2008	--	MW-02S	15.12	30.47	15.35	--		
	5/31/2008	--	MW-02D	19.16	31.79	12.63	--		
	6/30/2008	--	MW-02S	15.60	30.47	13.58	--		
	6/30/2008	--	MW-02D	17.79	31.79	11.97	--		
	7/12/2008	--	MW-02S	15.73	30.47	14.74	--		
	7/12/2008	--	MW-02D	20.75	31.79	11.04	--		
	8/28/2008	--	MW-02S	16.43	30.47	14.04	--		
	8/28/2008	--	MW-02D	22.24	31.79	9.55	--		
	9/20/2008	--	MW-02S	NM	30.47	--	--		
	9/20/2008	--	MW-02D	NM	31.79	--	--		
	10/12/2008	--	MW-02S	NM	30.47	--	--		
	10/12/2008	--	MW-02D	NM	31.79	--	--		
	11/30/2008	--	MW-02S	NM	30.47	--	--		
	11/30/2008	--	MW-02D	NM	31.79	--	--		
	12/31/2008	--	MW-02S	NM	30.47	--	--		
	12/31/2008	--	MW-02D	NM	31.79	--	--		
	1/31/2009	--	MW-02S	16.81	32.46	(d) 15.65	--		
	1/31/2009	--	MW-02D	21.38	31.90	(d) 10.52	--		
	2/23/2009	--	MW-02S	17.22	32.46	15.24	--		
	2/23/2009	--	MW-02D	18.30	31.90	13.60	--		
	3/29/2009	--	MW-02S	17.20	32.46	15.26	--		
	3/29/2009	--	MW-02D	20.02	31.90	11.88	--		
	4/18/2009	--	MW-02S	17.13	32.46	15.33	--		
	4/18/2009	--	MW-02D	19.96	31.90	11.94	--		
	5/16/2009	--	MW-02S	16.79	32.46	15.67	--		
	5/16/2009	--	MW-02D	19.43	31.90	12.47	--		
	6/21/2009	--	MW-02S	17.65	32.46	14.81	--		
	6/21/2009	--	MW-02D	17.62	31.90	14.28	--		
	7/20/2009	--	MW-02S	18.00	32.46	14.46	--		
	7/20/2009	--	MW-02D	18.25	31.90	13.65	--		
	8/10/2009	--	MW-02S	18.37	32.46	14.09	--		
	8/10/2009	--	MW-02D	17.91	31.90	13.99	--		
	9/7/2009	--	MW-02S	18.85	32.46	13.61	--		
	9/7/2009	--	MW-02D	19.53	31.90	12.37	--		



**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/10/2009	--	MW-02S	19.26	32.46	13.20	--		
	10/10/2009	--	MW-02D	18.87	31.90	13.03	--		
	11/28/2009	--	MW-02S	18.17	32.46	14.29	--		
	11/28/2009	--	MW-02D	18.98	31.90	12.92	--		
	12/31/2009	--	MW-02S	18.02	32.46	14.44	--		
	12/31/2009	--	MW-02D	15.98	31.90	15.92	--		
	1/14/2010	--	MW-02S	17.27	32.46	15.19	--		
	1/14/2010	--	MW-02D	17.30	31.90	14.60	--		
	2/21/2010	--	MW-02S	16.79	32.46	15.67	--		
	2/21/2010	--	MW-02D	16.63	31.90	15.27	--		
	3/17/2010	--	MW-02S	16.39	32.46	16.07	--		
	3/17/2010	--	MW-02D	18.12	31.90	13.78	--		
	4/25/2010	--	MW-02S	17.23	32.46	15.23	--		
	4/25/2010	--	MW-02D	18.31	31.90	13.59	--		
	5/16/2010	--	MW-02S	17.59	32.46	14.87	--		
	5/16/2010	--	MW-02D	20.96	31.90	10.94	--		
	6/26/2010	--	MW-02S	18.16	32.46	14.30	--		
	6/26/2010	--	MW-02D	20.48	31.90	11.42	--		
	7/23/2010	--	MW-02S	18.51	32.46	13.95	--		
	7/23/2010	--	MW-02D	21.13	31.90	10.77	--		
	8/30/2010	--	MW-02S	18.04	32.46	14.42	--		
	8/30/2010	--	MW-02D	18.14	31.90	13.76	--		
	9/30/2010	--	MW-02S	17.27	32.46	15.19	--		
	9/30/2010	--	MW-02D	18.48	31.90	13.42	--		
	10/18/2010	--	MW-02S	17.72	32.46	14.74	--		
	10/18/2010	--	MW-02D	21.20	31.90	10.70	--		
	11/29/2010	--	MW-02S	17.13	32.46	15.33	--		
	11/29/2010	--	MW-02D	16.71	31.90	15.19	--		
	12/25/2010	--	MW-02S	15.90	32.46	16.56	--		
	12/25/2010	--	MW-02D	15.44	31.90	16.46	--		
	1/29/2011	--	MW-02S	16.18	32.46	16.28	--		
	1/29/2011	--	MW-02D	17.61	31.90	14.29	--		
	2/20/2011	--	MW-02S	16.99	32.46	15.47	--		
	2/20/2011	--	MW-02D	19.95	31.90	11.95	--		
	3/24/2011	--	MW-02S	15.15	32.46	17.31	--		
	3/24/2011	--	MW-02D	15.34	31.90	16.56	--		
	4/23/2011	--	MW-02S	15.62	32.46	16.84	--		
	4/23/2011	--	MW-02D	21.73	31.90	10.17	--		
	5/30/2011	--	MW-02S	16.23	32.46	16.23	--		
	5/30/2011	--	MW-02D	21.58	31.90	10.32	--		
	6/26/2011	--	MW-02S	16.88	32.46	15.58	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/26/2011	--	MW-02D	18.31	31.90	13.59	--		
	7/30/2011	--	MW-02S	17.08	32.46	15.38	--		
	7/30/2011	--	MW-02D	22.39	31.90	9.51	--		
	8/8/2011	--	MW-02S	17.26	32.46	15.20	--		
	8/8/2011	--	MW-02D	21.40	31.90	10.50	--		
	9/24/2011	--	MW-02S	17.52	31.96	(e) 14.44	--		
	9/24/2011	--	MW-02D	21.44	31.81	(e) 10.37	--		
	10/29/2011	--	MW-02S	17.77	31.96	(e) 14.19	--		
	10/29/2011	--	MW-02D	17.73	31.81	(e) 14.08	--		
	11/26/2011	--	MW-02S	16.08	31.96	(e) 15.88	--		
	11/26/2011	--	MW-02D	16.43	31.81	(e) 15.38	--		
	12/26/2011	--	MW-02S	17.45	31.96	(e) 14.51	--		
	12/26/2011	--	MW-02D	19.26	31.81	(e) 12.55	--		
	1/28/2012	--	MW-02S	15.33	31.96	(e) 16.63	--		
	1/28/2012	--	MW-02D	16.61	31.81	(e) 15.20	--		
	2/26/2012	--	MW-02S	15.75	31.96	(e) 16.21	--		
	2/26/2012	--	MW-02D	21.30	31.81	(e) 10.51	--		DTWs for these two most likely switched on water level form. Data entered to be consistent with historical data.
	3/7/2012	--	MW-02S	16.28	31.96	(e) 15.68	--		
	3/7/2012	--	MW-02D	20.75	31.81	(e) 11.06	--		
	4/21/2012	--	MW-02S	15.85	31.96	(e) 16.11	--		
	4/21/2012	--	MW-02D	19.86	31.81	(e) 11.95	--		
	5/19/2012	--	MW-02S	16.37	31.96	(e) 15.59	--		
	5/19/2012	--	MW-02D	20.17	31.81	(e) 11.64	--		
	6/30/2012	--	MW-02S	16.13	31.96	(e) 15.83	--		
	6/30/2012	--	MW-02D	17.29	31.81	(e) 14.52	--		
	7/27/2012	--	MW-02S	16.02	31.96	(e) 15.94	--		
	7/27/2012	--	MW-02D	18.81	31.81	(e) 13.00	--		
	8/12/2012	--	MW-02S	15.80	31.96	(e) 16.16	--		
	8/12/2012	--	MW-02D	17.99	31.81	(e) 13.82	--		
	9/30/2012	--	MW-02S	16.09	31.96	(e) 15.87	--		
	9/30/2012	--	MW-02D	17.80	31.81	(e) 14.01	--		
	10/24/2012	--	MW-02S	16.50	31.96	(e) 15.46	--		
	10/24/2012	--	MW-02D	20.12	31.81	(e) 11.69	--		
	11/24/2012	--	MW-02S	14.72	31.96	(e) 17.24	--		
	11/24/2012	--	MW-02D	16.49	31.81	(e) 15.32	--		
	12/30/2012	--	MW-02S	15.19	31.96	(e) 16.77	--		
	12/30/2012	--	MW-02D	17.87	31.81	(e) 13.94	--		
	1/25/2013	--	MW-02S	16.61	31.96	(e) 15.35	--		
	1/25/2013	--	MW-02D	16.00	31.81	(e) 15.81	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/9/2013	--	MW-02S	16.57	31.96	(e) 15.39	--		
	2/9/2013	--	MW-02D	16.54	31.81	(e) 15.27	--		
	3/31/2013	--	MW-02S	16.57	31.96	(e) 15.39	--		
	3/31/2013	--	MW-02D	21.87	31.81	(e) 9.94	--		
	4/29/2013	--	MW-02S	16.71	31.96	15.25	--		
	4/29/2013	--	MW-02D	20.14	31.81	11.67	--		
	5/31/2013	--	MW-02S	17.48	31.96	14.48	--		
	5/31/2013	--	MW-02D	20.56	31.81	11.25	--		
	6/9/2013	--	MW-02S	17.48	31.96	14.48	--		
	6/9/2013	--	MW-02D	21.93	31.81	9.88	--		
	7/21/2013	--	MW-02S	18.11	31.96	13.85	--		
	7/21/2013	--	MW-02D	17.62	31.81	14.19	--		
	8/29/2013	--	MW-02S	17.89	31.96	14.07	--		
	8/29/2013	--	MW-02D	20.27	31.81	11.54	--		
	9/21/2013	--	MW-02S	17.63	31.96	14.33	--		
	9/21/2013	--	MW-02D	19.31	31.81	12.50	--		
	10/6/2013	--	MW-02S	16.03	31.96	15.93	--		
	10/6/2013	--	MW-02D	18.53	31.81	13.28	--		
	11/10/2013	--	MW-02S	17.11	31.96	14.85	--		
	11/10/2013	--	MW-02D	17.69	31.81	14.12	--		
	12/15/2013	--	MW-02S	17.50	31.96	14.46	--		
	12/15/2013	--	MW-02D	17.11	31.81	14.70	--		
	1/5/2014	--	MW-02S	17.67	31.96	14.29	--		
	1/5/2014	--	MW-02D	20.33	31.81	11.48	--		
	2/1/2014	--	MW-02S	17.21	31.96	14.75	--		
	2/1/2014	--	MW-02D	18.08	31.81	13.73	--		
	3/1/2014	--	MW-02S	15.96	31.96	16.00	--		
	3/1/2014	--	MW-02D	17.19	31.81	14.62	--		
	4/6/2014	--	MW-02S	16.15	31.96	15.81	--		
	4/6/2014	--	MW-02D	19.32	31.81	12.49	--		
	5/17/2014	--	MW-02S	16.14	31.96	15.82	--		
	5/17/2014	--	MW-02D	19.21	31.81	12.60	--		
	6/22/2014	--	MW-02S	16.94	31.96	15.02	--		
	6/22/2014	--	MW-02D	18.15	31.81	13.66	--		
	7/5/2014	--	MW-02S	17.16	31.96	14.80	--		
	7/5/2014	--	MW-02D	18.99	31.81	12.82	--		
	8/12/2014	--	MW-02S	17.39	31.96	14.57	--		
	8/12/2014	--	MW-02D	21.06	31.81	10.75	--		
	9/23/2014	--	MW-02S	17.69	31.96	14.27	--		
	9/23/2014	--	MW-02D	19.11	31.81	12.70	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/11/2014	--	MW-02S	17.84	31.96	14.12	--		
	10/11/2014	--	MW-02D	19.21	31.81	12.60	--		
	11/9/2014	--	MW-02S	16.84	31.96	15.12	--		
	11/9/2014	--	MW-02D	18.71	31.81	13.10	--		
	12/7/2014	--	MW-02S	16.71	31.96	15.25	--		
	12/7/2014	--	MW-02D	17.29	31.81	14.52	--		
	1/3/2015	--	MW-02S	16.46	31.96	15.50	--		
	1/3/2015	--	MW-02D	16.3	31.81	15.51	--		
	2/14/2015	--	MW-02S	16.02	31.96	15.94	--		
	2/14/2015	--	MW-02D	18.19	31.81	13.62	--		
	3/9/2015	--	MW-02S	16.71	31.96	15.25	--		
	3/9/2015	--	MW-02D	17.39	31.81	14.42	--		
	4/5/2015	--	MW-02S	17.03	31.96	14.93	--		
	4/5/2015	--	MW-02D	17.64	31.81	14.17	--		
	5/16/2015	--	MW-02S	17.28	31.96	14.68	--		
	5/16/2015	--	MW-02D	21.17	31.81	10.64	--		
	6/7/2015	--	MW-02S	17.44	31.96	14.52	--		Brown mush like substance on probe
	6/7/2015	--	MW-02D	21.99	31.81	9.82	--		
	7/7/2015	--	MW-02S	17.73	31.96	14.23	--		
	7/7/2015	--	MW-02D	16.73	31.81	15.08	--		
	8/1/2015	--	MW-02S	17.88	31.96	14.08	--		
	8/1/2015	--	MW-02D	22.18	31.81	9.63	--		
	9/24/2015	--	MW-02S	18.22	31.96	13.74	--		
	9/24/2015	--	MW-02D	21.41	31.81	10.40	--		
	10/16/2015	--	MW-02S	18.34	31.96	13.62	--		
	10/16/2015	--	MW-02D	18.62	31.81	13.19	--		
	11/3/2015	--	MW-02S	17.88	31.96	14.08	--		
	11/3/2015	--	MW-02D	16.83	31.81	14.98	--		
	12/4/2015	--	MW-02S	16.99	31.96	14.97	--		
	12/4/2015	--	MW-02D	16.04	31.81	15.77	--		
	1/15/2016	--	MW-02S	16.09	31.96	15.87	--		
	1/15/2016	--	MW-02D	18.23	31.81	13.58	--		
	2/16/2016	--	MW-02S	14.93	31.96	17.03	--		
	2/16/2016	--	MW-02D	17.47	31.81	14.34	--		
	3/19/2016	--	MW-02S	14.44	31.96	17.52	--		
	3/19/2016	--	MW-02D	17.47	31.81	14.34	--		
	4/3/2016	--	MW-02S	14.98	31.96	16.98	15.50	Yes	
	4/3/2016	--	MW-02D	18.61	31.81	13.20	--		
	5/14/2016	--	MW-02S	16.12	31.96	15.84	15.50	Yes	
	5/14/2016	--	MW-02D	20.17	31.81	11.64	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/12/2016	--	MW-02S	16.51	31.96	15.45	15.50	No	
	6/12/2016	--	MW-02D	20.23	31.81	11.58	--		
	7/5/2016	--	MW-02S	16.68	31.96	15.28	15.50	No	
	7/5/2016	--	MW-02D	19.87	31.81	11.94	--		
	8/6/2016	--	MW-02S	16.83	31.96	15.13	15.50	No	
	8/6/2016	--	MW-02D	18.98	31.81	12.83	--		
	9/4/2016	--	MW-02S	17.09	31.96	14.87	15.50	No	
	9/4/2016	--	MW-02D	20.48	31.81	11.33	--		
	10/1/2016	--	MW-02S	17.16	31.96	14.80	15.50	No	
	10/1/2016	--	MW-02D	19.24	31.81	12.57	--		
	11/6/2016	--	MW-02S	15.33	31.96	16.63	15.50	Yes	
	11/6/2016	--	MW-02D	17.32	31.81	14.49	--		
	12/17/2016	--	MW-02S	15.18	31.96	16.78	15.50	Yes	
	12/17/2016	--	MW-02D	19.08	31.81	12.73	--		
	1/21/2017	--	MW-02S	14.44	31.96	17.52	15.50	Yes	
	1/21/2017	--	MW-02D	14.98	31.81	16.83	--		
	2/2/2017	--	MW-02S	15.28	31.96	16.68	15.50	Yes	
	2/2/2017	--	MW-02D	19.99	31.81	11.82	--		
	2/28/2017	--	MW-02S	14.26	31.96	17.70	15.50	Yes	
	2/28/2017	--	MW-02D	17.32	31.81	14.49	--		
	3/30/2017	--	MW-02S	13.02	31.96	18.94	15.50	Yes	
	3/30/2017	--	MW-02D	19.55	31.81	12.26	--		
	4/30/2017	--	MW-02S	14.18	31.96	17.78	15.50	Yes	
	4/30/2017	--	MW-02D	21.81	31.81	10.00	--		
	5/21/2017	--	MW-02S	14.27	31.96	17.69	15.50	Yes	
	5/21/2017	--	MW-02D	18.42	31.81	13.39	--		
	6/6/2017	--	MW-02S	14.77	31.96	17.19	15.50	Yes	
	6/6/2017	--	MW-02D	18.30	31.81	13.51	--		
	7/8/2017	--	MW-02S	15.54	31.96	16.42	15.50	Yes	
	7/8/2017	--	MW-02D	19.16	31.81	12.65	--		
	8/4/2017	--	MW-02S	15.94	31.96	16.02	15.50	Yes	
	8/4/2017	--	MW-02D	20.29	31.81	11.52	--		
	9/9/2017	--	MW-02S	16.43	31.96	15.53	15.50	Yes	
	9/9/2017	--	MW-02D	19.48	31.81	12.33	--		
	10/11/2017	--	MW-02S	16.64	31.96	15.32	15.50	No	
	10/11/2017	--	MW-02D	17.53	31.81	14.28	--		
	11/12/2017	--	MW-02S	15.59	31.96	16.37	15.50	Yes	
	11/12/2017	--	MW-02D	16.13	31.81	15.68	--		
	12/16/2017	--	MW-02S	15.20	31.96	16.76	15.50	Yes	
	12/16/2017	--	MW-02D	17.38	31.81	14.43	--		
	1/1/2018	--	MW-02S	14.12	31.96	17.84	15.50	Yes	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/1/2018	--	MW-02D	16.93	31.81	14.88	--		
	2/10/2018	--	MW-02S	14.25	31.96	17.71	15.50	Yes	
	2/10/2018	--	MW-02D	17.61	31.81	14.20	--		
	3/8/2018	--	MW-02S	14.24	31.96	17.72	15.50	Yes	
	3/8/2018	--	MW-02D	16.19	31.81	15.62	--		
	4/27/2018	--	MW-02S	14.26	31.96	17.70	15.50	Yes	
	4/27/2018	--	MW-02D	17.07	31.81	14.74	--		
	5/28/2018	--	MW-02S	15.53	31.96	16.43	15.50	Yes	
	5/28/2018	--	MW-02D	21.29	31.81	10.52	--		
	6/29/2018	--	MW-02S	15.93	31.96	16.03	15.50	Yes	
	6/29/2018	--	MW-02D	18.31	31.81	13.50	--		
	7/15/2018	--	MW-02S	15.96	31.96	16.00	15.50	Yes	
	7/15/2018	--	MW-02D	19.70	31.81	12.11	--		
	8/12/2018	--	MW-02S	16.26	31.96	15.70	15.50	Yes	
	8/12/2018	--	MW-02D	18.09	31.81	13.72	--		
	9/12/2018	--	MW-02S	16.47	31.96	15.49	15.50	No	
	9/12/2018	--	MW-02D	17.05	31.81	14.76	--		
	10/6/2018	--	MW-02S	16.73	31.96	15.23	15.50	No	
	10/6/2018	--	MW-02D	16.51	31.81	15.30	--		
	11/4/2018	--	MW-02S	16.62	31.96	15.34	15.50	No	
	11/4/2018	--	MW-02D	16.09	31.81	15.72	--		
	12/2/2018	--	MW-02S	16.16	31.96	15.80	15.50	Yes	
	12/2/2018	--	MW-02D	15.73	31.81	16.08	--		
	1/1/2019	--	MW-02S	15.13	31.96	16.83	15.50	Yes	
	1/1/2019	--	MW-02D	19.45	31.81	12.36	--		
	2/2/2019	--	MW-02S	15.11	31.96	16.85	15.50	Yes	
	2/2/2019	--	MW-02D	17.63	31.81	14.18	--		
	3/11/2019	--	MW-02S	15.32	31.96	16.64	15.50	Yes	
	3/11/2019	--	MW-02D	16.54	31.81	15.27	--		
	4/7/2019	--	MW-02S	16.01	31.96	15.95	15.50	Yes	
	4/7/2019	--	MW-02D	19.22	31.81	12.59	--		
	5/19/2019	--	MW-02S	16.31	31.96	15.65	15.50	Yes	
	5/19/2019	--	MW-02D	18.62	31.81	13.19	--		
	6/9/2019	--	MW-02S	17.03	31.96	14.93	15.50	No	
	6/9/2019	--	MW-02D	21.48	31.81	10.33	--		
	7/30/2019	--	MW-02S	17.07	31.96	14.89	15.50	No	
	7/30/2019	--	MW-02D	21.04	31.81	10.77	--		
	8/27/2019	--	MW-02S	16.90	31.96	15.06	15.50	No	
	8/27/2019	--	MW-02D	22.25	31.81	9.56	--		
	9/25/2019	--	MW-02S	16.98	31.96	14.98	15.50	No	
	9/25/2019	--	MW-02D	21.82	31.81	9.99	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/22/2019	--	MW-02S	16.65	31.96	15.31	15.50	No	
	10/22/2019	--	MW-02D	19.55	31.81	12.26	--		
	11/8/2019	--	MW-02S	16.63	31.96	15.33	15.50	No	
	11/8/2019	--	MW-02D	20.26	31.81	11.55	--		
	12/8/2019	--	MW-02S	17.30	31.96	14.66	15.50	No	
	12/8/2019	--	MW-02D	15.93	31.81	15.88	--		
	1/5/2020	--	MW-02S	16.19	31.96	15.77	15.50	Yes	
	1/5/2020	--	MW-02D	16.68	31.81	15.13	--		
	2/21/2020	--	MW-02S	15.83	31.96	16.13	15.50	Yes	
	2/21/2020	--	MW-02D	17.02	31.81	14.79	--		
	3/19/2020	--	MW-02S	16.68	31.96	15.28	15.50	No	
	3/19/2020	--	MW-02D	18.42	31.81	13.39	--		
	4/5/2020	--	MW-02S	16.60	31.96	15.36	15.50	No	
	4/5/2020	--	MW-02D	17.60	31.81	14.21	--		
	5/10/2020	--	MW-02S	17.41	31.96	14.55	15.50	No	
	5/10/2020	--	MW-02D	21.23	31.81	10.58	--		
	6/13/2020	--	MW-02S	17.88	31.96	14.08	15.50	No	
	6/13/2020	--	MW-02D	20.31	31.81	11.50	--		
	7/4/2020	--	MW-02S	18.03	31.96	13.93	15.50	No	
	7/4/2020	--	MW-02D	21.65	31.81	10.16	--		
	8/9/2020	--	MW-02S	18.35	31.96	13.61	15.50	No	
	8/9/2020	--	MW-02D	20.08	31.81	11.73	--		
	9/17/2020	--	MW-02S	17.93	31.96	14.03	15.50	No	
	9/17/2020	--	MW-02D	18.68	31.81	13.13	--		
	10/22/2020	--	MW-02S	17.81	31.96	14.15	15.50	No	
	10/22/2020	--	MW-02D	18.90	31.81	12.91	--		
	11/14/2020	--	MW-02S	17.69	31.96	14.27	15.50	No	
	11/14/2020	--	MW-02D	18.81	31.81	13.00	--		
	12/12/2020	--	MW-02S	16.91	31.96	15.05	15.50	No	
	12/12/2020	--	MW-02D	18.13	31.81	13.68	--		
	1/16/2021	--	MW-02S	13.91	31.96	18.05	15.50	Yes	
	1/16/2021	--	MW-02D	18.62	31.81	13.19	--		
	2/6/2021	--	MW-02S	14.34	31.96	17.62	15.50	Yes	
	2/6/2021	--	MW-02D	17.68	31.81	14.13	--		
	3/10/2021	--	MW-02S	14.99	31.96	16.97	15.50	Yes	
	3/10/2021	--	MW-02D	18.52	31.81	13.29	--		
	4/23/2021	--	MW-02S	16.02	31.96	15.94	15.50	Yes	
	4/23/2021	--	MW-02D	18.18	31.81	13.63	--		
	5/16/2021	--	MW-02S	16.48	31.96	15.48	15.50	No	
	5/16/2021	--	MW-02D	21.95	31.81	9.86	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/5/2021	--	MW-02S	16.83	31.96	15.13	15.50	No	
	6/5/2021	--	MW-02D	19.61	31.81	12.20	--		
	7/24/2021	--	MW-02S	17.37	31.96	14.59	15.50	No	
	7/24/2021	--	MW-02D	21.80	31.81	10.01	--		
	8/19/2021	--	MW-02S	17.68	31.96	14.28	15.50	No	
	8/19/2021	--	MW-02D	17.66	31.81	14.15	--		
	9/16/2021	--	MW-02S	18.07	31.96	13.89	15.50	No	
	9/16/2021	--	MW-02D	22.22	31.81	9.59	--		
	10/2/2021	--	MW-02S	18.02	31.96	13.94	15.50	No	
	10/2/2021	--	MW-02D	17.14	31.81	14.67	--		
	11/13/2021	--	MW-02S	15.18	31.96	16.78	15.50	Yes	
	11/13/2021	--	MW-02D	16.24	31.81	15.57	--		
	12/5/2021	--	MW-02S	15.98	31.96	15.98	15.50	Yes	
	12/5/2021	--	MW-02D	18.41	31.81	13.40	--		
	1/8/2022	--	MW-02S	12.73	31.96	19.23	15.50	Yes	
	1/8/2022	--	MW-02D	17.89	31.81	13.92	--		
	2/20/2022	--	MW-02S	15.91	31.96	16.05	15.50	Yes	
	2/20/2022	--	MW-02D	19.91	31.81	11.90	--		
	3/24/2022	--	MW-02S	15.51	31.96	16.45	15.50	Yes	
	3/24/2022	--	MW-02D	16.71	31.81	15.10	--		
	4/7/2022	--	MW-02S	15.60	31.96	16.36	15.50	Yes	
	4/7/2022	--	MW-02D	21.39	31.81	10.42	--		
	5/25/2022	--	MW-02S	15.77	31.96	16.19	15.50	Yes	
	5/25/2022	--	MW-02D	18.68	31.81	13.13	--		
	6/11/2022	--	MW-02S	15.58	31.96	16.38	15.50	Yes	
	6/11/2022	--	MW-02D	17.32	31.81	14.49	--		
	7/4/2022	--	MW-02S	16.13	31.96	15.83	15.50	Yes	
	7/4/2022	--	MW-02D	20.84	31.81	10.97	--		
	8/6/2022	--	MW-02S	16.93	31.96	15.03	15.50	No	
	8/6/2022	--	MW-02D	20.10	31.81	11.71	--		
	9/15/2022	9:06	MW-02S	17.52	31.96	14.44	15.50	No	
	9/15/2022	6:49	MW-02D	19.94	31.81	11.87	--		
	10/21/2022	(g)	MW-02S	17.78	31.96	14.18	15.50	No	
	10/21/2022	(g)	MW-02D	20.47	31.81	11.34	--		
	11/5/2022	(h)	MW-02S	16.22	31.96	15.74	15.50	Yes	
	11/5/2022	(h)	MW-02D	19.21	31.81	12.60	--		
	12/17/2022	(i)	MW-02S	16.18	31.96	15.78	15.50	Yes	
	12/17/2022	(i)	MW-02D	16.28	31.81	15.53	--		
	1/7/2023	(j)	MW-02S	15.44	31.96	16.52	15.50	Yes	
	1/7/2023	(j)	MW-02D	16.37	31.81	15.44	--		
	2/19/2023	(k)	MW-02S	15.92	31.96	16.04	15.50	Yes	
	2/19/2023	(k)	MW-02D	17.64	31.81	14.17	--		



**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/10/2023	8:48	MW-02S	15.58	31.96	16.38	15.50	Yes	
	3/10/2023	8:49	MW-02D	16.90	31.81	14.91	--		
	4/22/2023	15:17	MW-02S	14.46	31.96	17.50	15.50	Yes	
	4/22/2023	15:13	MW-02D	21.84	31.81	9.97	--		
	5/6/2023	10:27	MW-02S	15.29	31.96	16.67	15.50	Yes	
	5/6/2023	10:20	MW-02D	18.41	31.81	13.40	--		
	6/27/2023	17:37	MW-02S	15.88	31.96	16.08	15.50	Yes	
	6/27/2023	17:51	MW-02D	14.32	31.81	17.49	--		
	7/4/2023	9:59	MW-02S	16.21	31.96	15.75	15.50	Yes	
	7/4/2023	9:51	MW-02D	18.47	31.81	13.34	--		
	8/19/2023	12:40	MW-02S	17.03	31.96	14.93	15.50	No	
	8/19/2023	12:32	MW-02D	19.45	31.81	12.36	--		
	9/14/2023	10:51	MW-02S	17.29	31.96	14.67	15.50	No	
	9/14/2023	11:01	MW-02D	20.07	31.81	11.74	--		
6	11/8/2006	--	MW-01S	7.51	21.64	14.13	--		
	11/8/2006	--	MW-01D	7.94	21.87	13.93	--		
	12/31/2006	--	MW-01S	5.59	21.64	16.05	--		
	12/31/2006	--	MW-01D	6.78	21.87	15.09	--		
	3/2/2007	--	MW-01S	5.81	21.64	15.83	--		
	3/2/2007	--	MW-01D	8.92	21.87	12.95	--		
	3/31/2007	--	MW-01S	5.71	21.64	15.93	--		
	3/31/2007	--	MW-01D	9.51	21.87	12.36	--		
	4/23/2007	--	MW-01S	6.17	21.64	15.47	--		
	4/23/2007	--	MW-01D	7.89	21.87	13.98	--		
	5/28/2007	--	MW-01S	6.78	21.64	14.86	--		
	5/28/2007	--	MW-01D	11.02	21.87	10.85	--		
	6/30/2007	--	MW-01S	7.12	21.64	14.52	--		
	6/30/2007	--	MW-01D	11.74	21.87	10.13	--		
	8/1/2007	--	MW-01S	7.29	21.64	14.35	--		
	8/1/2007	--	MW-01D	9.57	21.87	12.30	--		
	9/29/2007	--	MW-01S	8.03	21.64	13.61	--		
	9/29/2007	--	MW-01D	8.83	21.87	13.04	--		
	11/22/2007	--	MW-01S	7.79	21.64	13.85	--		
	11/22/2007	--	MW-01D	8.89	21.87	12.98	--		
	1/26/2008	--	MW-01S	7.69	21.64	13.95	--		
	1/26/2008	--	MW-01D	5.63	21.87	16.24	--		
	2/28/2008	--	MW-01S	5.41	21.64	16.23	--		
	2/28/2008	--	MW-01D	9.87	21.87	12.00	--		
	3/19/2008	--	MW-01S	5.76	21.64	15.88	--		
	3/19/2008	--	MW-01D	9.62	21.87	12.25	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/28/2008	--	MW-01S	6.06	21.64	15.58	--		
	4/28/2008	--	MW-01D	8.65	21.87	13.22	--		
	5/31/2008	--	MW-01S	6.53	21.64	15.11	--		
	5/31/2008	--	MW-01D	8.72	21.87	13.15	--		
	6/30/2008	--	MW-01S	6.74	21.64	13.61	--		
	6/30/2008	--	MW-01D	7.94	21.87	13.04	--		
	7/12/2008	--	MW-01S	6.92	21.64	14.72	--		
	7/12/2008	--	MW-01D	10.94	21.87	10.93	--		
	8/28/2008	--	MW-01S	7.62	21.64	14.02	--		
	8/28/2008	--	MW-01D	11.03	21.87	10.84	--		
	9/20/2008	--	MW-01S	7.75	21.64	13.89	--		
	9/20/2008	--	MW-01D	8.58	21.87	13.29	--		
	10/12/2008	--	MW-01S	7.76	21.64	13.88	--		
	10/12/2008	--	MW-01D	8.59	21.87	13.28	--		
	11/30/2008	--	MW-01S	6.93	21.64	14.71	--		
	11/30/2008	--	MW-01D	8.44	21.87	13.43	--		
	12/31/2008	--	MW-01S	6.86	21.64	14.78	--		
	12/31/2008	--	MW-01D	7.81	21.87	14.06	--		
	1/31/2009	--	MW-01S	6.54	21.64	15.10	--		
	1/31/2009	--	MW-01D	9.94	21.87	11.93	--		
	2/23/2009	--	MW-01S	6.73	21.64	14.91	--		
	2/23/2009	--	MW-01D	9.27	21.87	12.60	--		
	3/29/2009	--	MW-01S	6.67	21.64	14.97	--		
	3/29/2009	--	MW-01D	11.20	21.87	10.67	--		
	4/18/2009	--	MW-01S	6.61	21.64	15.03	--		
	4/18/2009	--	MW-01D	10.30	21.87	11.57	--		
	5/16/2009	--	MW-01S	6.34	21.64	15.30	--		
	5/16/2009	--	MW-01D	9.21	21.87	12.66	--		
	6/21/2009	--	MW-01S	6.81	21.64	14.83	--		
	6/21/2009	--	MW-01D	8.52	21.87	13.35	--		
	7/20/2009	--	MW-01S	7.21	21.64	14.43	--		
	7/20/2009	--	MW-01D	7.12	21.87	14.75	--		
	8/10/2009	--	MW-01S	7.40	21.64	14.24	--		
	8/10/2009	--	MW-01D	8.36	21.87	13.51	--		
	9/7/2009	--	MW-01S	7.79	21.64	13.85	--		
	9/7/2009	--	MW-01D	9.28	21.87	12.59	--		
	10/10/2009	--	MW-01S	8.19	21.64	13.45	--		
	10/10/2009	--	MW-01D	8.67	21.87	13.20	--		
	11/28/2009	--	MW-01S	7.48	21.64	14.16	--		
	11/28/2009	--	MW-01D	8.76	21.87	13.11	--		
	12/31/2009	--	MW-01S	7.22	21.64	14.42	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	12/31/2009	--	MW-01D	6.35	21.87	15.52	--		
	1/14/2010	--	MW-01S	6.96	21.64	14.68	--		
	1/14/2010	--	MW-01D	6.94	21.87	14.93	--		
	2/21/2010	--	MW-01S	6.41	21.64	15.23	--		
	2/21/2010	--	MW-01D	7.15	21.87	14.72	--		
	3/17/2010	--	MW-01S	6.28	21.64	15.36	--		
	3/17/2010	--	MW-01D	8.24	21.87	13.63	--		
	4/25/2010	--	MW-01S	6.31	21.64	15.33	--		
	4/25/2010	--	MW-01D	8.61	21.87	13.26	--		
	5/16/2010	--	MW-01S	6.52	21.64	15.12	--		
	5/16/2010	--	MW-01D	10.69	21.87	11.18	--		
	6/26/2010	--	MW-01S	6.84	21.64	14.80	--		
	6/26/2010	--	MW-01D	10.04	21.87	11.83	--		
	7/23/2010	--	MW-01S	7.03	21.64	14.61	--		
	7/23/2010	--	MW-01D	10.75	21.87	11.12	--		
	8/30/2010	--	MW-01S	7.48	21.64	14.16	--		
	8/30/2010	--	MW-01D	8.82	21.87	13.05	--		
	9/30/2010	--	MW-01S	7.26	21.64	14.38	--		
	9/30/2010	--	MW-01D	8.00	21.87	13.87	--		
	10/18/2010	--	MW-01S	7.24	21.64	14.40	--		
	10/18/2010	--	MW-01D	12.53	21.87	9.34	--		
	11/29/2010	--	MW-01S	6.84	21.64	14.80	--		
	11/29/2010	--	MW-01D	9.66	21.87	12.21	--		
	12/25/2010	--	MW-01S	6.54	21.64	15.10	--		
	12/25/2010	--	MW-01D	6.41	21.87	15.46	--		
	1/29/2011	--	MW-01S	6.49	21.64	15.15	--		
	1/29/2011	--	MW-01D	7.72	21.87	14.15	--		
	2/20/2011	--	MW-01S	6.48	21.64	15.16	--		
	2/20/2011	--	MW-01D	9.40	21.87	12.47	--		
	3/24/2011	--	MW-01S	5.86	21.64	15.78	--		
	3/24/2011	--	MW-01D	5.93	21.87	15.94	--		
	4/23/2011	--	MW-01S	5.98	21.64	15.66	--		
	4/23/2011	--	MW-01D	10.67	21.87	11.20	--		
	5/30/2011	--	MW-01S	6.53	21.64	15.11	--		
	5/30/2011	--	MW-01D	10.63	21.87	11.24	--		
	6/26/2011	--	MW-01S	7.01	21.64	14.63	--		
	6/26/2011	--	MW-01D	8.44	21.87	13.43	--		
	7/30/2011	--	MW-01S	7.13	21.64	14.51	--		
	7/30/2011	--	MW-01D	10.85	21.87	11.02	--		
	8/8/2011	--	MW-01S	7.20	21.64	14.44	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/8/2011	--	MW-01D	10.94	21.87	10.93	--		minor amount of product on probe. No signal.
	9/24/2011	--	MW-01S	7.51	21.64	14.13	--		
	9/24/2011	--	MW-01D	10.65	21.87	11.22	--		
	10/29/2011	--	MW-01S	7.74	21.64	13.90	--		
	10/29/2011	--	MW-01D	7.90	21.87	13.97	--		
	11/26/2011	--	MW-01S	7.30	21.64	14.34	--		
	11/26/2011	--	MW-01D	6.53	21.87	15.34	--		
	12/26/2011	--	MW-01S	7.62	21.64	14.02	--		
	12/26/2011	--	MW-01D	8.70	21.72	(f) 13.02	--		
	1/28/2012	--	MW-01S	6.41	21.64	15.23	--		
	1/28/2012	--	MW-01D	7.24	21.72	(f) 14.48	--		
	2/26/2012	--	MW-01S	6.41	21.64	15.23	--		
	2/26/2012	--	MW-01D	10.20	21.72	(f) 11.52	--		
	3/7/2012	--	MW-01S	6.66	21.64	14.98	--		
	3/7/2012	--	MW-01D	9.18	21.72	(f) 12.54	--		
	4/21/2012	--	MW-01S	6.67	21.64	14.97	--		
	4/21/2012	--	MW-01D	8.87	21.72	(f) 12.85	--		
	5/19/2012	--	MW-01S	6.63	21.64	15.01	--		
	5/19/2012	--	MW-01D	9.50	21.72	(f) 12.22	--		
	6/30/2012	--	MW-01S	6.33	21.64	15.31	--		
	6/30/2012	--	MW-01D	7.94	21.72	(f) 13.78	--		
	7/27/2012	--	MW-01S	6.20	21.64	15.44	--		
	7/27/2012	--	MW-01D	8.26	21.72	(f) 13.46	--		
	8/12/2012	--	MW-01S	6.04	21.64	15.60	--		
	8/12/2012	--	MW-01D	8.32	21.72	(f) 13.40	--		
	9/30/2012	--	MW-01S	6.11	21.64	15.53	--		
	9/30/2012	--	MW-01D	8.21	21.72	(f) 13.51	--		
	10/24/2012	--	MW-01S	6.49	21.64	15.15	--		
	10/24/2012	--	MW-01D	9.30	21.72	(f) 12.42	--		
	11/24/2012	--	MW-01S	5.81	21.64	15.83	--		
	11/24/2012	--	MW-01D	7.09	21.72	(f) 14.63	--		
	12/30/2012	--	MW-01S	5.85	21.64	15.79	--		
	12/30/2012	--	MW-01D	7.58	21.72	(f) 14.14	--		
	1/25/2013	--	MW-01S	6.37	21.64	15.27	--		
	1/25/2013	--	MW-01D	7.00	21.72	(f) 14.72	--		
	2/9/2013	--	MW-01S	6.71	21.64	14.93	--		
	2/9/2013	--	MW-01D	7.17	21.72	(f) 14.55	--		
	3/31/2013	--	MW-01S	6.96	21.64	14.68	--		
	3/31/2013	--	MW-01D	10.61	21.72	(f) 11.11	--		
	4/29/2013	--	MW-01S	7.15	21.64	14.49	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/29/2013	--	MW-01D	10.88	21.72	10.84	--		
	5/31/2013	--	MW-01S	7.42	21.64	14.22	--		
	5/31/2013	--	MW-01D	10.17	21.72	11.55	--		
	6/9/2013	--	MW-01S	7.47	21.64	14.17	--		
	6/9/2013	--	MW-01D	10.86	21.72	10.86	--		
	7/21/2013	--	MW-01S	7.68	21.64	13.96	--		
	7/21/2013	--	MW-01D	8.57	21.72	13.15	--		
	8/29/2013	--	MW-01S	7.99	21.64	13.65	--		
	8/29/2013	--	MW-01D	10.11	21.72	11.61	--		
	9/21/2013	--	MW-01S	7.89	21.64	13.75	--		
	9/21/2013	--	MW-01D	7.99	21.72	13.73	--		
	10/6/2013	--	MW-01S	7.42	21.64	14.22	--		
	10/6/2013	--	MW-01D	8.36	21.72	13.36	--		
	11/10/2013	--	MW-01S	7.77	21.64	13.87	--		
	11/10/2013	--	MW-01D	7.70	21.72	14.02	--		
	12/15/2013	--	MW-01S	7.93	21.64	13.71	--		
	12/15/2013	--	MW-01D	7.38	21.72	14.34	--		
	1/5/2014	--	MW-01S	9.42	21.64	12.22	--		
	1/5/2014	--	MW-01D	8.13	21.72	13.59	--		
	2/1/2014	--	MW-01S	7.93	21.64	13.71	--		
	2/1/2014	--	MW-01D	7.79	21.72	13.93	--		
	3/1/2014	--	MW-01S	7.37	21.64	14.27	--		
	3/1/2014	--	MW-01D	7.36	21.72	14.36	--		
	4/6/2014	--	MW-01S	7.05	21.64	14.59	--		
	4/6/2014	--	MW-01D	8.86	21.72	12.86	--		
	5/17/2014	--	MW-01S	6.95	21.64	14.69	--		
	5/17/2014	--	MW-01D	8.97	21.72	12.75	--		
	6/22/2014	--	MW-01S	7.42	21.64	14.22	--		
	6/22/2014	--	MW-01D	8.54	21.72	13.18	--		
	7/5/2014	--	MW-01S	7.62	21.64	14.02	--		
	7/5/2014	--	MW-01D	8.80	21.72	12.92	--		
	8/12/2014	--	MW-01S	7.97	21.64	13.67	--		
	8/12/2014	--	MW-01D	10.29	21.72	11.43	--		
	9/23/2014	--	MW-01S	8.25	21.64	13.39	--		
	9/23/2014	--	MW-01D	7.88	21.72	13.84	--		
	10/11/2014	--	MW-01S	8.46	21.64	13.18	--		
	10/11/2014	--	MW-01D	8.63	21.72	13.09	--		
	11/9/2014	--	MW-01S	7.86	21.64	13.78	--		
	11/9/2014	--	MW-01D	7.67	21.72	14.05	--		
	12/7/2014	--	MW-01S	7.74	21.64	13.90	--		
	12/7/2014	--	MW-01D	7.36	21.72	14.36	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/3/2015	--	MW-01S	7.49	21.64	14.15	--		
	1/3/2015	--	MW-01D	6.87	21.72	14.85	--		
	2/14/2015	--	MW-01S	7.2	21.64	14.44	--		
	2/14/2015	--	MW-01D	7.79	21.72	13.93	--		
	3/9/2015	--	MW-01S	7.48	21.64	14.16	--		
	3/9/2015	--	MW-01D	7.02	21.72	14.70	--		
	4/5/2015	--	MW-01S	7.18	21.64	14.46	--		
	4/5/2015	--	MW-01D	8.12	21.72	13.60	--		
	5/16/2015	--	MW-01S	7.76	21.64	13.88	--		
	5/16/2015	--	MW-01D	10.39	21.72	11.33	--		
	6/7/2015	--	MW-01S	7.96	21.64	13.68	--		Product signal at 7.93 ft BTC
	6/7/2015	--	MW-01D	10.71	21.72	11.01	--		
	7/7/2015	--	MW-01S	8.25	21.64	13.39	--		
	7/7/2015	--	MW-01D	7.27	21.72	14.45	--		
	8/1/2015	--	MW-01S	8.44	21.64	13.20	--		
	8/1/2015	--	MW-01D	10.65	21.72	11.07	--		
	9/24/2015	--	MW-01S	8.79	21.64	12.85	--		Product at 8.66 ft; H2O at 8.79
	9/24/2015	--	MW-01D	10.10	21.72	11.62	--		
	10/16/2015	--	MW-01S	8.78	21.64	12.86	--		Product signal at 8.72 ft BTC
	10/16/2015	--	MW-01D	8.17	21.72	13.55	--		
	11/3/2015	--	MW-01S	8.67	21.64	12.97	--		
	11/3/2015	--	MW-01D	7.48	21.72	14.24	--		
	12/4/2015	--	MW-01S	7.88	21.64	13.76	--		
	12/4/2015	--	MW-01D	6.37	21.72	15.35	--		
	1/15/2016	--	MW-01S	7.01	21.64	14.63	--		
	1/15/2016	--	MW-01D	7.67	21.72	14.05	--		
	2/16/2016	--	MW-01S	6.17	21.64	15.47	--		
	2/16/2016	--	MW-01D	7.55	21.72	14.17	--		
	3/19/2016	--	MW-01S	5.61	21.64	16.03	--		
	3/19/2016	--	MW-01D	7.52	21.72	14.20	--		
	4/3/2016	--	MW-01S	5.72	21.64	15.92	--		
	4/3/2016	--	MW-01D	8.10	21.72	13.62	--		
	5/14/2016	--	MW-01S	6.34	21.64	15.30	--		
	5/14/2016	--	MW-01D	9.32	21.72	12.40	--		
	6/12/2016	--	MW-01S	6.65	21.64	14.99	--		
	6/12/2016	--	MW-01D	9.48	21.72	12.24	--		
	7/5/2016	--	MW-01S	6.85	21.64	14.79	--		
	7/5/2016	--	MW-01D	8.87	21.72	12.85	--		
	8/6/2016	--	MW-01S	7.02	21.64	14.62	--		
	8/6/2016	--	MW-01D	9.21	21.72	12.51	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	9/4/2016	--	MW-01S	7.20	21.64	14.44	--		
	9/4/2016	--	MW-01D	9.68	21.72	12.04	--		
	10/1/2016	--	MW-01S	7.31	21.64	14.33	--		
	10/1/2016	--	MW-01D	8.92	21.72	12.80	--		
	11/6/2016	--	MW-01S	6.33	21.64	15.31	--		
	11/6/2016	--	MW-01D	7.07	21.72	14.65	--		
	12/17/2016	--	MW-01S	5.88	21.64	15.76	--		
	12/17/2016	--	MW-01D	8.43	21.72	13.29	--		
	1/21/2017	--	MW-01S	5.51	21.64	16.13	--		
	1/21/2017	--	MW-01D	5.42	21.72	16.30	--		
	2/2/2017	--	MW-01S	5.81	21.64	15.83	--		
	2/2/2017	--	MW-01D	8.93	21.72	12.79	--		
	2/28/2017	--	MW-01S	5.29	21.64	16.35	--		
	2/28/2017	--	MW-01D	7.13	21.72	14.59	--		
	3/30/2017	--	MW-01S	4.62	21.64	17.02	--		
	3/30/2017	--	MW-01D	9.25	21.72	12.47	--		
	4/30/2017	--	MW-01S	5.12	21.64	16.52	--		
	4/30/2017	--	MW-01D	10.72	21.72	11.00	--		
	5/21/2017	--	MW-01S	5.17	21.64	16.47	--		
	5/21/2017	--	MW-01D	8.33	21.72	13.39	--		
	6/6/2017	--	MW-01S	5.43	21.64	16.21	--		
	6/6/2017	--	MW-01D	8.20	21.72	13.52	--		
	7/8/2017	--	MW-01S	5.92	21.64	15.72	--		
	7/8/2017	--	MW-01D	9.39	21.72	12.33	--		
	8/4/2017	--	MW-01S	6.31	21.64	15.33	--		
	8/4/2017	--	MW-01D	10.01	21.72	11.71	--		
	9/9/2017	--	MW-01S	6.72	21.64	14.92	--		
	9/9/2017	--	MW-01D	8.69	21.72	13.03	--		
	10/11/2017	--	MW-01S	6.93	21.64	14.71	--		
	10/11/2017	--	MW-01D	8.11	21.72	13.61	--		
	11/12/2017	--	MW-01S	6.41	21.64	15.23	--		
	11/12/2017	--	MW-01D	6.92	21.72	14.80	--		
	12/16/2017	--	MW-01S	5.92	21.64	15.72	--		
	12/16/2017	--	MW-01D	7.67	21.72	14.05	--		
	1/1/2018	--	MW-01S	5.56	21.64	16.08	--		
	1/1/2018	--	MW-01D	7.15	21.72	14.57	--		
	2/10/2018	--	MW-01S	5.13	21.64	16.51	--		
	2/10/2018	--	MW-01D	7.48	21.72	14.24	--		
	3/8/2018	--	MW-01S	5.25	21.64	16.39	--		
	3/8/2018	--	MW-01D	6.71	21.72	15.01	--		
	4/27/2018	--	MW-01S	5.22	21.64	16.42	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	4/27/2018	--	MW-01D	6.52	21.72	15.20	--		
	5/28/2018	--	MW-01S	5.80	21.64	15.84	--		
	5/28/2018	--	MW-01D	10.51	21.72	11.21	--		
	6/29/2018	--	MW-01S	6.17	21.64	15.47	--		
	6/29/2018	--	MW-01D	8.75	21.72	12.97	--		
	7/15/2018	--	MW-01S	6.23	21.64	15.41	--		
	7/15/2018	--	MW-01D	9.93	21.72	11.79	--		
	8/12/2018	--	MW-01S	6.51	21.64	15.13	--		
	8/12/2018	--	MW-01D	8.80	21.72	12.92	--		
	9/12/2018	--	MW-01S	6.75	21.64	14.89	--		
	9/12/2018	--	MW-01D	7.83	21.72	13.89	--		
	10/6/2018	--	MW-01S	6.91	21.64	14.73	--		
	10/6/2018	--	MW-01D	7.32	21.72	14.40	--		
	11/4/2018	--	MW-01S	6.73	21.64	14.91	--		
	11/4/2018	--	MW-01D	6.92	21.72	14.80	--		
	12/2/2018	--	MW-01S	6.73	21.64	14.91	--		
	12/2/2018	--	MW-01D	6.52	21.72	15.20	--		
	1/1/2019	--	MW-01S	6.29	21.64	15.35	--		
	1/1/2019	--	MW-01D	8.96	21.72	12.76	--		
	2/2/2019	--	MW-01S	5.91	21.64	15.73	--		
	2/2/2019	--	MW-01D	7.30	21.72	14.42	--		
	3/11/2019	--	MW-01S	5.81	21.64	15.83	--		
	3/11/2019	--	MW-01D	7.26	21.72	14.46	--		
	4/7/2019	--	MW-01S	6.10	21.64	15.54	--		
	4/7/2019	--	MW-01D	8.85	21.72	12.87	--		
	5/19/2019	--	MW-01S	6.46	21.64	15.18	--		
	5/19/2019	--	MW-01D	8.93	21.72	12.79	--		
	6/9/2019	--	MW-01S	6.70	21.64	14.94	--		
	6/9/2019	--	MW-01D	10.35	21.72	11.37	--		
	7/30/2019	--	MW-01S	7.03	21.64	14.61	--		
	7/30/2019	--	MW-01D	8.52	21.72	13.20	--		
	8/27/2019	--	MW-01S	7.10	21.64	14.54	--		
	8/27/2019	--	MW-01D	9.85	21.72	11.87	--		
	9/25/2019	--	MW-01S	7.17	21.64	14.47	--		
	9/25/2019	--	MW-01D	10.76	21.72	10.96	--		
	10/22/2019	--	MW-01S	7.05	21.64	14.59	--		
	10/22/2019	--	MW-01D	9.75	21.72	11.97	--		
	11/8/2019	--	MW-01S	7.00	21.64	14.64	--		
	11/8/2019	--	MW-01D	9.55	21.72	12.17	--		
	12/8/2019	--	MW-01S	7.26	21.64	14.38	--		
	12/8/2019	--	MW-01D	6.72	21.72	15.00	--		



**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	1/5/2020	--	MW-01S	6.72	21.64	14.92	--		
	1/5/2020	--	MW-01D	6.88	21.72	14.84	--		
	2/21/2020	--	MW-01S	5.98	21.64	15.66	--		
	2/21/2020	--	MW-01D	7.32	21.72	14.40	--		
	3/19/2020	--	MW-01S	6.36	21.64	15.28	--		
	3/19/2020	--	MW-01D	8.14	21.72	13.58	--		
	4/5/2020	--	MW-01S	6.18	21.64	15.46	--		
	4/5/2020	--	MW-01D	7.72	21.72	14.00	--		
	5/10/2020	--	MW-01S	6.48	21.64	15.16	--		
	5/10/2020	--	MW-01D	9.87	21.72	11.85	--		
	6/13/2020	--	MW-01S	6.57	21.64	15.07	--		
	6/13/2020	--	MW-01D	9.47	21.72	12.25	--		
	7/4/2020	--	MW-01S	6.64	21.64	15.00	--		
	7/4/2020	--	MW-01D	10.96	21.72	10.76	--		
	8/9/2020	--	MW-01S	6.89	21.64	14.75	--		
	8/9/2020	--	MW-01D	9.48	21.72	12.24	--		
	9/17/2020	--	MW-01S	6.97	21.64	14.67	--		
	9/17/2020	--	MW-01D	8.83	21.72	12.89	--		
	10/22/2020	--	MW-01S	6.68	21.64	14.96	--		
	10/22/2020	--	MW-01D	8.48	21.72	13.24	--		
	11/14/2020	--	MW-01S	6.39	21.64	15.25	--		
	11/14/2020	--	MW-01D	8.60	21.72	13.12	--		
	12/12/2020	--	MW-01S	6.13	21.64	15.51	--		
	12/12/2020	--	MW-01D	8.14	21.72	13.58	--		
	1/16/2021	--	MW-01S	4.80	21.64	16.84	--		
	1/16/2021	--	MW-01D	8.13	21.72	13.59	--		
	2/6/2021	--	MW-01S	4.71	21.64	16.93	--		
	2/6/2021	--	MW-01D	7.28	21.72	14.44	--		
	3/10/2021	--	MW-01S	4.77	21.64	16.87	--		
	3/10/2021	--	MW-01D	8.04	21.72	13.68	--		
	4/23/2021	--	MW-01S	5.43	21.64	16.21	--		
	4/23/2021	--	MW-01D	8.07	21.72	13.65	--		
	5/16/2021	--	MW-01S	5.67	21.64	15.97	--		
	5/16/2021	--	MW-01D	10.56	21.72	11.16	--		
	6/5/2021	--	MW-01S	5.87	21.64	15.77	--		
	6/5/2021	--	MW-01D	9.02	21.72	12.70	--		
	7/24/2021	--	MW-01S	6.19	21.64	15.45	--		
	7/24/2021	--	MW-01D	10.07	21.72	11.65	--		
	8/19/2021	--	MW-01S	6.37	21.64	15.27	--		
	8/19/2021	--	MW-01D	8.41	21.72	13.31	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	9/16/2021	--	MW-01S	6.63	21.64	15.01	--		
	9/16/2021	--	MW-01D	10.91	21.72	10.81	--		
	10/2/2021	--	MW-01S	6.57	21.64	15.07	--		
	10/2/2021	--	MW-01D	7.93	21.72	13.79	--		
	11/13/2021	--	MW-01S	5.74	21.64	15.90	--		
	11/13/2021	--	MW-01D	7.18	21.72	14.54	--		
	12/5/2021	--	MW-01S	5.46	21.64	16.18	--		
	12/5/2021	--	MW-01D	8.13	21.72	13.59	--		
	1/8/2022	--	MW-01S	4.22	21.64	17.42	--		
	1/8/2022	--	MW-01D	7.29	21.72	14.43	--		
	2/20/2022	--	MW-01S	5.29	21.64	16.35	--		
	2/20/2022	--	MW-01D	8.92	21.72	12.80	--		
	3/24/2022	--	MW-01S	6.14	21.64	15.50	--		
	3/24/2022	--	MW-01D	4.60	21.72	17.12	--		
	4/7/2022	--	MW-01S	5.08	21.64	16.56	--		
	4/7/2022	--	MW-01D	10.12	21.72	11.60	--		
	5/25/2022	--	MW-01S	5.19	21.64	16.45	--		
	5/25/2022	--	MW-01D	8.38	21.72	13.34	--		
	6/11/2022	--	MW-01S	5.06	21.64	16.58	--		
	6/11/2022	--	MW-01D	7.81	21.72	13.91	--		
	7/4/2022	--	MW-01S	5.57	21.64	16.07	--		
	7/4/2022	--	MW-01D	9.53	21.72	12.19	--		
	8/6/2022	--	MW-01S	5.89	21.64	15.75	--		
	8/6/2022	--	MW-01D	9.56	21.72	12.16	--		
	9/15/2022	11:23	MW-01S	6.35	21.64	15.29	--		
	9/15/2022	11:24	MW-01D	7.88	21.72	13.84	--		
	10/21/2022	(g)	MW-01S	6.56	21.64	15.08	--		
	10/21/2022	(g)	MW-01D	9.39	21.72	12.33	--		
	11/5/2022	(h)	MW-01S	6.27	21.64	15.37	--		
	11/5/2022	(h)	MW-01D	8.76	21.72	12.96	--		
	12/17/2022	(i)	MW-01S	5.94	21.64	15.70	--		
	12/17/2022	(i)	MW-01D	6.98	21.72	14.74	--		
	1/7/2023	(j)	MW-01S	5.47	21.64	16.17	--		
	1/7/2023	(j)	MW-01D	6.48	21.72	15.24	--		
	2/19/2023	(k)	MW-01S	5.48	21.64	16.16	--		
	2/19/2023	(k)	MW-01D	7.79	21.72	13.93	--		
	3/10/2023	12:21	MW-01S	5.42	21.64	16.22	--		
	3/10/2023	12:20	MW-01D	8.00	21.72	13.72	--		
	4/22/2023	16:32	MW-01S	4.89	21.64	16.75	--		
	4/22/2023	16:28	MW-01D	10.14	21.72	11.58	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	5/6/2023	12:00	MW-01S	5.07	21.64	16.57	--		
	5/6/2023	11:54	MW-01D	7.98	21.72	13.74	--		
	6/27/2023	19:45	MW-01S	5.81	21.64	15.83	--		
	6/27/2023	19:18	MW-01D	8.77	21.72	12.95	--		
	7/4/2023	11:33	MW-01S	5.98	21.64	15.66	--		
	7/4/2023	11:19	MW-01D	7.96	21.72	13.76	--		
	8/19/2023	14:03	MW-01S	6.29	21.64	15.35	--		
	8/19/2023	13:58	MW-01D	8.69	21.72	13.03	--		
	9/14/2023	17:41	MW-01S	6.48	21.64	15.16	--		
	9/14/2023	17:44	MW-01D	9.22	21.72	12.50	--		
7	11/8/2006	--	MW-05S	12.29	29.25	16.96	16.50	Yes	
	11/8/2006	--	MW-05D	14.36	28.10	13.74	--		
	12/31/2006	--	MW-05S	11.07	29.25	18.18	16.50	Yes	
	12/31/2006	--	MW-05D	11.96	28.10	16.14	--		
	3/2/2007	--	MW-05S	12.53	29.25	16.72	16.50	Yes	
	3/2/2007	--	MW-05D	16.18	28.10	11.92	--		
	3/31/2007	--	MW-05S	12.19	29.25	17.06	16.50	Yes	
	3/31/2007	--	MW-05D	16.22	28.10	11.88	--		
	4/23/2007	--	MW-05S	13.63	29.25	15.62	16.50	No	
	4/23/2007	--	MW-05D	13.93	28.10	14.17	--		
	5/28/2007	--	MW-05S	15.03	29.25	14.22	16.50	No	
	5/28/2007	--	MW-05D	16.01	28.10	12.09	--		
	6/30/2007	--	MW-05S	15.12	29.25	14.13	16.50	No	
	6/30/2007	--	MW-05D	17.80	28.10	10.30	--		
	8/1/2007	--	MW-05S	15.15	29.25	14.10	16.50	No	
	8/1/2007	--	MW-05D	18.67	28.10	9.43	--		
	9/29/2007	--	MW-05S	16.55	29.25	12.70	16.50	No	
	9/29/2007	--	MW-05D	16.50	28.10	11.60	--		
	11/22/2007	--	MW-05S	15.04	29.25	14.21	16.50	No	
	11/22/2007	--	MW-05D	12.63	28.10	15.47	--		
	1/26/2008	--	MW-05S	13.25	29.25	16.00	16.50	No	
	1/26/2008	--	MW-05D	15.45	28.10	12.65	--		
	2/28/2008	--	MW-05S	12.56	29.25	16.69	16.50	Yes	
	2/28/2008	--	MW-05D	17.81	28.10	10.29	--		
	3/19/2008	--	MW-05S	13.44	29.25	15.81	16.50	No	
	3/19/2008	--	MW-05D	17.97	28.10	10.13	--		
	4/28/2008	--	MW-05S	13.79	29.25	15.46	16.50	No	
	4/28/2008	--	MW-05D	16.16	28.10	11.94	--		
	5/31/2008	--	MW-05S	14.08	29.25	15.17	16.50	No	
	5/31/2008	--	MW-05D	15.63	28.10	12.47	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	6/30/2008	--	MW-05S	15.02	29.25	12.70	16.50	No	
	6/30/2008	--	MW-05D	14.00	28.10	11.60	--		
	7/12/2008	--	MW-05S	15.22	29.25	14.03	16.50	No	
	7/12/2008	--	MW-05D	16.33	28.10	11.77	--		
	8/28/2008	--	MW-05S	16.03	29.25	13.22	16.50	No	
	8/28/2008	--	MW-05D	18.98	28.10	9.12	--		
	9/20/2008	--	MW-05S	NM	29.25	--	16.50	--	
	9/20/2008	--	MW-05D	NM	28.10	--	--		
	10/12/2008	--	MW-05S	NM	29.25	--	16.50	--	
	10/12/2008	--	MW-05D	NM	28.10	--	--		
	11/30/2008	--	MW-05S	NM	29.25	--	16.50	--	
	11/30/2008	--	MW-05D	NM	28.10	--	--		
	12/31/2008	--	MW-05S	NM	29.25	--	16.50	--	
	12/31/2008	--	MW-05D	NM	28.10	--	--		
	1/31/2009	--	MW-05S	15.38	29.45	(d) 14.07	16.50	No	
	1/31/2009	--	MW-05D	16.77	26.50	(d) 9.73	--		
	2/23/2009	--	MW-05S	15.85	29.45	(d) 13.60	16.50	No	
	2/23/2009	--	MW-05D	12.01	26.50	(d) 14.49	--		
	3/29/2009	--	MW-05S	15.17	29.45	(d) 14.28	16.50	No	
	3/29/2009	--	MW-05D	13.86	26.50	(d) 12.64	--		
	4/18/2009	--	MW-05S	15.63	29.45	(d) 13.82	16.50	No	
	4/18/2009	--	MW-05D	14.41	26.50	(d) 12.09	--		
	5/16/2009	--	MW-05S	15.09	29.45	(d) 14.36	16.50	No	
	5/16/2009	--	MW-05D	13.88	26.50	(d) 12.62	--		
	6/21/2009	--	MW-05S	16.38	29.45	(d) 13.07	16.50	No	
	6/21/2009	--	MW-05D	11.01	26.50	(d) 15.49	--		
	7/20/2009	--	MW-05S	16.95	29.45	(d) 12.50	16.50	No	
	7/20/2009	--	MW-05D	12.71	26.50	(d) 13.79	--		
	8/10/2009	--	MW-05S	16.82	29.45	(d) 12.63	16.50	No	
	8/10/2009	--	MW-05D	12.10	26.50	(d) 14.40	--		
	9/7/2009	--	MW-05S	18.33	29.45	(d) 11.12	16.50	No	
	9/7/2009	--	MW-05D	14.02	26.50	(d) 12.48	--		
	10/10/2009	--	MW-05S	19.16	29.45	(d) 10.29	16.50	No	
	10/10/2009	--	MW-05D	13.31	26.50	(d) 13.19	--		
	11/28/2009	--	MW-05S	17.31	29.45	(d) 12.14	16.50	No	
	11/28/2009	--	MW-05D	13.14	26.50	(d) 13.36	--		
	12/31/2009	--	MW-05S	16.66	29.45	(d) 12.79	16.50	No	
	12/31/2009	--	MW-05D	9.69	26.50	(d) 16.81	--		
	1/14/2010	--	MW-05S	14.89	29.45	(d) 14.56	16.50	No	
	1/14/2010	--	MW-05D	11.81	26.50	(d) 14.69	--		
	2/21/2010	--	MW-05S	14.71	29.45	(d) 14.74	16.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	2/21/2010	--	MW-05D	10.63	26.50	(d) 15.87	--		
	3/17/2010	--	MW-05S	13.53	29.45	(d) 15.92	16.50	No	
	3/17/2010	--	MW-05D	11.63	26.50	(d) 14.87	--		
	4/25/2010	--	MW-05S	16.11	29.45	(d) 13.34	16.50	No	
	4/25/2010	--	MW-05D	12.26	26.50	(d) 14.24	--		
	5/16/2010	--	MW-05S	16.14	29.45	(d) 13.31	16.50	No	
	5/16/2010	--	MW-05D	14.97	26.50	(d) 11.53	--		
	6/26/2010	--	MW-05S	17.07	29.45	(d) 12.38	16.50	No	
	6/26/2010	--	MW-05D	15.20	26.50	(d) 11.30	--		
	7/23/2010	--	MW-05S	17.73	29.45	(d) 11.72	16.50	No	
	7/23/2010	--	MW-05D	15.31	26.50	(d) 11.19	--		
	8/30/2010	--	MW-05S	15.58	29.45	(d) 13.87	16.50	No	
	8/30/2010	--	MW-05D	12.01	26.50	(d) 14.49	--		
	9/30/2010	--	MW-05S	14.32	29.45	(d) 15.13	16.50	No	
	9/30/2010	--	MW-05D	12.83	26.50	(d) 13.67	--		
	10/18/2010	--	MW-05S	15.52	29.45	(d) 13.93	16.50	No	
	10/18/2010	--	MW-05D	15.58	26.50	(d) 10.92	--		
	11/29/2010	--	MW-05S	15.14	29.45	(d) 14.31	16.50	No	
	11/29/2010	--	MW-05D	10.32	26.50	(d) 16.18	--		
	12/25/2010	--	MW-05S	13.03	29.45	(d) 16.42	16.50	No	
	12/25/2010	--	MW-05D	9.02	26.50	(d) 17.48	--		
	1/29/2011	--	MW-05S	13.29	29.45	(d) 16.16	16.50	No	
	1/29/2011	--	MW-05D	11.80	26.50	(d) 14.70	--		
	2/20/2011	--	MW-05S	13.22	29.45	(d) 16.23	16.50	No	
	2/20/2011	--	MW-05D	14.33	26.50	(d) 12.17	--		
	3/24/2011	--	MW-05S	13.15	29.45	(d) 16.30	16.50	No	
	3/24/2011	--	MW-05D	9.11	26.50	(d) 17.39	--		
	4/23/2011	--	MW-05S	12.78	29.45	(d) 16.67	16.50	Yes	
	4/23/2011	--	MW-05D	16.44	26.50	(d) 10.06	--		
	5/30/2011	--	MW-05S	13.40	29.45	(d) 16.05	16.50	No	
	5/30/2011	--	MW-05D	16.18	26.50	(d) 10.32	--		
	6/26/2011	--	MW-05S	13.94	29.45	(d) 15.51	16.50	No	
	6/26/2011	--	MW-05D	12.31	26.50	(d) 14.19	--		
	7/30/2011	--	MW-05S	14.08	29.45	(d) 15.37	16.50	No	
	7/30/2011	--	MW-05D	17.13	26.50	(d) 9.37	--		
	8/8/2011	--	MW-05S	14.27	29.45	(d) 15.18	16.50	No	
	8/8/2011	--	MW-05D	15.50	26.50	(d) 11.00	--		
	9/24/2011	--	MW-05S	14.42	29.45	(d) 15.03	16.50	No	
	9/24/2011	--	MW-05D	16.02	26.50	(d) 10.48	--		
	10/29/2011	--	MW-05S	14.62	29.45	(d) 14.83	16.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	10/29/2011	--	MW-05D	11.59	26.50	(d) 14.91	--		
	11/26/2011	--	MW-05S	12.74	29.45	(d) 16.71	16.50	Yes	
	11/26/2011	--	MW-05D	10.19	26.50	(d) 16.31	--		
	12/26/2011	--	MW-05S	14.43	29.45	(d) 15.02	16.50	No	
	12/26/2011	--	MW-05D	13.68	26.50	(d) 12.82	--		
	1/28/2012	--	MW-05S	13.28	29.45	(d) 16.17	16.50	No	
	1/28/2012	--	MW-05D	10.15	26.50	(d) 16.35	--		
	2/26/2012	--	MW-05S	12.81	29.45	(d) 16.64	16.50	Yes	
	2/26/2012	--	MW-05D	15.87	26.50	(d) 10.63	--		
	3/7/2012	--	MW-05S	13.30	29.45	(d) 16.15	16.50	No	
	3/7/2012	--	MW-05D	15.35	26.50	(d) 11.15	--		
	4/21/2012	--	MW-05S	12.79	29.45	(d) 16.66	16.50	Yes	
	4/21/2012	--	MW-05D	12.84	26.50	(d) 13.66	--		
	5/19/2012	--	MW-05S	13.54	29.45	(d) 15.91	16.50	No	
	5/19/2012	--	MW-05D	14.39	26.50	(d) 12.11	--		
	6/30/2012	--	MW-05S	13.20	29.45	(d) 16.25	16.50	No	
	6/30/2012	--	MW-05D	10.74	26.50	(d) 15.76	--		
	7/27/2012	--	MW-05S	13.26	29.45	(d) 16.19	16.50	No	
	7/27/2012	--	MW-05D	13.21	26.50	(d) 13.29	--		
	8/12/2012	--	MW-05S	11.66	29.45	(d) 17.79	16.50	Yes	
	8/12/2012	--	MW-05D	12.99	26.50	(d) 13.51	--		
	9/30/2012	--	MW-05S	13.23	29.45	(d) 16.22	16.50	No	
	9/30/2012	--	MW-05D	11.39	26.50	(d) 15.11	--		
	10/24/2012	--	MW-05S	13.45	29.45	(d) 16.00	16.50	No	
	10/24/2012	--	MW-05D	14.10	26.50	(d) 12.40	--		
	11/24/2012	--	MW-05S	11.57	29.45	(d) 17.88	16.50	Yes	
	11/24/2012	--	MW-05D	10.2	26.50	(d) 16.3	--		
	12/30/2012	--	MW-05S	12.23	29.45	(d) 17.22	16.50	Yes	
	12/30/2012	--	MW-05D	12.05	26.50	(d) 14.45	--		
	1/25/2013	--	MW-05S	10.55	29.45	(d) 18.90	16.50	Yes	
	1/25/2013	--	MW-05D	13.13	26.50	(d) 13.37	--		
	2/9/2013	--	MW-05S	10.16	29.45	(d) 19.29	16.50	Yes	
	2/9/2013	--	MW-05D	13.60	26.50	(d) 12.90	--		
	3/31/2013	--	MW-05S	13.61	29.45	(d) 15.84	16.50	No	
	3/31/2013	--	MW-05D	16.55	26.50	(d) 9.95	--		
	4/29/2013	--	MW-05S	13.84	29.45	15.61	16.50	No	
	4/29/2013	--	MW-05D	14.19	26.50	12.31	--		
	5/31/2013	--	MW-05S	14.42	29.45	15.03	16.50	No	
	5/31/2013	--	MW-05D	14.81	26.50	11.69	--		
	6/9/2013	--	MW-05S	14.43	29.45	15.02	16.50	No	
	6/9/2013	--	MW-05D	16.60	26.50	9.90	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/21/2013	--	MW-05S	14.63	29.45	14.82	16.50	No	
	7/21/2013	--	MW-05D	11.63	26.50	14.87	--		
	8/29/2013	--	MW-05S	14.92	29.45	14.53	16.50	No	
	8/29/2013	--	MW-05D	14.51	26.50	11.99	--		
	9/21/2013	--	MW-05S	14.56	29.45	14.89	16.50	No	
	9/21/2013	--	MW-05D	13.68	26.50	12.82	--		
	10/6/2013	--	MW-05S	13.06	29.45	16.39	16.50	No	
	10/6/2013	--	MW-05D	12.61	26.50	13.89	--		
	11/10/2013	--	MW-05S	14.15	29.45	15.30	16.50	No	
	11/10/2013	--	MW-05D	11.59	26.50	14.91	--		
	12/15/2013	--	MW-05S	14.61	29.45	14.84	16.50	No	
	12/15/2013	--	MW-05D	10.91	26.50	15.59	--		
	1/5/2014	--	MW-05S	14.91	29.45	14.54	16.50	No	
	1/5/2014	--	MW-05D	14.88	26.50	11.62	--		
	2/1/2014	--	MW-05S	14.37	29.45	15.08	16.50	No	
	2/1/2014	--	MW-05D	12.02	26.50	14.48	--		
	3/1/2014	--	MW-05S	13.03	29.45	16.42	16.50	No	
	3/1/2014	--	MW-05D	10.92	26.50	15.58	--		
	4/6/2014	--	MW-05S	13.39	29.45	16.06	16.50	No	
	4/6/2014	--	MW-05D	13.64	26.50	12.86	--		
	5/17/2014	--	MW-05S	13.34	29.45	16.11	16.50	No	
	5/17/2014	--	MW-05D	12.97	26.50	13.53	--		
	6/22/2014	--	MW-05S	14.12	29.45	15.33	16.50	No	
	6/22/2014	--	MW-05D	11.81	26.50	14.69	--		
	7/5/2014	--	MW-05S	14.35	29.45	15.10	16.50	No	
	7/5/2014	--	MW-05D	13.17	26.50	13.33	--		
	8/12/2014	--	MW-05S	14.52	29.45	14.93	16.50	No	
	8/12/2014	--	MW-05D	15.60	26.50	10.90	--		
	9/23/2014	--	MW-05S	14.79	29.45	14.66	16.50	No	
	9/23/2014	--	MW-05D	13.18	26.50	13.32	--		
	10/11/2014	--	MW-05S	14.98	29.45	14.47	16.50	No	
	10/11/2014	--	MW-05D	13.23	26.50	13.27	--		
	11/9/2014	--	MW-05S	13.53	29.45	15.92	16.50	No	
	11/9/2014	--	MW-05D	13.27	26.50	13.23	--		
	12/7/2014	--	MW-05S	13.87	29.45	15.58	16.50	No	
	12/7/2014	--	MW-05D	11.53	26.50	14.97	--		
	1/3/2015	--	MW-05S	13.58	29.45	15.87	16.50	No	
	1/3/2015	--	MW-05D	10.05	26.50	16.45	--		
	2/14/2015	--	MW-05S	13.16	29.45	16.29	16.50	No	
	2/14/2015	--	MW-05D	11.99	26.50	14.51	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/9/2015	--	MW-05S	13.94	29.45	15.51	16.50	No	
	3/9/2015	--	MW-05D	10.95	26.50	15.55	--		
	4/5/2015	--	MW-05S	13.27	29.45	16.18	16.50	No	
	4/5/2015	--	MW-05D	11.33	26.50	15.17	--		
	5/16/2015	--	MW-05S	14.51	29.45	14.94	16.50	No	
	5/16/2015	--	MW-05D	15.81	26.50	10.69	--		
	6/7/2015	--	MW-05S	14.57	29.45	14.88	16.50	No	
	6/7/2015	--	MW-05D	16.58	26.50	9.92	--		
	7/7/2015	--	MW-05S	14.93	29.45	14.52	16.50	No	
	7/7/2015	--	MW-05D	10.44	26.50	16.06	--		
	8/1/2015	--	MW-05S	15.03	29.45	14.42	16.50	No	
	8/1/2015	--	MW-05D	16.34	26.50	10.16	--		
	9/24/2015	--	MW-05S	15.48	29.45	13.97	16.50	No	
	9/24/2015	--	MW-05D	15.74	26.50	10.76	--		
	10/16/2015	--	MW-05S	15.53	29.45	13.92	16.50	No	
	10/16/2015	--	MW-05D	13.21	26.50	13.29	--		
	11/3/2015	--	MW-05S	14.73	29.45	14.72	16.50	No	
	11/3/2015	--	MW-05D	10.53	26.50	15.97	--		
	12/4/2015	--	MW-05S	13.88	29.45	15.57	16.50	No	
	12/4/2015	--	MW-05D	9.68	26.50	16.82	--		
	1/15/2016	--	MW-05S	13.15	29.45	16.30	16.50	No	
	1/15/2016	--	MW-05D	12.31	26.50	14.19	--		
	2/16/2016	--	MW-05S	11.81	29.45	17.64	16.50	Yes	
	2/16/2016	--	MW-05D	11.52	26.50	14.98	--		
	3/19/2016	--	MW-05S	11.63	29.45	17.82	16.50	Yes	
	3/19/2016	--	MW-05D	11.54	26.50	14.96	--		
	4/3/2016	--	MW-05S	12.27	29.45	17.18	16.50	Yes	
	4/3/2016	--	MW-05D	12.63	26.50	13.87	--		
	5/14/2016	--	MW-05S	13.33	29.45	16.12	16.50	No	
	5/14/2016	--	MW-05D	14.48	26.50	12.02	--		
	6/12/2016	--	MW-05S	13.74	29.45	15.71	16.50	No	
	6/12/2016	--	MW-05D	14.56	26.50	11.94	--		
	7/5/2016	--	MW-05S	13.84	29.45	15.61	16.50	No	
	7/5/2016	--	MW-05D	14.05	26.50	12.45	--		
	8/6/2016	--	MW-05S	13.96	29.45	15.49	16.50	No	
	8/6/2016	--	MW-05D	12.88	26.50	13.62	--		
	9/4/2016	--	MW-05S	14.23	29.45	15.22	16.50	No	
	9/4/2016	--	MW-05D	15.18	26.50	11.32	--		
	10/1/2016	--	MW-05S	14.26	29.45	15.19	16.50	No	
	10/1/2016	--	MW-05D	13.13	26.50	13.37	--		
	11/6/2016	--	MW-05S	12.15	29.45	17.30	16.50	Yes	



**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	11/6/2016	--	MW-05D	11.35	26.50	15.15	--		
	12/17/2016	--	MW-05S	12.34	29.45	17.11	16.50	Yes	
	12/17/2016	--	MW-05D	13.47	26.50	13.03	--		
	1/21/2017	--	MW-05S	11.43	29.45	18.02	16.50	Yes	
	1/21/2017	--	MW-05D	8.84	26.50	17.66	--		
	2/2/2017	--	MW-05S	12.48	29.45	16.97	16.50	Yes	
	2/2/2017	--	MW-05D	14.57	26.50	11.93	--		
	2/28/2017	--	MW-05S	11.65	29.45	17.80	16.50	Yes	
	2/28/2017	--	MW-05D	11.18	26.50	15.32	--		
	3/30/2017	--	MW-05S	10.32	29.45	19.13	16.50	Yes	
	3/30/2017	--	MW-05D	13.86	26.50	12.64	--		
	4/30/2017	--	MW-05S	11.59	29.45	17.86	16.50	Yes	
	4/30/2017	--	MW-05D	16.60	26.50	9.90	--		
	5/21/2017	--	MW-05S	11.55	29.45	17.90	16.50	Yes	
	5/21/2017	--	MW-05D	12.40	26.50	14.10	--		
	6/6/2017	--	MW-05S	12.14	29.45	17.31	16.50	Yes	
	6/6/2017	--	MW-05D	12.18	26.50	14.32	--		
	7/8/2017	--	MW-05S	12.88	29.45	16.57	16.50	Yes	
	7/8/2017	--	MW-05D	13.14	26.50	13.36	--		
	8/4/2017	--	MW-05S	13.25	29.45	16.20	16.50	No	
	8/4/2017	--	MW-05D	14.64	26.50	11.86	--		
	9/9/2017	--	MW-05S	13.73	29.45	15.72	16.50	No	
	9/9/2017	--	MW-05D	13.99	26.50	12.51	--		
	10/11/2017	--	MW-05S	13.89	29.45	15.56	16.50	No	
	10/11/2017	--	MW-05D	11.11	26.50	15.39	--		
	11/12/2017	--	MW-05S	12.65	29.45	16.80	16.50	Yes	
	11/12/2017	--	MW-05D	9.61	26.50	16.89	--		
	12/16/2017	--	MW-05S	12.44	29.45	17.01	16.50	Yes	
	12/16/2017	--	MW-05D	11.39	26.50	15.11	--		
	1/1/2018	--	MW-05S	11.22	29.45	18.23	16.50	Yes	
	1/1/2018	--	MW-05D	10.85	26.50	15.65	--		
	2/10/2018	--	MW-05S	11.61	29.45	17.84	16.50	Yes	
	2/10/2018	--	MW-05D	11.51	26.50	14.99	--		
	3/8/2018	--	MW-05S	11.56	29.45	17.89	16.50	Yes	
	3/8/2018	--	MW-05D	10.10	26.50	16.40	--		
	4/27/2018	--	MW-05S	11.64	29.45	17.81	16.50	Yes	
	4/27/2018	--	MW-05D	10.64	26.50	15.86	--		
	5/28/2018	--	MW-05S	12.91	29.45	16.54	16.50	Yes	
	5/28/2018	--	MW-05D	15.97	26.50	10.53	--		
	6/29/2018	--	MW-05S	13.23	29.45	16.22	16.50	No	
	6/29/2018	--	MW-05D	12.04	26.50	14.46	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	7/15/2018	--	MW-05S	13.23	29.45	16.22	16.50	No	
	7/15/2018	--	MW-05D	13.78	26.50	12.72	--		
	8/12/2018	--	MW-05S	13.48	29.45	15.97	16.50	No	
	8/12/2018	--	MW-05D	11.76	26.50	14.74	--		
	9/12/2018	--	MW-05S	13.70	29.45	15.75	16.50	No	
	9/12/2018	--	MW-05D	10.53	26.50	15.97	--		
	10/6/2018	--	MW-05S	13.99	29.45	15.46	16.50	No	
	10/6/2018	--	MW-05D	10.14	26.50	16.36	--		
	11/4/2018	--	MW-05S	13.96	29.45	15.49	16.50	No	
	11/4/2018	--	MW-05D	9.61	26.50	16.89	--		
	12/2/2018	--	MW-05S	13.31	29.45	16.14	16.50	No	
	12/2/2018	--	MW-05D	9.27	26.50	17.23	--		
	1/1/2019	--	MW-05S	12.33	29.45	17.12	16.50	Yes	
	1/1/2019	--	MW-05D	13.81	26.50	12.69	--		
	2/2/2019	--	MW-05S	12.76	29.45	16.69	16.50	Yes	
	2/2/2019	--	MW-05D	12.17	26.50	14.33	--		
	3/11/2019	--	MW-05S	12.91	29.45	16.54	16.50	Yes	
	3/11/2019	--	MW-05D	10.18	26.50	16.32	--		
	4/7/2019	--	MW-05S	13.58	29.45	15.87	16.50	No	
	4/7/2019	--	MW-05D	13.71	26.50	12.79	--		
	5/19/2019	--	MW-05S	14.27	29.45	15.18	16.50	No	
	5/19/2019	--	MW-05D	12.58	26.50	13.92	--		
	6/9/2019	--	MW-05S	15.73	29.45	13.72	16.50	No	
	6/9/2019	--	MW-05D	15.16	26.50	11.34	--		
	7/30/2019	--	MW-05S	14.48	29.45	14.97	16.50	No	
	7/30/2019	--	MW-05D	15.41	26.50	11.09	--		
	8/27/2019	--	MW-05S	14.15	29.45	15.30	16.50	No	
	8/27/2019	--	MW-05D	16.70	26.50	9.80	--		
	9/25/2019	--	MW-05S	14.21	29.45	15.24	16.50	No	
	9/25/2019	--	MW-05D	16.24	26.50	10.26	--		
	10/22/2019	--	MW-05S	13.65	29.45	15.80	16.50	No	
	10/22/2019	--	MW-05D	13.45	26.50	13.05	--		
	11/8/2019	--	MW-05S	14.18	29.45	15.27	16.50	No	
	11/8/2019	--	MW-05D	14.82	26.50	11.68	--		
	12/8/2019	--	MW-05S	16.01	29.45	13.44	16.50	No	
	12/8/2019	--	MW-05D	9.61	26.50	16.89	--		
	1/5/2020	--	MW-05S	13.89	29.45	15.56	16.50	No	
	1/5/2020	--	MW-05D	10.47	26.50	16.03	--		
	2/21/2020	--	MW-05S	14.42	29.45	15.03	16.50	No	
	2/21/2020	--	MW-05D	10.88	26.50	15.62	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	3/19/2020	--	MW-05S	15.91	29.45	13.54	16.50	No	
	3/19/2020	--	MW-05D	12.81	26.50	13.69	--		
	4/5/2020	--	MW-05S	16.14	29.45	13.31	16.50	No	
	4/5/2020	--	MW-05D	11.74	26.50	14.76	--		
	5/10/2020	--	MW-05S	17.29	29.45	12.16	16.50	No	
	5/10/2020	--	MW-05D	15.18	26.50	11.32	--		
	6/13/2020	--	MW-05S	17.98	29.45	11.47	16.50	No	
	6/13/2020	--	MW-05D	14.33	26.50	12.17	--		
	7/4/2020	--	MW-05S	17.94	29.45	11.51	16.50	No	
	7/4/2020	--	MW-05D	16.41	26.50	10.09	--		
	8/9/2020	--	MW-05S	18.48	29.45	10.97	16.50	No	
	8/9/2020	--	MW-05D	13.77	26.50	12.73	--		
	9/17/2020	--	MW-05S	16.33	29.45	13.12	16.50	No	
	9/17/2020	--	MW-05D	11.73	26.50	14.77	--		
	10/22/2020	--	MW-05S	16.97	29.45	12.48	16.50	No	
	10/22/2020	--	MW-05D	12.82	26.50	13.68	--		
	11/14/2020	--	MW-05S	17.09	29.45	12.36	16.50	No	
	11/14/2020	--	MW-05D	13.29	26.50	13.21	--		
	12/12/2020	--	MW-05S	16.09	29.45	13.36	16.50	No	
	12/12/2020	--	MW-05D	12.48	26.50	14.02	--		
	1/16/2021	--	MW-05S	13.13	29.45	16.32	16.50	No	
	1/16/2021	--	MW-05D	13.12	26.50	13.38	--		
	2/6/2021	--	MW-05S	12.67	29.45	16.78	16.50	Yes	
	2/6/2021	--	MW-05D	11.13	26.50	15.37	--		
	3/10/2021	--	MW-05S	14.17	29.45	15.28	16.50	No	
	3/10/2021	--	MW-05D	12.22	26.50	14.28	--		
	4/23/2021	--	MW-05S	15.04	29.45	14.41	16.50	No	
	4/23/2021	--	MW-05D	11.70	26.50	14.80	--		
	5/16/2021	--	MW-05S	15.79	29.45	13.66	16.50	No	
	5/16/2021	--	MW-05D	15.70	26.50	10.80	--		
	6/5/2021	--	MW-05S	16.18	29.45	13.27	16.50	No	
	6/5/2021	--	MW-05D	13.42	26.50	13.08	--		
	7/24/2021	--	MW-05S	16.71	29.45	12.74	16.50	No	
	7/24/2021	--	MW-05D	14.64	26.50	11.86	--		
	8/19/2021	--	MW-05S	17.11	29.45	12.34	16.50	No	
	8/19/2021	--	MW-05D	11.32	26.50	15.18	--		
	9/16/2021	--	MW-05S	16.62	29.45	12.83	16.50	No	
	9/16/2021	--	MW-05D	16.52	26.50	9.98	--		
	10/2/2021	--	MW-05S	17.39	29.45	12.06	16.50	No	
	10/2/2021	--	MW-05D	10.76	26.50	15.74	--		
	11/13/2021	--	MW-05S	13.79	29.45	15.66	16.50	No	

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	11/13/2021	--	MW-05D	9.78	26.50	16.72	--		
	12/5/2021	--	MW-05S	14.57	29.45	14.88	16.50	No	
	12/5/2021	--	MW-05D	13.05	26.50	13.45	--		
	1/8/2022	--	MW-05S	11.04	29.45	18.41	16.50	Yes	
	1/8/2022	--	MW-05D	12.27	26.50	14.23	--		
	2/20/2022	--	MW-05S	14.81	29.45	14.64	16.50	No	
	2/20/2022	--	MW-05D	14.57	26.50	11.93	--		
	3/24/2022	--	MW-05S	14.33	29.45	15.12	16.50	No	
	3/24/2022	--	MW-05D	11.63	26.50	14.87	--		
	4/7/2022	--	MW-05S	14.37	29.45	15.08	16.50	No	
	4/7/2022	--	MW-05D	16.16	26.50	10.34	--		
	5/25/2022	--	MW-05S	14.61	29.45	14.84	16.50	No	
	5/25/2022	--	MW-05D	13.12	26.50	13.38	--		
	6/11/2022	--	MW-05S	13.93	29.45	15.52	16.50	No	
	6/11/2022	--	MW-05D	10.88	26.50	15.62	--		
	7/4/2022	--	MW-05S	14.83	29.45	14.62	16.50	No	
	7/4/2022	--	MW-05D	15.69	26.50	10.81	--		
	8/6/2022	--	MW-05S	15.89	29.45	13.56	16.50	No	
	8/6/2022	--	MW-05D	14.36	26.50	12.14	--		
	9/15/2022	9:10	MW-05S	11.33	29.45	18.12	16.50	Yes	
	9/15/2022	9:09	MW-05D	16.48	26.50	10.02	--		
	10/21/2022	(g)	MW-05S	16.84	29.45	12.61	16.50	No	
	10/21/2022	(g)	MW-05D	15.26	26.50	11.24	--		
	11/5/2022	(h)	MW-05S	15.99	29.45	13.46	16.50	No	
	11/5/2022	(h)	MW-05D	13.44	26.50	13.06	--		
	12/17/2022	(i)	MW-05S	14.60	29.45	14.85	16.50	No	
	12/17/2022	(i)	MW-05D	10.09	26.50	16.41	--		
	1/7/2023	(j)	MW-05S	13.94	29.45	15.51	16.50	No	
	1/7/2023	(j)	MW-05D	10.58	26.50	15.92	--		
	2/19/2023	(k)	MW-05S	14.50	29.45	14.95	16.50	No	
	2/19/2023	(k)	MW-05D	11.64	26.50	14.86	--		
	3/10/2023	9:06	MW-05S	14.17	29.45	15.28	16.50	No	
	3/10/2023	9:02	MW-05D	11.36	26.50	15.14	--		
	4/22/2023	15:02	MW-05S	12.79	29.45	16.66	16.50	Yes	
	4/22/2023	14:58	MW-05D	16.73	26.50	9.77	--		
	5/6/2023	10:03	MW-05S	13.79	29.45	15.66	16.50	No	
	5/6/2023	9:58	MW-05D	13.18	26.50	13.32	--		
	6/27/2023	17:05	MW-05S	14.11	29.45	15.34	16.50	No	
	6/27/2023	16:57	MW-05D	13.30	26.50	13.20	--		
	7/4/2023	9:39	MW-05S	14.55	29.45	14.90	16.50	No	
	7/4/2023	9:34	MW-05D	13.31	26.50	13.19	--		

**TABLE C-2  
CUMULATIVE GROUNDWATER ELEVATIONS  
CASCADE POLE SITE  
PORT OF OLYMPIA, WASHINGTON**

Well Pair	Collection Date	Collection Time	Well ID	Depth to Groundwater (ft) (a)	Top of Well Casing Elevation (MLLW)	Groundwater Elevation (MLLW) (a)	Maximum Elevation Goal (b)	Goal Exceeded?	Notes
	8/19/2023	12:17	MW-05S	15.67	29.45	13.78	16.50	No	
	8/19/2023	12:11	MW-05D	13.92	26.50	12.58	--		
	9/14/2023	8:52	MW-05S	15.70	29.45	13.75	16.50	No	
	9/14/2023	10:52	MW-05D	14.97	26.50	11.53	--		

NM = Not measured.  
 NA = Not available.  
 MLLW = Mean low low water.

- (a) Below top of PVC well casing.
- (b) Short term hydraulic control goal is 15.5 ft along the majority of the cutoff wall alignment and 16.5 ft adjacent to Budd Inlet.
- (c) Well LW-3 casing modified and re-surveyed January 2009. On 7/28/10 the well casing at LW-3 cut down 0.2 ft to make room for new well monument lid. Elevation was adjusted from 20.03 to 19.83.
- (d) Wells MW-02s, MW-02d, MW-05s, and MW-05d were modified during construction activities and re-surveyed February 2009.
- (e) MW-02D and MW-02S inner north rim elevations modified in September 2011.
- (f) On 12/8/11 the inner well casing was cut down at MW-01D by 0.15'. Outer casing cut down corresponding amount. New MW-01D measuring point elevation is 21.72' MLLW.
- (g) Collection times for individual wells not recorded. Overall water level measurement window on 10/21/2022 was from 9:07-10:36.
- (h) Collection times for individual wells not recorded. Overall water level measurement window on 11/5/2022 was from 12:35-14:20.
- (i) Collection times for individual wells not recorded. Overall water level measurement window on 12/17/2022 was from 13:36-15:01.
- (j) Collection times for individual wells not recorded. Overall water level measurement window on 1/7/2023 was from 14:42-16:08.
- (k) Collection times for individual wells not recorded. Overall water level measurement window on 2/19/2023 was from 14:05-15:38.

Groundwater elevations determined by subtracting depth to groundwater below top of casing (ft) from top of well casing elevation (MLLW, ft).

## Laboratory Analytical Results



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

28 November 2023

Christine Kimmel  
Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds, WA 98020

RE: Cascade Pole

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

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

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

Associated Work Order(s)  
23C0181

Associated SDG ID(s)  
N/A

-----

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

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

Analytical Resources, LLC

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

Kelly Bottem, Client Services Manager





# Chain-of-Custody Record

2300181

<input type="checkbox"/> North Seattle (206) 631-8660	<input type="checkbox"/> Spokane (509) 327-9737	Date <u>3/9/23</u>	Turnaround Time: _____
<input checked="" type="checkbox"/> Tacoma (253) 926-2493	<input type="checkbox"/> Portland (503) 542-1080	Page <u>1</u> of <u>1</u>	<u>Standard</u>
<input type="checkbox"/> Olympia (360) 791-3178	<input type="checkbox"/> _____		Accelerated _____

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters										Observations/Comments		
					NWTPH-GX	NWTPH-Dx + L105342	PAHS	CPAHS 51A	PCP 8270	PCP 8041							
MW-055-20230308	3/8/23	1054	AQ	10	X	X	X	X	X	X							
PZ-30-20230308	3/8/23	1058	AQ	10	X	X	X	X	X	X							
MW-025-20230308	3/8/23	950	AQ	10	X	X	X	X	X	X							
LW-3-20230308	3/8/23	1548	AQ	10	X	X	X	X	X	X							
LW-4R-20230308	3/8/23	<del>1638</del> <sup>1639</sup>	AQ	10	X	X	X	X	X	X							
MW-010-20230309	3/9/23	911	AQ	10	X	X	X	X	X	X							
MW-050-20230308	3/8/23	1645	AQ	10	X	X	X	X	X	X							
PZ-18-20230308	3/8/23	1641	AQ	10	X	X	X	X	X	X							
PZ-17-20230308	3/8/23	1553	AQ	10	X	X	X	X	X	X							
CZ-13-20230308	3/8/23	1427	AQ	10	X	X	X	X	X	X							
MW-015-20230309	3/9/23	912	AQ	10	X	X	X	X	X	X							
PZ-13-20230308	3/8/23	1313	AQ	10	X	X	X	X	X	X							
MW-020-20230308	3/8/23	941	AQ	10	X	X	X	X	X	X							
PZ-12-20230308	3/8/23	1316	AQ	10	X	X	X	X	X	X							
PZ-19-20230308	3/9/23	1418	AQ	10	X	X	X	X	X	X							
Triblank-20230308	-	-	AQ	2	X	X	X	X	X	X	SMR						

Special Handling Requirements: \_\_\_\_\_

Shipment Method: \_\_\_\_\_

Stored on ice:  Yes /  No

3.3, 0.8, -0.1, 1.0, 0.1, -0.7

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

Other Run all samples for PCP using 8270. If ND, run for PCP 8041.

HCl pres Vol.

Relinquished by Signature <u>[Signature]</u> Printed Name <u>Samantha Lindstrom</u> Company <u>Landau</u> Date <u>3/9/23</u> Time <u>11:24</u>	Received by Signature <u>[Signature]</u> Printed Name <u>Philip Bates</u> Company <u>AR</u> Date <u>3/9/23</u> Time <u>11:24</u>	Relinquished by Signature _____ Printed Name _____ Company _____ Date _____ Time _____	Received by Signature _____ Printed Name _____ Company _____ Date _____ Time _____
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2300181



# Chain-of-Custody Record

<input type="checkbox"/> North Seattle (206) 631-8660	<input type="checkbox"/> Spokane (509) 327-9737	Date <u>3/9/23</u>	Turnaround Time: <u>Standard</u>
<input checked="" type="checkbox"/> Tacoma (253) 926-2493	<input type="checkbox"/> Portland (503) 542-1080	Page <u>1</u> of <u>1</u>	Accelerated _____
<input type="checkbox"/> Olympia (360) 791-3178			

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters										Observations/Comments		
					NWTPH-6X	NWTPH-Dx + Urethane	PAHS	CPAHS SIAA	PCP 8270	PCP 8041							
MW-055-20230308	3/8/23	1054	AQ	10	X	X	X	X	X	X							
P2-30-20230308	3/8/23	1058	AQ	10	X	X	X	X	X	X							
MW-028-20230308	3/8/23	950	AQ	10	X	X	X	X	X	X							
LW-3-20230308	3/8/23	1548	AQ	10	X	X	X	X	X	X							
LW-4R-20230308	3/8/23	1638	AQ	10	X	X	X	X	X	X							
MW-010-20230309	3/9/23	911	AQ	10	X	X	X	X	X	X							
MW-050-20230308	3/8/23	1645	AQ	10	X	X	X	X	X	X							
P2-18-20230308	3/8/23	1641	AQ	10	X	X	X	X	X	X							
P2-17-20230308	3/8/23	1553	AQ	10	X	X	X	X	X	X							
<del>C2-13-20230308</del>	<del>3/8/23</del>	<del>1422</del>	<del>AQ</del>	<del>10</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>							
MW-015-20230309	3/9/23	912	AQ	10	X	X	X	X	X	X							
P2-13-20230308	3/8/23	1313	AQ	10	X	X	X	X	X	X							
MW-020-20230308	3/8/23	941	AQ	10	X	X	X	X	X	X							
P2-12-20230308	3/8/23	1316	AQ	10	X	X	X	X	X	X							
P2-19-20230308	3/8/23	1418	AQ	10	X	X	X	X	X	X							
Triblank-20230308	-	-	AQ	2	X	X	X	X	X	X							

Special Handling Requirements: \_\_\_\_\_

Shipment Method: \_\_\_\_\_

Stored on ice:  Yes /  No

3, 3, 0.8, -0.1, 1.0, 0.1, -0.7

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

Other Run all samples for PCP using 8270 if ND, run for PCP 8041

101 per Vol.

Relinquished by Signature <u>[Signature]</u> Printed Name <u>Samantha Lindstrom</u> Company <u>Landau</u> Date <u>3/9/23</u> Time <u>11:24</u>	Received by Signature <u>[Signature]</u> Printed Name <u>Phillip Kates</u> Company <u>Landau</u> Date <u>3/9/23</u> Time <u>11:24</u>	Relinquished by Signature _____ Printed Name _____ Company _____ Date _____ Time _____	Received by Signature _____ Printed Name _____ Company _____ Date _____ Time _____
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Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-05S-20230308	23C0181-01	Water	08-Mar-2023 10:54	09-Mar-2023 11:24
PZ-30-20230308	23C0181-02	Water	08-Mar-2023 10:58	09-Mar-2023 11:24
LW-3-20230308	23C0181-03	Water	08-Mar-2023 15:48	09-Mar-2023 11:24
LW-4R-20230308	23C0181-04	Water	08-Mar-2023 16:38	09-Mar-2023 11:24
MW-01D-20230309	23C0181-05	Water	09-Mar-2023 09:11	09-Mar-2023 11:24
MW-05D-20230308	23C0181-06	Water	08-Mar-2023 10:45	09-Mar-2023 11:24
PZ-18-20230308	23C0181-07	Water	08-Mar-2023 16:41	09-Mar-2023 11:24
PZ-17-20230308	23C0181-08	Water	08-Mar-2023 15:53	09-Mar-2023 11:24
CW-13-20230308	23C0181-09	Water	08-Mar-2023 14:27	09-Mar-2023 11:24
MW-01S-20230309	23C0181-10	Water	09-Mar-2023 09:12	09-Mar-2023 11:24
PZ-13-20230308	23C0181-11	Water	08-Mar-2023 13:13	09-Mar-2023 11:24
MW-02D-20230308	23C0181-12	Water	08-Mar-2023 09:41	09-Mar-2023 11:24
PZ-12-20230308	23C0181-13	Water	08-Mar-2023 13:16	09-Mar-2023 11:24
PZ-19-20230308	23C0181-14	Water	08-Mar-2023 14:18	09-Mar-2023 11:24
Tripblank	23C0181-15	Water	08-Mar-2023 00:00	09-Mar-2023 11:24
MW-02S-20230308	23C0181-16	Water	08-Mar-2023 09:50	09-Mar-2023 11:24



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

## Case Narrative

### Gasoline by NWTPH-g (GC/MS)

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

### Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The blank spike (BS/LCS) percent recoveries were within control limits.

### Pentachlorophenol - EPA Method SW8041A

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The blank spike (BS/LCS) percent recoveries were within control limits.

### Polynuclear Aromatic Hydrocarbons (cPAH) - EPA Method SW8270E-SIM



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms.

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

The blank spike (BS/LCS) percent recoveries were within control limits.

**Semivolatiles - EPA Method SW8270E**

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms.

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

The blank spike (BS/LCS) percent recoveries were within control limits.



# Cooler Receipt Form

ARI Client: Landau Tacoma

Project Name: port of Olympia

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 23C0181

Tracking No: \_\_\_\_\_ (NA)

**Preliminary Examination Phase:**

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

Were custody papers included with the cooler? YES NO

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

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

Time 11:24 3.3 0.8 -0.1 1.0 -0.7 0.1

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: J009708

Cooler Accepted by: PIB Date: 3/9/23 Time: 11:24

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

**Log-In Phase:**

Was a temperature blank included in the cooler? YES NO

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

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

How were bottles sealed in plastic bags? Individually Grouped Not

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

Were all bottle labels complete and legible? YES NO

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

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

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

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

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

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

Date VOC Trip Blank was made at ARI: \_\_\_\_\_ NA 3/02/23

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

Samples Logged by: PIB Date: 3/9/23 Time: 1354 Labels checked by: \_\_\_\_\_

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

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

By: \_\_\_\_\_ Date: \_\_\_\_\_



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**MW-05S-20230308**  
**23C0181-01 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 10:54  
Instrument: ECD8 Analyzed: 22-Mar-2023 14:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>0.52</b>	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	88.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	82.8	%	



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Reported:  
28-Nov-2023 14:10

**MW-05S-20230308**  
**23C0181-01 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 10:54  
Analyzed: 16-Mar-2023 00:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	<b>5.8</b>	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	<b>0.6</b>	ug/L	J
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>58.8 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>75.1 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>56.6 %</i>	*



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Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-05S-20230308**  
**23C0181-01 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 10:54  
Analyzed: 17-Mar-2023 16:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	85.6	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	114	%	
Surrogate: Fluoranthene-d10			46-121 %	102	%	





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Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-05S-20230308**  
**23C0181-01 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 10:54  
Analyzed: 21-Mar-2023 16:08

**Analysis by: Analytical Resources, LLC**

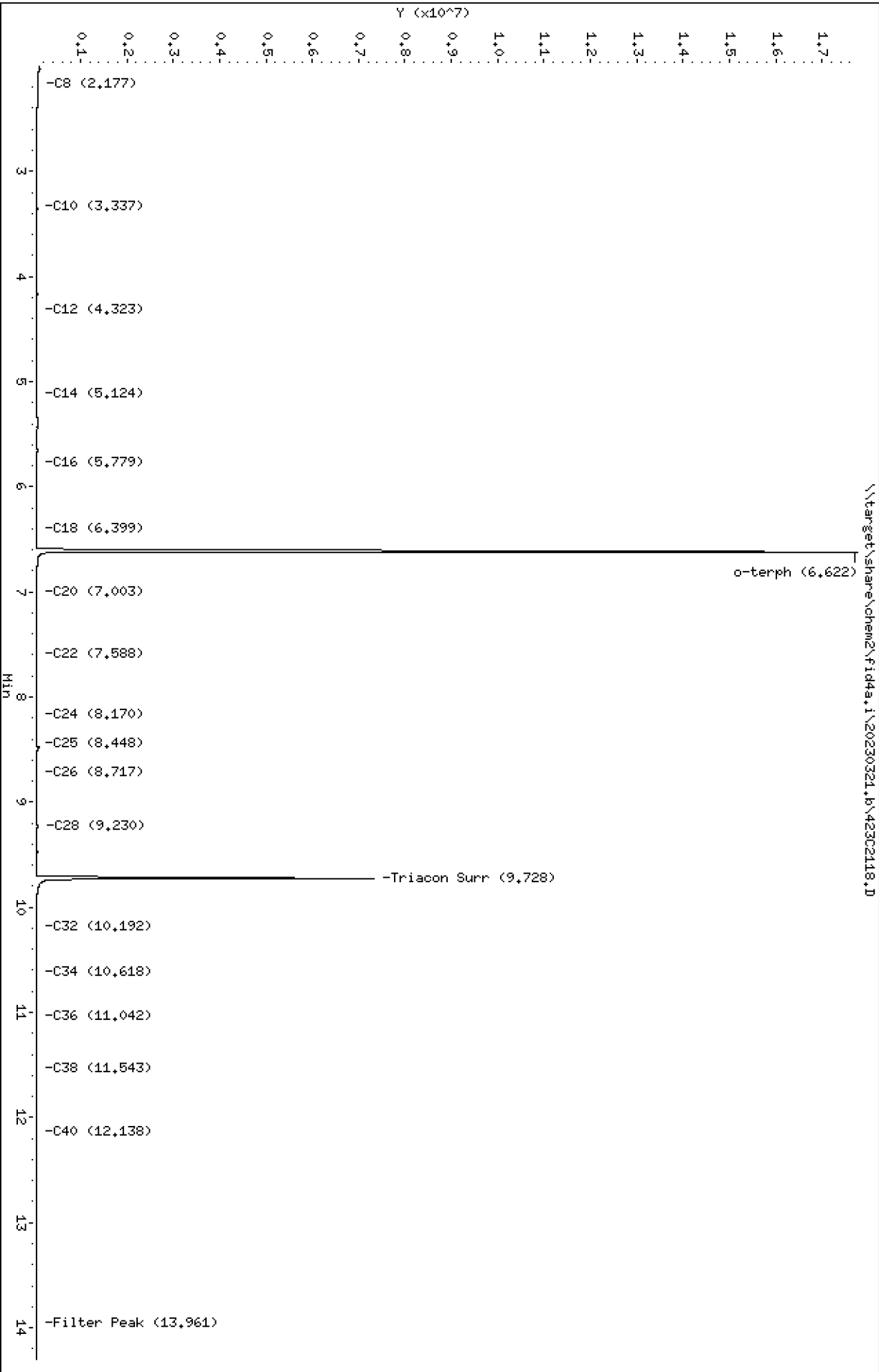
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	84.5	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302118.D  
Date : 21-MAR-2023 16:08  
Client ID:  
Sample Info: 23C0181-01

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2118.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-01  
Client ID:  
Injection: 21-MAR-2023 16:08  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

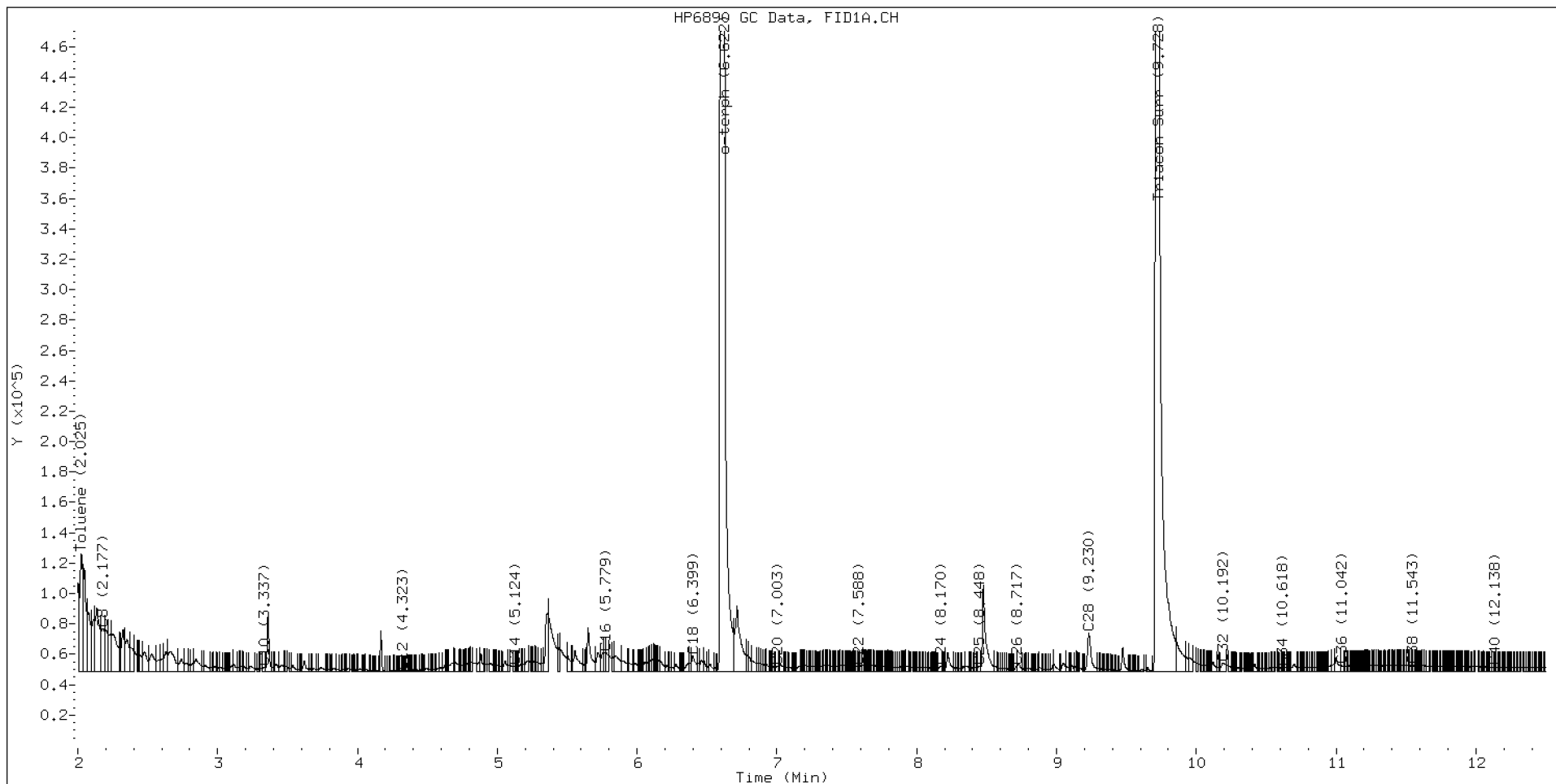
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.177	0.002	28456	44195	WATPHD	(C12-C24)	1109813	7.0
C10	3.337	0.011	2901	3907	WATPHM	(C24-C38)	720133	5.4
C12	4.323	0.003	506	233	AK102	(C10-C25)	1303842	6.9
C14	5.124	0.019	3497	2221	AK103	(C25-C36)	564724	5.7
C16	5.779	-0.001	12234	15481	OR.DIES	(C10-C28)	1546955	8.2
C18	6.399	-0.005	10339	18590				
C20	7.003	-0.001	3906	3795	JET-A	(C10-C18)	798688	4.6
C22	7.588	-0.006	3295	964				
C24	8.170	0.004	3544	5531				
C25	8.448	0.005	3715	4874				
C26	8.717	0.004	3676	3880				
C28	9.230	-0.001	25398	48362				
C32	10.192	0.009	5810	13446				
C34	10.618	0.001	2833	2300				
Filter Peak	13.961	-0.002	2427	1857	CREOSOT	(C12-C22)	1004431	37.9
C36	11.042	-0.007	4070	3822				
C38	11.543	0.002	4000	1183				
C40	12.138	0.000	3292	2414				
o-terph	6.622	-0.001	17717894	19361409				
Triacon Surr	9.728	-0.021	7273344	7486451	NAS DIES	(C10-C24)	1260614	6.7

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	19361409	95.1
Triacontane	7486451	34.4

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





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130 2nd Avenue S.  
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Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-05S-20230308**  
**23C0181-01 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 10:54  
Analyzed: 10-Mar-2023 14:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

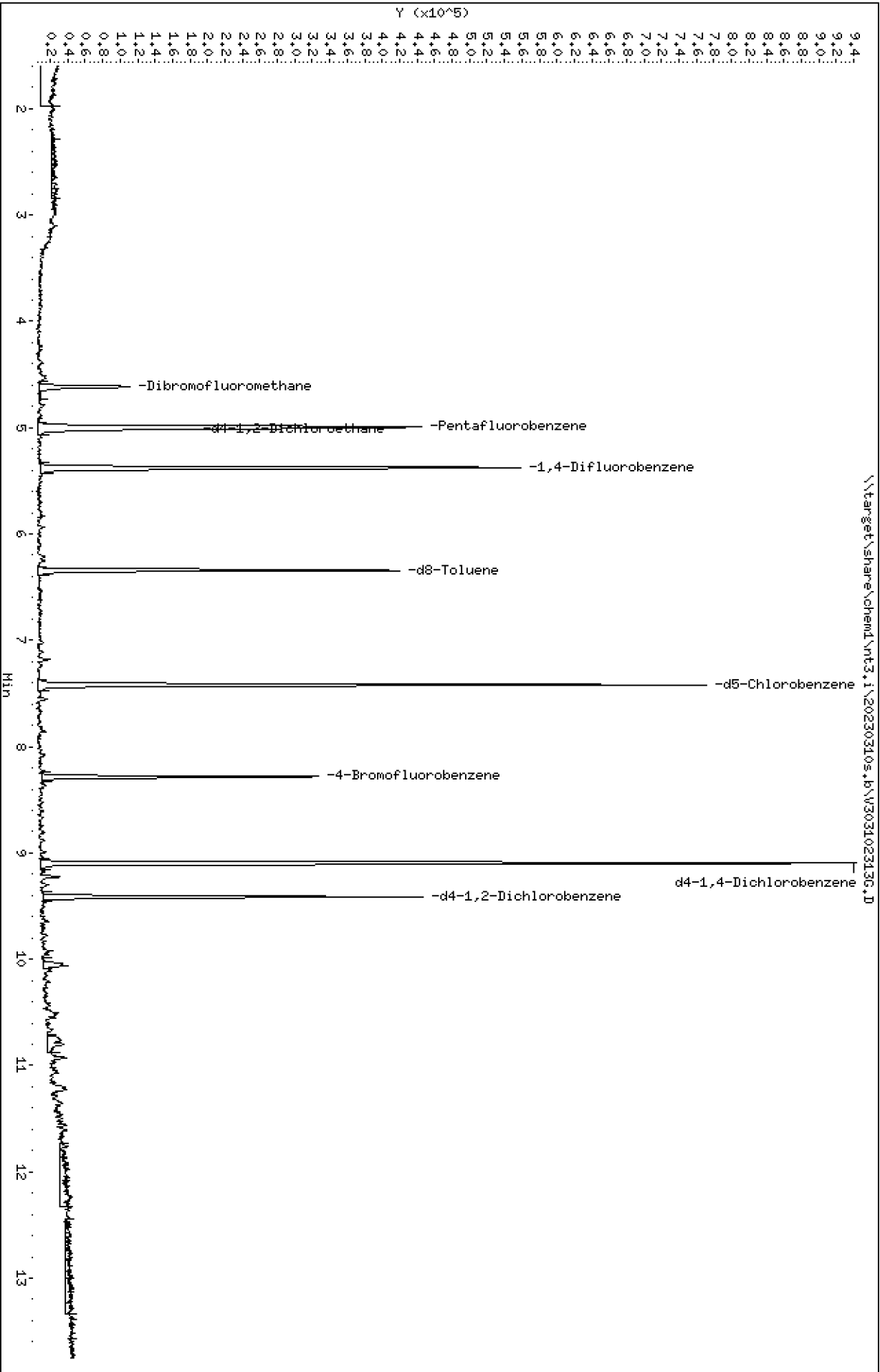
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.7	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102313G.D  
Date: 10-HR-2023 14:01  
Client ID:  
Sample Info: 23C0181-01

Instrument: nt3.1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102313G.D  
 Lab Smp Id: 23C0181-01  
 Inj Date : 10-MAR-2023 14:01  
 Operator : PKC  
 Smp Info : 23C0181-01  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	58373	5.33138	5.331(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	252454	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	32197	5.49872	5.499(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	370106	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	210857	4.99373	4.994(R)
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	358952	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	76205	4.78557	4.786(R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	211274	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	97092	5.09029	5.090(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102313G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-01  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	252454	1.11
37 1,4-Difluorobenze	365813	182907	731626	370106	1.17
53 d5-Chlorobenzene	354990	177495	709980	358952	1.12
76 d4-1,4-Dichlorobe	212292	106146	424584	211274	-0.48

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-01  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.331	106.63	
\$ 33 d4-1,2-Dichloroeth	5.000	5.499	109.97	
\$ 43 d8-Toluene	5.000	4.994	99.87	
\$ 62 4-Bromofluorobenze	5.000	4.786	95.71	
\$ 79 d4-1,2-Dichloroben	5.000	5.090	101.81	

REVIEW SUMMARY FOR FILE - V303102313G.D

Lab ID: 23C0181-01

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 14:01

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\303102313G.D

Date: 10-HR-2023 14:01

Client ID:

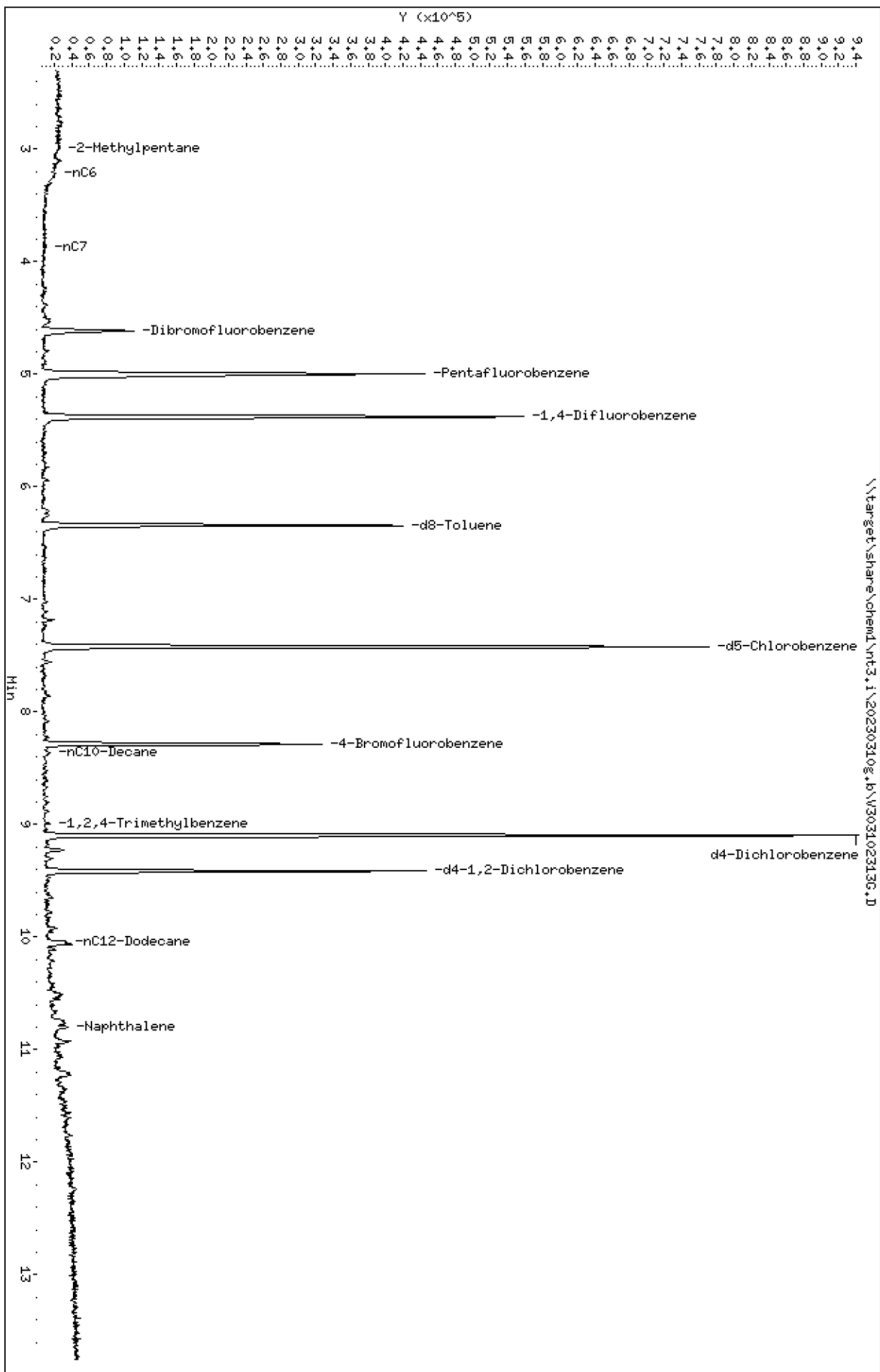
Sample Info: 23C0181-01

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102313G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 14:01

ARI ID: 23C0181-01  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
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WAGas Tol-C12 ( 6.28 to 10.14)	56560604	429618	0.008
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	673194	0.007
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	426300	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	606479	0.010
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	620210	0.006

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.417	1028935	d5-Chlorobenzene
6.344	568191	d8-Toluene
9.096	1167611	d4-Dichlorobenzene
8.283	418357	4-Bromofluorobenzene
9.415	571945	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**PZ-30-20230308**  
**23C0181-02 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 10:58  
Instrument: ECD8 Analyzed: 22-Mar-2023 14:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	78.2	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	72.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-30-20230308**  
**23C0181-02 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 10:58  
Analyzed: 16-Mar-2023 01:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	5.5	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	72.2 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	96.2 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	74.8 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-30-20230308**  
**23C0181-02 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 10:58  
Analyzed: 17-Mar-2023 17:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>86.8</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>110</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>103</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**PZ-30-20230308**  
**23C0181-02 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 10:58  
Analyzed: 21-Mar-2023 16:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

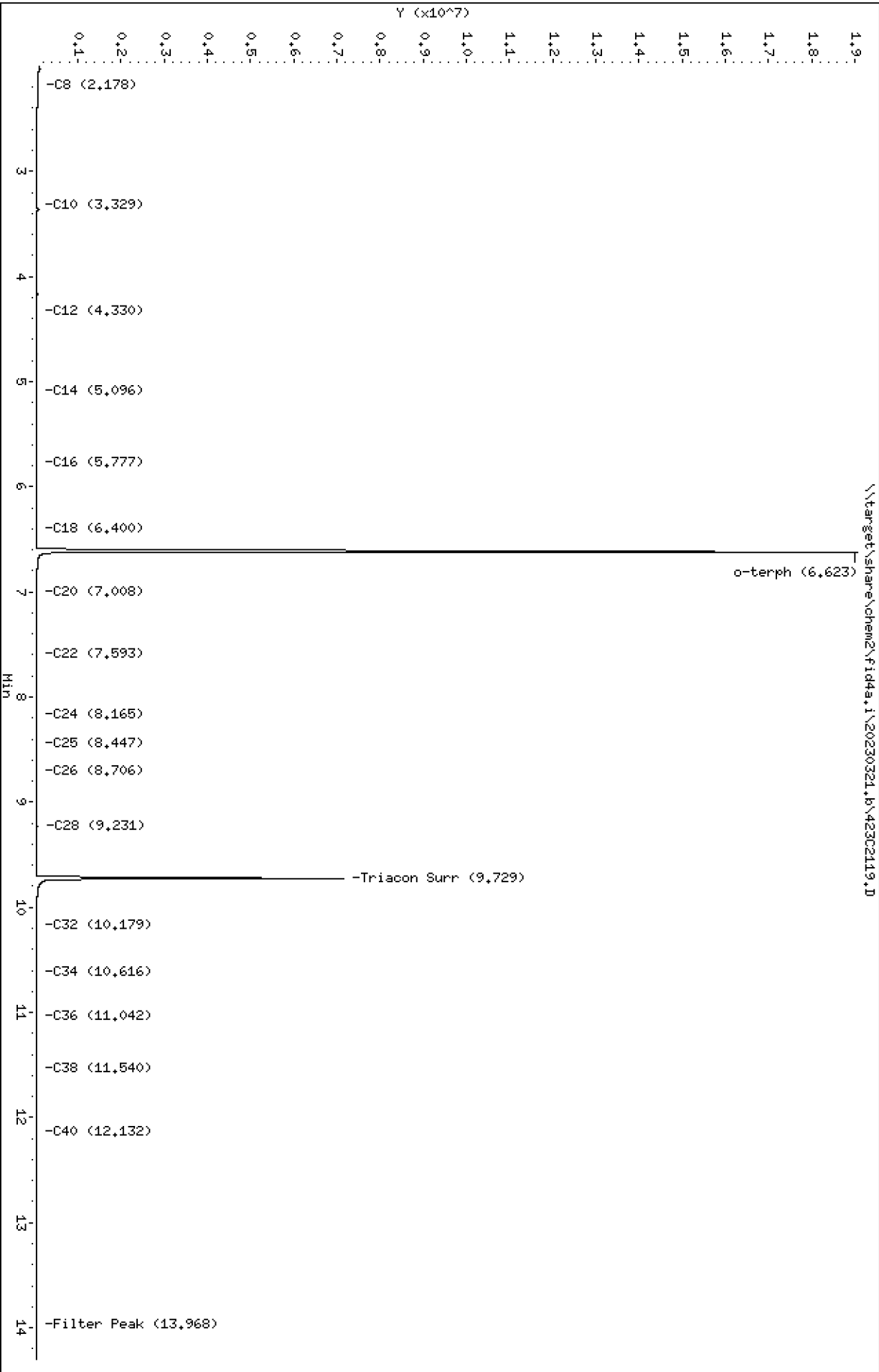
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	96.4	%	



Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302119.D  
Date : 21-MAR-2023 16:27  
Client ID:  
Sample Info: 23C0181-02

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2119.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-02  
Client ID:  
Injection: 21-MAR-2023 16:27  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

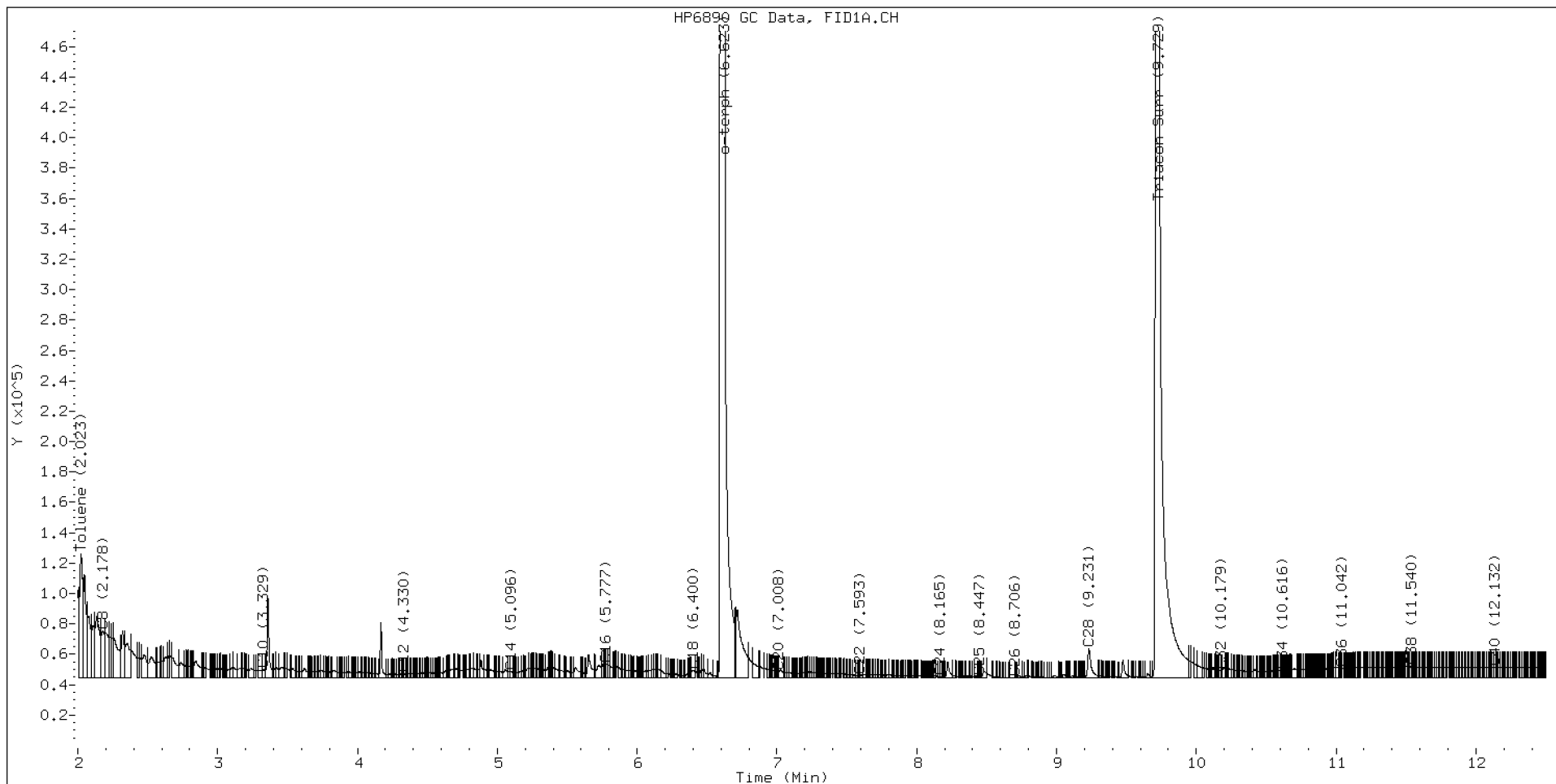
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.178	0.003	30566	52710	WATPHD	(C12-C24)	898405	5.7
C10	3.329	0.004	5190	6034	WATPHM	(C24-C38)	626714	4.7
C12	4.330	0.009	2462	844	AK102	(C10-C25)	1209816	6.4
C14	5.096	-0.009	4081	4616	AK103	(C25-C36)	422233	4.3
C16	5.777	-0.003	9104	10090	OR.DIES	(C10-C28)	1274279	6.7
C18	6.400	-0.004	5024	8380				
C20	7.008	0.004	4180	1447	JET-A	(C10-C18)	825159	4.8
C22	7.593	-0.001	1596	381				
C24	8.165	-0.001	978	339				
C25	8.447	0.004	900	434				
C26	8.706	-0.008	301	149				
C28	9.231	0.000	18895	34478				
C32	10.179	-0.004	4775	1655				
C34	10.616	-0.001	4914	978				
Filter Peak	13.968	0.005	6731	1342	CREOSOT	(C12-C22)	858656	32.4
C36	11.042	-0.007	6449	2555				
C38	11.540	-0.001	7224	3592				
C40	12.132	-0.006	6974	4842				
o-terph	6.623	0.001	19022331	22087138				
Triacon Surr	9.729	-0.020	7123171	7693795	NAS DIES	(C10-C24)	1188130	6.3

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	22087138	108.5
Triacontane	7693795	35.3

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-30-20230308**  
**23C0181-02 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 10:58  
Analyzed: 10-Mar-2023 14:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

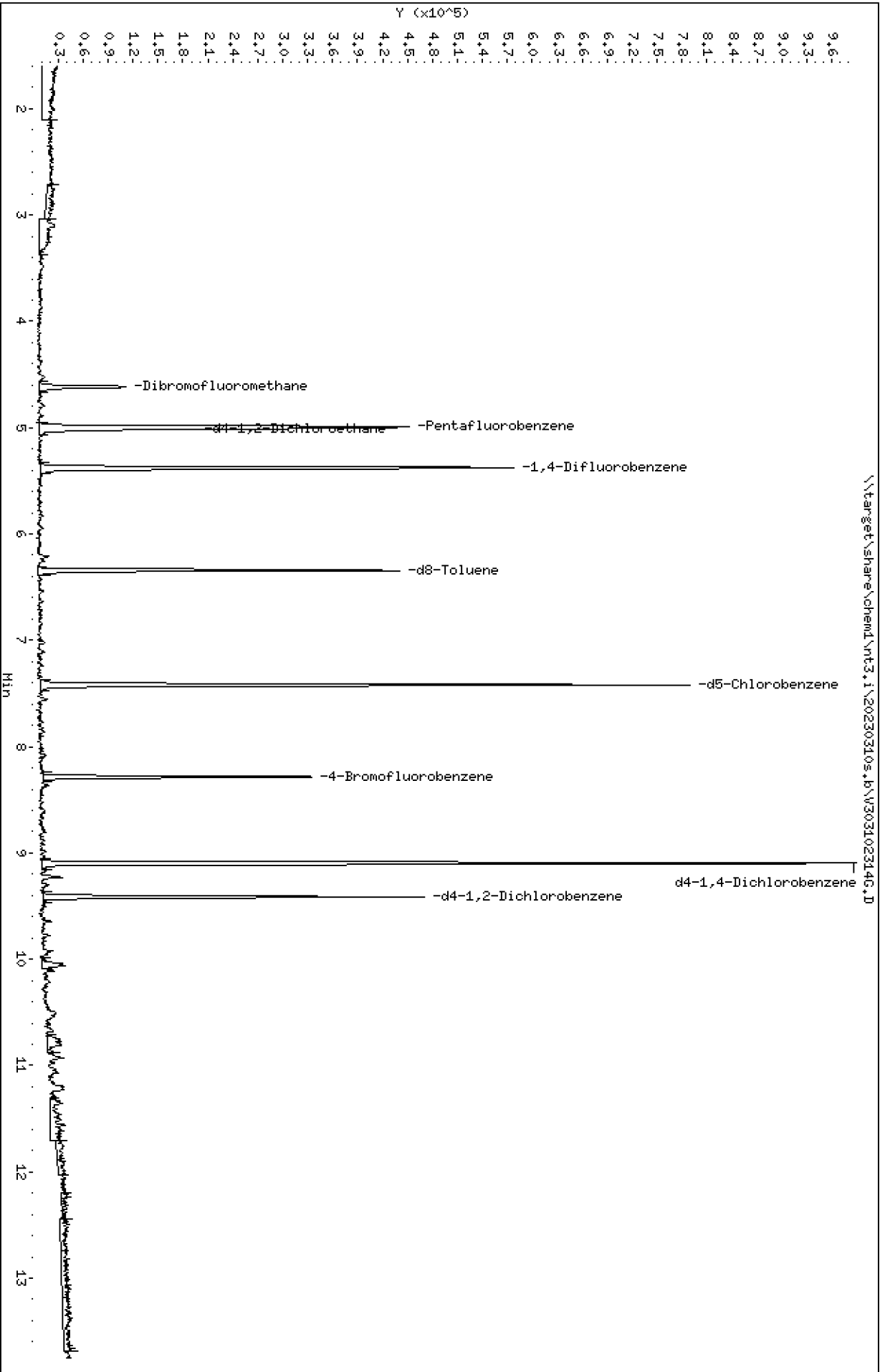
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.1	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102314G.D  
Date: 10-HRR-2023 14:23  
Client ID:  
Sample Info: 23C0181-02

Instrument: nt3.1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102314G.D  
 Lab Smp Id: 23C0181-02  
 Inj Date : 10-MAR-2023 14:23  
 Operator : PKC  
 Smp Info : 23C0181-02  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 65  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	59612	5.20789	5.208 (R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	263926	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	35900	5.86463	5.865 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	383392	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	216051	4.93942	4.939 (R)
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	370309	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	81373	4.95339	4.953 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	218941	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	102346	5.17784	5.178 (R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102314G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-02  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	263926	5.71
37 1,4-Difluorobenze	365813	182907	731626	383392	4.81
53 d5-Chlorobenzene	354990	177495	709980	370309	4.32
76 d4-1,4-Dichlorobe	212292	106146	424584	218941	3.13

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-02  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.208	104.16	
\$ 33 d4-1,2-Dichloroeth	5.000	5.865	117.29	
\$ 43 d8-Toluene	5.000	4.939	98.79	
\$ 62 4-Bromofluorobenze	5.000	4.953	99.07	
\$ 79 d4-1,2-Dichloroben	5.000	5.178	103.56	



REVIEW SUMMARY FOR FILE - V303102314G.D

Lab ID: 23C0181-02

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 14:23

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230310g,1b\303102314G.D

Date: 10-HR-2023 14:23

Client ID:

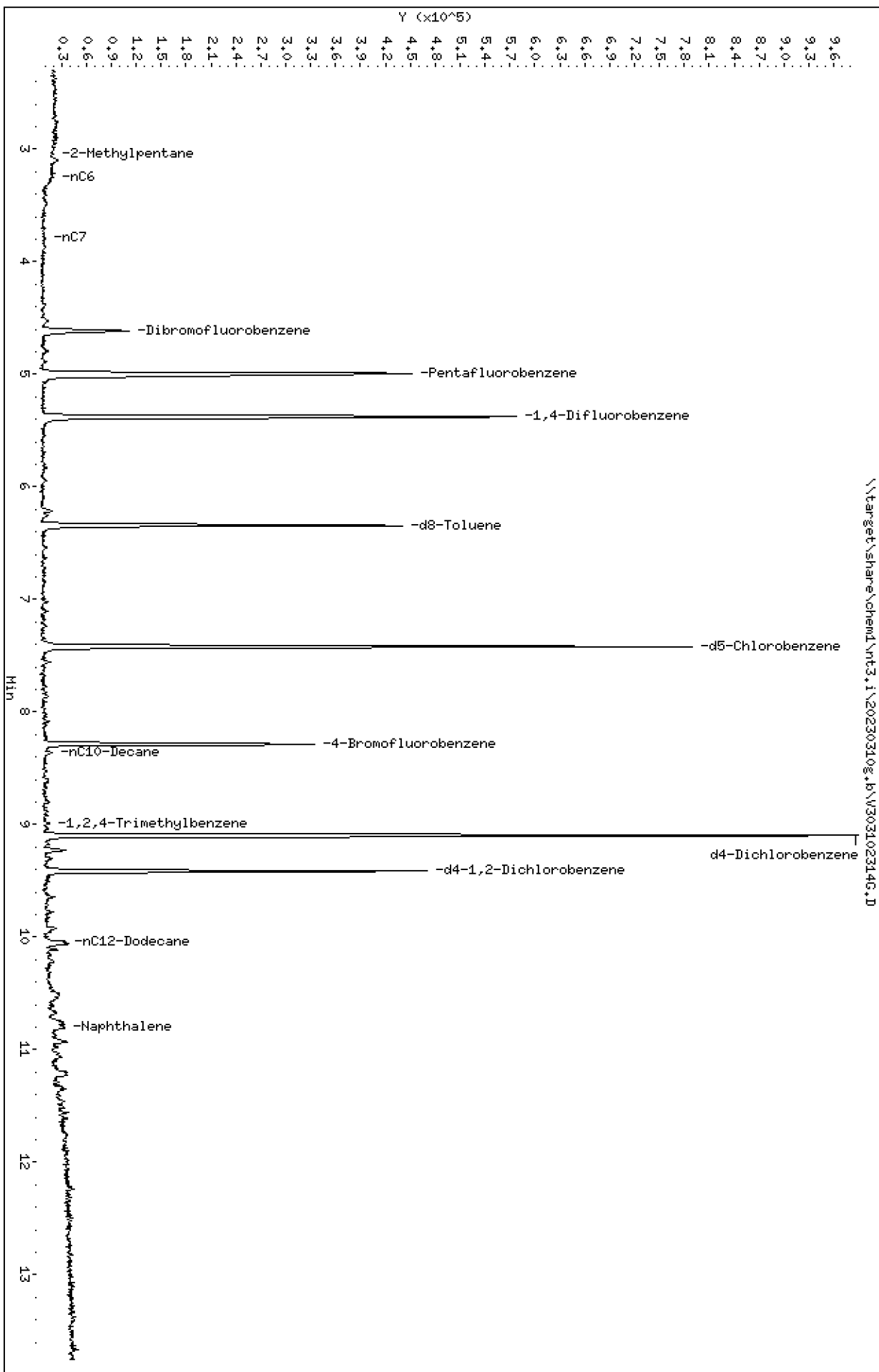
Sample Info: 23C0181-02

Instrument: nt3,1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102314G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 14:23

ARI ID: 23C0181-02  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	495735	0.009
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	667941	0.007
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	419930	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	657592	0.011
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	659125	0.006

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	1091560	d5-Chlorobenzene
6.344	599416	d8-Toluene
9.096	1215818	d4-Dichlorobenzene
8.288	434829	4-Bromofluorobenzene
9.415	593222	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**LW-3-20230308**  
**23C0181-03 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 15:48  
Analyzed: 22-Mar-2023 15:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	68.7	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	63.0	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-3-20230308**  
**23C0181-03 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 15:48  
Analyzed: 17-Mar-2023 14:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	1.5	5.0	ND	ug/L	U
Acenaphthylene	208-96-8	5	1.0	5.0	ND	ug/L	U
Acenaphthene	83-32-9	5	1.0	5.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	5	1.1	5.0	ND	ug/L	U
Dibenzofuran	132-64-9	5	1.0	5.0	ND	ug/L	U
Fluorene	86-73-7	5	1.0	5.0	ND	ug/L	U
Pentachlorophenol	87-86-5	5	6.0	50.0	ND	ug/L	U
Phenanthrene	85-01-8	5	1.0	5.0	ND	ug/L	U
Anthracene	120-12-7	5	1.3	5.0	ND	ug/L	U
Carbazole	86-74-8	5	1.3	5.0	ND	ug/L	U
Fluoranthene	206-44-0	5	1.2	5.0	ND	ug/L	U
Pyrene	129-00-0	5	1.7	5.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	5	1.1	5.0	ND	ug/L	U
Chrysene	218-01-9	5	1.1	5.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	5	1.2	5.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	5	2.4	5.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	5	2.7	5.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	5	2.4	5.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	5	1.3	5.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	92.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	109	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	101	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-3-20230308**  
**23C0181-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 15:48  
Analyzed: 17-Mar-2023 17:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>82.6</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>67.4</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>63.1</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**LW-3-20230308**  
**23C0181-03 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 15:48  
Analyzed: 21-Mar-2023 16:47

**Analysis by: Analytical Resources, LLC**

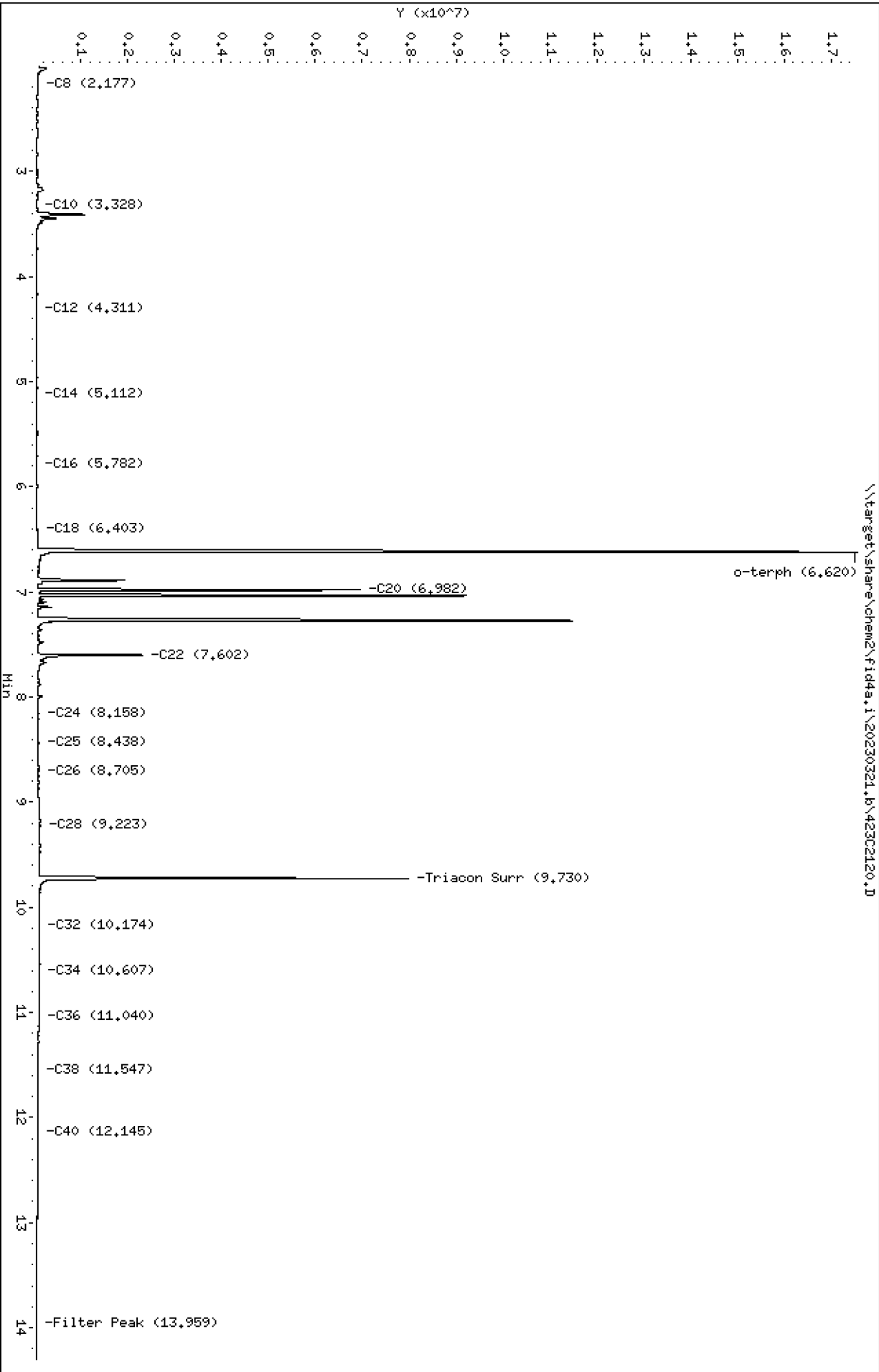
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	437	ug/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	2490	ug/L	
Surrogate: <i>o</i> -Terphenyl			50-150 %	81.7	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302120.D  
Date : 21-MAR-2023 16:47  
Client ID:  
Sample Info: 23C0181-03

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2120.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-03  
Client ID:  
Injection: 21-MAR-2023 16:47  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

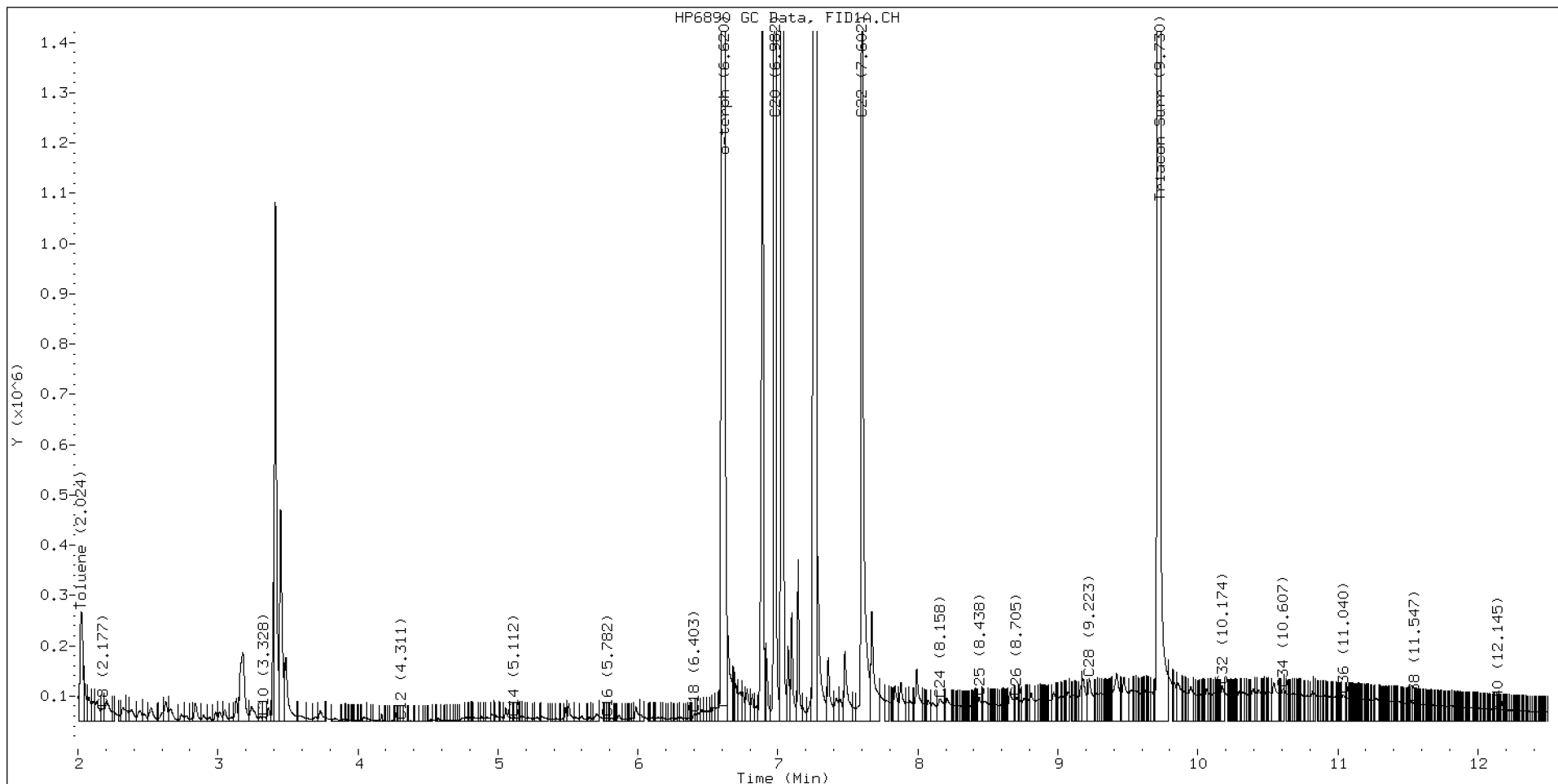
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.177	0.002	25511	31570	WATPHD	(C12-C24)	34626913	218.3
C10	3.328	0.003	9835	15089	WATPHM	(C24-C38)	9305750	70.2
C12	4.311	-0.010	1344	1363	AK102	(C10-C25)	37133681	196.4
C14	5.112	0.008	8126	6212	AK103	(C25-C36)	7838307	79.2
C16	5.782	0.001	7081	4520	OR.DIES	(C10-C28)	39474354	208.0
C18	6.403	-0.000	15810	19568				
C20	6.982	-0.022	6908245	5283118	JET-A	(C10-C18)	3074806	17.8
C22	7.602	0.007	2269828	2354673				
C24	8.158	-0.008	45102	125045				
C25	8.438	-0.005	48294	74437				
C26	8.705	-0.009	48662	62758				
C28	9.223	-0.008	86815	191819				
C32	10.174	-0.009	71547	132964				
C34	10.607	-0.010	65906	71107				
Filter Peak	13.959	-0.004	8546	4677	CREOSOT	(C12-C22)	33042689	1246.2
C36	11.040	-0.010	52556	91998				
C38	11.547	0.005	36686	14453				
C40	12.145	0.007	24577	8546				
o-terph	6.620	-0.002	17486125	18706548				
Triacon Surr	9.730	-0.019	7928887	8365657	NAS DIES	(C10-C24)	36847954	195.3

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	18706548	91.9 M
Triacontane	8365657	38.4

M Indicates the peak was manually integrated

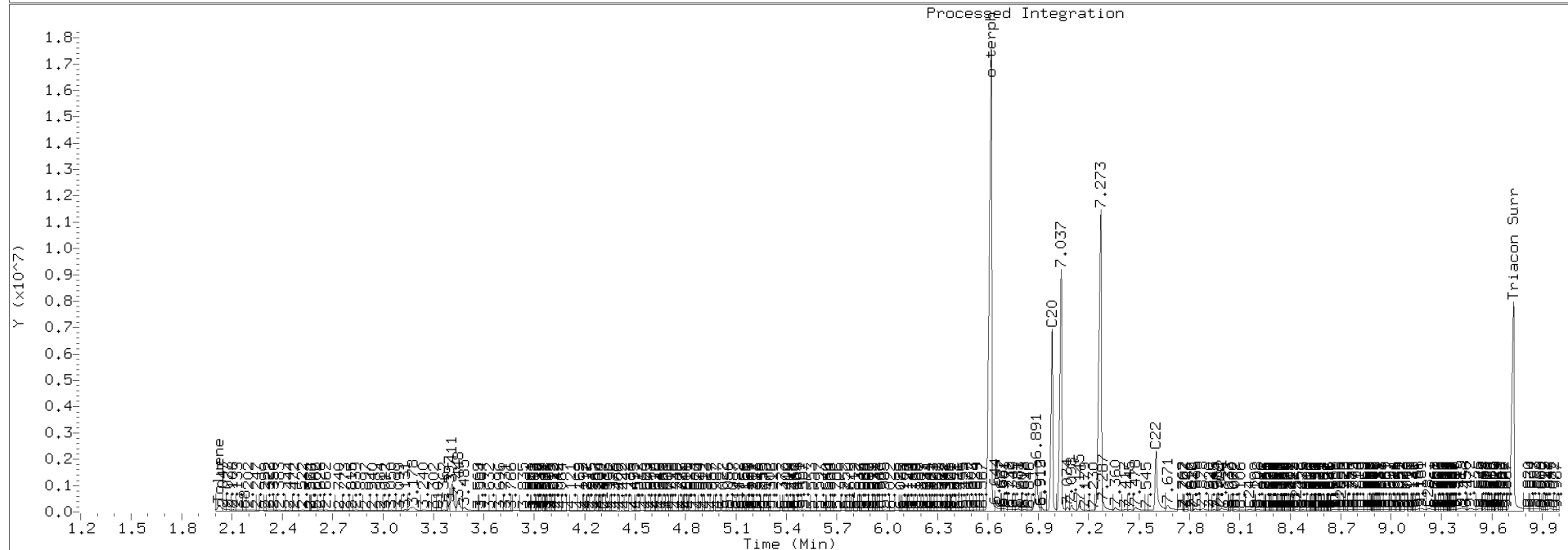
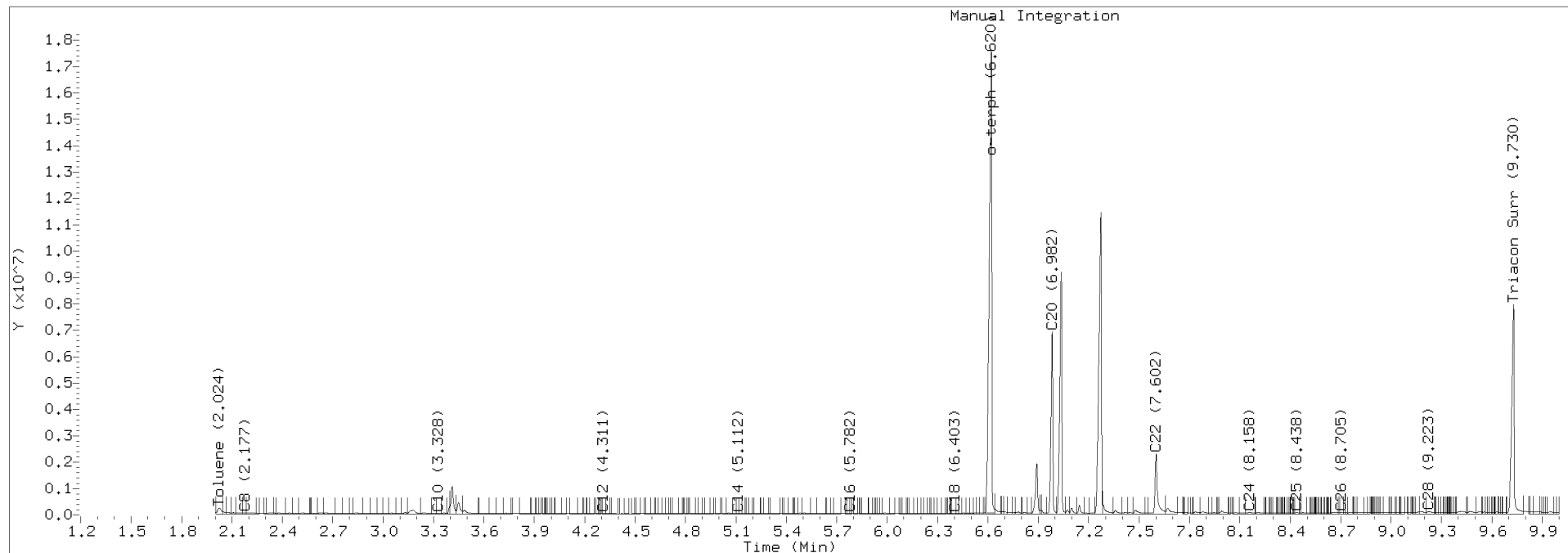
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20230321.b/423C2120.D Injection: 21-MAR-2023 16:47

Lab ID:23C0181-03





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**LW-3-20230308**  
**23C0181-03 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/08/2023 15:48  
Instrument: NT3 Analyzed: 10-Mar-2023 14:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.6	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102315G.D

Date : 10-HR-2023 14:45

Client ID:

Sample Info: 23C0181-03

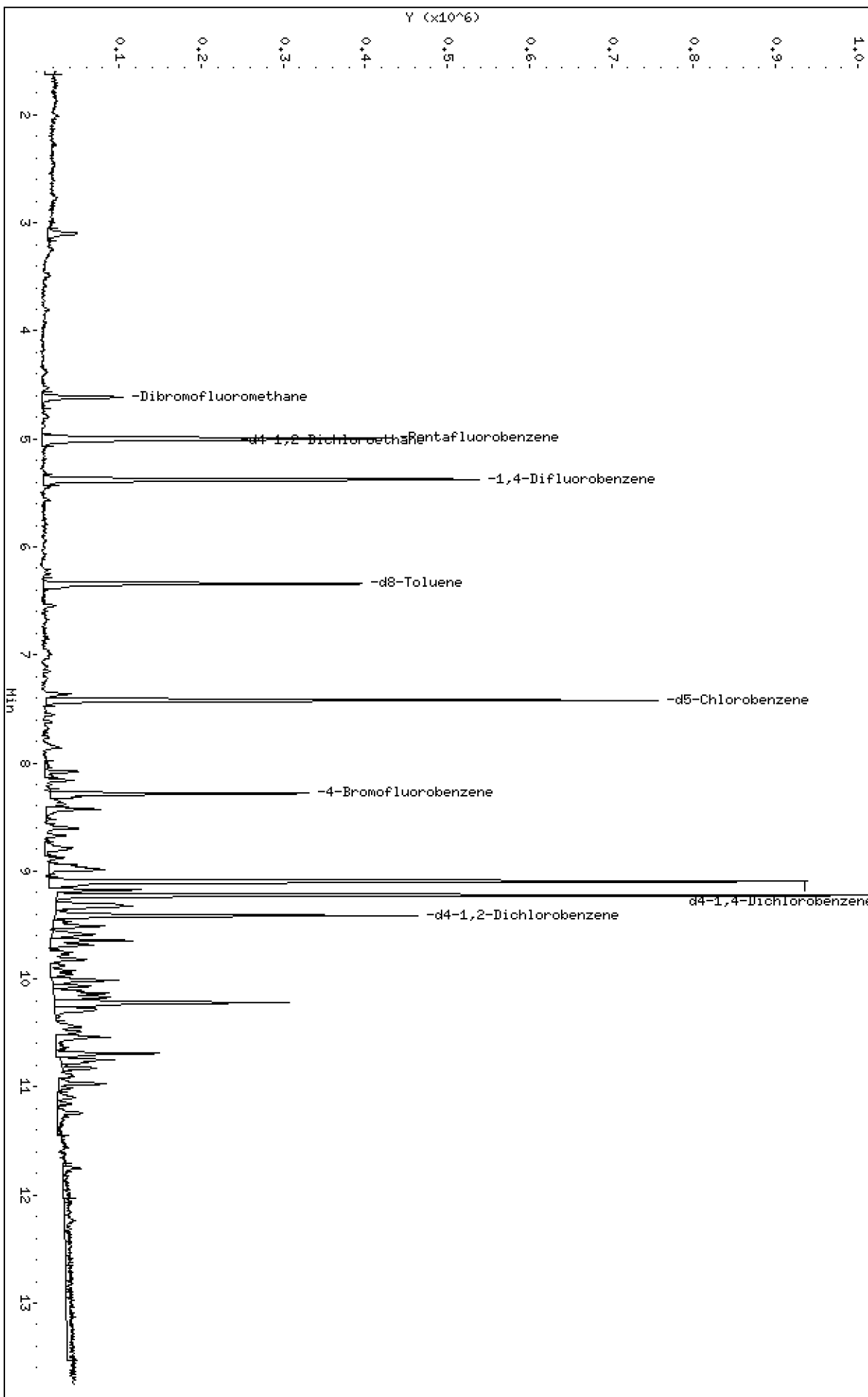
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230310s.16\303102315G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102315G.D  
 Lab Smp Id: 23C0181-03  
 Inj Date : 10-MAR-2023 14:45  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 23C0181-03  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 66  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.612	4.616	(0.923)	53044	4.87141	4.871(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	251068	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	30728	5.27681	5.277(R)
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	357455	10.0000	
\$ 43 d8-Toluene	98		6.344	6.343	(1.180)	204089	5.00451	5.005(R)
* 53 d5-Chlorobenzene	117		7.417	7.422	(1.000)	344706	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	74628	4.88022	4.880(R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	209685	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	98819	5.22009	5.220(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102315G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-03  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	251068	0.56
37 1,4-Difluorobenze	365813	182907	731626	357455	-2.28
53 d5-Chlorobenzene	354990	177495	709980	344706	-2.90
76 d4-1,4-Dichlorobe	212292	106146	424584	209685	-1.23

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.02
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.06
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-03  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.871	97.43	
\$ 33 d4-1,2-Dichloroeth	5.000	5.277	105.54	
\$ 43 d8-Toluene	5.000	5.005	100.09	
\$ 62 4-Bromofluorobenze	5.000	4.880	97.60	
\$ 79 d4-1,2-Dichloroben	5.000	5.220	104.40	



REVIEW SUMMARY FOR FILE - V303102315G.D

Lab ID: 23C0181-03

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 14:45

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\202303102315G.D

Date: 10-HR-2023 14:45

Client ID:

Sample Info: 23C0181-03

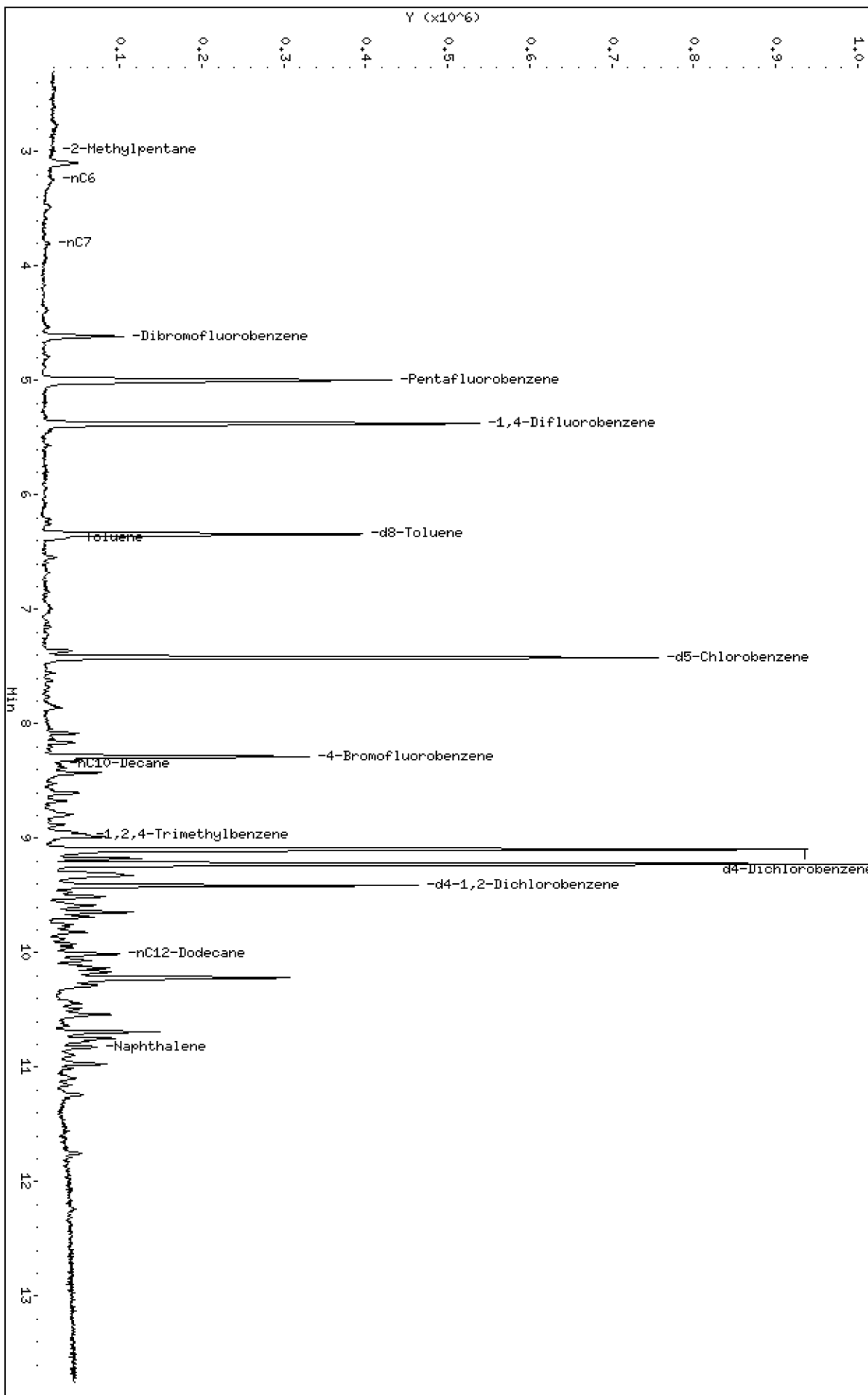
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230310g.1b\202303102315G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102315G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 14:45

ARI ID: 23C0181-03  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	4368456	0.077 M
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	1874068	0.019 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	907569	0.011 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	6074720	0.099 M
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	4570364	0.042 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

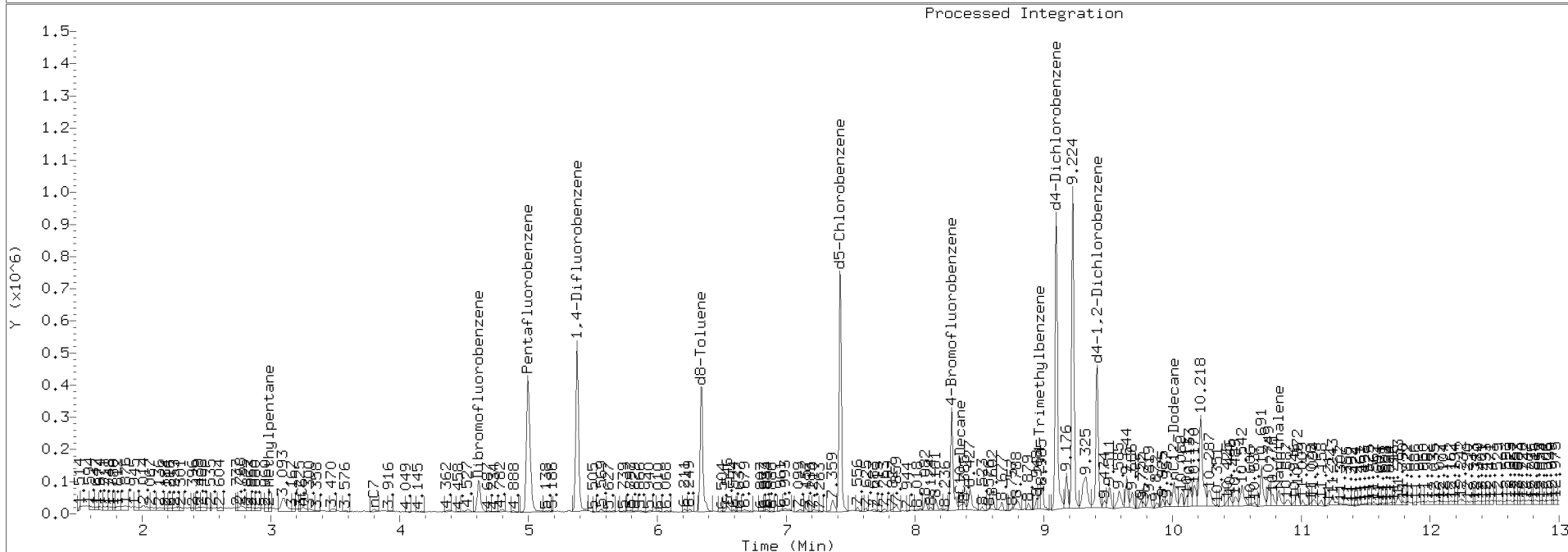
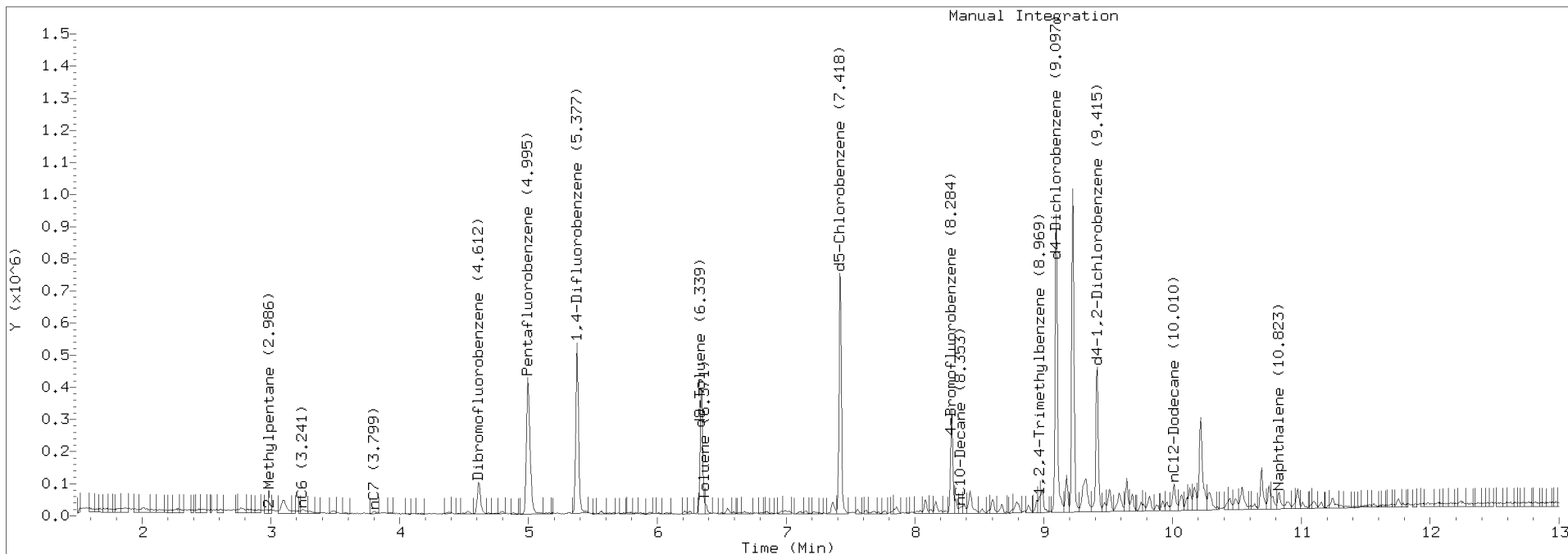
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7.418	1000368	d5-Chlorobenzene
6.339	556970	d8-Toluene
9.097	1235328	d4-Dichlorobenzene
8.284	426466	4-Bromofluorobenzene
9.415	627015	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230310g.b/V303102315G.D Injection: 10-MAR-2023 14:45

Lab ID:23C0181-03





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-4R-20230308**  
**23C0181-04 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 16:38  
Analyzed: 22-Mar-2023 15:26

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	76.3	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	67.2	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-4R-20230308**  
**23C0181-04 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 16:38  
Analyzed: 16-Mar-2023 02:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	83.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	107	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	81.1	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-4R-20230308**  
**23C0181-04 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 16:38  
Analyzed: 17-Mar-2023 18:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>93.1</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>111</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>106</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-4R-20230308**  
**23C0181-04 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 16:38  
Analyzed: 21-Mar-2023 17:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

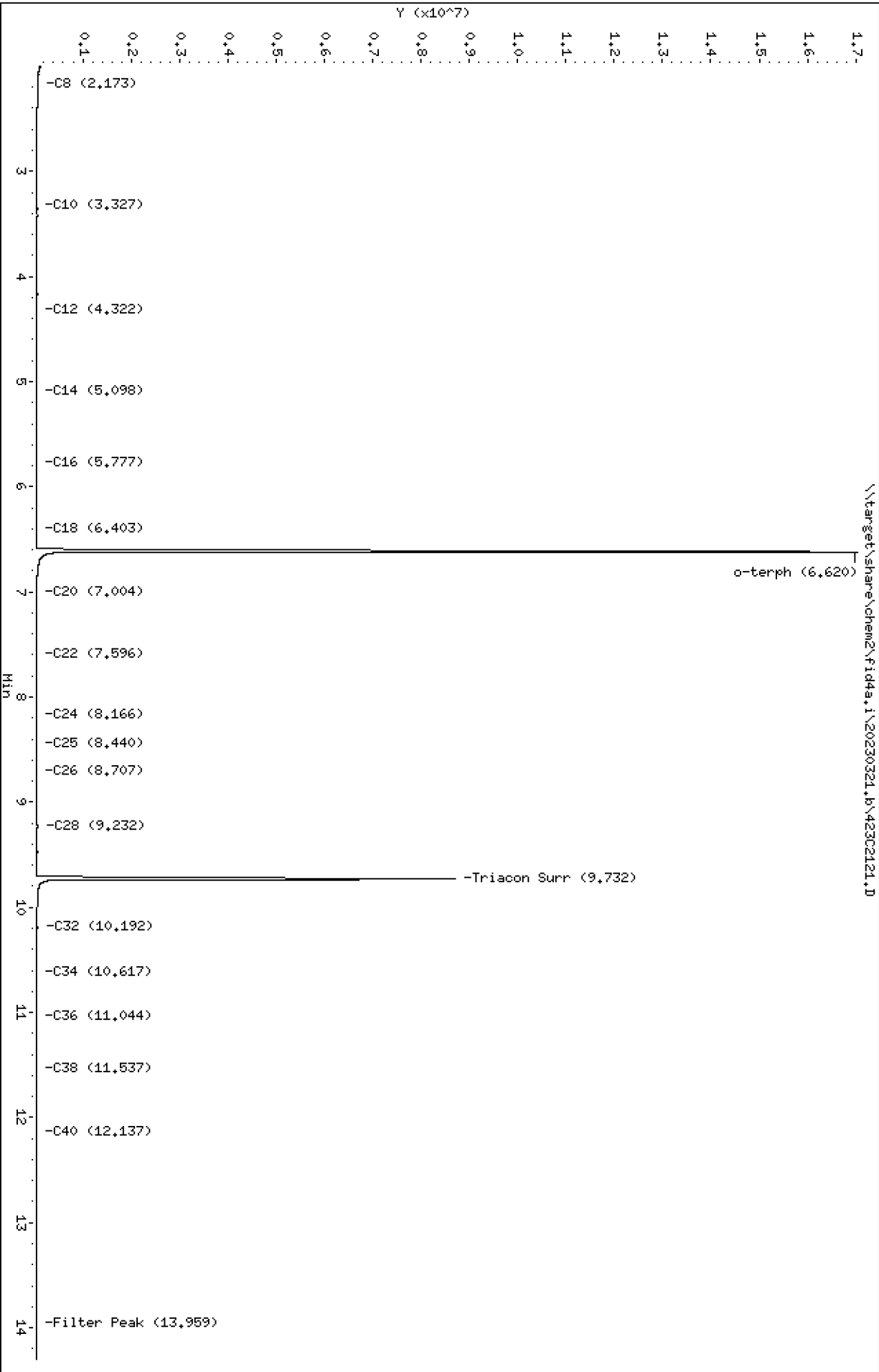
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	82.3	%	



Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302121.D  
Date: 21-MAR-2023 17:07  
Client ID:  
Sample Info: 23C0181-04

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2121.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-04  
Client ID:  
Injection: 21-MAR-2023 17:07  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

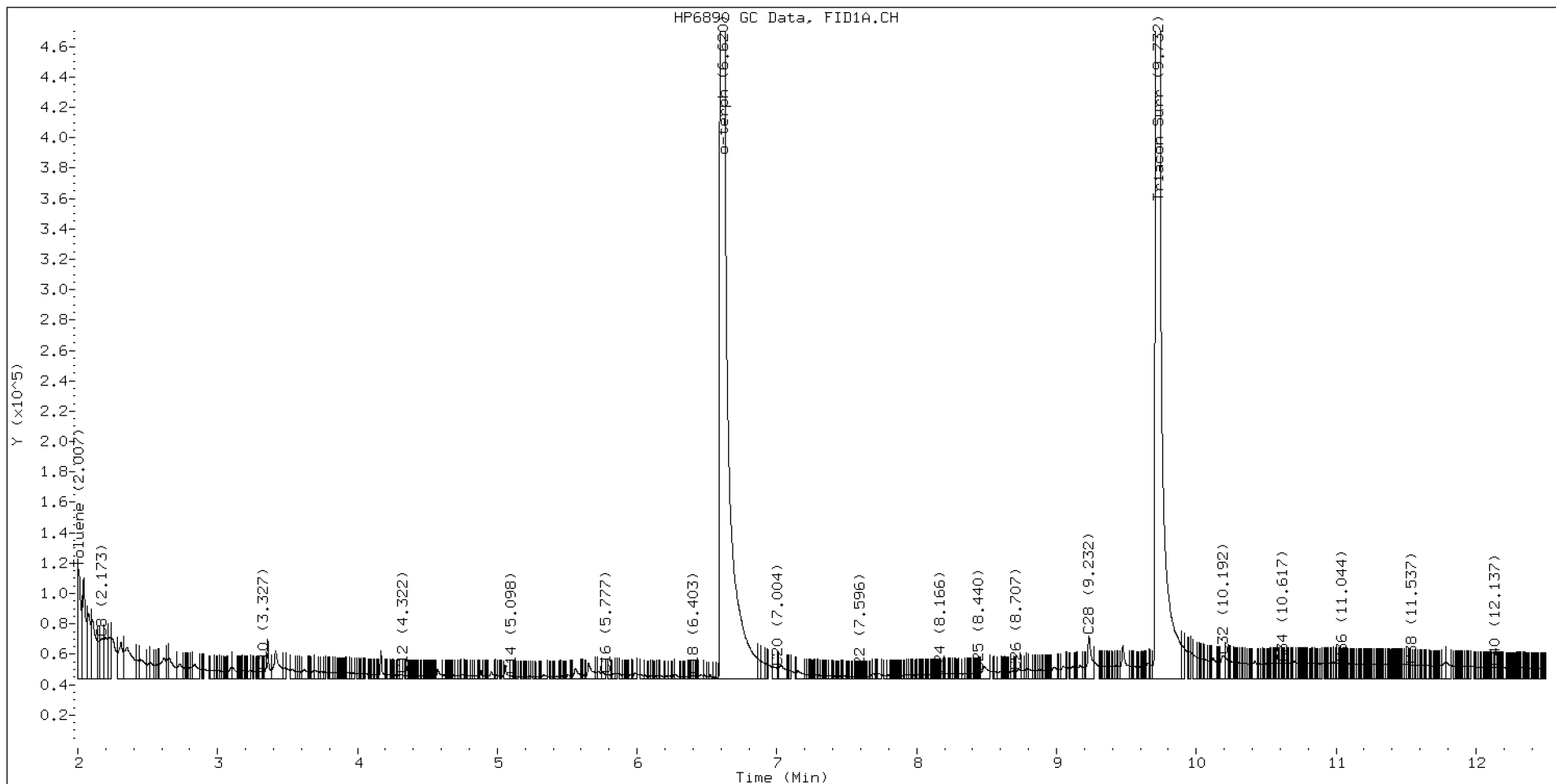
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.173	-0.002	26757	48773	WATPHD	(C12-C24)	475079	3.0
C10	3.327	0.001	4446	1106	WATPHM	(C24-C38)	1487591	11.2
C12	4.322	0.002	2192	749	AK102	(C10-C25)	779549	4.1
C14	5.098	-0.006	1747	1782	AK103	(C25-C36)	1214596	12.3
C16	5.777	-0.004	2549	503	OR.DIES	(C10-C28)	1085788	5.7
C18	6.403	-0.000	1896	1383				
C20	7.004	-0.000	6975	2086	JET-A	(C10-C18)	517042	3.0
C22	7.596	0.001	1143	628				
C24	8.166	-0.000	2824	696				
C25	8.440	-0.003	3621	1053				
C26	8.707	-0.007	4293	1269				
C28	9.232	0.000	27582	54998				
C32	10.192	0.009	14906	33748				
C34	10.617	-0.000	10161	4554				
Filter Peak	13.959	-0.004	6093	4541	CREOSOT	(C12-C22)	402227	15.2
C36	11.044	-0.005	9762	6316				
C38	11.537	-0.004	8765	5216				
C40	12.137	-0.001	7483	1861				
o-terph	6.620	-0.002	16994595	18850201				
Triacon Surr	9.732	-0.016	8668182	9838617	NAS DIES	(C10-C24)	752201	4.0

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	18850201	92.6
Triacontane	9838617	45.2

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**LW-4R-20230308**  
**23C0181-04 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 16:38  
Analyzed: 10-Mar-2023 15:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	96.7	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102316G.D

Date: 10-HR-2023 15:07

Client ID:

Sample Info: 23C0181-04

Page 1

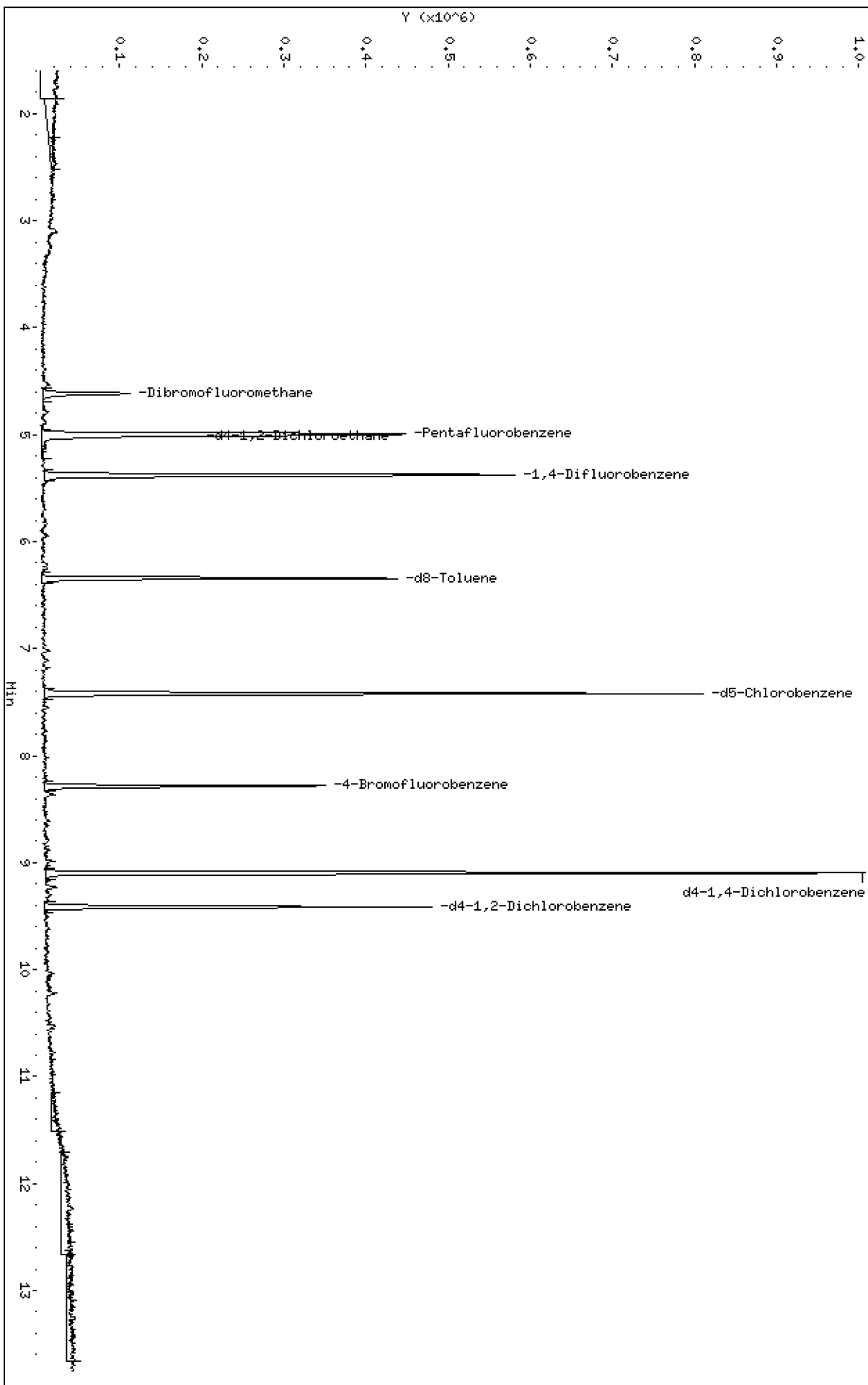
Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS

\\target\share\chend\nt3.1\20230310s.16\303102316G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102316G.D  
Lab Smp Id: 23C0181-04  
Inj Date : 10-MAR-2023 15:07  
Operator : PKC  
Smp Info : 23C0181-04  
Misc Info : 17-  
Comment :  
Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Meth Date : 13-Mar-2023 13:02 nt3.i  
Cal Date : 09-MAR-2023 13:44  
Als bottle: 67  
Dil Factor: 1.00000  
Integrator: HP RTE  
Target Version: 4.14  
Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	CONCENTRATIONS					
			RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111	====	4.611	4.616	(0.923)	58199	5.12604	5.126(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	261784	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	34127	5.62061	5.621(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	386072	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	220462	5.00528	5.005(R)
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	376500	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	80755	4.83494	4.835(R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	222268	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	101187	5.04258	5.043(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102316G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-04  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	261784	4.85
37 1,4-Difluorobenze	365813	182907	731626	386072	5.54
53 d5-Chlorobenzene	354990	177495	709980	376500	6.06
76 d4-1,4-Dichlorobe	212292	106146	424584	222268	4.70

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-04  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.126	102.52	
\$ 33 d4-1,2-Dichloroeth	5.000	5.621	112.41	
\$ 43 d8-Toluene	5.000	5.005	100.11	
\$ 62 4-Bromofluorobenze	5.000	4.835	96.70	
\$ 79 d4-1,2-Dichloroben	5.000	5.043	100.85	



REVIEW SUMMARY FOR FILE - V303102316G.D

Lab ID: 23C0181-04

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 15:07

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230310g,1b\2303102316G.D

Date: 10-HR-2023 15:07

Client ID:

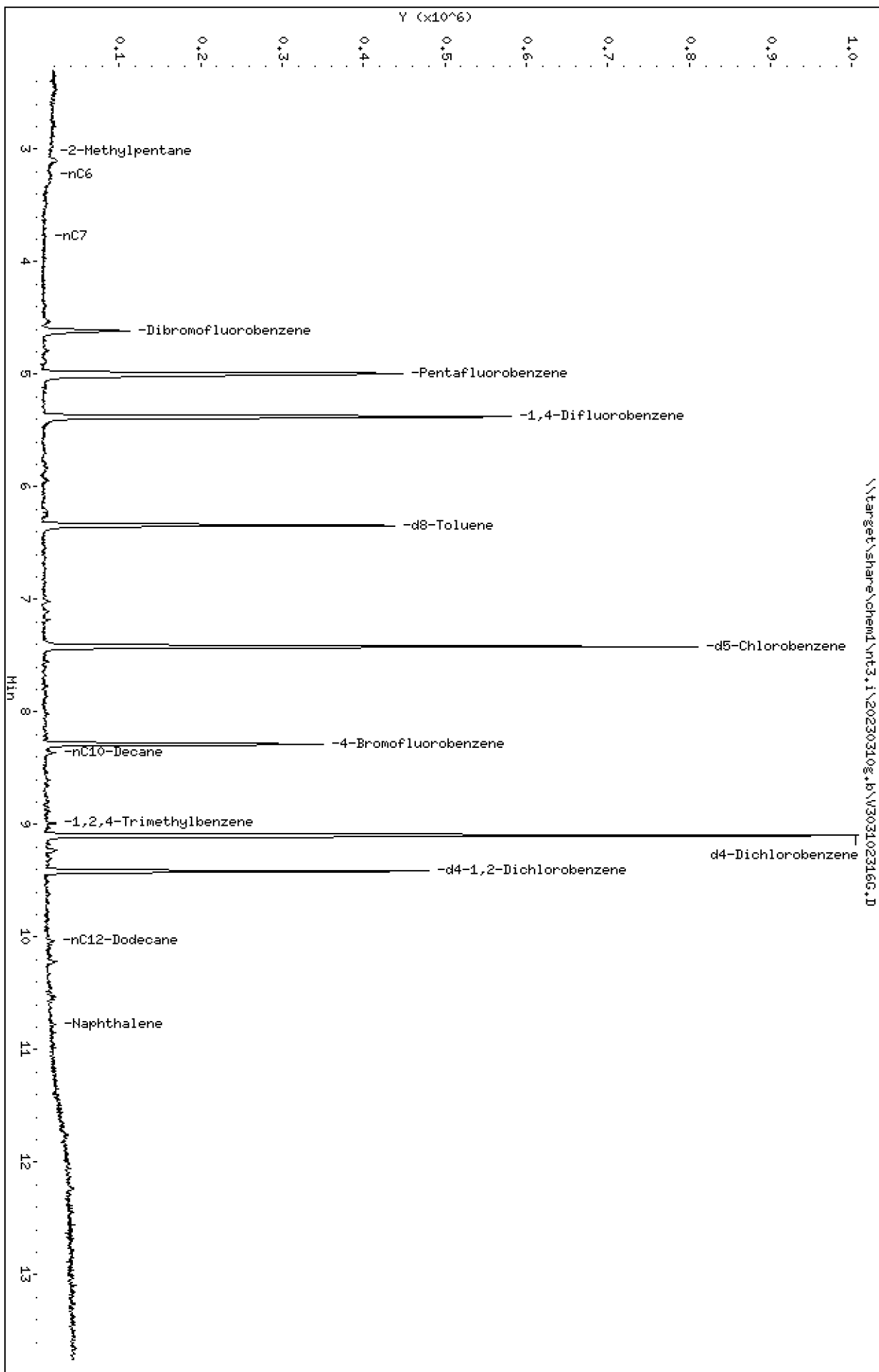
Sample Info: 23C0181-04

Instrument: nt3,1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102316G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 15:07

ARI ID: 23C0181-04  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	415596	0.007
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	644444	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	414833	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	549394	0.009
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	588117	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	1081798	d5-Chlorobenzene
6.344	594974	d8-Toluene
9.096	1232596	d4-Dichlorobenzene
8.283	445775	4-Bromofluorobenzene
9.415	604366	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**MW-01D-20230309**  
**23C0181-05 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/09/2023 09:11  
Instrument: ECD8 Analyzed: 22-Mar-2023 15:44

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	78.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	66.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01D-20230309**  
**23C0181-05 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/09/2023 09:11  
Analyzed: 16-Mar-2023 03:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	88.1 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	112 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	89.7 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01D-20230309**  
**23C0181-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/09/2023 09:11  
Analyzed: 17-Mar-2023 18:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	62.5	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	120	%	
Surrogate: Fluoranthene-d10			46-121 %	97.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01D-20230309**  
**23C0181-05 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/09/2023 09:11  
Analyzed: 21-Mar-2023 17:26

**Analysis by: Analytical Resources, LLC**

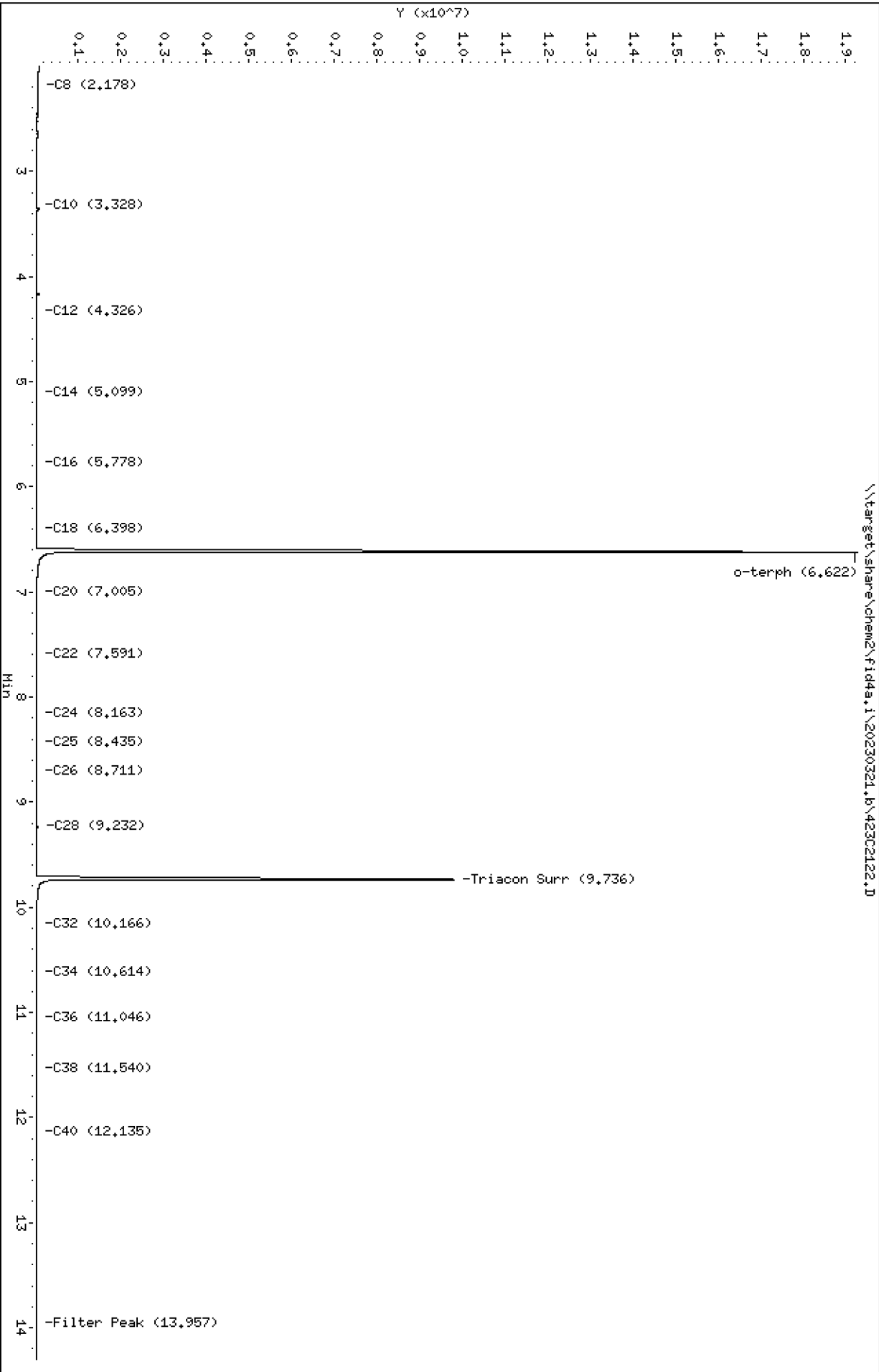
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	101	%	

Data File: \\target\share\chem2\fid4a,1\20230321.b\42302122.D  
Date: 21-MAR-2023 17:26  
Client ID:  
Sample Info: 23C0181-05

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2122.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-05  
Client ID:  
Injection: 21-MAR-2023 17:26  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

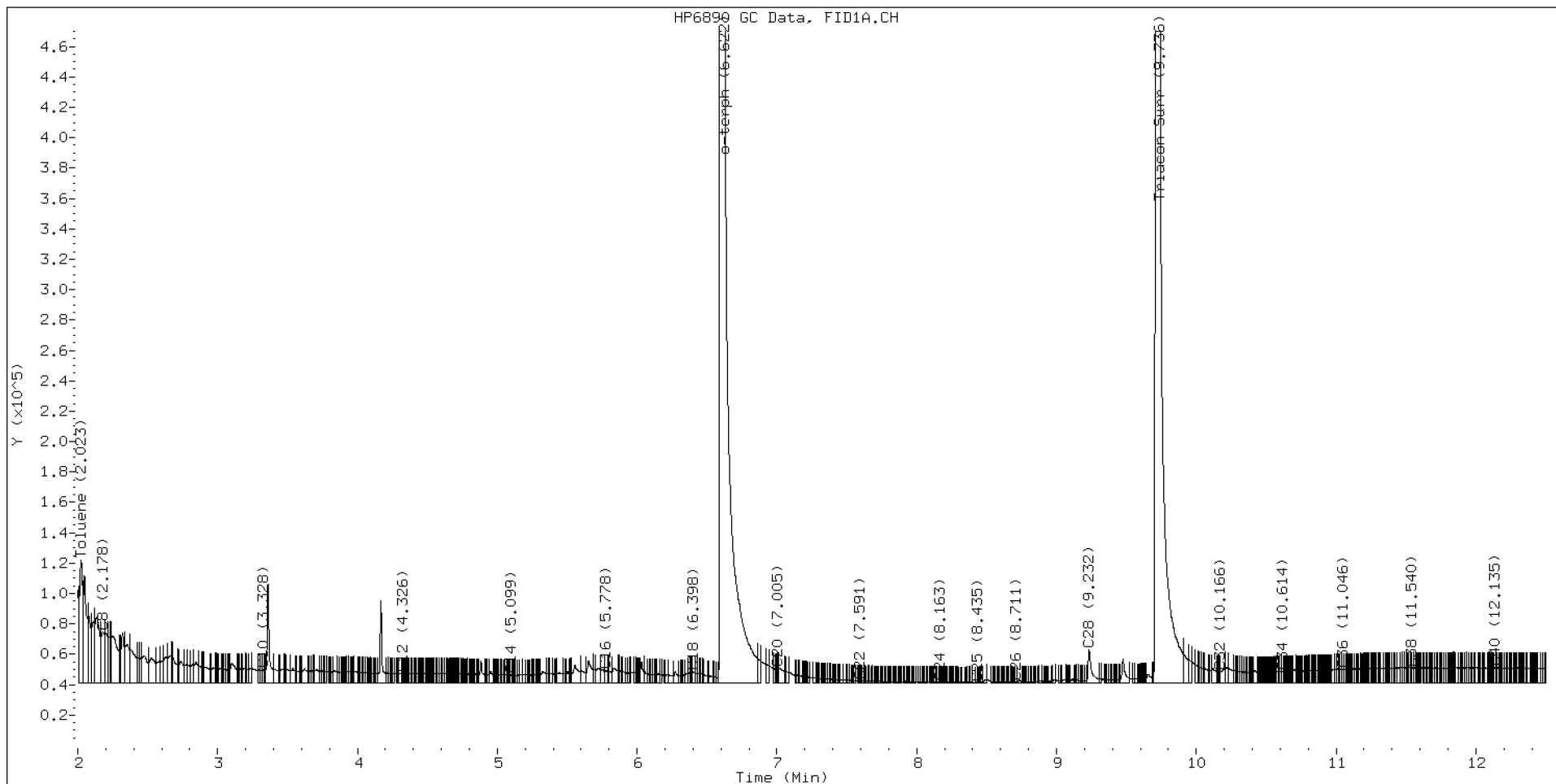
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.178	0.003	33511	57769	WATPHD	(C12-C24)	917354	5.8
C10	3.328	0.003	8486	5448	WATPHM	(C24-C38)	970591	7.3
C12	4.326	0.005	6226	3090	AK102	(C10-C25)	1445525	7.6
C14	5.099	-0.005	5184	3794	AK103	(C25-C36)	695151	7.0
C16	5.778	-0.002	7984	10841	OR.DIES	(C10-C28)	1524156	8.0
C18	6.398	-0.005	7244	7284				
C20	7.005	0.000	9208	2294	JET-A	(C10-C18)	1240826	7.2
C22	7.591	-0.004	1107	486				
C24	8.163	-0.003	507	114				
C25	8.435	-0.008	202	105				
C26	8.711	-0.003	475	191				
C28	9.232	0.001	21880	40967				
C32	10.166	-0.017	7420	2943				
C34	10.614	-0.003	7304	4350				
Filter Peak	13.957	-0.005	9025	5415	CREOSOT	(C12-C22)	900526	34.0
C36	11.046	-0.004	8887	5306				
C38	11.540	-0.001	9765	1460				
C40	12.135	-0.003	9888	10763				
o-terph	6.622	0.000	19233301	23172912				
Triacon Surr	9.736	-0.013	9791001	11736253	NAS DIES	(C10-C24)	1442313	7.6

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23172912	113.8
Triacontane	11736253	53.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01D-20230309**  
**23C0181-05 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/09/2023 09:11  
Analyzed: 10-Mar-2023 15:29

**Analysis by: Analytical Resources, LLC**

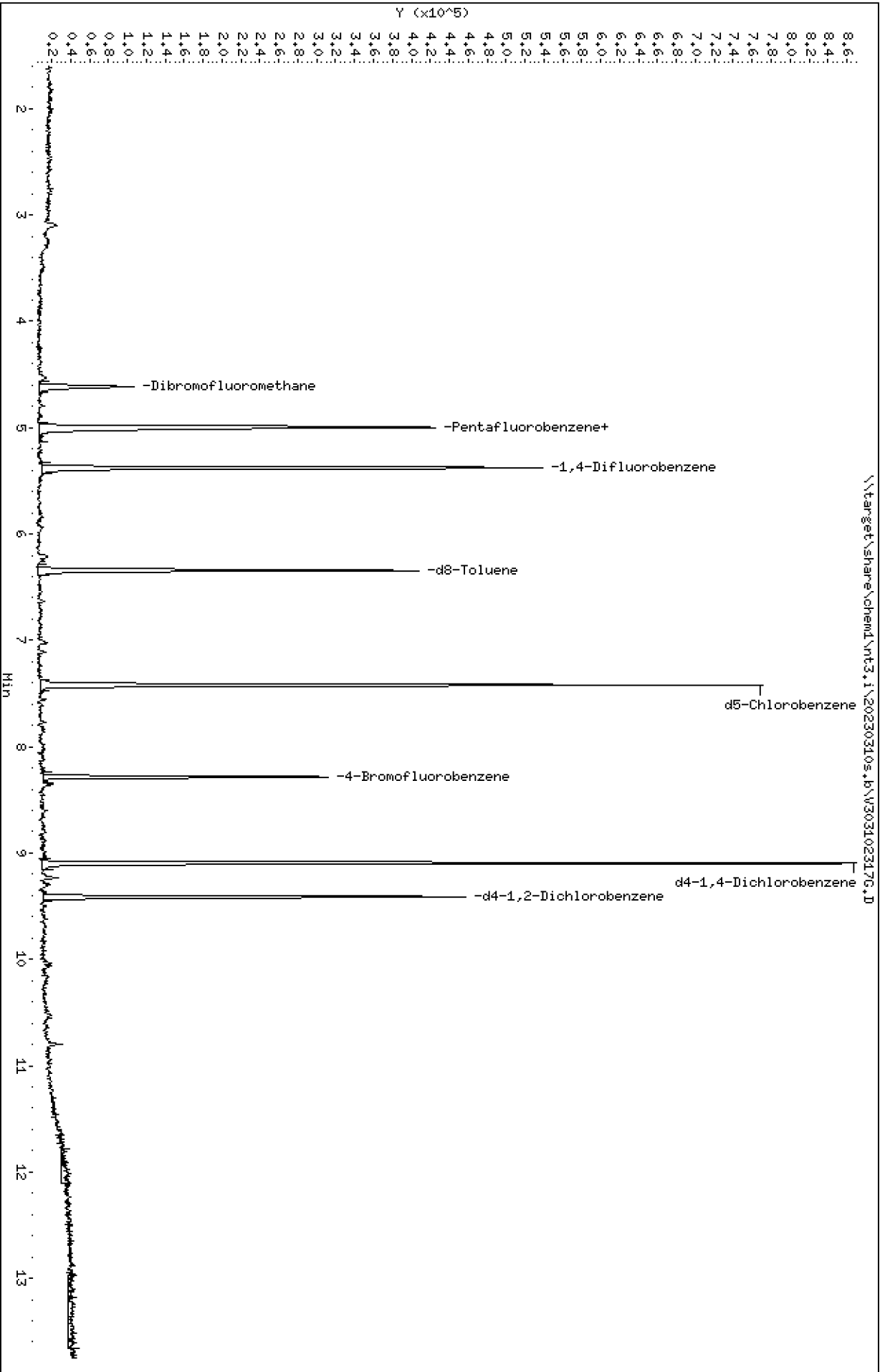
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.8	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102317G.D  
Date: 10-HR-2023 15:29  
Client ID:  
Sample Info: 23C0181-05

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102317G.D  
 Lab Smp Id: 23C0181-05  
 Inj Date : 10-MAR-2023 15:29  
 Operator : PKC  
 Smp Info : 23C0181-05  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 68  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.615	4.616	(0.924)	56387	5.20819	5.208 (R)
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	249633	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	30873	5.33218	5.332 (R)
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	359066	10.0000	
\$ 43 d8-Toluene	98		6.342	6.343	(1.180)	205182	5.00874	5.009 (R)
* 53 d5-Chlorobenzene	117		7.421	7.422	(1.000)	349647	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.288	(1.117)	76609	4.93897	4.939 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.100	9.095	(1.000)	201506	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.413	9.414	(1.034)	95348	5.24117	5.241 (R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102317G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-05  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	249633	-0.02
37 1,4-Difluorobenze	365813	182907	731626	359066	-1.84
53 d5-Chlorobenzene	354990	177495	709980	349647	-1.51
76 d4-1,4-Dichlorobe	212292	106146	424584	201506	-5.08

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.02
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.02
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.05

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-05  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.208	104.16	
\$ 33 d4-1,2-Dichloroeth	5.000	5.332	106.64	
\$ 43 d8-Toluene	5.000	5.009	100.17	
\$ 62 4-Bromofluorobenze	5.000	4.939	98.78	
\$ 79 d4-1,2-Dichloroben	5.000	5.241	104.82	

REVIEW SUMMARY FOR FILE - V303102317G.D

Lab ID: 23C0181-05

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 15:29

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\202303102317G.D

Date: 10-HR-2023 15:29

Client ID:

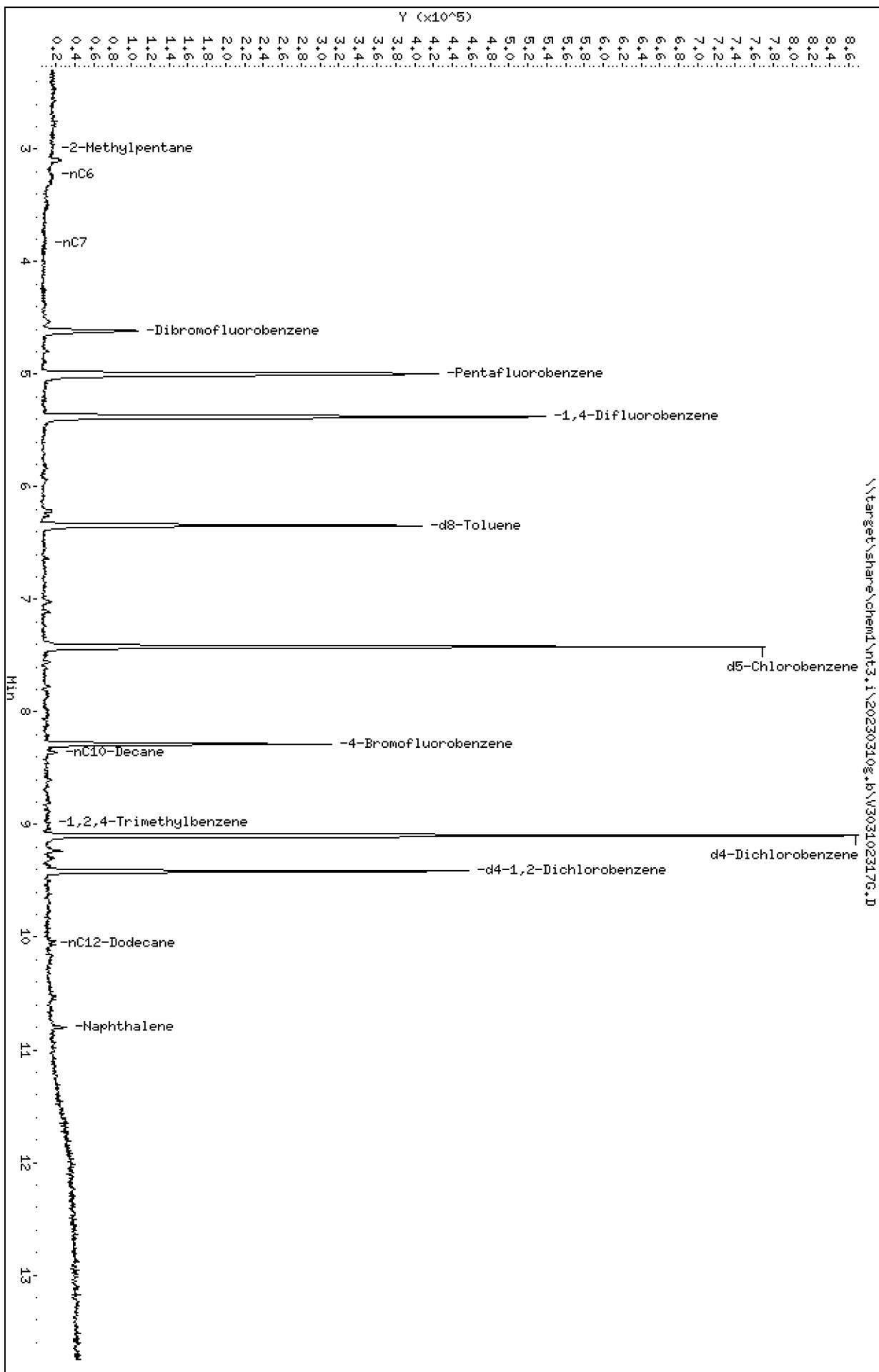
Sample Info: 23C0181-05

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102317G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 15:29

ARI ID: 23C0181-05  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	378717	0.007
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	618311	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	400272	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	497109	0.008
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	551618	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.421	1005095	d5-Chlorobenzene
6.343	569961	d8-Toluene
9.095	1113705	d4-Dichlorobenzene
8.287	408844	4-Bromofluorobenzene
9.414	559192	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 10:45  
Analyzed: 22-Mar-2023 16:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	81.2	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	66.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 10:45  
Analyzed: 16-Mar-2023 03:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	85.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	113	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	86.0	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 10:45  
Analyzed: 17-Mar-2023 18:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	87.3	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	135	%	*
Surrogate: Fluoranthene-d10			46-121 %	108	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 10:45  
Analyzed: 21-Mar-2023 17:46

**Analysis by: Analytical Resources, LLC**

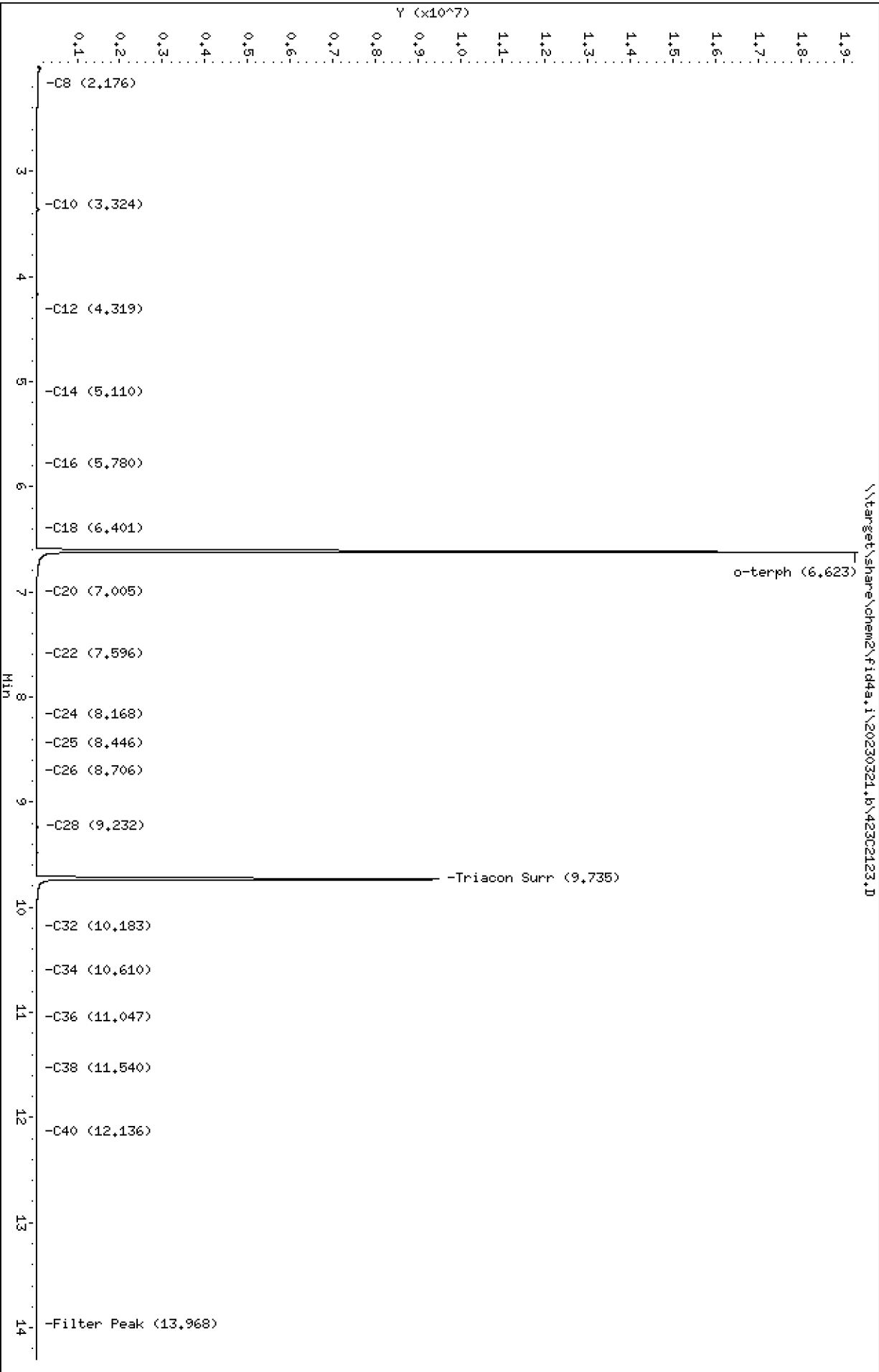
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	99.9	%	

Data File: \\target\share\chem2\fid4a,1\20230321.b\42302123.D  
Date : 21-MAR-2023 17:46  
Client ID:  
Sample Info: 23C0181-06

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2123.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-06  
Client ID:  
Injection: 21-MAR-2023 17:46  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.176	0.001	29352	47901	WATPHD	(C12-C24)	595350	3.8
C10	3.324	-0.001	6159	6659	WATPHM	(C24-C38)	817434	6.2
C12	4.319	-0.001	3776	1310	AK102	(C10-C25)	936540	5.0
C14	5.110	0.005	2462	1094	AK103	(C25-C36)	608650	6.2
C16	5.780	-0.001	3496	3992	OR.DIES	(C10-C28)	1041515	5.5
C18	6.401	-0.002	2048	2084				
C20	7.005	0.000	8867	3079	JET-A	(C10-C18)	653132	3.8
C22	7.596	0.001	486	261				
C24	8.168	0.002	464	347				
C25	8.446	0.004	1012	431				
C26	8.706	-0.007	779	259				
C28	9.232	0.001	22009	41288				
C32	10.183	0.000	6768	2982				
C34	10.610	-0.007	6165	1844				
Filter Peak	13.968	0.005	8183	4500	CREOSOT	(C12-C22)	584851	22.1
C36	11.047	-0.002	7516	6323				
C38	11.540	-0.001	8414	3751				
C40	12.136	-0.002	8407	4164				
o-terph	6.623	0.001	19296444	22897210				
Triacon Surr	9.735	-0.014	9449287	11005736	NAS DIES	(C10-C24)	929657	4.9

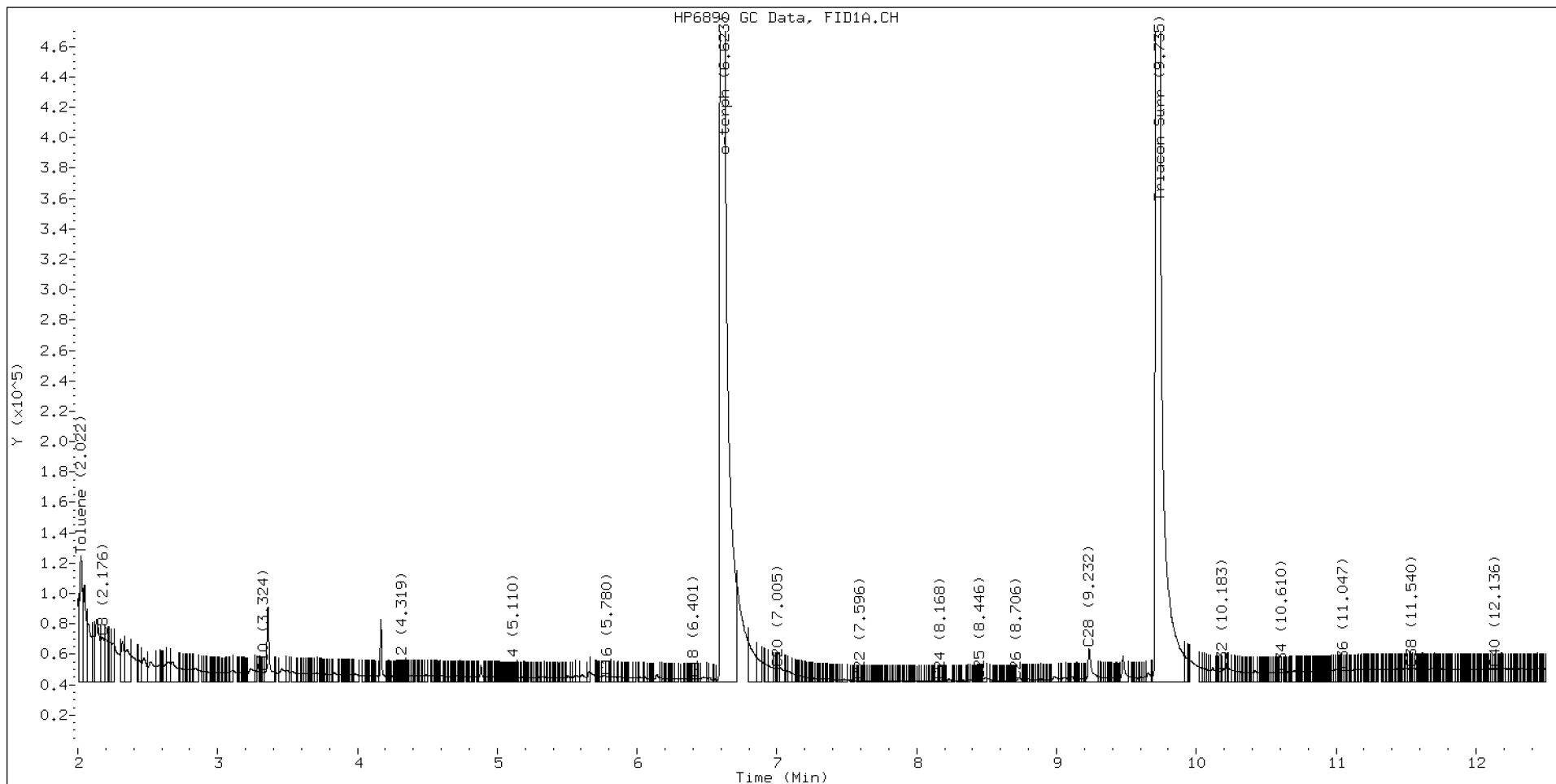
Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	22897210	112.4
Triacontane	11005736	50.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023







Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 10:45  
Analyzed: 10-Mar-2023 15:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

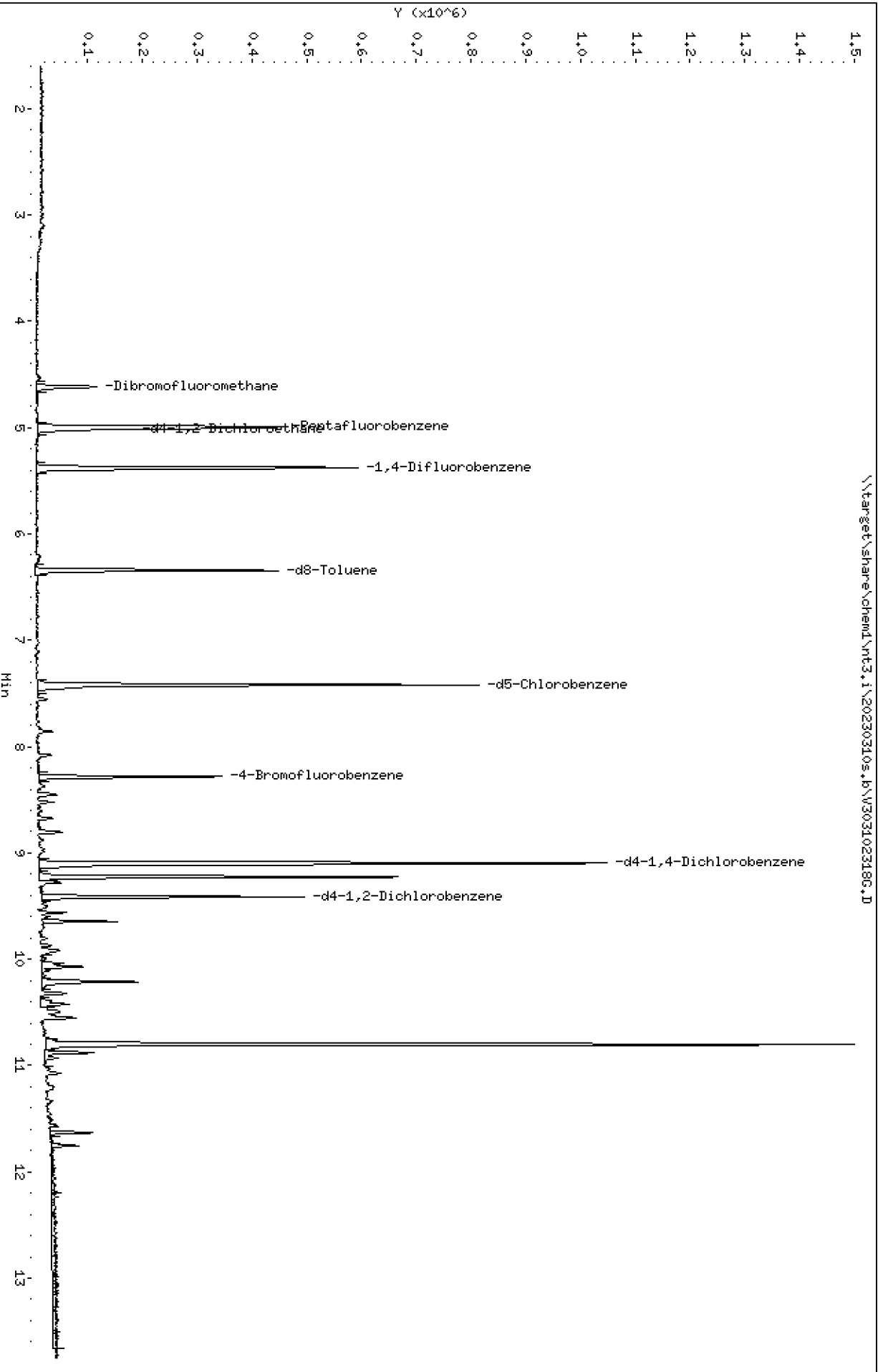
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.6	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.9	%	

Data File: \\target\share\chend\nt3,1\20230310s,16\303102318G.D  
Date : 10-HR-2023 15:52  
Client ID:  
Sample Info: 23C0181-06

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3,1\20230310s,16\303102318G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102318G.D  
 Lab Smp Id: 23C0181-06  
 Inj Date : 10-MAR-2023 15:52  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 23C0181-06  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 69  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	60061	5.28572	5.286(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	261998	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	32912	5.41607	5.416(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	386752	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	217611	4.93187	4.932(R)
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	374767	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	81401	4.89615	4.896(R)
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	225985	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	104328	5.11359	5.114(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102318G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-06  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	261998	4.94
37 1,4-Difluorobenze	365813	182907	731626	386752	5.72
53 d5-Chlorobenzene	354990	177495	709980	374767	5.57
76 d4-1,4-Dichlorobe	212292	106146	424584	225985	6.45

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-06  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.286	105.71	
\$ 33 d4-1,2-Dichloroeth	5.000	5.416	108.32	
\$ 43 d8-Toluene	5.000	4.932	98.64	
\$ 62 4-Bromofluorobenze	5.000	4.896	97.92	
\$ 79 d4-1,2-Dichloroben	5.000	5.114	102.27	

REVIEW SUMMARY FOR FILE - V303102318G.D

Lab ID: 23C0181-06

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 15:52

RT CO-ELUTION COMPOUNDS

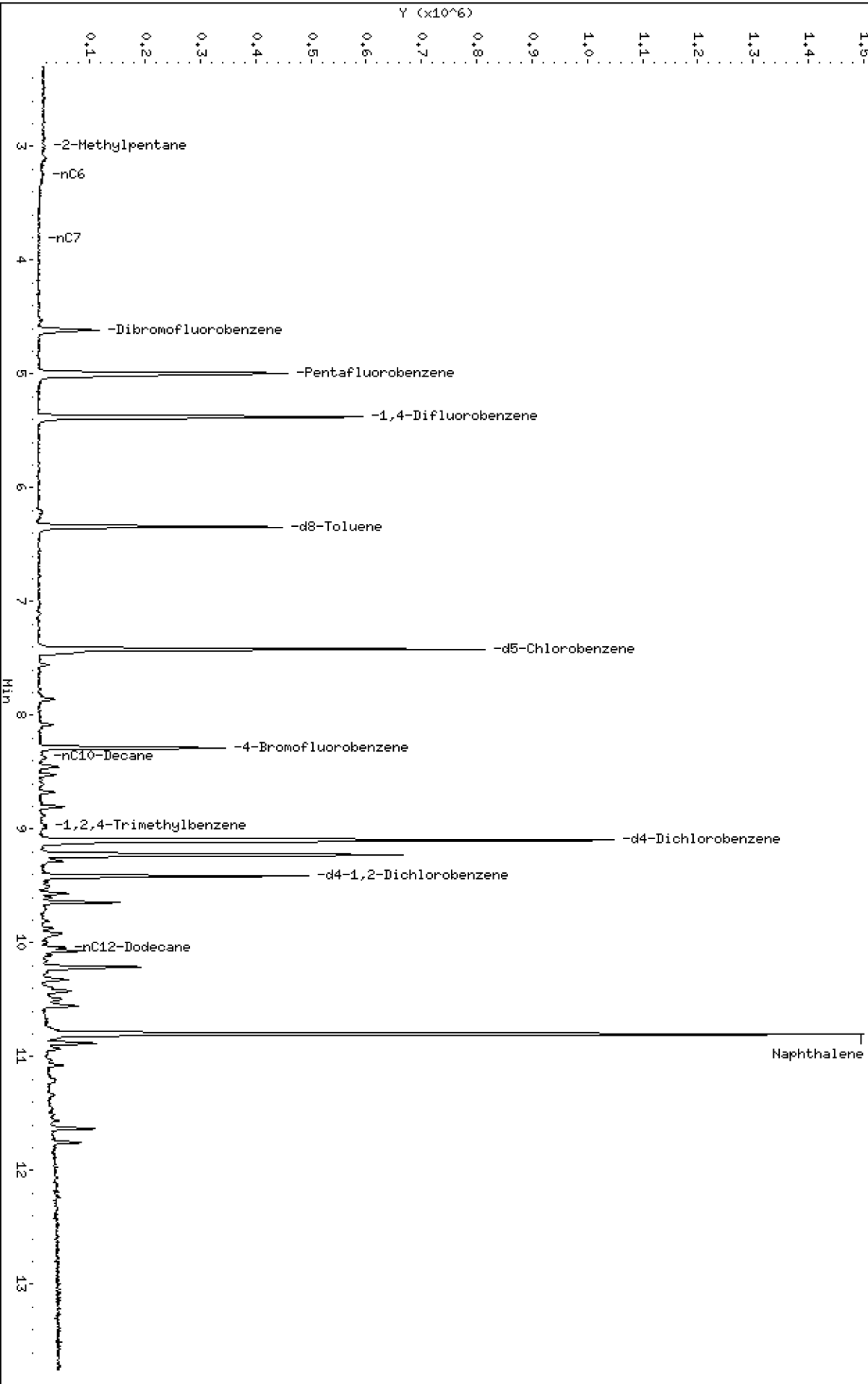
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Data File: \\target\share\chend\nt3.1\20230310g.1b\202303102318G.D  
Date: 10-MAR-2023 15:52  
Client ID:  
Sample Info: 23C0181-06

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3.1\20230310g.1b\202303102318G.D





Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102318G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 15:52

ARI ID: 23C0181-06  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	2414372	0.043 M
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	935217	0.009 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	510966	0.006 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	5298104	0.086 M
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	2543798	0.023 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

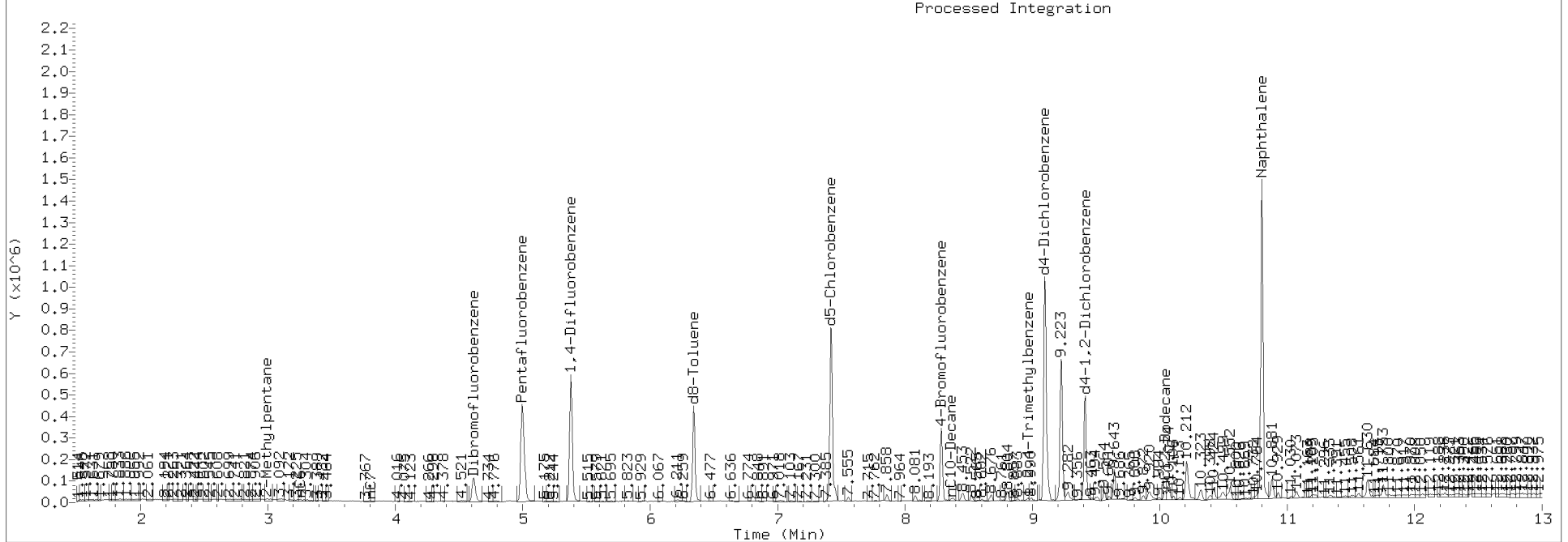
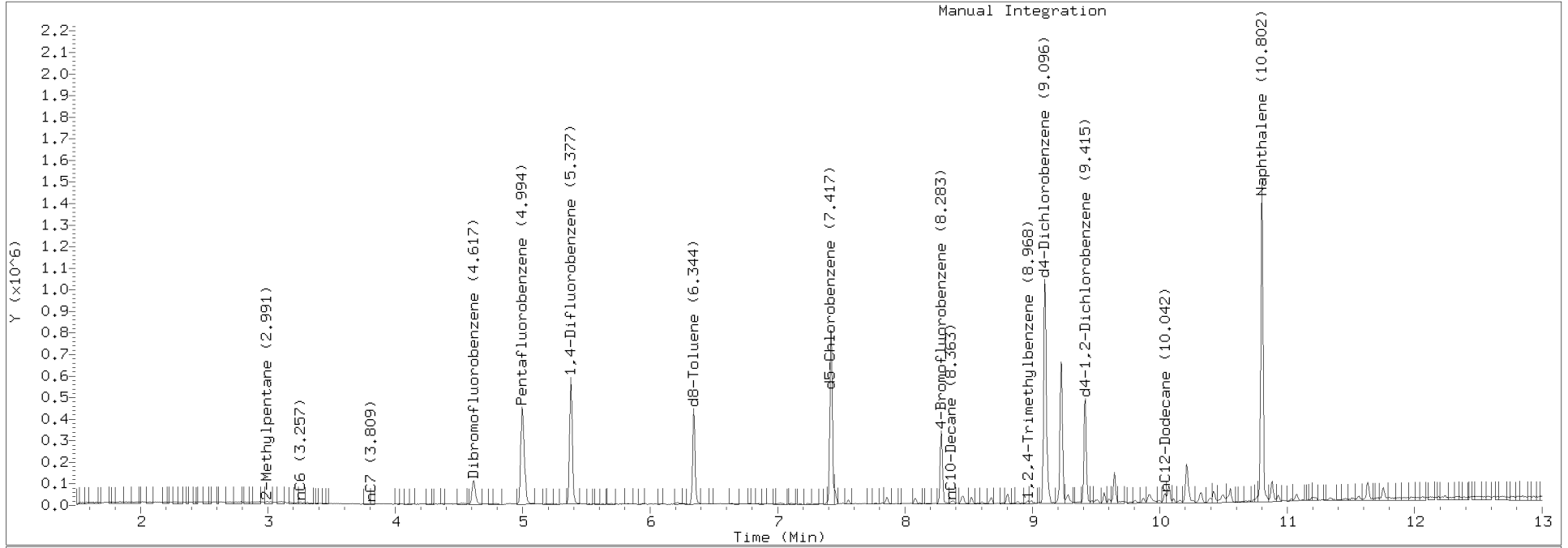
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7.417	1086903	d5-Chlorobenzene
6.344	592860	d8-Toluene
9.096	1533542	d4-Dichlorobenzene
8.283	449537	4-Bromofluorobenzene
9.415	627844	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230310g.b/V303102318G.D Injection: 10-MAR-2023 15:52

Lab ID:23C0181-06





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-18-20230308**  
**23C0181-07 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 16:41  
Analyzed: 22-Mar-2023 16:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	76.7	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	73.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-18-20230308**  
**23C0181-07 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 16:41  
Analyzed: 16-Mar-2023 04:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	79.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	102	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	76.9	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-18-20230308**  
**23C0181-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 16:41  
Analyzed: 17-Mar-2023 19:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	86.7	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	137	%	*
Surrogate: Fluoranthene-d10			46-121 %	107	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**PZ-18-20230308**  
**23C0181-07 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 16:41  
Analyzed: 21-Mar-2023 18:06

**Analysis by: Analytical Resources, LLC**

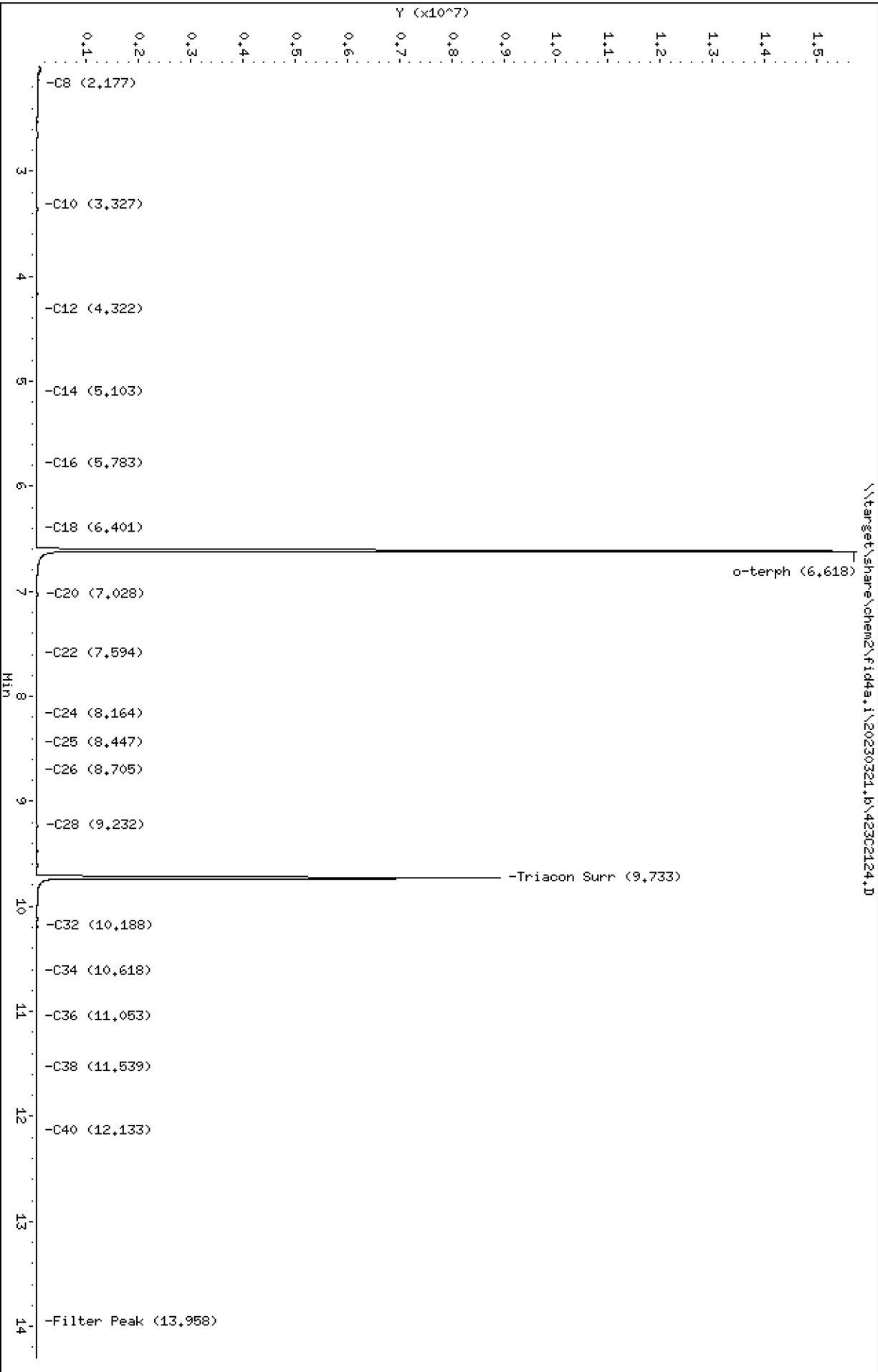
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	73.7	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302124.D  
Date : 21-MAR-2023 18:06  
Client ID:  
Sample Info: 23C0181-07

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2124.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-07  
Client ID:  
Injection: 21-MAR-2023 18:06  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.177	0.001	30158	50832	WATPHD	(C12-C24)	533074	3.4
C10	3.327	0.001	5804	2882	WATPHM	(C24-C38)	1336317	10.1
C12	4.322	0.001	3350	1633	AK102	(C10-C25)	888373	4.7
C14	5.103	-0.002	1661	632	AK103	(C25-C36)	1032861	10.4
C16	5.783	0.002	2745	3644	OR.DIES	(C10-C28)	1083108	5.7
C18	6.401	-0.003	1692	1461				
C20	7.028	0.023	25901	73374	JET-A	(C10-C18)	572516	3.3
C22	7.594	-0.000	1153	949				
C24	8.164	-0.002	1524	368				
C25	8.447	0.004	1863	1360				
C26	8.705	-0.009	2070	512				
C28	9.232	0.001	24102	53113				
C32	10.188	0.006	14099	17668				
C34	10.618	0.001	10148	6560				
Filter Peak	13.958	-0.004	6520	3877	CREOSOT	(C12-C22)	434964	16.4
C36	11.053	0.004	11297	2807				
C38	11.539	-0.002	10997	4938				
C40	12.133	-0.004	9005	7147				
o-terph	6.618	-0.004	15722442	16890275				
Triacon Surr	9.733	-0.016	8884442	9846241	NAS DIES	(C10-C24)	871509	4.6

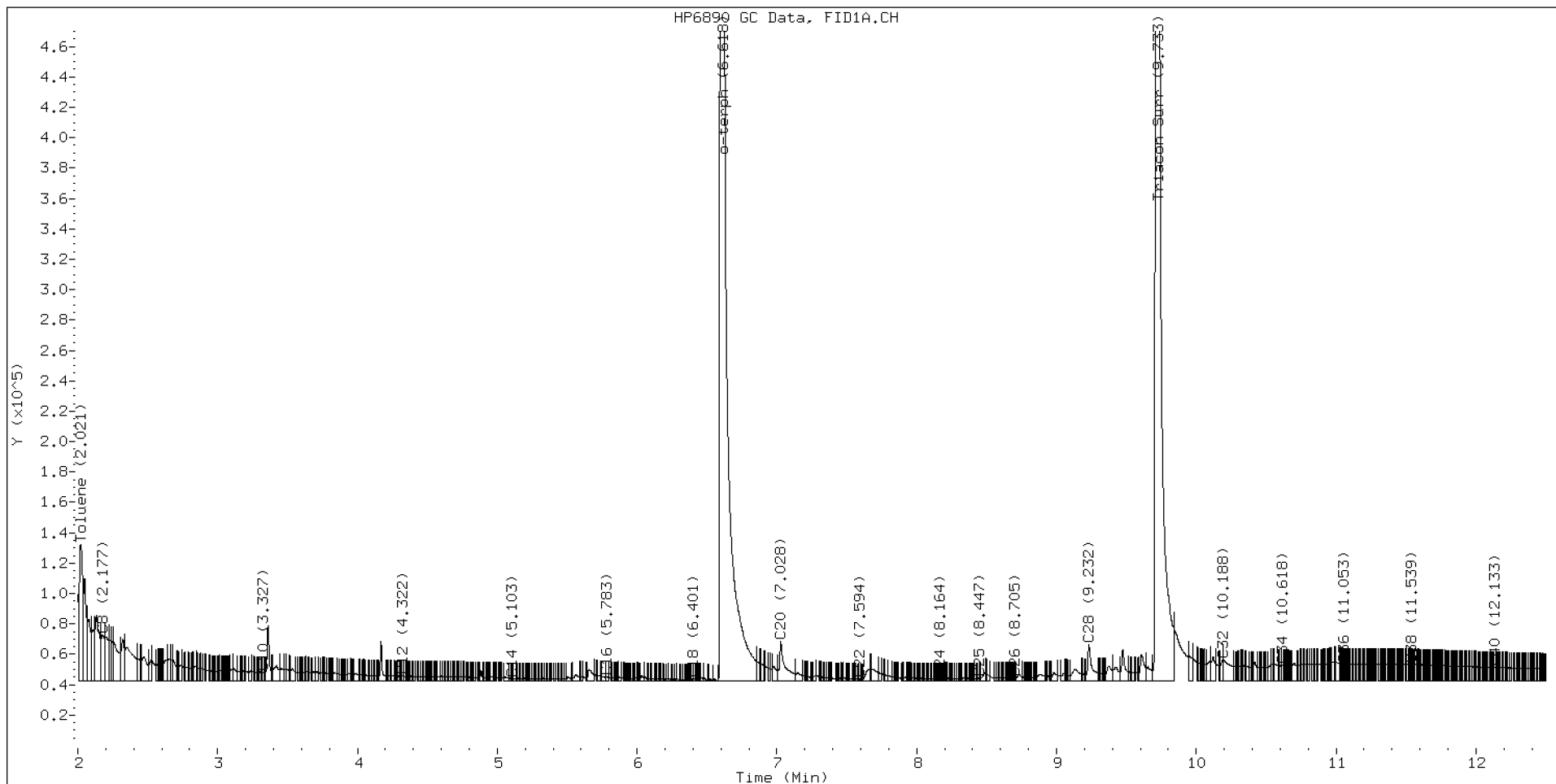
Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	16890275	82.9
Triacontane	9846241	45.2

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023







Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-18-20230308**  
**23C0181-07 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 16:41  
Analyzed: 10-Mar-2023 16:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

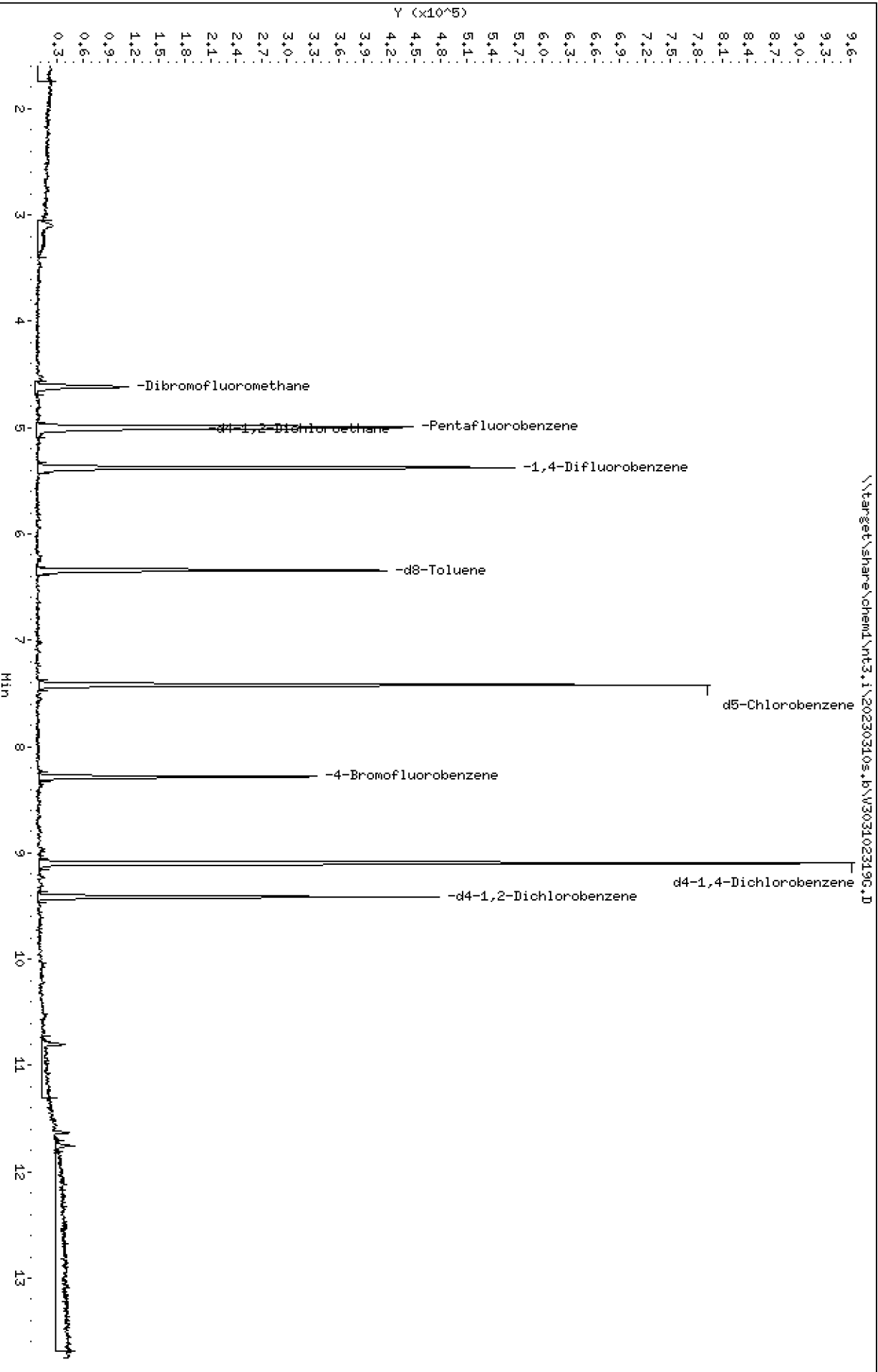
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	98.1	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102319G.D  
Date: 10-MAR-2023 16:14  
Client ID:  
Sample Info: 23C0181-07

Instrument: nt3.1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102319G.D  
 Lab Smp Id: 23C0181-07  
 Inj Date : 10-MAR-2023 16:14  
 Operator : PKC  
 Smp Info : 23C0181-07  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 70  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN	FINAL
	MASS						( ug/L)	( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	58787	5.24112	5.241
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	258623	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	33350	5.55977	5.560
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	375211	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	212726	4.96945	4.969
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	368645	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	80181	4.90286	4.903
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	215654	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	100708	5.17263	5.173

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102319G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-07  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	258623	3.58
37 1,4-Difluorobenze	365813	182907	731626	375211	2.57
53 d5-Chlorobenzene	354990	177495	709980	368645	3.85
76 d4-1,4-Dichlorobe	212292	106146	424584	215654	1.58

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-07  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.241	104.82	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.560	111.20	80-128
\$ 43 d8-Toluene	5.000	4.969	99.39	80-120
\$ 62 4-Bromofluorobenze	5.000	4.903	98.06	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.173	103.45	80-120

REVIEW SUMMARY FOR FILE - V303102319G.D

Lab ID: 23C0181-07

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 16:14

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230310g,1b\303102319G.D

Date: 10-HR-2023 16:14

Client ID:

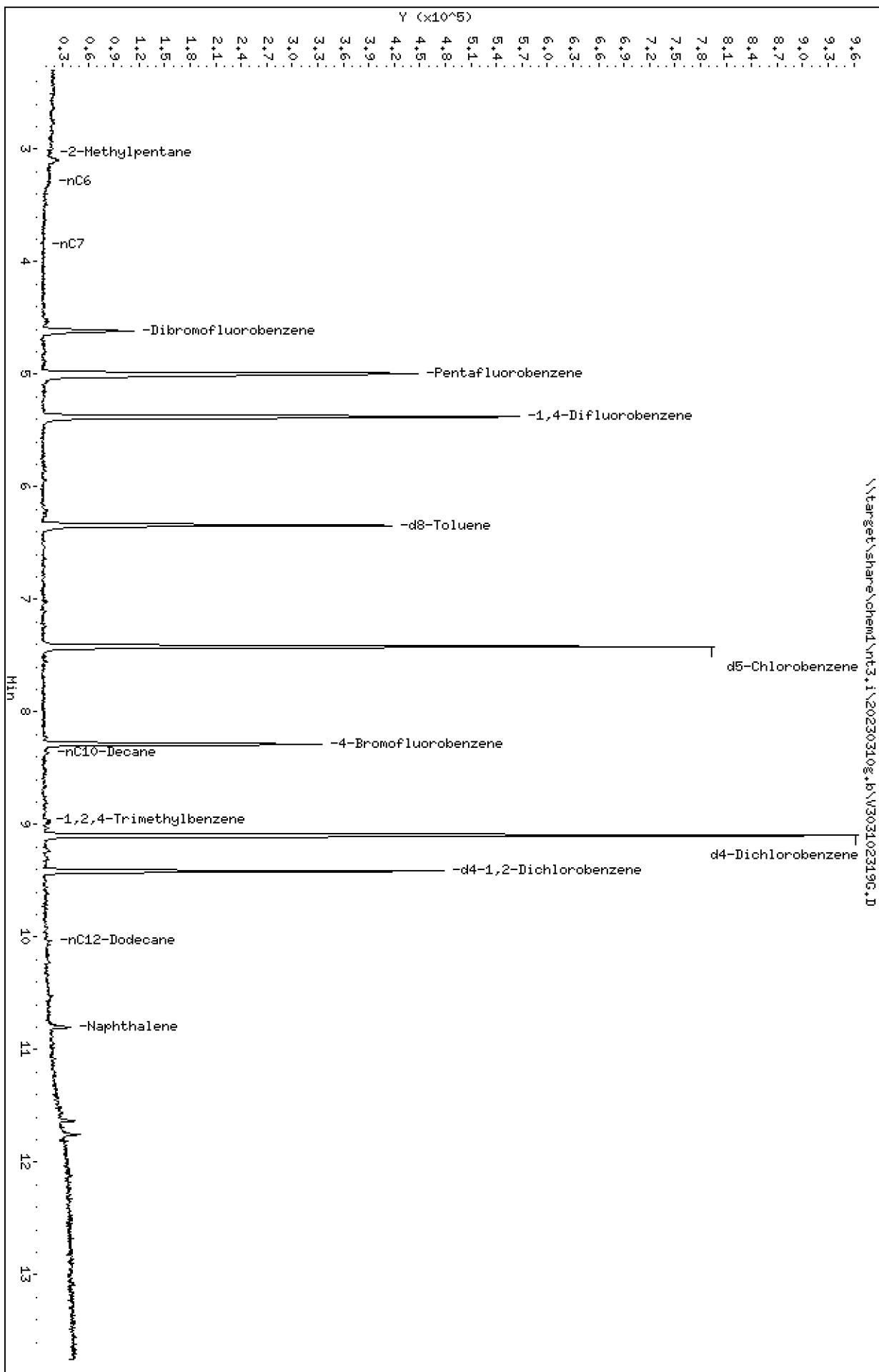
Sample Info: 23C0181-07

Instrument: nt3,1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18





Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102319G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 16:14

ARI ID: 23C0181-07  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	275839	0.005
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	480634	0.005
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	313994	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	352852	0.006
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	406331	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.422	1060389	d5-Chlorobenzene
6.344	585785	d8-Toluene
9.096	1202216	d4-Dichlorobenzene
8.283	426784	4-Bromofluorobenzene
9.415	592126	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**PZ-17-20230308**  
**23C0181-08 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 15:53  
Instrument: ECD8 Analyzed: 22-Mar-2023 16:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	89.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	85.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-17-20230308**  
**23C0181-08 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 15:53  
Analyzed: 16-Mar-2023 04:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	88.9 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	116 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	88.8 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-17-20230308**  
**23C0181-08 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 15:53  
Analyzed: 17-Mar-2023 19:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	88.5	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	127	%	*
Surrogate: Fluoranthene-d10			46-121 %	102	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-17-20230308**  
**23C0181-08 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 15:53  
Analyzed: 21-Mar-2023 18:25

**Analysis by: Analytical Resources, LLC**

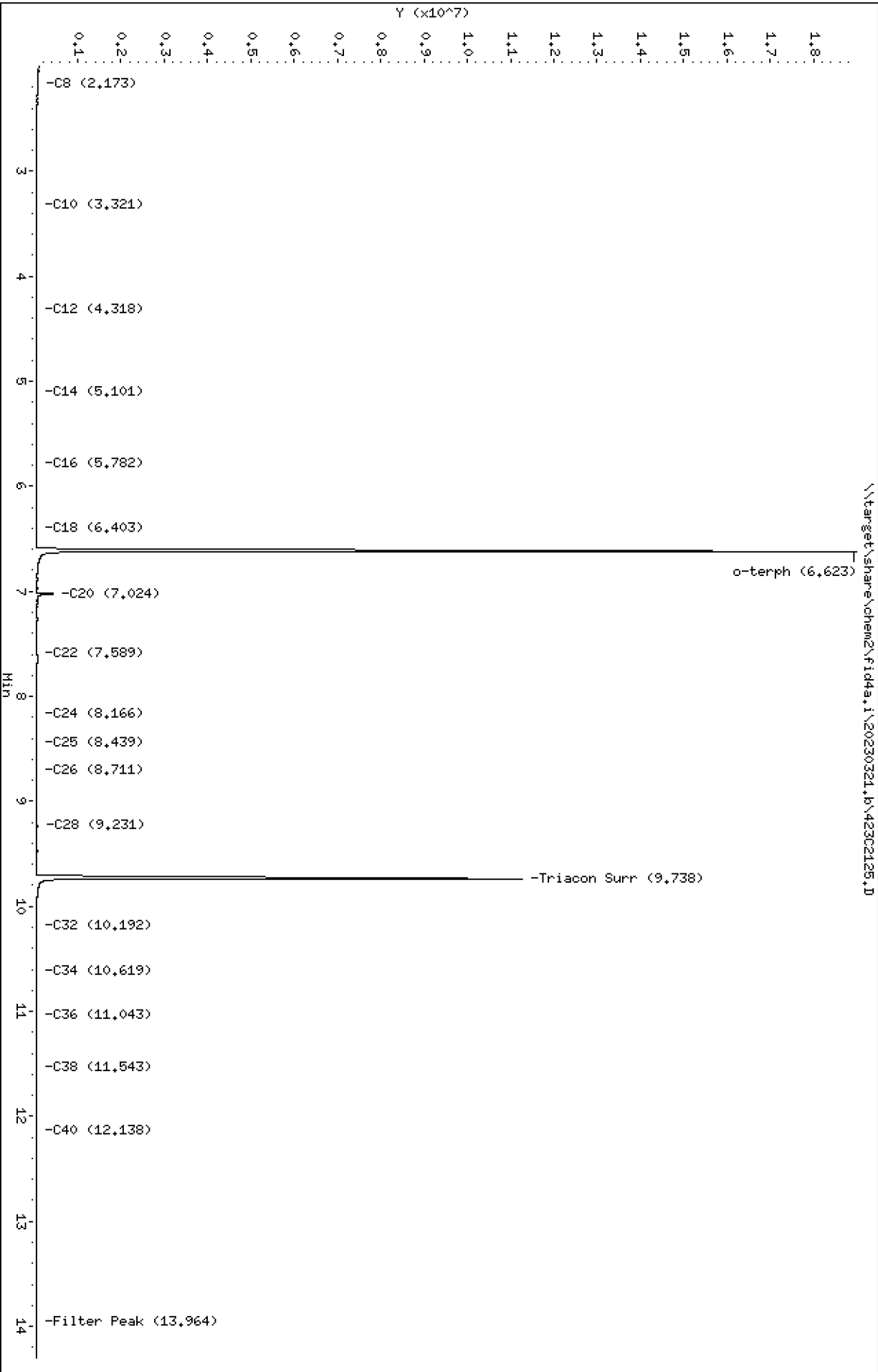
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	98.8	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302125.D  
Date: 21-MAR-2023 18:25  
Client ID:  
Sample Info: 23C0181-08

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2125.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-08  
Client ID:  
Injection: 21-MAR-2023 18:25  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

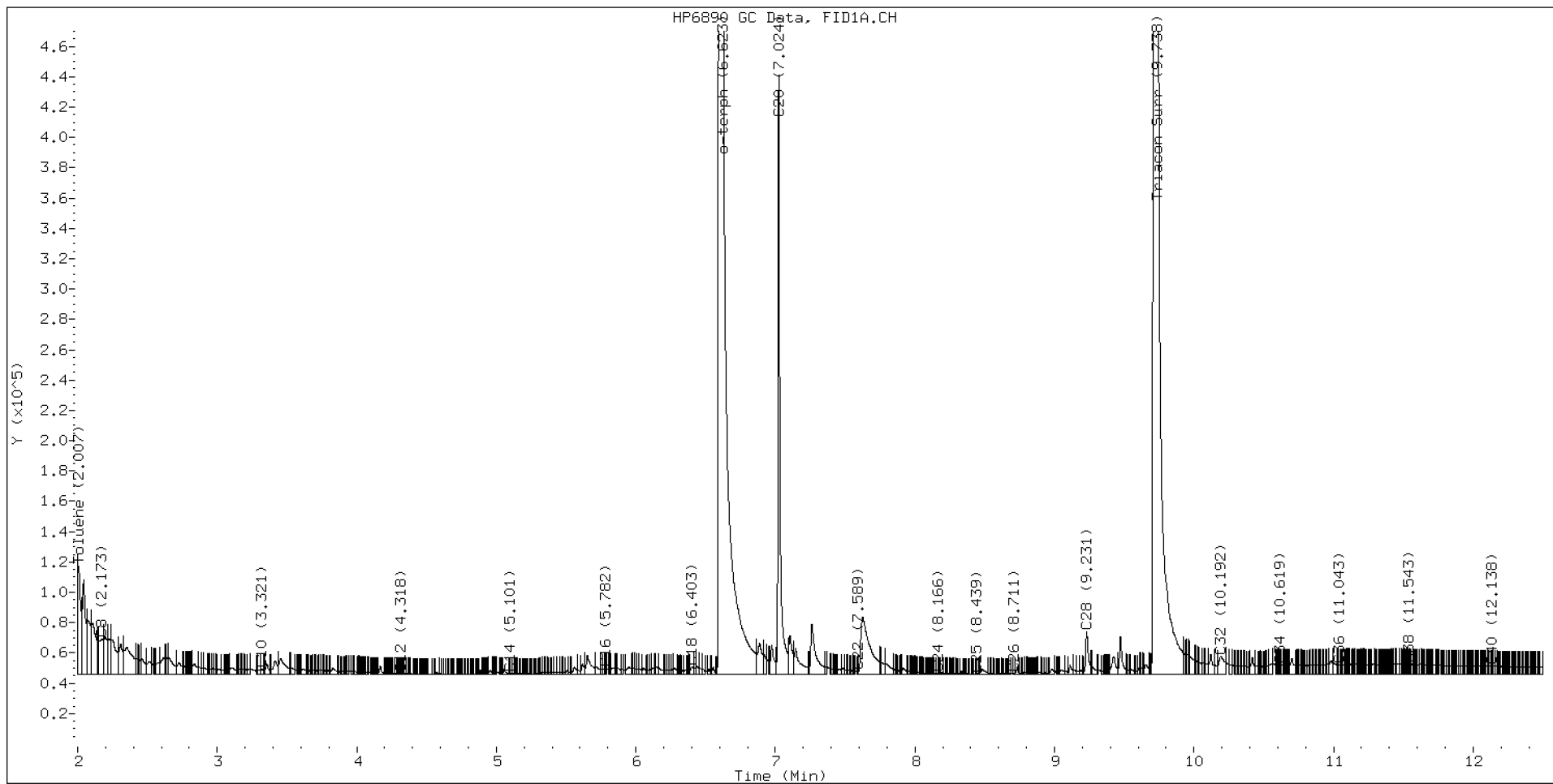
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.173	-0.002	23690	48963	WATPHD	(C12-C24)	1255193	7.9
C10	3.321	-0.004	3469	3952	WATPHM	(C24-C38)	882436	6.7
C12	4.318	-0.003	1031	610	AK102	(C10-C25)	1434780	7.6
C14	5.101	-0.004	1090	1131	AK103	(C25-C36)	686539	6.9
C16	5.782	0.001	4215	2754	OR.DIES	(C10-C28)	1558159	8.2
C18	6.403	-0.001	5163	7291				
C20	7.024	0.020	395607	400142	JET-A	(C10-C18)	431097	2.5
C22	7.589	-0.005	2002	495				
C24	8.166	-0.000	1252	364				
C25	8.439	-0.004	588	131				
C26	8.711	-0.003	972	476				
C28	9.231	-0.000	28476	38239				
C32	10.192	0.009	11881	34260				
C34	10.619	0.002	6264	1249				
Filter Peak	13.964	0.001	4271	849	CREOSOT	(C12-C22)	1180479	44.5
C36	11.043	-0.006	6697	5971				
C38	11.543	0.001	6824	2041				
C40	12.138	0.001	5515	1098				
o-terph	6.623	0.001	18951149	22623583				
Triacon Surr	9.738	-0.010	11229961	14072531	NAS DIES	(C10-C24)	1427141	7.6

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	22623583	111.1
Triacontane	14072531	64.6

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023







Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-17-20230308**  
**23C0181-08 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 15:53  
Analyzed: 10-Mar-2023 16:36

**Analysis by: Analytical Resources, LLC**

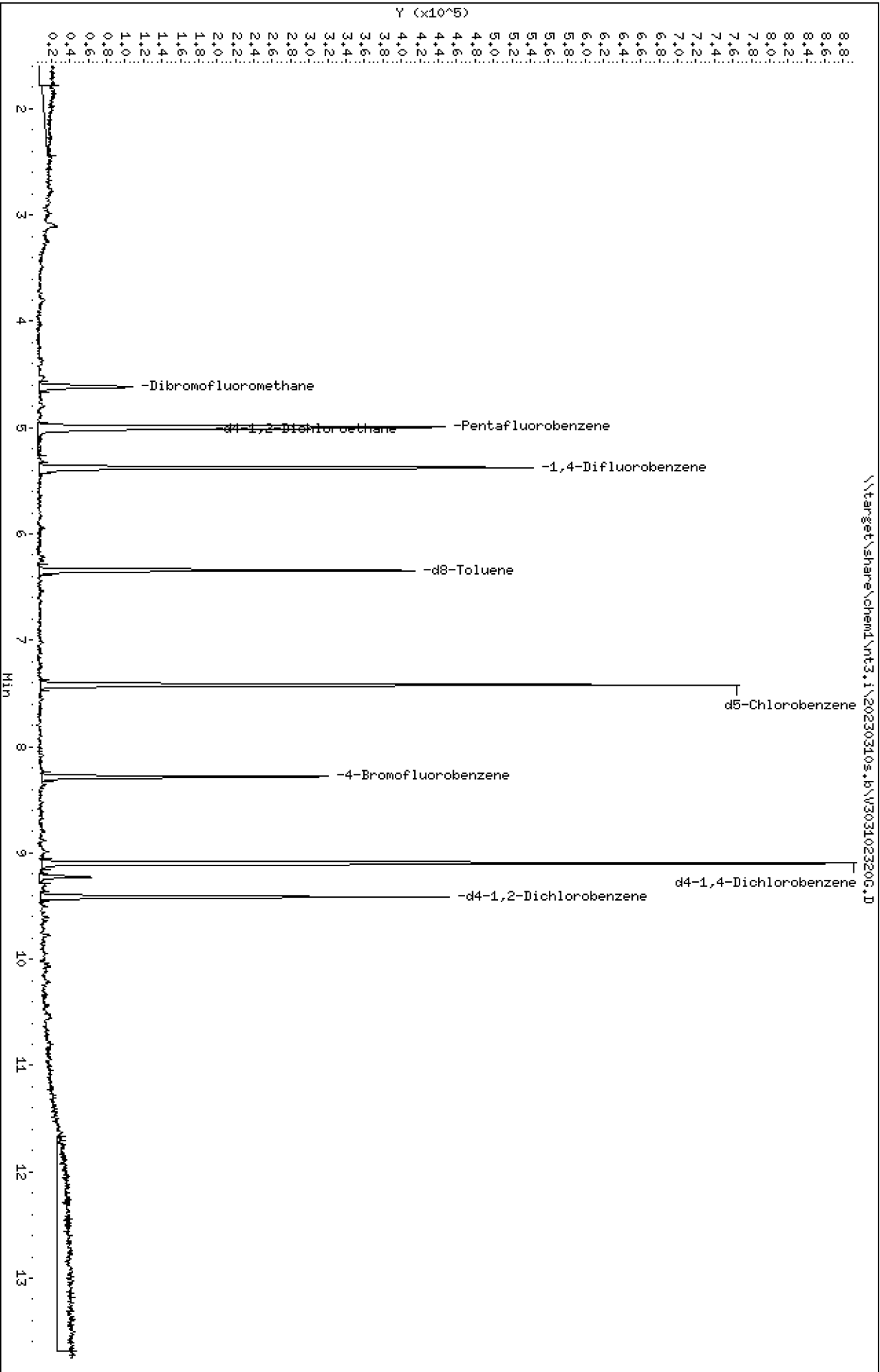
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	100	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102320G.D  
Date: 10-HR-2023 16:36  
Client ID:  
Sample Info: 23C0181-08

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102320G.D  
 Lab Smp Id: 23C0181-08  
 Inj Date : 10-MAR-2023 16:36  
 Operator : PKC  
 Smp Info : 23C0181-08  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 71  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	56832	5.18550	5.186
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	252704	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	32995	5.62943	5.629
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	362389	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	206644	4.99817	4.998
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	354828	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	78683	4.99862	4.999
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	206592	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	93974	5.03848	5.038

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102320G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-08  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	252704	1.21
37 1,4-Difluorobenze	365813	182907	731626	362389	-0.94
53 d5-Chlorobenzene	354990	177495	709980	354828	-0.05
76 d4-1,4-Dichlorobe	212292	106146	424584	206592	-2.68

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-08  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.186	103.71	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.629	112.59	80-128
\$ 43 d8-Toluene	5.000	4.998	99.96	80-120
\$ 62 4-Bromofluorobenze	5.000	4.999	99.97	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.038	100.77	80-120

REVIEW SUMMARY FOR FILE - V303102320G.D

Lab ID: 23C0181-08

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 16:36

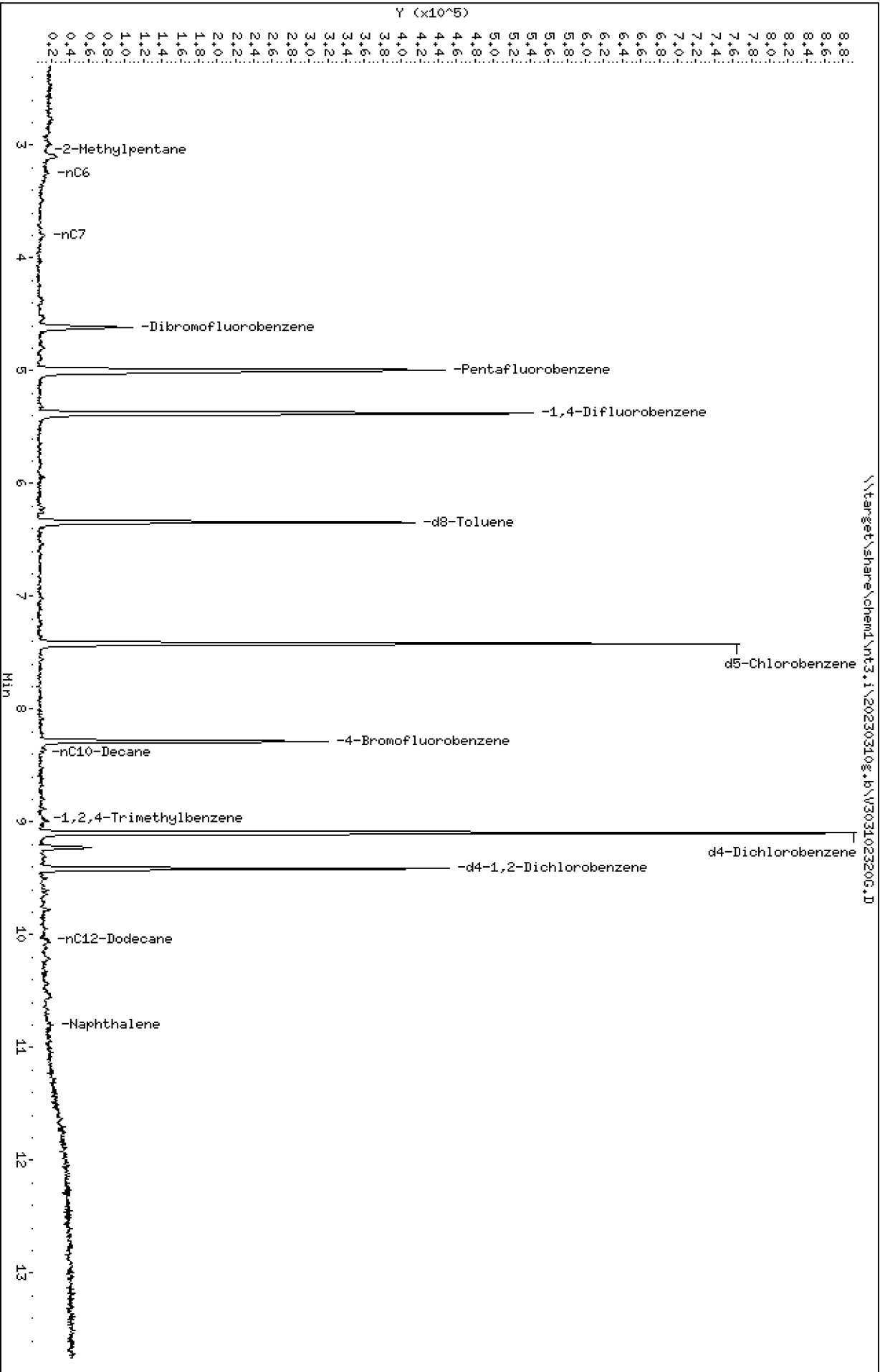
RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230310g,1b\2303102320G.D  
Date : 10-HR-2023 16:36  
Client ID:  
Sample Info: 23C0181-08

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102320G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 16:36

ARI ID: 23C0181-08  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	352286	0.006
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	426085	0.004
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	274500	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	452852	0.007
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	481497	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	1024761	d5-Chlorobenzene
6.344	572133	d8-Toluene
9.096	1130122	d4-Dichlorobenzene
8.283	423957	4-Bromofluorobenzene
9.415	557913	d4-1,2-Dichlorobenzene





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**CW-13-20230308**  
**23C0181-09 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 14:27  
Analyzed: 22-Mar-2023 17:13

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	83.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	79.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**CW-13-20230308**  
**23C0181-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 14:27  
Analyzed: 16-Mar-2023 05:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	78.7 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	103 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	82.8 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**CW-13-20230308**  
**23C0181-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 14:27  
Analyzed: 17-Mar-2023 20:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	89.9	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	132	%	*
Surrogate: Fluoranthene-d10			46-121 %	103	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**CW-13-20230308**  
**23C0181-09 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 14:27  
Analyzed: 21-Mar-2023 20:23

**Analysis by: Analytical Resources, LLC**

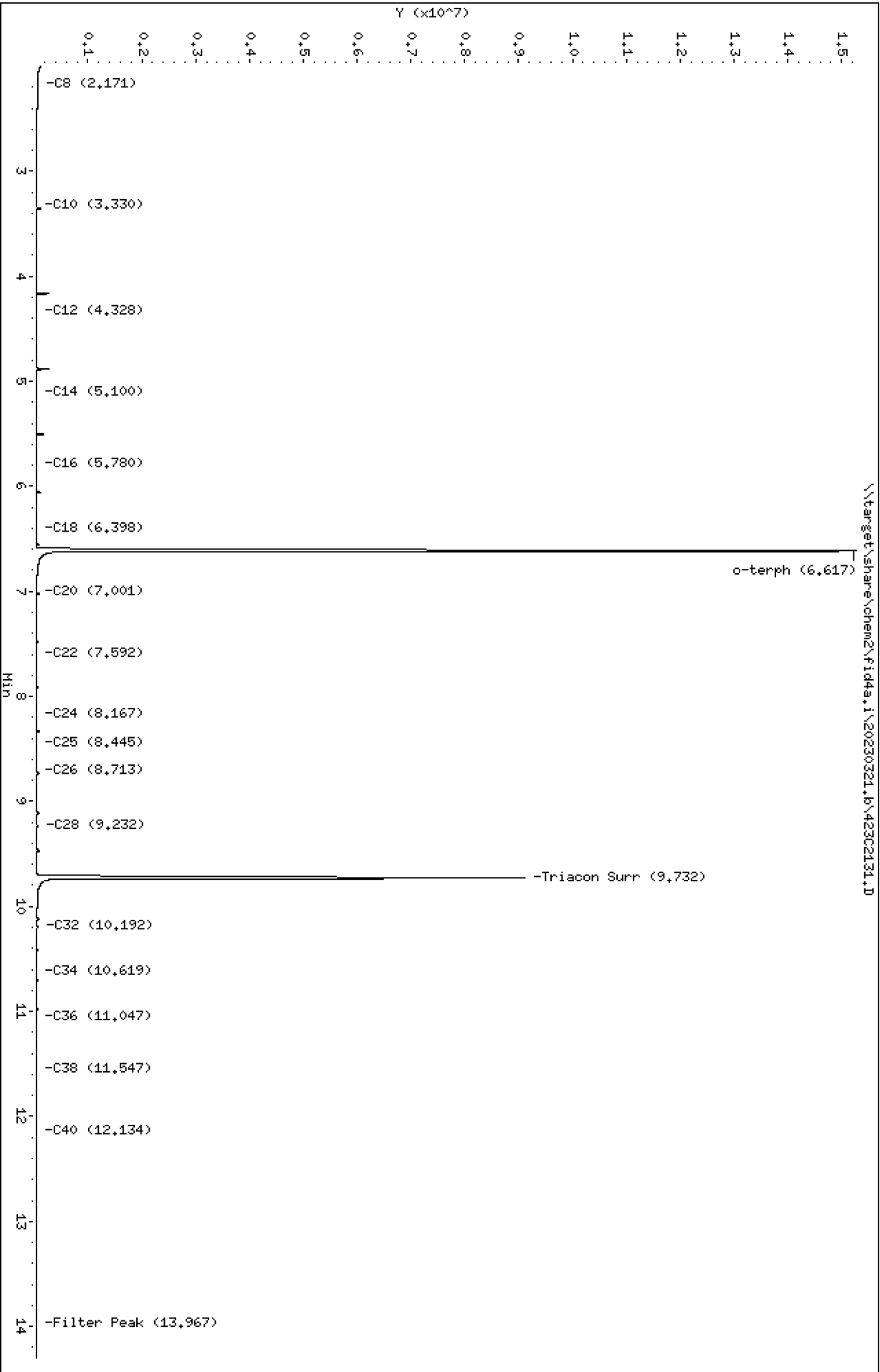
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	68.6	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302131.D  
Date: 21-MAR-2023 20:23  
Client ID:  
Sample Info: 23C0181-09

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2131.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-09  
Client ID:  
Injection: 21-MAR-2023 20:23  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

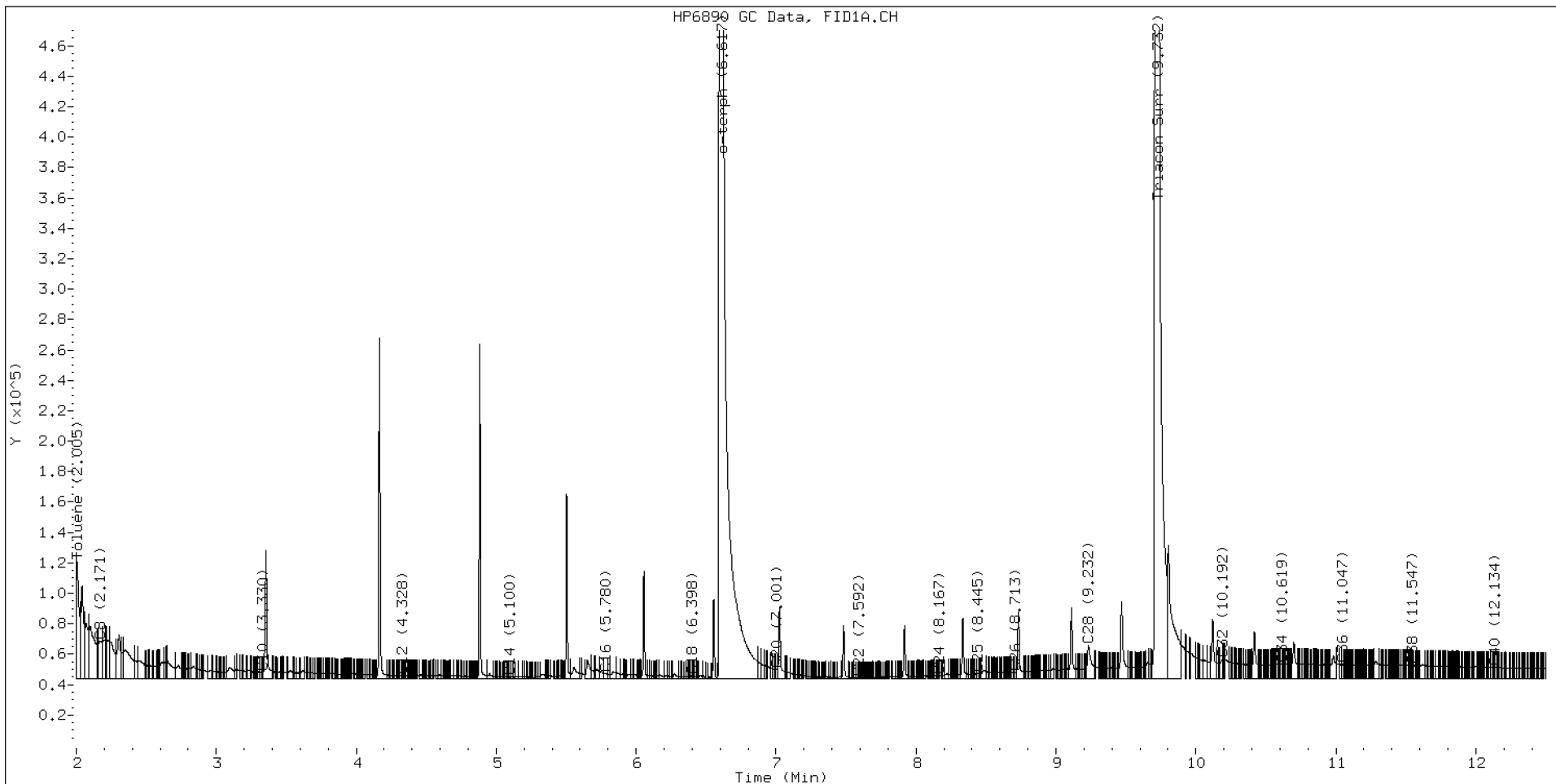
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.171	-0.004	24804	39627	WATPHD	(C12-C24)	745418	4.7
C10	3.330	0.004	4432	1747	WATPHM	(C24-C38)	1755199	13.2
C12	4.328	0.007	2245	1861	AK102	(C10-C25)	1192849	6.3
C14	5.100	-0.005	1188	933	AK103	(C25-C36)	1463556	14.8
C16	5.780	-0.000	3665	5467	OR.DIES	(C10-C28)	1531186	8.1
C18	6.398	-0.006	1774	880				
C20	7.001	-0.003	6273	5523	JET-A	(C10-C18)	867319	5.0
C22	7.592	-0.003	828	386				
C24	8.167	0.001	2324	797				
C25	8.445	0.002	3324	2071				
C26	8.713	-0.001	4368	2963				
C28	9.232	0.001	22167	44971				
C32	10.192	0.009	13014	15160				
C34	10.619	0.002	9679	3857				
Filter Peak	13.967	0.004	4958	2215	CREOSOT	(C12-C22)	678846	25.6
C36	11.047	-0.003	9242	7754				
C38	11.547	0.006	8710	3038				
C40	12.134	-0.004	7356	4761				
o-terph	6.617	-0.005	15230491	15730510				
Triacon Surr	9.732	-0.017	9076037	10206905	NAS DIES	(C10-C24)	1138269	6.0

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	15730510	77.2
Triacontane	10206905	46.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**CW-13-20230308**  
**23C0181-09 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 14:27  
Analyzed: 14-Mar-2023 13:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.1	%	



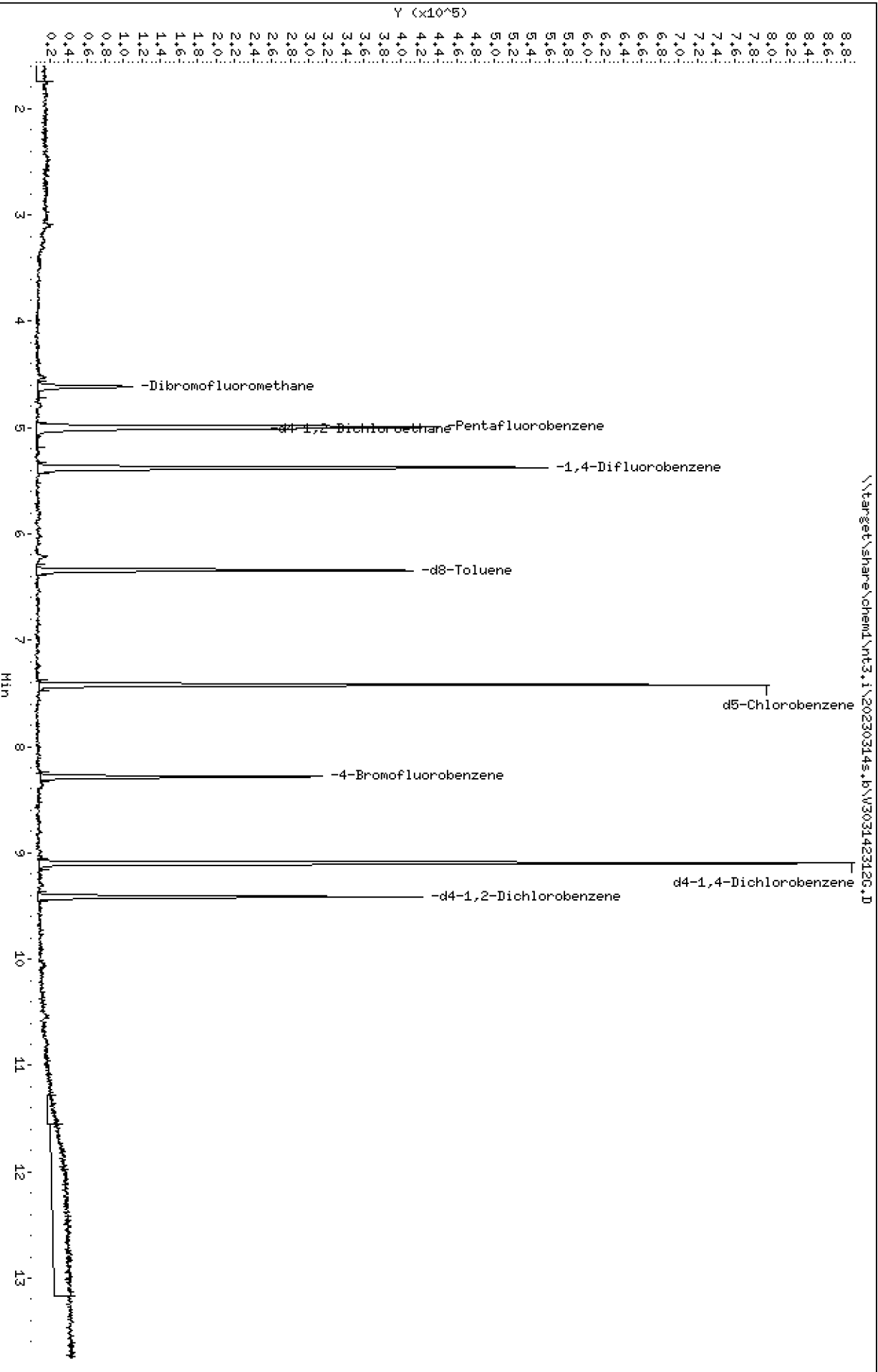
Data File: \\target\share\chend\nt3.1\20230314s.1b\303142312G.D  
Date: 14-MAR-2023 13:21  
Client ID:  
Sample Info: 23C0181-09

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142312G.D  
 Lab Smp Id: 23C0181-09  
 Inj Date : 14-MAR-2023 13:21  
 Operator : PKC  
 Smp Info : 23C0181-09  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	56589	5.09552	5.096(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	256067	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	30990	5.21791	5.218(R)
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	370615	10.0000	
\$ 43 d8-Toluene	98		6.344	6.343	(1.180)	212818	5.03325	5.033(R)
* 53 d5-Chlorobenzene	117		7.417	7.421	(1.000)	359566	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	77413	4.85313	4.853(R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	202683	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	92684	5.06515	5.065(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142312G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-09  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	256067	-0.41
37 1,4-Difluorobenze	368342	184171	736684	370615	0.62
53 d5-Chlorobenzene	357223	178612	714446	359566	0.66
76 d4-1,4-Dichlorobe	205758	102879	411516	202683	-1.49

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.02
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.06
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-09  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.096	101.91	
\$ 33 d4-1,2-Dichloroeth	5.000	5.218	104.36	
\$ 43 d8-Toluene	5.000	5.033	100.66	
\$ 62 4-Bromofluorobenze	5.000	4.853	97.06	
\$ 79 d4-1,2-Dichloroben	5.000	5.065	101.30	

REVIEW SUMMARY FOR FILE - V303142312G.D

Lab ID: 23C0181-09

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 13:21

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.1b\2303142312G.D

Date: 14-MAR-2023 13:21

Client ID:

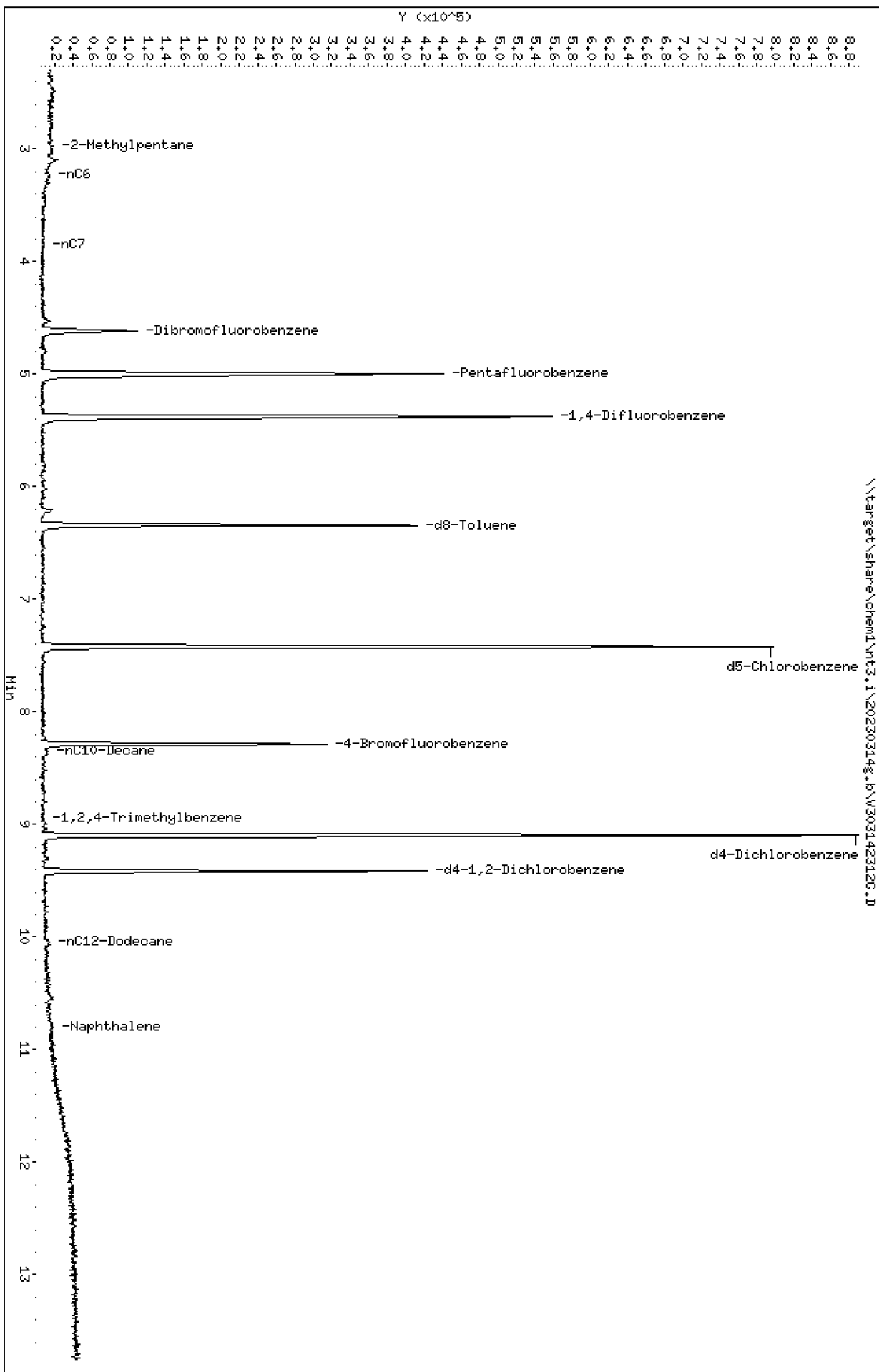
Sample Info: 23C0181-09

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142312G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 13:21

ARI ID: 23C0181-09  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	193755	0.003
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	431058	0.004
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	259475	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	278556	0.005
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	317934	0.003

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.417	1007199	d5-Chlorobenzene
6.344	578612	d8-Toluene
9.096	1124195	d4-Dichlorobenzene
8.283	415074	4-Bromofluorobenzene
9.415	541992	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**MW-01S-20230309**  
**23C0181-10 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/09/2023 09:12  
Instrument: ECD8 Analyzed: 29-Mar-2023 17:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>3.80</b>	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %		NRS	NRS
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	82.8	%	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01S-20230309**  
**23C0181-10 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/09/2023 09:12  
Analyzed: 16-Mar-2023 05:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254  
Prepared: 13-Mar-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	10	3.0	10.0	1990	ug/L	E, D
Acenaphthylene	208-96-8	10	1.9	10.0	ND	ug/L	U
Acenaphthene	83-32-9	10	2.0	10.0	162	ug/L	D
2-Methylnaphthalene	91-57-6	10	2.1	10.0	259	ug/L	D
Dibenzofuran	132-64-9	10	1.9	10.0	57.0	ug/L	D
Fluorene	86-73-7	10	2.1	10.0	53.2	ug/L	D
Pentachlorophenol	87-86-5	10	12.1	100	ND	ug/L	U
Phenanthrene	85-01-8	10	2.0	10.0	69.3	ug/L	D
Anthracene	120-12-7	10	2.5	10.0	13.3	ug/L	D
Carbazole	86-74-8	10	2.7	10.0	18.2	ug/L	D
Fluoranthene	206-44-0	10	2.4	10.0	18.4	ug/L	D
Pyrene	129-00-0	10	3.4	10.0	13.5	ug/L	D
Benzo(a)anthracene	56-55-3	10	2.2	10.0	ND	ug/L	U
Chrysene	218-01-9	10	2.2	10.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	10	2.3	10.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	10	4.7	10.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	10	4.7	10.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	10	2.6	10.0	173	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	83.6 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	100 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	77.3 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01S-20230309**  
**23C0181-10 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/09/2023 09:12  
Analyzed: 17-Mar-2023 20:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	10	1.00	<b>1.28</b>	ug/L	D
Chrysene	218-01-9	10	1.00	<b>1.30</b>	ug/L	D
Benzo(a)fluoranthene, Total		10	2.00	ND	ug/L	U
Benzo(a)pyrene	50-32-8	10	1.00	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	10	1.00	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	10	1.00	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>70.3</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>73.2</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>89.2</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**MW-01S-20230309**  
**23C0181-10 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx Sampled: 03/09/2023 09:12  
Instrument: FID4 Analyzed: 21-Mar-2023 19:05

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	5	500	<b>2580</b>	ug/L	D
Motor Oil Range Organics (C24-C38)	RRO	5	1000	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	5	1000	<b>14900</b>	ug/L	D
HC ID: CREOSOTE						
Surrogate: <i>o</i> -Terphenyl			50-150 %	82.7	%	

Data File: \\target\share\chem2\fid4a,1\20230321.b\42302127.D

Date: 21-MAR-2023 19:05

Client ID:

Sample Info: 23C0181-10,5

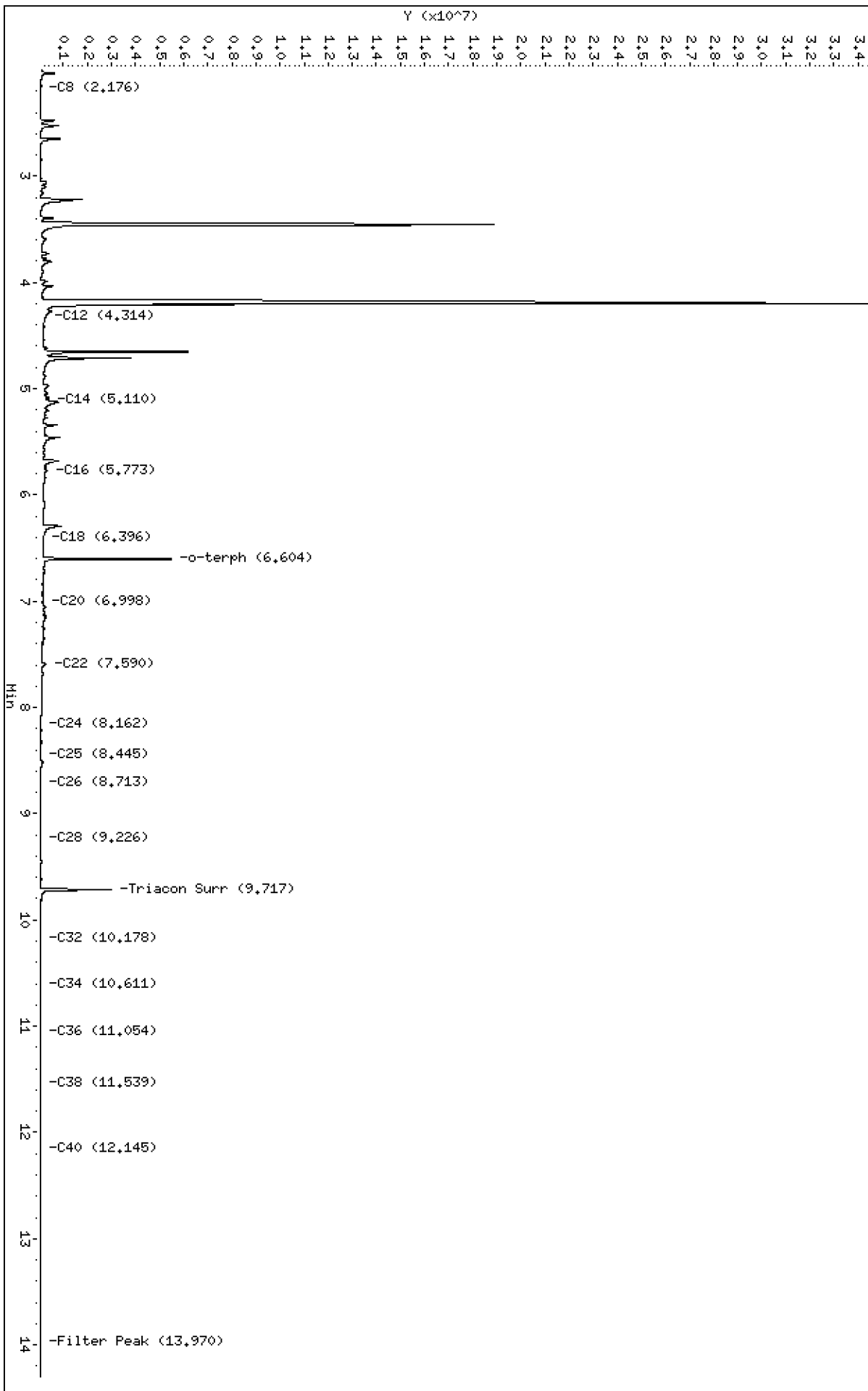
Column phase: RTX-1

Instrument: fid4a,1

Operator: AA

Column diameter: 0,25

\\target\share\chem2\fid4a,1\20230321.b\42302127.D



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2127.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-10  
Client ID:  
Injection: 21-MAR-2023 19:05  
Dilution Factor: 5  
RT Std: 422H1803.D

FID:4A RESULTS

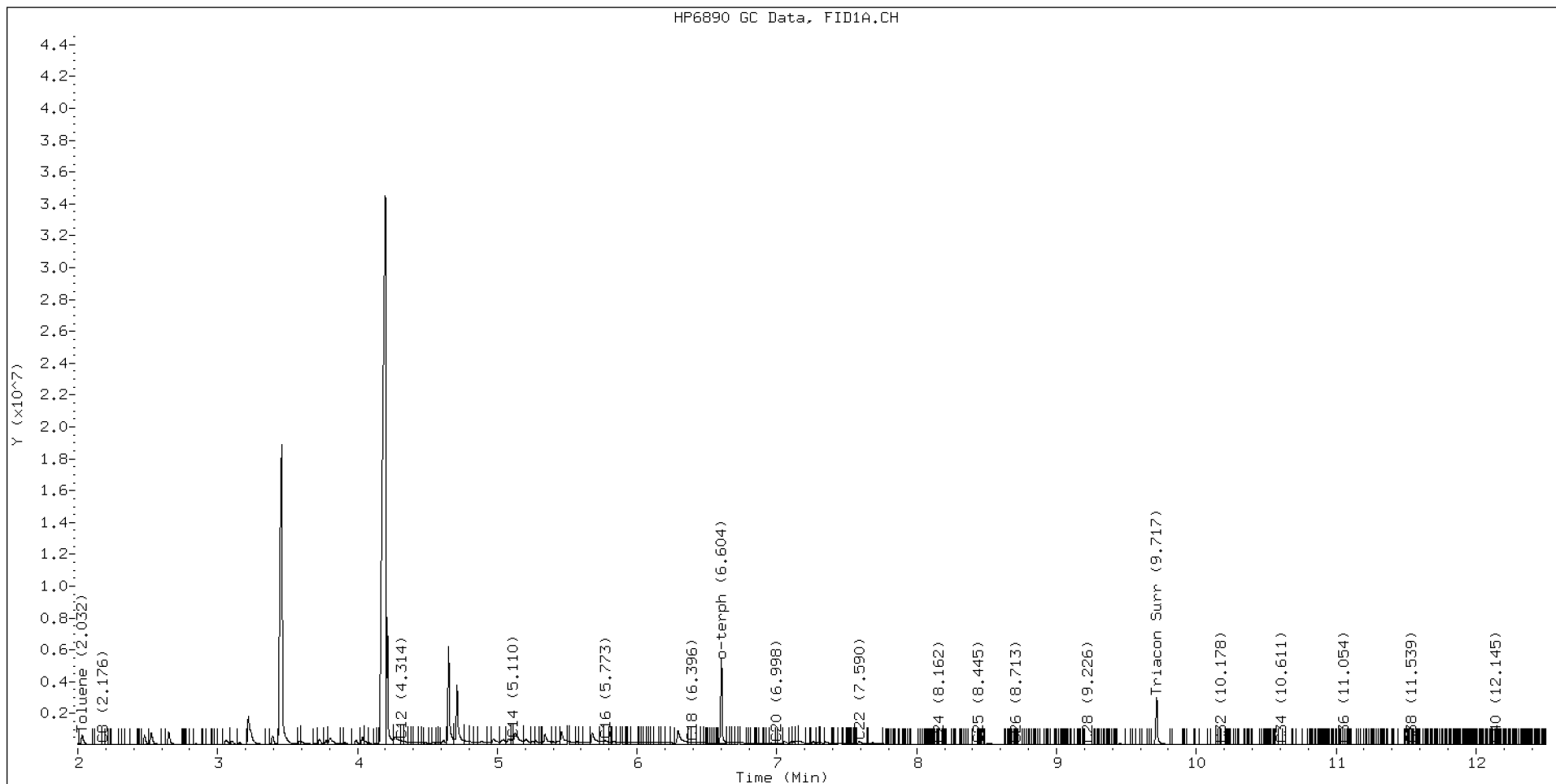
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.176	0.001	23125	30557	WATPHD	(C12-C24)	40902771	257.8
C10	----				WATPHM	(C24-C38)	1626141	12.3
C12	4.314	-0.007	248598	299950	AK102	(C10-C25)	131845559	697.3
C14	5.110	0.005	350777	297349	AK103	(C25-C36)	1250257	12.6
C16	5.773	-0.008	286680	517353	OR.DIES	(C10-C28)	132463833	698.1
C18	6.396	-0.008	141613	257440				
C20	6.998	-0.007	95409	99996	JET-A	(C10-C18)	122651395	708.2
C22	7.590	-0.005	224014	460506				
C24	8.162	-0.004	26818	38067				
C25	8.445	0.002	17647	9612				
C26	8.713	-0.001	11213	3335				
C28	9.226	-0.005	12136	23235				
C32	10.178	-0.005	5437	1616				
C34	10.611	-0.006	5428	6232				
Filter Peak	13.970	0.007	345	173	CREOSOT	(C12-C22)	39528210	1490.8
C36	11.054	0.004	2318	1254				
C38	11.539	-0.003	5092	2985				
C40	12.145	0.007	1565	612				
o-terph	6.604	-0.018	5334575	3781566				
Triacon Surr	9.717	-0.032	2951743	2695283	NAS DIES	(C10-C24)	131565415	697.3

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	3781566	18.6 M
Triacontane	2695283	12.4

M Indicates the peak was manually integrated

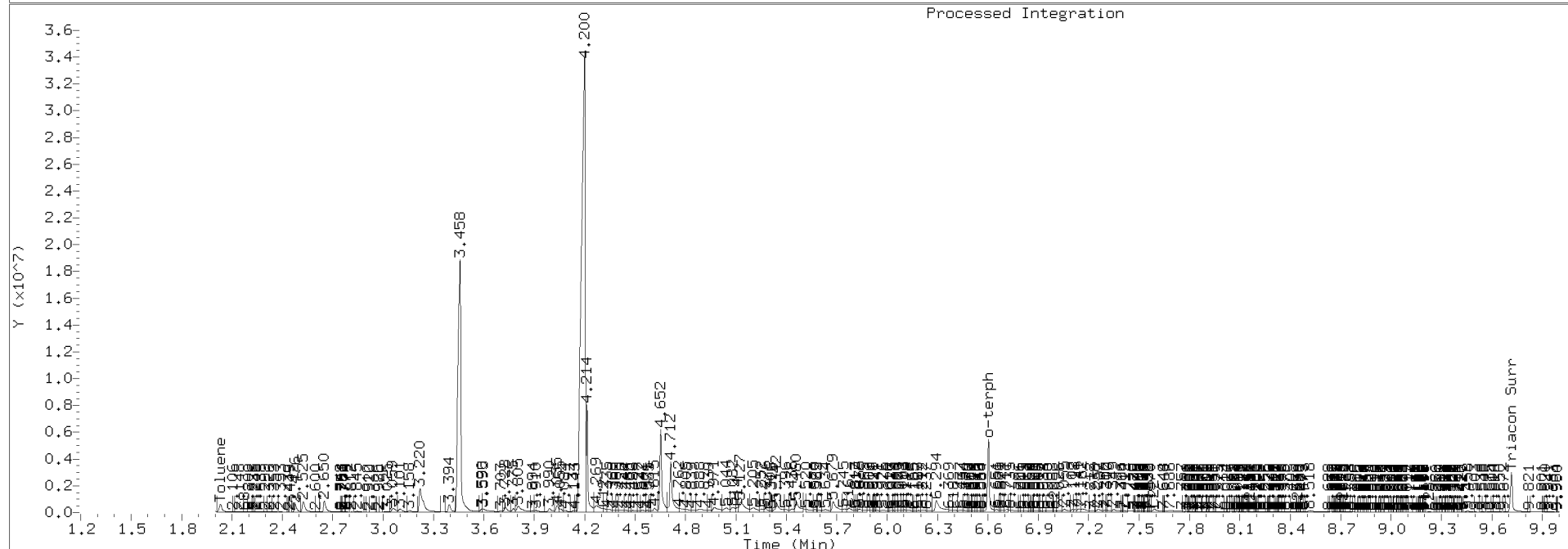
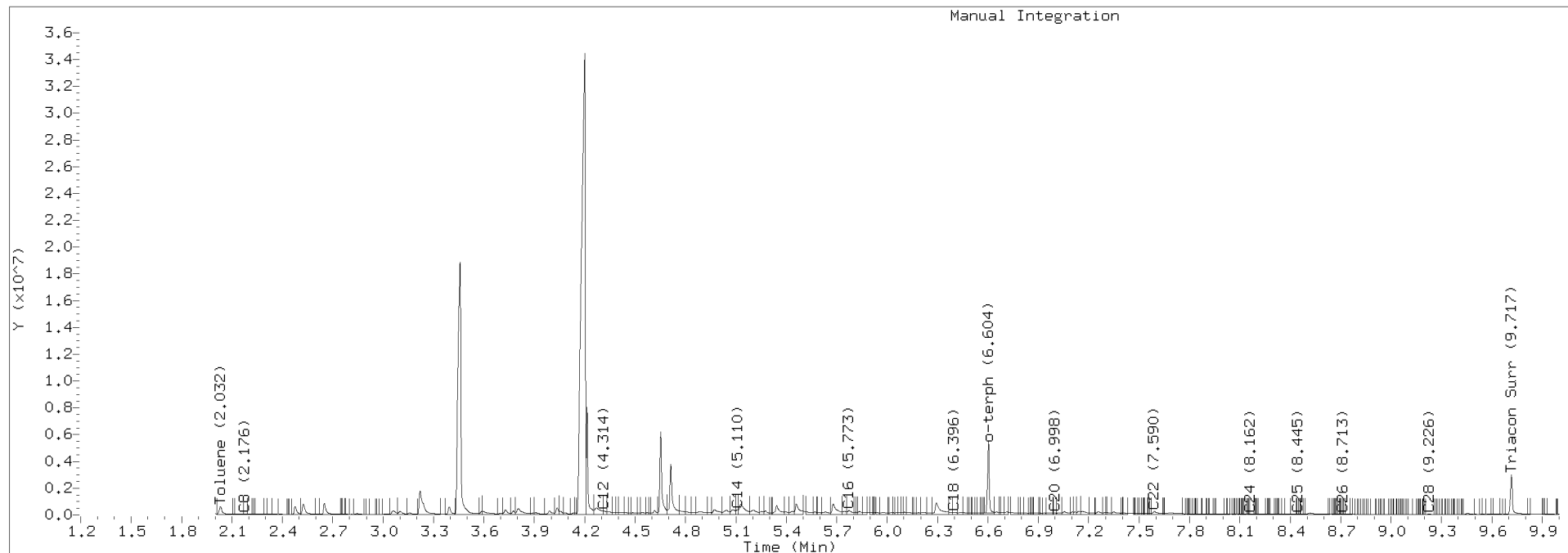
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20230321.b/423C2127.D Injection: 21-MAR-2023 19:05

Lab ID:23C0181-10





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01S-20230309**  
**23C0181-10 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/09/2023 09:12  
Analyzed: 14-Mar-2023 13:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 0.4 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	2500	<b>26300</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.4	%	

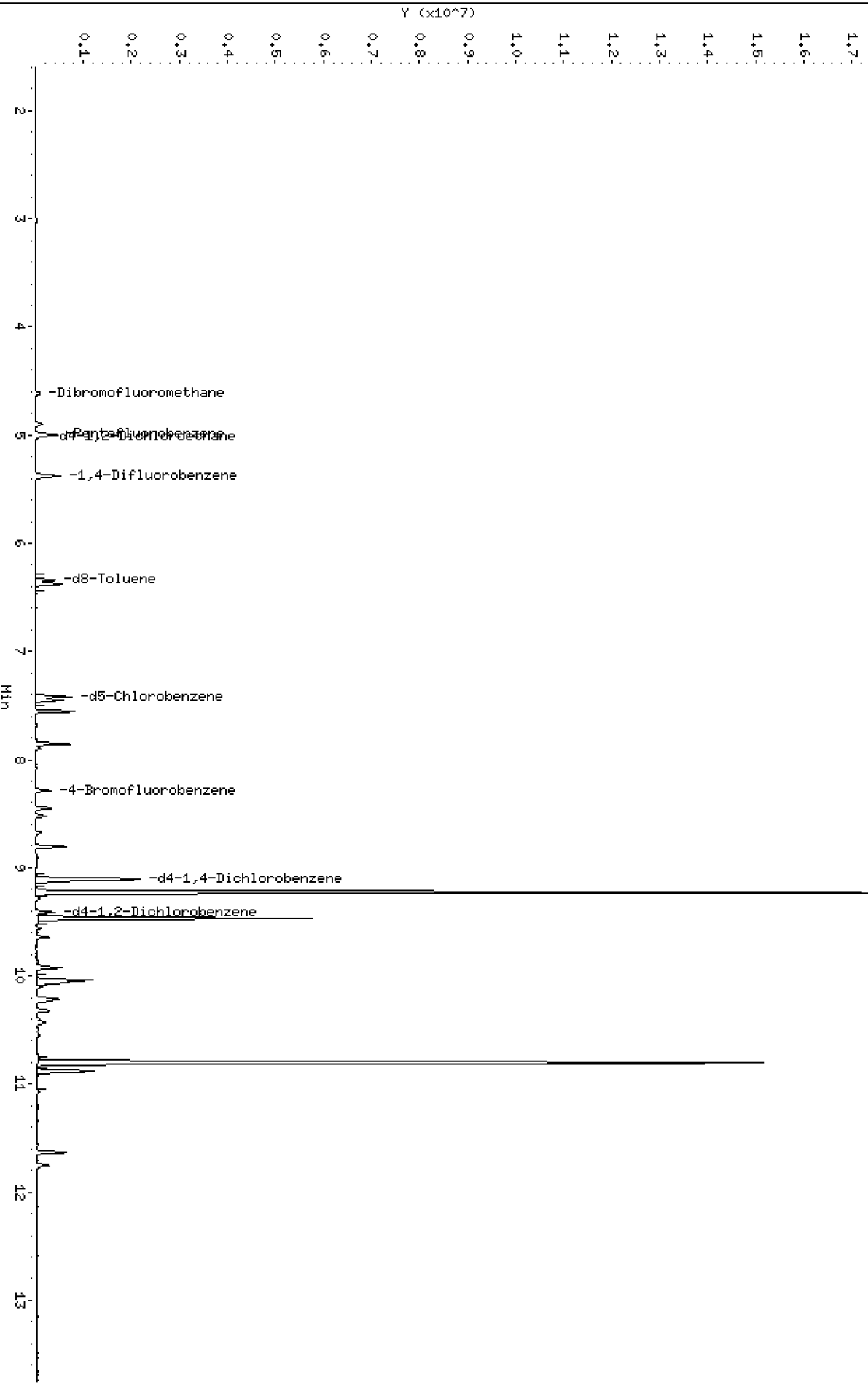


Data File: \\target\share\chend\nt3,1\20230314s,1b\303142313G.D  
Date : 14-MAR-2023 13:45  
Client ID:  
Sample Info: 23C0181-10,25X

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3,1\20230314s,1b\303142313G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142313G.D  
 Lab Smp Id: 23C0181-10  
 Inj Date : 14-MAR-2023 13:45  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 23C0181-10,25X  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.612	4.616	(0.923)	52875	5.04865	5.049 (R)
* 32 Pentafluorobenzene	168		4.995	4.993	(1.000)	241482	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.016	5.009	(1.004)	28107	5.01832	5.018 (R)
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	352186	10.0000	
\$ 43 d8-Toluene	98		6.339	6.343	(1.179)	204531	5.09038	5.090 (R)
* 53 d5-Chlorobenzene	117		7.418	7.421	(1.000)	337951	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.284	8.287	(1.117)	70727	4.71757	4.718 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.097	9.095	(1.000)	193754	10.0000	(M)
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	89974	5.14365	5.144 (RM)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.  
 M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142313G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-10  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	241482	-6.08
37 1,4-Difluorobenze	368342	184171	736684	352186	-4.39
53 d5-Chlorobenzene	357223	178612	714446	337951	-5.39
76 d4-1,4-Dichlorobe	205758	102879	411516	193754	-5.83

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	5.00	0.03
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.03
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.05
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.02

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-10  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.049	100.97	
\$ 33 d4-1,2-Dichloroeth	5.000	5.018	100.37	
\$ 43 d8-Toluene	5.000	5.090	101.81	
\$ 62 4-Bromofluorobenze	5.000	4.718	94.35	
\$ 79 d4-1,2-Dichloroben	5.000	5.144	102.87	

REVIEW SUMMARY FOR FILE - V303142313G.D

Lab ID: 23C0181-10

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 13:45

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.1b\2303142313G.D

Date: 14-MAR-2023 13:45

Client ID:

Sample Info: 23C0181-10,25X

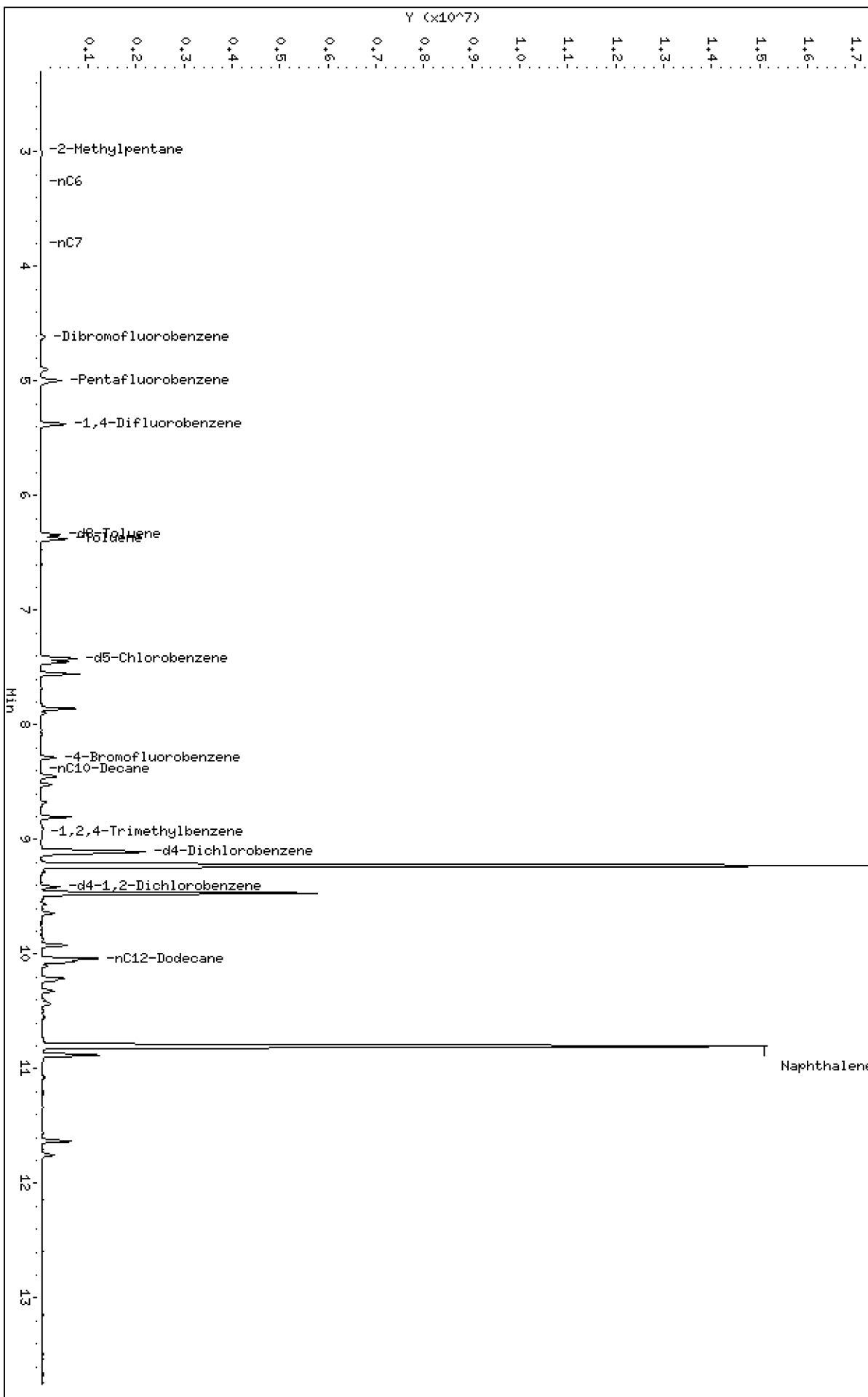
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230314g.1b\2303142313G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142313G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 13:45

ARI ID: 23C0181-10  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	40458905	0.715 M
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	6280894	0.063
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	4150865	0.051
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	64638369	1.051 M
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	40761921	0.371 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

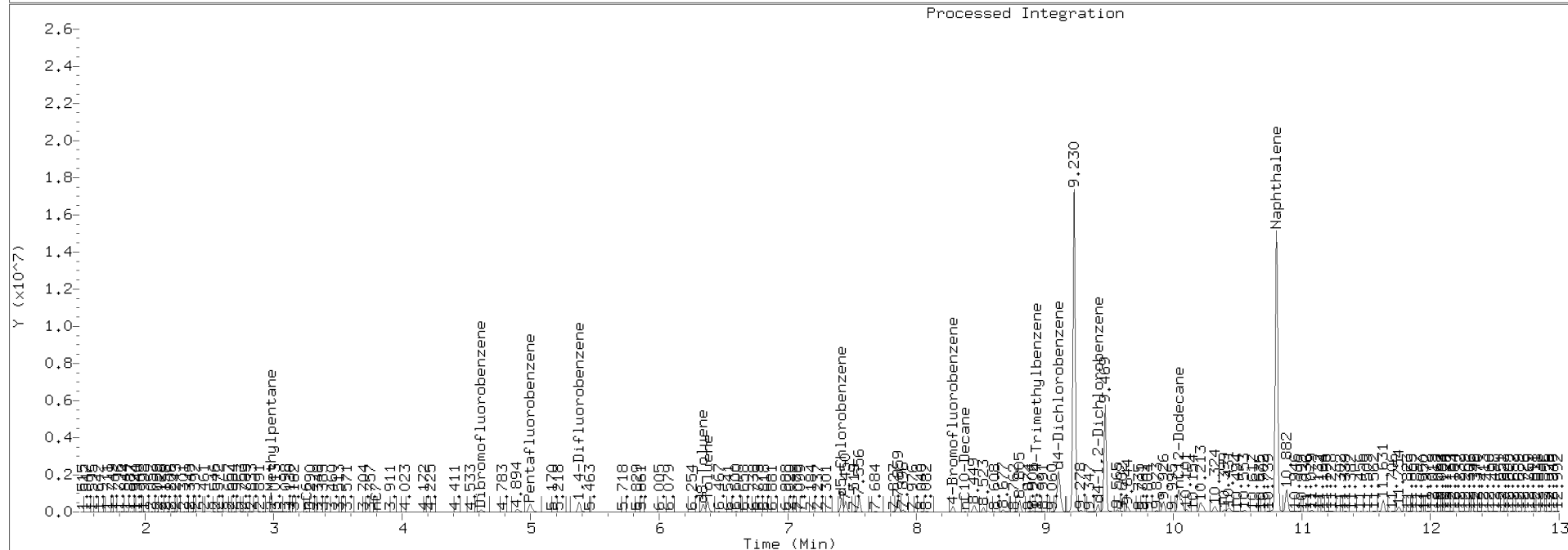
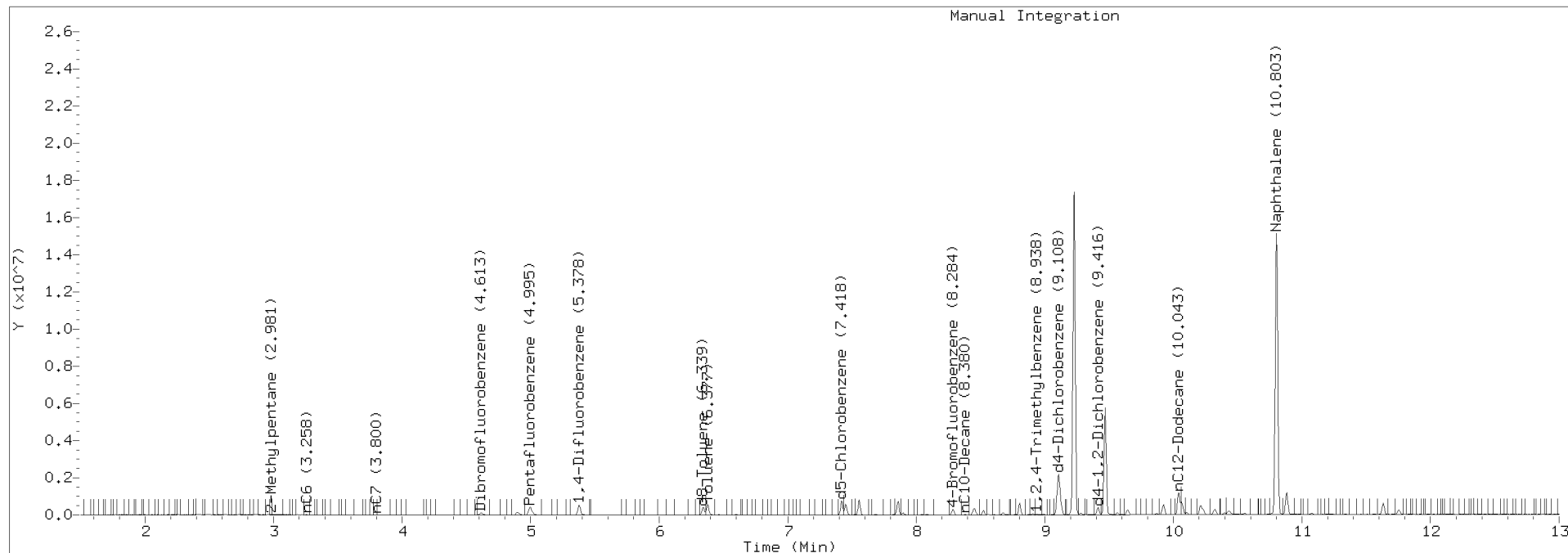
-----

7.418	901415	d5-Chlorobenzene
6.339	542439	d8-Toluene
9.108	3942825	d4-Dichlorobenzene
8.284	397909	4-Bromofluorobenzene
9.416	520437	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230314g.b/V303142313G.D Injection: 14-MAR-2023 13:45

Lab ID:23C0181-10







Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01S-20230309**  
**23C0181-10RE1 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/09/2023 09:12  
Analyzed: 16-Mar-2023 06:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254  
Prepared: 13-Mar-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	100	30.2	100	2560	ug/L	D
Acenaphthylene	208-96-8	100	19.3	100	ND	ug/L	U
Acenaphthene	83-32-9	100	19.9	100	151	ug/L	D
2-Methylnaphthalene	91-57-6	100	21.0	100	252	ug/L	D
Dibenzofuran	132-64-9	100	19.3	100	53.1	ug/L	J, D
Fluorene	86-73-7	100	20.5	100	53.9	ug/L	J, D
Pentachlorophenol	87-86-5	100	121	1000	ND	ug/L	U
Phenanthrene	85-01-8	100	19.7	100	69.5	ug/L	J, D
Anthracene	120-12-7	100	25.3	100	ND	ug/L	U
Carbazole	86-74-8	100	26.9	100	ND	ug/L	U
Fluoranthene	206-44-0	100	23.8	100	ND	ug/L	U
Pyrene	129-00-0	100	34.1	100	ND	ug/L	U
Benzo(a)anthracene	56-55-3	100	21.7	100	ND	ug/L	U
Chrysene	218-01-9	100	21.5	100	ND	ug/L	U
Benzo(a)pyrene	50-32-8	100	23.1	100	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	100	47.2	100	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	100	54.3	100	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	100	47.3	100	ND	ug/L	U
1-Methylnaphthalene	90-12-0	100	26.1	100	179	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	D1	D1
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	D1	D1
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	D1	D1



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-13-20230308**  
**23C0181-11 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 13:13  
Analyzed: 22-Mar-2023 17:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	90.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	74.1	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-13-20230308**  
**23C0181-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 13:13  
Analyzed: 17-Mar-2023 14:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	<b>0.8</b>	ug/L	J
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>76.2 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>99.4 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>90.9 %</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-13-20230308**  
**23C0181-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 13:13  
Analyzed: 17-Mar-2023 21:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	102	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	142	%	*
Surrogate: Fluoranthene-d10			46-121 %	115	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-13-20230308**  
**23C0181-11 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 13:13  
Analyzed: 21-Mar-2023 20:43

**Analysis by: Analytical Resources, LLC**

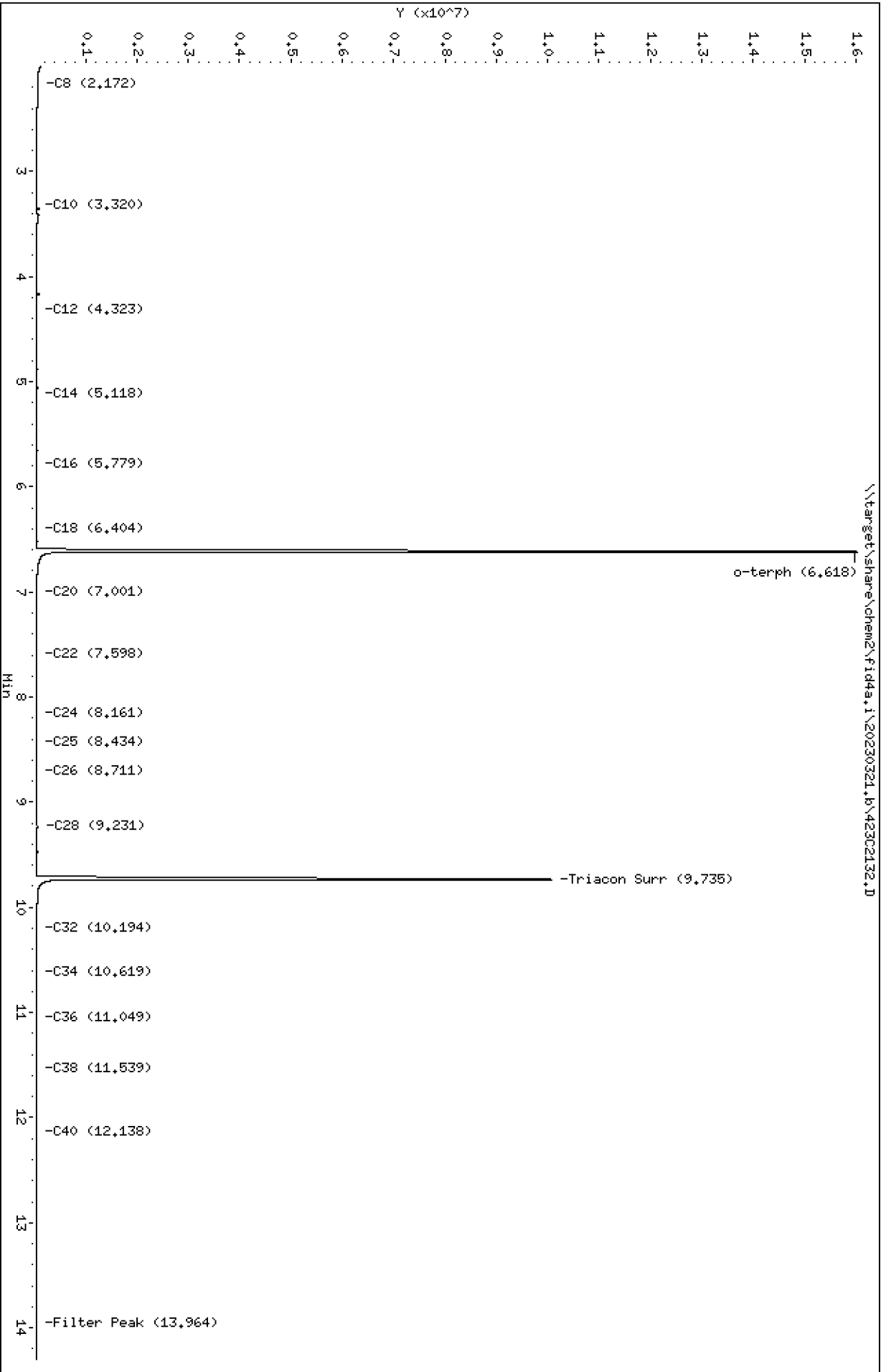
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	71.9	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302132.D  
Date: 21-MAR-2023 20:43  
Client ID:  
Sample Info: 23C0181-11

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2132.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-11  
Client ID:  
Injection: 21-MAR-2023 20:43  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

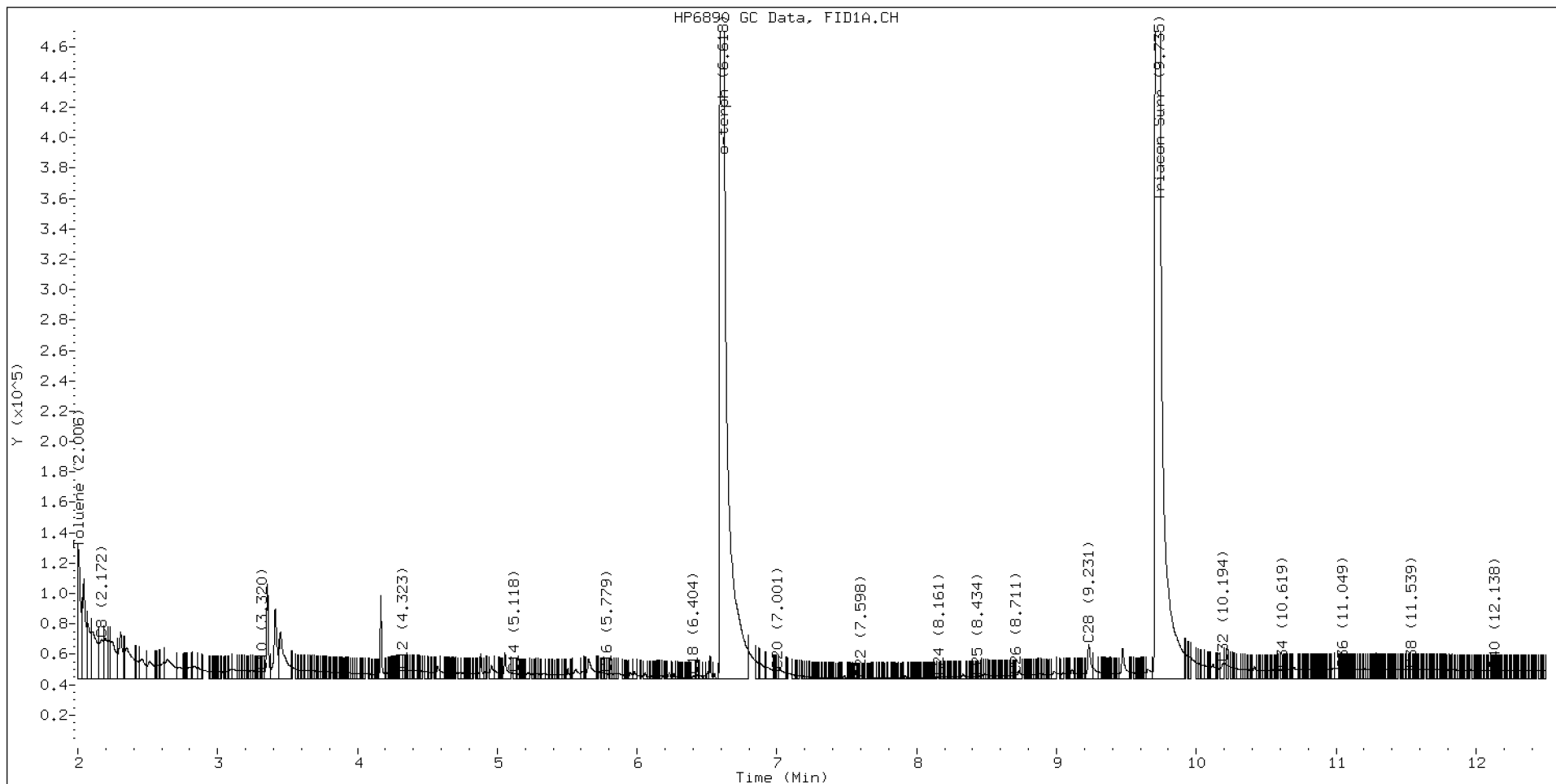
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.172	-0.004	26109	52237	WATPHD	(C12-C24)	568713	3.6
C10	3.320	-0.005	5253	4394	WATPHM	(C24-C38)	911074	6.9
C12	4.323	0.002	5717	1708	AK102	(C10-C25)	1057085	5.6
C14	5.118	0.013	3884	4063	AK103	(C25-C36)	723660	7.3
C16	5.779	-0.001	3805	2688	OR.DIES	(C10-C28)	1238281	6.5
C18	6.404	0.001	2389	3185				
C20	7.001	-0.004	5752	4802	JET-A	(C10-C18)	874720	5.1
C22	7.598	0.003	382	192				
C24	8.161	-0.005	1323	619				
C25	8.434	-0.009	1872	796				
C26	8.711	-0.003	2524	990				
C28	9.231	-0.000	22839	35084				
C32	10.194	0.011	10273	15098				
C34	10.619	0.002	6103	2117				
Filter Peak	13.964	0.001	5332	3683	CREOSOT	(C12-C22)	542354	20.5
C36	11.049	-0.000	6420	2550				
C38	11.539	-0.002	6557	5533				
C40	12.138	-0.000	5663	1408				
o-terph	6.618	-0.004	15988921	16468458				
Triacon Surr	9.735	-0.014	10040845	11959518	NAS DIES	(C10-C24)	1040532	5.5

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	16468458	80.9
Triacontane	11959518	54.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023







Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**PZ-13-20230308**  
**23C0181-11 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/08/2023 13:13  
Instrument: NT3 Analyzed: 14-Mar-2023 14:08

**Analysis by: Analytical Resources, LLC**

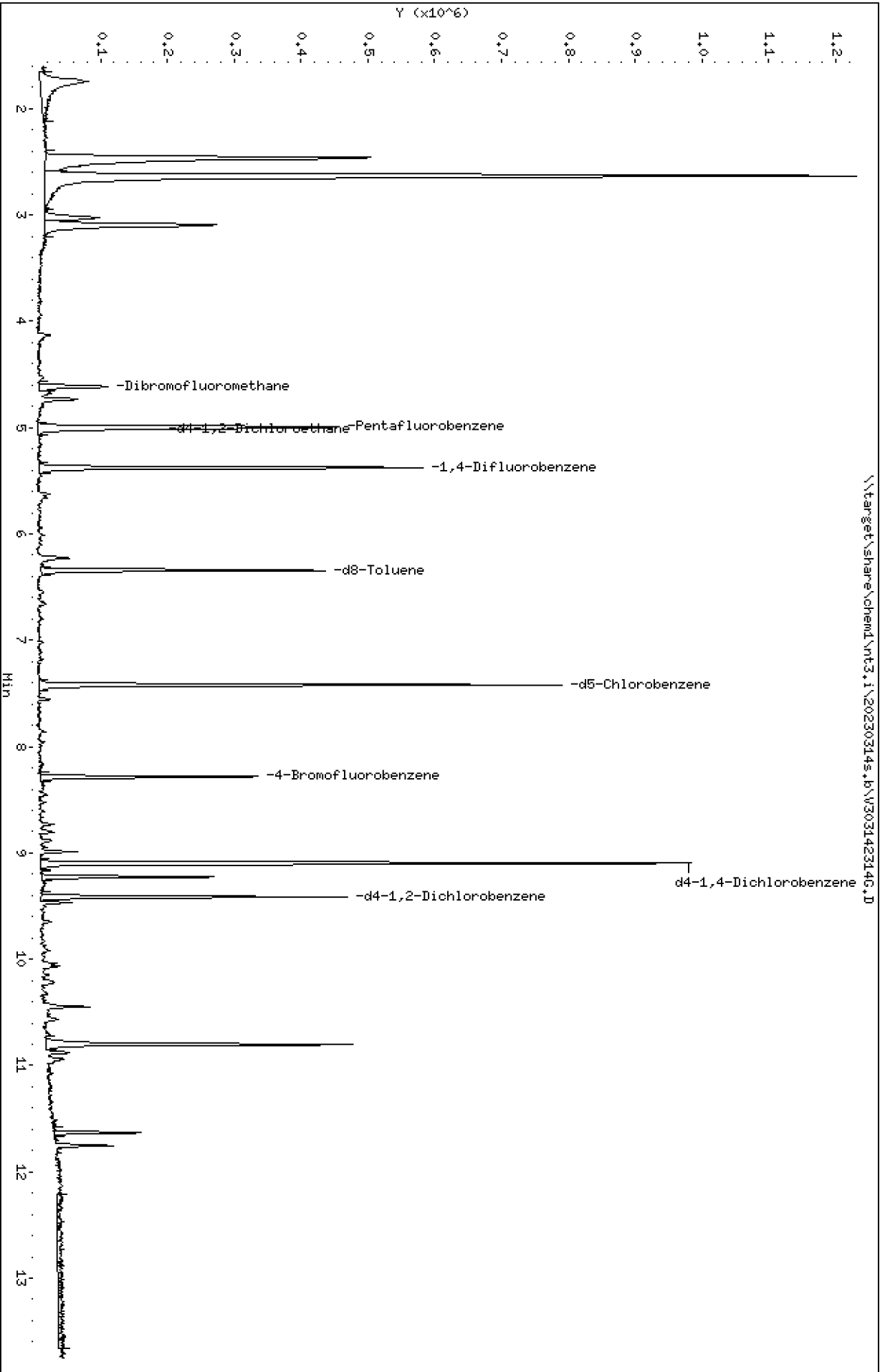
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.5	%	

Data File: \\target\share\chend\nt3.1\20230314s.1b\303142314G.D  
Date : 14-MAR-2023 14:08  
Client ID:  
Sample Info: 23C0181-11

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142314G.D  
 Lab Smp Id: 23C0181-11  
 Inj Date : 14-MAR-2023 14:08  
 Operator : PKC  
 Smp Info : 23C0181-11  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	59203	5.15976	5.160
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	264560	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	33790	5.50671	5.507
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	383253	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	220494	5.04283	5.043
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	373990	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	82534	4.97462	4.975
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	217389	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	100246	5.10781	5.108

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142314G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-11  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	264560	2.89
37 1,4-Difluorobenze	368342	184171	736684	383253	4.05
53 d5-Chlorobenzene	357223	178612	714446	373990	4.69
76 d4-1,4-Dichlorobe	205758	102879	411516	217389	5.65

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-11  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.160	103.20	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.507	110.13	80-128
\$ 43 d8-Toluene	5.000	5.043	100.86	80-120
\$ 62 4-Bromofluorobenze	5.000	4.975	99.49	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.108	102.16	80-120

REVIEW SUMMARY FOR FILE - V303142314G.D

Lab ID: 23C0181-11

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 14:08

RT CO-ELUTION COMPOUNDS

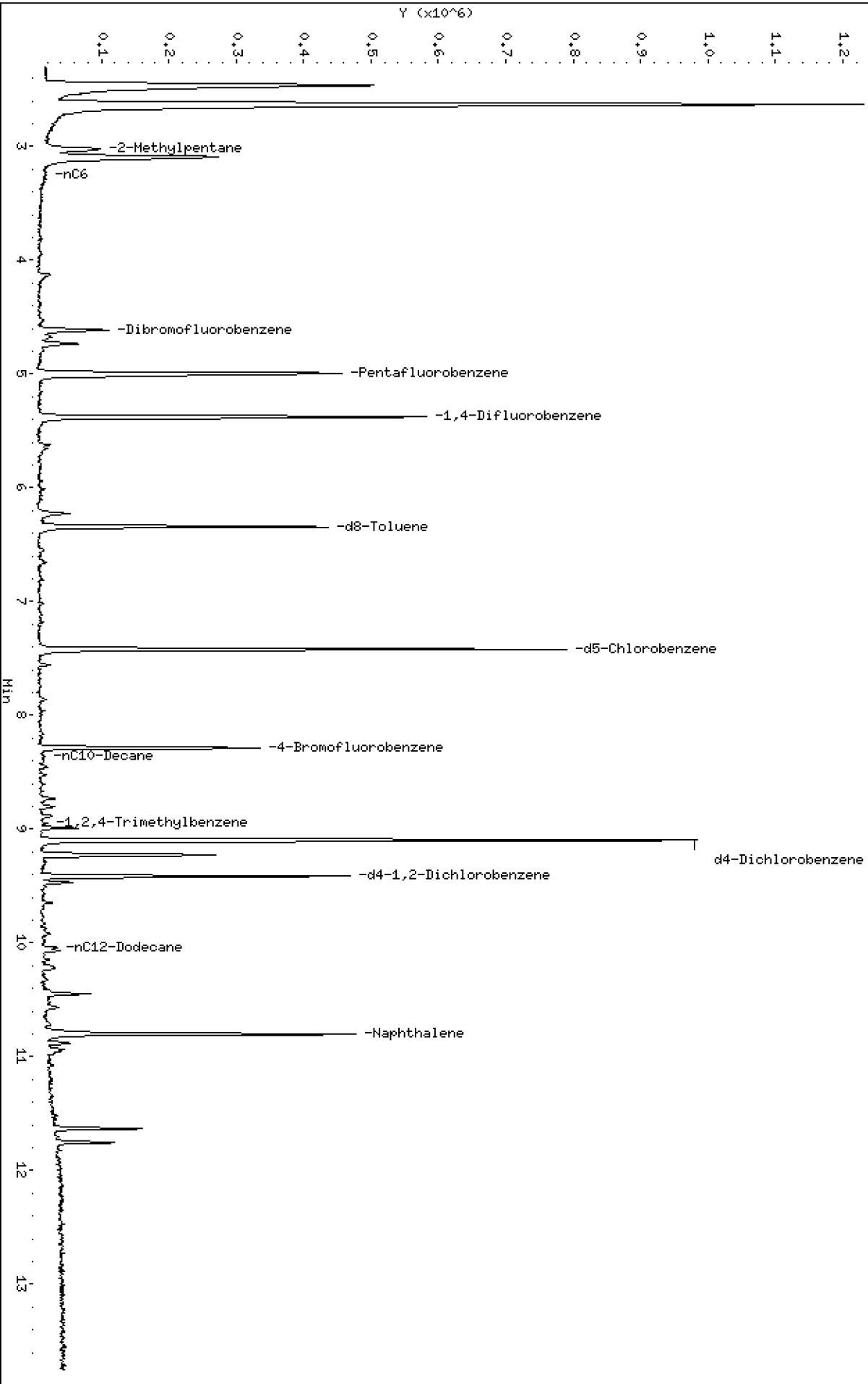
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Data File: \\target\share\chend\nt3,1\20230314g,1b\303142314g.D  
Date: 14-MAR-2023 14:08  
Client ID:  
Sample Info: 23C0181-11

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3,1\20230314g,1b\303142314g.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142314G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 14:08

ARI ID: 23C0181-11  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	1020530	0.018
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	2037098	0.021
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	766303	0.009
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	1930189	0.031
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	1502896	0.014

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.417	1083737	d5-Chlorobenzene
6.344	629015	d8-Toluene
9.096	1259129	d4-Dichlorobenzene
8.283	436184	4-Bromofluorobenzene
9.415	580206	d4-1,2-Dichlorobenzene





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**MW-02D-20230308**  
**23C0181-12 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 09:41  
Instrument: ECD8 Analyzed: 22-Mar-2023 17:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	84.3	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	81.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02D-20230308**  
**23C0181-12 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 09:41  
Analyzed: 16-Mar-2023 07:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	2.2	ug/L	
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	3.5	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	0.5	ug/L	J
Dibenzofuran	132-64-9	1	0.2	1.0	1.2	ug/L	
Fluorene	86-73-7	1	0.2	1.0	1.2	ug/L	
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	0.9	ug/L	J
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	0.4	ug/L	J
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	1.0	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	83.5 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	110 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	85.9 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-02D-20230308**  
**23C0181-12 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 09:41  
Analyzed: 17-Mar-2023 22:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>93.5</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>131</i>	<i>%</i>	<i>*</i>
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>102</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02D-20230308**  
**23C0181-12 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 09:41  
Analyzed: 21-Mar-2023 21:02

**Analysis by: Analytical Resources, LLC**

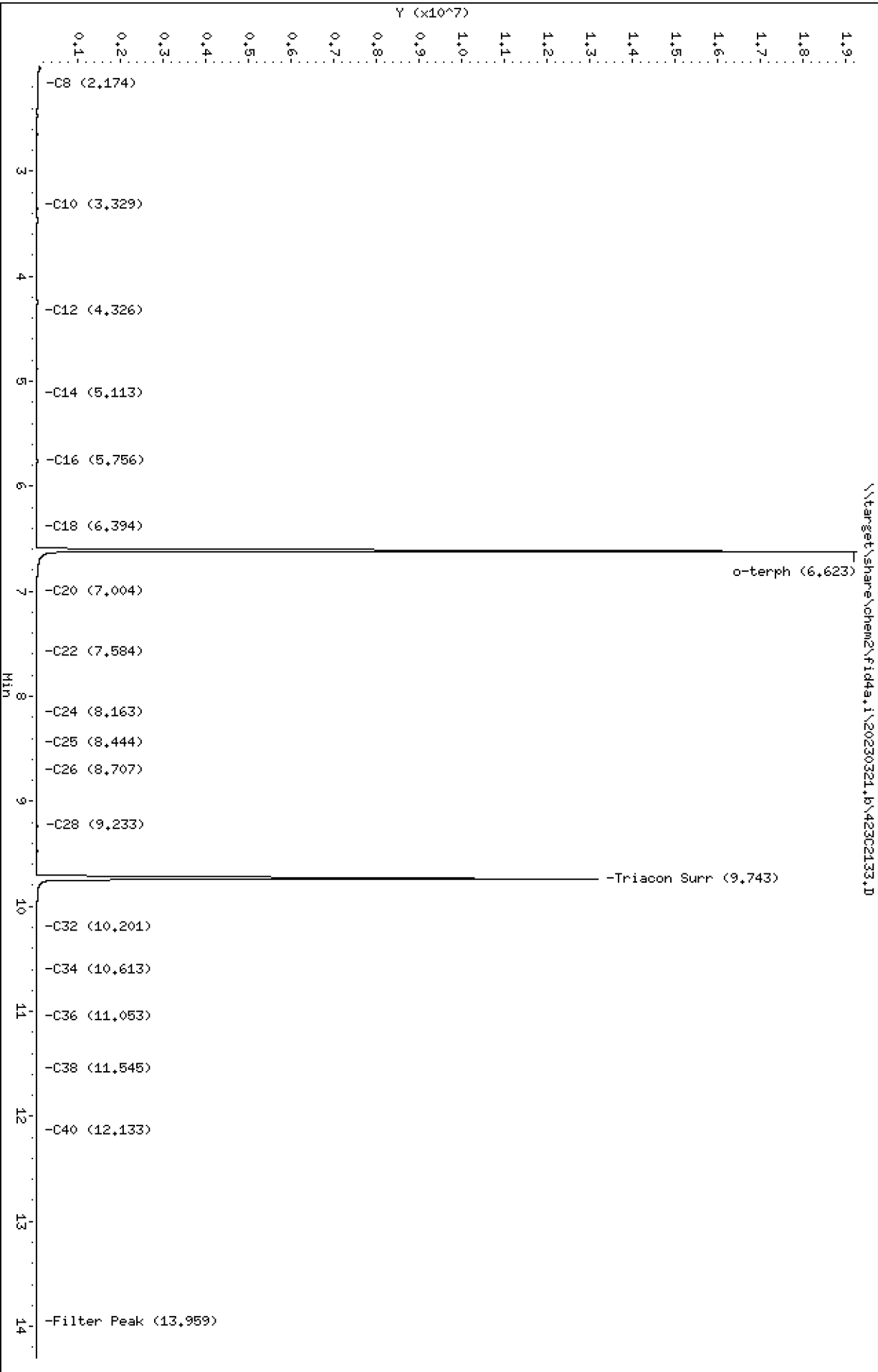
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	101	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302133.D  
Date : 21-MAR-2023 21:02  
Client ID:  
Sample Info: 23C0181-12

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2133.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-12  
Client ID:  
Injection: 21-MAR-2023 21:02  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

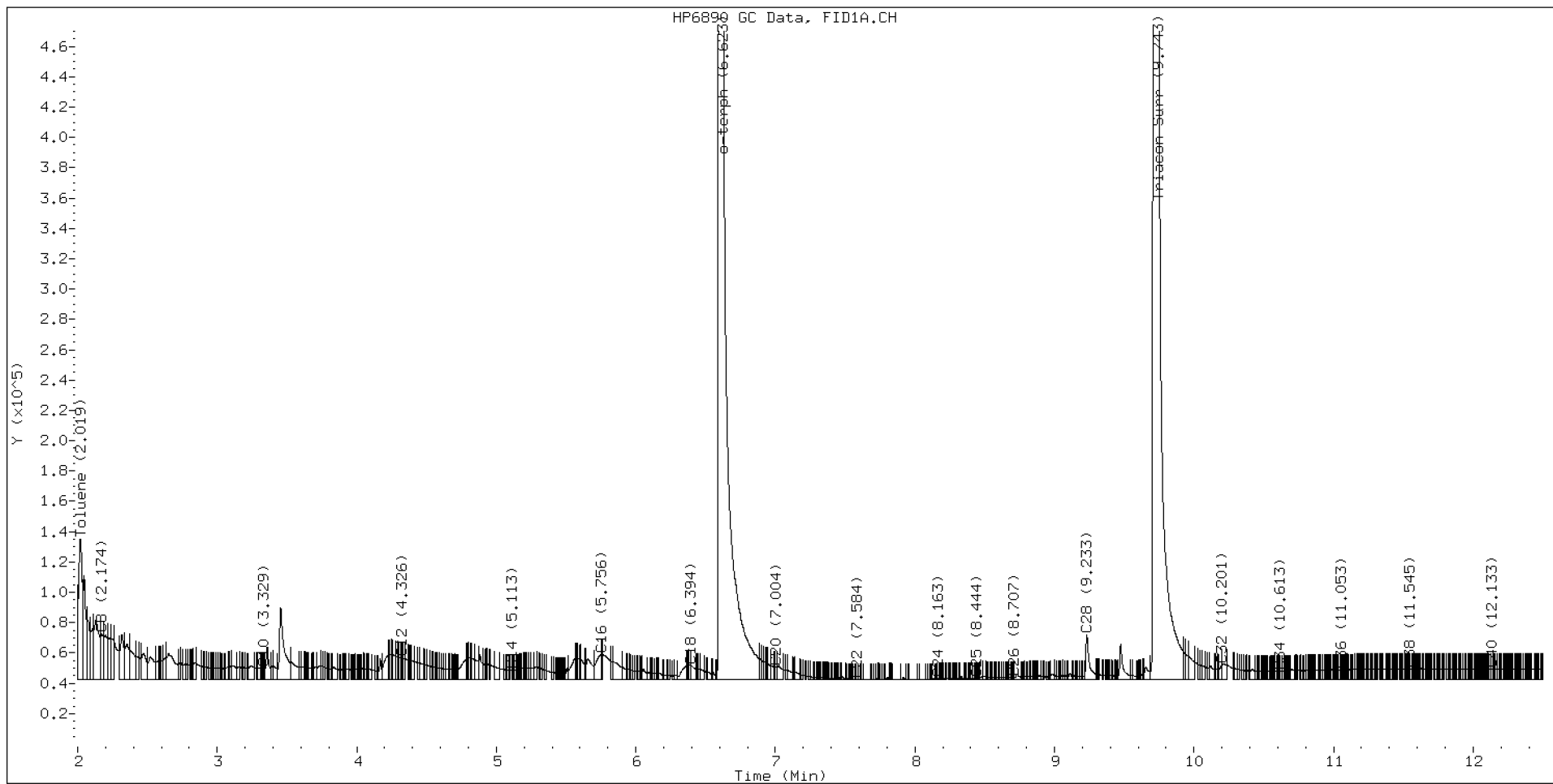
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.174	-0.002	29945	50583	WATPHD	(C12-C24)	1030753	6.5
C10	3.329	0.004	7632	1523	WATPHM	(C24-C38)	849742	6.4
C12	4.326	0.006	14165	9102	AK102	(C10-C25)	1624645	8.6
C14	5.113	0.008	6076	1511	AK103	(C25-C36)	664475	6.7
C16	5.756	-0.024	16780	13294	OR.DIES	(C10-C28)	1763781	9.3
C18	6.394	-0.009	9320	17799				
C20	7.004	-0.000	8621	8402	JET-A	(C10-C18)	1428902	8.3
C22	7.584	-0.011	266	140				
C24	8.163	-0.003	612	442				
C25	8.444	0.002	950	318				
C26	8.707	-0.007	1367	597				
C28	9.233	0.002	29767	53227				
C32	10.201	0.018	9547	12179				
C34	10.613	-0.004	5774	3420				
Filter Peak	13.959	-0.004	7244	3961	CREOSOT	(C12-C22)	1023119	38.6
C36	11.053	0.003	6517	1943				
C38	11.545	0.004	7240	2886				
C40	12.133	-0.005	7007	4850				
o-terph	6.623	0.001	19225391	23025346				
Triacon Surr	9.743	-0.006	13159348	17967610	NAS DIES	(C10-C24)	1616812	8.6

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23025346	113.1
Triacontane	17967610	82.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02D-20230308**  
**23C0181-12 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 09:41  
Analyzed: 14-Mar-2023 14:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	95.5	%	



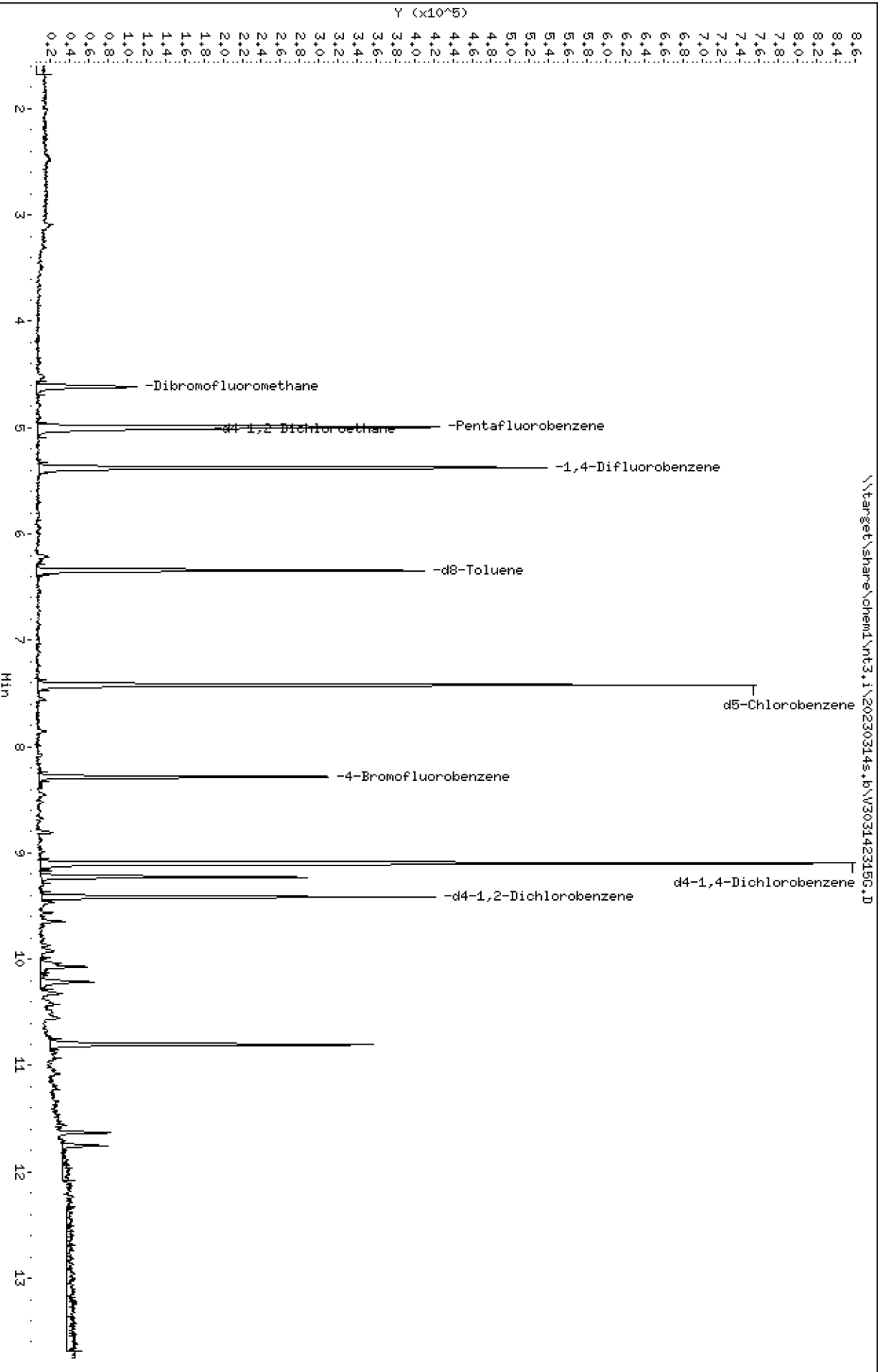
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Date: 14-MAR-2023 14:30  
Client ID:  
Sample Info: 23C0181-12

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142315G.D  
 Lab Smp Id: 23C0181-12  
 Inj Date : 14-MAR-2023 14:30  
 Operator : PKC  
 Smp Info : 23C0181-12  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	56147	5.23791	5.238
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	247160	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.014	5.009	(1.004)	29006	5.05985	5.060
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	363404	10.0000	
\$ 43 d8-Toluene	98		6.342	6.343	(1.180)	203764	4.91474	4.915
* 53 d5-Chlorobenzene	117		7.421	7.421	(1.000)	350009	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.287	(1.117)	74151	4.77556	4.776
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	196262	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	92648	5.22883	5.229

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142315G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-12  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	247160	-3.88
37 1,4-Difluorobenze	368342	184171	736684	363404	-1.34
53 d5-Chlorobenzene	357223	178612	714446	350009	-2.02
76 d4-1,4-Dichlorobe	205758	102879	411516	196262	-4.62

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-12  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.238	104.76	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.060	101.20	80-128
\$ 43 d8-Toluene	5.000	4.915	98.29	80-120
\$ 62 4-Bromofluorobenze	5.000	4.776	95.51	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.229	104.58	80-120

REVIEW SUMMARY FOR FILE - V303142315G.D

Lab ID: 23C0181-12

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 14:30

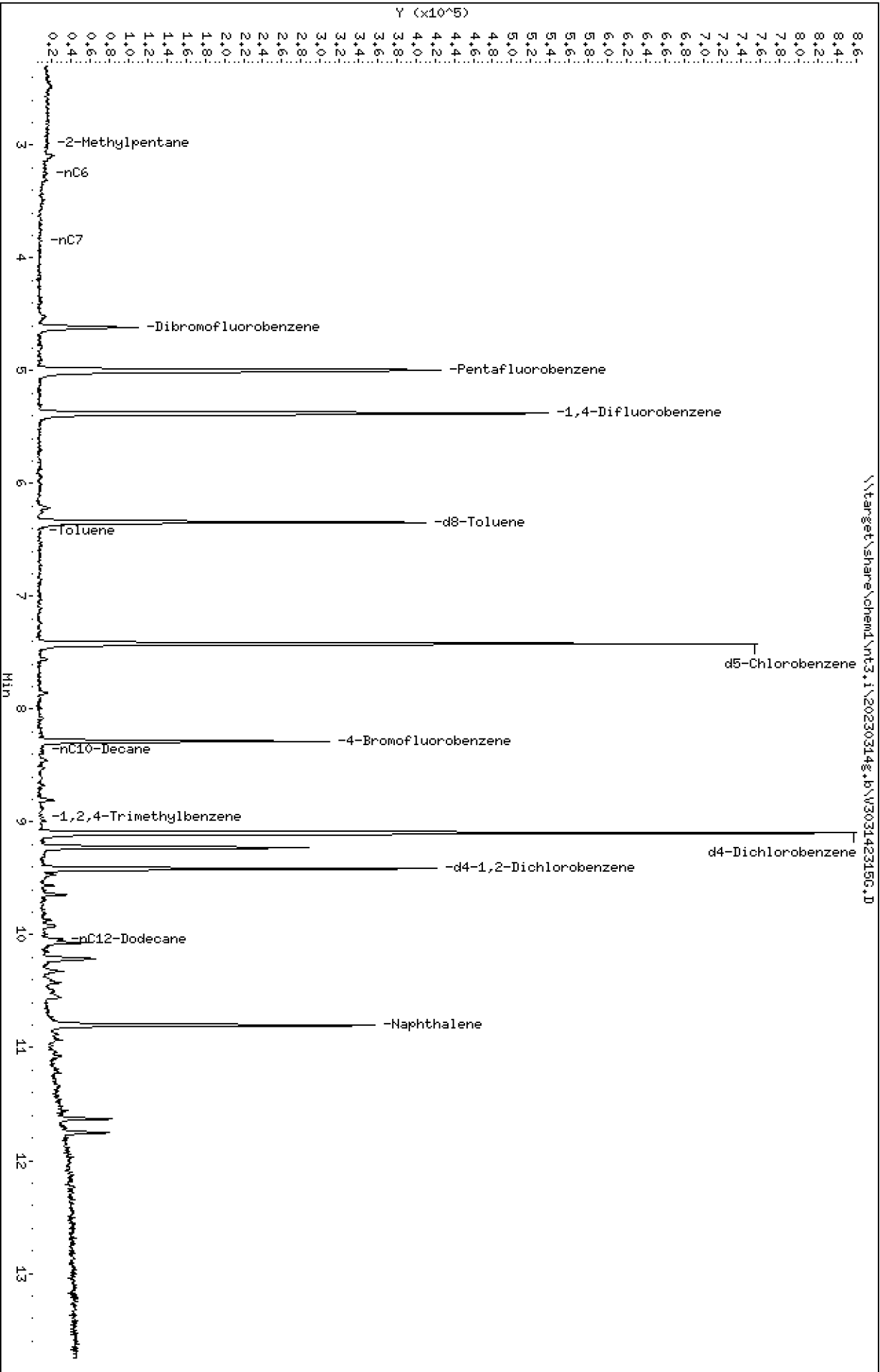
RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.1b\202303142315G.D  
Date: 14-MAR-2023 14:30  
Client ID:  
Sample Info: 23C0181-12

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142315G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 14:30

ARI ID: 23C0181-12  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	787759	0.014
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	487942	0.005
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	274992	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	1427620	0.023
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	888289	0.008

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.422	985444	d5-Chlorobenzene
6.343	562747	d8-Toluene
9.095	1124194	d4-Dichlorobenzene
8.288	402820	4-Bromofluorobenzene
9.414	524742	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-12-20230308**  
**23C0181-13 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 13:16  
Analyzed: 22-Mar-2023 18:06

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	91.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	88.6	%	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-12-20230308**  
**23C0181-13 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 13:16  
Analyzed: 16-Mar-2023 07:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	77.0	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	100	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	79.5	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-12-20230308**  
**23C0181-13 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 13:16  
Analyzed: 17-Mar-2023 22:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	76.8	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	128	%	*
Surrogate: Fluoranthene-d10			46-121 %	96.7	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-12-20230308**  
**23C0181-13 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 13:16  
Analyzed: 21-Mar-2023 21:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	55.5	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302134.D

Date : 21-MAR-2023 21:22

Client ID:

Sample Info: 23C0181-13

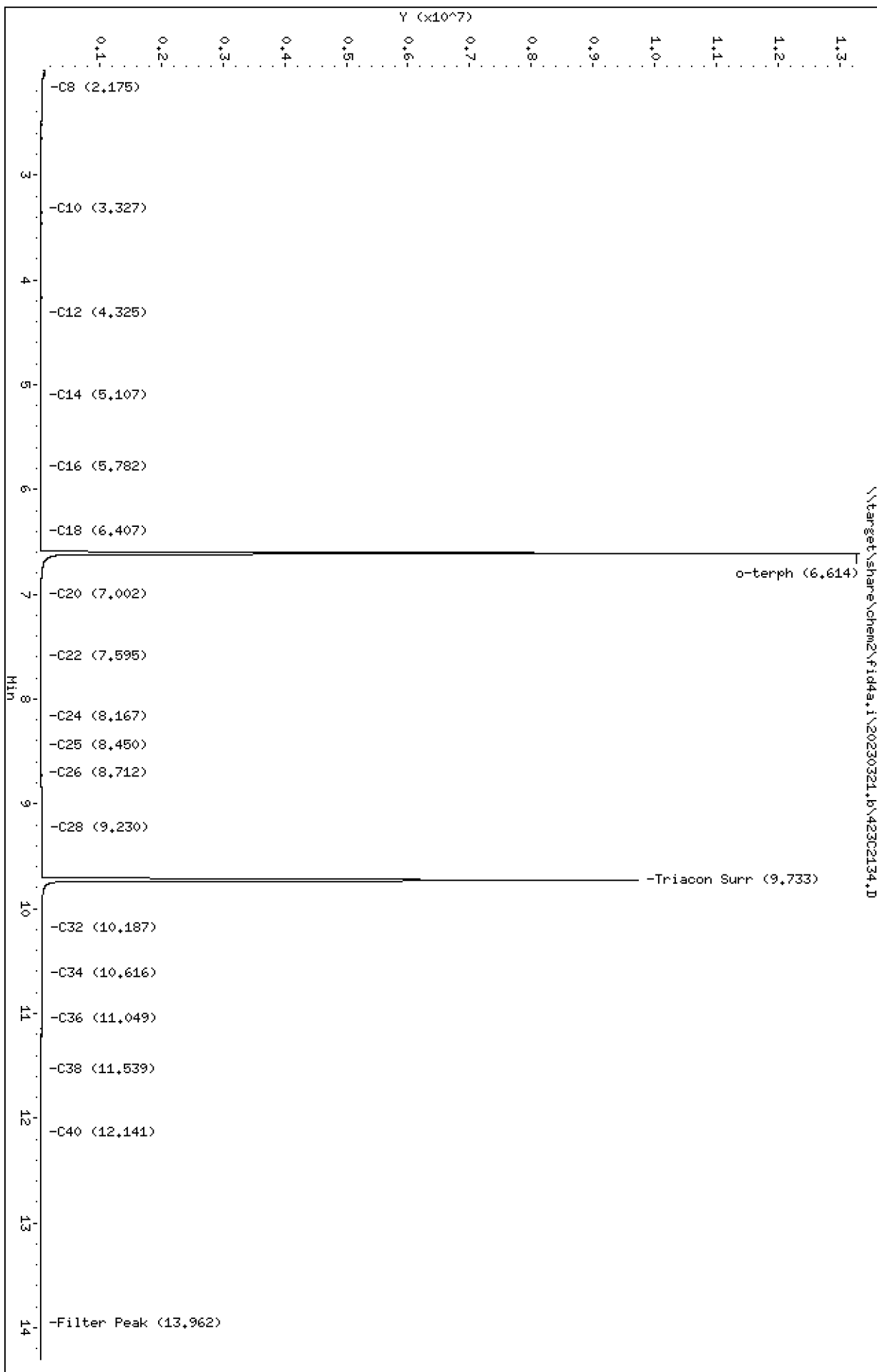
Column phase: RTX-1

Instrument: fid4a,1

Operator: AA

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2134.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-13  
Client ID:  
Injection: 21-MAR-2023 21:22  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

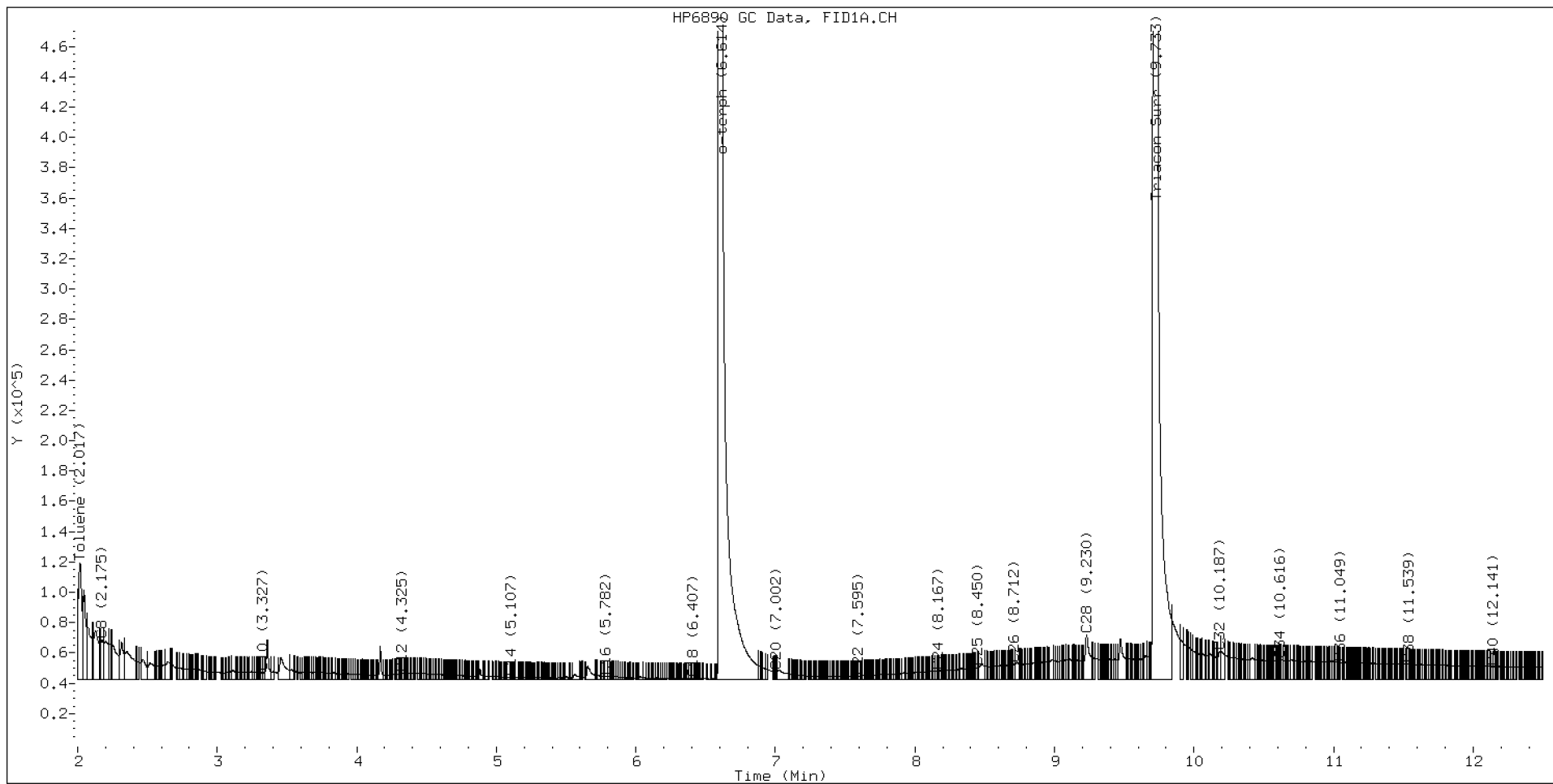
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.175	-0.000	26106	40218	WATPHD	(C12-C24)	521493	3.3
C10	3.327	0.002	5063	3866	WATPHM	(C24-C38)	2176422	16.4
C12	4.325	0.005	4129	2219	AK102	(C10-C25)	881682	4.7
C14	5.107	0.003	1671	572	AK103	(C25-C36)	1829927	18.5
C16	5.782	0.001	2645	3817	OR.DIES	(C10-C28)	1484527	7.8
C18	6.407	0.003	1283	855				
C20	7.002	-0.002	5649	1957	JET-A	(C10-C18)	527939	3.0
C22	7.595	0.000	2619	1936				
C24	8.167	0.001	5986	1781				
C25	8.450	0.007	8419	6884				
C26	8.712	-0.001	10245	5994				
C28	9.230	-0.001	29979	69173				
C32	10.187	0.004	18857	24542				
C34	10.616	-0.001	13171	8454				
Filter Peak	13.962	-0.001	8039	3199	CREOSOT	(C12-C22)	377315	14.2
C36	11.049	-0.000	11511	2863				
C38	11.539	-0.002	10277	2047				
C40	12.141	0.003	8844	2643				
o-terph	6.614	-0.008	13276415	12710833				
Triacon Surr	9.733	-0.015	9683967	11179201	NAS DIES	(C10-C24)	810417	4.3

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	12710833	62.4
Triacontane	11179201	51.3

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**PZ-12-20230308**  
**23C0181-13 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/08/2023 13:16  
Instrument: NT3 Analyzed: 14-Mar-2023 14:52

**Analysis by: Analytical Resources, LLC**

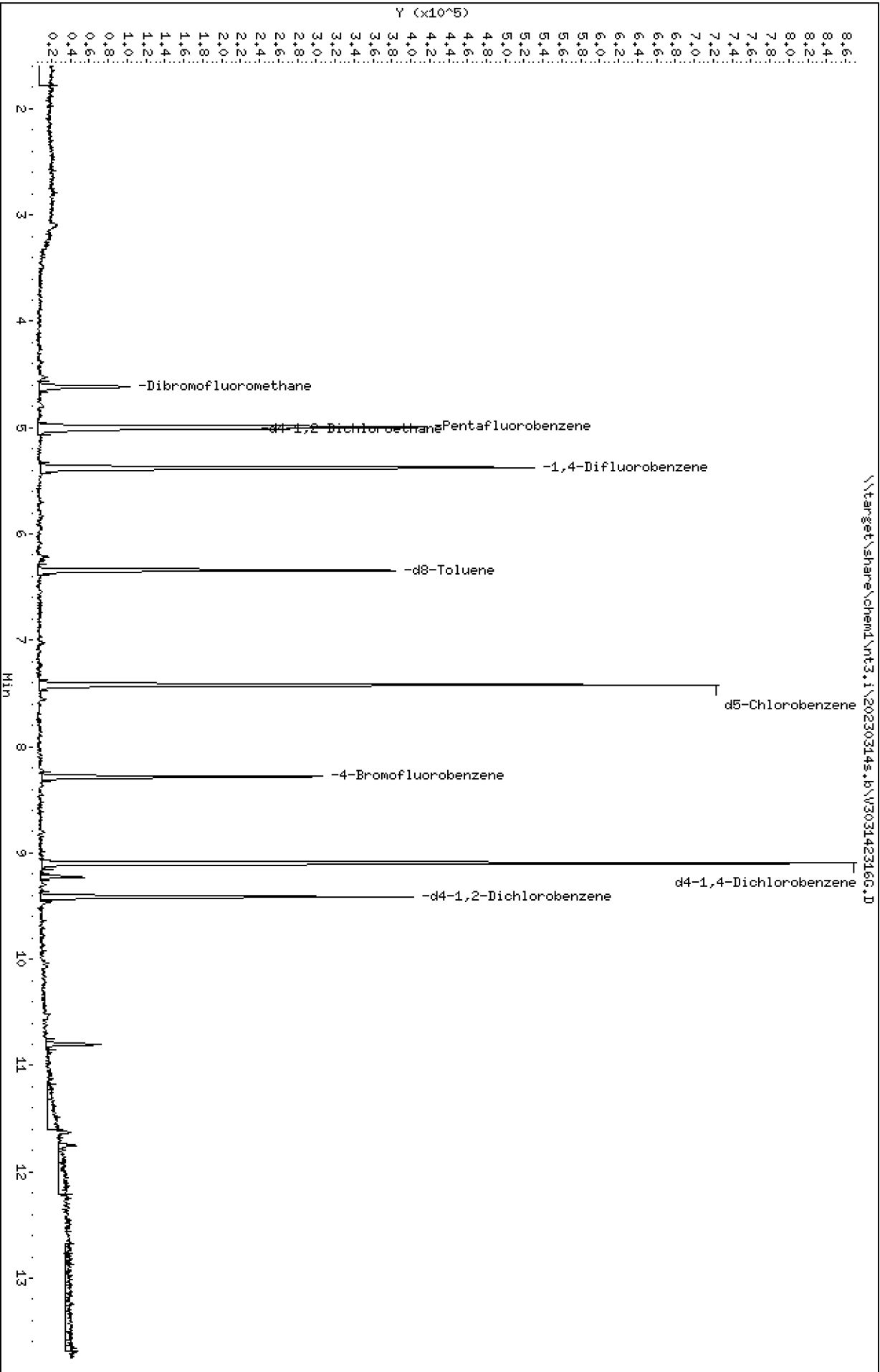
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.0	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.0	%	

Data File: \\target\share\chend\nt3.1\20230314s.1b\303142316G.D  
Date: 14-MAR-2023 14:52  
Client ID:  
Sample Info: 23C0181-13

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142316G.D  
 Lab Smp Id: 23C0181-13  
 Inj Date : 14-MAR-2023 14:52  
 Operator : PKC  
 Smp Info : 23C0181-13  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	54531	5.22864	5.229
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	240472	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	29510	5.29094	5.291
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	352882	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	199206	4.94807	4.948
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	330904	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	72681	4.95114	4.951
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	189210	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	86404	5.05819	5.058

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142316G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-13  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	240472	-6.48
37 1,4-Difluorobenze	368342	184171	736684	352882	-4.20
53 d5-Chlorobenzene	357223	178612	714446	330904	-7.37
76 d4-1,4-Dichlorobe	205758	102879	411516	189210	-8.04

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-13  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.229	104.57	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.291	105.82	80-128
\$ 43 d8-Toluene	5.000	4.948	98.96	80-120
\$ 62 4-Bromofluorobenze	5.000	4.951	99.02	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.058	101.16	80-120

REVIEW SUMMARY FOR FILE - V303142316G.D

Lab ID: 23C0181-13

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 14:52

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230314g,1b\2303142316G.D

Date: 14-MAR-2023 14:52

Client ID:

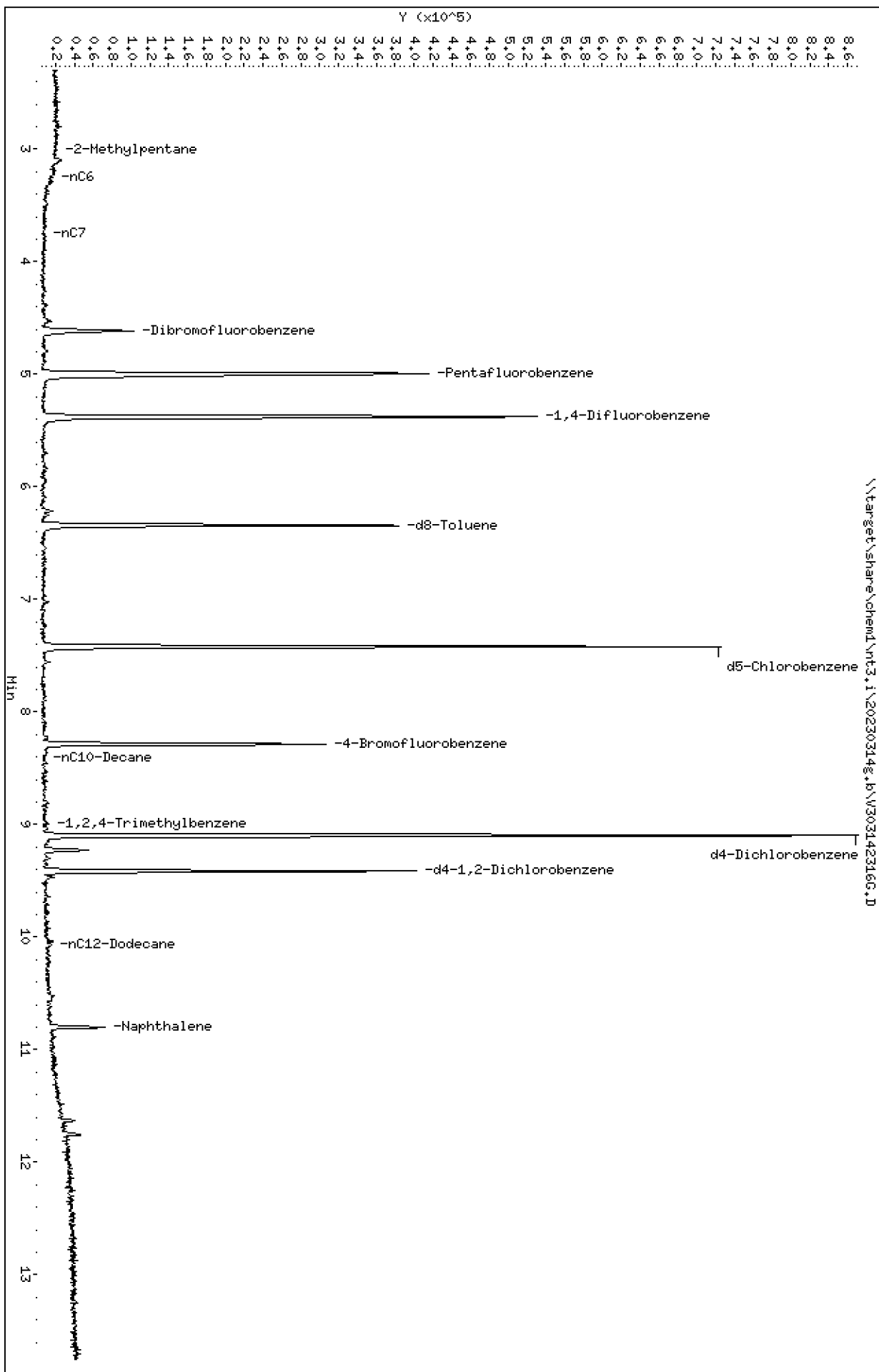
Sample Info: 23C0181-13

Instrument: nt3,1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142316G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 14:52

ARI ID: 23C0181-13  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	350511	0.006
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	536886	0.005
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	355773	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	491654	0.008
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	504419	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.422	949180	d5-Chlorobenzene
6.344	545069	d8-Toluene
9.096	1066459	d4-Dichlorobenzene
8.283	381712	4-Bromofluorobenzene
9.415	517775	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**PZ-19-20230308**  
**23C0181-14 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 14:18  
Instrument: ECD8 Analyzed: 22-Mar-2023 18:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	92.5	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	89.9	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-19-20230308**  
**23C0181-14 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 14:18  
Analyzed: 16-Mar-2023 08:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	0.6	ug/L	J
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	78.7 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	106 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	82.2 %	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-19-20230308**  
**23C0181-14 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 14:18  
Analyzed: 17-Mar-2023 22:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	92.1	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	133	%	*
Surrogate: Fluoranthene-d10			46-121 %	104	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-19-20230308**  
**23C0181-14 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 14:18  
Analyzed: 21-Mar-2023 21:41

**Analysis by: Analytical Resources, LLC**

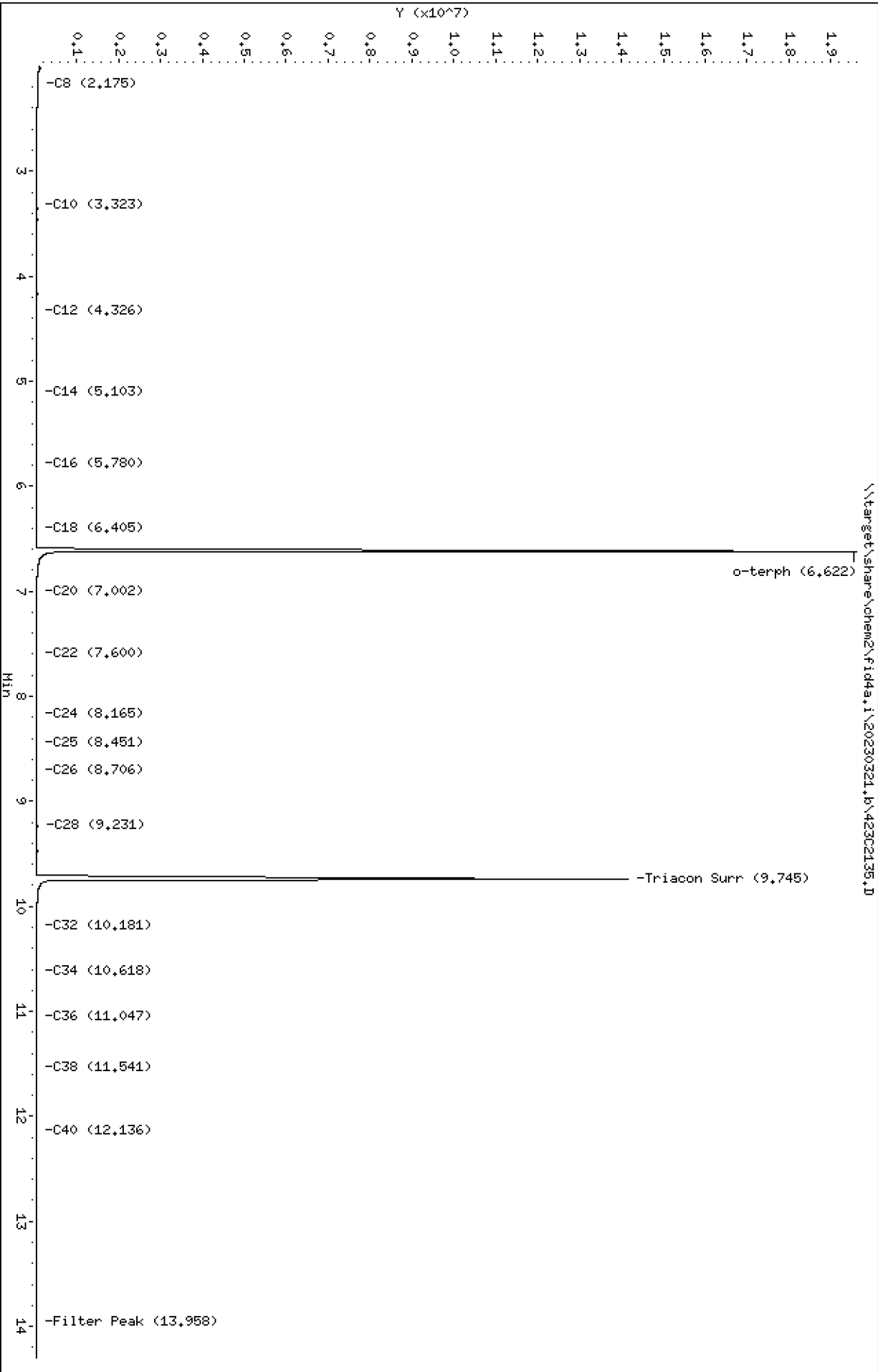
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	102	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302135.D  
Date : 21-MAR-2023 21:41  
Client ID:  
Sample Info: 23C0181-14

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2135.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-14  
Client ID:  
Injection: 21-MAR-2023 21:41  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

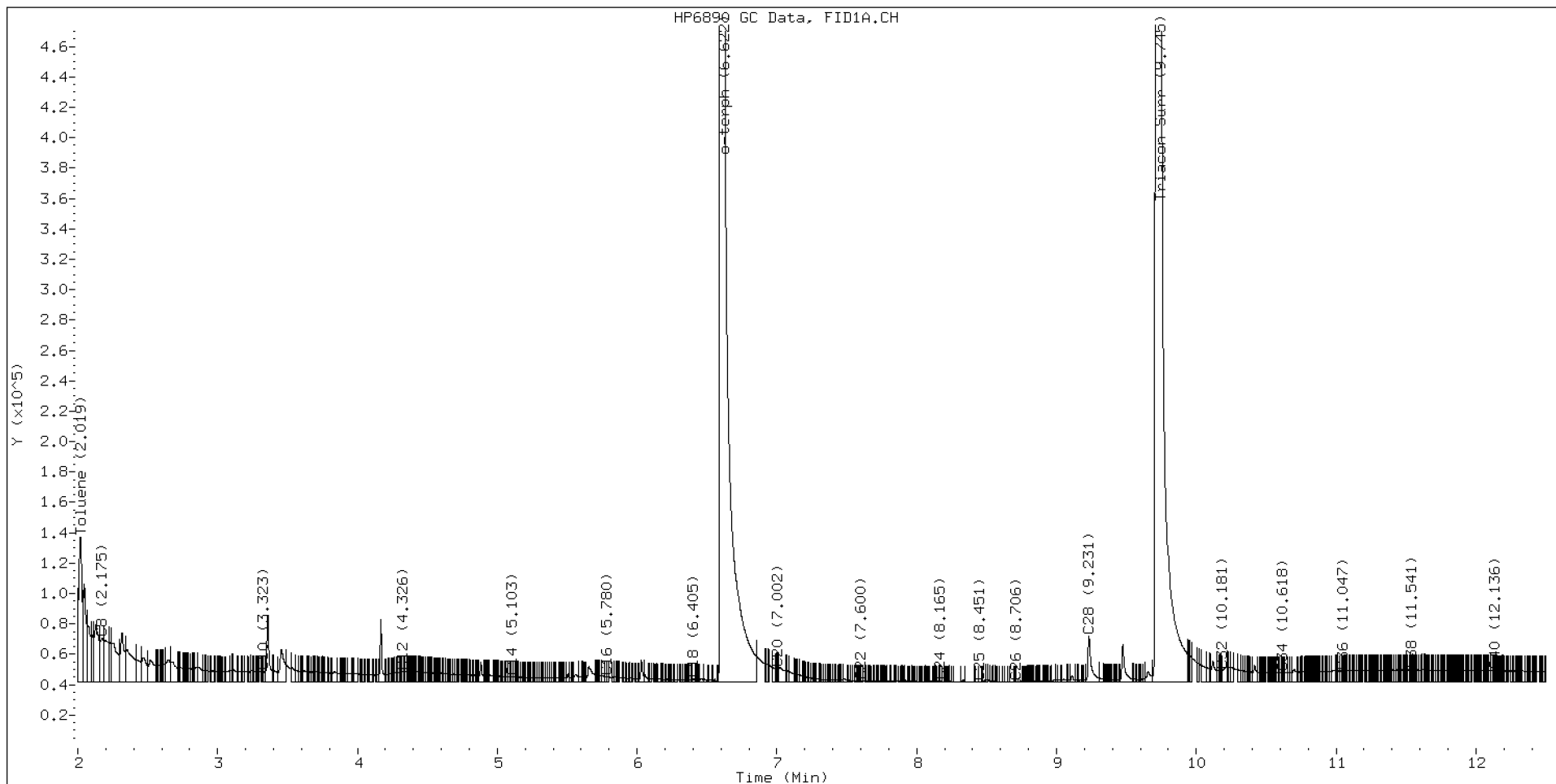
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.175	-0.001	28636	49714	WATPHD	(C12-C24)	561913	3.5
C10	3.323	-0.002	6705	2331	WATPHM	(C24-C38)	839518	6.3
C12	4.326	0.005	6726	4956	AK102	(C10-C25)	999619	5.3
C14	5.103	-0.001	3326	2399	AK103	(C25-C36)	627085	6.3
C16	5.780	-0.001	3729	2301	OR.DIES	(C10-C28)	1081764	5.7
C18	6.405	0.001	1744	2249				
C20	7.002	-0.002	8888	3965	JET-A	(C10-C18)	829383	4.8
C22	7.600	0.005	575	323				
C24	8.165	-0.001	513	172				
C25	8.451	0.009	173	114				
C26	8.706	-0.007	226	113				
C28	9.231	0.000	30308	51005				
C32	10.181	-0.001	7224	1797				
C34	10.618	0.001	6241	2794				
Filter Peak	13.958	-0.005	6001	1197	CREOSOT	(C12-C22)	549118	20.7
C36	11.047	-0.002	7154	2849				
C38	11.541	0.000	7946	4739				
C40	12.136	-0.002	7319	3266				
o-terph	6.622	0.000	19568717	23410612				
Triacon Surr	9.745	-0.004	14130013	20372219	NAS DIES	(C10-C24)	997737	5.3

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23410612	115.0
Triacontane	20372219	93.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-19-20230308**  
**23C0181-14 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 14:18  
Analyzed: 14-Mar-2023 15:14

**Analysis by: Analytical Resources, LLC**

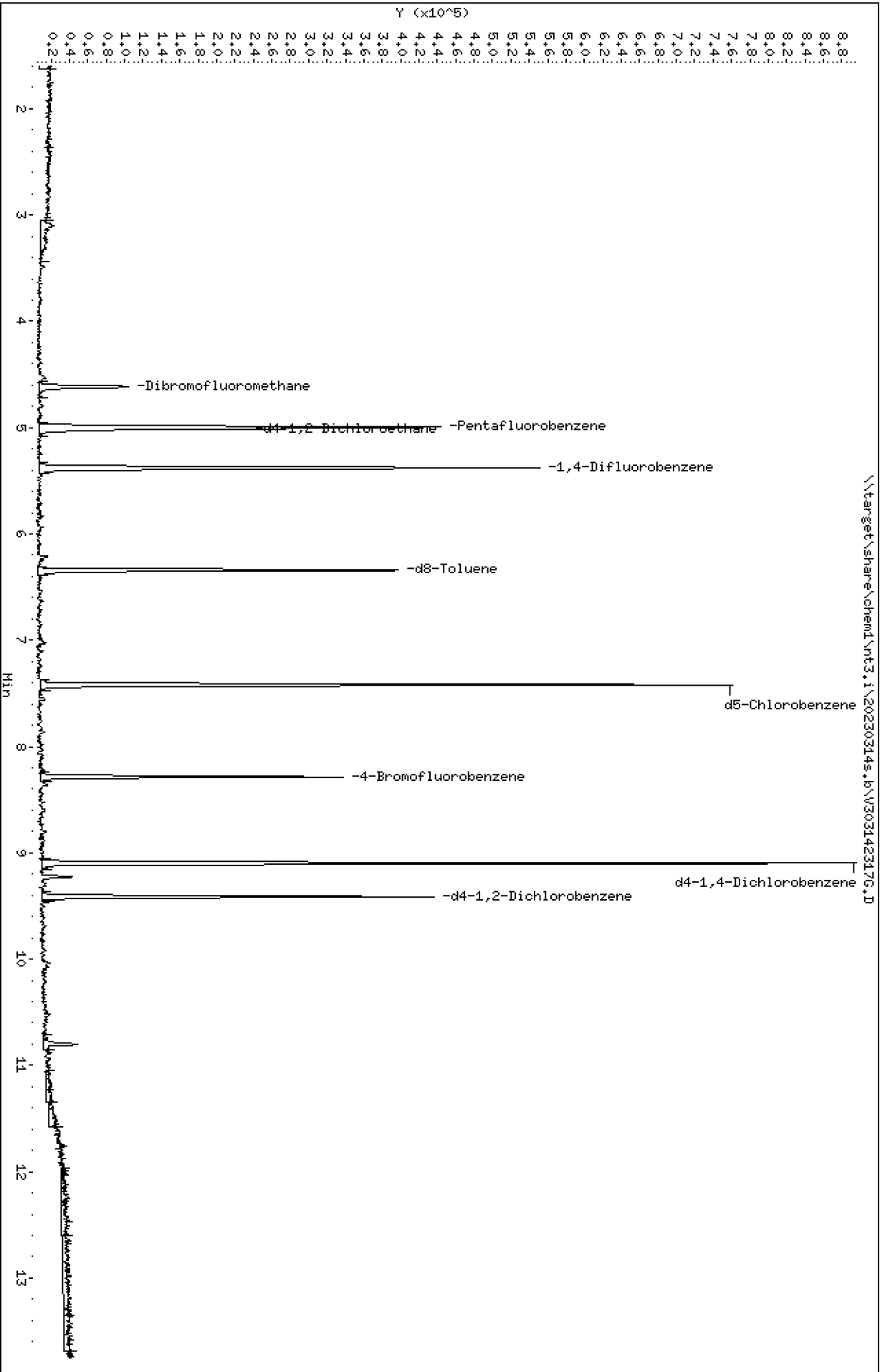
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	95.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	95.6	%	

Data File: \\target\share\chend\nt3.1\20230314s.16\303142317G.D  
Date : 14-MAR-2023 15:14  
Client ID:  
Sample Info: 23C0181-14

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142317G.D  
 Lab Smp Id: 23C0181-14  
 Inj Date : 14-MAR-2023 15:14  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 23C0181-14  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.612	4.616	(0.923)	56620	5.12233	5.122
* 32 Pentafluorobenzene	168		4.995	4.993	(1.000)	254866	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.011	5.009	(1.003)	31339	5.30153	5.302
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	368135	10.0000	
\$ 43 d8-Toluene	98		6.339	6.343	(1.179)	201185	4.79018	4.790
* 53 d5-Chlorobenzene	117		7.417	7.421	(1.000)	355146	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.284	8.287	(1.117)	75342	4.78208	4.782
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	207457	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	96540	5.15447	5.154



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142317G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-14  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	254866	-0.88
37 1,4-Difluorobenze	368342	184171	736684	368135	-0.06
53 d5-Chlorobenzene	357223	178612	714446	355146	-0.58
76 d4-1,4-Dichlorobe	205758	102879	411516	207457	0.83

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	5.00	0.03
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.03
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.05
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.02

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-14  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.122	102.45	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.302	106.03	80-128
\$ 43 d8-Toluene	5.000	4.790	95.80	80-120
\$ 62 4-Bromofluorobenze	5.000	4.782	95.64	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.154	103.09	80-120

REVIEW SUMMARY FOR FILE - V303142317G.D

Lab ID: 23C0181-14

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 15:14

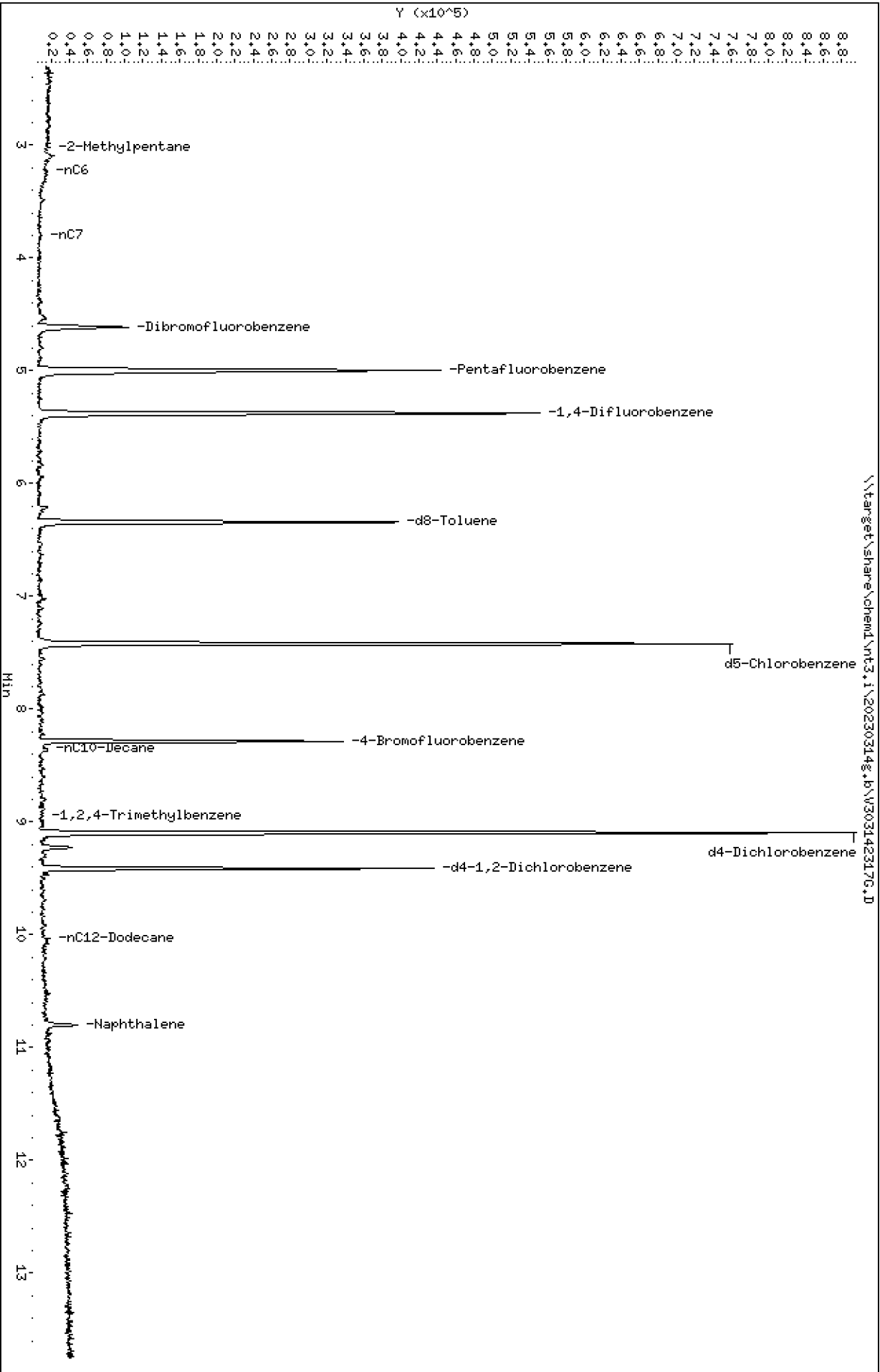
RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230314g,1b\303142317G.D  
Date: 14-MAR-2023 15:14  
Client ID:  
Sample Info: 23C0181-14

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142317G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 15:14

ARI ID: 23C0181-14  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	383976	0.007
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	631034	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	422075	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	501028	0.008
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	541821	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.418	998088	d5-Chlorobenzene
6.339	552705	d8-Toluene
9.097	1143348	d4-Dichlorobenzene
8.284	409043	4-Bromofluorobenzene
9.416	560209	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**Triplank**  
**23C0181-15 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 00:00  
Analyzed: 14-Mar-2023 12:14

**Analysis by: Analytical Resources, LLC**

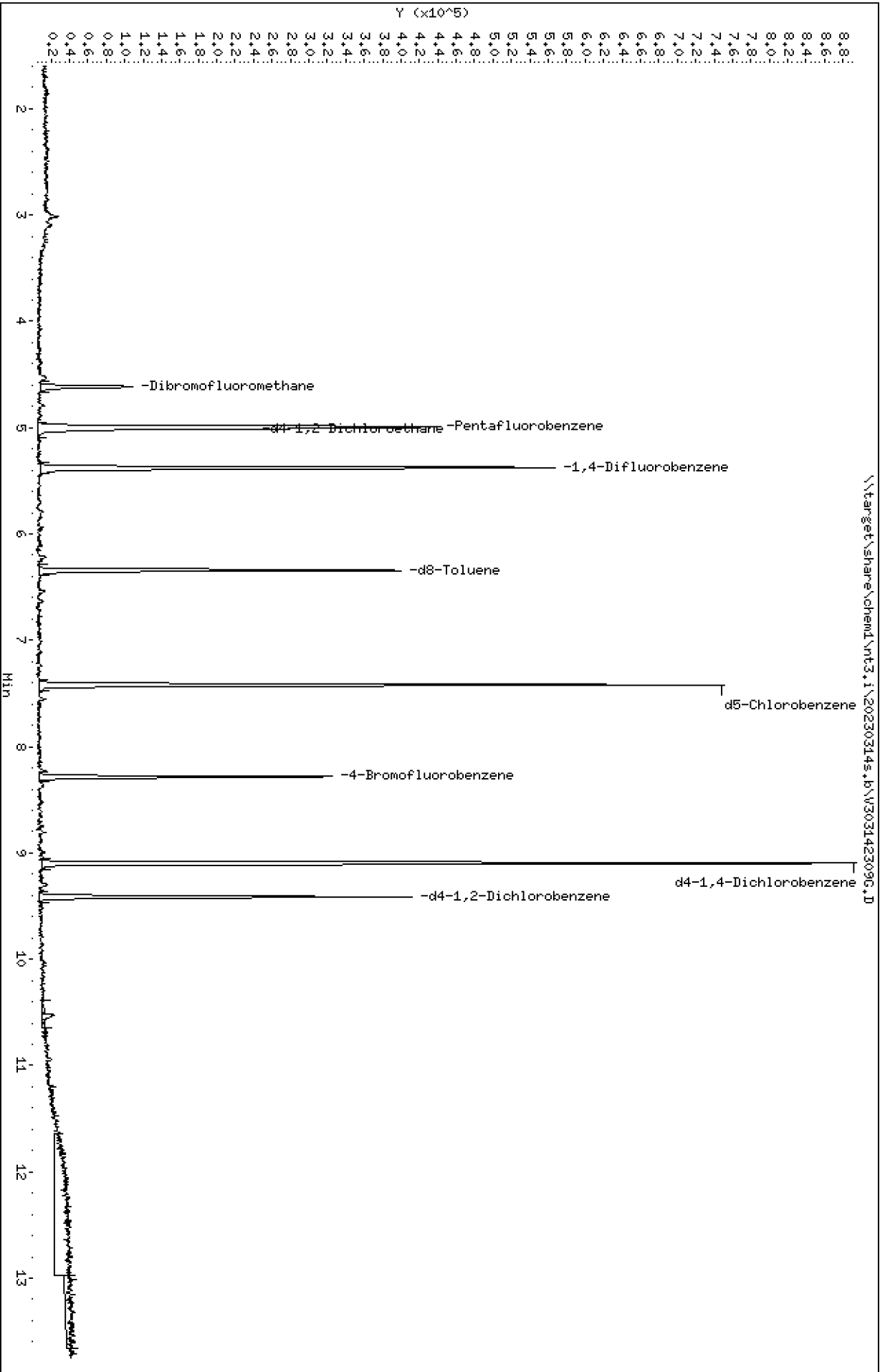
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.7	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.9	%	

Data File: \\target\share\chend\nt3.1\20230314s.1b\2303142309G.D  
Date: 14-MAR-2023 12:14  
Client ID:  
Sample Info: 23C0181-15

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142309G.D  
Lab Smp Id: 23C0181-15  
Inj Date : 14-MAR-2023 12:14  
Operator : PKC  
Smp Info : 23C0181-15  
Misc Info : 17-  
Comment :  
Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Meth Date : 14-Mar-2023 14:03 nt3.i  
Cal Date : 09-MAR-2023 13:44  
Als bottle: 64  
Dil Factor: 1.00000  
Integrator: HP RTE  
Target Version: 4.14  
Processing Host: PAULC-201906

Inst ID: nt3.i  
Quant Type: ISTD  
Cal File: V303092311.D  
Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	CONCENTRATIONS					
			RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111	====	4.611	4.616	(0.923)	55990	5.00177	5.002 (R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	258105	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	29635	4.95036	4.950 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	376672	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	209949	4.88555	4.886 (R)
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	354685	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	77000	4.89367	4.894 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	202313	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	90089	4.93234	4.932 (R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142309G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-15  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	258105	0.38
37 1,4-Difluorobenze	368342	184171	736684	376672	2.26
53 d5-Chlorobenzene	357223	178612	714446	354685	-0.71
76 d4-1,4-Dichlorobe	205758	102879	411516	202313	-1.67

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-15  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.002	100.04	
\$ 33 d4-1,2-Dichloroeth	5.000	4.950	99.01	
\$ 43 d8-Toluene	5.000	4.886	97.71	
\$ 62 4-Bromofluorobenze	5.000	4.894	97.87	
\$ 79 d4-1,2-Dichloroben	5.000	4.932	98.65	

REVIEW SUMMARY FOR FILE - V303142309G.D

Lab ID: 23C0181-15

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 12:14

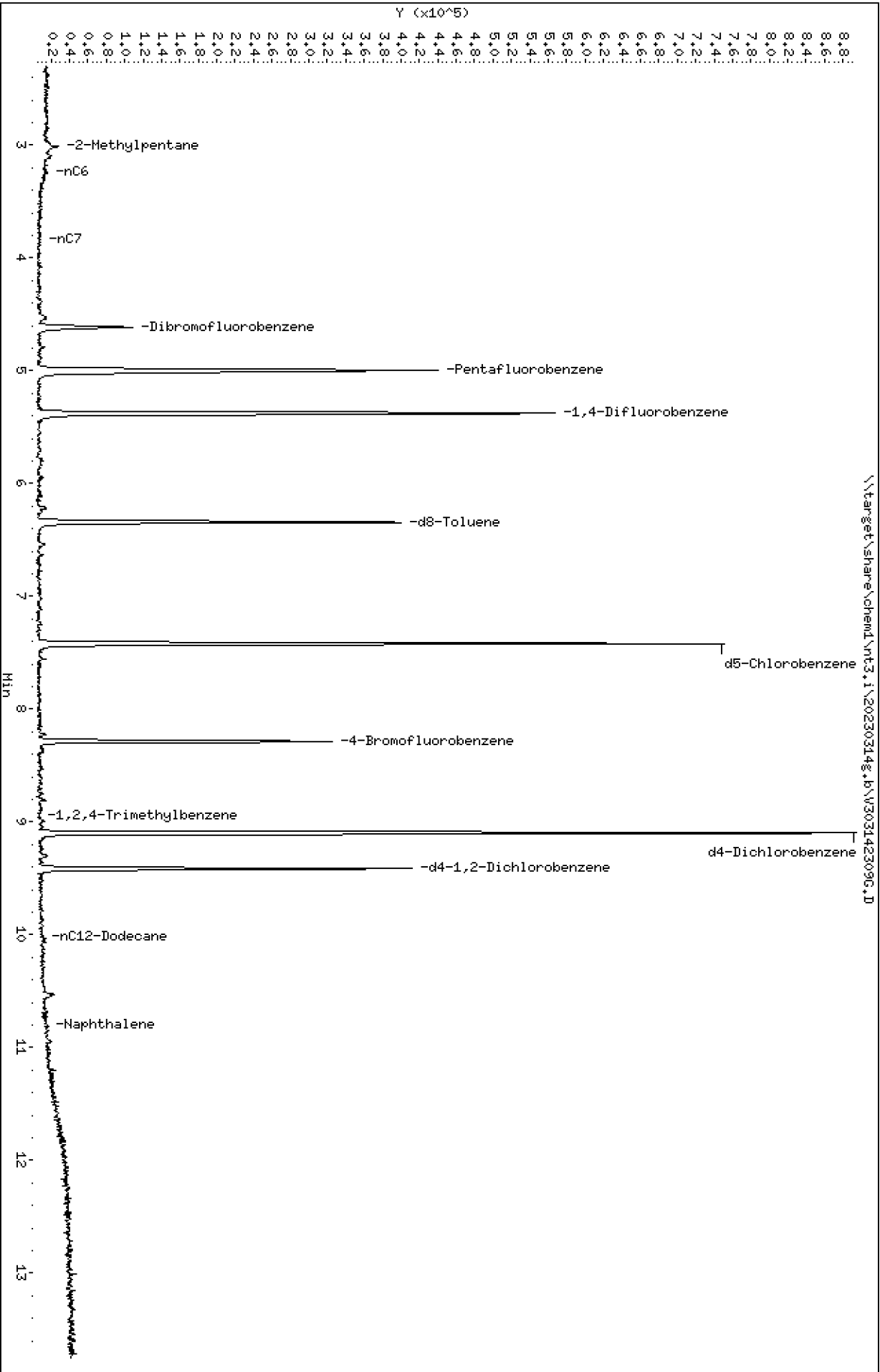
RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.1b\2303142309G.D  
Date: 14-MAR-2023 12:14  
Client ID:  
Sample Info: 23C0181-15

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142309G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 12:14

ARI ID: 23C0181-15  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

-----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	234139	0.004
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	567899	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	350346	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	297408	0.005
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	411135	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.423	1019356	d5-Chlorobenzene
6.344	571709	d8-Toluene
9.096	1128111	d4-Dichlorobenzene
8.283	406656	4-Bromofluorobenzene
9.415	538464	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**MW-02S-20230308**  
**23C0181-16 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 09:50  
Instrument: ECD8 Analyzed: 22-Mar-2023 18:42

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	93.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	90.2	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02S-20230308**  
**23C0181-16 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 09:50  
Analyzed: 17-Mar-2023 15:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	1.6	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	84.3 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	109 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	111 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02S-20230308**  
**23C0181-16 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 09:50  
Analyzed: 17-Mar-2023 23:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	88.2	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	105	%	
Surrogate: Fluoranthene-d10			46-121 %	93.7	%	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-02S-20230308**  
**23C0181-16 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 09:50  
Analyzed: 21-Mar-2023 22:01

**Analysis by: Analytical Resources, LLC**

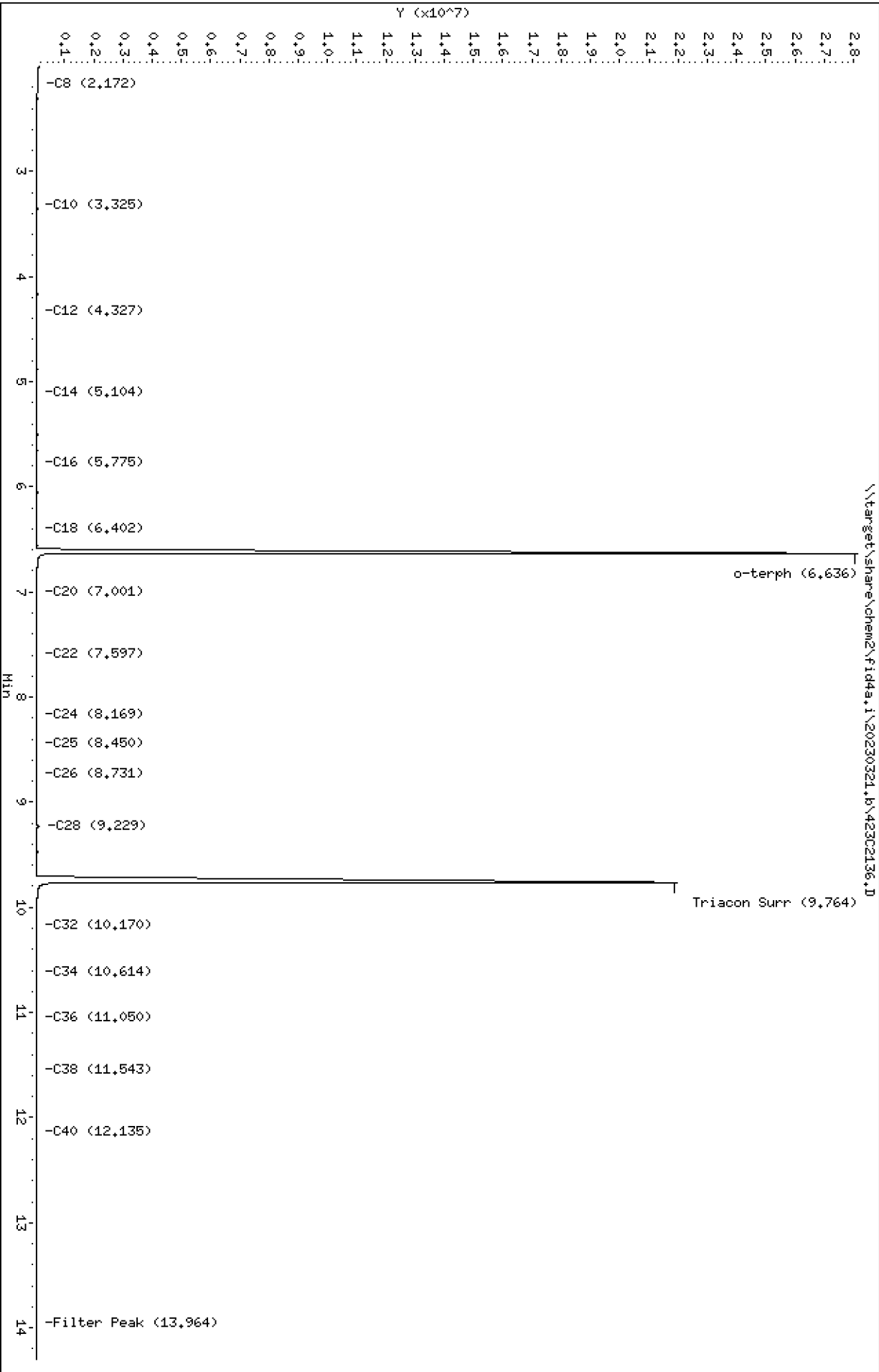
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	94.9	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302136.D  
Date: 21-MAR-2023 22:01  
Client ID:  
Sample Info: 23C0181-16

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2136.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-16  
Client ID:  
Injection: 21-MAR-2023 22:01  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

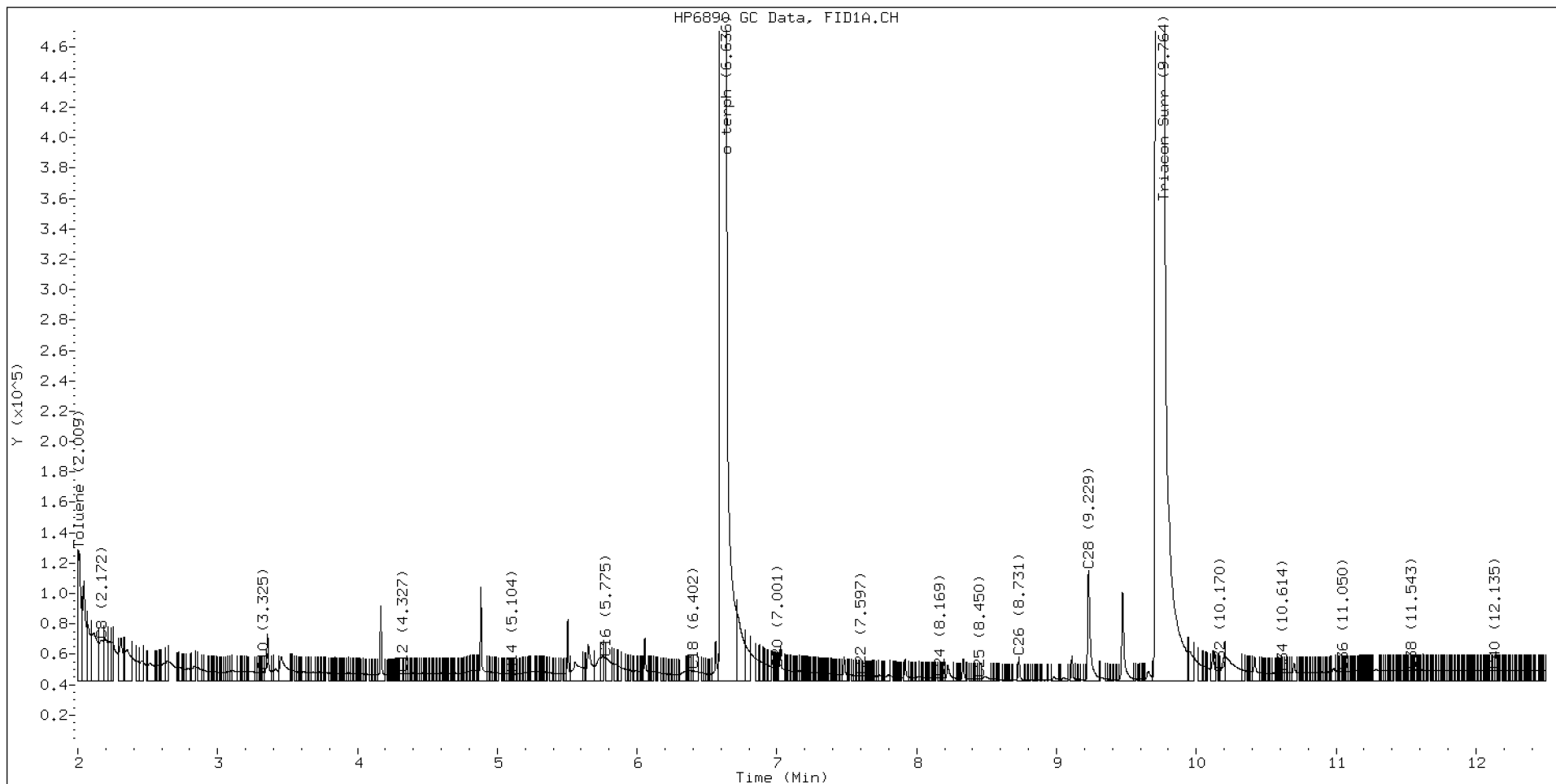
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.172	-0.003	26755	51642	WATPHD	(C12-C24)	1273632	8.0
C10	3.325	-0.001	5552	4924	WATPHM	(C24-C38)	902220	6.8
C12	4.327	0.007	4489	1750	AK102	(C10-C25)	1658110	8.8
C14	5.104	-0.001	4209	630	AK103	(C25-C36)	693499	7.0
C16	5.775	-0.005	15001	37309	OR.DIES	(C10-C28)	1805432	9.5
C18	6.402	-0.002	6422	15047				
C20	7.001	-0.003	8174	3655	JET-A	(C10-C18)	1097649	6.3
C22	7.597	0.003	2985	2326				
C24	8.169	0.003	1709	1083				
C25	8.450	0.007	992	289				
C26	8.731	0.018	15256	12514				
C28	9.229	-0.002	72256	95278				
C32	10.170	-0.012	6203	1234				
C34	10.614	-0.003	5028	3945				
Filter Peak	13.964	0.001	6346	1897	CREOSOT	(C12-C22)	1199691	45.2
C36	11.050	0.000	6117	3633				
C38	11.543	0.002	6881	1714				
C40	12.135	-0.003	6524	2591				
o-terph	6.636	0.014	28097985	43496202				
Triacon Surr	9.764	0.015	21921888	42187720	NAS DIES	(C10-C24)	1625218	8.6

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	43496202	213.6
Triacotane	42187720	193.6

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02S-20230308**  
**23C0181-16 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 09:50  
Analyzed: 14-Mar-2023 15:36

**Analysis by: Analytical Resources, LLC**

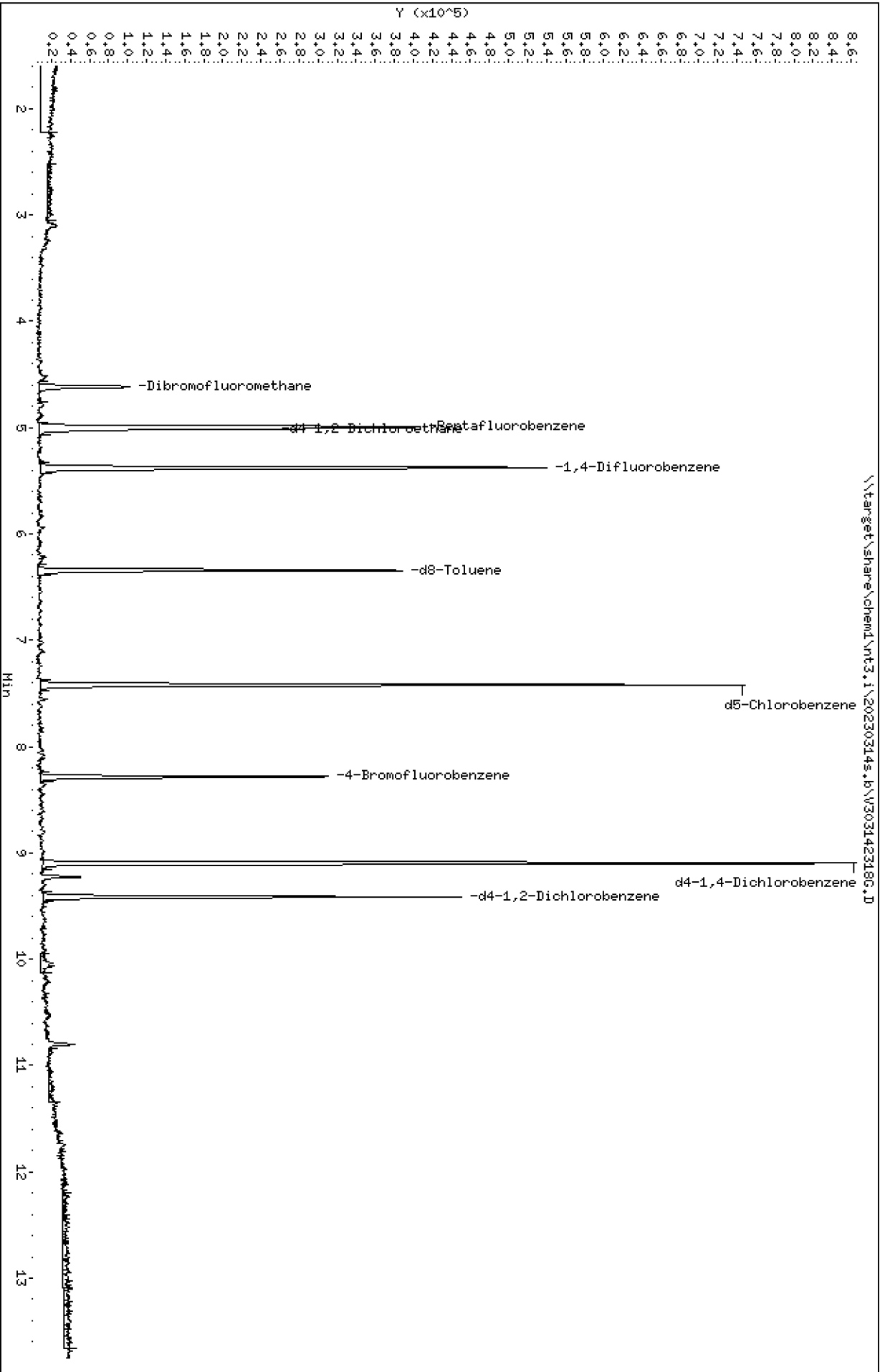
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	99.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	95.1	%	

Data File: \\target\share\chend\nt3.1\20230314s.16\303142318G.D  
Date : 14-MAR-2023 15:36  
Client ID:  
Sample Info: 23C0181-16

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142318G.D  
 Lab Smp Id: 23C0181-16  
 Inj Date : 14-MAR-2023 15:36  
 Operator : PKC  
 Smp Info : 23C0181-16  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	56321	5.39186	5.392
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	240847	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	33203	5.94380	5.944
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	355647	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	201420	4.96417	4.964
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	354589	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	74779	4.75380	4.754
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	204210	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	96393	5.22846	5.228

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142318G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-16  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	240847	-6.33
37 1,4-Difluorobenze	368342	184171	736684	355647	-3.45
53 d5-Chlorobenzene	357223	178612	714446	354589	-0.74
76 d4-1,4-Dichlorobe	205758	102879	411516	204210	-0.75

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-16  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.392	107.84	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.944	118.88	80-128
\$ 43 d8-Toluene	5.000	4.964	99.28	80-120
\$ 62 4-Bromofluorobenze	5.000	4.754	95.08	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.228	104.57	80-120

REVIEW SUMMARY FOR FILE - V303142318G.D

Lab ID: 23C0181-16

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 15:36

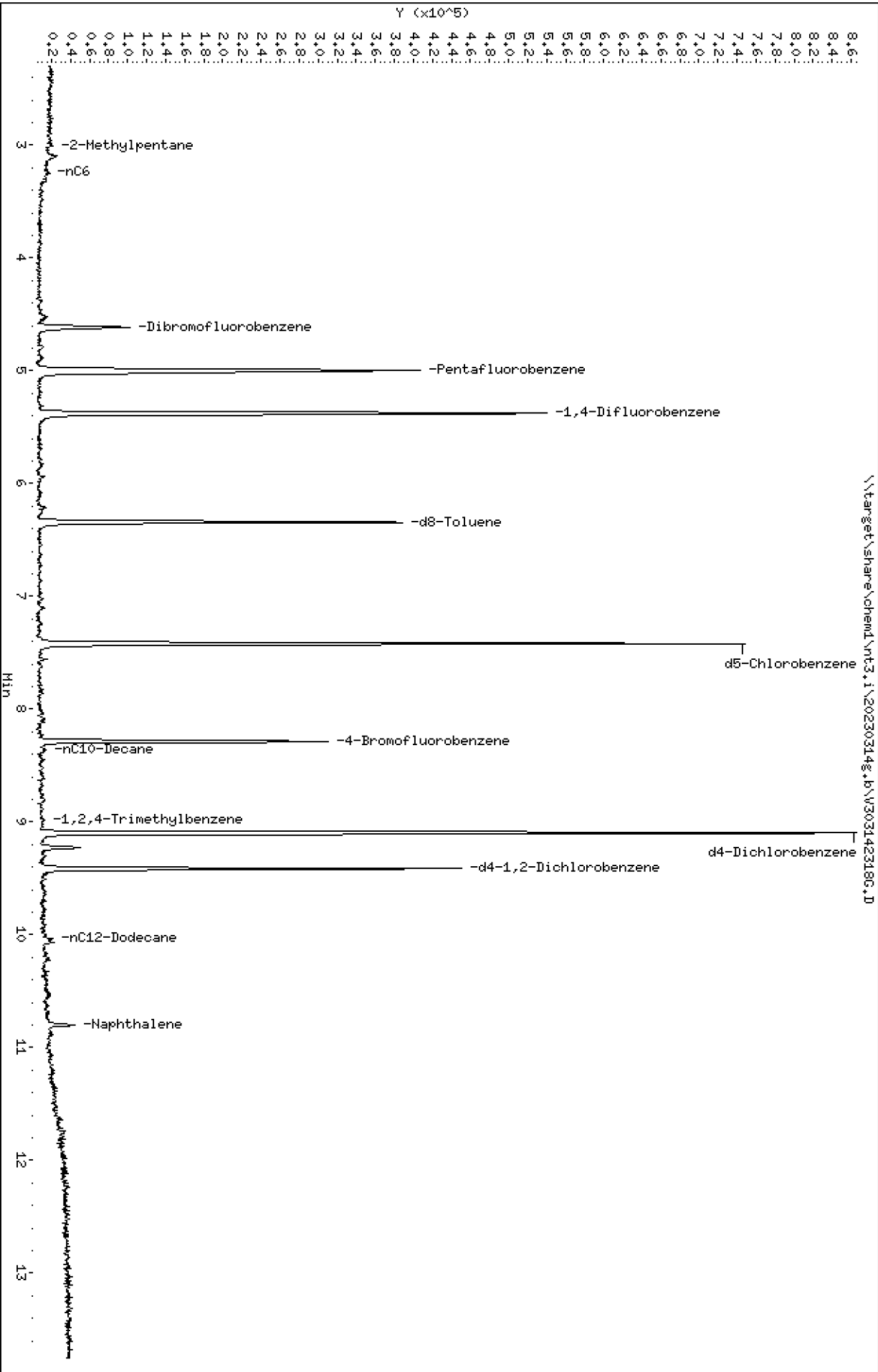
RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230314g,1b\2303142318G.D  
Date: 14-MAR-2023 15:36  
Client ID:  
Sample Info: 23C0181-16

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142318G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 15:36

ARI ID: 23C0181-16  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	415631	0.007
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	627677	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	397618	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	525526	0.009
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	588532	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.417	1015231	d5-Chlorobenzene
6.344	549542	d8-Toluene
9.096	1121985	d4-Dichlorobenzene
8.283	409243	4-Bromofluorobenzene
9.415	567150	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC

Volatile Organic Compounds - Quality Control

Batch BLC0271 - EPA 5030C (Purge and Trap)

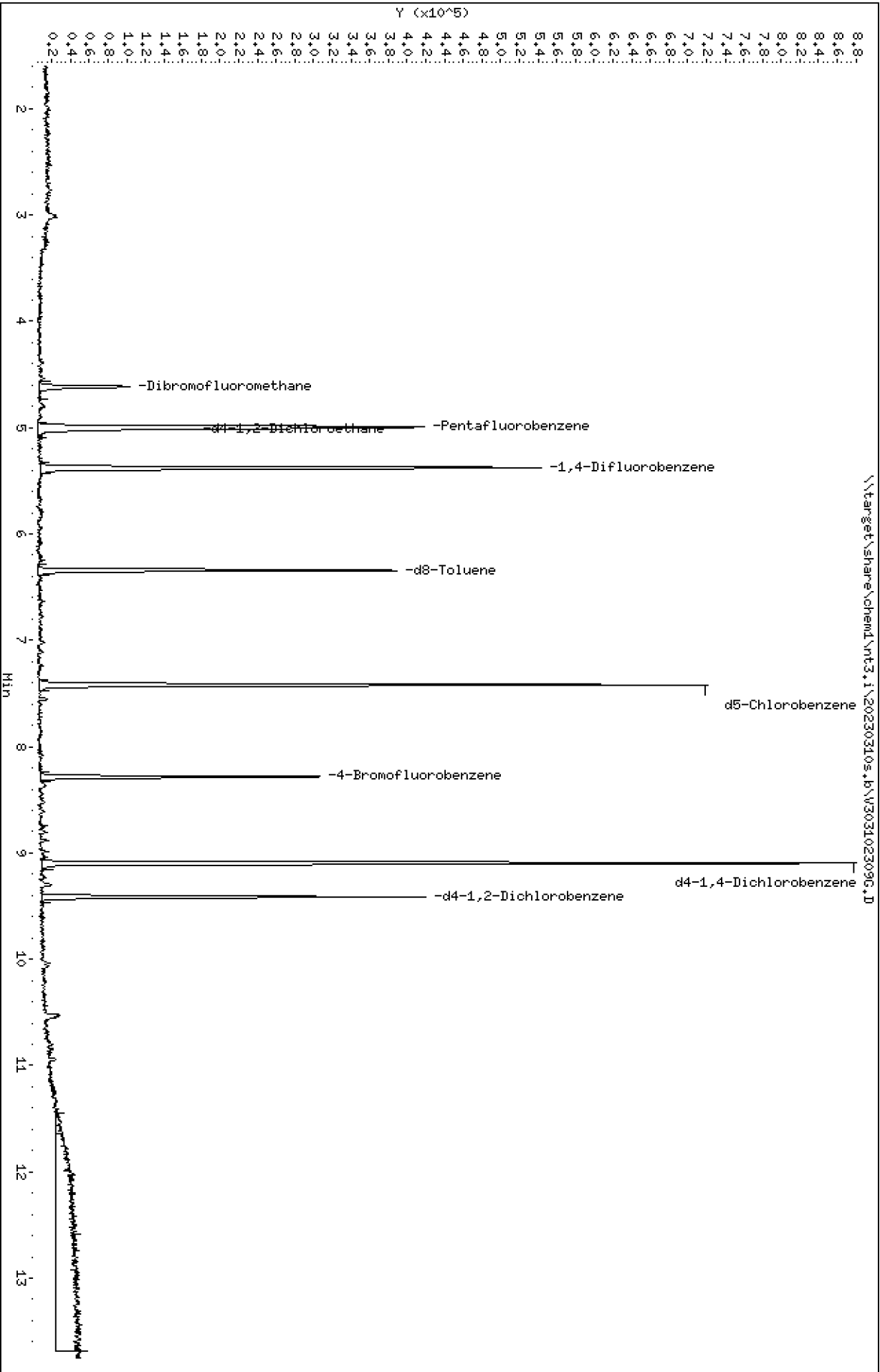
Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0271-BLK1)</b>				Prepared: 10-Mar-2023 Analyzed: 10-Mar-2023 12:32						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.87		ug/L	5.00		97.3	80-120			
Surrogate: 4-Bromofluorobenzene	4.83		ug/L	5.00		96.5	80-120			

Data File: \\target\share\chend\nt3.1\20230310s.16\303102309G.D  
Date: 10-HRR-2023 12:32  
Client ID:  
Sample Info: BLC0271-BLK1

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102309G.D  
 Lab Smp Id: BLC0271-BLK1  
 Inj Date : 10-MAR-2023 12:32  
 Operator : PKC  
 Smp Info : BLC0271-BLK1  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	53999	5.08503	5.085(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	244851	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	28188	4.96353	4.964(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	361472	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	200690	4.86647	4.866(R)
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	341886	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	73207	4.82679	4.827(R)
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	196777	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	88040	4.95577	4.956(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102309G.D Calibration Time: 11:04  
 Lab Smp Id: BLC0271-BLK1  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	244851	-1.93
37 1,4-Difluorobenze	365813	182907	731626	361472	-1.19
53 d5-Chlorobenzene	354990	177495	709980	341886	-3.69
76 d4-1,4-Dichlorobe	212292	106146	424584	196777	-7.31

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: BLC0271-BLK1  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.085	101.70	
\$ 33 d4-1,2-Dichloroeth	5.000	4.964	99.27	
\$ 43 d8-Toluene	5.000	4.866	97.33	
\$ 62 4-Bromofluorobenze	5.000	4.827	96.54	
\$ 79 d4-1,2-Dichloroben	5.000	4.956	99.12	

REVIEW SUMMARY FOR FILE - V303102309G.D

Lab ID: BLC0271-BLK1

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 12:32

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\2303102309G.D

Date: 10-HR-2023 12:32

Client ID:

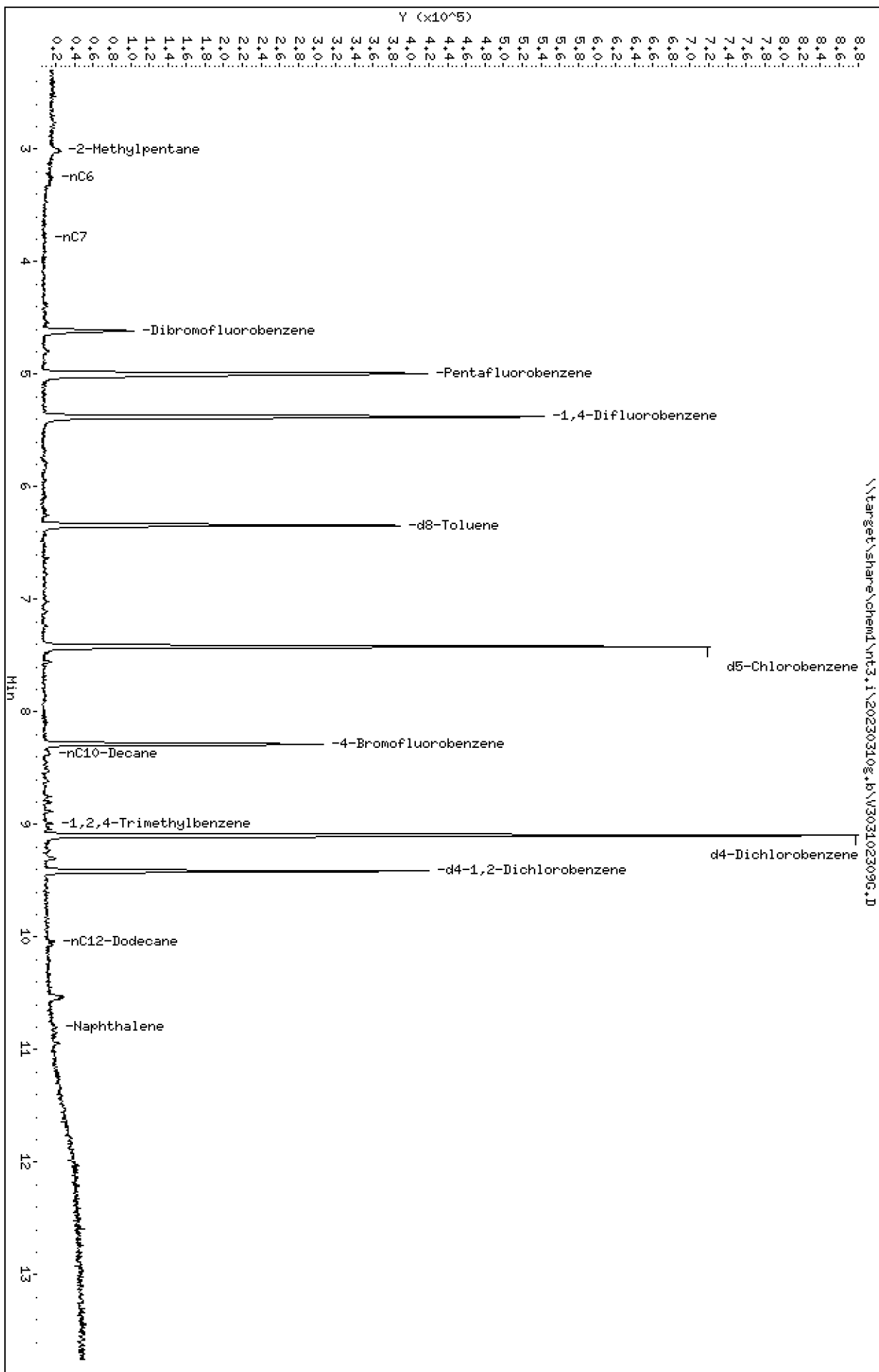
Sample Info: BLC0271-BLK1

Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102309G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 12:32

ARI ID: BLC0271-BLK1  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	337225	0.006
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	533668	0.005
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	322665	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	428704	0.007
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	465399	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.417	980112	d5-Chlorobenzene
6.344	550915	d8-Toluene
9.096	1099383	d4-Dichlorobenzene
8.283	402911	4-Bromofluorobenzene
9.415	535327	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0271 - EPA 5030C (Purge and Trap)**

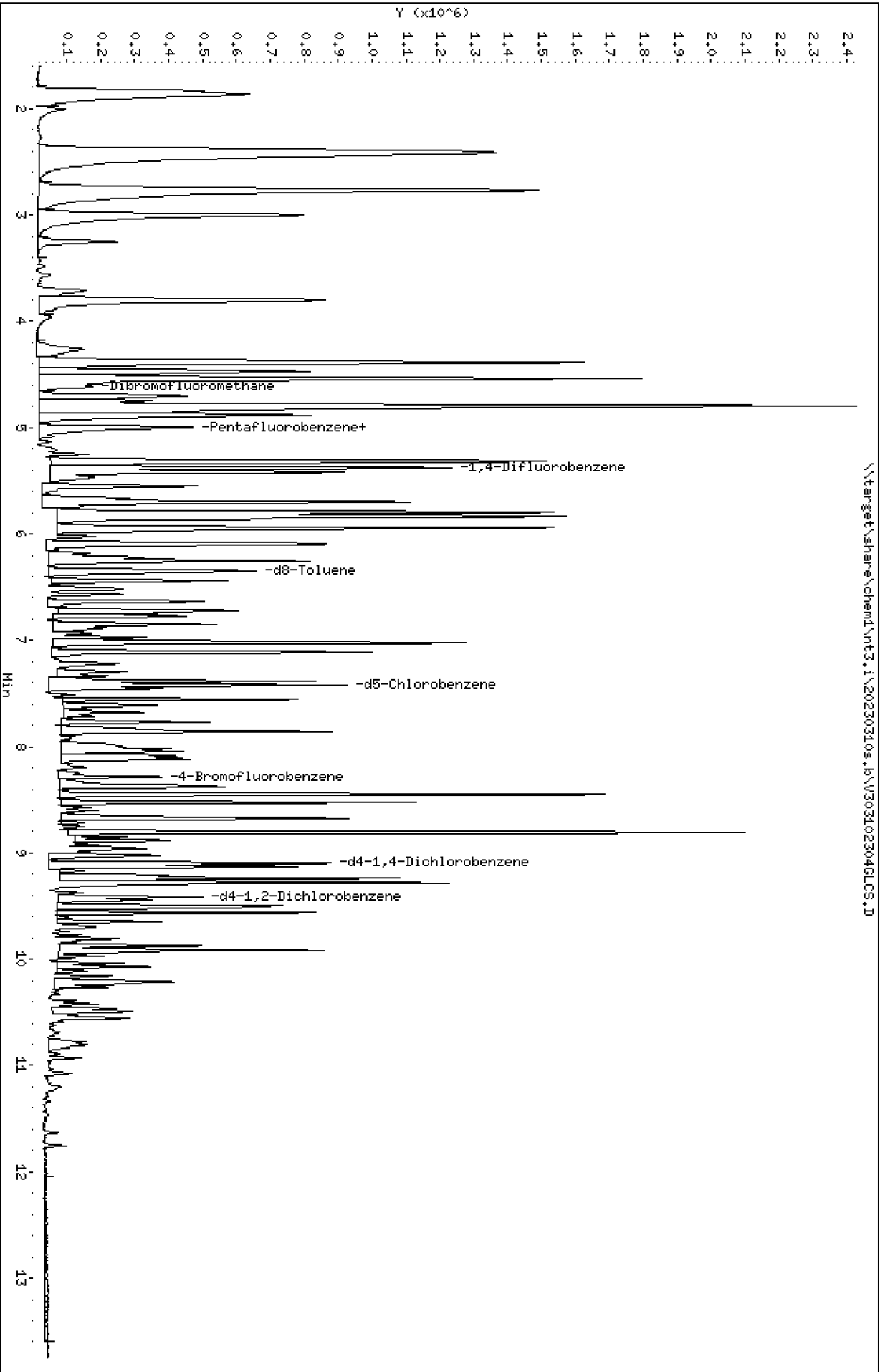
Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0271-BS1)</b>				Prepared: 10-Mar-2023 Analyzed: 10-Mar-2023 10:42						
Gasoline Range Organics (Tol-Nap)	912	100	ug/L	1000		91.2	72-128			
Surrogate: Toluene-d8	5.03		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.00		ug/L	5.00		100	80-120			

Data File: \\target\share\chemd\nt3,1\20230310s,b\303102304GLCS.D  
Date : 10-HR-2023 10:42  
Client ID:  
Sample Info: BLC0271-BS1

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102304GLCS.D  
 Lab Smp Id: BLC0271-BS1  
 Inj Date : 10-MAR-2023 10:42  
 Operator : PKC  
 Smp Info : BLC0271-BS1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.610	4.616	(0.923)	54207	4.91035	4.910
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	254538	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	36096	6.11413	6.114
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	389574	10.0000	
\$ 43 d8-Toluene	98		6.342	6.343	(1.180)	223344	5.02513	5.025
* 53 d5-Chlorobenzene	117		7.421	7.422	(1.000)	347253	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.288	(1.117)	77090	5.00425	5.004
* 76 d4-1,4-Dichlorobenzene	152		9.100	9.095	(1.000)	201759	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.034)	89708	4.92497	4.925

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102304GLCS.D Calibration Time: 11:04  
 Lab Smp Id: BLC0271-BS1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	254538	1.95
37 1,4-Difluorobenze	365813	182907	731626	389574	6.50
53 d5-Chlorobenzene	354990	177495	709980	347253	-2.18
76 d4-1,4-Dichlorobe	212292	106146	424584	201759	-4.96

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.05

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLC0271-BS1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.910	98.21	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.114	122.28	80-128
\$ 43 d8-Toluene	5.000	5.025	100.50	80-120
\$ 62 4-Bromofluorobenze	5.000	5.004	100.08	80-120
\$ 79 d4-1,2-Dichloroben	5.000	4.925	98.50	80-120

REVIEW SUMMARY FOR FILE - V303102304GLCS.D

Lab ID: BLC0271-BS1

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 10:42

RT CO-ELUTION COMPOUNDS

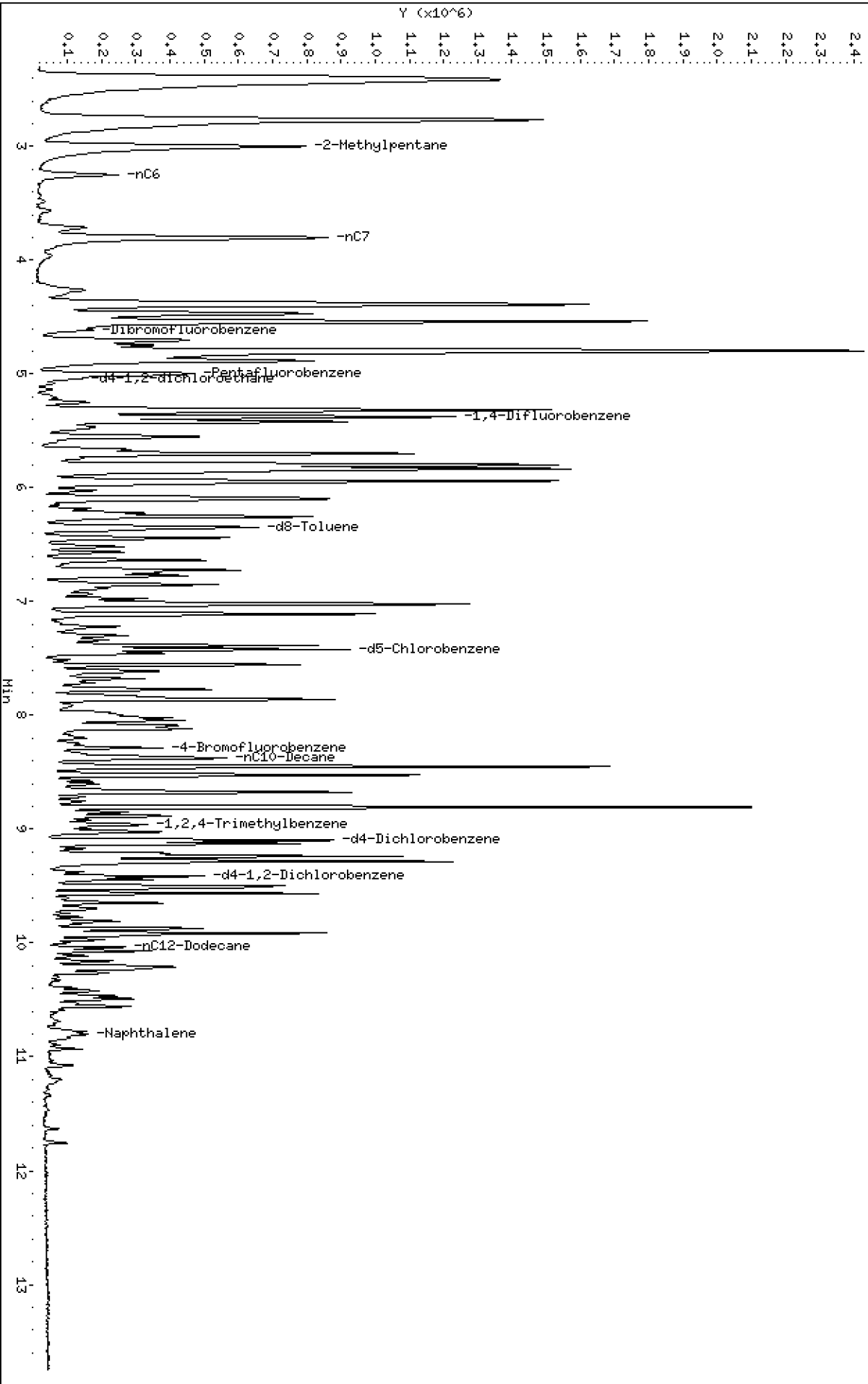
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Data File: \\target\share\chemd\nt3.1\20230310g.jb\202303102304GLCS.D  
Date: 10-HR-2023 10:42  
Client ID:  
Sample Info: BLC0271-B51

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chemd\nt3.1\20230310g.jb\202303102304GLCS.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102304GLCS.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 10:42

ARI ID: BLC0271-BS1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	51544290	0.911
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	88070795	0.887 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	71770715	0.881 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	56104773	0.912 M
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	98325351	0.896 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

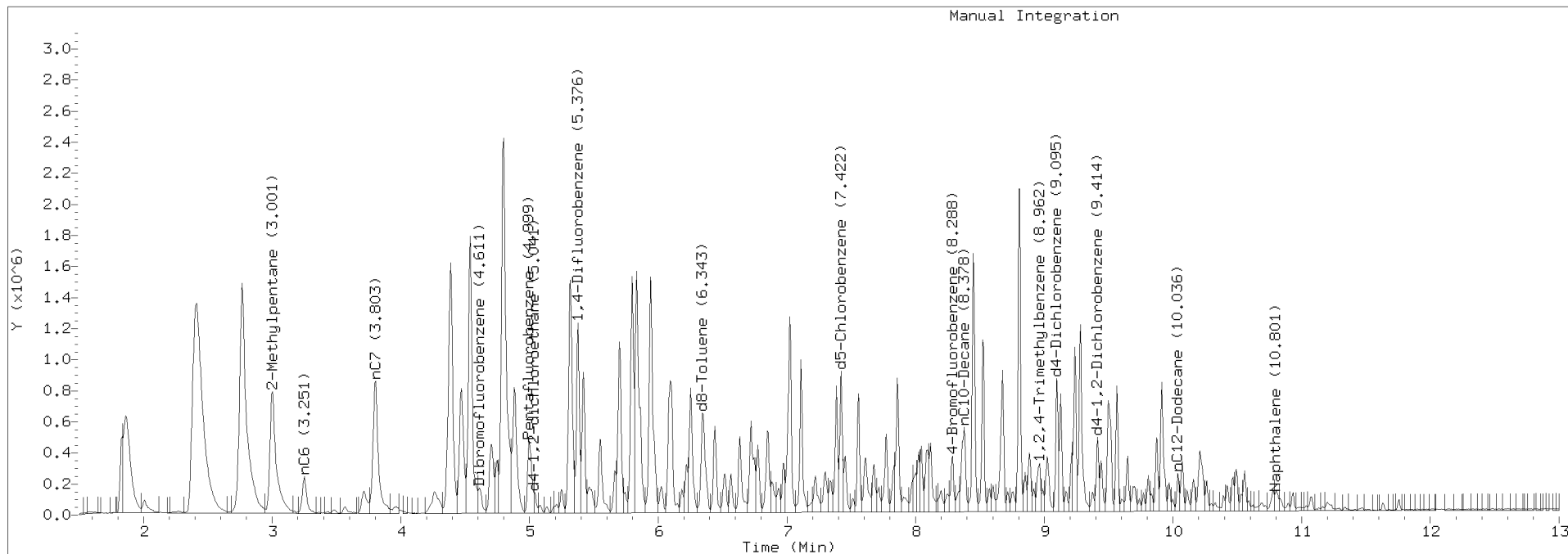
-----

7.422	1348486	d5-Chlorobenzene
6.343	1553242	d8-Toluene
9.095	1166967	d4-Dichlorobenzene
8.288	594630	4-Bromofluorobenzene
9.414	677044	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230310g.b/V303102304GLCS.D Injection: 10-MAR-2023 10:42

Lab ID: BLC0271-BS1





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0271 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0271-BSD1)</b>				Prepared: 10-Mar-2023 Analyzed: 10-Mar-2023 11:26						
Gasoline Range Organics (Tol-Nap)	861	100	ug/L	1000		86.1	72-128	5.86	30	
Surrogate: Toluene-d8	5.00		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	4.87		ug/L	5.00		97.4	80-120			

Data File: \\target\share\chend\nt3.1\20230310s.16\303102306G.D

Date : 10-HR-2023 11:26

Client ID:

Sample Info: BLC0271-BSM1

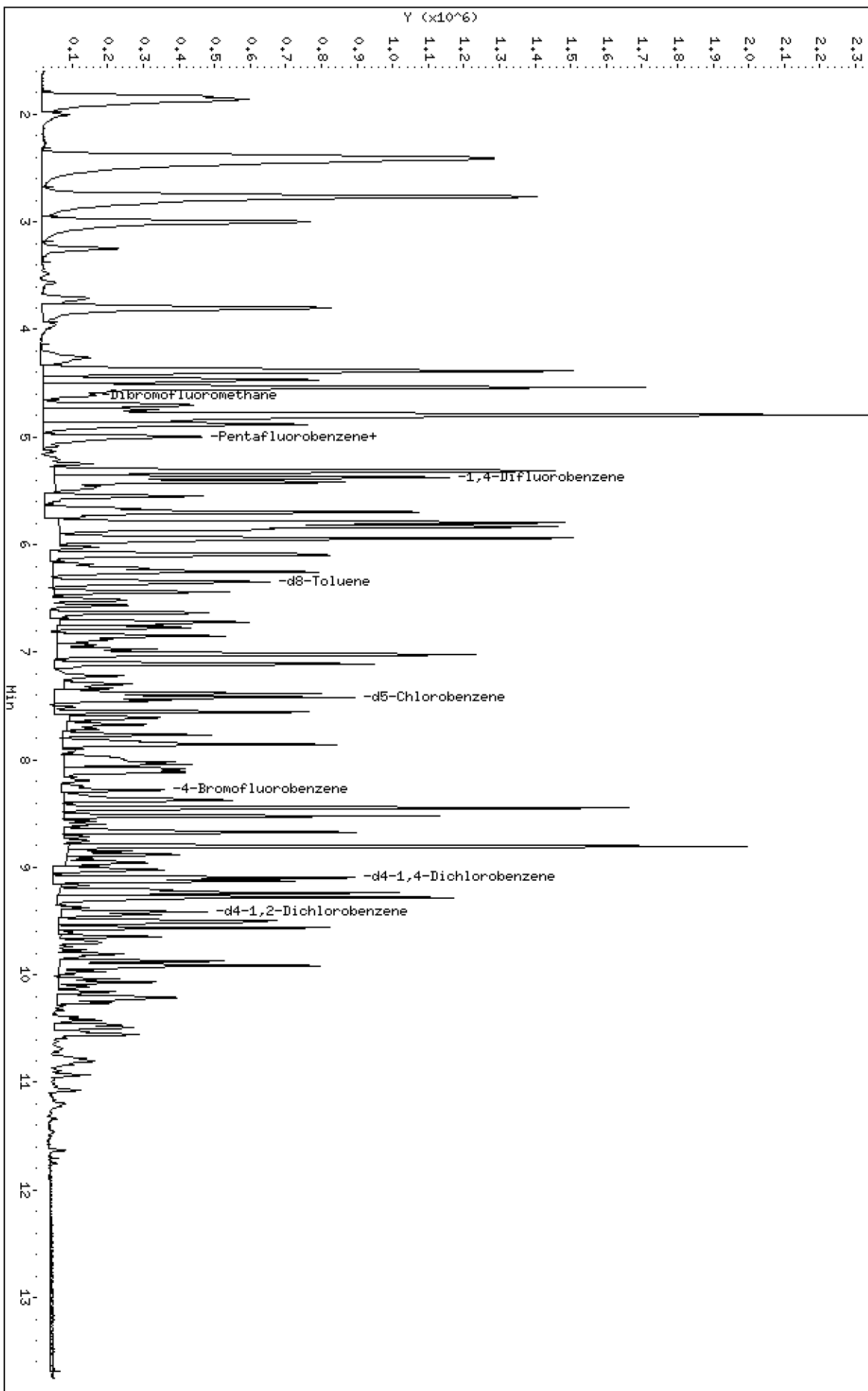
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230310s.16\303102306G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102306G.D  
 Lab Smp Id: BLC0271-BSD1  
 Inj Date : 10-MAR-2023 11:26  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : BLC0271-BSD1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	52155	4.92335	4.923
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	244256	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	37249	6.57503	6.575(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	375169	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	213958	4.99879	4.999
* 53 d5-Chlorobenzene	117		7.421	7.422	(1.000)	337717	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.288	(1.117)	72949	4.86915	4.869
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	189958	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	88262	5.14661	5.147

QC Flag Legend

R - Spike/Surrogate failed recovery limits.



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102306G.D Calibration Time: 11:04  
 Lab Smp Id: BLC0271-BSD1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	244256	-2.17
37 1,4-Difluorobenze	365813	182907	731626	375169	2.56
53 d5-Chlorobenzene	354990	177495	709980	337717	-4.87
76 d4-1,4-Dichlorobe	212292	106146	424584	189958	-10.52

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLC0271-BSD1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.923	98.47	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.575	131.50*	80-128
\$ 43 d8-Toluene	5.000	4.999	99.98	80-120
\$ 62 4-Bromofluorobenze	5.000	4.869	97.38	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.147	102.93	80-120

REVIEW SUMMARY FOR FILE - V303102306G.D

Lab ID: BLC0271-BSD1

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 11:26

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\202303102306G.D

Date: 10-HR-2023 11:26

Client ID:

Sample Info: BLC0271-BSM1

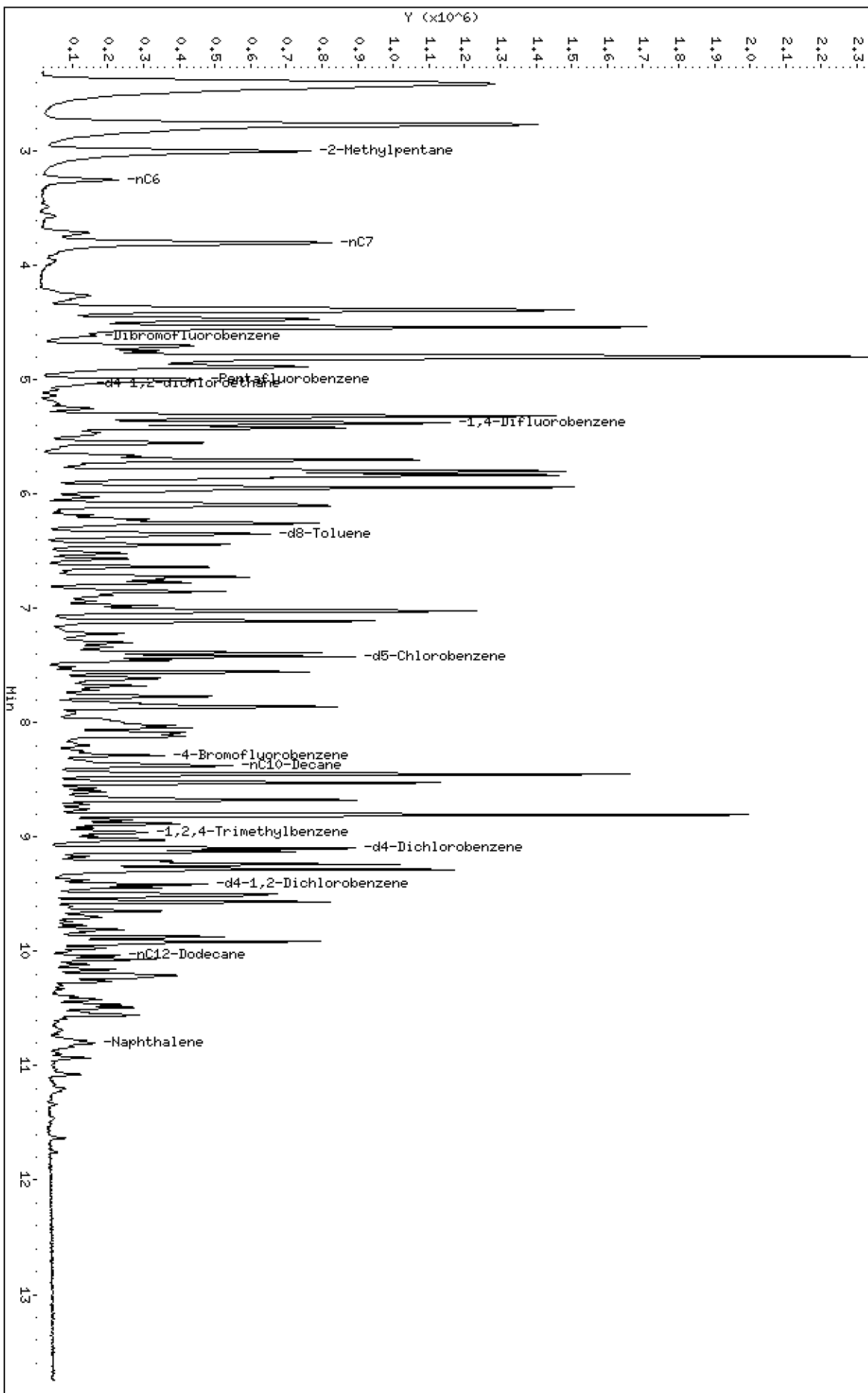
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230310g.1b\202303102306G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102306G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 11:26

ARI ID: BLC0271-BSD1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	48661498	0.860
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	83104033	0.837 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	67576296	0.829 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	52912780	0.861
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	92759962	0.845 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

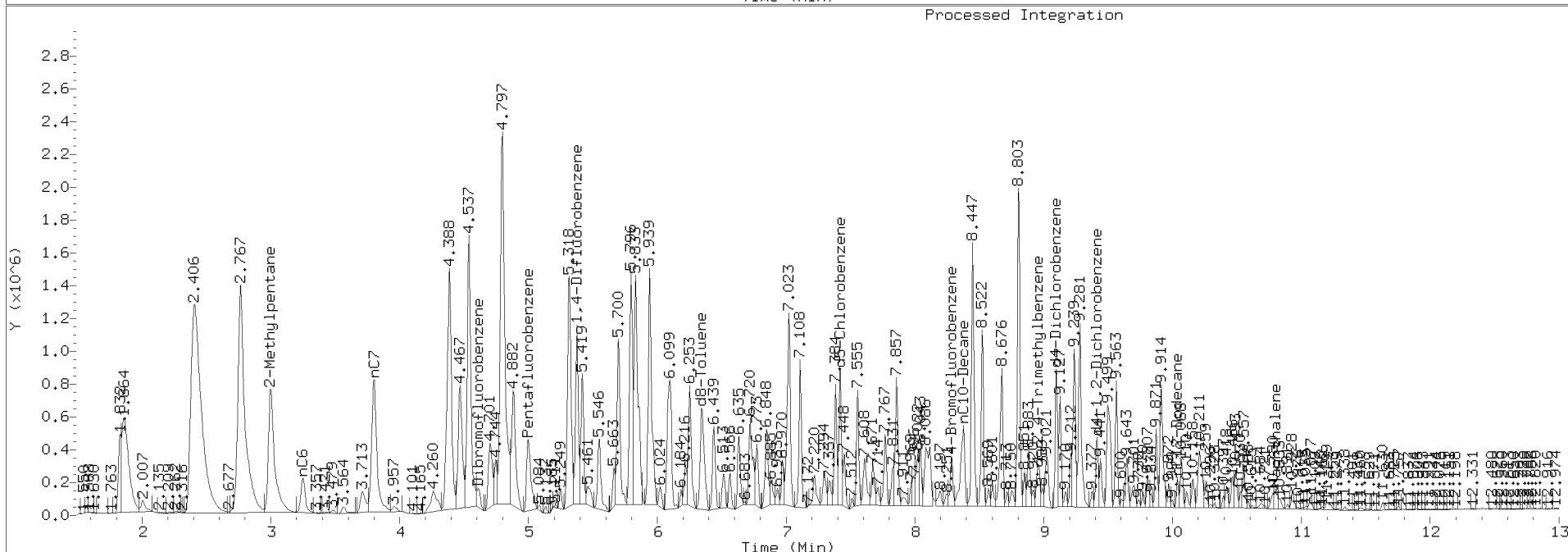
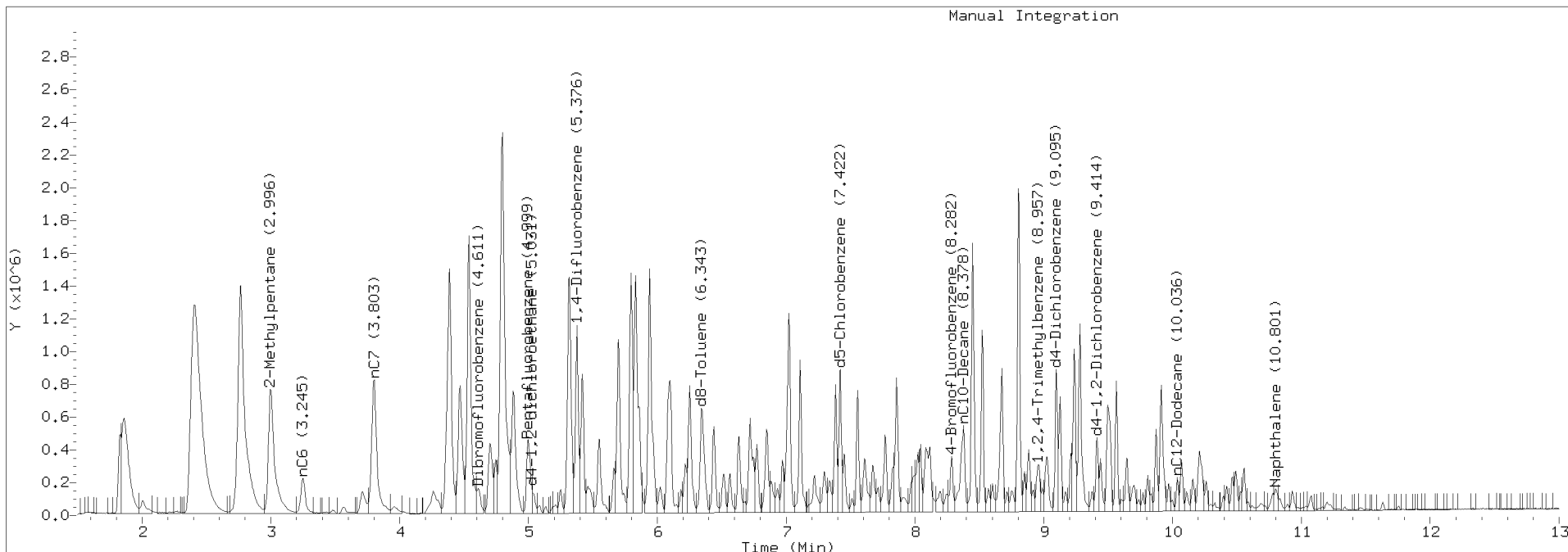
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7.422	1294087	d5-Chlorobenzene
6.343	1487856	d8-Toluene
9.095	1154591	d4-Dichlorobenzene
8.282	595295	4-Bromofluorobenzene
9.414	687671	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230310g.b/V303102306G.D Injection: 10-MAR-2023 11:26

Lab ID: BLC0271-BSD1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0344 - EPA 5030C (Purge and Trap)**

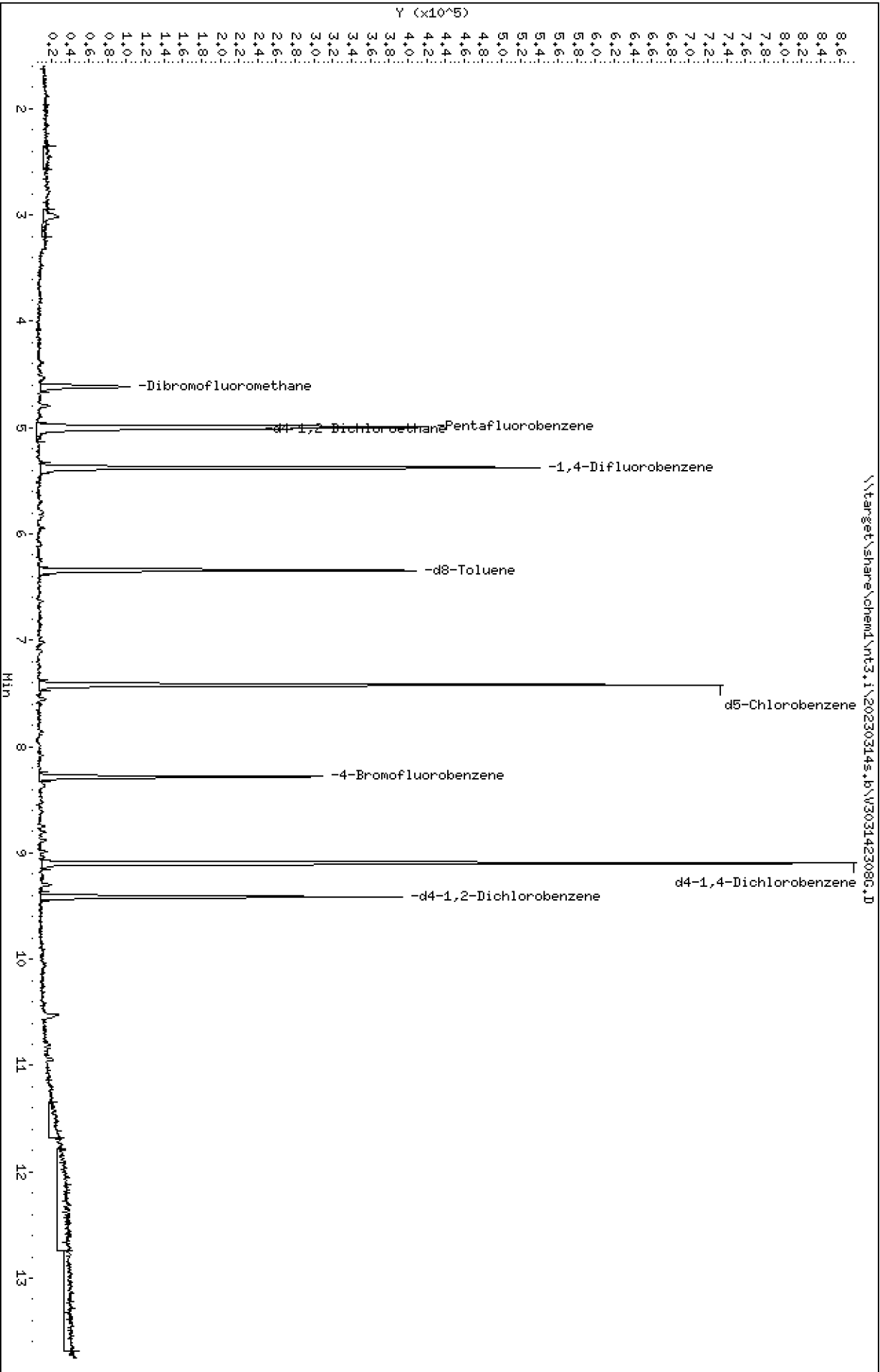
Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0344-BLK1)</b>					Prepared: 14-Mar-2023 Analyzed: 14-Mar-2023 11:51					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	5.00		ug/L	5.00		99.9	80-120			
Surrogate: 4-Bromofluorobenzene	4.75		ug/L	5.00		94.9	80-120			

Data File: \\target\share\chend\nt3.1\20230314s.1b\303142308G.D  
Date: 14-MAR-2023 11:51  
Client ID:  
Sample Info: BLC0344-BLK1

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142308G.D  
 Lab Smp Id: BLC0344-BLK1  
 Inj Date : 14-MAR-2023 11:51  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : BLC0344-BLK1  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	52972	4.96680	4.967 (R)
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	245912	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	28872	5.06204	5.062 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	357811	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	203941	4.99590	4.996 (R)
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	342064	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.282	8.287	(1.116)	72017	4.74585	4.746 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	194490	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	87870	5.00436	5.004 (R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142308G.D Calibration Time: 10:21  
 Lab Smp Id: BLC0344-BLK1  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	245912	-4.36
37 1,4-Difluorobenze	368342	184171	736684	357811	-2.86
53 d5-Chlorobenzene	357223	178612	714446	342064	-4.24
76 d4-1,4-Dichlorobe	205758	102879	411516	194490	-5.48

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: BLC0344-BLK1  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.967	99.34	
\$ 33 d4-1,2-Dichloroeth	5.000	5.062	101.24	
\$ 43 d8-Toluene	5.000	4.996	99.92	
\$ 62 4-Bromofluorobenze	5.000	4.746	94.92	
\$ 79 d4-1,2-Dichloroben	5.000	5.004	100.09	

REVIEW SUMMARY FOR FILE - V303142308G.D

Lab ID: BLC0344-BLK1

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 11:51

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.1b\2303142308G.D

Date: 14-MAR-2023 11:51

Client ID:

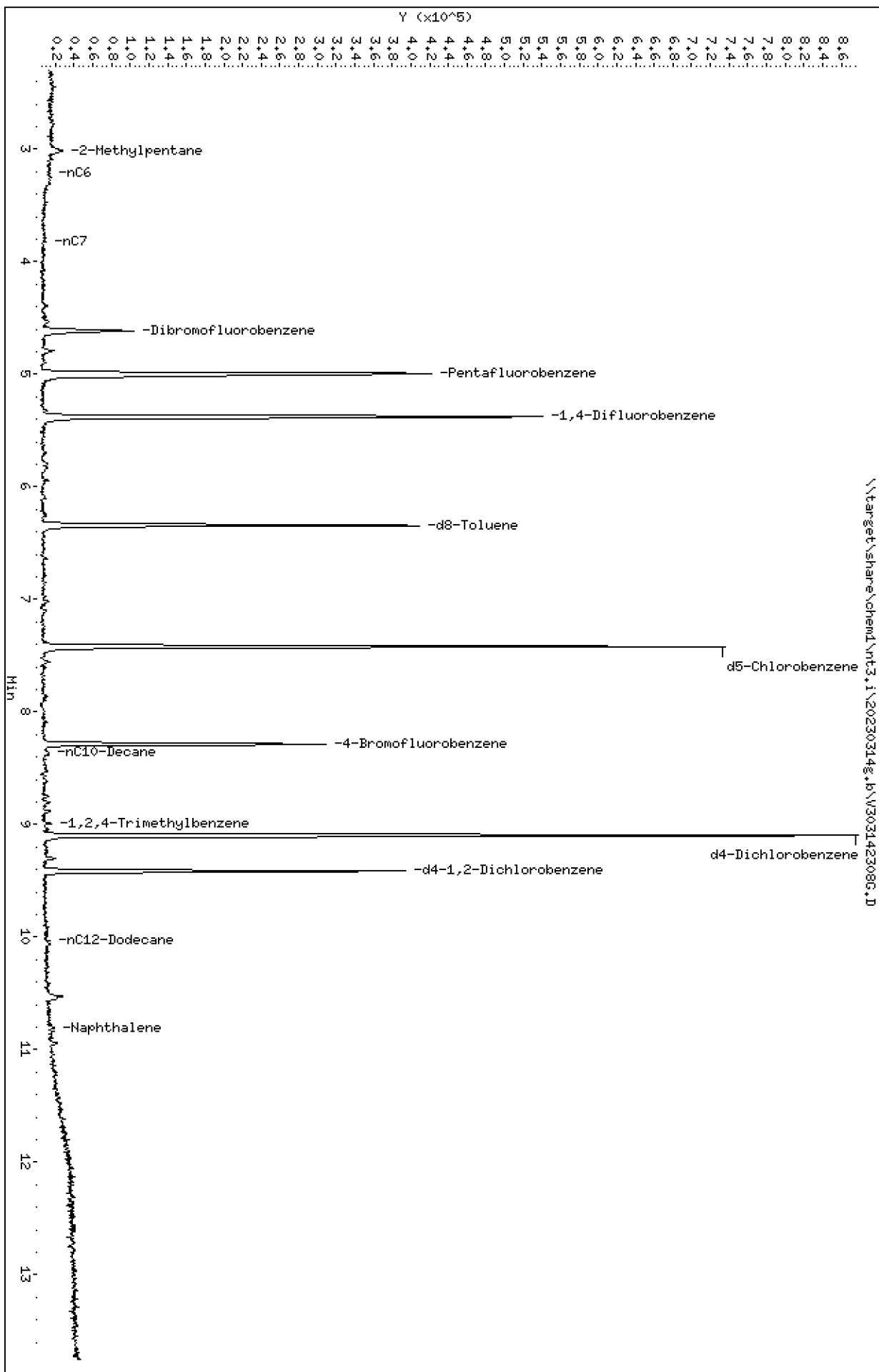
Sample Info: BLC0344-BLK1

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142308G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 11:51

ARI ID: BLC0344-BLK1  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

-----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	279800	0.005
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	575278	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	329842	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	348083	0.006
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	439148	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	984262	d5-Chlorobenzene
6.344	562336	d8-Toluene
9.096	1072055	d4-Dichlorobenzene
8.283	387276	4-Bromofluorobenzene
9.415	516982	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
---	--	---------------------------------------

**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0344 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0344-BS1)</b>					Prepared: 14-Mar-2023	Analyzed: 14-Mar-2023 09:58				
Gasoline Range Organics (Tol-Nap)	970	100	ug/L	1000		97.0	72-128			
Surrogate: Toluene-d8	4.97		ug/L	5.00		99.3	80-120			
Surrogate: 4-Bromofluorobenzene	4.83		ug/L	5.00		96.7	80-120			

Data File: \\target\share\chemd\nt3.1\20230314s.1b\202303142303GLCS.D

Date : 14-MAR-2023 09:58

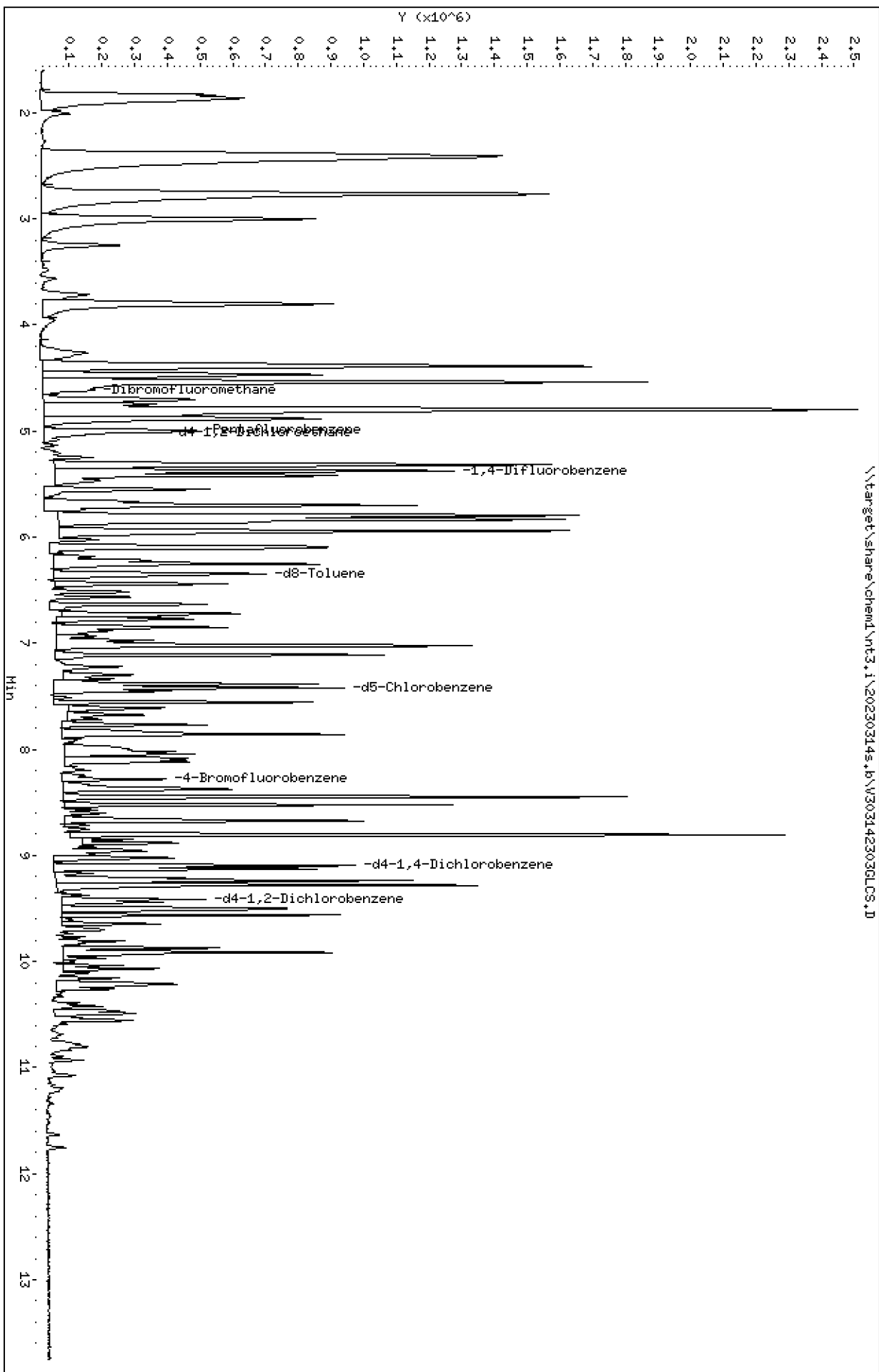
Client ID:

Sample Info: BLC0344-BS1

Page 1

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142303GLCS.D  
 Lab Smp Id: BLC0344-BS1  
 Inj Date : 14-MAR-2023 09:58  
 Operator : PKC  
 Smp Info : BLC0344-BS1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	57121	5.08441	5.084
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	259039	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	39605	6.59194	6.592 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	398247	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	225594	4.96522	4.965
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	363238	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	77911	4.83497	4.835
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	207055	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	93084	4.97960	4.980

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142303GLCS.D Calibration Time: 10:21  
 Lab Smp Id: BLC0344-BS1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	259039	0.74
37 1,4-Difluorobenze	368342	184171	736684	398247	8.12
53 d5-Chlorobenzene	357223	178612	714446	363238	1.68
76 d4-1,4-Dichlorobe	205758	102879	411516	207055	0.63

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLC0344-BS1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.084	101.69	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.592	131.84*	80-128
\$ 43 d8-Toluene	5.000	4.965	99.30	80-120
\$ 62 4-Bromofluorobenze	5.000	4.835	96.70	80-120
\$ 79 d4-1,2-Dichloroben	5.000	4.980	99.59	80-120

REVIEW SUMMARY FOR FILE - V303142303GLCS.D

Lab ID: BLC0344-BS1

nt3.i, 20230314s.b\8260D030923.m,

14-MAR-2023 09:58

RT

CO-ELUTION COMPOUNDS

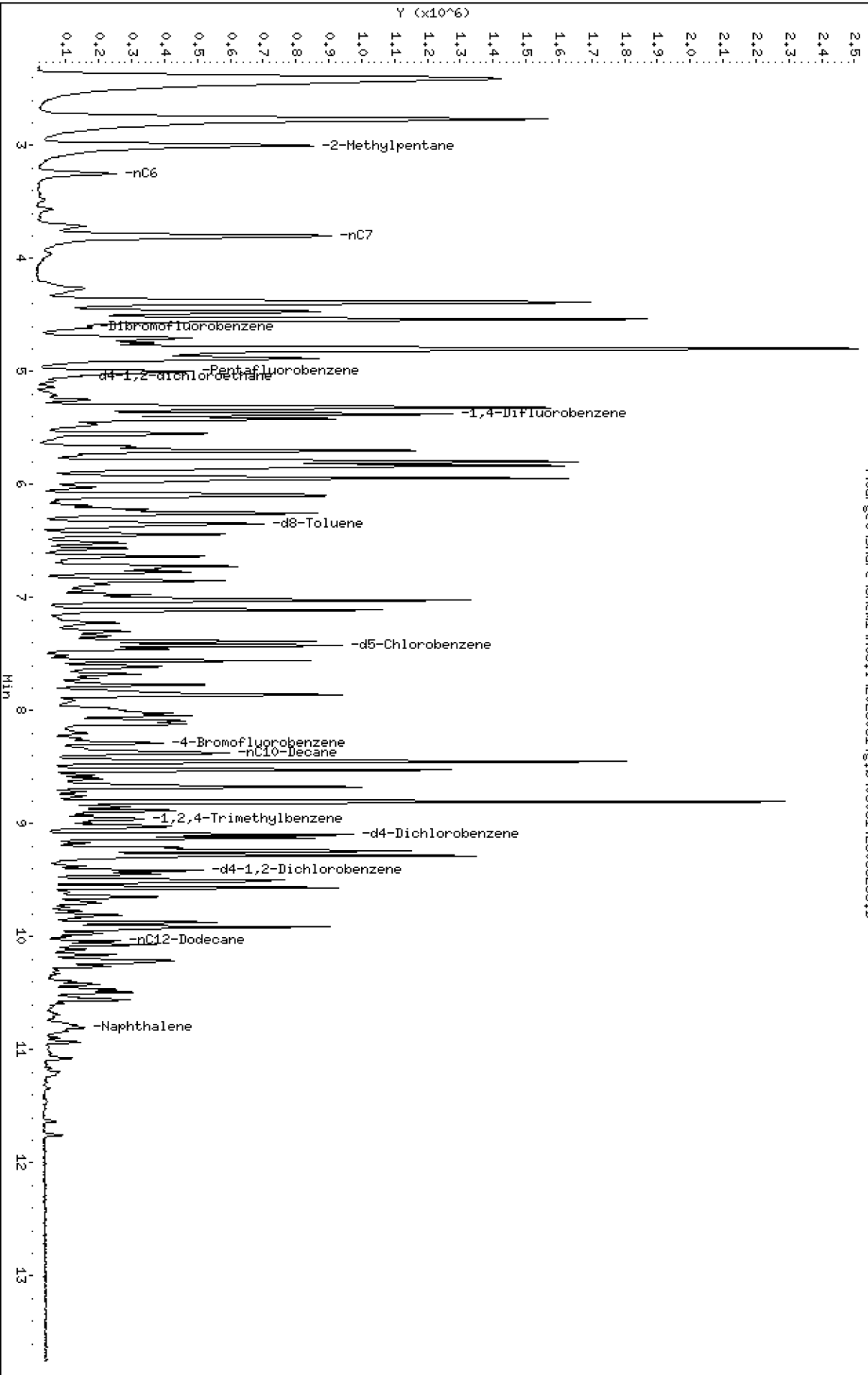
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Data File: \\target\share\chemd\nt3.1\20230314g.jb\202303142303GLCS.D  
Date: 14-MAR-2023 09:58  
Client ID:  
Sample Info: BLC0344-B51

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chemd\nt3.1\20230314g.jb\202303142303GLCS.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142303GLCS.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 09:58

ARI ID: BLC0344-BS1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

-----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	55024155	0.973
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	92974020	0.936 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	75425653	0.926 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	59639642	0.970
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	104061094	0.948 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

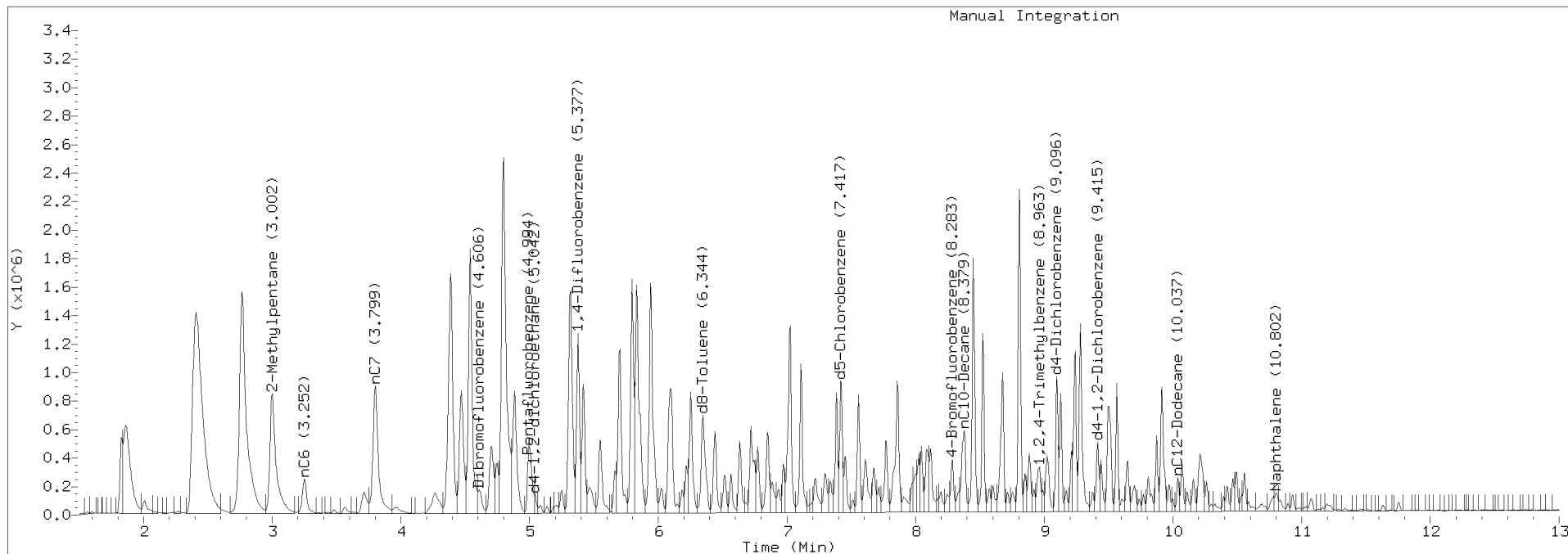
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7.417	1401867	d5-Chlorobenzene
6.344	1631004	d8-Toluene
9.096	1234039	d4-Dichlorobenzene
8.283	615169	4-Bromofluorobenzene
9.415	746580	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230314g.b/V303142303GLCS.D Injection: 14-MAR-2023 09:58

Lab ID: BLC0344-BS1





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0344 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0344-BSD1)</b>				Prepared: 14-Mar-2023 Analyzed: 14-Mar-2023 10:43						
Gasoline Range Organics (Tol-Nap)	864	100	ug/L	1000		86.4	72-128	11.60	30	
Surrogate: Toluene-d8	5.01		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.05		ug/L	5.00		101	80-120			

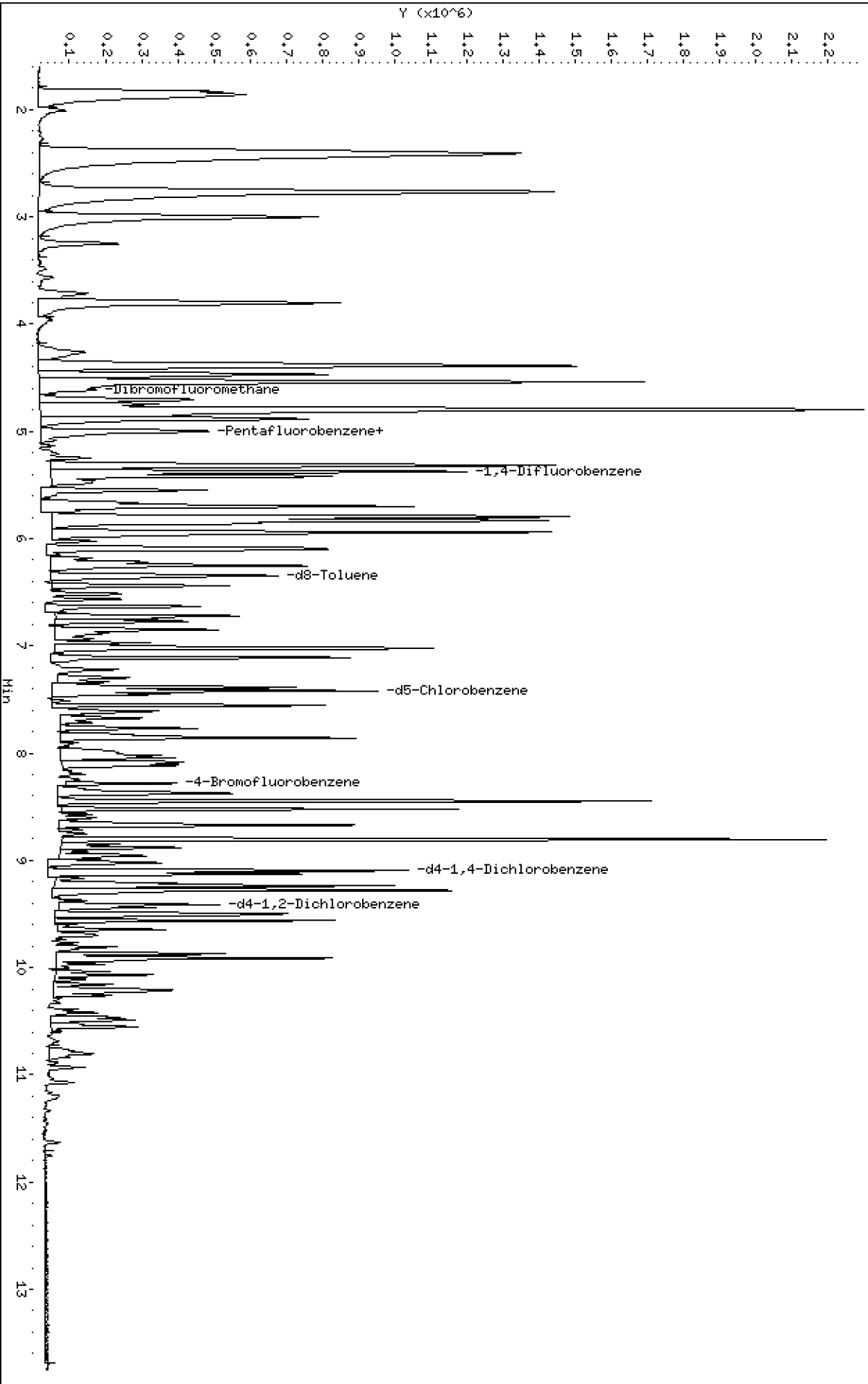


Data File: \\target\share\chend\nt3.1\20230314s.16\303142305G.D  
Date : 14-MAR-2023 10:43  
Client ID:  
Sample Info: BLC0344-BSM1

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3.1\20230314s.16\303142305G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142305G.D  
 Lab Smp Id: BLC0344-BSD1  
 Inj Date : 14-MAR-2023 10:43  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : BLC0344-BSD1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	56686	4.97871	4.979
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	262524	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	39235	6.44366	6.444 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	401650	10.0000	
\$ 43 d8-Toluene	98		6.338	6.343	(1.179)	229573	5.00998	5.010
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	365018	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.283	8.287	(1.116)	81709	5.04594	5.046
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	217747	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	98760	5.02382	5.024

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142305G.D Calibration Time: 10:21  
 Lab Smp Id: BLC0344-BSD1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	262524	2.10
37 1,4-Difluorobenze	368342	184171	736684	401650	9.04
53 d5-Chlorobenzene	357223	178612	714446	365018	2.18
76 d4-1,4-Dichlorobe	205758	102879	411516	217747	5.83

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLC0344-BSD1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.979	99.57	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.444	128.87*	80-128
\$ 43 d8-Toluene	5.000	5.010	100.20	80-120
\$ 62 4-Bromofluorobenze	5.000	5.046	100.92	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.024	100.48	80-120

REVIEW SUMMARY FOR FILE - V303142305G.D

Lab ID: BLC0344-BSD1

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 10:43

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.1b\202303142305G.D

Date: 14-MAR-2023 10:43

Client ID:

Sample Info: BLC0344-BSM1

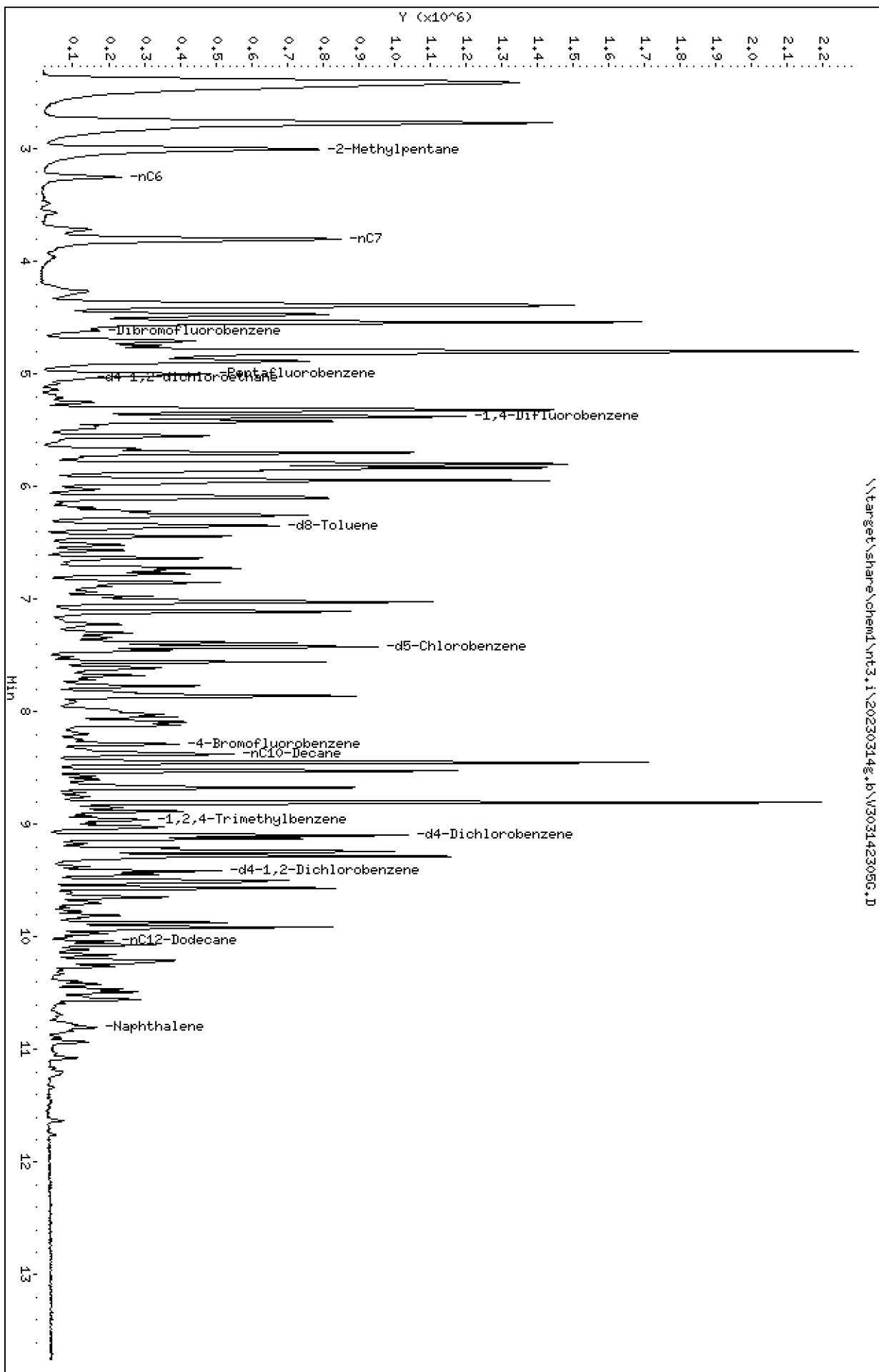
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230314g.1b\202303142305G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142305G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 10:43

ARI ID: BLC0344-BSD1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

-----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	48811299	0.863
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	83066515	0.836 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	67438252	0.828 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	53104836	0.864
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	93054130	0.848 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

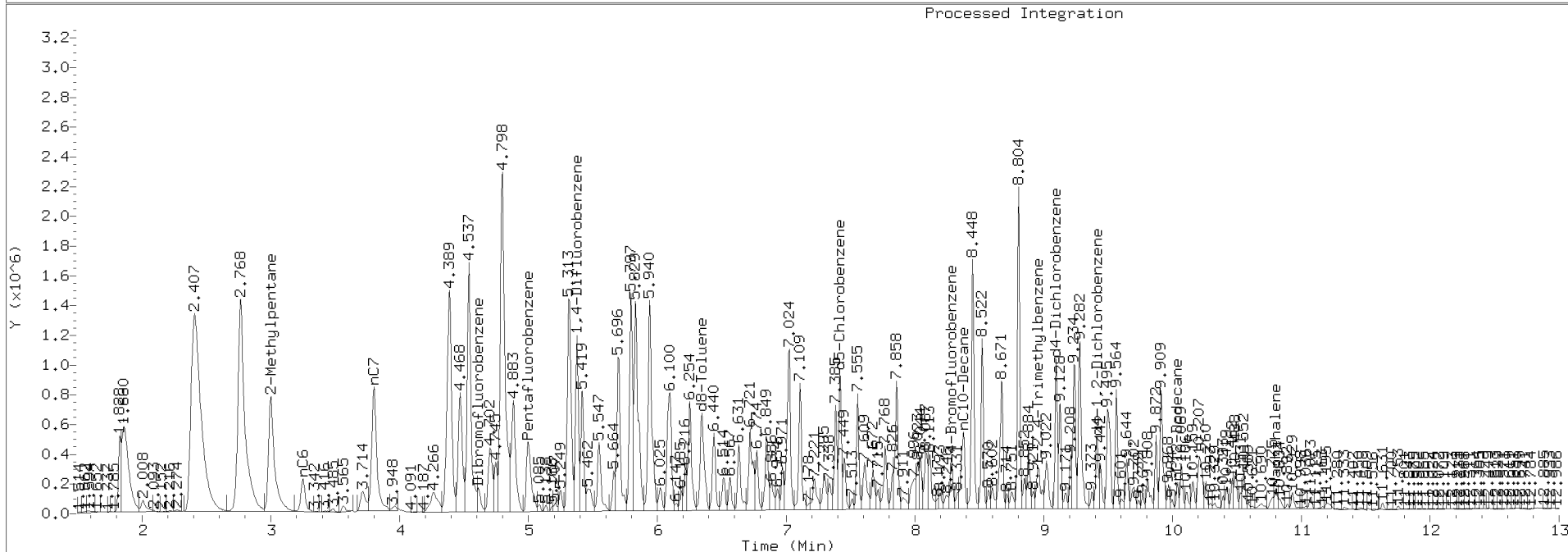
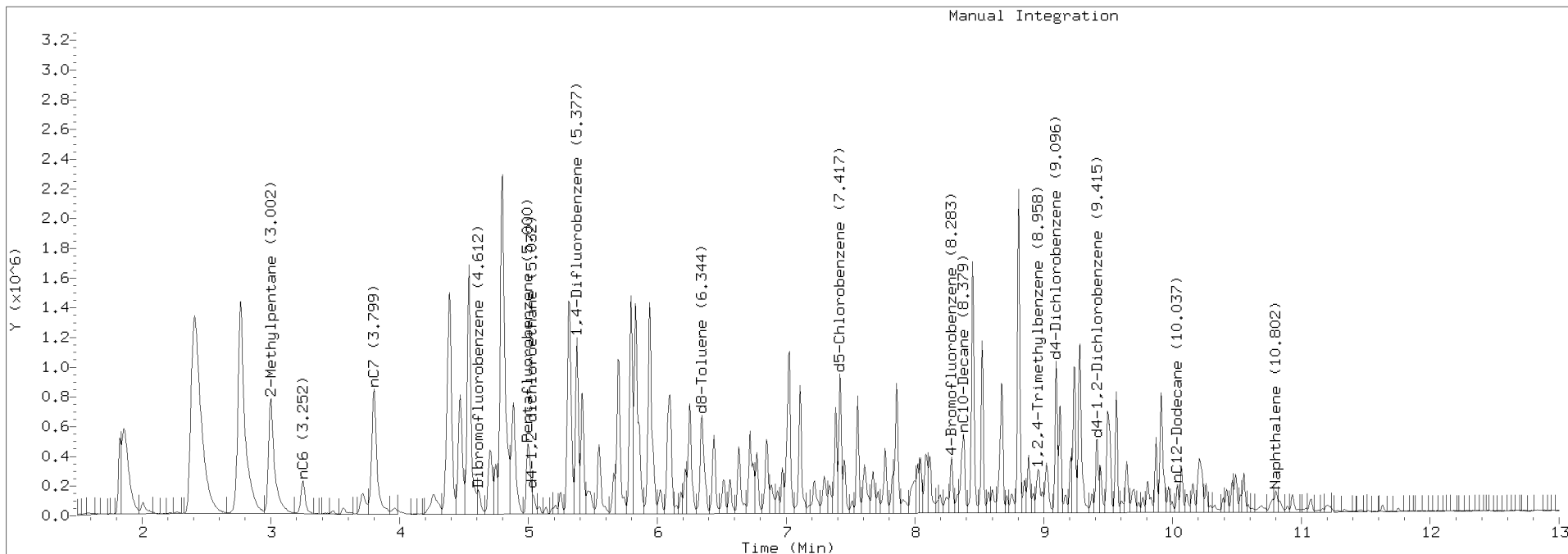
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7.417	1366566	d5-Chlorobenzene
6.344	1539709	d8-Toluene
9.096	1295522	d4-Dichlorobenzene
8.283	598237	4-Bromofluorobenzene
9.415	759931	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230314g.b/V303142305G.D Injection: 14-MAR-2023 10:43

Lab ID: BLC0344-BSDI







Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BLC0254 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0254-BLK1)</b>					Prepared: 13-Mar-2023 Analyzed: 15-Mar-2023 23:14						
Naphthalene	ND	0.3	1.0	ug/L							U
Acenaphthylene	ND	0.2	1.0	ug/L							U
Acenaphthene	ND	0.2	1.0	ug/L							U
2-Methylnaphthalene	ND	0.2	1.0	ug/L							U
Dibenzofuran	ND	0.2	1.0	ug/L							U
Fluorene	ND	0.2	1.0	ug/L							U
Pentachlorophenol	ND	1.2	10.0	ug/L							U
Phenanthrene	ND	0.2	1.0	ug/L							U
Anthracene	ND	0.3	1.0	ug/L							U
Carbazole	ND	0.3	1.0	ug/L							U
Fluoranthene	ND	0.2	1.0	ug/L							U
Pyrene	ND	0.3	1.0	ug/L							U
Benzo(a)anthracene	ND	0.2	1.0	ug/L							U
Chrysene	ND	0.2	1.0	ug/L							U
Benzo(a)pyrene	ND	0.2	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.5	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	0.5	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	0.5	1.0	ug/L							U
1-Methylnaphthalene	ND	0.3	1.0	ug/L							U
Surrogate: 2-Fluorobiphenyl	21.7			ug/L	25.0		86.7	54.4-120			
Surrogate: 2,4,6-Tribromophenol	40.9			ug/L	37.5		109	49.3-128			
Surrogate: p-Terphenyl-d14	22.3			ug/L	25.0		89.2	60-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC  
Semivolatile Organic Compounds - Quality Control

Batch BLC0254 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0254-BS1)</b>						Prepared: 13-Mar-2023 Analyzed: 15-Mar-2023 23:47					
Naphthalene	17.9	0.3	1.0	ug/L	25.0		71.5	51.9-120			
Acenaphthylene	20.4	0.2	1.0	ug/L	25.0		81.7	56.5-120			
Acenaphthene	20.3	0.2	1.0	ug/L	25.0		81.3	60.9-120			
2-Methylnaphthalene	19.4	0.2	1.0	ug/L	25.0		77.8	56.5-120			
Dibenzofuran	22.3	0.2	1.0	ug/L	25.0		89.3	61.9-120			
Fluorene	22.7	0.2	1.0	ug/L	25.0		90.9	62.3-120			
Pentachlorophenol	52.8	1.2	10.0	ug/L	65.0		81.2	40.7-124			
Phenanthrene	21.8	0.2	1.0	ug/L	25.0		87.1	61-120			
Anthracene	19.7	0.3	1.0	ug/L	25.0		78.8	64.6-120			
Carbazole	23.6	0.3	1.0	ug/L	25.0		94.5	42-177			
Fluoranthene	23.7	0.2	1.0	ug/L	25.0		94.8	67.9-120			
Pyrene	20.4	0.3	1.0	ug/L	25.0		81.5	69-135			
Benzo(a)anthracene	21.7	0.2	1.0	ug/L	25.0		86.8	65-133			
Chrysene	21.5	0.2	1.0	ug/L	25.0		85.9	61.5-120			
Benzo(a)pyrene	22.4	0.2	1.0	ug/L	25.0		89.8	74-121			
Indeno(1,2,3-cd)pyrene	20.1	0.5	1.0	ug/L	25.0		80.3	40-147			
Dibenzo(a,h)anthracene	20.4	0.5	1.0	ug/L	25.0		81.4	37-148			
Benzo(g,h,i)perylene	18.4	0.5	1.0	ug/L	25.0		73.6	42-168			
1-Methylnaphthalene	20.7	0.3	1.0	ug/L	25.0		82.6	54.4-120			
Surrogate: 2-Fluorobiphenyl	22.5			ug/L	25.0		90.2	54.4-120			
Surrogate: 2,4,6-Tribromophenol	43.1			ug/L	37.5		115	49.3-128			
Surrogate: p-Terphenyl-d14	22.1			ug/L	25.0		88.2	60-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC  
Semivolatile Organic Compounds - Quality Control

Batch BLC0254 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0254-BSD1)</b>						Prepared: 13-Mar-2023 Analyzed: 16-Mar-2023 00:20					
Naphthalene	18.4	0.3	1.0	ug/L	25.0		73.6	51.9-120	2.87	30	
Acenaphthylene	21.0	0.2	1.0	ug/L	25.0		84.1	56.5-120	2.93	30	
Acenaphthene	20.9	0.2	1.0	ug/L	25.0		83.6	60.9-120	2.75	30	
2-Methylnaphthalene	19.7	0.2	1.0	ug/L	25.0		78.8	56.5-120	1.28	30	
Dibenzofuran	22.7	0.2	1.0	ug/L	25.0		91.0	61.9-120	1.83	30	
Fluorene	23.5	0.2	1.0	ug/L	25.0		94.0	62.3-120	3.35	30	
Pentachlorophenol	51.4	1.2	10.0	ug/L	65.0		79.1	40.7-124	2.55	30	
Phenanthrene	22.1	0.2	1.0	ug/L	25.0		88.3	61-120	1.32	30	
Anthracene	19.9	0.3	1.0	ug/L	25.0		79.5	64.6-120	0.88	30	
Carbazole	23.7	0.3	1.0	ug/L	25.0		95.0	42-177	0.45	30	
Fluoranthene	24.1	0.2	1.0	ug/L	25.0		96.5	67.9-120	1.76	30	
Pyrene	21.1	0.3	1.0	ug/L	25.0		84.5	69-135	3.62	30	
Benzo(a)anthracene	22.3	0.2	1.0	ug/L	25.0		89.3	65-133	2.81	30	
Chrysene	22.0	0.2	1.0	ug/L	25.0		88.2	61.5-120	2.67	30	
Benzo(a)pyrene	23.6	0.2	1.0	ug/L	25.0		94.3	74-121	4.96	30	
Indeno(1,2,3-cd)pyrene	20.8	0.5	1.0	ug/L	25.0		83.2	40-147	3.57	30	
Dibenzo(a,h)anthracene	20.7	0.5	1.0	ug/L	25.0		82.8	37-148	1.71	30	
Benzo(g,h,i)perylene	18.8	0.5	1.0	ug/L	25.0		75.0	42-168	1.91	30	
1-Methylnaphthalene	21.4	0.3	1.0	ug/L	25.0		85.7	54.4-120	3.71	30	
Surrogate: 2-Fluorobiphenyl	22.3			ug/L	25.0		89.3	54.4-120			
Surrogate: 2,4,6-Tribromophenol	43.6			ug/L	37.5		116	49.3-128			
Surrogate: p-Terphenyl-d14	22.2			ug/L	25.0		88.8	60-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BLC0257 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0257-BLK1)</b>				Prepared: 13-Mar-2023 Analyzed: 17-Mar-2023 14:26						
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	2.80		ug/L	3.00		93.3	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.91		ug/L	3.00		97.1	10-125			
Surrogate: Fluoranthene-d10	3.10		ug/L	3.00		103	46-121			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BLC0257 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0257-BS1)</b>				Prepared: 13-Mar-2023 Analyzed: 17-Mar-2023 14:53						
Benzo(a)anthracene	2.24	0.10	ug/L	3.00		74.7	37-120			
Chrysene	2.20	0.10	ug/L	3.00		73.4	48-120			
Benzo(a)fluoranthene, Total	9.25	0.20	ug/L	9.00		103	46-120			
Benzo(a)pyrene	2.02	0.10	ug/L	3.00		67.4	25-120			
Indeno(1,2,3-cd)pyrene	2.62	0.10	ug/L	3.00		87.4	32-120			
Dibenzo(a,h)anthracene	2.90	0.10	ug/L	3.00		96.7	21-120			
Surrogate: 2-Methylnaphthalene-d10	2.65		ug/L	3.00		88.3	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	4.62		ug/L	3.00		154	10-125			*
Surrogate: Fluoranthene-d10	3.23		ug/L	3.00		108	46-121			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BLC0257 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0257-BSD1)</b>				Prepared: 13-Mar-2023 Analyzed: 17-Mar-2023 15:20						
Benzo(a)anthracene	2.09	0.10	ug/L	3.00		69.7	37-120	6.92	30	
Chrysene	2.22	0.10	ug/L	3.00		73.9	48-120	0.60	30	
Benzo(a)fluoranthene, Total	9.37	0.20	ug/L	9.00		104	46-120	1.36	30	
Benzo(a)pyrene	1.87	0.10	ug/L	3.00		62.4	25-120	7.70	30	
Indeno(1,2,3-cd)pyrene	2.65	0.10	ug/L	3.00		88.2	32-120	0.92	30	
Dibenzo(a,h)anthracene	2.99	0.10	ug/L	3.00		99.7	21-120	3.06	30	
Surrogate: 2-Methylnaphthalene-d10	2.68		ug/L	3.00		89.4	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	4.45		ug/L	3.00		148	10-125			*
Surrogate: Fluoranthene-d10	3.11		ug/L	3.00		104	46-121			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**

**Analysis by: Analytical Resources, LLC**

**Petroleum Hydrocarbons - Quality Control**

**Batch BLC0255 - EPA 3510C SepF**

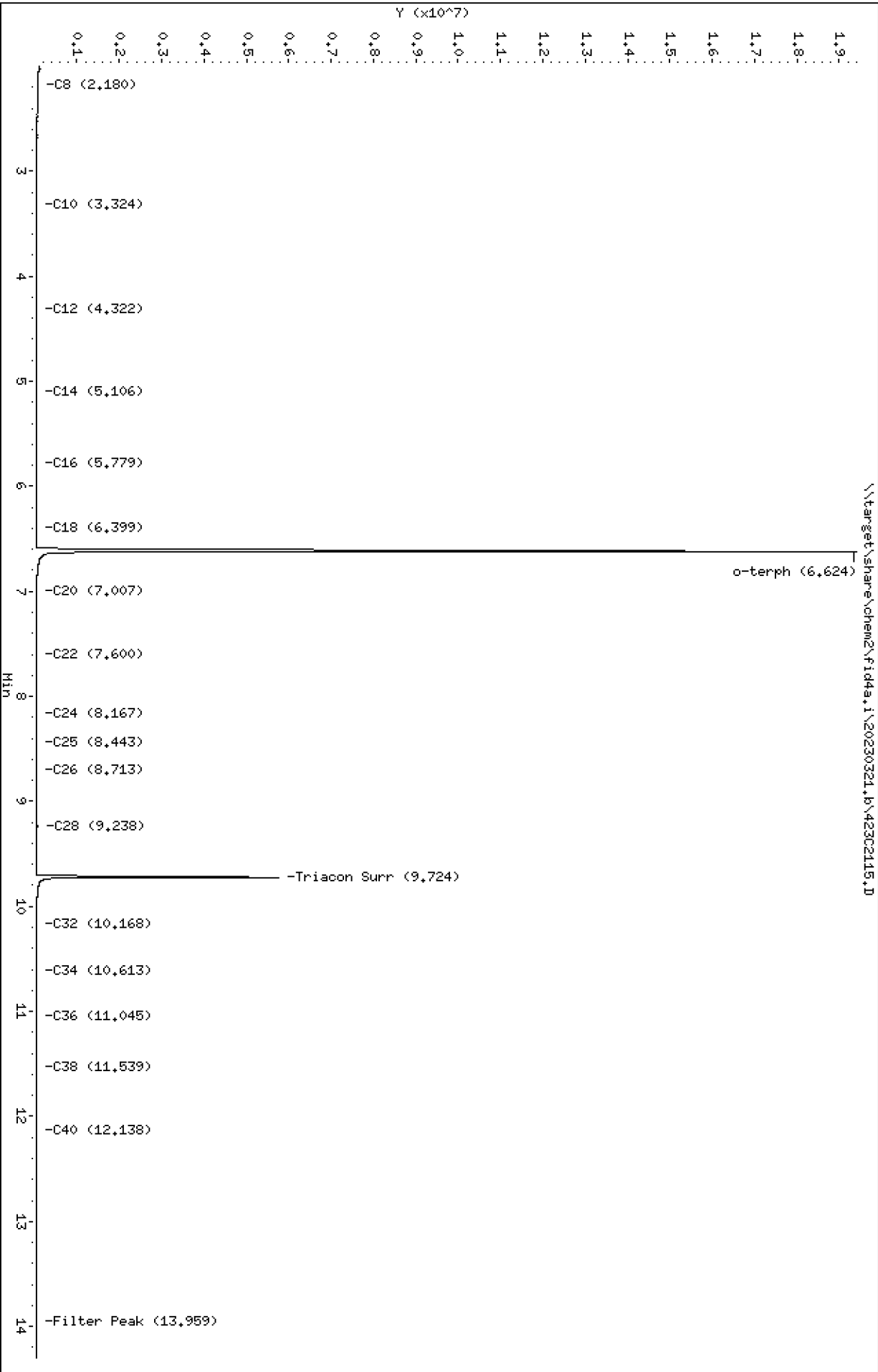
Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0255-BLK1)</b>				Prepared: 13-Mar-2023 Analyzed: 21-Mar-2023 15:08						
Diesel Range Organics (C12-C24)	ND	100	ug/L							U
Motor Oil Range Organics (C24-C38)	ND	200	ug/L							U
Creosote Range Organics (C12-C22)	ND	200	ug/L							U
Surrogate: o-Terphenyl	228		ug/L	225		101	50-150			

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302115.D  
Date: 21-MAR-2023 15:08  
Client ID:  
Sample Info: BLC0255-BLK1

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2115.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: BLC0255-BLK1  
Client ID:  
Injection: 21-MAR-2023 15:08  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

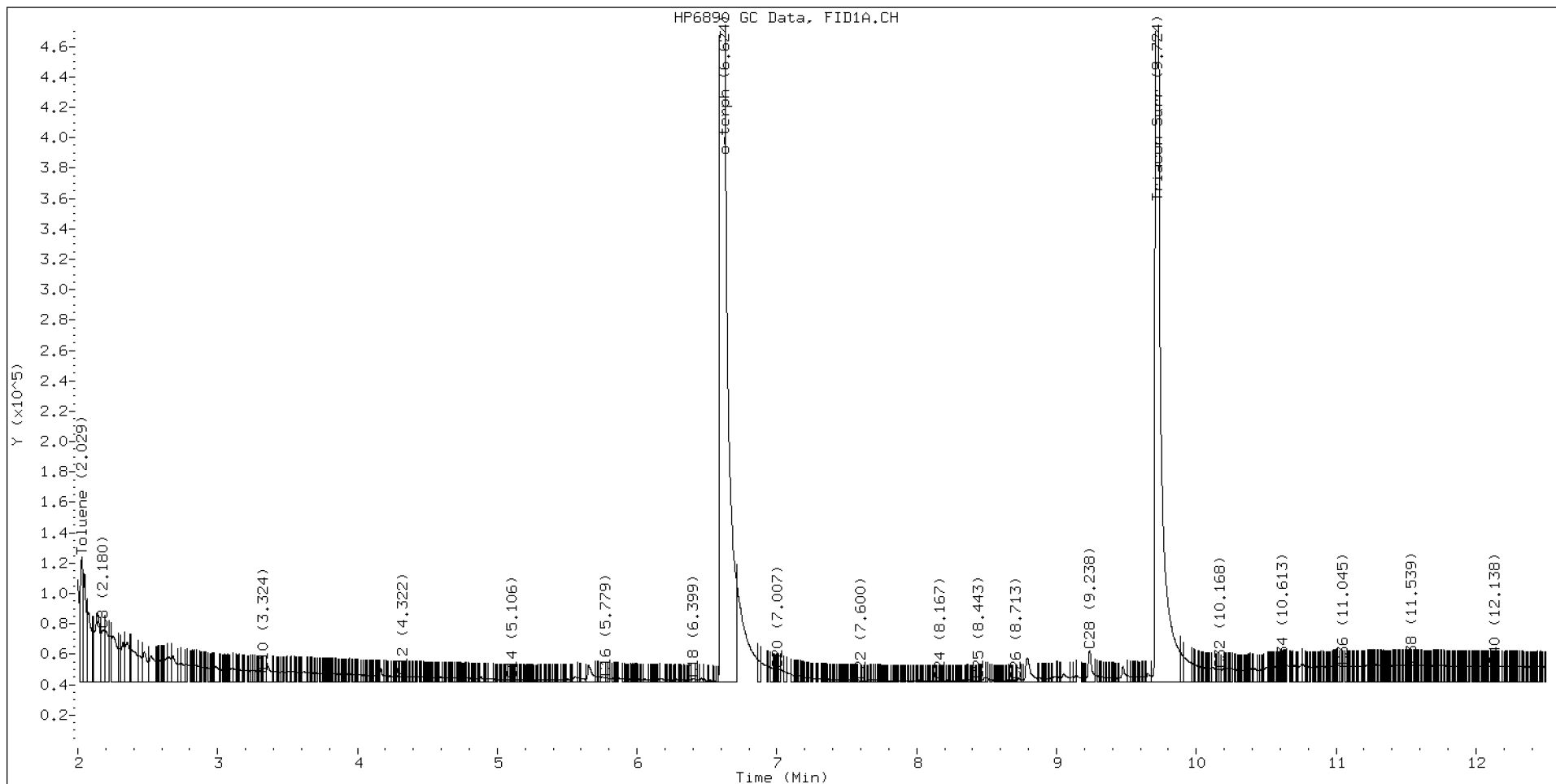
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.180	0.005	34419	56478	WATPHD	(C12-C24)	375459	2.4
C10	3.324	-0.001	6880	3766	WATPHM	(C24-C38)	1152046	8.7
C12	4.322	0.001	3532	1751	AK102	(C10-C25)	681234	3.6
C14	5.106	0.001	1265	971	AK103	(C25-C36)	854606	8.6
C16	5.779	-0.001	2673	2024	OR.DIES	(C10-C28)	831057	4.4
C18	6.399	-0.005	1981	3194				
C20	7.007	0.002	8121	2016	JET-A	(C10-C18)	523952	3.0
C22	7.600	0.005	798	119				
C24	8.167	0.000	787	258				
C25	8.443	0.000	1036	341				
C26	8.713	-0.001	825	240				
C28	9.238	0.007	20749	37363				
C32	10.168	-0.015	7957	7080				
C34	10.613	-0.004	10527	3633				
Filter Peak	13.959	-0.004	9306	6019	CREOSOT	(C12-C22)	351833	13.3
C36	11.045	-0.005	10184	4549				
C38	11.539	-0.002	10773	4287				
C40	12.138	0.000	10118	2521				
o-terph	6.624	0.002	19368715	23239226				
Triacon Surr	9.724	-0.025	5715855	5635504	NAS DIES	(C10-C24)	674101	3.6

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23239226	114.1
Triacontane	5635504	25.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BLC0255 - EPA 3510C SepF**

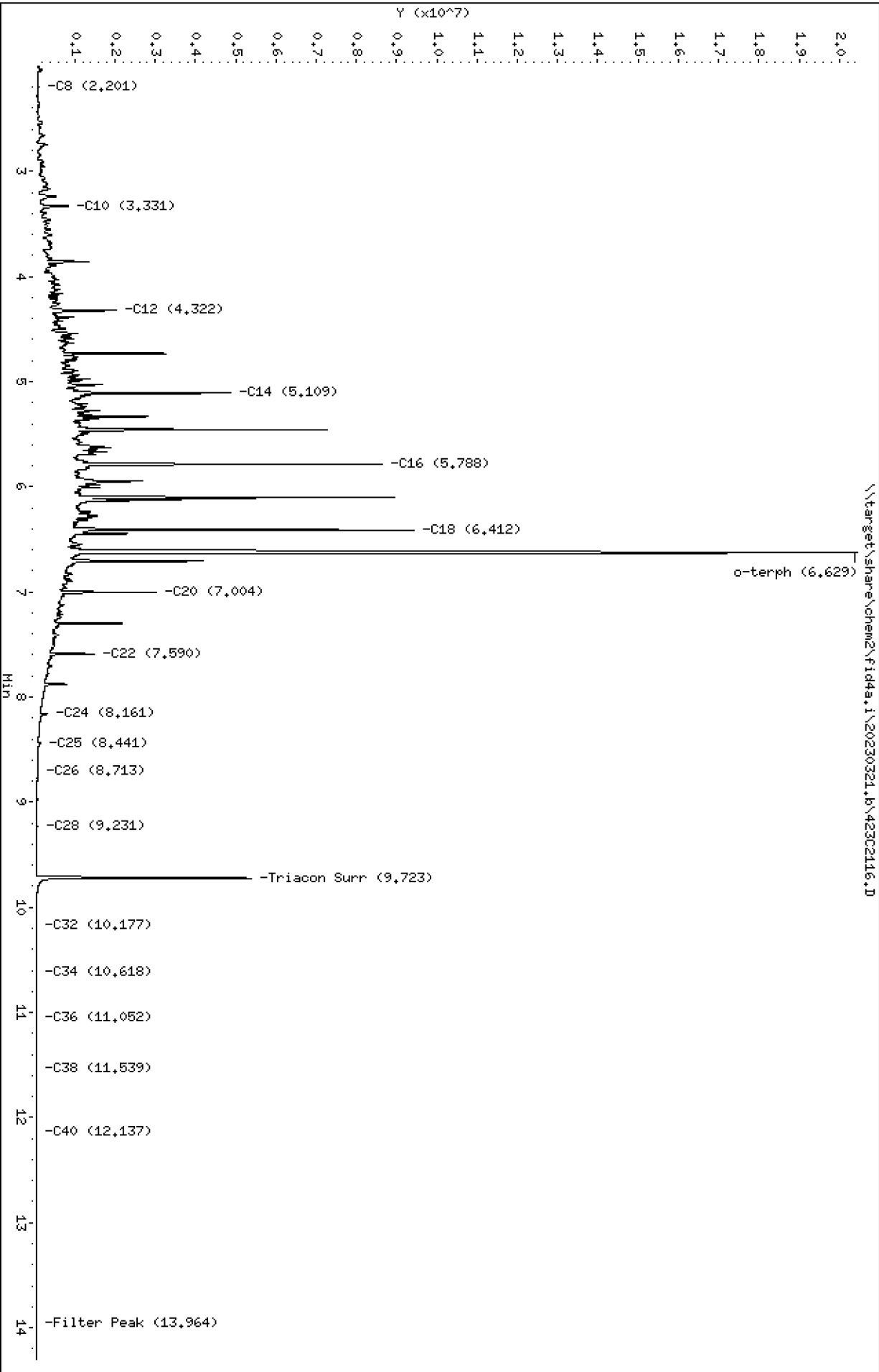
Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0255-BS1)</b>					Prepared: 13-Mar-2023 Analyzed: 21-Mar-2023 15:28					
Diesel Range Organics (C12-C24)	2660	100	ug/L	3000		88.7	56-120			
Surrogate: <i>o</i> -Terphenyl	233		ug/L	225		104	50-150			

Data File: \\target\share\chem2\fid4a,1\20230321.b\42302116.D  
Date: 21-MAR-2023 15:28  
Client ID:  
Sample Info: BLC0255-BS1

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2116.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: BLC0255-BS1  
Client ID:  
Injection: 21-MAR-2023 15:28  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

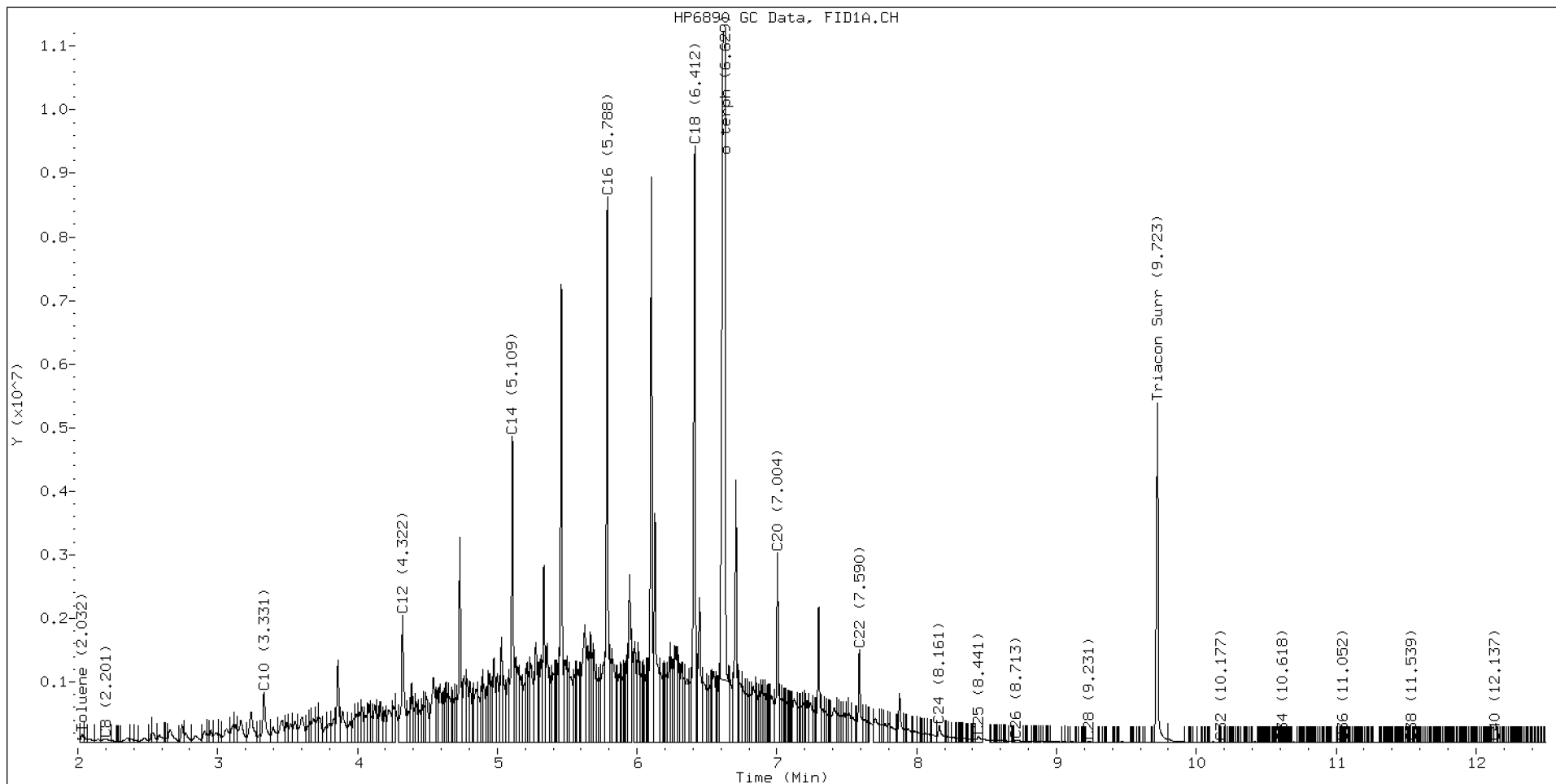
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.201	0.025	52589	177698	WATPHD	(C12-C24)	210969552	1329.9
C10	3.331	0.005	779095	1277086	WATPHM	(C24-C38)	2024466	15.3
C12	4.322	0.002	1995480	2860208	AK102	(C10-C25)	234921878	1242.5
C14	5.109	0.004	4811744	4379935	AK103	(C25-C36)	1291555	13.1
C16	5.788	0.008	8580596	7487256	OR.DIES	(C10-C28)	235828713	1242.9
C18	6.412	0.009	9390810	8791768				
C20	7.004	-0.001	2982746	2986571	JET-A	(C10-C18)	176176913	1017.2
C22	7.590	-0.005	1451301	1645067				
C24	8.161	-0.006	267815	498614				
C25	8.441	-0.002	90376	188111				
C26	8.713	-0.001	34296	103852				
C28	9.231	-0.001	23053	35094				
C32	10.177	-0.006	1686	648				
C34	10.618	0.001	2106	1042				
Filter Peak	13.964	0.001	2299	562	CREOSOT	(C12-C22)	204156044	7699.7
C36	11.052	0.002	3169	625				
C38	11.539	-0.002	3406	2012				
C40	12.137	-0.001	2586	2541				
o-terph	6.629	0.007	19424638	23749661				
Triacon Surr	9.723	-0.026	5347352	4990037	NAS DIES	(C10-C24)	234286189	1241.8

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23749661	116.6 M
Triacontane	4990037	22.9

M Indicates the peak was manually integrated

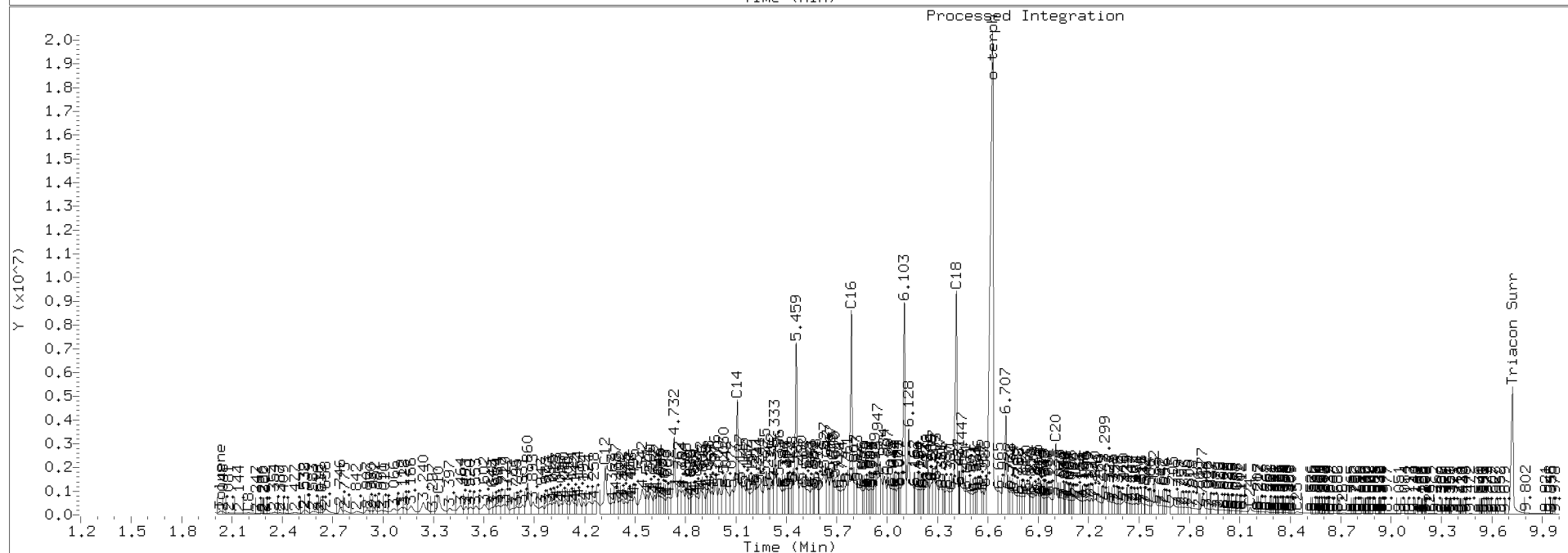
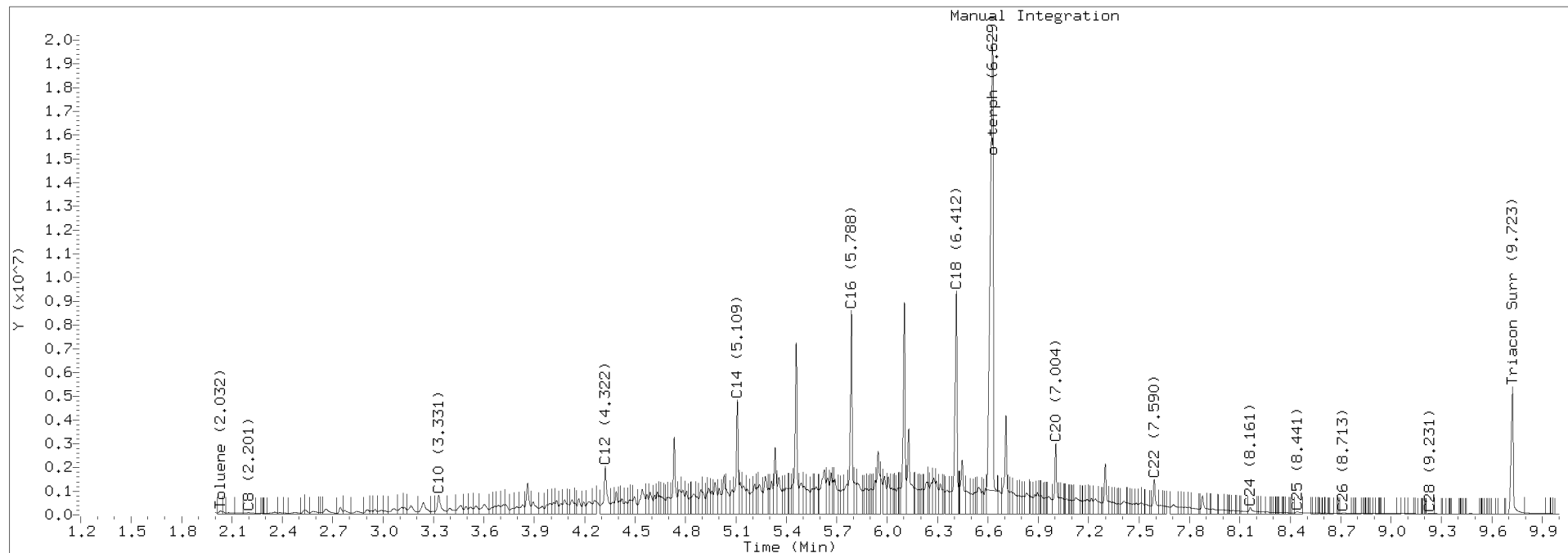
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20230321.b/423C2116.D Injection: 21-MAR-2023 15:28

Lab ID: BLC0255-BS1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BLC0255 - EPA 3510C SepF**

Instrument: FID4

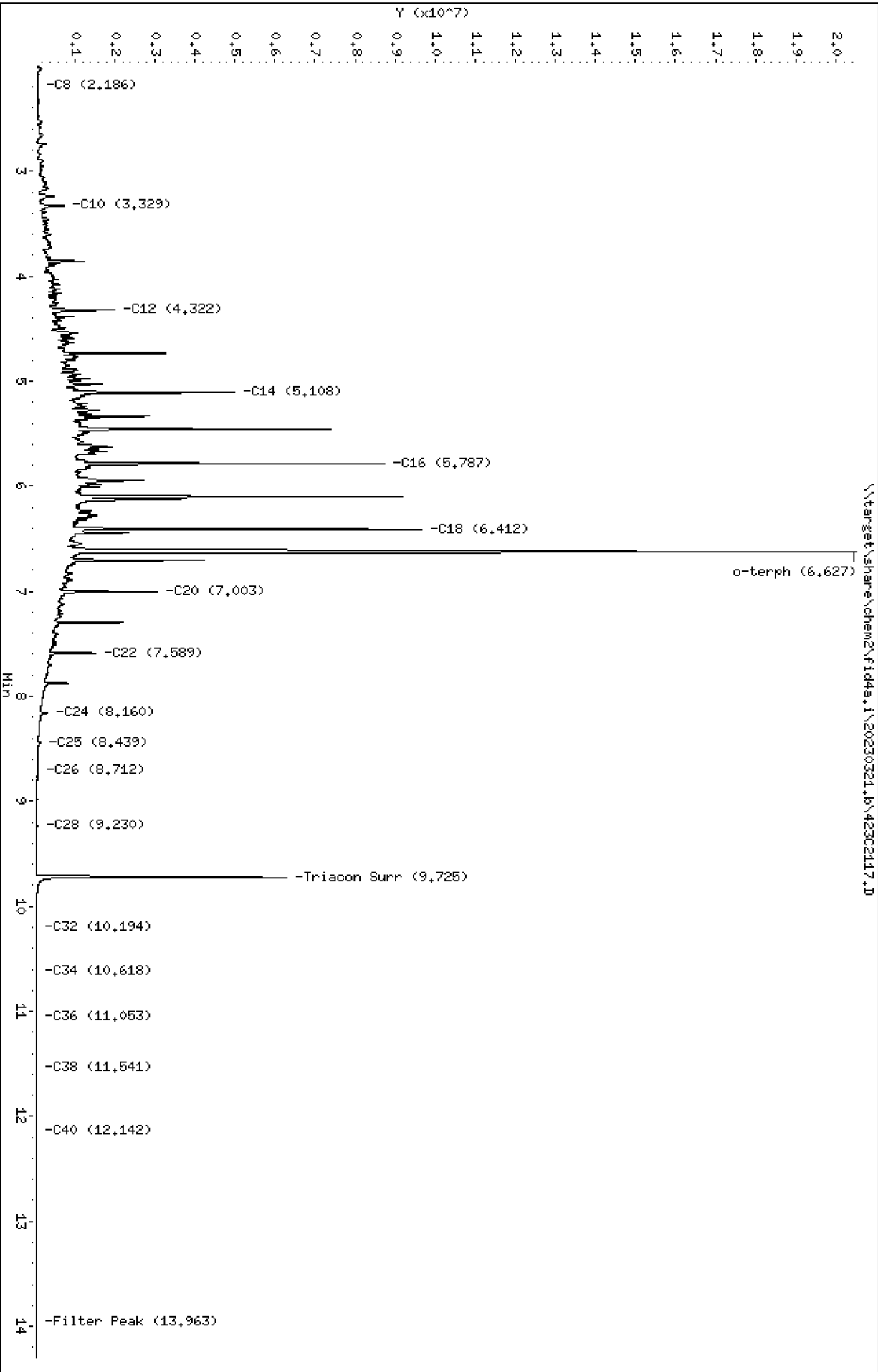
QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0255-BSD1)</b>				Prepared: 13-Mar-2023 Analyzed: 21-Mar-2023 15:48						
Diesel Range Organics (C12-C24)	2670	100	ug/L	3000		89.1	56-120	0.52	30	
Surrogate: <i>o</i> -Terphenyl	235		ug/L	225		104	50-150			



Data File: \\target\share\chem2\fid4a,1\20230321.b\42302117.D  
Date: 21-MAR-2023 15:48  
Client ID:  
Sample Info: BLC0265-BSM1

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2117.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: BLC0255-BSD1  
Client ID:  
Injection: 21-MAR-2023 15:48  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

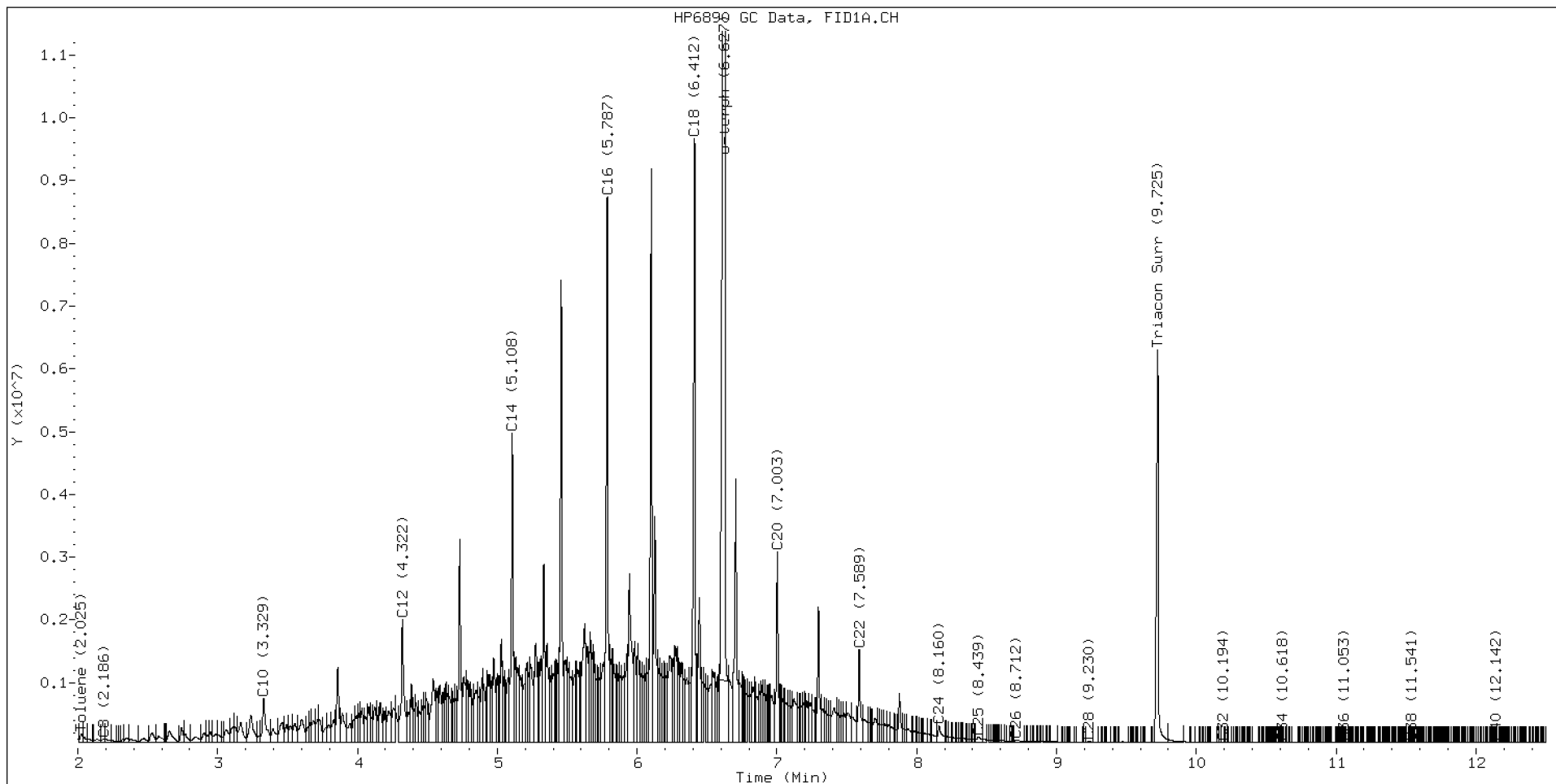
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.186	0.010	48231	76979	WATPHD	(C12-C24)	212059909	1336.8
C10	3.329	0.004	696273	1225716	WATPHM	(C24-C38)	2004756	15.1
C12	4.322	0.001	1965877	2836447	AK102	(C10-C25)	235078223	1243.3
C14	5.108	0.004	4933929	4422800	AK103	(C25-C36)	1340046	13.5
C16	5.787	0.007	8692312	7570223	OR.DIES	(C10-C28)	236085202	1244.2
C18	6.412	0.008	9619689	8937298				
C20	7.003	-0.001	3037852	2891963	JET-A	(C10-C18)	177504348	1024.9
C22	7.589	-0.006	1485306	1631040				
C24	8.160	-0.006	273795	525653				
C25	8.439	-0.004	89597	182896				
C26	8.712	-0.002	34596	110133				
C28	9.230	-0.001	24064	36939				
C32	10.194	0.011	2963	2428				
C34	10.618	0.001	1549	894				
Filter Peak	13.963	0.000	612	202	CREOSOT	(C12-C22)	205134074	7736.6
C36	11.053	0.004	2138	423				
C38	11.541	-0.001	2184	869				
C40	12.142	0.004	1139	447				
o-terph	6.627	0.005	19483831	23877380				
Triacon Surr	9.725	-0.024	6247279	6038411	NAS DIES	(C10-C24)	234475534	1242.8

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23877380	117.3 M
Triacontane	6038411	27.7

M Indicates the peak was manually integrated

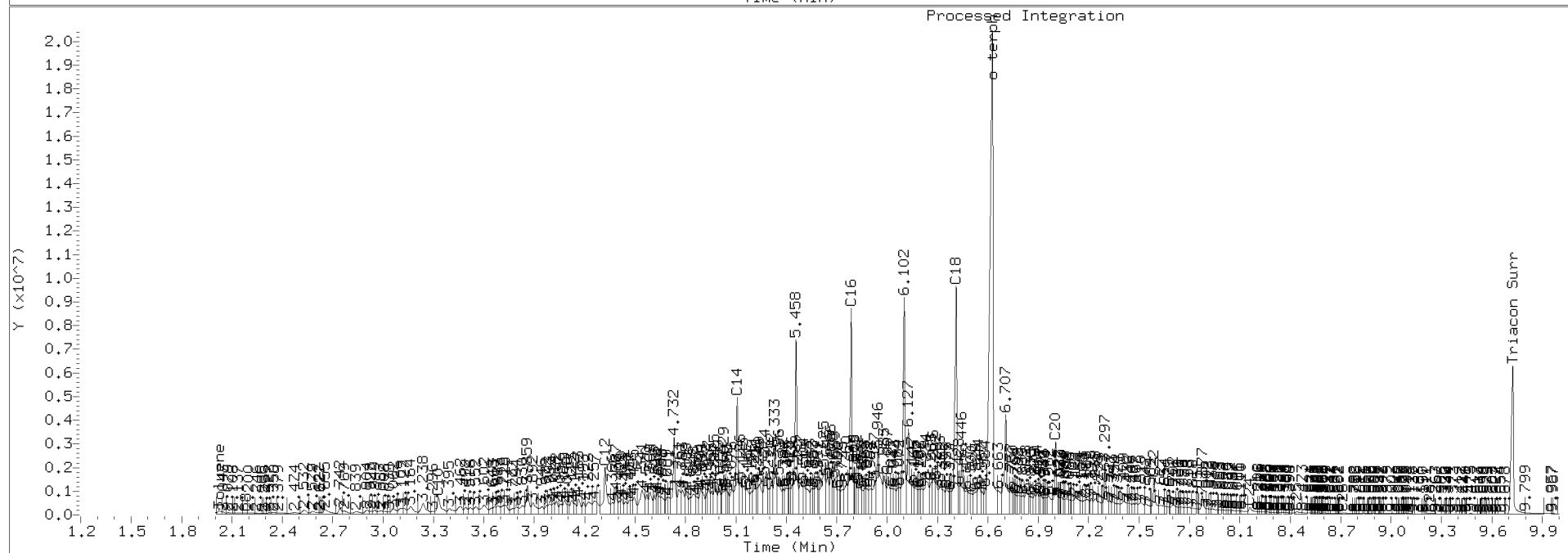
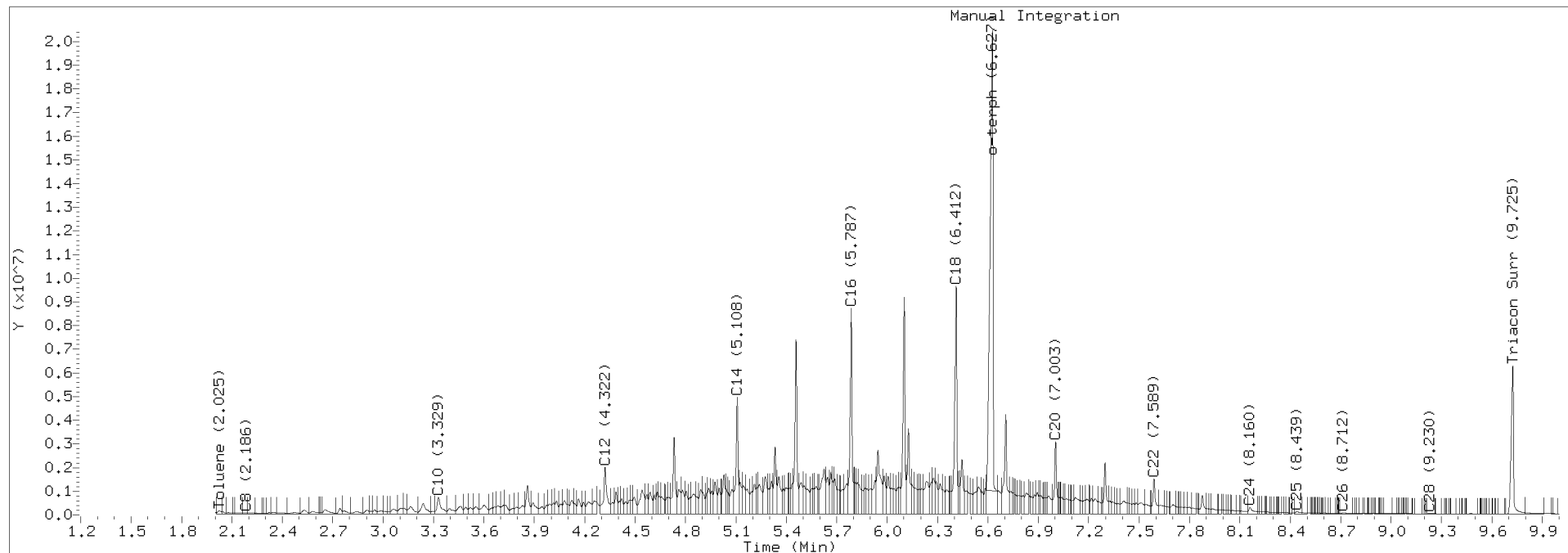
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20230321.b/423C2117.D Injection: 21-MAR-2023 15:48

Lab ID: BLC0255-BS01





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**

**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BLC0256 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0256-BLK1)</b>				Prepared: 13-Mar-2023 Analyzed: 22-Mar-2023 13:39						
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol	2.07		ug/L	2.50		82.7	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.98		ug/L	2.50		79.3	26-120			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BLC0256 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0256-BS1)</b>					Prepared: 13-Mar-2023 Analyzed: 22-Mar-2023 13:57					
Pentachlorophenol	1.68	0.25	ug/L	2.50		67.2	48-120			
Surrogate: 2,4,6-Tribromophenol	1.98		ug/L	2.50		79.1	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.88		ug/L	2.50		75.2	26-120			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BLC0256 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0256-BSD1)</b>				Prepared: 13-Mar-2023 Analyzed: 22-Mar-2023 14:15						
Pentachlorophenol	2.06	0.25	ug/L	2.50		82.2	48-120	20.20	30	
Surrogate: 2,4,6-Tribromophenol	2.13		ug/L	2.50		85.2	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	2.04		ug/L	2.50		81.7	26-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

### Certified Analyses included in this Report

Analyte	Certifications
<b>EPA 8270E in Water</b>	
Phenol	WADOE, DoD-ELAP, NELAP
bis(2-chloroethyl) ether	WADOE, DoD-ELAP, NELAP
2-Chlorophenol	WADOE, DoD-ELAP, NELAP
1,3-Dichlorobenzene	WADOE, DoD-ELAP, NELAP
1,4-Dichlorobenzene	WADOE, DoD-ELAP, NELAP
1,2-Dichlorobenzene	WADOE, DoD-ELAP, NELAP
Benzyl alcohol	WADOE, DoD-ELAP, NELAP
2,2'-Oxybis(1-chloropropane)	WADOE, DoD-ELAP, NELAP
2-Methylphenol	WADOE, DoD-ELAP, NELAP
Hexachloroethane	WADOE, DoD-ELAP, NELAP
N-Nitroso-di-n-Propylamine	WADOE, DoD-ELAP, NELAP
4-Methylphenol	WADOE, DoD-ELAP, NELAP
Nitrobenzene	WADOE, DoD-ELAP, NELAP
Isophorone	WADOE, DoD-ELAP, NELAP
2-Nitrophenol	WADOE, DoD-ELAP, NELAP
2,4-Dimethylphenol	WADOE, DoD-ELAP, NELAP
Bis(2-Chloroethoxy)methane	WADOE, DoD-ELAP, NELAP
2,4-Dichlorophenol	WADOE, DoD-ELAP, NELAP
1,2,4-Trichlorobenzene	WADOE, DoD-ELAP, NELAP
Naphthalene	WADOE, DoD-ELAP, NELAP, ADEC
Benzoic acid	WADOE, DoD-ELAP, NELAP
4-Chloroaniline	WADOE, DoD-ELAP, NELAP
2,6-Dinitrotoluene	WADOE, DoD-ELAP, NELAP
Hexachlorobutadiene	WADOE, DoD-ELAP, NELAP
4-Chloro-3-Methylphenol	WADOE, DoD-ELAP, NELAP
Hexachlorocyclopentadiene	WADOE, DoD-ELAP, NELAP
2,4,6-Trichlorophenol	WADOE, DoD-ELAP, NELAP
2,4,5-Trichlorophenol	WADOE, DoD-ELAP, NELAP
2-Chloronaphthalene	WADOE, DoD-ELAP, NELAP
2-Nitroaniline	WADOE, DoD-ELAP, NELAP
Acenaphthylene	WADOE, DoD-ELAP, NELAP, ADEC
Dimethylphthalate	WADOE, DoD-ELAP, NELAP
Acenaphthene	WADOE, DoD-ELAP, NELAP, ADEC
3-Nitroaniline	WADOE, DoD-ELAP, NELAP
2-Methylnaphthalene	WADOE, DoD-ELAP, NELAP, ADEC





Landau Associates, Inc.  
130 2nd Avenue S.  
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2,4-Dinitrophenol	WADOE,DoD-ELAP,NELAP
Dibenzofuran	WADOE,DoD-ELAP,NELAP
4-Nitrophenol	WADOE,DoD-ELAP,NELAP
2,4-Dinitrotoluene	WADOE,DoD-ELAP,NELAP
Fluorene	WADOE,DoD-ELAP,NELAP,ADEC
4-Chlorophenylphenyl ether	WADOE,DoD-ELAP,NELAP
Diethyl phthalate	WADOE,DoD-ELAP,NELAP
4-Nitroaniline	WADOE,DoD-ELAP,NELAP
4,6-Dinitro-2-methylphenol	WADOE,DoD-ELAP,NELAP
N-Nitrosodiphenylamine	WADOE,DoD-ELAP,NELAP
4-Bromophenyl phenyl ether	WADOE,DoD-ELAP,NELAP
Hexachlorobenzene	WADOE,DoD-ELAP,NELAP
Pentachlorophenol	WADOE,DoD-ELAP,NELAP
Phenanthrene	WADOE,DoD-ELAP,NELAP,ADEC
Anthracene	WADOE,DoD-ELAP,NELAP,ADEC
Carbazole	WADOE,DoD-ELAP,NELAP,ADEC
Di-n-butylphthalate	WADOE,DoD-ELAP,NELAP
Fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Butylbenzylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(a)anthracene	WADOE,DoD-ELAP,NELAP,ADEC
3,3'-Dichlorobenzidine	WADOE,DoD-ELAP,NELAP
Chrysene	WADOE,DoD-ELAP,NELAP,ADEC
bis(2-Ethylhexyl)phthalate	WADOE,DoD-ELAP,NELAP
Di-n-Octylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(b)fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(k)fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(a)pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Indeno(1,2,3-cd)pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Dibenzo(a,h)anthracene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(g,h,i)perylene	WADOE,DoD-ELAP,NELAP,ADEC
Benzofluoranthenes, Total	WADOE,DoD-ELAP,NELAP,ADEC
N-Nitrosodimethylamine	WADOE,DoD-ELAP,NELAP
Aniline	WADOE,DoD-ELAP,NELAP
1-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,ADEC
Azobenzene (1,2-DP-Hydrazine)	WADOE,NELAP
Benzidine	WADOE,DoD-ELAP
Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
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Reported:  
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2,6-Dichlorophenol	WADOE
alpha-Terpineol	WADOE,DoD-ELAP
1,4-Dioxane	WADOE,DoD-ELAP
2,3,4,6-Tetrachlorophenol	WADOE,DoD-ELAP
Triphenyl Phosphate	WADOE,DoD-ELAP
Butyl Diphenyl Phosphate	WADOE,DoD-ELAP
Dibutyl Phenyl Phosphate	WADOE,DoD-ELAP
Tributyl Phosphate	WADOE,DoD-ELAP
Butylated Hydroxytoluene	WADOE,DoD-ELAP
Tetrachloroguaiacol	WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	WADOE
3,4,6-Trichloroguaiacol	WADOE
4,5,6-Trichloroguaiacol	WADOE
Guaiacol	WADOE
1,2,4,5-Tetrachlorobenzene	WADOE

**EPA 8270E-SIM in Water**

Naphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
Biphenyl	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthene	DoD-ELAP
Dibenzofuran	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
Fluorene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Phenanthrene	DoD-ELAP
Anthracene	DoD-ELAP
Carbazole	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
Fluoranthene	DoD-ELAP
Pyrene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Chrysene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP



Landau Associates, Inc.  
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Reported:  
28-Nov-2023 14:10

Benzofluoranthenes, Total	DoD-ELAP
Benzo(e)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Perylene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(b)thiophene	DoD-ELAP

**NWTPH-Dx in Water**

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

**NWTPHg in Water**

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2023
WA-DW	Ecology - Drinking Water	C558	06/30/2023



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

### Notes and Definitions

- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- NRS This surrogate not reported due to chromatographic interference
- J Estimated concentration value detected below the reporting limit.
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- D1 Surrogate was not detected due to sample extract dilution
- D The reported value is from a dilution
- \* Flagged value is not within established control limits.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



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

28 November 2023

Christine Kimmel  
Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds, WA 98020

RE: Cascade Pole

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

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

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

Associated Work Order(s)  
23C0181

Associated SDG ID(s)  
N/A

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

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

Analytical Resources, LLC

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

Kelly Bottem, Client Services Manager



2300181



# Chain-of-Custody Record

<input type="checkbox"/> North Seattle (206) 631-8660	<input type="checkbox"/> Spokane (509) 327-9737	Date <u>3/9/23</u>	Turnaround Time: _____
<input checked="" type="checkbox"/> Tacoma (253) 926-2493	<input type="checkbox"/> Portland (503) 542-1080	Page <u>1</u> of <u>1</u>	<input checked="" type="checkbox"/> Standard
<input type="checkbox"/> Olympia (360) 791-3178	<input type="checkbox"/>		Accelerated _____

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters										Observations/Comments				
					NWTPH-GX	NWTPH-Dx + L105042	PAHS	CPAHS 51A	PCP 8270	PCP 8041									
MW-055-20230308	3/8/23	1054	AQ	10	X	X	X	X	X	X									
P2-30-20230308	3/8/23	1058	AQ	10	X	X	X	X	X	X									
MW-025-20230308	3/8/23	950	AQ	10	X	X	X	X	X	X									
LW-3-20230308	3/8/23	1548	AQ	10	X	X	X	X	X	X									
LW-4R-20230308	3/8/23	1638 <sup>1639</sup>	AQ	10	X	X	X	X	X	X									
MW-01D-20230309	3/9/23	911	AQ	10	X	X	X	X	X	X									
MW-05D-20230308	3/8/23	1645	AQ	10	X	X	X	X	X	X									
P2-18-20230308	3/8/23	1641	AQ	10	X	X	X	X	X	X									
P2-17-20230308	3/8/23	1553	AQ	10	X	X	X	X	X	X									
C2-13-20230308	3/8/23	1427	AQ	10	X	X	X	X	X	X									
MW-015-20230309	3/9/23	912	AQ	10	X	X	X	X	X	X									
P2-13-20230308	3/8/23	1313	AQ	10	X	X	X	X	X	X									
MW-02D-20230308	3/8/23	941	AQ	10	X	X	X	X	X	X									
P2-12-20230308	3/8/23	1316	AQ	10	X	X	X	X	X	X									
P2-19-20230308	3/9/23	1418	AQ	10	X	X	X	X	X	X									
Triblank-20230308	-	-	AQ	2	X	X	X	X	X	X	SMR								

Special Handling Requirements: \_\_\_\_\_

Shipment Method: \_\_\_\_\_

Stored on ice:  Yes /  No

3.3, 0.8, -0.1, 1.0, 0.1, -0.7

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

Other Run all samples for PCP using 8270. If ND, run for PCP 8041.

HCl pres Vol.

<b>Relinquished by</b> Signature <u>[Signature]</u> Printed Name <u>Samantha Lindstrom</u> Company <u>Landau</u> Date <u>3/9/23</u> Time <u>11:24</u>	<b>Received by</b> Signature <u>[Signature]</u> Printed Name <u>Philip Bates</u> Company <u>AR</u> Date <u>3/9/23</u> Time <u>11:24</u>	<b>Relinquished by</b> Signature _____ Printed Name _____ Company _____ Date _____ Time _____	<b>Received by</b> Signature _____ Printed Name _____ Company _____ Date _____ Time _____
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2300181



# Chain-of-Custody Record

- North Seattle (206) 631-8660
- Tacoma (253) 926-2493
- Olympia (360) 791-3178

- Spokane (509) 327-9737
- Portland (503) 542-1080
- 

Date 3/9/23  
 Page 1 of 1

Turnaround Time:  
 Standard  
 Accelerated

Project Name Part of Olympia Project No. G021043.010.011  
 Project Location/Event Cascade Pole / March 2023  
 Sampler's Name SMR/SJL  
 Project Contact Sasha Mott, Chris Kimmel  
 Send Results To S. Mott, data@landauinc.com, D. Bache

### Testing Parameters

NWTPH-6X  
 NWTPH-Dx + Cleanup  
 PAHS  
 CPAHS SIA  
 PCP 8270  
 PCP 8041

Special Handling Requirements:

Shipment Method:

Stored on ice:  Yes /  No

3, 3, 0.8, -0.1, 1.0, 0.1, -0.7

Observations/Comments

Sample I.D.	Date	Time	Matrix	No. of Containers	NWTPH-6X	NWTPH-Dx + Cleanup	PAHS	CPAHS SIA	PCP 8270	PCP 8041
MW-055-20230308	3/8/23	1054	AQ	10	X	X	X	X	X	X
P2-30-20230308	3/8/23	1058	AQ	10	X	X	X	X	X	X
MW-028-20230308	3/8/23	950	AQ	10	X	X	X	X	X	X
LW-3-20230308	3/8/23	1548	AQ	10	X	X	X	X	X	X
LW-4R-20230308	3/8/23	1638	AQ	10	X	X	X	X	X	X
MW-010-20230309	3/9/23	911	AQ	10	X	X	X	X	X	X
MW-050-20230308	3/8/23	1645	AQ	10	X	X	X	X	X	X
P2-18-20230308	3/8/23	1641	AQ	10	X	X	X	X	X	X
P2-17-20230308	3/8/23	1553	AQ	10	X	X	X	X	X	X
<del>C2-13-20230308</del>	<del>3/8/23</del>	<del>1422</del>	<del>AQ</del>	<del>10</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>
MW-015-20230309	3/9/23	912	AQ	10	X	X	X	X	X	X
P2-13-20230308	3/8/23	1313	AQ	10	X	X	X	X	X	X
MW-020-20230308	3/8/23	941	AQ	10	X	X	X	X	X	X
P2-12-20230308	3/8/23	1316	AQ	10	X	X	X	X	X	X
P2-19-20230308	3/8/23	1418	AQ	10	X	X	X	X	X	X
Triblank-20230308	-	-	AQ	2	X	X	X	X	X	X

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

Other Run all samples for PCP using 8270 if ND, run for PCP 8041

101 per Vol.

Relinquished by [Signature]  
 Signature \_\_\_\_\_  
 Printed Name Samantha Lindstrom  
 Company Landau  
 Date 3/9/23 Time 11:24

Received by [Signature]  
 Signature \_\_\_\_\_  
 Printed Name Phillip Kates  
 Company Landau  
 Date 3/9/23 Time 11:24

Relinquished by \_\_\_\_\_  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_

Received by \_\_\_\_\_  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-05S-20230308	23C0181-01	Water	08-Mar-2023 10:54	09-Mar-2023 11:24
PZ-30-20230308	23C0181-02	Water	08-Mar-2023 10:58	09-Mar-2023 11:24
LW-3-20230308	23C0181-03	Water	08-Mar-2023 15:48	09-Mar-2023 11:24
LW-4R-20230308	23C0181-04	Water	08-Mar-2023 16:38	09-Mar-2023 11:24
MW-01D-20230309	23C0181-05	Water	09-Mar-2023 09:11	09-Mar-2023 11:24
MW-05D-20230308	23C0181-06	Water	08-Mar-2023 10:45	09-Mar-2023 11:24
PZ-18-20230308	23C0181-07	Water	08-Mar-2023 16:41	09-Mar-2023 11:24
PZ-17-20230308	23C0181-08	Water	08-Mar-2023 15:53	09-Mar-2023 11:24
CW-13-20230308	23C0181-09	Water	08-Mar-2023 14:27	09-Mar-2023 11:24
MW-01S-20230309	23C0181-10	Water	09-Mar-2023 09:12	09-Mar-2023 11:24
PZ-13-20230308	23C0181-11	Water	08-Mar-2023 13:13	09-Mar-2023 11:24
MW-02D-20230308	23C0181-12	Water	08-Mar-2023 09:41	09-Mar-2023 11:24
PZ-12-20230308	23C0181-13	Water	08-Mar-2023 13:16	09-Mar-2023 11:24
PZ-19-20230308	23C0181-14	Water	08-Mar-2023 14:18	09-Mar-2023 11:24
Tripblank	23C0181-15	Water	08-Mar-2023 00:00	09-Mar-2023 11:24
MW-02S-20230308	23C0181-16	Water	08-Mar-2023 09:50	09-Mar-2023 11:24



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

## Case Narrative

### Gasoline by NWTPH-g (GC/MS)

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

### Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The blank spike (BS/LCS) percent recoveries were within control limits.

### Pentachlorophenol - EPA Method SW8041A

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The blank spike (BS/LCS) percent recoveries were within control limits.

### Polynuclear Aromatic Hydrocarbons (cPAH) - EPA Method SW8270E-SIM



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms.

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

The blank spike (BS/LCS) percent recoveries were within control limits.

**Semivolatiles - EPA Method SW8270E**

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms.

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

The blank spike (BS/LCS) percent recoveries were within control limits.



# Cooler Receipt Form

ARI Client: Landau Tacoma

Project Name: port of Olympia

COC No(s): \_\_\_\_\_ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_

Assigned ARI Job No: 23C0181

Tracking No: \_\_\_\_\_ (NA)

**Preliminary Examination Phase:**

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

Were custody papers included with the cooler? YES NO

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

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

Time 11:24 3.3 0.8 -0.1 1.0 -0.7 0.1

If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: J009708

Cooler Accepted by: PIB Date: 3/9/23 Time: 11:24

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

**Log-In Phase:**

Was a temperature blank included in the cooler? YES NO

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

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

How were bottles sealed in plastic bags? Individually Grouped Not

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

Were all bottle labels complete and legible? YES NO

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

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

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

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

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

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

Date VOC Trip Blank was made at ARI: \_\_\_\_\_ NA 3/02/23

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

Samples Logged by: PIB Date: 3/9/23 Time: 1354 Labels checked by: \_\_\_\_\_

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

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

By: \_\_\_\_\_ Date: \_\_\_\_\_



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**MW-05S-20230308**  
**23C0181-01 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 10:54  
Instrument: ECD8 Analyzed: 22-Mar-2023 14:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>0.52</b>	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	88.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	82.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-05S-20230308**  
**23C0181-01 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 10:54  
Analyzed: 16-Mar-2023 00:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	<b>5.8</b>	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	<b>0.6</b>	ug/L	J
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>58.8 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>75.1 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>56.6 %</i>	*



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-05S-20230308**  
**23C0181-01 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 10:54  
Analyzed: 17-Mar-2023 16:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>85.6</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>114</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>102</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 28-Nov-2023 14:10
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**MW-05S-20230308**  
**23C0181-01 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 10:54  
Analyzed: 21-Mar-2023 16:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

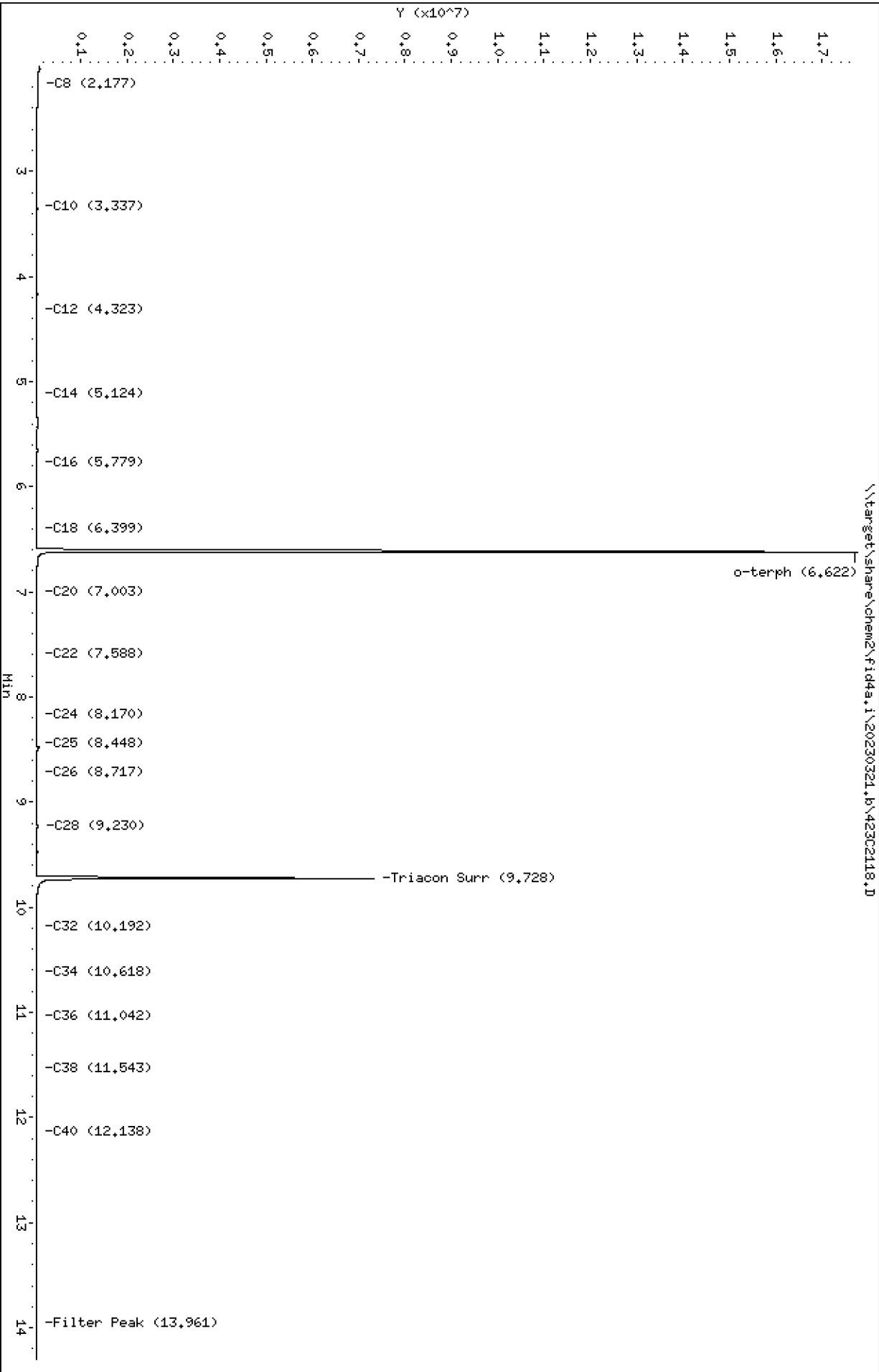
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	84.5	%	



Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302118.D  
Date : 21-MAR-2023 16:08  
Client ID:  
Sample Info: 23C0181-01

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2118.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-01  
Client ID:  
Injection: 21-MAR-2023 16:08  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

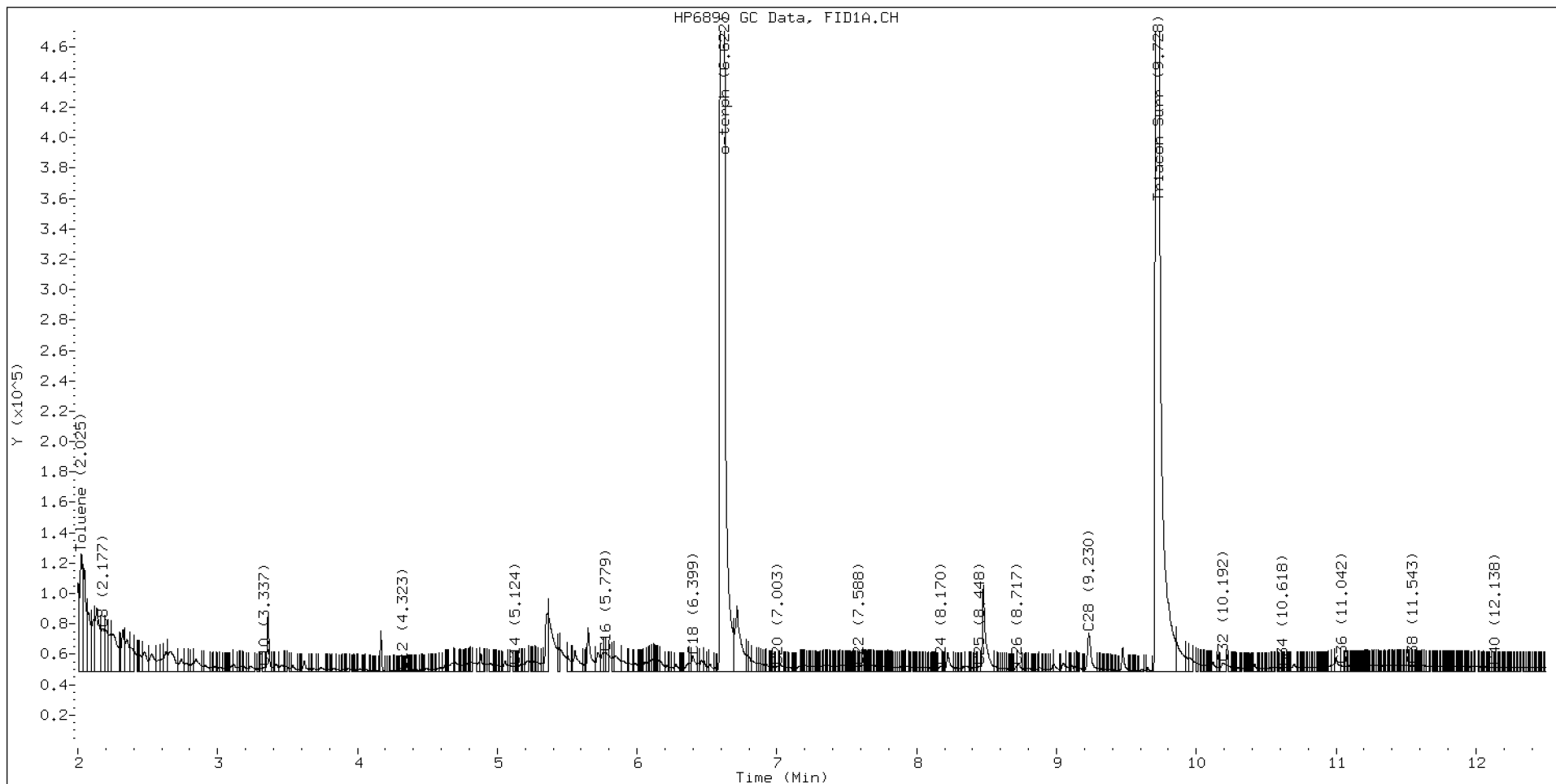
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.177	0.002	28456	44195	WATPHD	(C12-C24)	1109813	7.0
C10	3.337	0.011	2901	3907	WATPHM	(C24-C38)	720133	5.4
C12	4.323	0.003	506	233	AK102	(C10-C25)	1303842	6.9
C14	5.124	0.019	3497	2221	AK103	(C25-C36)	564724	5.7
C16	5.779	-0.001	12234	15481	OR.DIES	(C10-C28)	1546955	8.2
C18	6.399	-0.005	10339	18590				
C20	7.003	-0.001	3906	3795	JET-A	(C10-C18)	798688	4.6
C22	7.588	-0.006	3295	964				
C24	8.170	0.004	3544	5531				
C25	8.448	0.005	3715	4874				
C26	8.717	0.004	3676	3880				
C28	9.230	-0.001	25398	48362				
C32	10.192	0.009	5810	13446				
C34	10.618	0.001	2833	2300				
Filter Peak	13.961	-0.002	2427	1857	CREOSOT	(C12-C22)	1004431	37.9
C36	11.042	-0.007	4070	3822				
C38	11.543	0.002	4000	1183				
C40	12.138	0.000	3292	2414				
o-terph	6.622	-0.001	17717894	19361409				
Triacon Surr	9.728	-0.021	7273344	7486451	NAS DIES	(C10-C24)	1260614	6.7

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	19361409	95.1
Triacontane	7486451	34.4

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-05S-20230308**  
**23C0181-01 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 10:54  
Analyzed: 10-Mar-2023 14:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

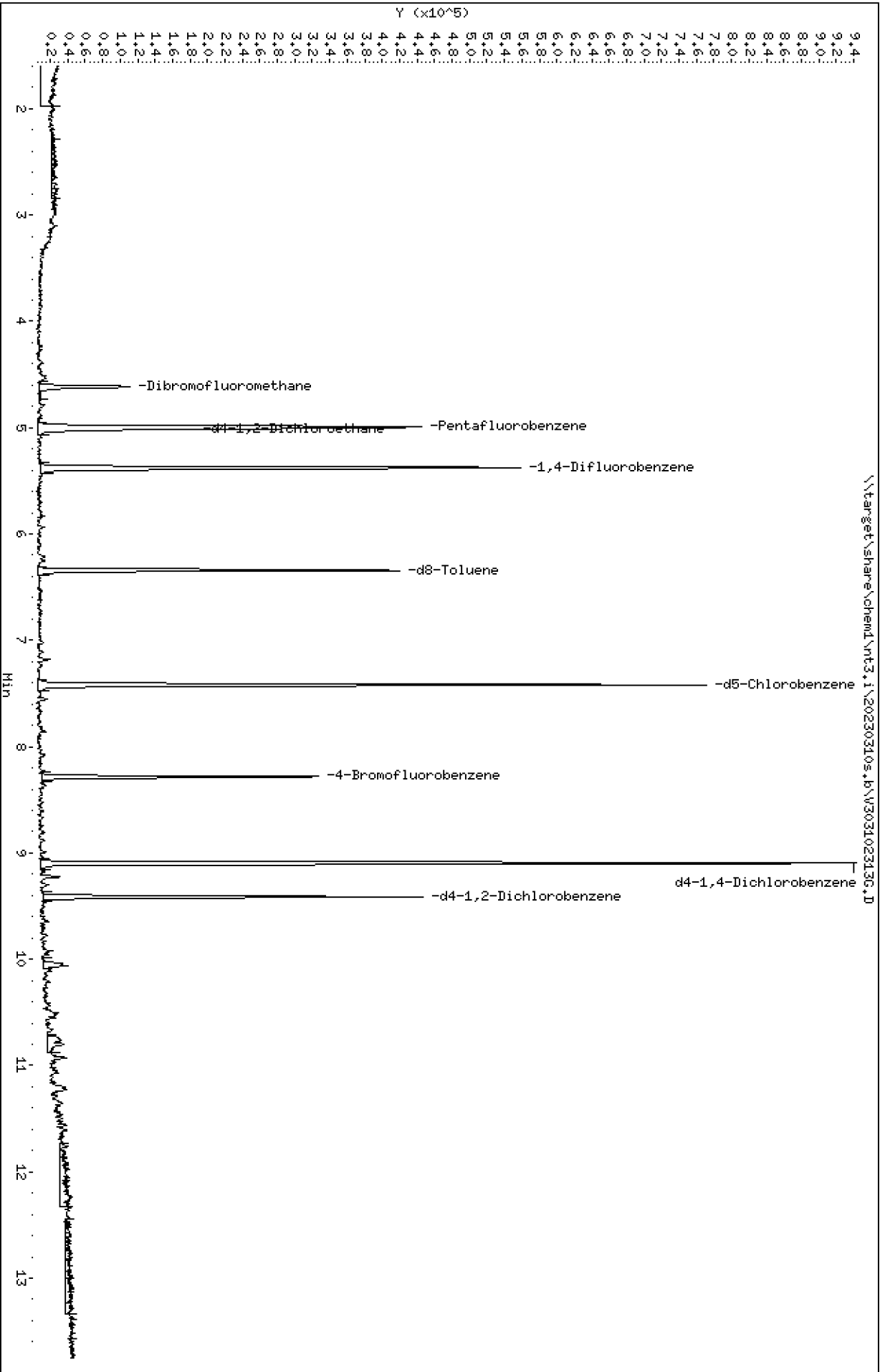
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.7	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102313G.D  
Date: 10-HRR-2023 14:01  
Client ID:  
Sample Info: 23C0181-01

Instrument: nt3.1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102313G.D  
 Lab Smp Id: 23C0181-01  
 Inj Date : 10-MAR-2023 14:01  
 Operator : PKC  
 Smp Info : 23C0181-01  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i  
 Quant Type: ISTD  
 Cal File: V303092311.D  
 Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	58373	5.33138	5.331(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	252454	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	32197	5.49872	5.499(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	370106	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	210857	4.99373	4.994(R)
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	358952	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	76205	4.78557	4.786(R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	211274	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	97092	5.09029	5.090(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102313G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-01  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	252454	1.11
37 1,4-Difluorobenze	365813	182907	731626	370106	1.17
53 d5-Chlorobenzene	354990	177495	709980	358952	1.12
76 d4-1,4-Dichlorobe	212292	106146	424584	211274	-0.48

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-01  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.331	106.63	
\$ 33 d4-1,2-Dichloroeth	5.000	5.499	109.97	
\$ 43 d8-Toluene	5.000	4.994	99.87	
\$ 62 4-Bromofluorobenze	5.000	4.786	95.71	
\$ 79 d4-1,2-Dichloroben	5.000	5.090	101.81	



REVIEW SUMMARY FOR FILE - V303102313G.D

Lab ID: 23C0181-01

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 14:01

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\303102313G.D

Date: 10-HR-2023 14:01

Client ID:

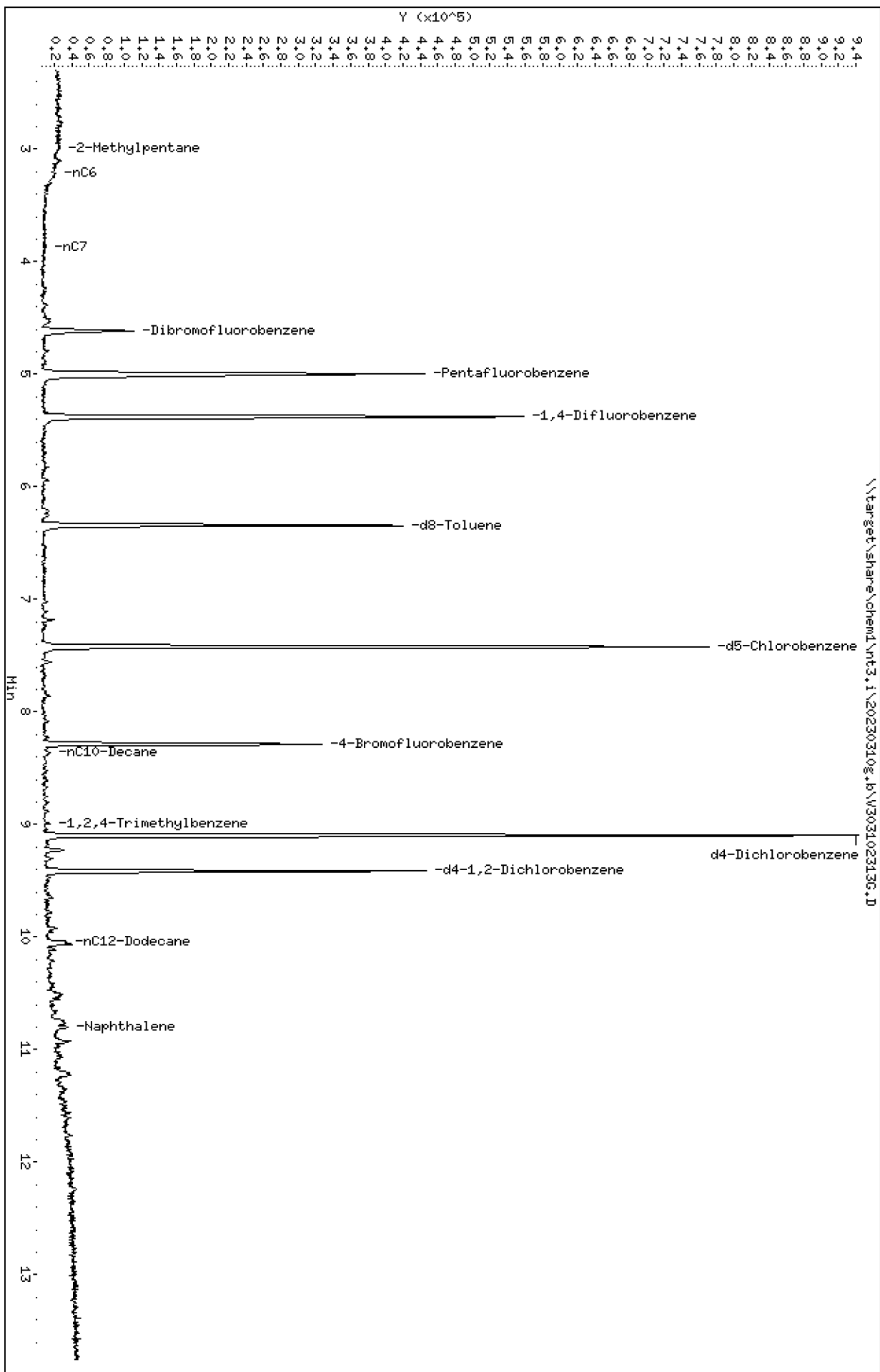
Sample Info: 23C0181-01

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102313G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 14:01

ARI ID: 23C0181-01  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	429618	0.008
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	673194	0.007
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	426300	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	606479	0.010
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	620210	0.006

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.417	1028935	d5-Chlorobenzene
6.344	568191	d8-Toluene
9.096	1167611	d4-Dichlorobenzene
8.283	418357	4-Bromofluorobenzene
9.415	571945	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 28-Nov-2023 14:10
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**PZ-30-20230308**  
**23C0181-02 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 10:58  
Instrument: ECD8 Analyzed: 22-Mar-2023 14:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	78.2	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	72.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-30-20230308**  
**23C0181-02 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 10:58  
Analyzed: 16-Mar-2023 01:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254  
Prepared: 13-Mar-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	5.5	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	72.2 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	96.2 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	74.8 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-30-20230308**  
**23C0181-02 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 10:58  
Analyzed: 17-Mar-2023 17:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>86.8</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>110</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>103</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-30-20230308**  
**23C0181-02 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 10:58  
Analyzed: 21-Mar-2023 16:27

**Analysis by: Analytical Resources, LLC**

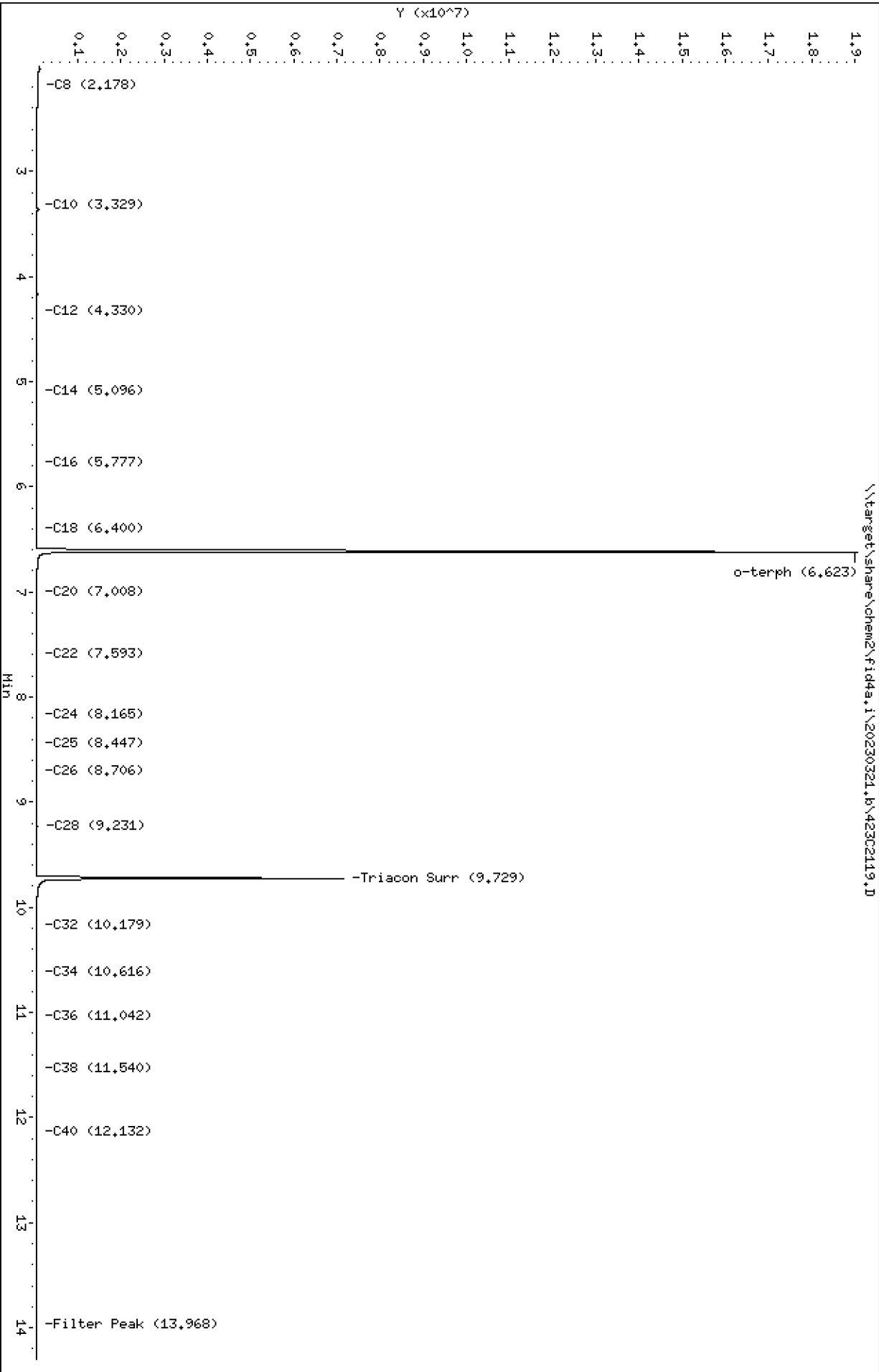
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	96.4	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302119.D  
Date: 21-MAR-2023 16:27  
Client ID:  
Sample Info: 23C0181-02

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2119.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-02  
Client ID:  
Injection: 21-MAR-2023 16:27  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

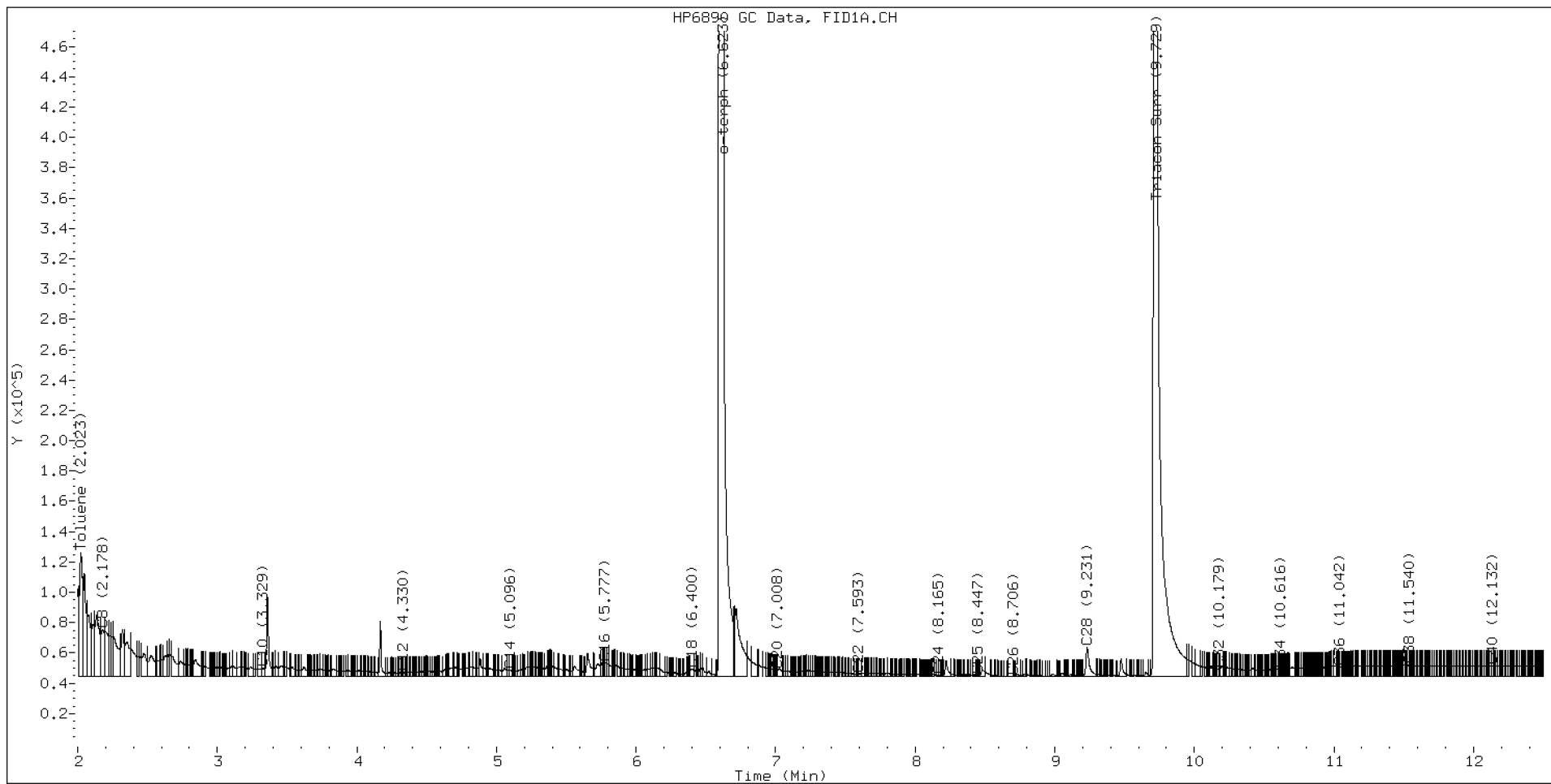
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.178	0.003	30566	52710	WATPHD	(C12-C24)	898405	5.7
C10	3.329	0.004	5190	6034	WATPHM	(C24-C38)	626714	4.7
C12	4.330	0.009	2462	844	AK102	(C10-C25)	1209816	6.4
C14	5.096	-0.009	4081	4616	AK103	(C25-C36)	422233	4.3
C16	5.777	-0.003	9104	10090	OR.DIES	(C10-C28)	1274279	6.7
C18	6.400	-0.004	5024	8380				
C20	7.008	0.004	4180	1447	JET-A	(C10-C18)	825159	4.8
C22	7.593	-0.001	1596	381				
C24	8.165	-0.001	978	339				
C25	8.447	0.004	900	434				
C26	8.706	-0.008	301	149				
C28	9.231	0.000	18895	34478				
C32	10.179	-0.004	4775	1655				
C34	10.616	-0.001	4914	978				
Filter Peak	13.968	0.005	6731	1342	CREOSOT	(C12-C22)	858656	32.4
C36	11.042	-0.007	6449	2555				
C38	11.540	-0.001	7224	3592				
C40	12.132	-0.006	6974	4842				
o-terph	6.623	0.001	19022331	22087138				
Triacon Surr	9.729	-0.020	7123171	7693795	NAS DIES	(C10-C24)	1188130	6.3

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	22087138	108.5
Triacontane	7693795	35.3

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-30-20230308**  
**23C0181-02 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 10:58  
Analyzed: 10-Mar-2023 14:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

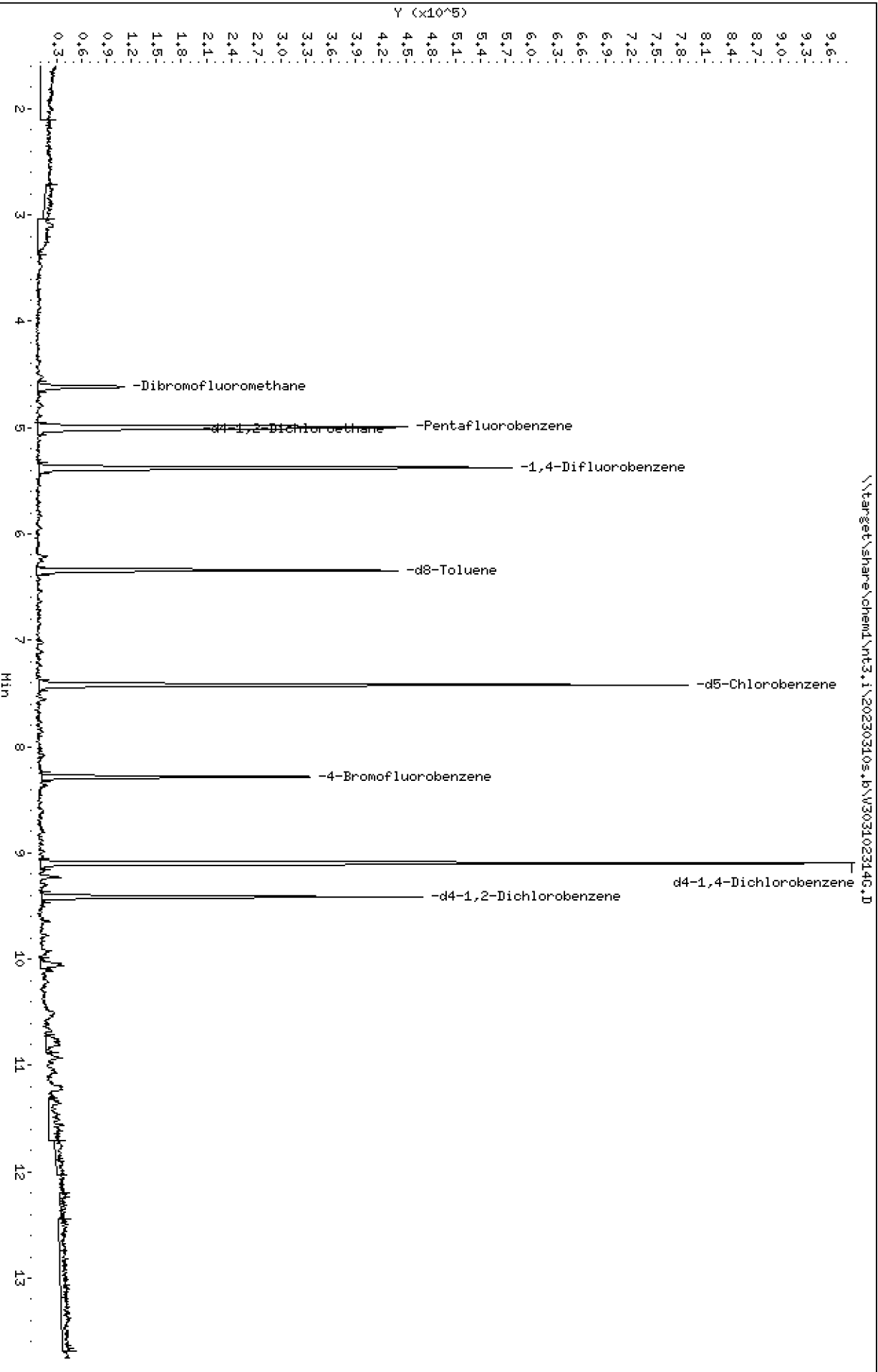
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.1	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102314G.D  
Date: 10-HR-2023 14:23  
Client ID:  
Sample Info: 23C0181-02

Instrument: nt3.1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102314G.D  
 Lab Smp Id: 23C0181-02  
 Inj Date : 10-MAR-2023 14:23  
 Operator : PKC  
 Smp Info : 23C0181-02  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 65  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	59612	5.20789	5.208 (R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	263926	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	35900	5.86463	5.865 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	383392	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	216051	4.93942	4.939 (R)
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	370309	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	81373	4.95339	4.953 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	218941	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	102346	5.17784	5.178 (R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102314G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-02  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	263926	5.71
37 1,4-Difluorobenze	365813	182907	731626	383392	4.81
53 d5-Chlorobenzene	354990	177495	709980	370309	4.32
76 d4-1,4-Dichlorobe	212292	106146	424584	218941	3.13

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-02  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.208	104.16	
\$ 33 d4-1,2-Dichloroeth	5.000	5.865	117.29	
\$ 43 d8-Toluene	5.000	4.939	98.79	
\$ 62 4-Bromofluorobenze	5.000	4.953	99.07	
\$ 79 d4-1,2-Dichloroben	5.000	5.178	103.56	

REVIEW SUMMARY FOR FILE - V303102314G.D

Lab ID: 23C0181-02

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 14:23

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\303102314G.D

Date: 10-HR-2023 14:23

Client ID:

Sample Info: 23C0181-02

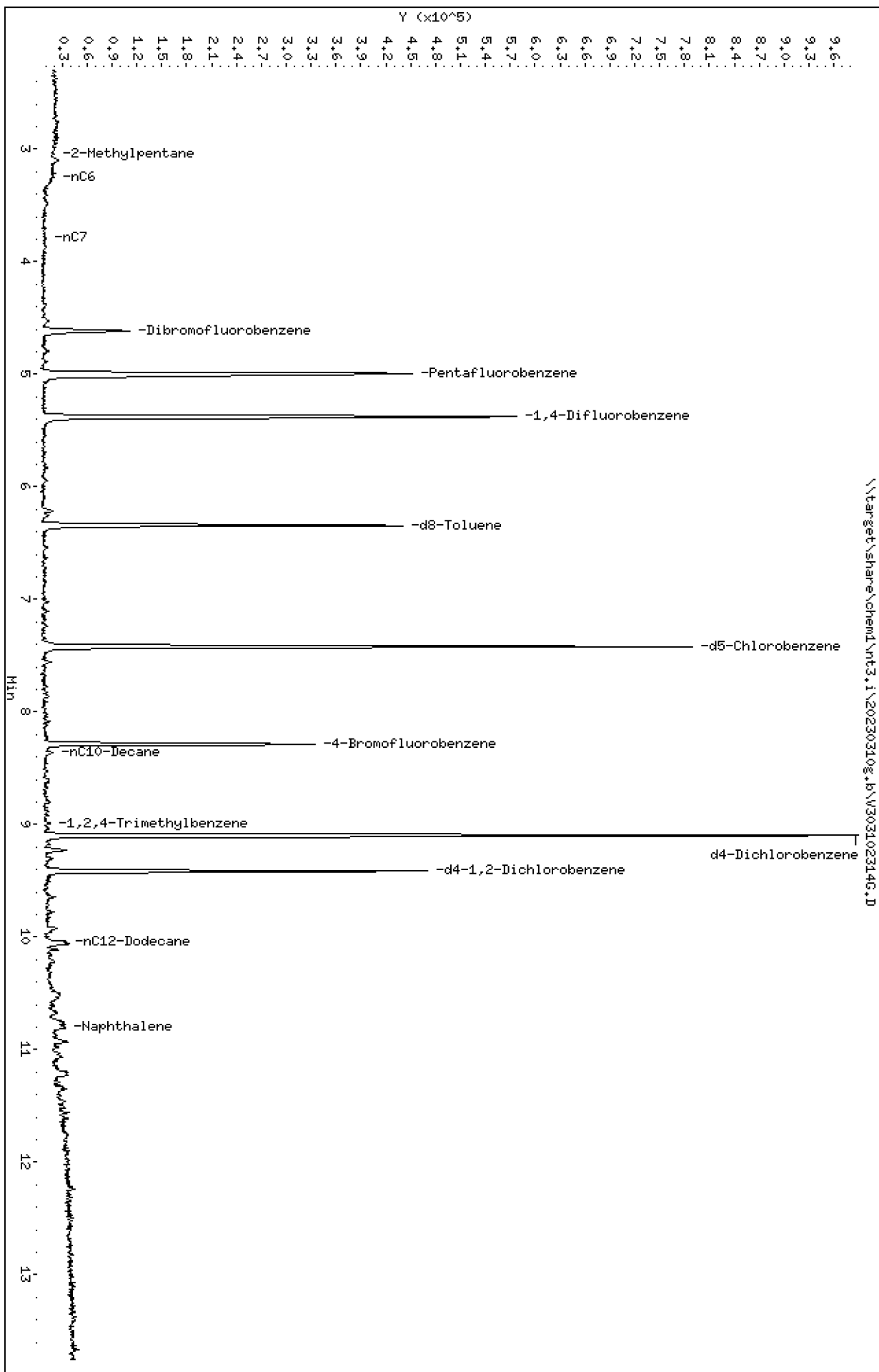
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102314G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 14:23

ARI ID: 23C0181-02  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	495735	0.009
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	667941	0.007
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	419930	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	657592	0.011
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	659125	0.006

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	1091560	d5-Chlorobenzene
6.344	599416	d8-Toluene
9.096	1215818	d4-Dichlorobenzene
8.288	434829	4-Bromofluorobenzene
9.415	593222	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**LW-3-20230308**  
**23C0181-03 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 15:48  
Analyzed: 22-Mar-2023 15:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	68.7	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	63.0	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-3-20230308**  
**23C0181-03 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 15:48  
Analyzed: 17-Mar-2023 14:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	5	1.5	5.0	ND	ug/L	U
Acenaphthylene	208-96-8	5	1.0	5.0	ND	ug/L	U
Acenaphthene	83-32-9	5	1.0	5.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	5	1.1	5.0	ND	ug/L	U
Dibenzofuran	132-64-9	5	1.0	5.0	ND	ug/L	U
Fluorene	86-73-7	5	1.0	5.0	ND	ug/L	U
Pentachlorophenol	87-86-5	5	6.0	50.0	ND	ug/L	U
Phenanthrene	85-01-8	5	1.0	5.0	ND	ug/L	U
Anthracene	120-12-7	5	1.3	5.0	ND	ug/L	U
Carbazole	86-74-8	5	1.3	5.0	ND	ug/L	U
Fluoranthene	206-44-0	5	1.2	5.0	ND	ug/L	U
Pyrene	129-00-0	5	1.7	5.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	5	1.1	5.0	ND	ug/L	U
Chrysene	218-01-9	5	1.1	5.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	5	1.2	5.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	5	2.4	5.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	5	2.7	5.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	5	2.4	5.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	5	1.3	5.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	92.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	109	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	101	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-3-20230308**  
**23C0181-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 15:48  
Analyzed: 17-Mar-2023 17:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>82.6</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>67.4</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>63.1</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**LW-3-20230308**  
**23C0181-03 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 15:48  
Analyzed: 21-Mar-2023 16:47

**Analysis by: Analytical Resources, LLC**

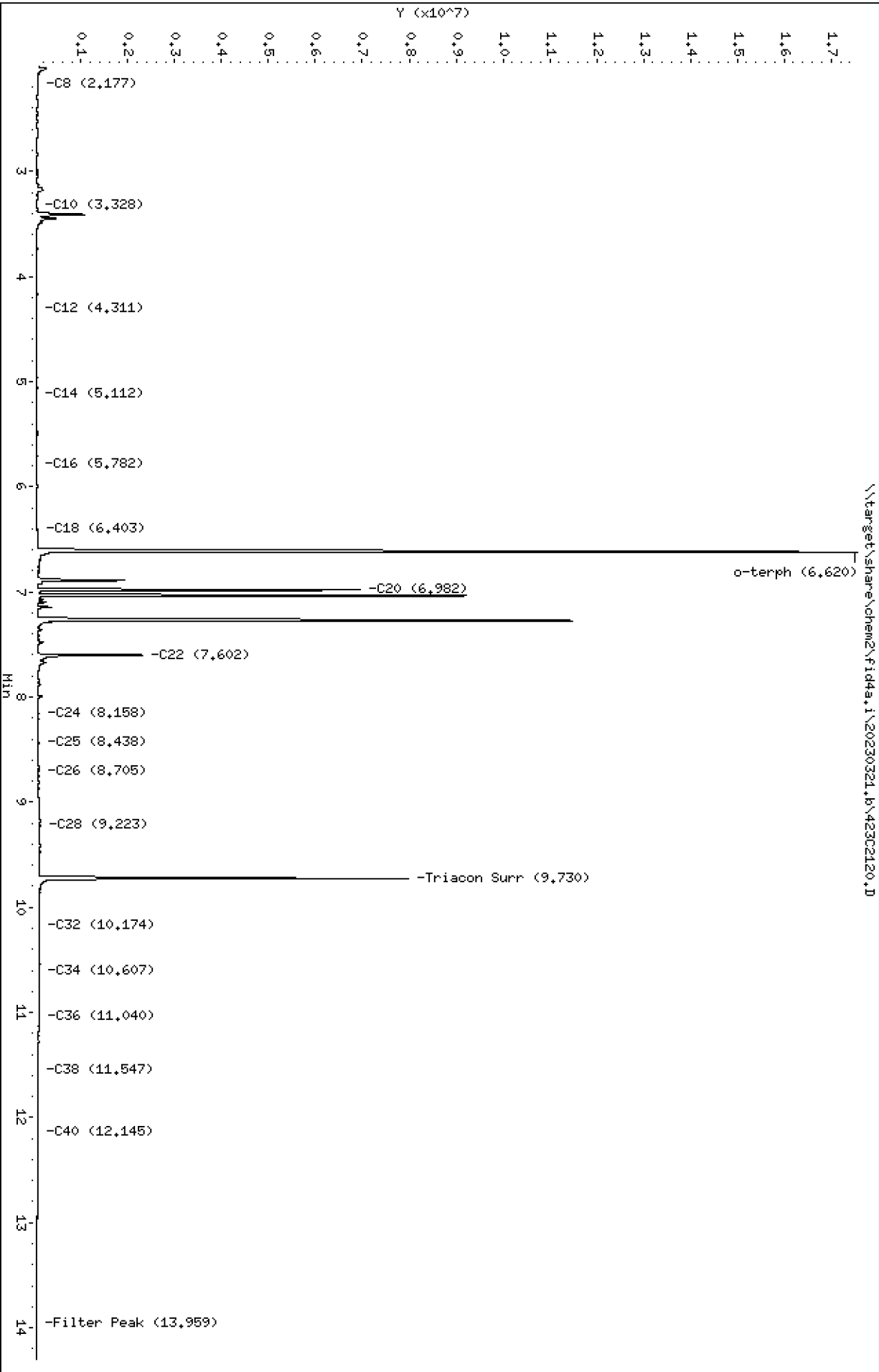
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	437	ug/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	2490	ug/L	
Surrogate: <i>o</i> -Terphenyl			50-150 %	81.7	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302120.D  
Date: 21-MAR-2023 16:47  
Client ID:  
Sample Info: 23C0181-03

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2120.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-03  
Client ID:  
Injection: 21-MAR-2023 16:47  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.177	0.002	25511	31570	WATPHD	(C12-C24)	34626913	218.3
C10	3.328	0.003	9835	15089	WATPHM	(C24-C38)	9305750	70.2
C12	4.311	-0.010	1344	1363	AK102	(C10-C25)	37133681	196.4
C14	5.112	0.008	8126	6212	AK103	(C25-C36)	7838307	79.2
C16	5.782	0.001	7081	4520	OR.DIES	(C10-C28)	39474354	208.0
C18	6.403	-0.000	15810	19568				
C20	6.982	-0.022	6908245	5283118	JET-A	(C10-C18)	3074806	17.8
C22	7.602	0.007	2269828	2354673				
C24	8.158	-0.008	45102	125045				
C25	8.438	-0.005	48294	74437				
C26	8.705	-0.009	48662	62758				
C28	9.223	-0.008	86815	191819				
C32	10.174	-0.009	71547	132964				
C34	10.607	-0.010	65906	71107				
Filter Peak	13.959	-0.004	8546	4677	CREOSOT	(C12-C22)	33042689	1246.2
C36	11.040	-0.010	52556	91998				
C38	11.547	0.005	36686	14453				
C40	12.145	0.007	24577	8546				
o-terph	6.620	-0.002	17486125	18706548				
Triacon Surr	9.730	-0.019	7928887	8365657	NAS DIES	(C10-C24)	36847954	195.3

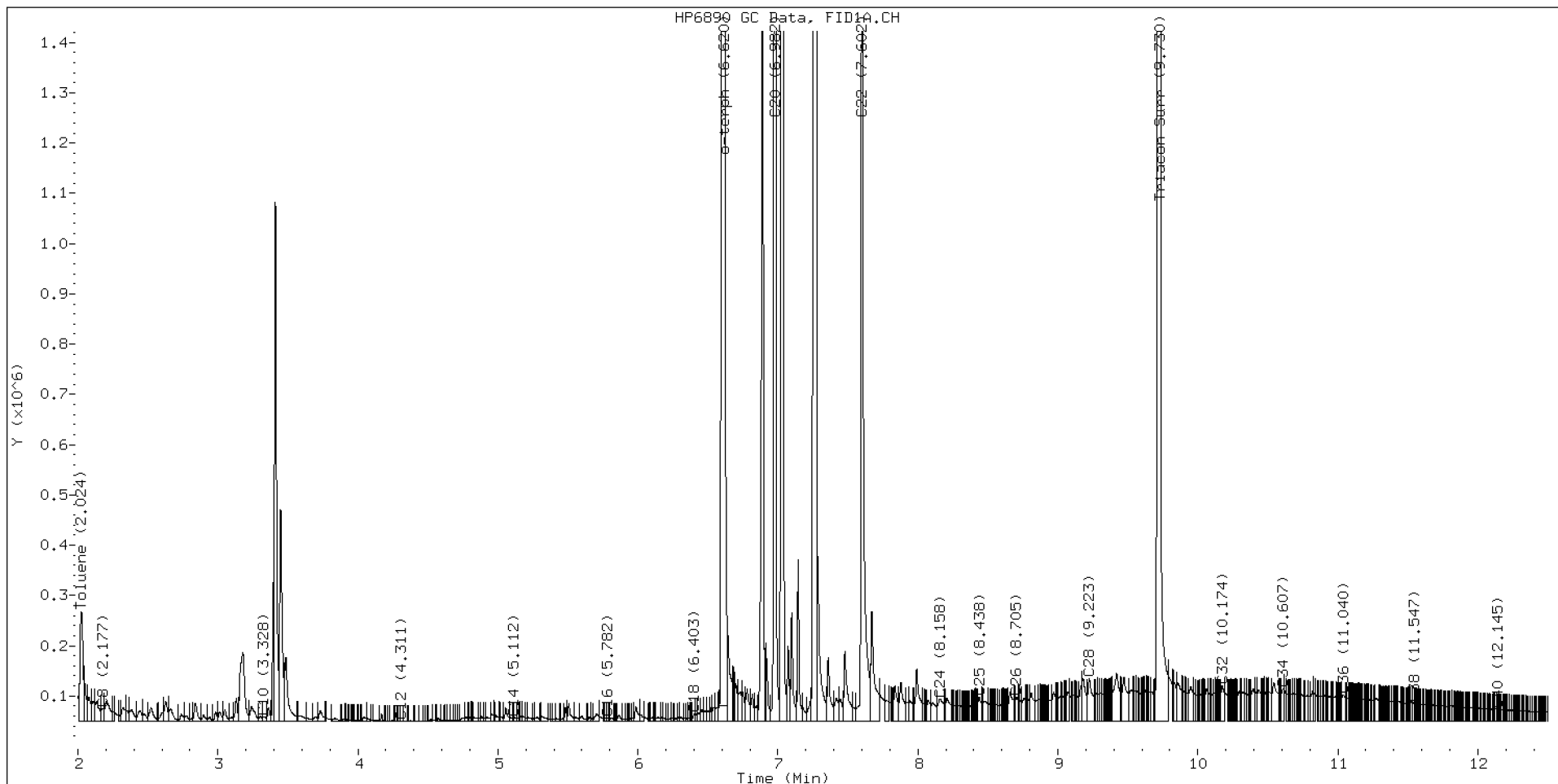
Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	18706548	91.9 M
Triacontane	8365657	38.4

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023

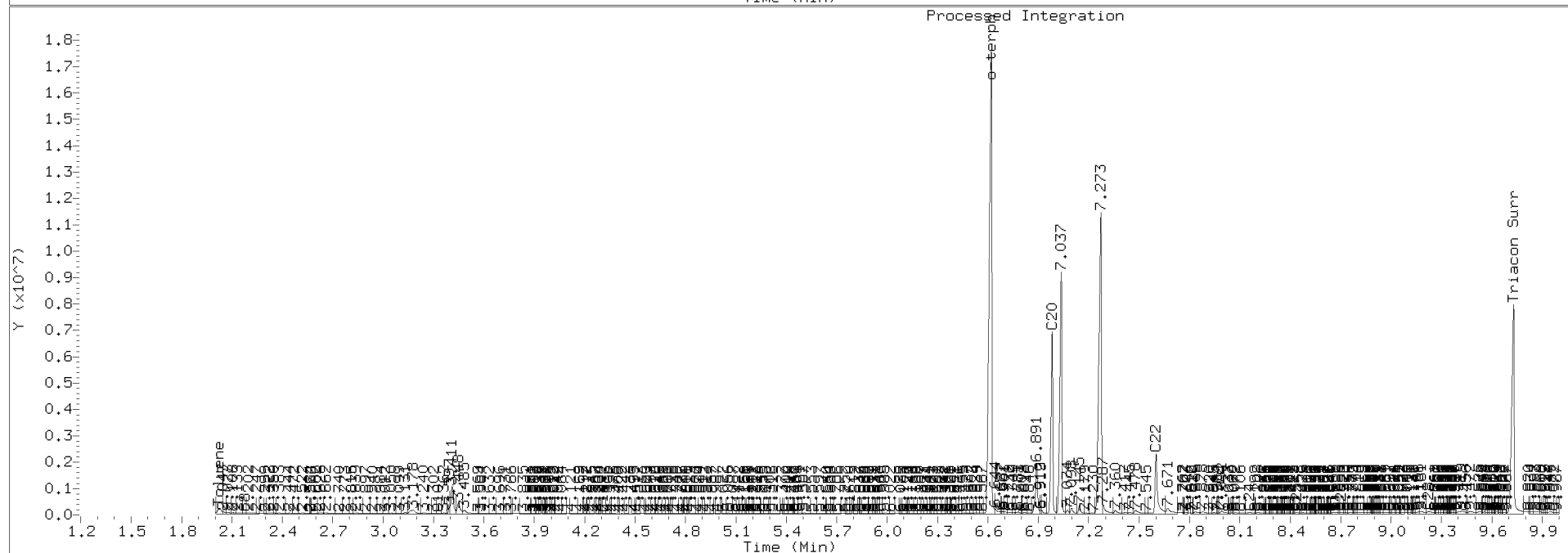
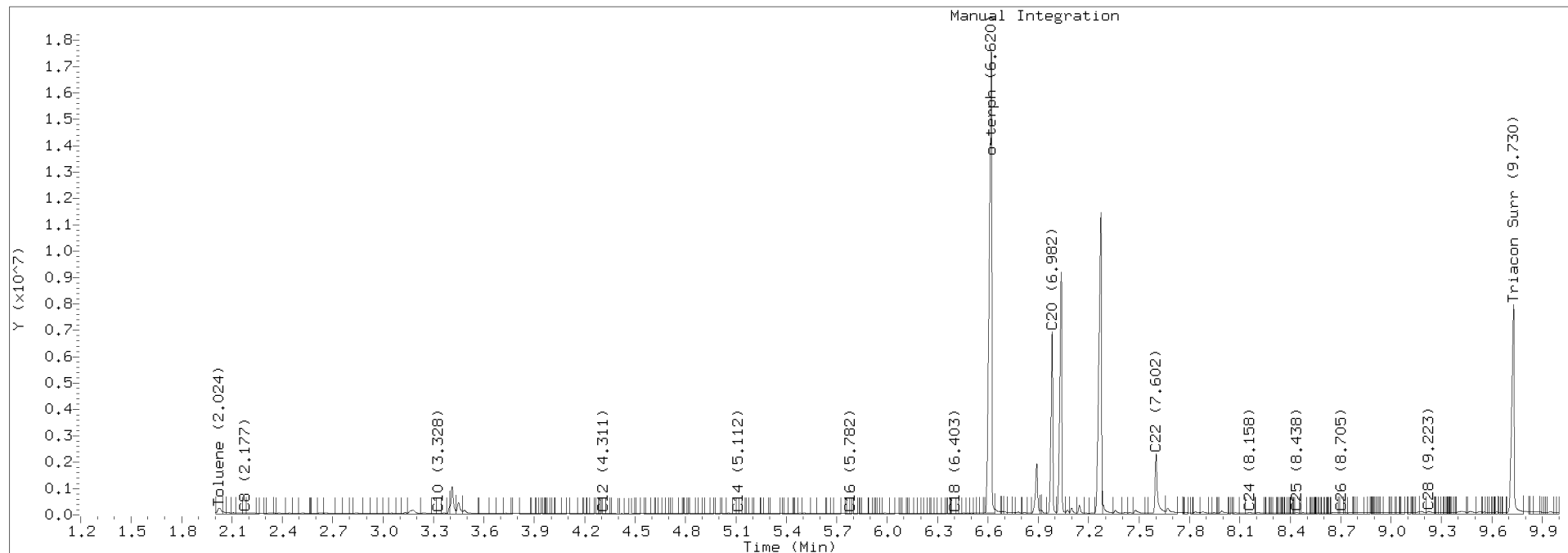




TPH Manual Integrations Report

Datafile: FID4A, 20230321.b/423C2120.D Injection: 21-MAR-2023 16:47

Lab ID:23C0181-03





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**LW-3-20230308**  
**23C0181-03 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 15:48  
Analyzed: 10-Mar-2023 14:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.6	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102315G.D

Date : 10-HR-2023 14:45

Client ID:

Sample Info: 23C0181-03

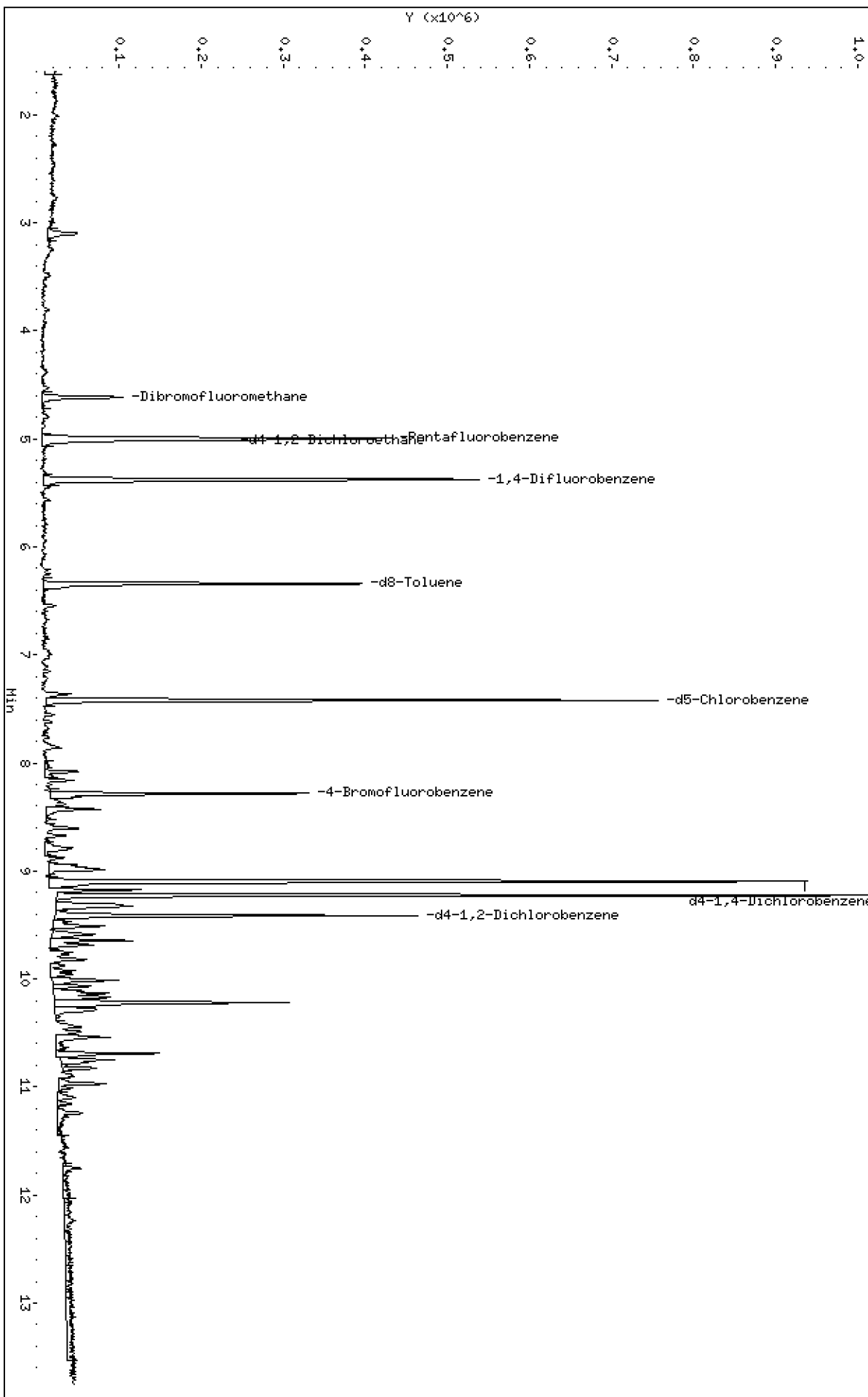
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230310s.16\303102315G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102315G.D  
 Lab Smp Id: 23C0181-03  
 Inj Date : 10-MAR-2023 14:45  
 Operator : PKC  
 Smp Info : 23C0181-03  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 66  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.612	4.616	(0.923)	53044	4.87141	4.871(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	251068	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	30728	5.27681	5.277(R)
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	357455	10.0000	
\$ 43 d8-Toluene	98		6.344	6.343	(1.180)	204089	5.00451	5.005(R)
* 53 d5-Chlorobenzene	117		7.417	7.422	(1.000)	344706	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	74628	4.88022	4.880(R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	209685	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	98819	5.22009	5.220(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102315G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-03  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	251068	0.56
37 1,4-Difluorobenze	365813	182907	731626	357455	-2.28
53 d5-Chlorobenzene	354990	177495	709980	344706	-2.90
76 d4-1,4-Dichlorobe	212292	106146	424584	209685	-1.23

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.02
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.06
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-03  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.871	97.43	
\$ 33 d4-1,2-Dichloroeth	5.000	5.277	105.54	
\$ 43 d8-Toluene	5.000	5.005	100.09	
\$ 62 4-Bromofluorobenze	5.000	4.880	97.60	
\$ 79 d4-1,2-Dichloroben	5.000	5.220	104.40	

REVIEW SUMMARY FOR FILE - V303102315G.D

Lab ID: 23C0181-03

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 14:45

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\202303102315G.D

Date: 10-HR-2023 14:45

Client ID:

Sample Info: 23C0181-03

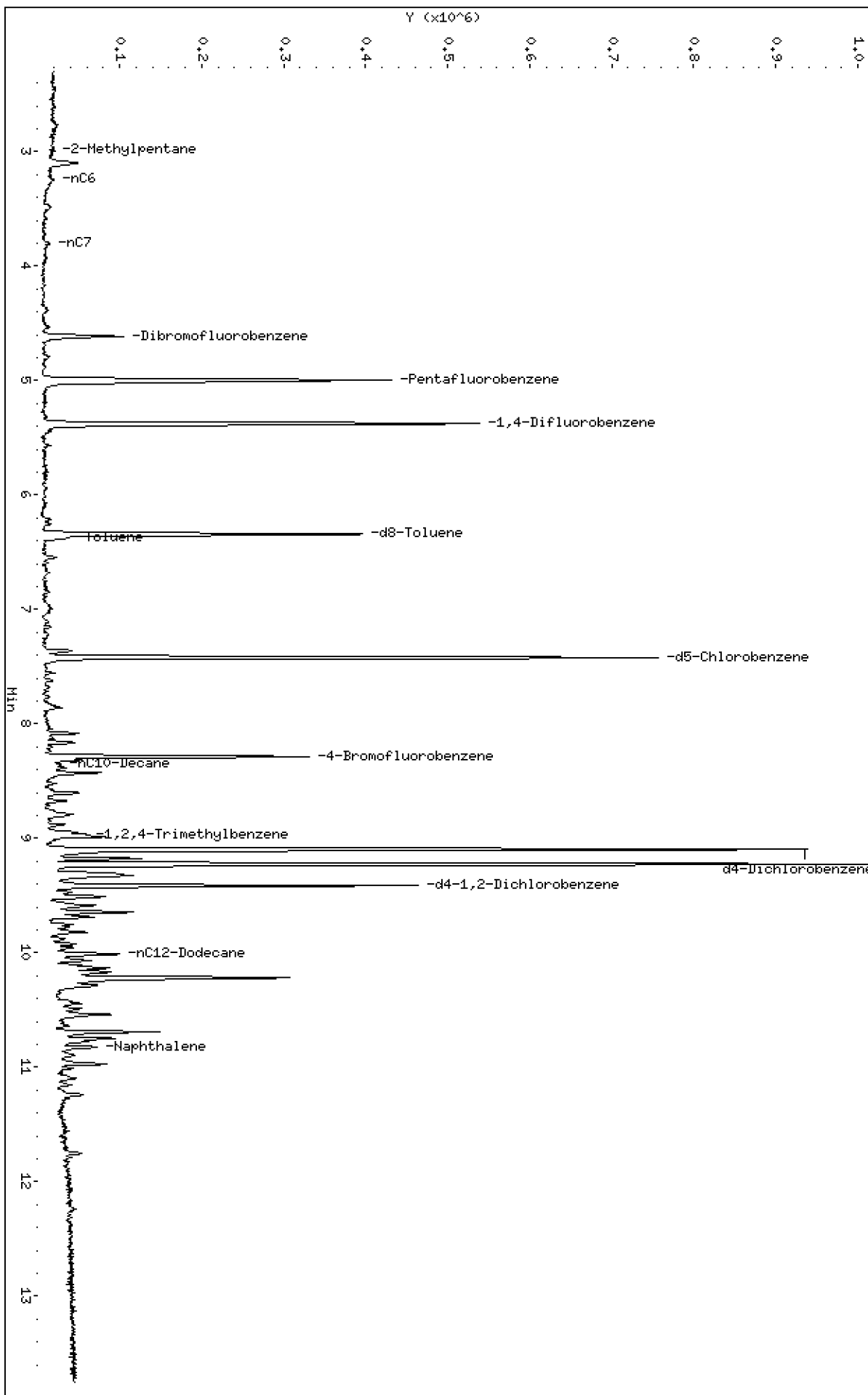
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230310g.1b\202303102315G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102315G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 14:45

ARI ID: 23C0181-03  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	4368456	0.077 M
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	1874068	0.019 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	907569	0.011 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	6074720	0.099 M
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	4570364	0.042 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

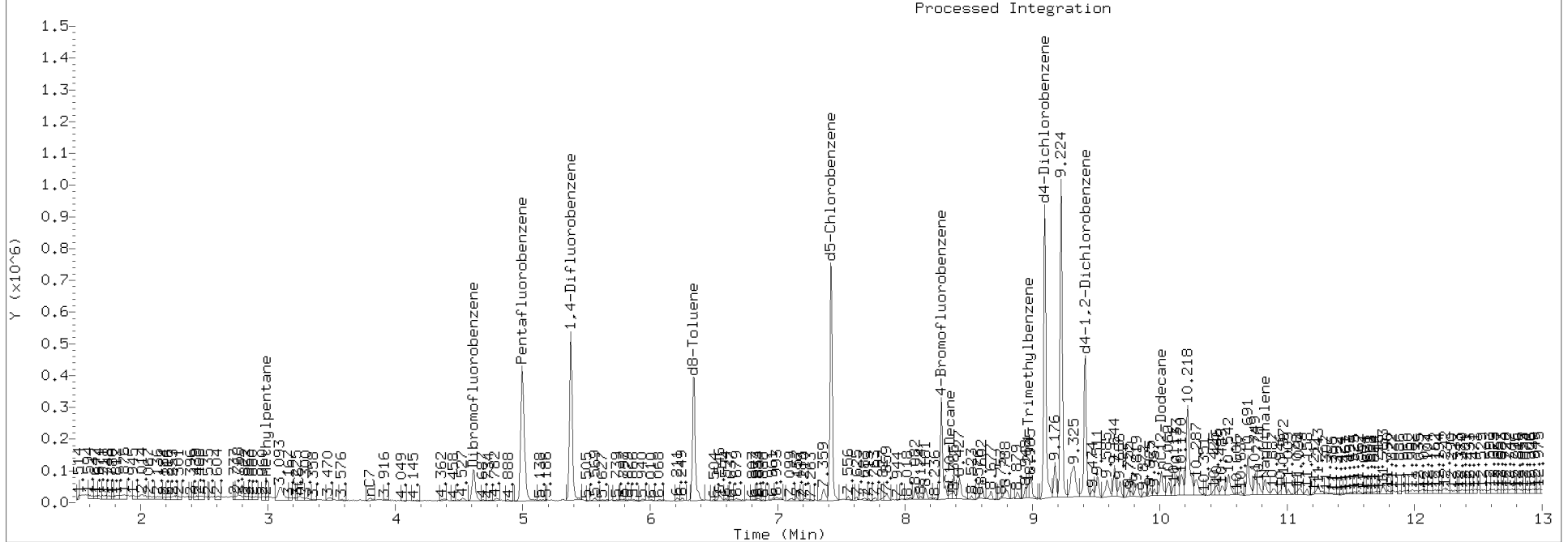
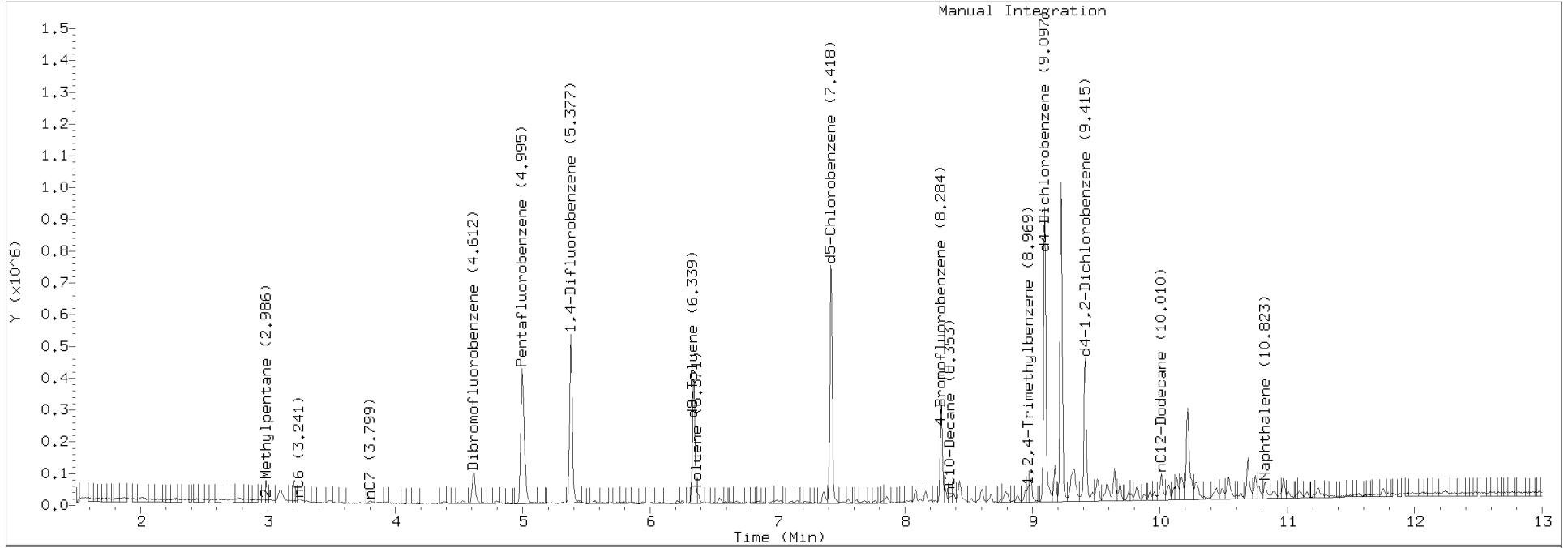
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7.418	1000368	d5-Chlorobenzene
6.339	556970	d8-Toluene
9.097	1235328	d4-Dichlorobenzene
8.284	426466	4-Bromofluorobenzene
9.415	627015	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230310g.b/V303102315G.D Injection: 10-MAR-2023 14:45

Lab ID:23C0181-03





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**LW-4R-20230308**  
**23C0181-04 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 16:38  
Instrument: ECD8 Analyzed: 22-Mar-2023 15:26

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	76.3	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	67.2	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-4R-20230308**  
**23C0181-04 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 16:38  
Analyzed: 16-Mar-2023 02:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	83.8	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	107	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	81.1	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-4R-20230308**  
**23C0181-04 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 16:38  
Analyzed: 17-Mar-2023 18:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>93.1</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>111</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>106</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-4R-20230308**  
**23C0181-04 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 16:38  
Analyzed: 21-Mar-2023 17:07

**Analysis by: Analytical Resources, LLC**

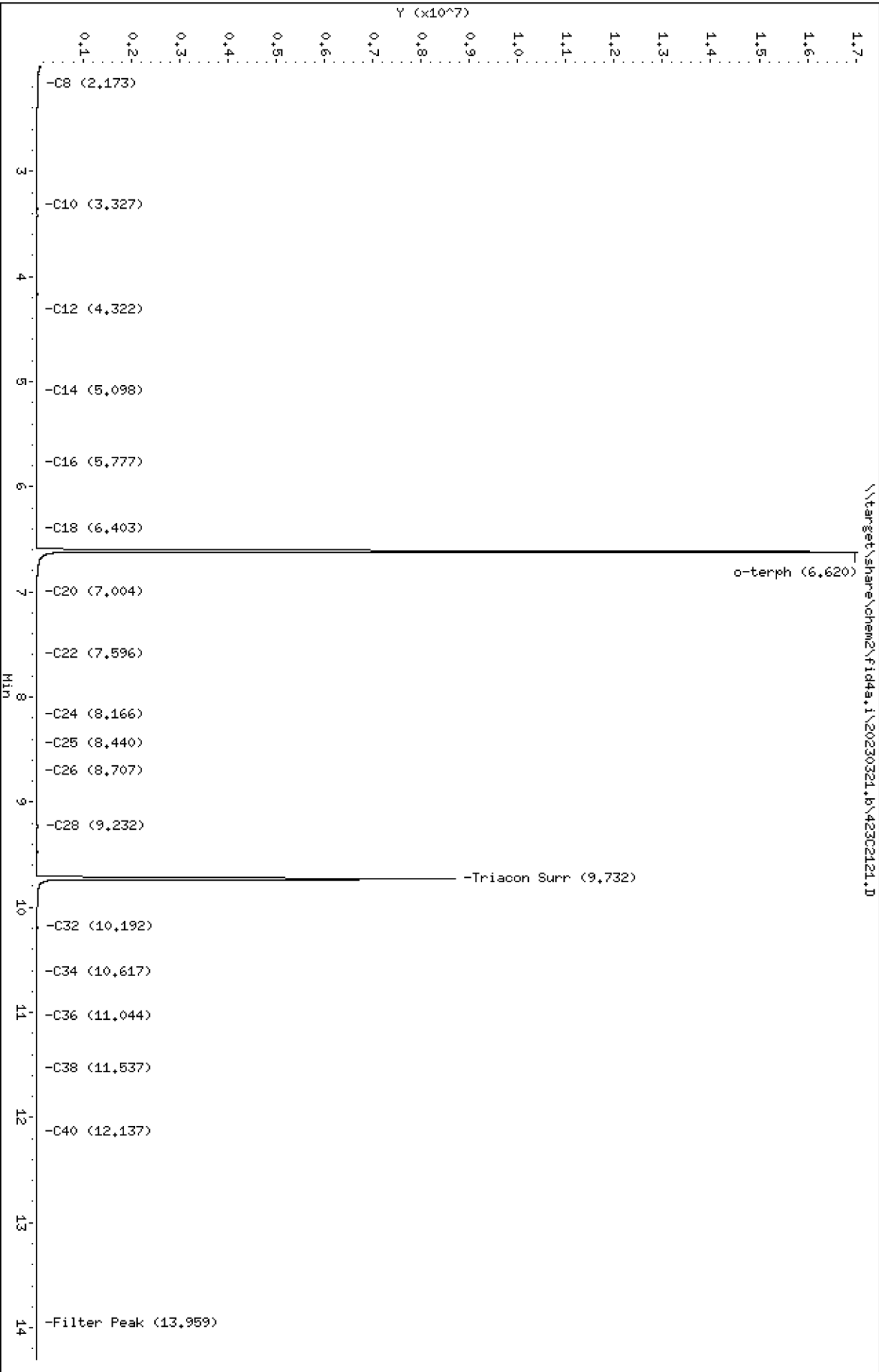
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	82.3	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302121.D  
Date: 21-MAR-2023 17:07  
Client ID:  
Sample Info: 23C0181-04

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2121.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-04  
Client ID:  
Injection: 21-MAR-2023 17:07  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

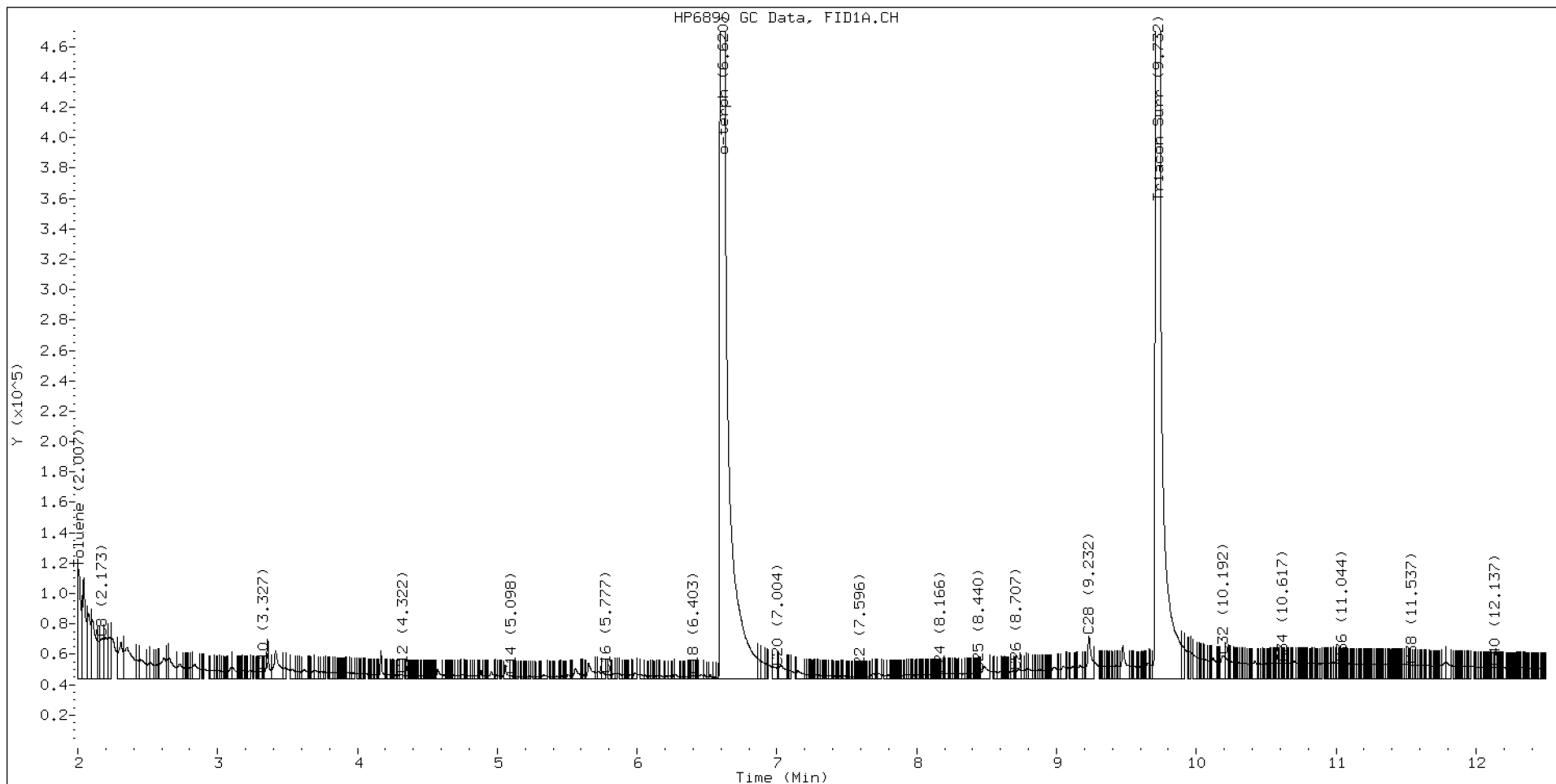
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.173	-0.002	26757	48773	WATPHD	(C12-C24)	475079	3.0
C10	3.327	0.001	4446	1106	WATPHM	(C24-C38)	1487591	11.2
C12	4.322	0.002	2192	749	AK102	(C10-C25)	779549	4.1
C14	5.098	-0.006	1747	1782	AK103	(C25-C36)	1214596	12.3
C16	5.777	-0.004	2549	503	OR.DIES	(C10-C28)	1085788	5.7
C18	6.403	-0.000	1896	1383				
C20	7.004	-0.000	6975	2086	JET-A	(C10-C18)	517042	3.0
C22	7.596	0.001	1143	628				
C24	8.166	-0.000	2824	696				
C25	8.440	-0.003	3621	1053				
C26	8.707	-0.007	4293	1269				
C28	9.232	0.000	27582	54998				
C32	10.192	0.009	14906	33748				
C34	10.617	-0.000	10161	4554				
Filter Peak	13.959	-0.004	6093	4541	CREOSOT	(C12-C22)	402227	15.2
C36	11.044	-0.005	9762	6316				
C38	11.537	-0.004	8765	5216				
C40	12.137	-0.001	7483	1861				
o-terph	6.620	-0.002	16994595	18850201				
Triacon Surr	9.732	-0.016	8668182	9838617	NAS DIES	(C10-C24)	752201	4.0

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	18850201	92.6
Triacontane	9838617	45.2

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**LW-4R-20230308**  
**23C0181-04 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 16:38  
Analyzed: 10-Mar-2023 15:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	96.7	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102316G.D

Date: 10-HR-2023 15:07

Client ID:

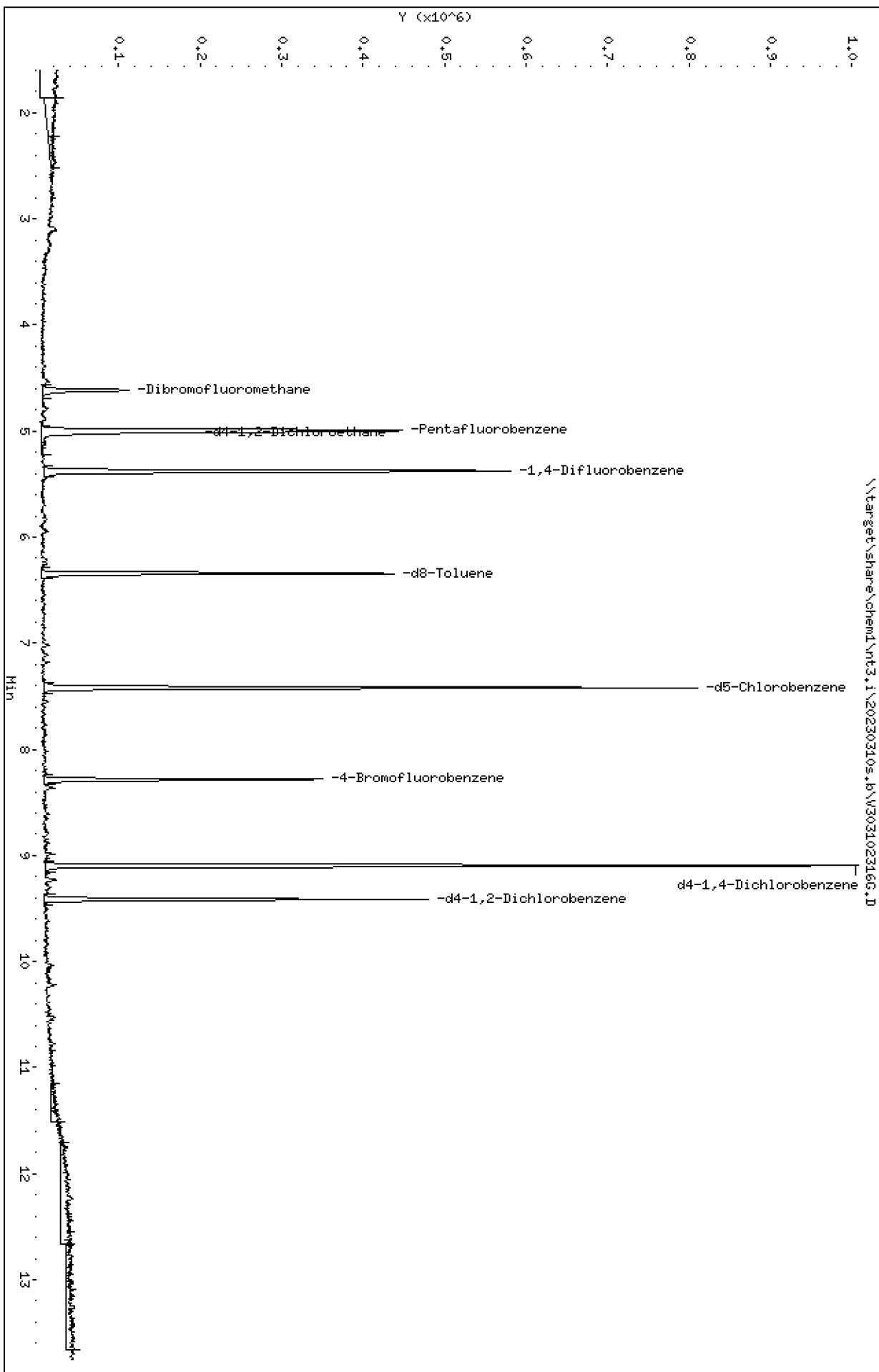
Sample Info: 23C0181-04

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102316G.D  
Lab Smp Id: 23C0181-04  
Inj Date : 10-MAR-2023 15:07  
Operator : PKC  
Smp Info : 23C0181-04  
Misc Info : 17-  
Comment :  
Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Meth Date : 13-Mar-2023 13:02 nt3.i  
Cal Date : 09-MAR-2023 13:44  
Als bottle: 67  
Dil Factor: 1.00000  
Integrator: HP RTE  
Target Version: 4.14  
Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	CONCENTRATIONS					
			ON-COLUMN	FINAL	RT	EXP RT	REL RT	RESPONSE
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	58199	5.12604	5.126(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	261784	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	34127	5.62061	5.621(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	386072	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	220462	5.00528	5.005(R)
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	376500	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	80755	4.83494	4.835(R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	222268	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	101187	5.04258	5.043(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102316G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-04  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	261784	4.85
37 1,4-Difluorobenze	365813	182907	731626	386072	5.54
53 d5-Chlorobenzene	354990	177495	709980	376500	6.06
76 d4-1,4-Dichlorobe	212292	106146	424584	222268	4.70

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-04  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.126	102.52	
\$ 33 d4-1,2-Dichloroeth	5.000	5.621	112.41	
\$ 43 d8-Toluene	5.000	5.005	100.11	
\$ 62 4-Bromofluorobenze	5.000	4.835	96.70	
\$ 79 d4-1,2-Dichloroben	5.000	5.043	100.85	

REVIEW SUMMARY FOR FILE - V303102316G.D

Lab ID: 23C0181-04

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 15:07

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230310g,1b\2303102316G.D

Date: 10-HR-2023 15:07

Client ID:

Sample Info: 23C0181-04

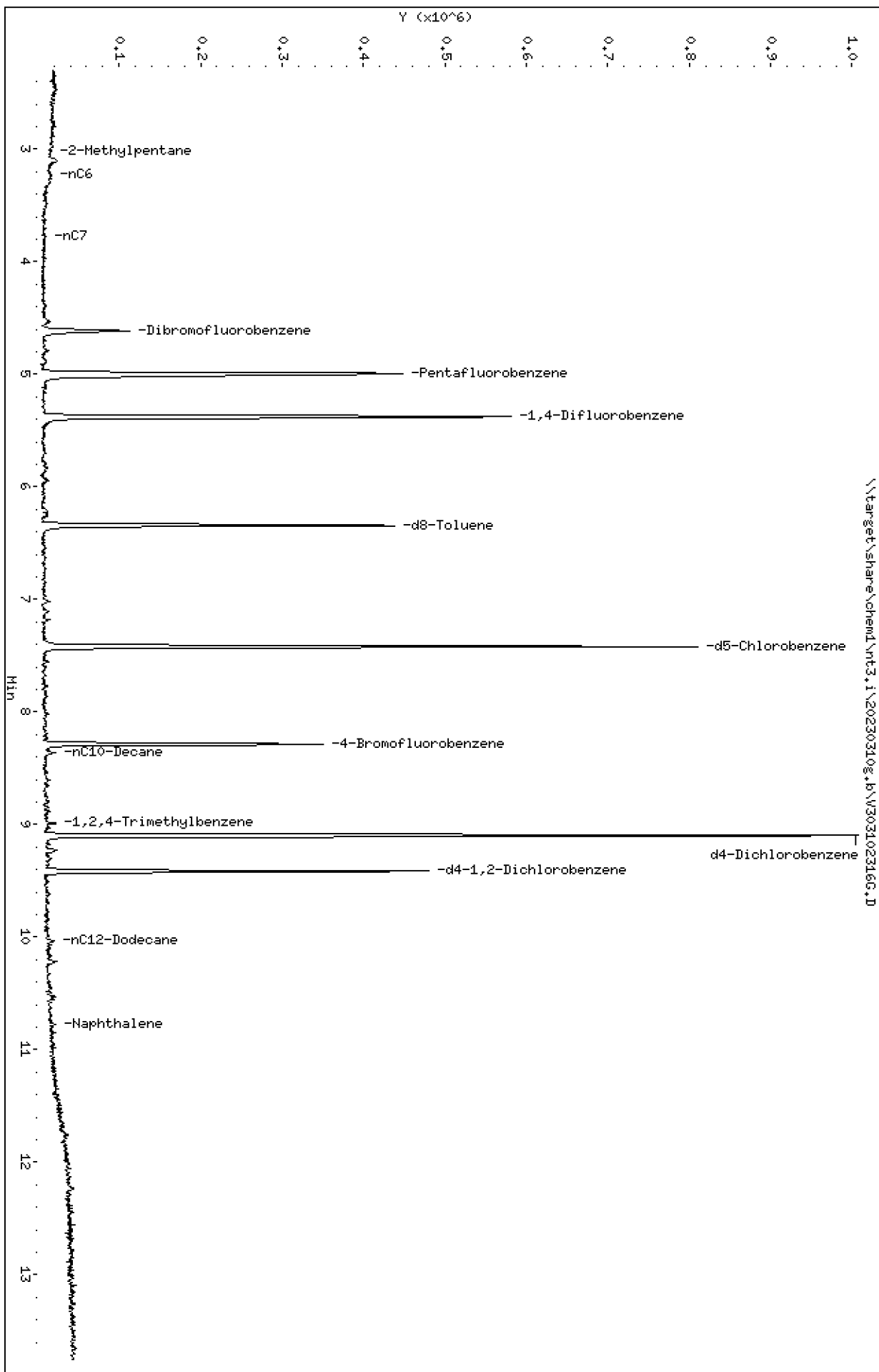
Column phase: RTXWMS

Instrument: nt3,1

Operator: PKC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102316G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 15:07

ARI ID: 23C0181-04  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	415596	0.007
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	644444	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	414833	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	549394	0.009
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	588117	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	1081798	d5-Chlorobenzene
6.344	594974	d8-Toluene
9.096	1232596	d4-Dichlorobenzene
8.283	445775	4-Bromofluorobenzene
9.415	604366	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-01D-20230309**  
**23C0181-05 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/09/2023 09:11  
Analyzed: 22-Mar-2023 15:44

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	78.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	66.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01D-20230309**  
**23C0181-05 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/09/2023 09:11  
Analyzed: 16-Mar-2023 03:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>88.1 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>112 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>89.7 %</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01D-20230309**  
**23C0181-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/09/2023 09:11  
Analyzed: 17-Mar-2023 18:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>62.5</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>120</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>97.8</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-01D-20230309**  
**23C0181-05 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/09/2023 09:11  
Analyzed: 21-Mar-2023 17:26

**Analysis by: Analytical Resources, LLC**

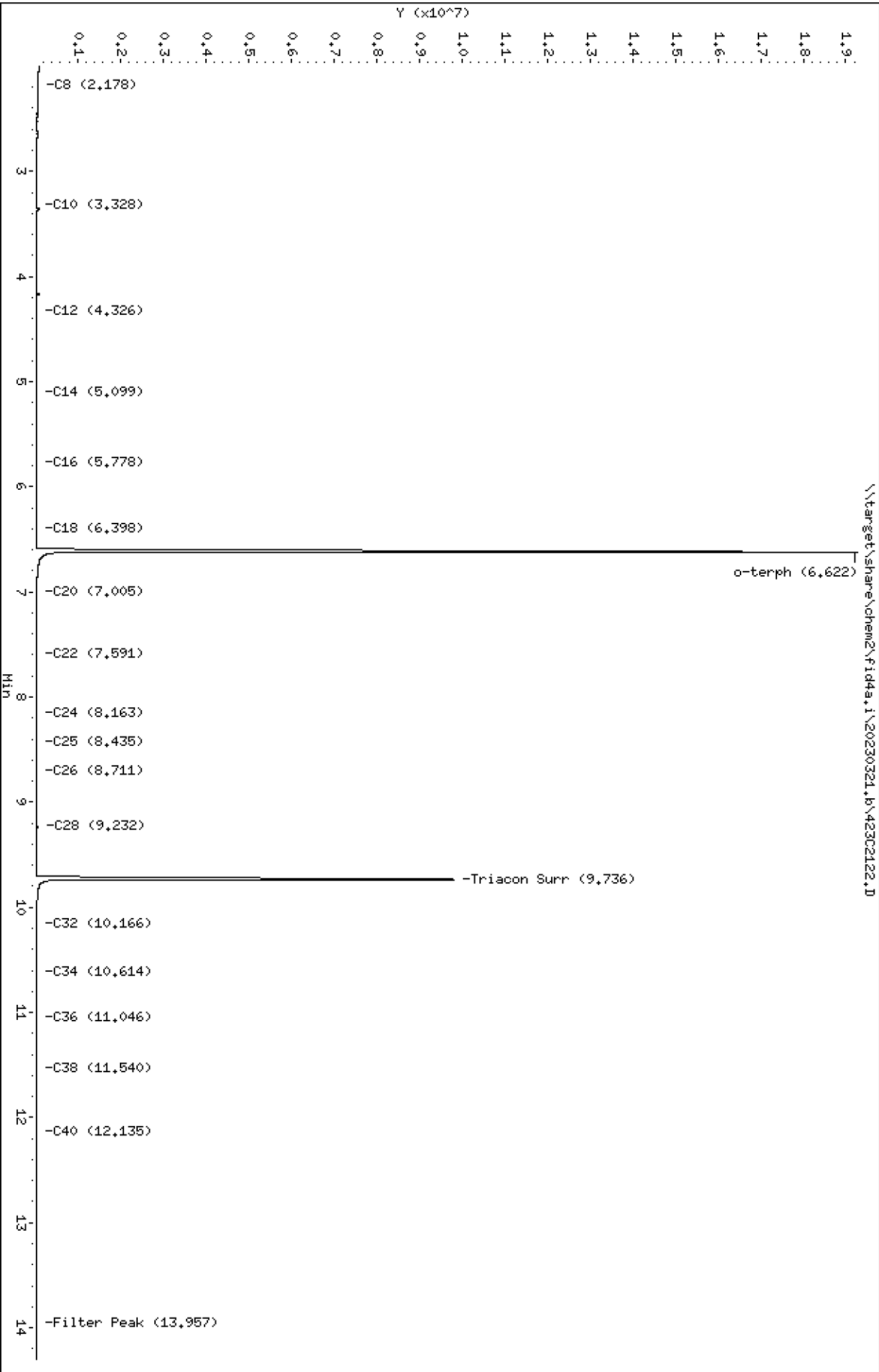
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			<i>50-150 %</i>	<i>101</i>	<i>%</i>	

Data File: \\target\share\chem2\fid4a,1\20230321.b\42302122.D  
Date: 21-MAR-2023 17:26  
Client ID:  
Sample Info: 23C0181-05

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2122.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-05  
Client ID:  
Injection: 21-MAR-2023 17:26  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.178	0.003	33511	57769	WATPHD	(C12-C24)	917354	5.8
C10	3.328	0.003	8486	5448	WATPHM	(C24-C38)	970591	7.3
C12	4.326	0.005	6226	3090	AK102	(C10-C25)	1445525	7.6
C14	5.099	-0.005	5184	3794	AK103	(C25-C36)	695151	7.0
C16	5.778	-0.002	7984	10841	OR.DIES	(C10-C28)	1524156	8.0
C18	6.398	-0.005	7244	7284				
C20	7.005	0.000	9208	2294	JET-A	(C10-C18)	1240826	7.2
C22	7.591	-0.004	1107	486				
C24	8.163	-0.003	507	114				
C25	8.435	-0.008	202	105				
C26	8.711	-0.003	475	191				
C28	9.232	0.001	21880	40967				
C32	10.166	-0.017	7420	2943				
C34	10.614	-0.003	7304	4350				
Filter Peak	13.957	-0.005	9025	5415	CREOSOT	(C12-C22)	900526	34.0
C36	11.046	-0.004	8887	5306				
C38	11.540	-0.001	9765	1460				
C40	12.135	-0.003	9888	10763				
o-terph	6.622	0.000	19233301	23172912				
Triacon Surr	9.736	-0.013	9791001	11736253	NAS DIES	(C10-C24)	1442313	7.6

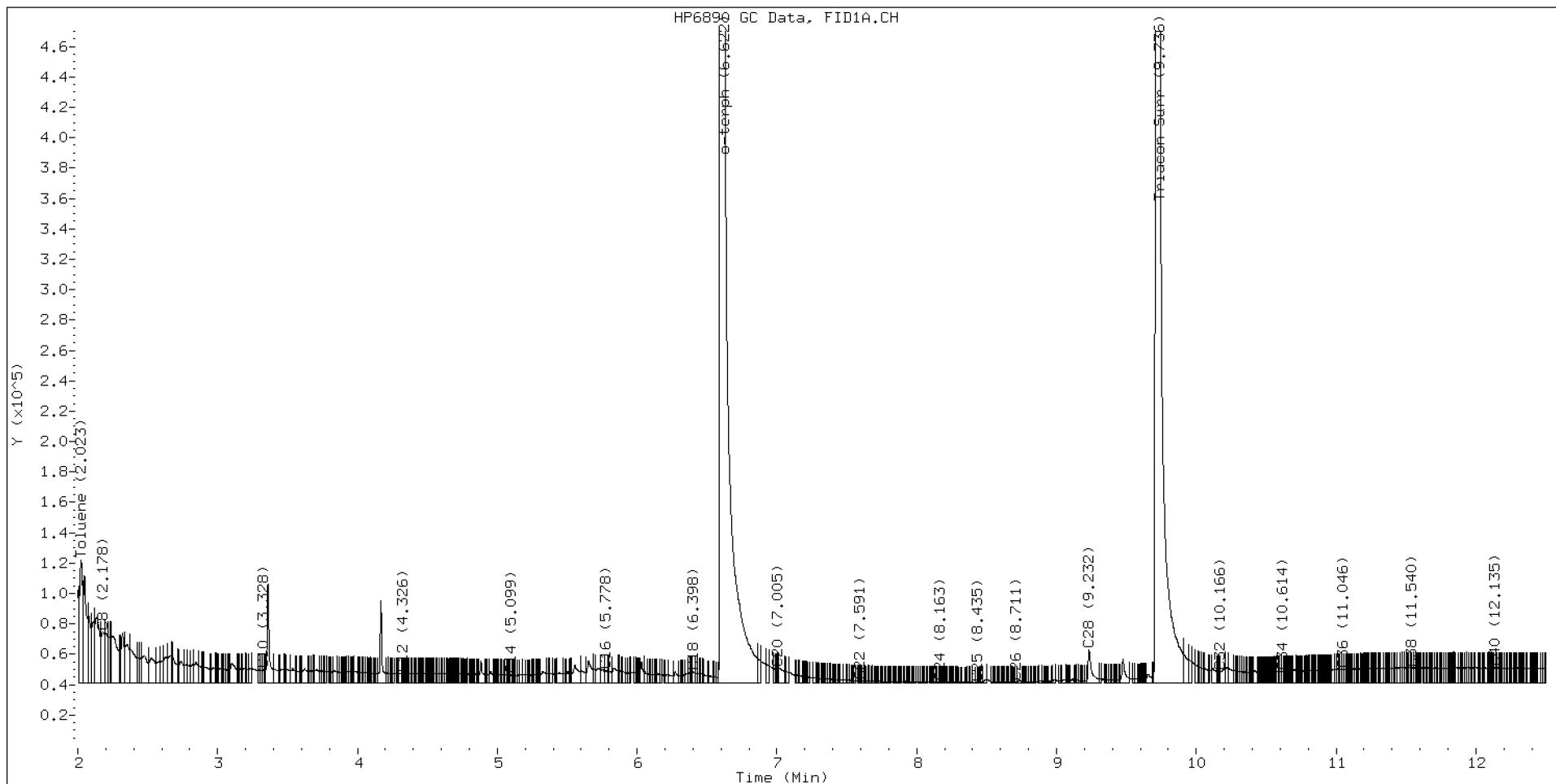
Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23172912	113.8
Triacontane	11736253	53.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023







Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 28-Nov-2023 14:10
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**MW-01D-20230309**  
**23C0181-05 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/09/2023 09:11  
Analyzed: 10-Mar-2023 15:29

**Analysis by: Analytical Resources, LLC**

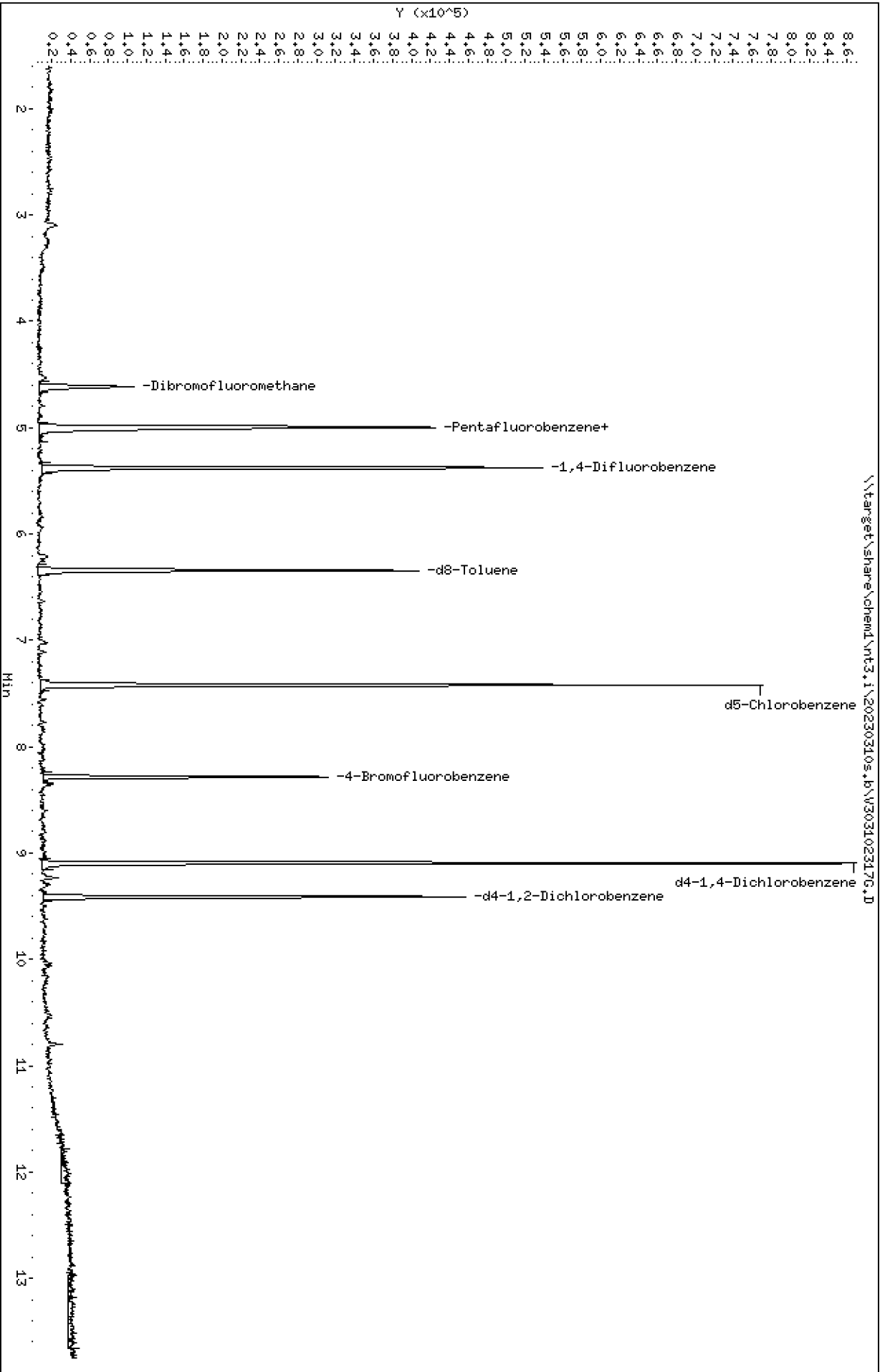
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.8	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102317G.D  
Date : 10-HR-2023 15:29  
Client ID:  
Sample Info: 23C0181-05

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102317G.D  
Lab Smp Id: 23C0181-05  
Inj Date : 10-MAR-2023 15:29  
Operator : PKC  
Smp Info : 23C0181-05  
Misc Info : 17-  
Comment :  
Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Meth Date : 13-Mar-2023 13:02 nt3.i  
Cal Date : 09-MAR-2023 13:44  
Als bottle: 68  
Dil Factor: 1.00000  
Integrator: HP RTE  
Target Version: 4.14  
Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	CONCENTRATIONS				
			ON-COLUMN	REL RT		RESPONSE	FINAL
	MASS		RT	EXP RT	REL RT	( ug/L)	( ug/L)
\$ 27 Dibromofluoromethane	111		4.615	4.616	(0.924)	56387	5.20819
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	249633	10.0000
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	30873	5.33218
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	359066	10.0000
\$ 43 d8-Toluene	98		6.342	6.343	(1.180)	205182	5.00874
* 53 d5-Chlorobenzene	117		7.421	7.422	(1.000)	349647	10.0000
\$ 62 4-Bromofluorobenzene	174		8.287	8.288	(1.117)	76609	4.93897
* 76 d4-1,4-Dichlorobenzene	152		9.100	9.095	(1.000)	201506	10.0000
\$ 79 d4-1,2-Dichlorobenzene	152		9.413	9.414	(1.034)	95348	5.24117

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102317G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-05  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	249633	-0.02
37 1,4-Difluorobenze	365813	182907	731626	359066	-1.84
53 d5-Chlorobenzene	354990	177495	709980	349647	-1.51
76 d4-1,4-Dichlorobe	212292	106146	424584	201506	-5.08

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.02
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.02
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.05

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-05  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.208	104.16	
\$ 33 d4-1,2-Dichloroeth	5.000	5.332	106.64	
\$ 43 d8-Toluene	5.000	5.009	100.17	
\$ 62 4-Bromofluorobenze	5.000	4.939	98.78	
\$ 79 d4-1,2-Dichloroben	5.000	5.241	104.82	

REVIEW SUMMARY FOR FILE - V303102317G.D

Lab ID: 23C0181-05

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 15:29

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\202303102317G.D

Date: 10-HR-2023 15:29

Client ID:

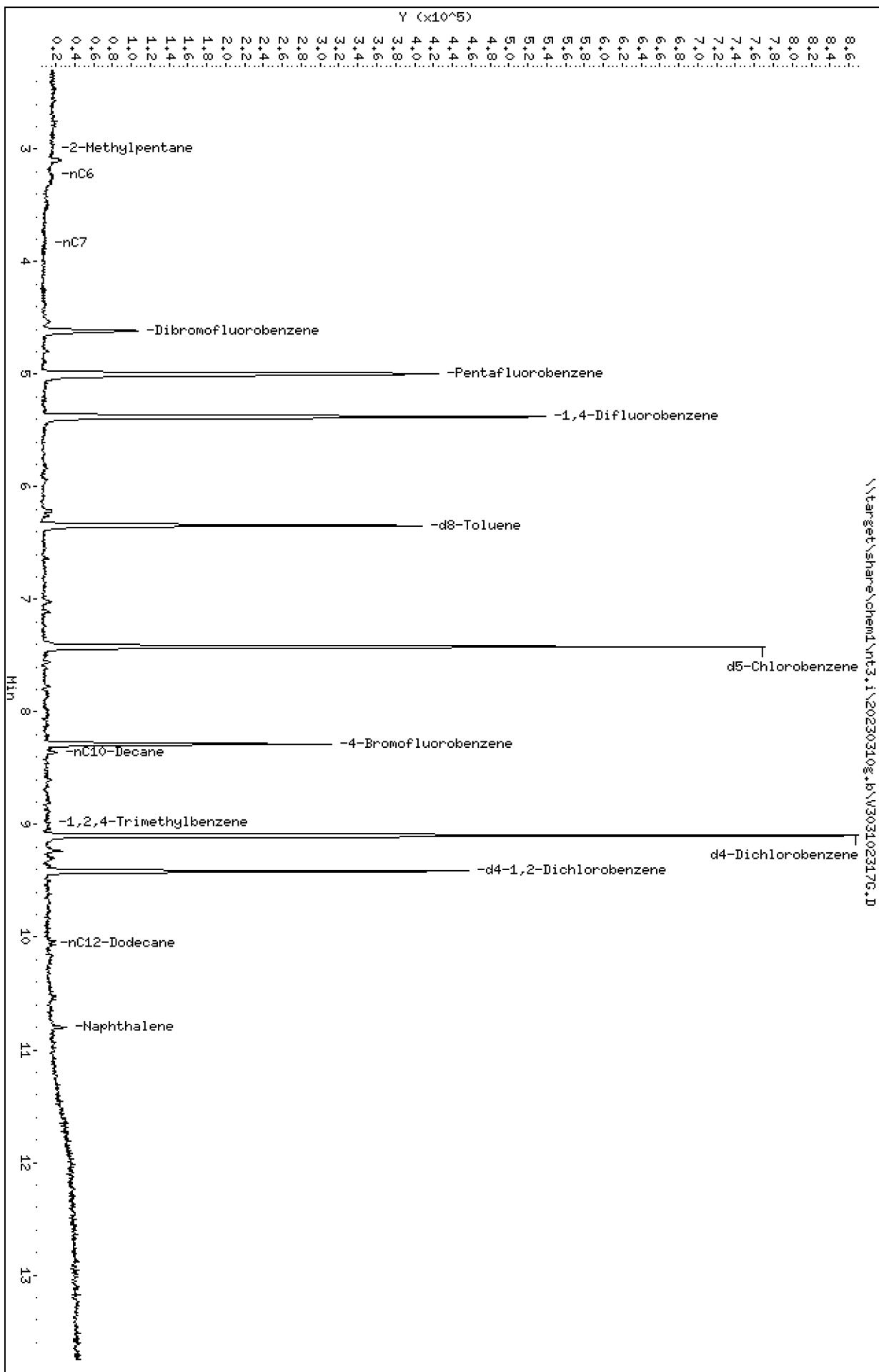
Sample Info: 23C0181-05

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18





Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102317G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 15:29

ARI ID: 23C0181-05  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	378717	0.007
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	618311	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	400272	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	497109	0.008
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	551618	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.421	1005095	d5-Chlorobenzene
6.343	569961	d8-Toluene
9.095	1113705	d4-Dichlorobenzene
8.287	408844	4-Bromofluorobenzene
9.414	559192	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 10:45  
Analyzed: 22-Mar-2023 16:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	81.2	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	66.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 10:45  
Analyzed: 16-Mar-2023 03:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	85.5 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	113 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	86.0 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 10:45  
Analyzed: 17-Mar-2023 18:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	87.3	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	135	%	*
Surrogate: Fluoranthene-d10			46-121 %	108	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 10:45  
Analyzed: 21-Mar-2023 17:46

**Analysis by: Analytical Resources, LLC**

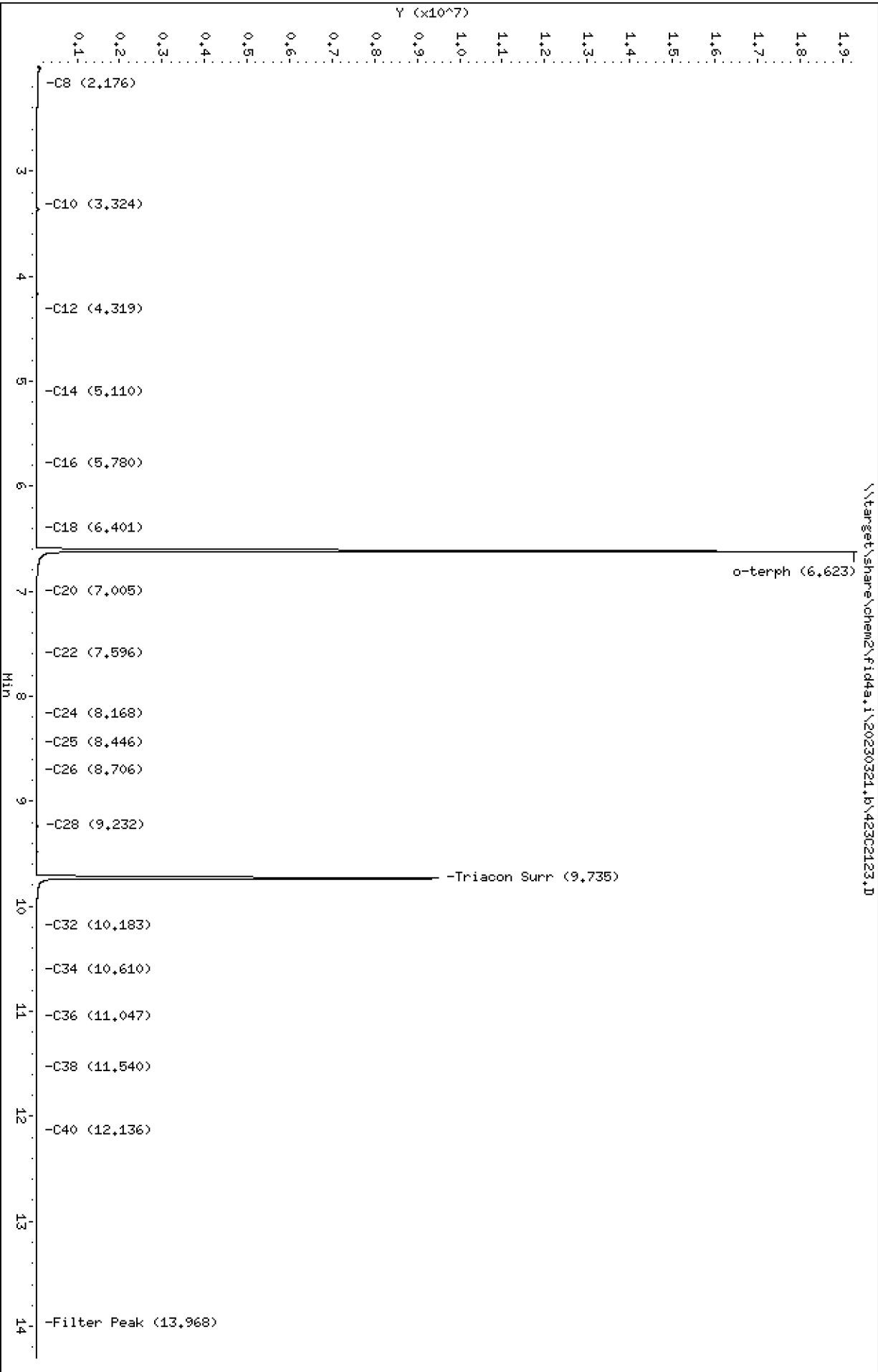
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	99.9	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302123.D  
Date : 21-MAR-2023 17:46  
Client ID:  
Sample Info: 23C0181-06

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2123.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-06  
Client ID:  
Injection: 21-MAR-2023 17:46  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

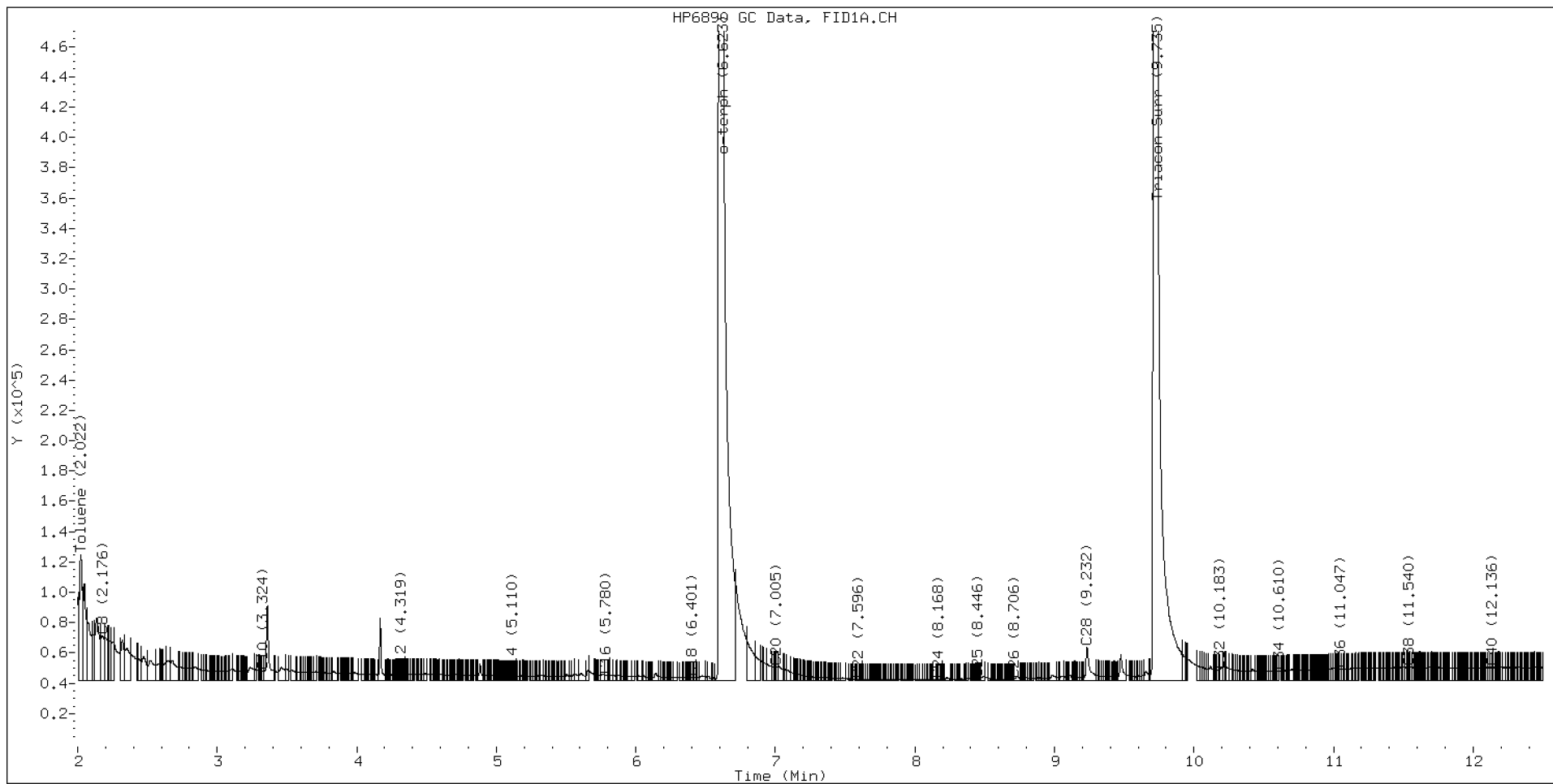
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.176	0.001	29352	47901	WATPHD	(C12-C24)	595350	3.8
C10	3.324	-0.001	6159	6659	WATPHM	(C24-C38)	817434	6.2
C12	4.319	-0.001	3776	1310	AK102	(C10-C25)	936540	5.0
C14	5.110	0.005	2462	1094	AK103	(C25-C36)	608650	6.2
C16	5.780	-0.001	3496	3992	OR.DIES	(C10-C28)	1041515	5.5
C18	6.401	-0.002	2048	2084				
C20	7.005	0.000	8867	3079	JET-A	(C10-C18)	653132	3.8
C22	7.596	0.001	486	261				
C24	8.168	0.002	464	347				
C25	8.446	0.004	1012	431				
C26	8.706	-0.007	779	259				
C28	9.232	0.001	22009	41288				
C32	10.183	0.000	6768	2982				
C34	10.610	-0.007	6165	1844				
Filter Peak	13.968	0.005	8183	4500	CREOSOT	(C12-C22)	584851	22.1
C36	11.047	-0.002	7516	6323				
C38	11.540	-0.001	8414	3751				
C40	12.136	-0.002	8407	4164				
o-terph	6.623	0.001	19296444	22897210				
Triacon Surr	9.735	-0.014	9449287	11005736	NAS DIES	(C10-C24)	929657	4.9

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	22897210	112.4
Triacontane	11005736	50.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023







Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-05D-20230308**  
**23C0181-06 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 10:45  
Analyzed: 10-Mar-2023 15:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

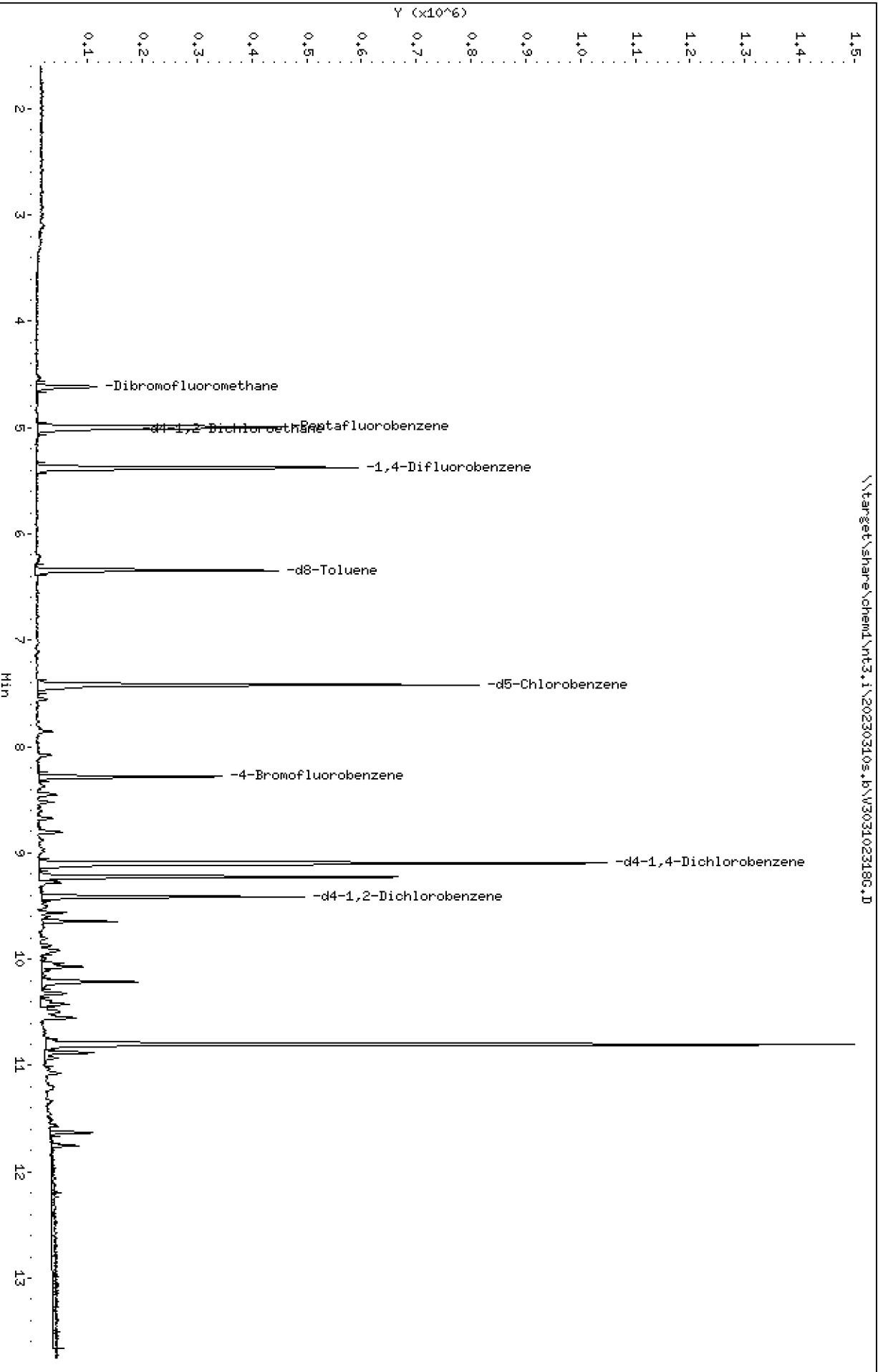
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	98.6	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.9	%	

Data File: \\target\share\chend\nt3,1\20230310s,16\303102318G.D  
Date : 10-HR-2023 15:52  
Client ID:  
Sample Info: 23C0181-06

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3,1\20230310s,16\303102318G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102318G.D  
Lab Smp Id: 23C0181-06  
Inj Date : 10-MAR-2023 15:52  
Operator : PKC  
Smp Info : 23C0181-06  
Misc Info : 17-  
Comment :  
Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Meth Date : 13-Mar-2023 13:02 nt3.i  
Cal Date : 09-MAR-2023 13:44  
Als bottle: 69  
Dil Factor: 1.00000  
Integrator: HP RTE  
Target Version: 4.14  
Processing Host: PAULC-201906

Inst ID: nt3.i  
Quant Type: ISTD  
Cal File: V303092311.D  
Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	CONCENTRATIONS					
			RT	EXP RT	REL RT	RESPONSE	ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111	====	4.616	4.616	(0.924)	60061	5.28572	5.286(R)
* 32 Pentafluorobenzene	168	====	4.994	4.993	(1.000)	261998	10.0000	
\$ 33 d4-1,2-Dichloroethane	67	====	5.015	5.009	(1.004)	32912	5.41607	5.416(R)
* 37 1,4-Difluorobenzene	114	====	5.376	5.376	(1.000)	386752	10.0000	
\$ 43 d8-Toluene	98	====	6.343	6.343	(1.180)	217611	4.93187	4.932(R)
* 53 d5-Chlorobenzene	117	====	7.422	7.422	(1.000)	374767	10.0000	
\$ 62 4-Bromofluorobenzene	174	====	8.288	8.288	(1.117)	81401	4.89615	4.896(R)
* 76 d4-1,4-Dichlorobenzene	152	====	9.095	9.095	(1.000)	225985	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152	====	9.414	9.414	(1.035)	104328	5.11359	5.114(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102318G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-06  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	261998	4.94
37 1,4-Difluorobenze	365813	182907	731626	386752	5.72
53 d5-Chlorobenzene	354990	177495	709980	374767	5.57
76 d4-1,4-Dichlorobe	212292	106146	424584	225985	6.45

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-06  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.286	105.71	
\$ 33 d4-1,2-Dichloroeth	5.000	5.416	108.32	
\$ 43 d8-Toluene	5.000	4.932	98.64	
\$ 62 4-Bromofluorobenze	5.000	4.896	97.92	
\$ 79 d4-1,2-Dichloroben	5.000	5.114	102.27	

REVIEW SUMMARY FOR FILE - V303102318G.D

Lab ID: 23C0181-06

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 15:52

RT CO-ELUTION COMPOUNDS

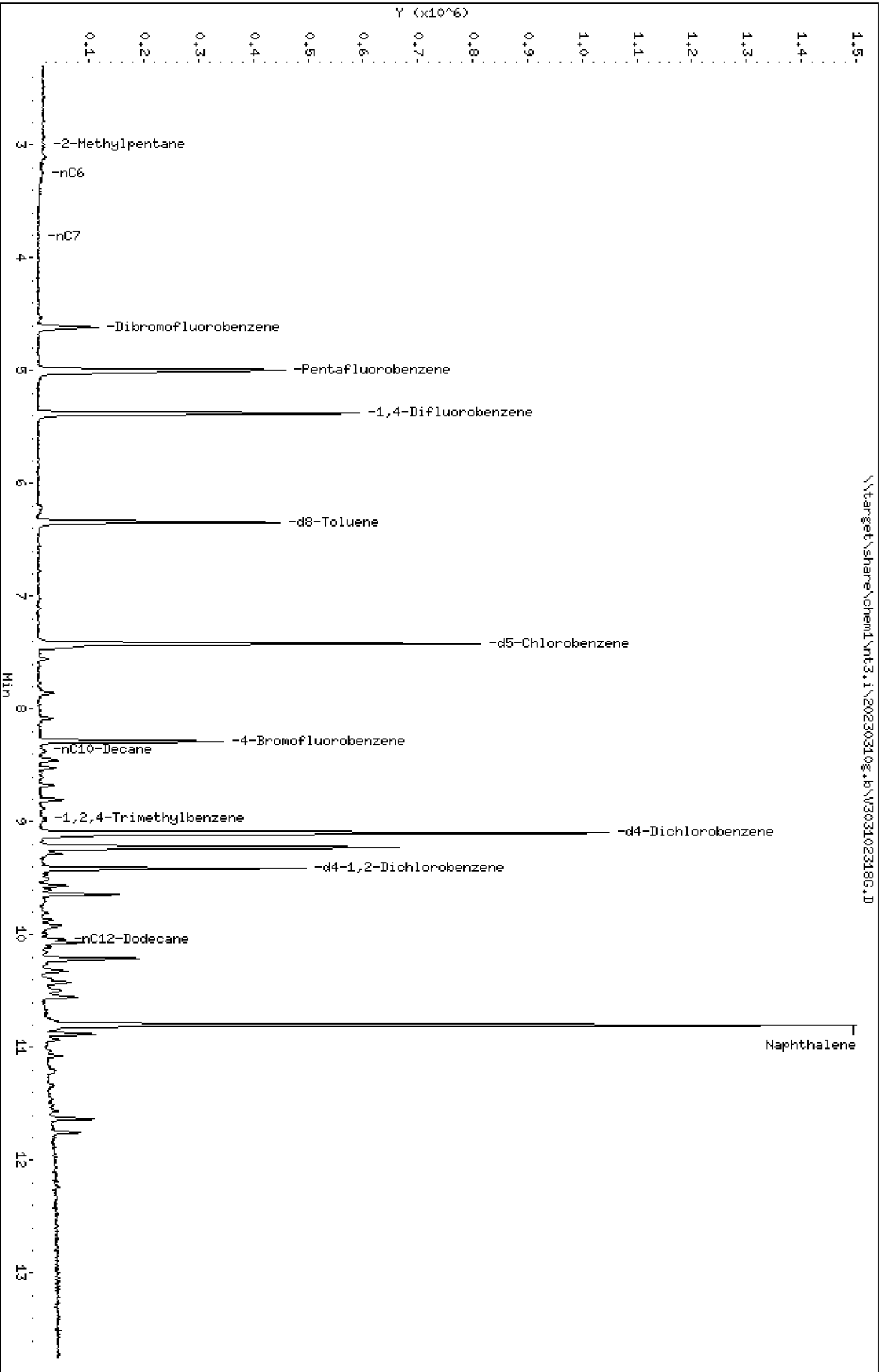
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Data File: \\target\share\chend\nt3.1\20230310g.1b\202303102318G.D  
Date: 10-MAR-2023 15:52  
Client ID:  
Sample Info: 23C0181-06

Column phase: RTXWMS

\\target\share\chend\nt3.1\20230310g.1b\202303102318G.D

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102318G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 15:52

ARI ID: 23C0181-06  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	2414372	0.043 M
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	935217	0.009 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	510966	0.006 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	5298104	0.086 M
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	2543798	0.023 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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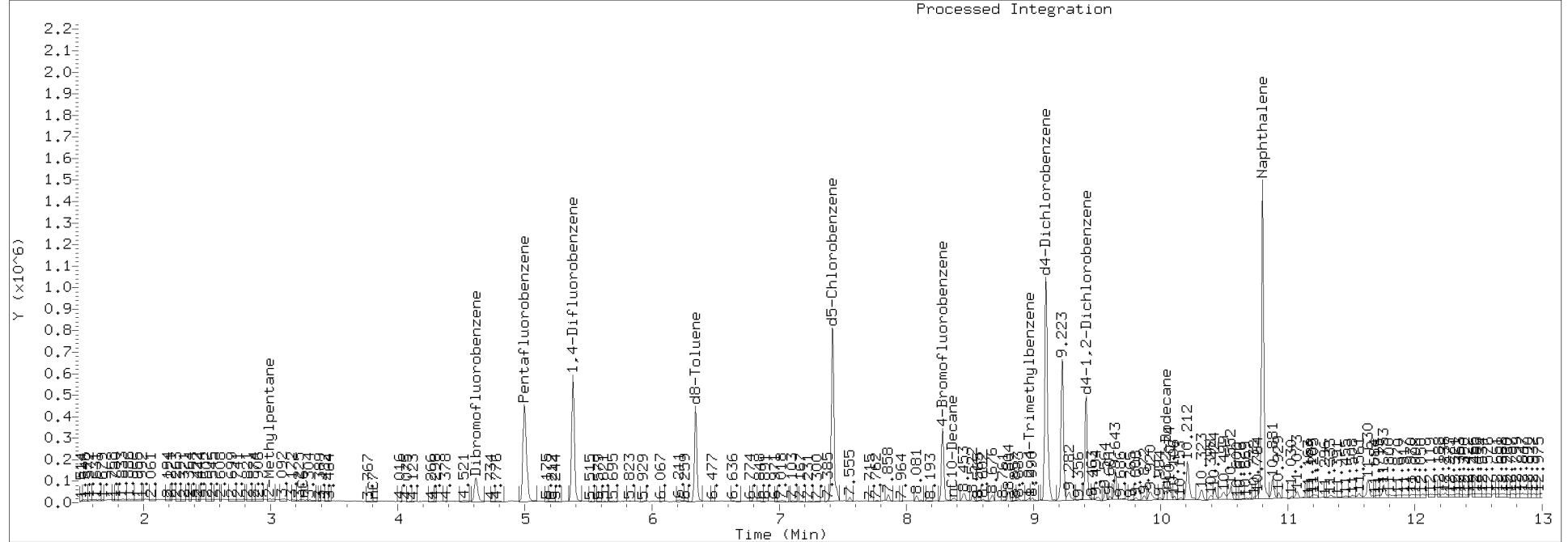
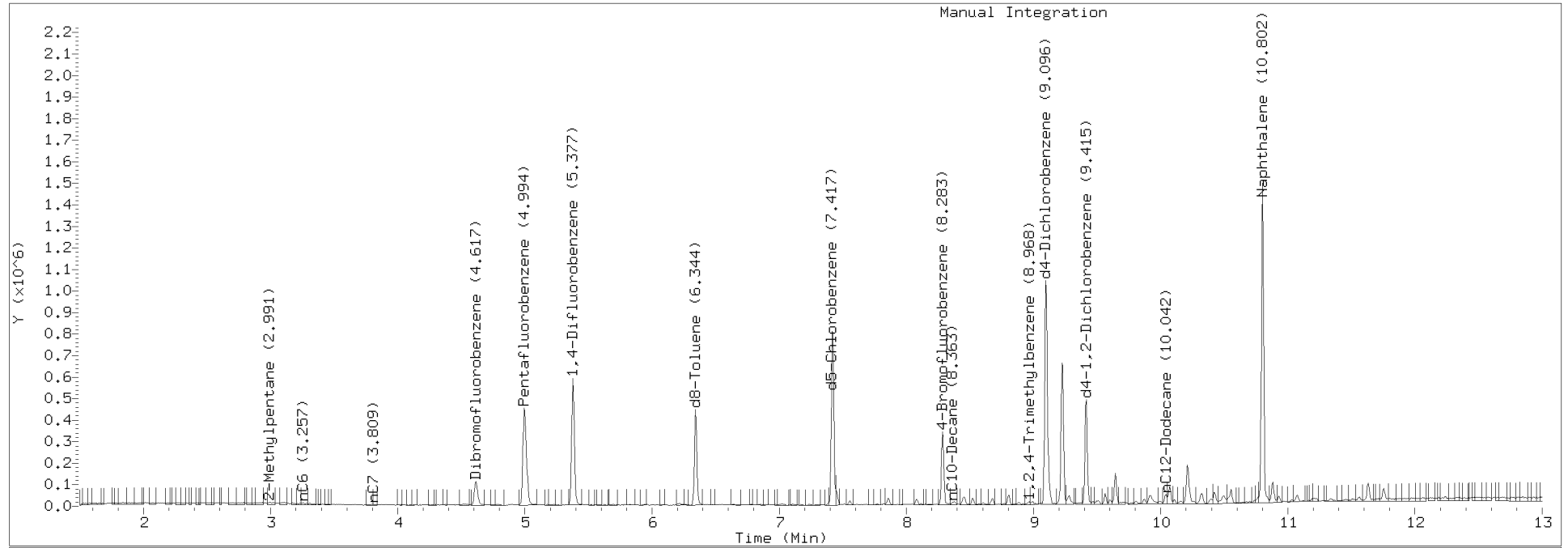
7.417	1086903	d5-Chlorobenzene
6.344	592860	d8-Toluene
9.096	1533542	d4-Dichlorobenzene
8.283	449537	4-Bromofluorobenzene
9.415	627844	d4-1,2-Dichlorobenzene



TPHG Manual Integrations Report

Datafile: NT3, 20230310g.b/V303102318G.D Injection: 10-MAR-2023 15:52

Lab ID:23C0181-06





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-18-20230308**  
**23C0181-07 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 16:41  
Analyzed: 22-Mar-2023 16:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	76.7	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	73.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-18-20230308**  
**23C0181-07 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 16:41  
Analyzed: 16-Mar-2023 04:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	79.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	102	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	76.9	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-18-20230308**  
**23C0181-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 16:41  
Analyzed: 17-Mar-2023 19:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	86.7	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	137	%	*
Surrogate: Fluoranthene-d10			46-121 %	107	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**PZ-18-20230308**  
**23C0181-07 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 16:41  
Analyzed: 21-Mar-2023 18:06

**Analysis by: Analytical Resources, LLC**

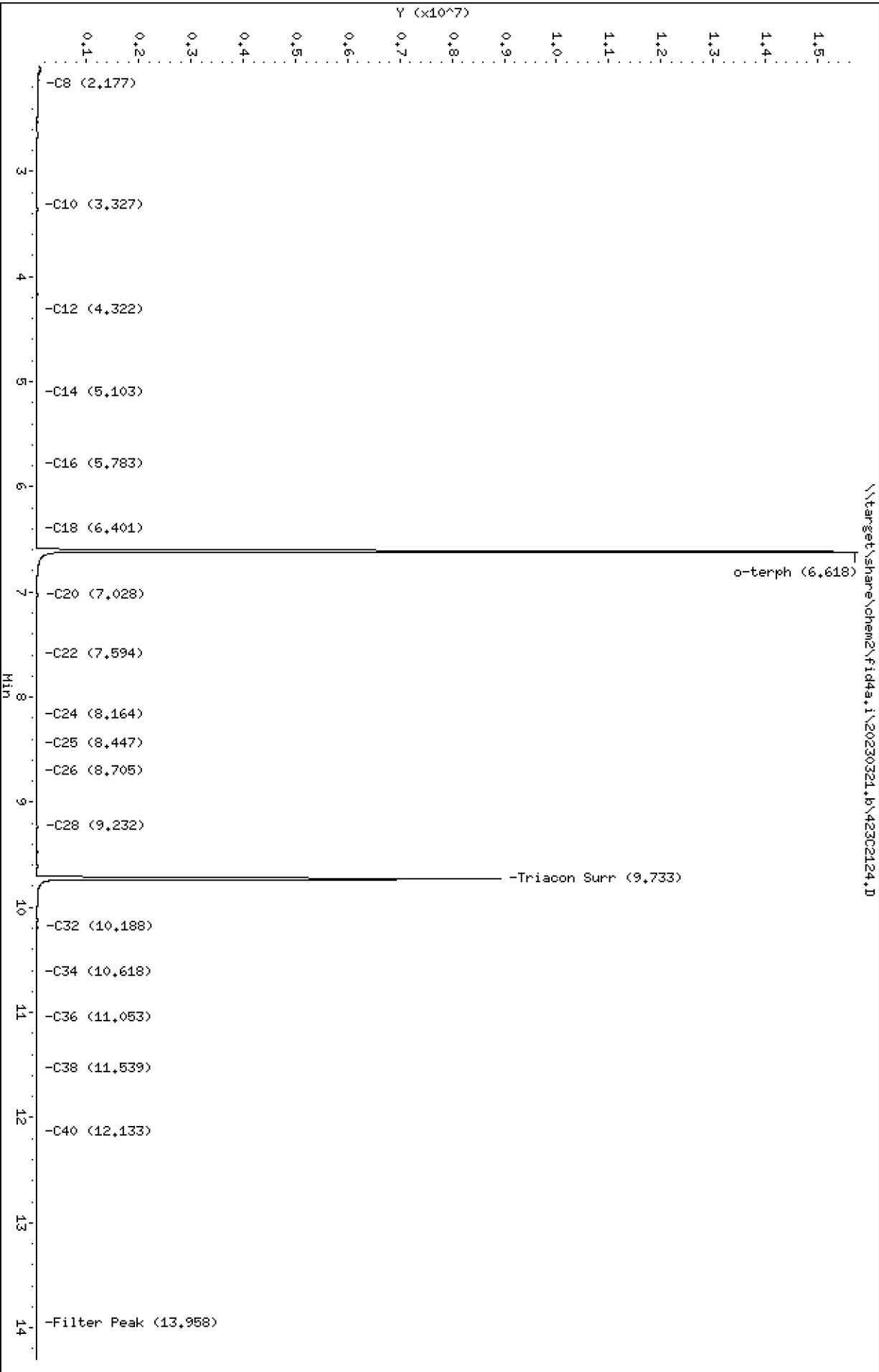
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	73.7	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302124.D  
Date: 21-MAR-2023 18:06  
Client ID:  
Sample Info: 23C0181-07

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2124.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-07  
Client ID:  
Injection: 21-MAR-2023 18:06  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

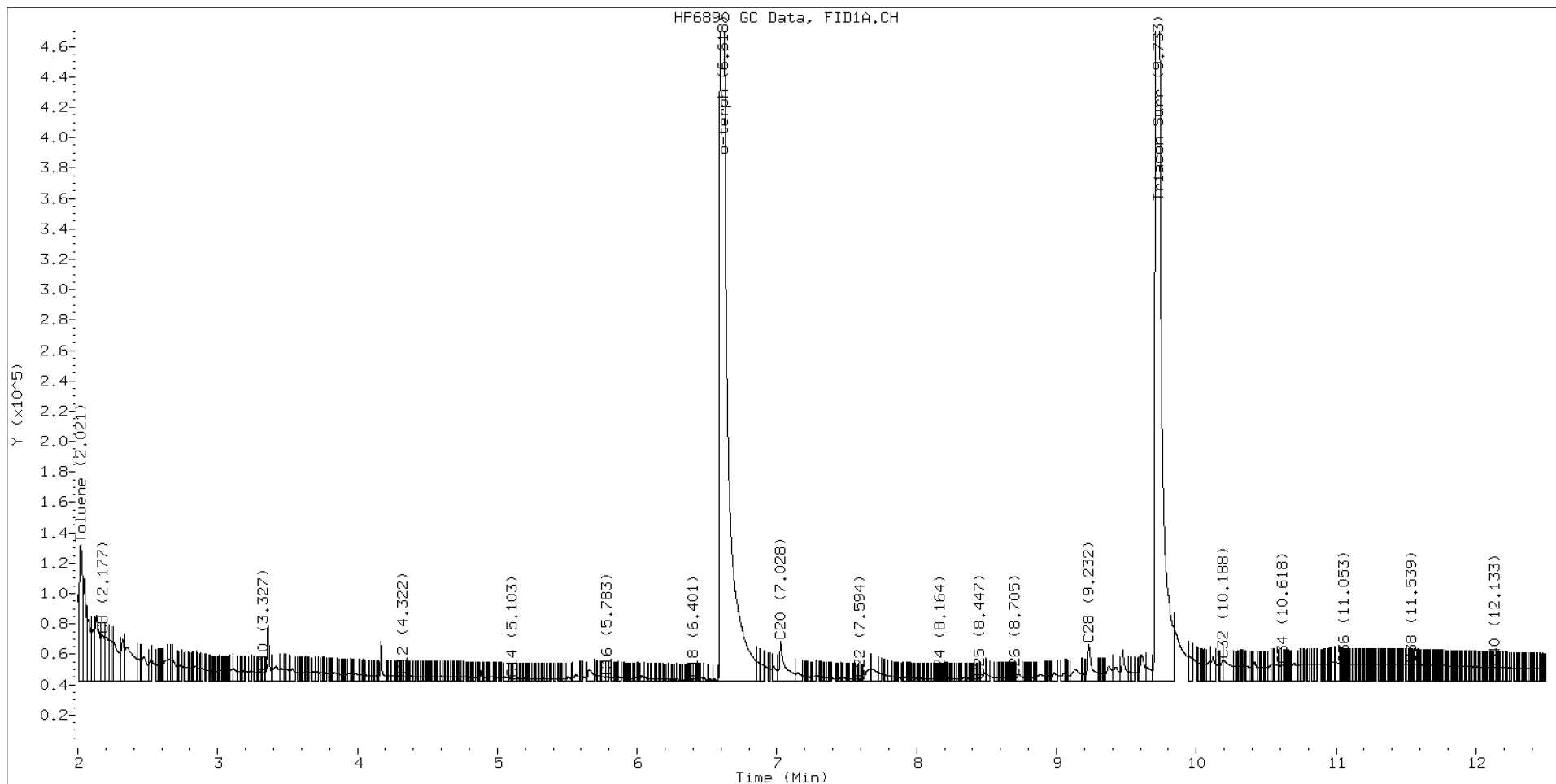
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.177	0.001	30158	50832	WATPHD	(C12-C24)	533074	3.4
C10	3.327	0.001	5804	2882	WATPHM	(C24-C38)	1336317	10.1
C12	4.322	0.001	3350	1633	AK102	(C10-C25)	888373	4.7
C14	5.103	-0.002	1661	632	AK103	(C25-C36)	1032861	10.4
C16	5.783	0.002	2745	3644	OR.DIES	(C10-C28)	1083108	5.7
C18	6.401	-0.003	1692	1461				
C20	7.028	0.023	25901	73374	JET-A	(C10-C18)	572516	3.3
C22	7.594	-0.000	1153	949				
C24	8.164	-0.002	1524	368				
C25	8.447	0.004	1863	1360				
C26	8.705	-0.009	2070	512				
C28	9.232	0.001	24102	53113				
C32	10.188	0.006	14099	17668				
C34	10.618	0.001	10148	6560				
Filter Peak	13.958	-0.004	6520	3877	CREOSOT	(C12-C22)	434964	16.4
C36	11.053	0.004	11297	2807				
C38	11.539	-0.002	10997	4938				
C40	12.133	-0.004	9005	7147				
o-terph	6.618	-0.004	15722442	16890275				
Triacon Surr	9.733	-0.016	8884442	9846241	NAS DIES	(C10-C24)	871509	4.6

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	16890275	82.9
Triacontane	9846241	45.2

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023







Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-18-20230308**  
**23C0181-07 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 16:41  
Analyzed: 10-Mar-2023 16:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

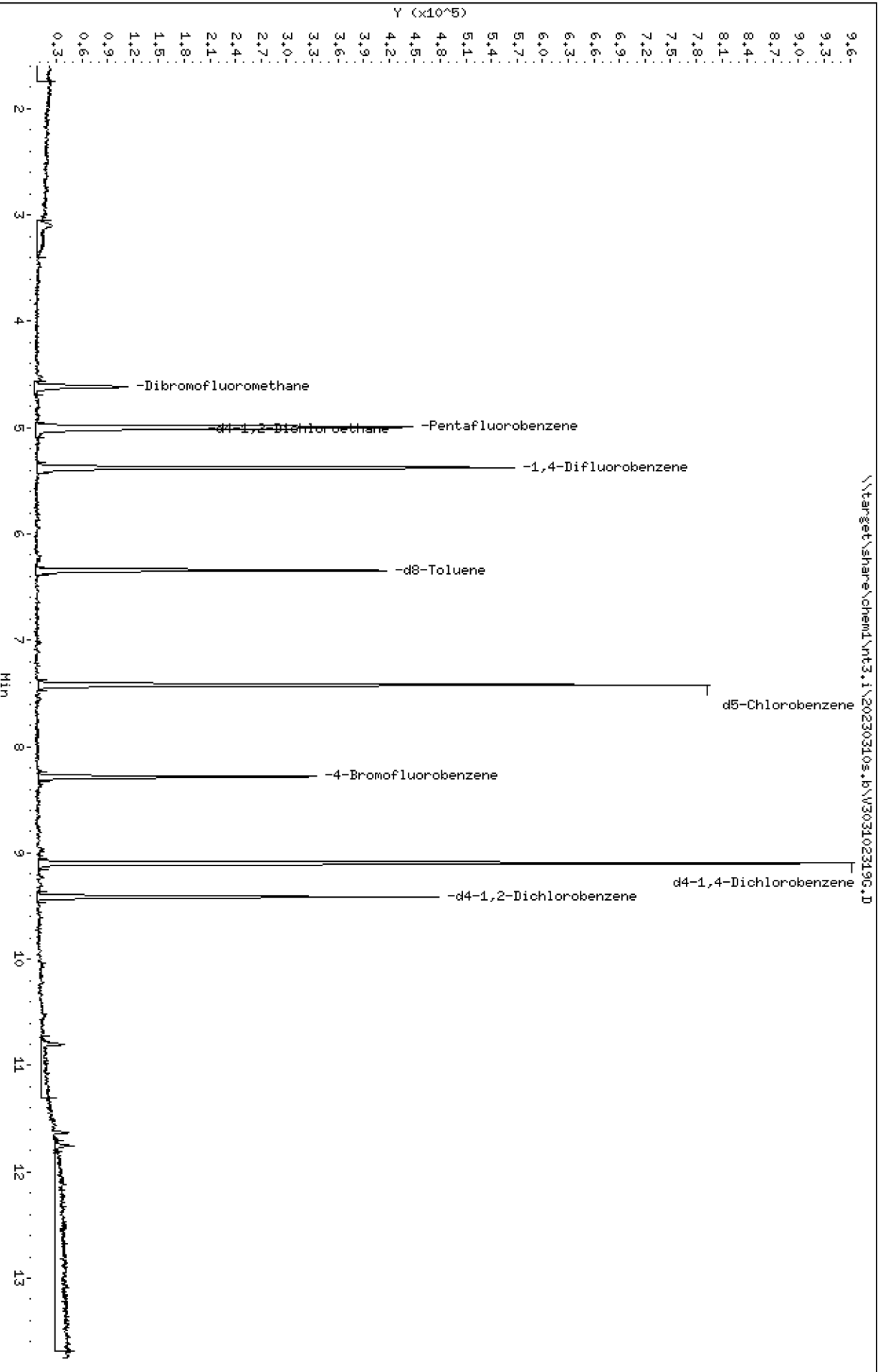
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	98.1	%	

Data File: \\target\share\chend\nt3.1\20230310s.16\303102319G.D  
Date: 10-HRR-2023 16:14  
Client ID:  
Sample Info: 23C0181-07

Instrument: nt3.1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102319G.D  
 Lab Smp Id: 23C0181-07  
 Inj Date : 10-MAR-2023 16:14  
 Operator : PKC  
 Smp Info : 23C0181-07  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 70  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	58787	5.24112	5.241
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	258623	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	33350	5.55977	5.560
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	375211	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	212726	4.96945	4.969
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	368645	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	80181	4.90286	4.903
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	215654	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	100708	5.17263	5.173

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102319G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-07  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	258623	3.58
37 1,4-Difluorobenze	365813	182907	731626	375211	2.57
53 d5-Chlorobenzene	354990	177495	709980	368645	3.85
76 d4-1,4-Dichlorobe	212292	106146	424584	215654	1.58

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-07  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.241	104.82	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.560	111.20	80-128
\$ 43 d8-Toluene	5.000	4.969	99.39	80-120
\$ 62 4-Bromofluorobenze	5.000	4.903	98.06	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.173	103.45	80-120

REVIEW SUMMARY FOR FILE - V303102319G.D

Lab ID: 23C0181-07

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 16:14

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230310g,1b\303102319G.D

Date: 10-HR-2023 16:14

Client ID:

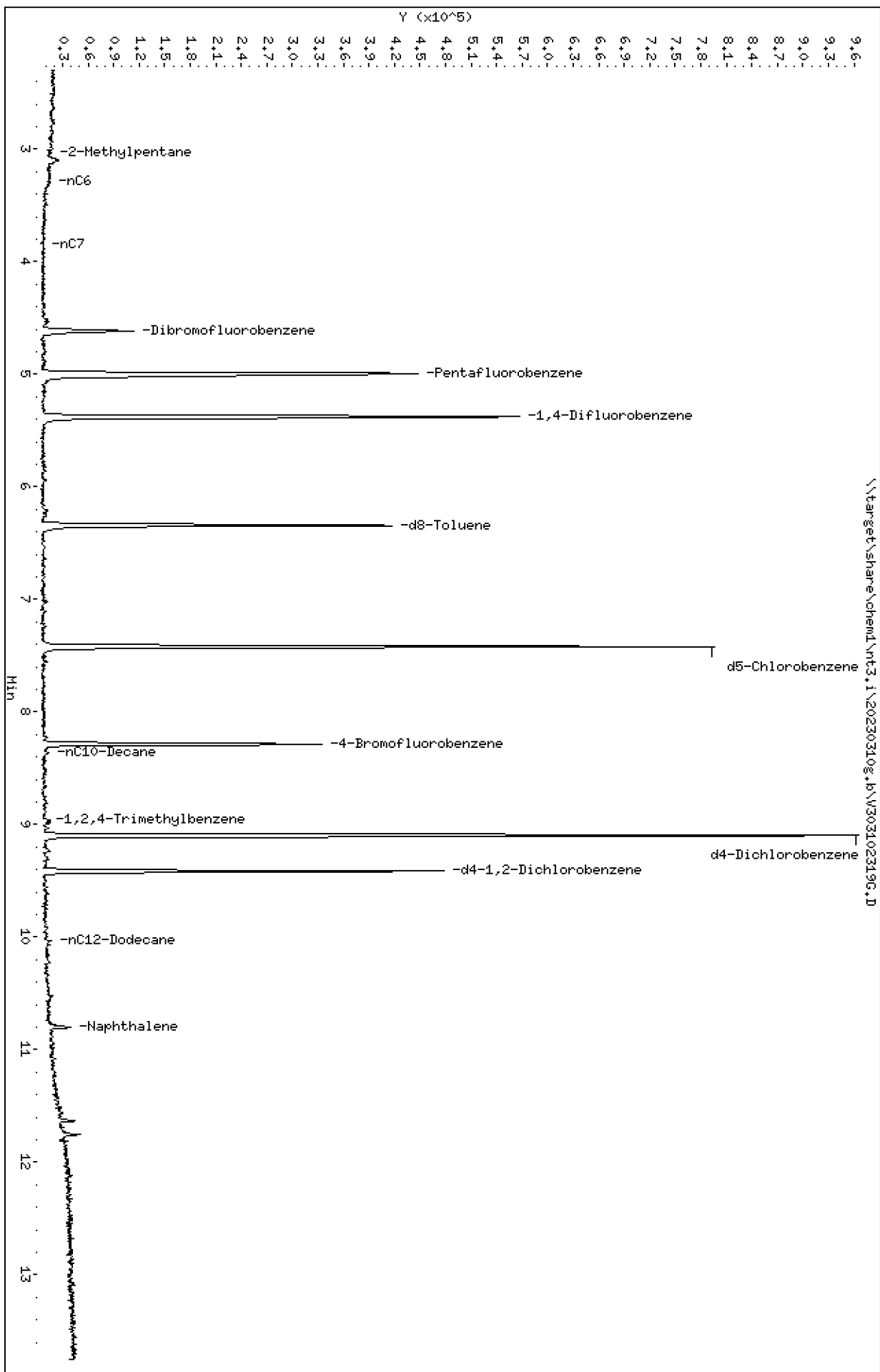
Sample Info: 23C0181-07

Instrument: nt3,1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102319G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 16:14

ARI ID: 23C0181-07  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	275839	0.005
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	480634	0.005
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	313994	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	352852	0.006
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	406331	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.422	1060389	d5-Chlorobenzene
6.344	585785	d8-Toluene
9.096	1202216	d4-Dichlorobenzene
8.283	426784	4-Bromofluorobenzene
9.415	592126	d4-1,2-Dichlorobenzene





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-17-20230308**  
**23C0181-08 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 15:53  
Analyzed: 22-Mar-2023 16:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	89.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	85.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-17-20230308**  
**23C0181-08 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 15:53  
Analyzed: 16-Mar-2023 04:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	88.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	116	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	88.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-17-20230308**  
**23C0181-08 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 15:53  
Analyzed: 17-Mar-2023 19:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	88.5	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	127	%	*
Surrogate: Fluoranthene-d10			46-121 %	102	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 28-Nov-2023 14:10
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**PZ-17-20230308**  
**23C0181-08 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 15:53  
Analyzed: 21-Mar-2023 18:25

**Analysis by: Analytical Resources, LLC**

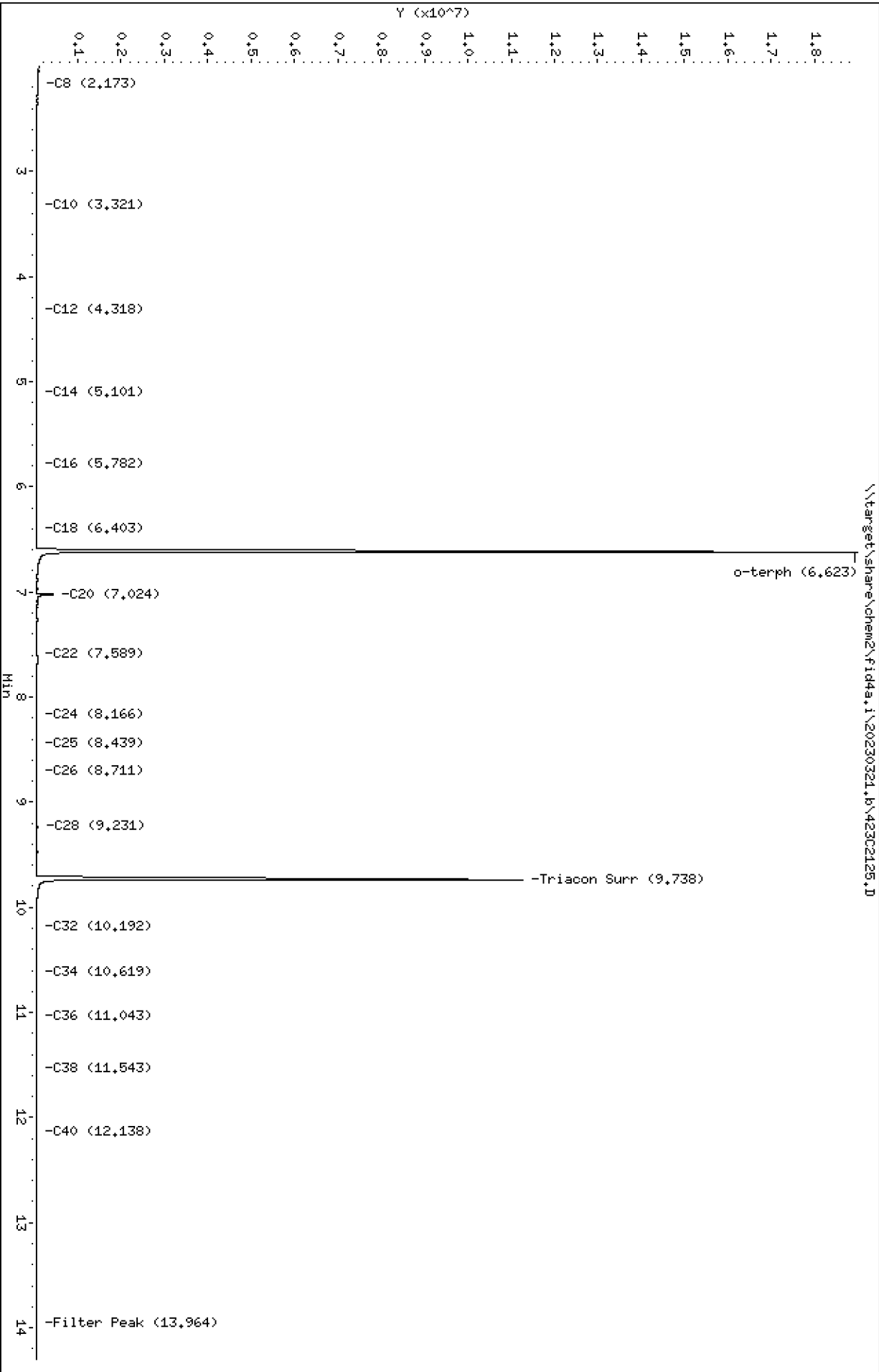
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	98.8	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302125.D  
Date : 21-MAR-2023 18:25  
Client ID:  
Sample Info: 23C0181-08

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2125.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-08  
Client ID:  
Injection: 21-MAR-2023 18:25  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

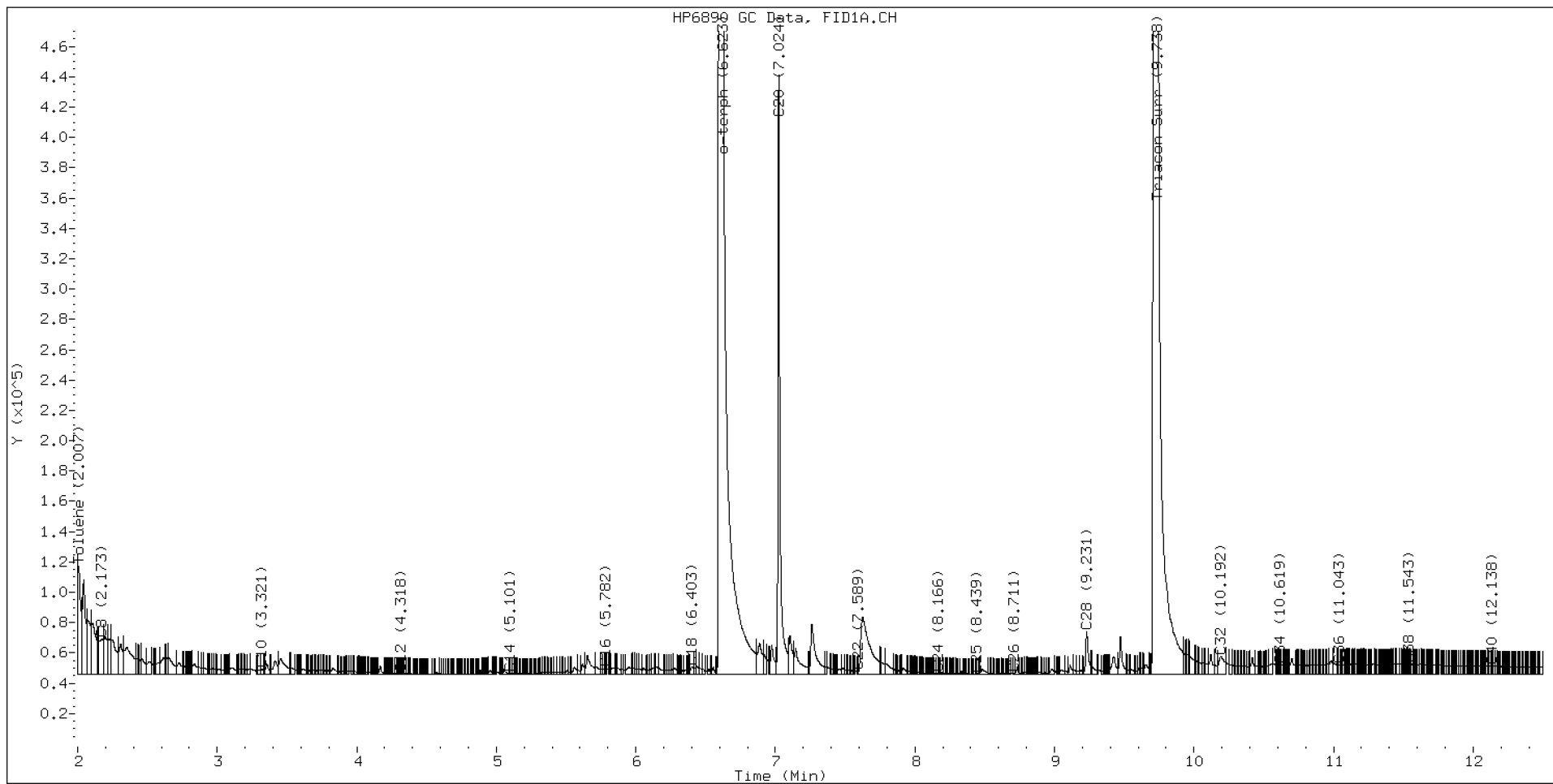
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.173	-0.002	23690	48963	WATPHD	(C12-C24)	1255193	7.9
C10	3.321	-0.004	3469	3952	WATPHM	(C24-C38)	882436	6.7
C12	4.318	-0.003	1031	610	AK102	(C10-C25)	1434780	7.6
C14	5.101	-0.004	1090	1131	AK103	(C25-C36)	686539	6.9
C16	5.782	0.001	4215	2754	OR.DIES	(C10-C28)	1558159	8.2
C18	6.403	-0.001	5163	7291				
C20	7.024	0.020	395607	400142	JET-A	(C10-C18)	431097	2.5
C22	7.589	-0.005	2002	495				
C24	8.166	-0.000	1252	364				
C25	8.439	-0.004	588	131				
C26	8.711	-0.003	972	476				
C28	9.231	-0.000	28476	38239				
C32	10.192	0.009	11881	34260				
C34	10.619	0.002	6264	1249				
Filter Peak	13.964	0.001	4271	849	CREOSOT	(C12-C22)	1180479	44.5
C36	11.043	-0.006	6697	5971				
C38	11.543	0.001	6824	2041				
C40	12.138	0.001	5515	1098				
o-terph	6.623	0.001	18951149	22623583				
Triacon Surr	9.738	-0.010	11229961	14072531	NAS DIES	(C10-C24)	1427141	7.6

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	22623583	111.1
Triacontane	14072531	64.6

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-17-20230308**  
**23C0181-08 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 15:53  
Analyzed: 10-Mar-2023 16:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0271 Sample Size: 10 mL  
Prepared: 10-Mar-2023 Final Volume: 10 mL

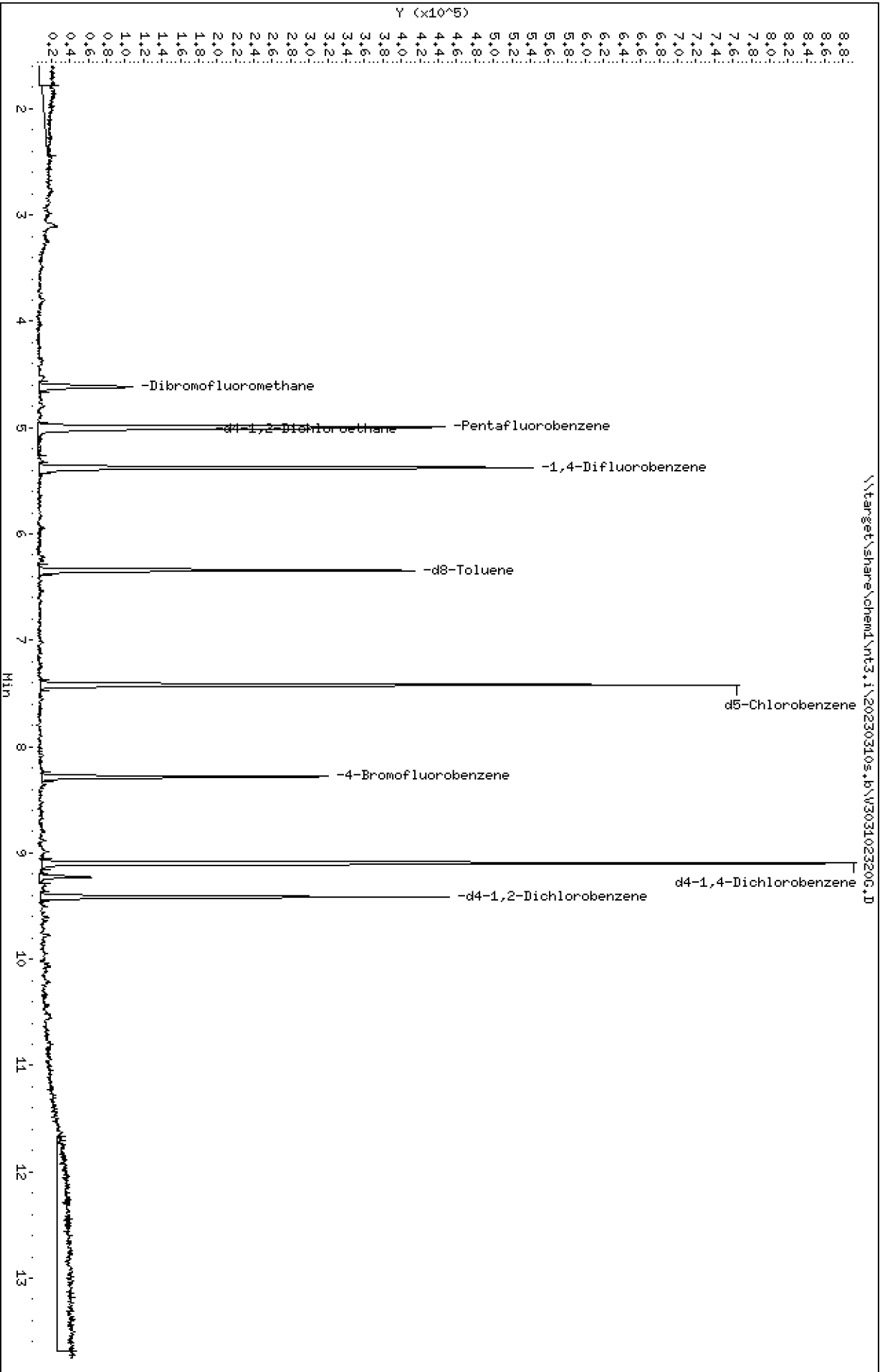
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	100	%	



Data File: \\target\share\chend\nt3.1\20230310s.16\303102320G.D  
Date : 10-HR-2023 16:36  
Client ID:  
Sample Info: 23C0181-08

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102320G.D  
 Lab Smp Id: 23C0181-08  
 Inj Date : 10-MAR-2023 16:36  
 Operator : PKC  
 Smp Info : 23C0181-08  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 71  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	56832	5.18550	5.186
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	252704	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	32995	5.62943	5.629
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	362389	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	206644	4.99817	4.998
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	354828	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	78683	4.99862	4.999
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	206592	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	93974	5.03848	5.038

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102320G.D Calibration Time: 11:04  
 Lab Smp Id: 23C0181-08  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	252704	1.21
37 1,4-Difluorobenze	365813	182907	731626	362389	-0.94
53 d5-Chlorobenzene	354990	177495	709980	354828	-0.05
76 d4-1,4-Dichlorobe	212292	106146	424584	206592	-2.68

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-08  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.186	103.71	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.629	112.59	80-128
\$ 43 d8-Toluene	5.000	4.998	99.96	80-120
\$ 62 4-Bromofluorobenze	5.000	4.999	99.97	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.038	100.77	80-120

REVIEW SUMMARY FOR FILE - V303102320G.D

Lab ID: 23C0181-08

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 16:36

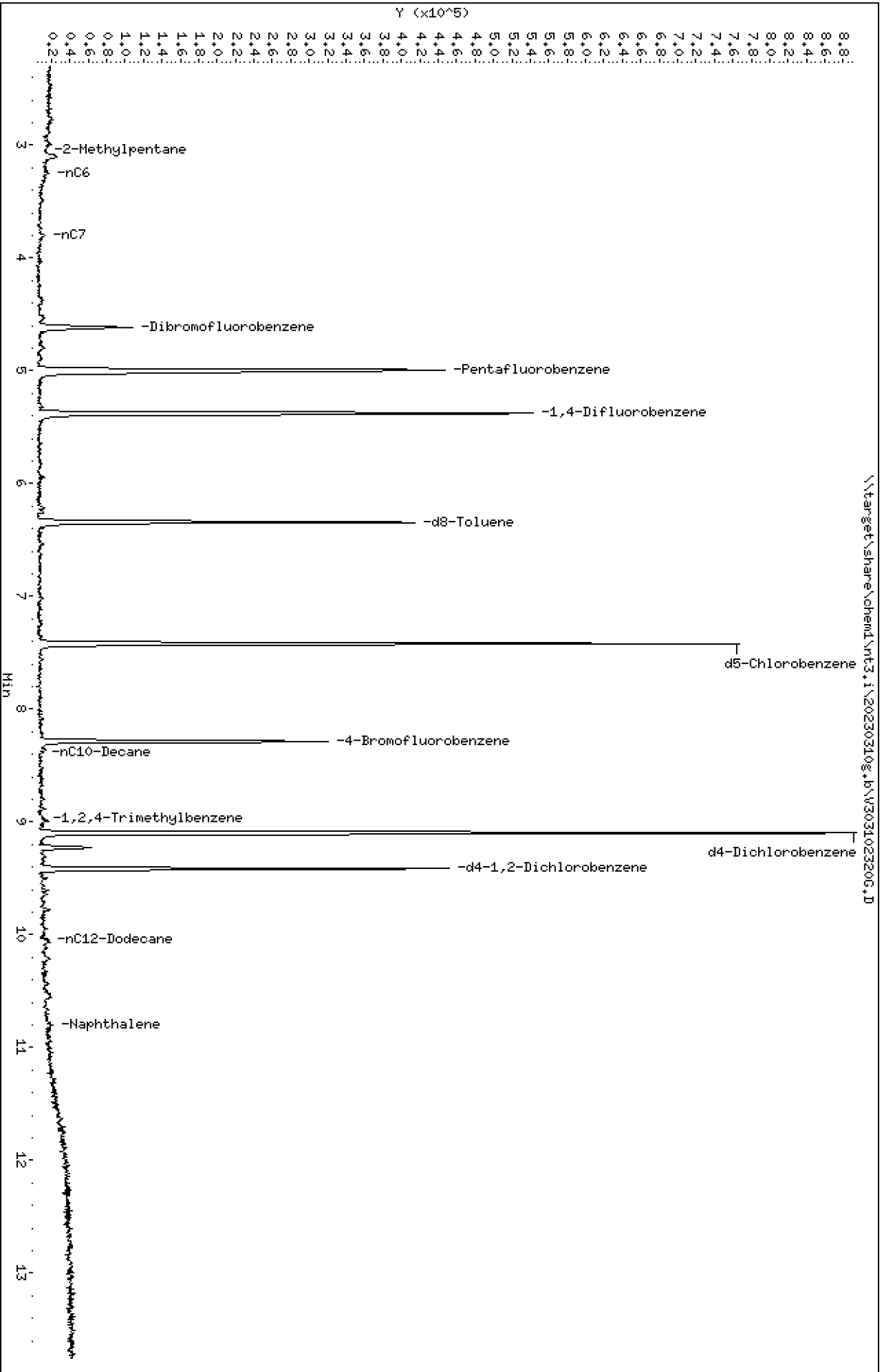
RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230310g,1b\2303102320G.D  
Date: 10-HR-2023 16:36  
Client ID:  
Sample Info: 23C0181-08

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102320G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 16:36

ARI ID: 23C0181-08  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	352286	0.006
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	426085	0.004
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	274500	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	452852	0.007
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	481497	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.422	1024761	d5-Chlorobenzene
6.344	572133	d8-Toluene
9.096	1130122	d4-Dichlorobenzene
8.283	423957	4-Bromofluorobenzene
9.415	557913	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**CW-13-20230308**  
**23C0181-09 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 03/08/2023 14:27  
Instrument: ECD8 Analyzed: 22-Mar-2023 17:13

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	83.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	79.8	%	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**CW-13-20230308**  
**23C0181-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 14:27  
Analyzed: 16-Mar-2023 05:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	78.7 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	103 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	82.8 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**CW-13-20230308**  
**23C0181-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 14:27  
Analyzed: 17-Mar-2023 20:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	89.9	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	132	%	*
Surrogate: Fluoranthene-d10			46-121 %	103	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**CW-13-20230308**  
**23C0181-09 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 14:27  
Analyzed: 21-Mar-2023 20:23

**Analysis by: Analytical Resources, LLC**

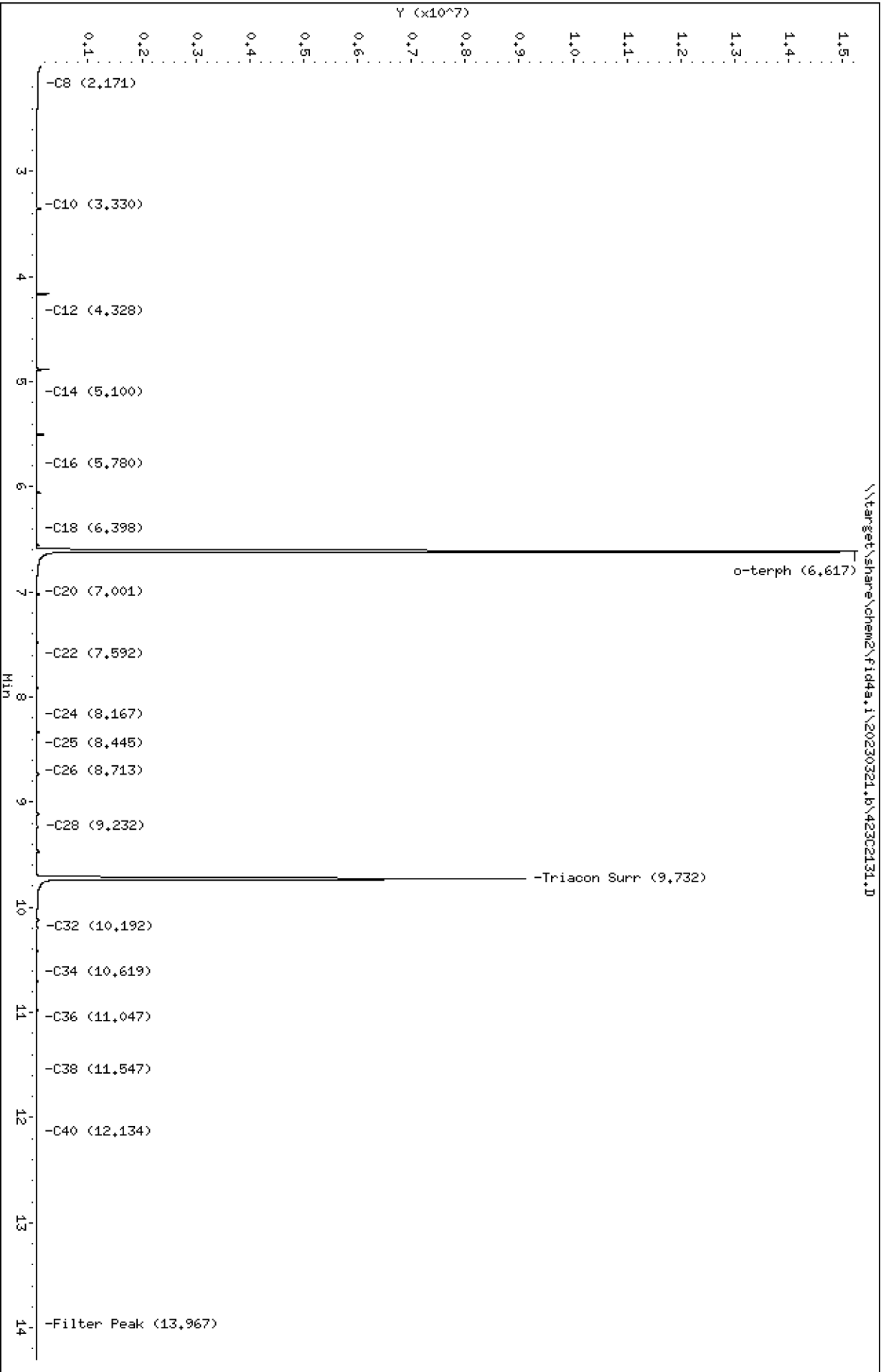
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	68.6	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302131.D  
Date: 21-MAR-2023 20:23  
Client ID:  
Sample Info: 23C0181-09

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2131.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-09  
Client ID:  
Injection: 21-MAR-2023 20:23  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

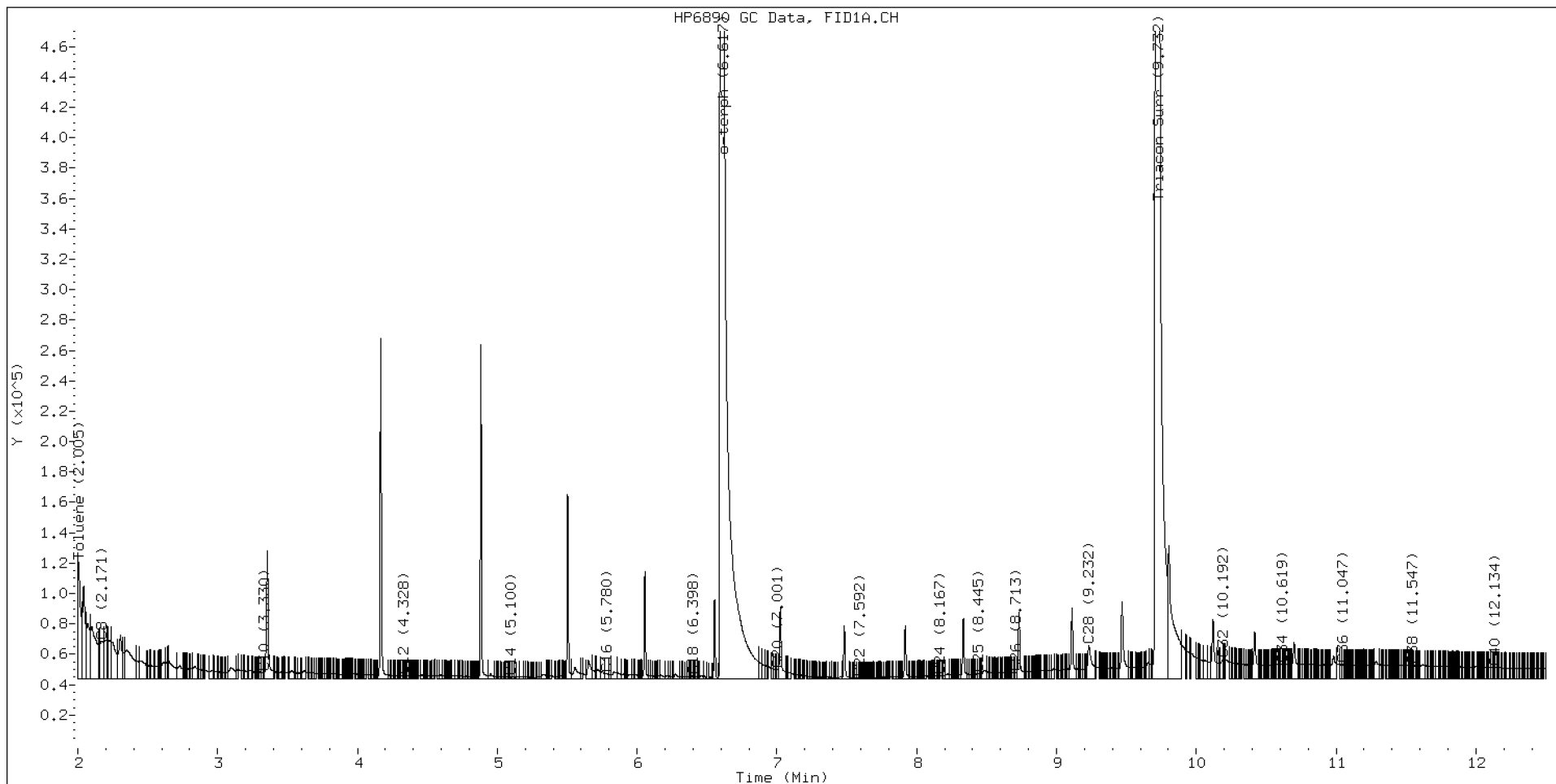
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.171	-0.004	24804	39627	WATPHD	(C12-C24)	745418	4.7
C10	3.330	0.004	4432	1747	WATPHM	(C24-C38)	1755199	13.2
C12	4.328	0.007	2245	1861	AK102	(C10-C25)	1192849	6.3
C14	5.100	-0.005	1188	933	AK103	(C25-C36)	1463556	14.8
C16	5.780	-0.000	3665	5467	OR.DIES	(C10-C28)	1531186	8.1
C18	6.398	-0.006	1774	880				
C20	7.001	-0.003	6273	5523	JET-A	(C10-C18)	867319	5.0
C22	7.592	-0.003	828	386				
C24	8.167	0.001	2324	797				
C25	8.445	0.002	3324	2071				
C26	8.713	-0.001	4368	2963				
C28	9.232	0.001	22167	44971				
C32	10.192	0.009	13014	15160				
C34	10.619	0.002	9679	3857				
Filter Peak	13.967	0.004	4958	2215	CREOSOT	(C12-C22)	678846	25.6
C36	11.047	-0.003	9242	7754				
C38	11.547	0.006	8710	3038				
C40	12.134	-0.004	7356	4761				
o-terph	6.617	-0.005	15230491	15730510				
Triacon Surr	9.732	-0.017	9076037	10206905	NAS DIES	(C10-C24)	1138269	6.0

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	15730510	77.2
Triacontane	10206905	46.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**CW-13-20230308**  
**23C0181-09 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 03/08/2023 14:27  
Analyzed: 14-Mar-2023 13:21

**Analysis by: Analytical Resources, LLC**

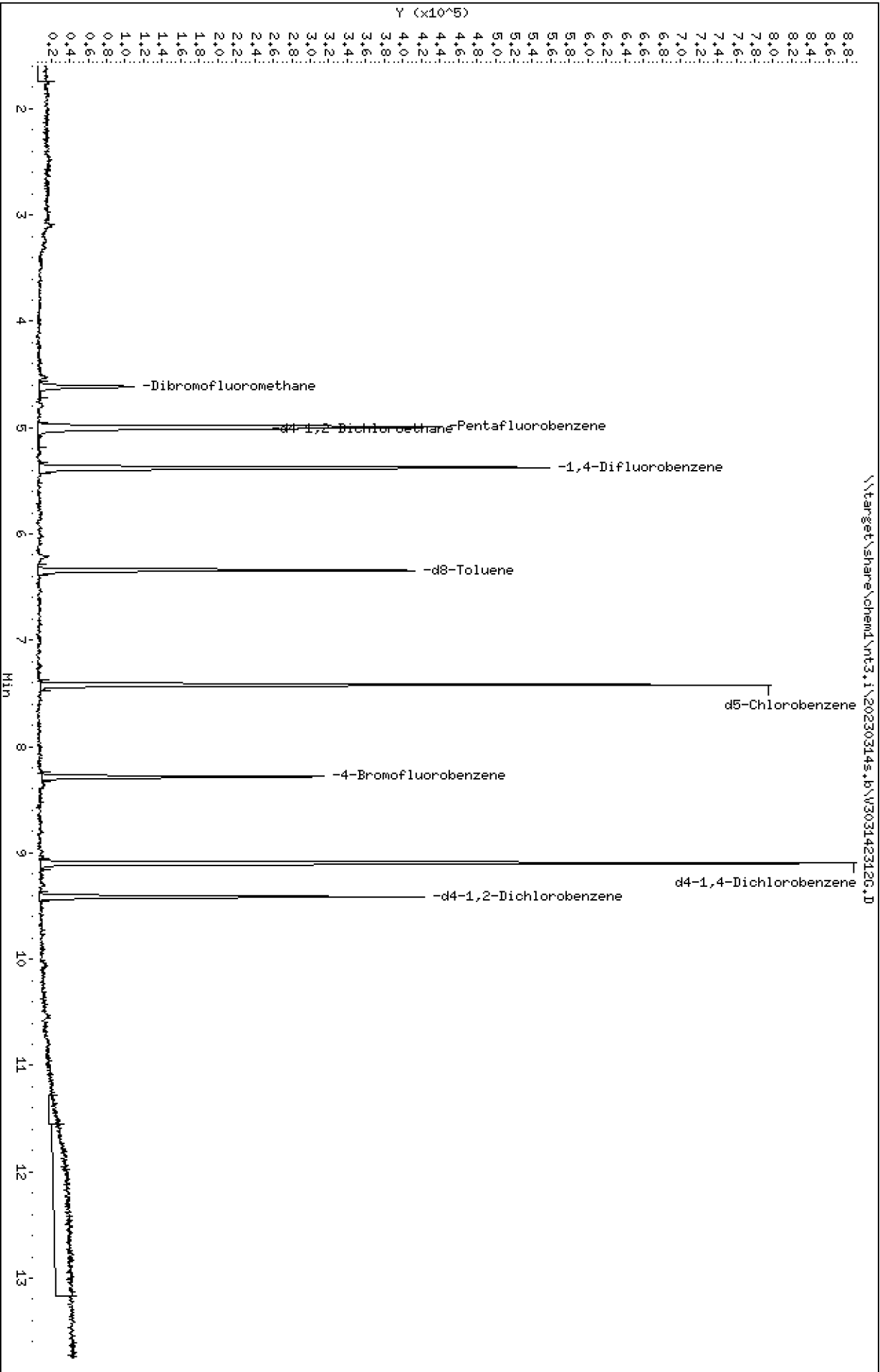
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.1	%	

Data File: \\target\share\chend\nt3.1\20230314s.1b\303142312G.D  
Date : 14-MAR-2023 13:21  
Client ID:  
Sample Info: 23C0181-09

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142312G.D  
 Lab Smp Id: 23C0181-09  
 Inj Date : 14-MAR-2023 13:21  
 Operator : PKC  
 Smp Info : 23C0181-09  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	56589	5.09552	5.096(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	256067	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	30990	5.21791	5.218(R)
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	370615	10.0000	
\$ 43 d8-Toluene	98		6.344	6.343	(1.180)	212818	5.03325	5.033(R)
* 53 d5-Chlorobenzene	117		7.417	7.421	(1.000)	359566	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	77413	4.85313	4.853(R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	202683	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	92684	5.06515	5.065(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142312G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-09  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	256067	-0.41
37 1,4-Difluorobenze	368342	184171	736684	370615	0.62
53 d5-Chlorobenzene	357223	178612	714446	359566	0.66
76 d4-1,4-Dichlorobe	205758	102879	411516	202683	-1.49

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.02
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.06
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-09  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.096	101.91	
\$ 33 d4-1,2-Dichloroeth	5.000	5.218	104.36	
\$ 43 d8-Toluene	5.000	5.033	100.66	
\$ 62 4-Bromofluorobenze	5.000	4.853	97.06	
\$ 79 d4-1,2-Dichloroben	5.000	5.065	101.30	

REVIEW SUMMARY FOR FILE - V303142312G.D

Lab ID: 23C0181-09

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 13:21

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.1b\2303142312G.D

Date: 14-MAR-2023 13:21

Client ID:

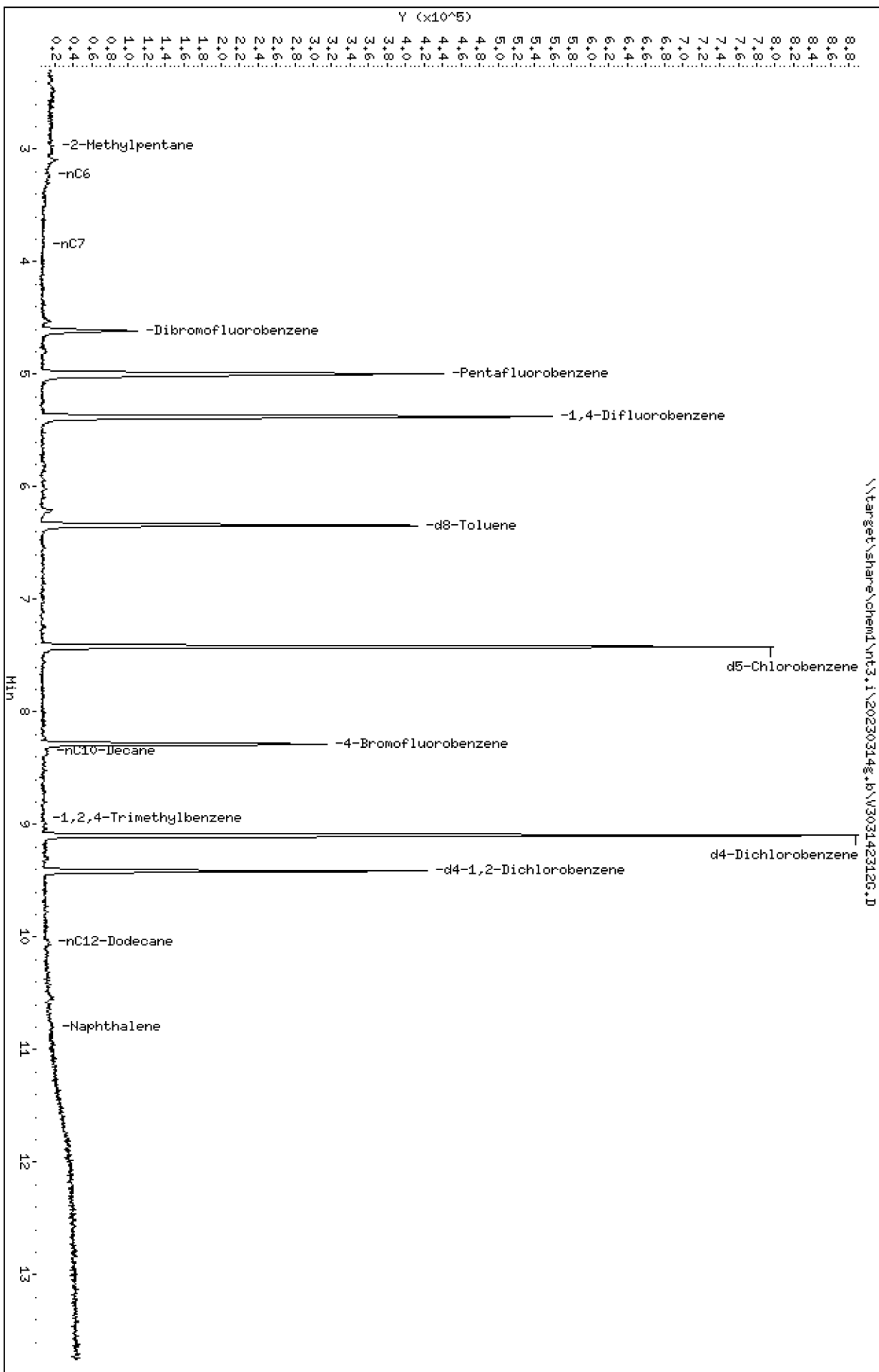
Sample Info: 23C0181-09

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142312G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 13:21

ARI ID: 23C0181-09  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	193755	0.003
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	431058	0.004
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	259475	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	278556	0.005
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	317934	0.003

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.417	1007199	d5-Chlorobenzene
6.344	578612	d8-Toluene
9.096	1124195	d4-Dichlorobenzene
8.283	415074	4-Bromofluorobenzene
9.415	541992	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-01S-20230309**  
**23C0181-10 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/09/2023 09:12  
Analyzed: 29-Mar-2023 17:53

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>3.80</b>	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %		NRS	NRS
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	82.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01S-20230309**  
**23C0181-10 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/09/2023 09:12  
Analyzed: 16-Mar-2023 05:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254  
Prepared: 13-Mar-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	10	3.0	10.0	1990	ug/L	E, D
Acenaphthylene	208-96-8	10	1.9	10.0	ND	ug/L	U
Acenaphthene	83-32-9	10	2.0	10.0	162	ug/L	D
2-Methylnaphthalene	91-57-6	10	2.1	10.0	259	ug/L	D
Dibenzofuran	132-64-9	10	1.9	10.0	57.0	ug/L	D
Fluorene	86-73-7	10	2.1	10.0	53.2	ug/L	D
Pentachlorophenol	87-86-5	10	12.1	100	ND	ug/L	U
Phenanthrene	85-01-8	10	2.0	10.0	69.3	ug/L	D
Anthracene	120-12-7	10	2.5	10.0	13.3	ug/L	D
Carbazole	86-74-8	10	2.7	10.0	18.2	ug/L	D
Fluoranthene	206-44-0	10	2.4	10.0	18.4	ug/L	D
Pyrene	129-00-0	10	3.4	10.0	13.5	ug/L	D
Benzo(a)anthracene	56-55-3	10	2.2	10.0	ND	ug/L	U
Chrysene	218-01-9	10	2.2	10.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	10	2.3	10.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	10	4.7	10.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	10	4.7	10.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	10	2.6	10.0	173	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	83.6 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	100 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	77.3 %	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01S-20230309**  
**23C0181-10 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/09/2023 09:12  
Analyzed: 17-Mar-2023 20:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	10	1.00	<b>1.28</b>	ug/L	D
Chrysene	218-01-9	10	1.00	<b>1.30</b>	ug/L	D
Benzo(a)fluoranthene, Total		10	2.00	ND	ug/L	U
Benzo(a)pyrene	50-32-8	10	1.00	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	10	1.00	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	10	1.00	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>70.3</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>73.2</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>89.2</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**MW-01S-20230309**  
**23C0181-10 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx Sampled: 03/09/2023 09:12  
Instrument: FID4 Analyzed: 21-Mar-2023 19:05

**Analysis by: Analytical Resources, LLC**

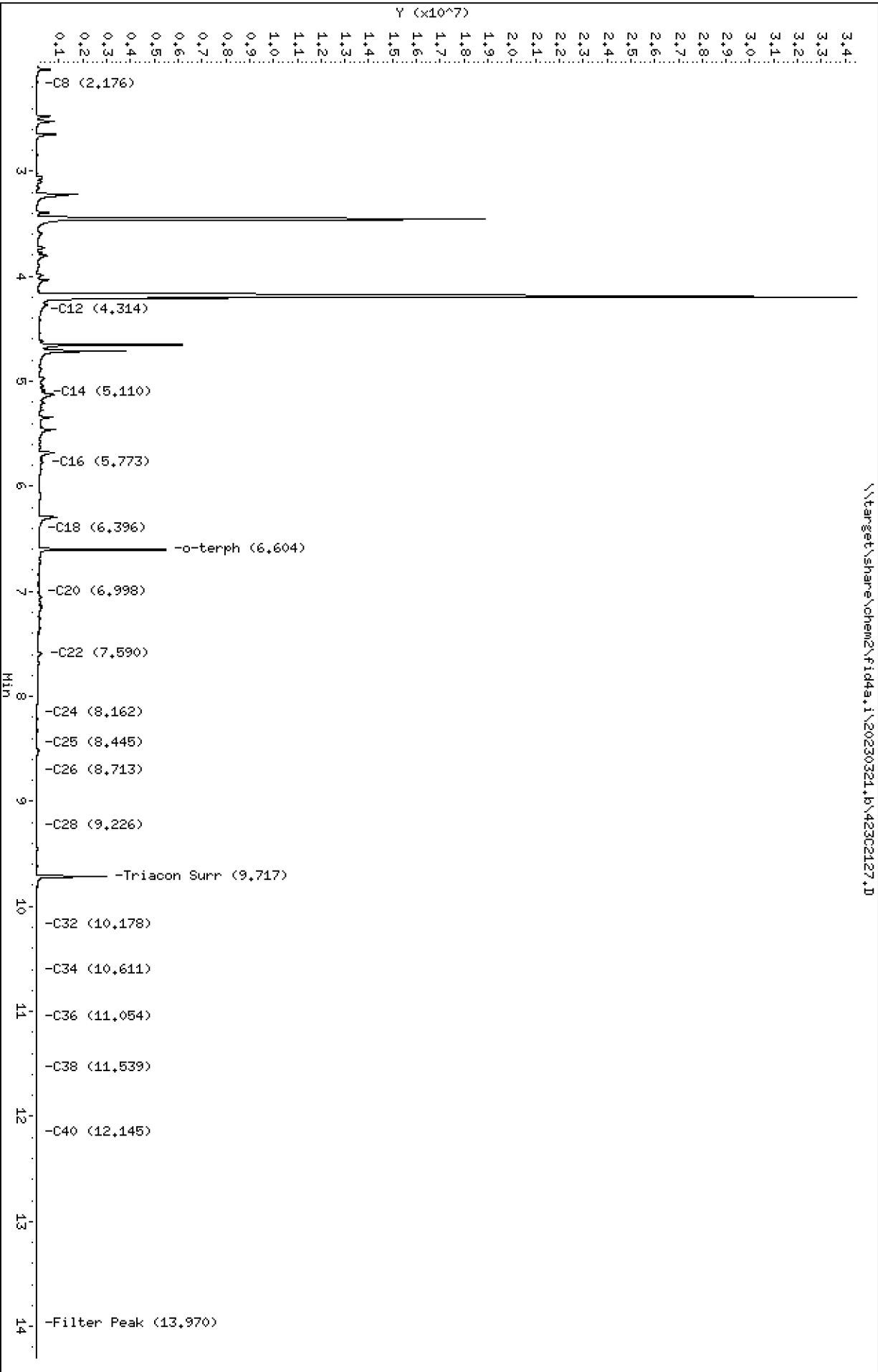
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	5	500	<b>2580</b>	ug/L	D
Motor Oil Range Organics (C24-C38)	RRO	5	1000	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	5	1000	<b>14900</b>	ug/L	D
HC ID: CREOSOTE						
Surrogate: <i>o</i> -Terphenyl			50-150 %	82.7	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302127.D  
Date: 21-MAR-2023 19:05  
Client ID:  
Sample Info: 23C0181-10,5

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0,25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2127.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-10  
Client ID:  
Injection: 21-MAR-2023 19:05  
Dilution Factor: 5  
RT Std: 422H1803.D

FID:4A RESULTS

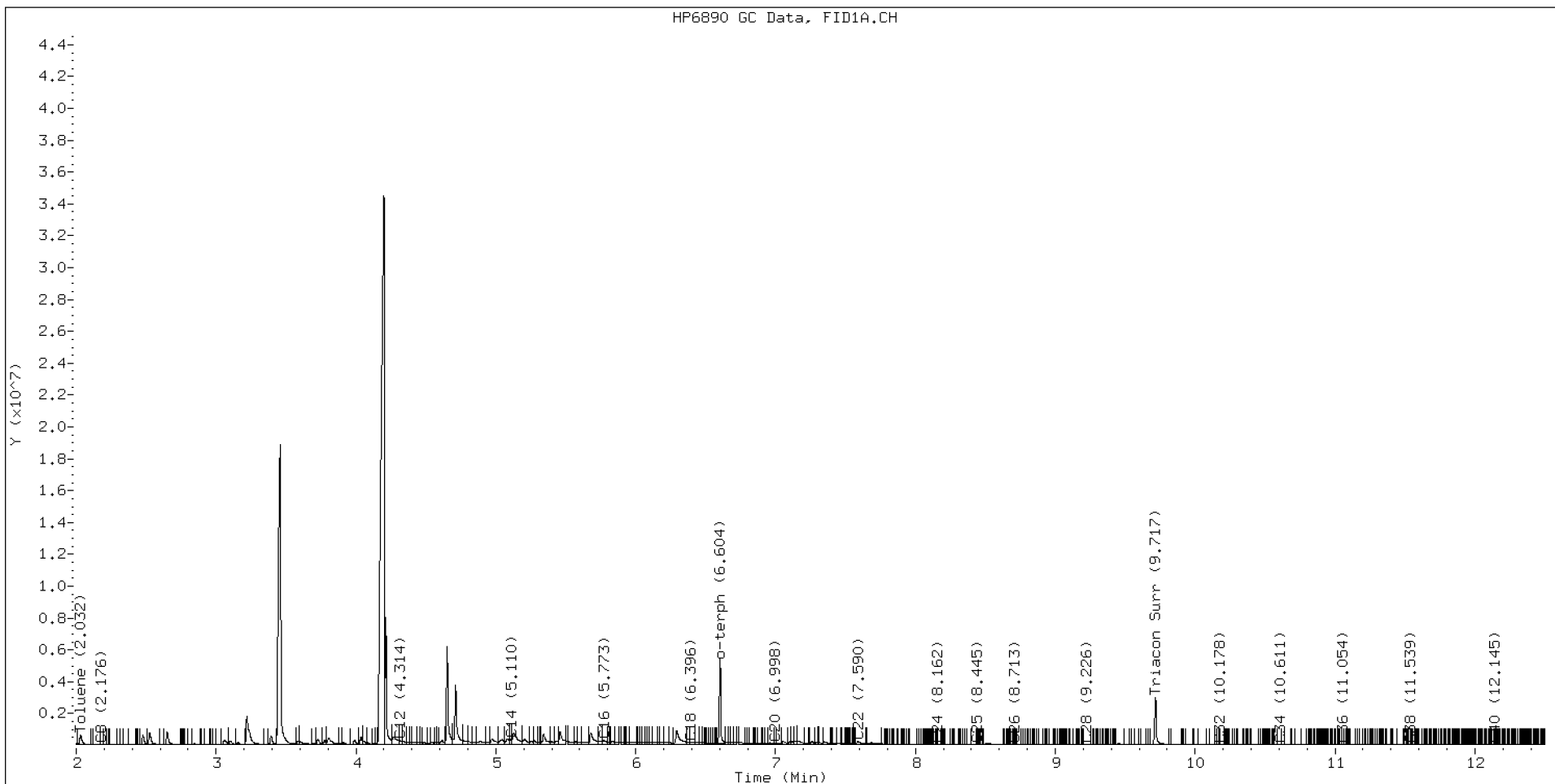
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.176	0.001	23125	30557	WATPHD	(C12-C24)	40902771	257.8
C10	----				WATPHM	(C24-C38)	1626141	12.3
C12	4.314	-0.007	248598	299950	AK102	(C10-C25)	131845559	697.3
C14	5.110	0.005	350777	297349	AK103	(C25-C36)	1250257	12.6
C16	5.773	-0.008	286680	517353	OR.DIES	(C10-C28)	132463833	698.1
C18	6.396	-0.008	141613	257440				
C20	6.998	-0.007	95409	99996	JET-A	(C10-C18)	122651395	708.2
C22	7.590	-0.005	224014	460506				
C24	8.162	-0.004	26818	38067				
C25	8.445	0.002	17647	9612				
C26	8.713	-0.001	11213	3335				
C28	9.226	-0.005	12136	23235				
C32	10.178	-0.005	5437	1616				
C34	10.611	-0.006	5428	6232				
Filter Peak	13.970	0.007	345	173	CREOSOT	(C12-C22)	39528210	1490.8
C36	11.054	0.004	2318	1254				
C38	11.539	-0.003	5092	2985				
C40	12.145	0.007	1565	612				
o-terph	6.604	-0.018	5334575	3781566				
Triacon Surr	9.717	-0.032	2951743	2695283	NAS DIES	(C10-C24)	131565415	697.3

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	3781566	18.6 M
Triacontane	2695283	12.4

M Indicates the peak was manually integrated

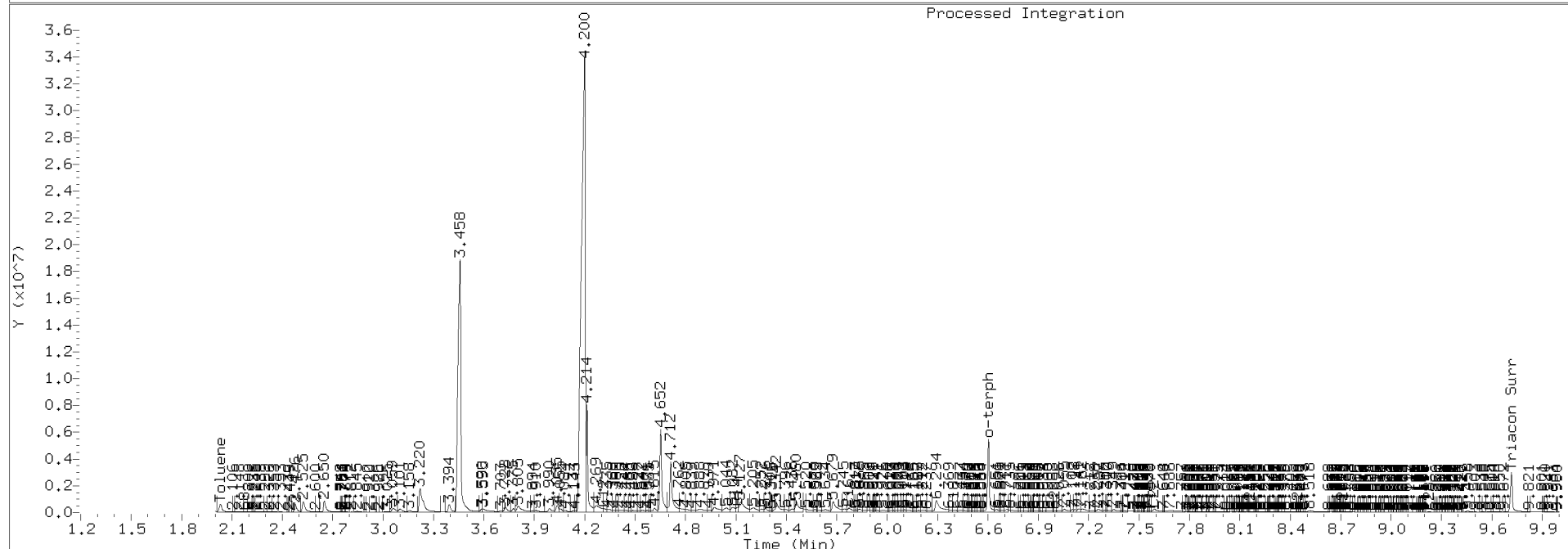
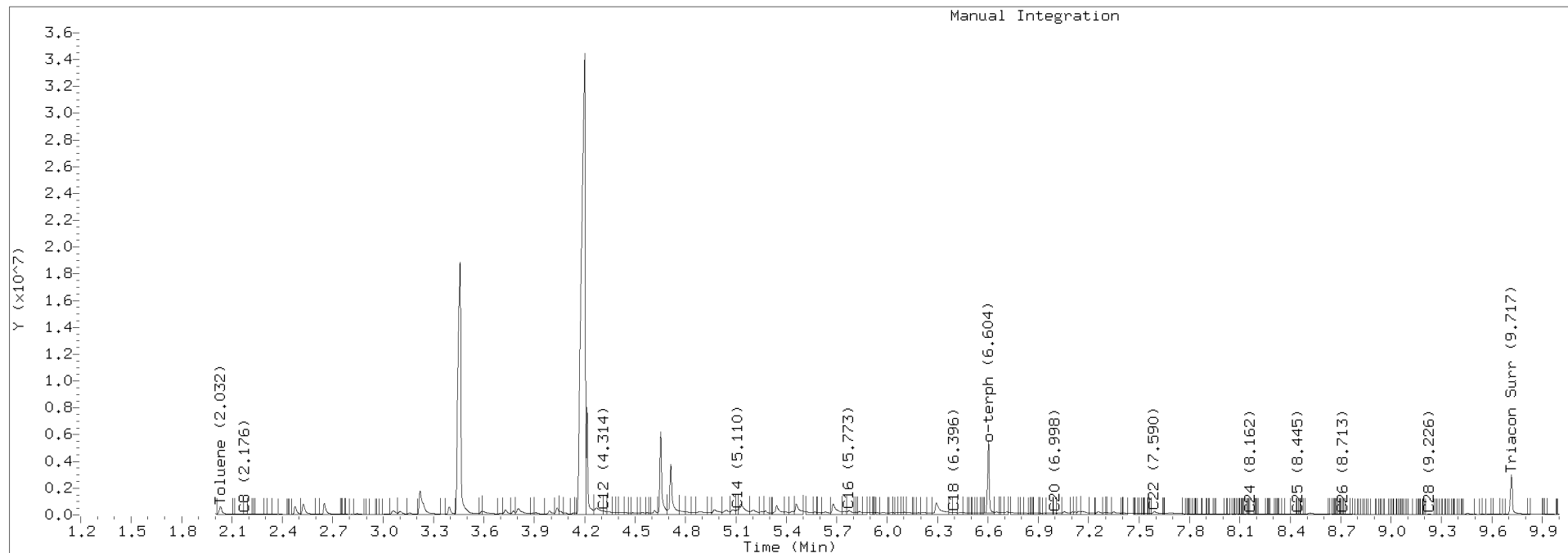
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20230321.b/423C2127.D Injection: 21-MAR-2023 19:05

Lab ID:23C0181-10





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-01S-20230309**  
**23C0181-10 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 03/09/2023 09:12  
Analyzed: 14-Mar-2023 13:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 0.4 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

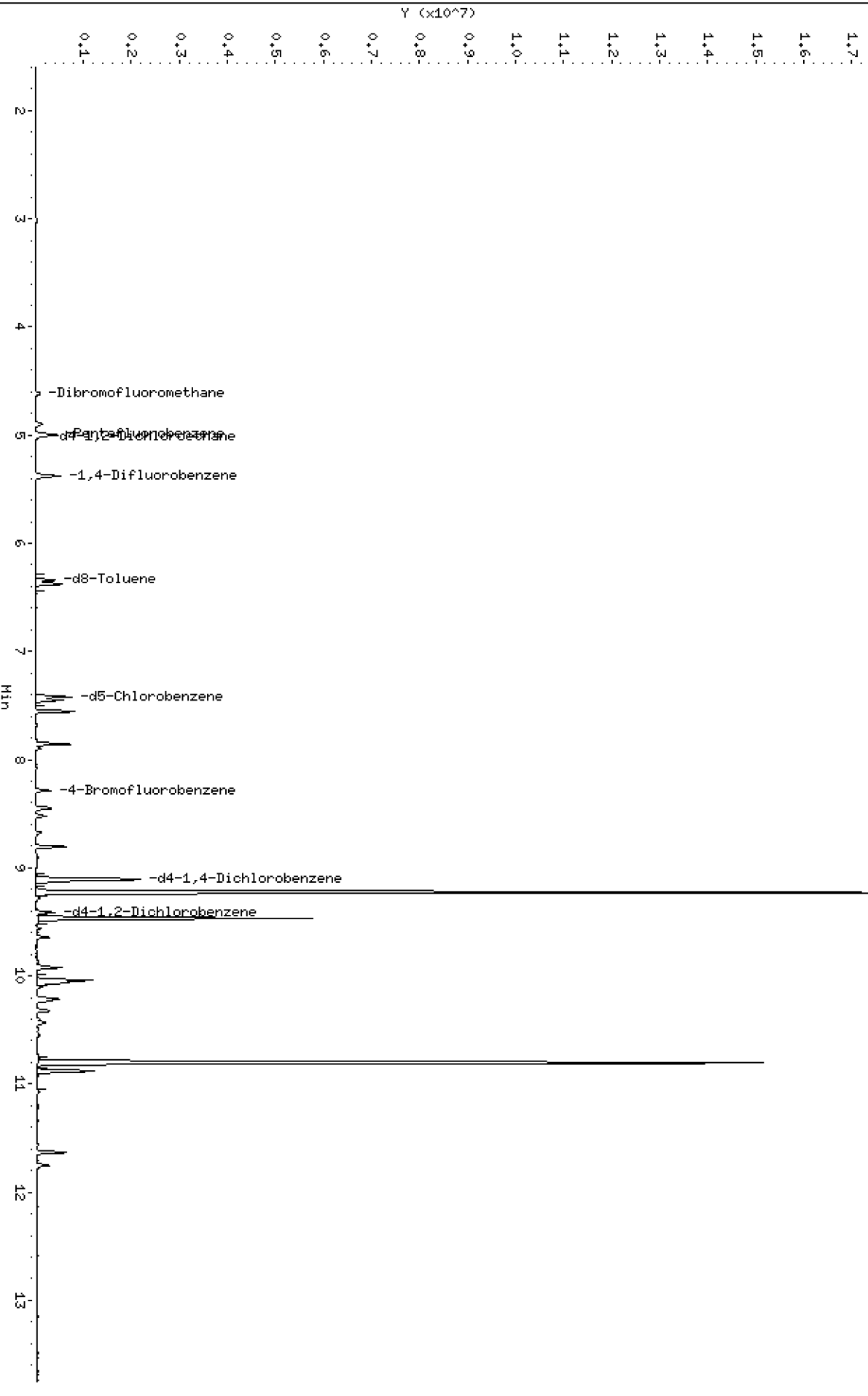
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	2500	<b>26300</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.4	%	

Data File: \\target\share\chend\nt3,1\20230314s,1b\303142313G.D  
Date : 14-MAR-2023 13:45  
Client ID:  
Sample Info: 23C0181-10,25X

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3,1\20230314s,1b\303142313G.D





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142313G.D  
 Lab Smp Id: 23C0181-10  
 Inj Date : 14-MAR-2023 13:45  
 Operator : PKC  
 Smp Info : 23C0181-10,25X  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.612	4.616	(0.923)	52875	5.04865	5.049 (R)
* 32 Pentafluorobenzene	168		4.995	4.993	(1.000)	241482	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.016	5.009	(1.004)	28107	5.01832	5.018 (R)
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	352186	10.0000	
\$ 43 d8-Toluene	98		6.339	6.343	(1.179)	204531	5.09038	5.090 (R)
* 53 d5-Chlorobenzene	117		7.418	7.421	(1.000)	337951	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.284	8.287	(1.117)	70727	4.71757	4.718 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.097	9.095	(1.000)	193754	10.0000	(M)
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	89974	5.14365	5.144 (RM)

QC Flag Legend

- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142313G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-10  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	241482	-6.08
37 1,4-Difluorobenze	368342	184171	736684	352186	-4.39
53 d5-Chlorobenzene	357223	178612	714446	337951	-5.39
76 d4-1,4-Dichlorobe	205758	102879	411516	193754	-5.83

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	5.00	0.03
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.03
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.05
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.02

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-10  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.049	100.97	
\$ 33 d4-1,2-Dichloroeth	5.000	5.018	100.37	
\$ 43 d8-Toluene	5.000	5.090	101.81	
\$ 62 4-Bromofluorobenze	5.000	4.718	94.35	
\$ 79 d4-1,2-Dichloroben	5.000	5.144	102.87	

REVIEW SUMMARY FOR FILE - V303142313G.D

Lab ID: 23C0181-10

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 13:45

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.1b\2303142313G.D

Date: 14-MAR-2023 13:45

Client ID:

Sample Info: 23C0181-10,25X

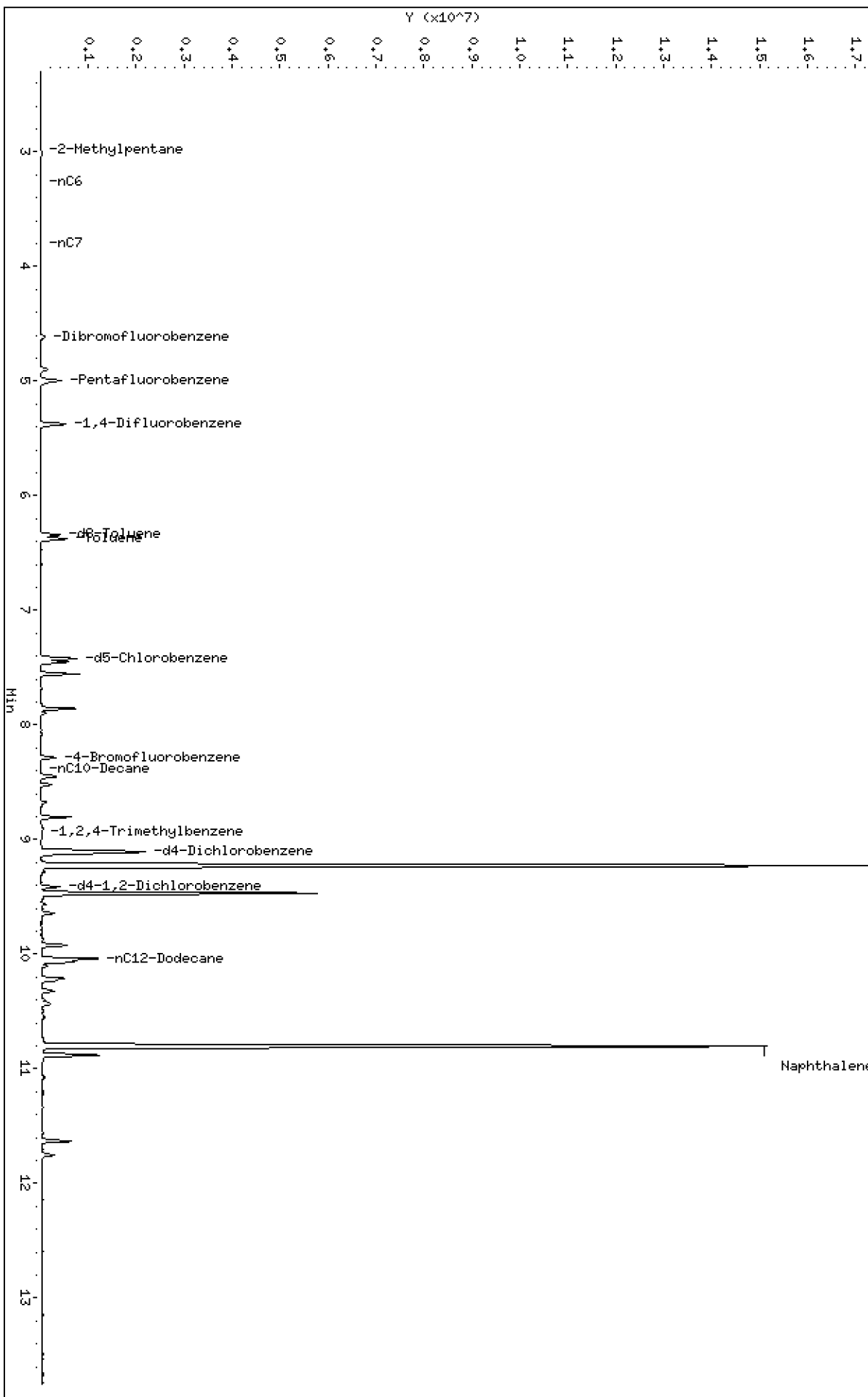
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230314g.1b\2303142313G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142313G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 13:45

ARI ID: 23C0181-10  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	40458905	0.715 M
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	6280894	0.063
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	4150865	0.051
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	64638369	1.051 M
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	40761921	0.371 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

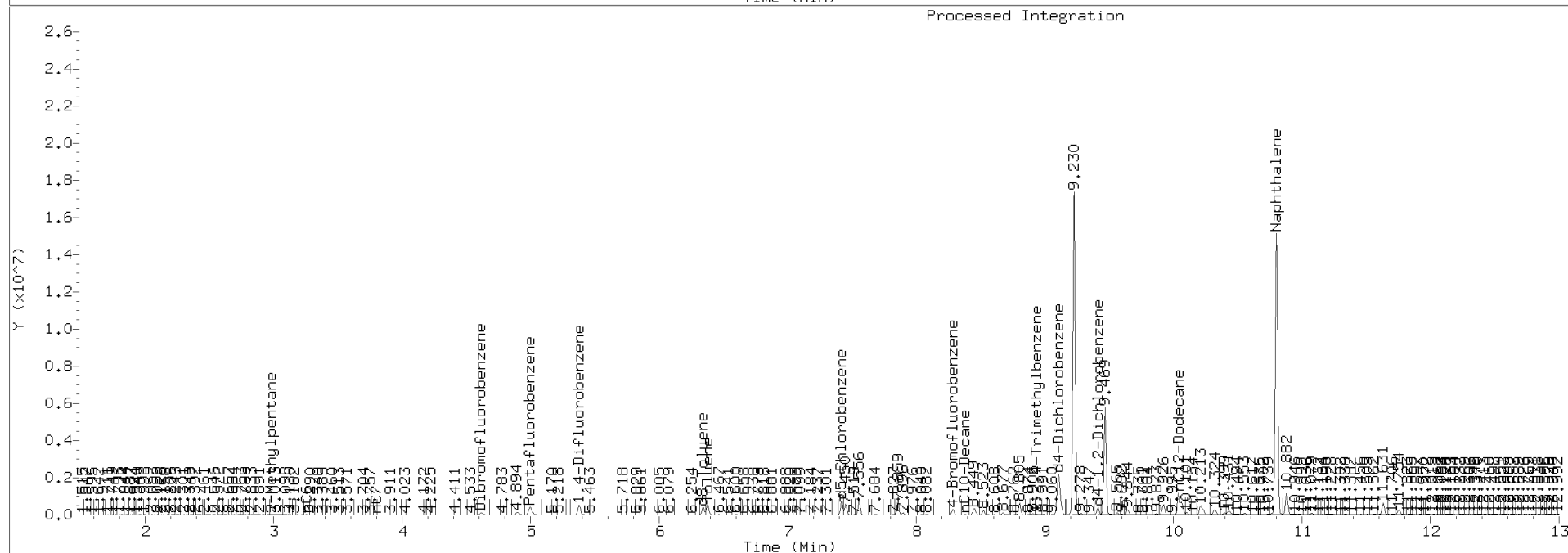
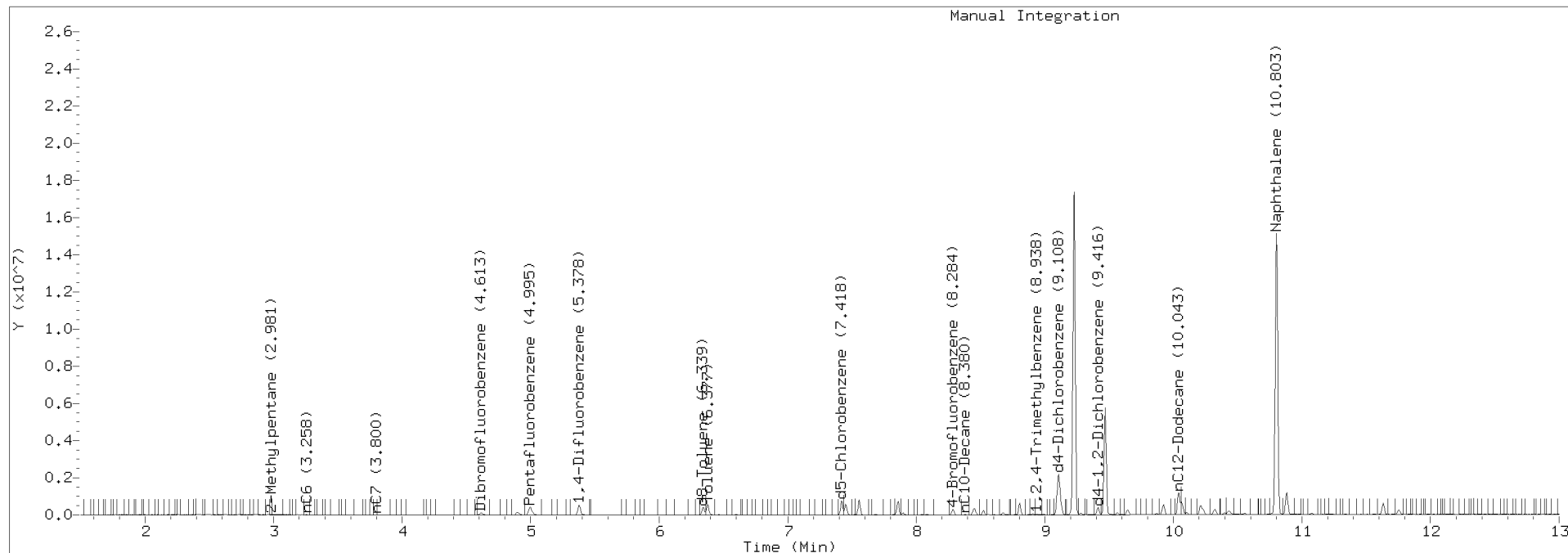
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7.418	901415	d5-Chlorobenzene
6.339	542439	d8-Toluene
9.108	3942825	d4-Dichlorobenzene
8.284	397909	4-Bromofluorobenzene
9.416	520437	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230314g.b/V303142313G.D Injection: 14-MAR-2023 13:45

Lab ID:23C0181-10





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-01S-20230309**  
**23C0181-10RE1 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/09/2023 09:12  
Analyzed: 16-Mar-2023 06:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254  
Prepared: 13-Mar-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	100	30.2	100	2560	ug/L	D
Acenaphthylene	208-96-8	100	19.3	100	ND	ug/L	U
Acenaphthene	83-32-9	100	19.9	100	151	ug/L	D
2-Methylnaphthalene	91-57-6	100	21.0	100	252	ug/L	D
Dibenzofuran	132-64-9	100	19.3	100	53.1	ug/L	J, D
Fluorene	86-73-7	100	20.5	100	53.9	ug/L	J, D
Pentachlorophenol	87-86-5	100	121	1000	ND	ug/L	U
Phenanthrene	85-01-8	100	19.7	100	69.5	ug/L	J, D
Anthracene	120-12-7	100	25.3	100	ND	ug/L	U
Carbazole	86-74-8	100	26.9	100	ND	ug/L	U
Fluoranthene	206-44-0	100	23.8	100	ND	ug/L	U
Pyrene	129-00-0	100	34.1	100	ND	ug/L	U
Benzo(a)anthracene	56-55-3	100	21.7	100	ND	ug/L	U
Chrysene	218-01-9	100	21.5	100	ND	ug/L	U
Benzo(a)pyrene	50-32-8	100	23.1	100	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	100	47.2	100	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	100	54.3	100	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	100	47.3	100	ND	ug/L	U
1-Methylnaphthalene	90-12-0	100	26.1	100	179	ug/L	D
Surrogate: 2-Fluorobiphenyl				54.4-120 %		DI	D1
Surrogate: 2,4,6-Tribromophenol				49.3-128 %		DI	D1
Surrogate: p-Terphenyl-d14				60-120 %		DI	D1





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-13-20230308**  
**23C0181-11 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 13:13  
Analyzed: 22-Mar-2023 17:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	90.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	74.1	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-13-20230308**  
**23C0181-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 13:13  
Analyzed: 17-Mar-2023 14:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	<b>0.8</b>	ug/L	J
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>76.2 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>99.4 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>90.9 %</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-13-20230308**  
**23C0181-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 13:13  
Analyzed: 17-Mar-2023 21:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	102	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	142	%	*
Surrogate: Fluoranthene-d10			46-121 %	115	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-13-20230308**  
**23C0181-11 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 13:13  
Analyzed: 21-Mar-2023 20:43

**Analysis by: Analytical Resources, LLC**

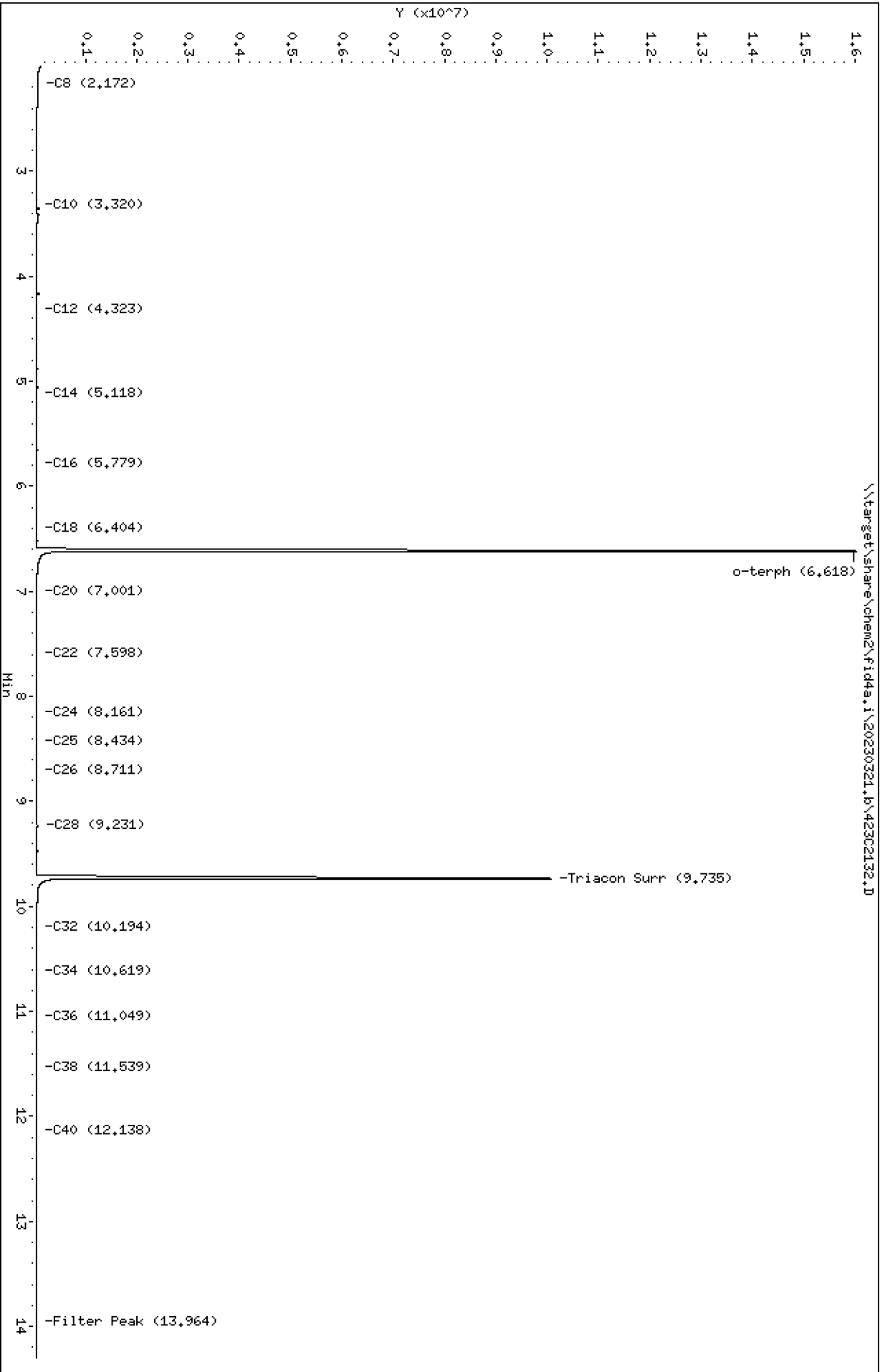
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	71.9	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302132.D  
Date : 21-MAR-2023 20:43  
Client ID:  
Sample Info: 23C0181-11

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2132.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-11  
Client ID:  
Injection: 21-MAR-2023 20:43  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

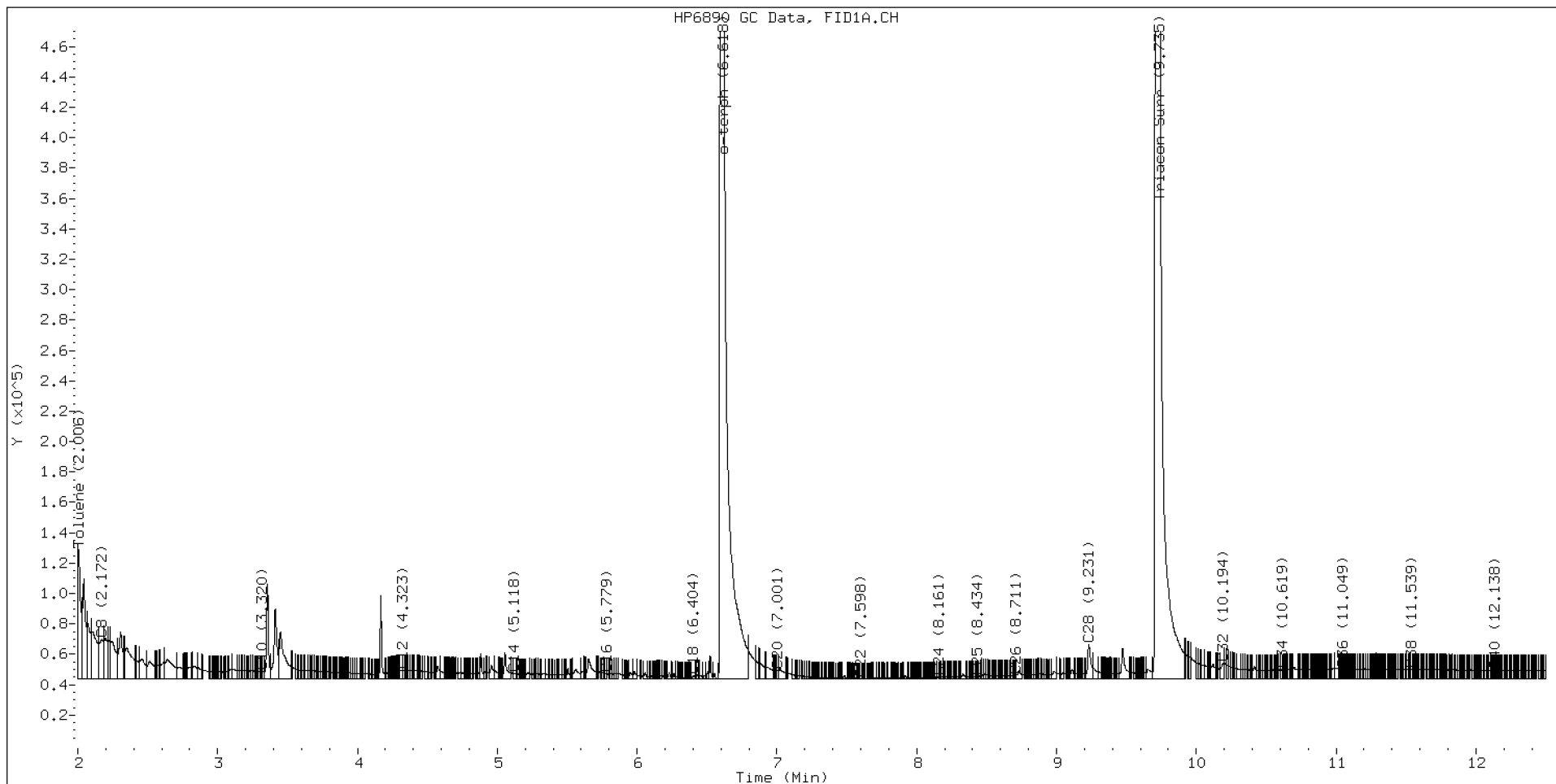
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.172	-0.004	26109	52237	WATPHD	(C12-C24)	568713	3.6
C10	3.320	-0.005	5253	4394	WATPHM	(C24-C38)	911074	6.9
C12	4.323	0.002	5717	1708	AK102	(C10-C25)	1057085	5.6
C14	5.118	0.013	3884	4063	AK103	(C25-C36)	723660	7.3
C16	5.779	-0.001	3805	2688	OR.DIES	(C10-C28)	1238281	6.5
C18	6.404	0.001	2389	3185				
C20	7.001	-0.004	5752	4802	JET-A	(C10-C18)	874720	5.1
C22	7.598	0.003	382	192				
C24	8.161	-0.005	1323	619				
C25	8.434	-0.009	1872	796				
C26	8.711	-0.003	2524	990				
C28	9.231	-0.000	22839	35084				
C32	10.194	0.011	10273	15098				
C34	10.619	0.002	6103	2117				
Filter Peak	13.964	0.001	5332	3683	CREOSOT	(C12-C22)	542354	20.5
C36	11.049	-0.000	6420	2550				
C38	11.539	-0.002	6557	5533				
C40	12.138	-0.000	5663	1408				
o-terph	6.618	-0.004	15988921	16468458				
Triacon Surr	9.735	-0.014	10040845	11959518	NAS DIES	(C10-C24)	1040532	5.5

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	16468458	80.9
Triacontane	11959518	54.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-13-20230308**  
**23C0181-11 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 13:13  
Analyzed: 14-Mar-2023 14:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

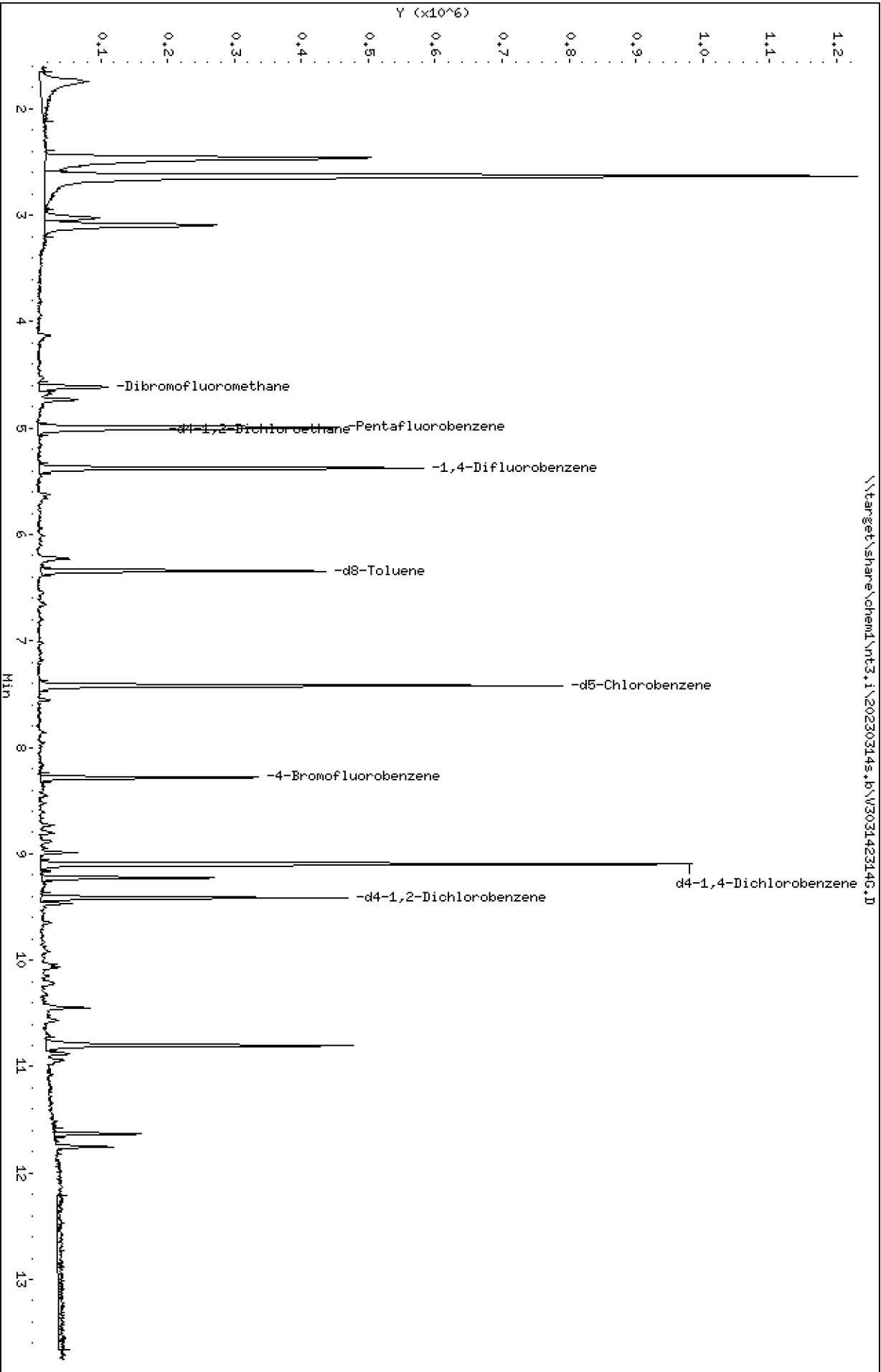
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.5	%	



Data File: \\target\share\chend\nt3.1\20230314s.1b\2023142314G.D  
Date : 14-MAR-2023 14:08  
Client ID:  
Sample Info: 23C0181-11

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142314G.D  
 Lab Smp Id: 23C0181-11  
 Inj Date : 14-MAR-2023 14:08  
 Operator : PKC  
 Smp Info : 23C0181-11  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	59203	5.15976	5.160
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	264560	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	33790	5.50671	5.507
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	383253	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	220494	5.04283	5.043
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	373990	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	82534	4.97462	4.975
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	217389	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	100246	5.10781	5.108

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142314G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-11  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	264560	2.89
37 1,4-Difluorobenze	368342	184171	736684	383253	4.05
53 d5-Chlorobenzene	357223	178612	714446	373990	4.69
76 d4-1,4-Dichlorobe	205758	102879	411516	217389	5.65

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-11  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.160	103.20	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.507	110.13	80-128
\$ 43 d8-Toluene	5.000	5.043	100.86	80-120
\$ 62 4-Bromofluorobenze	5.000	4.975	99.49	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.108	102.16	80-120

REVIEW SUMMARY FOR FILE - V303142314G.D

Lab ID: 23C0181-11  
nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 14:08

RT CO-ELUTION COMPOUNDS

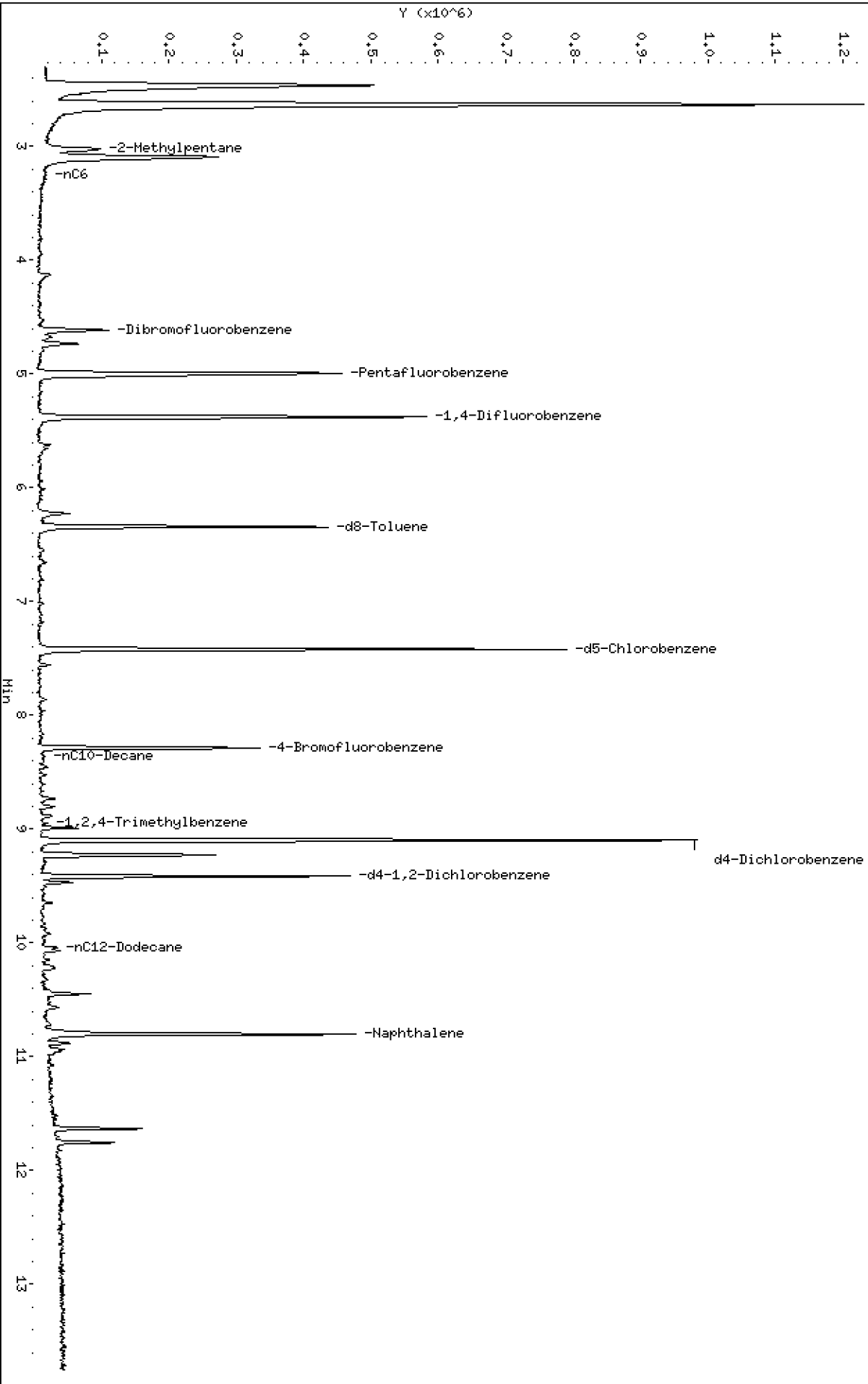
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Data File: \\target\share\chend\nt3,1\20230314g,1b\303142314g.D  
Date: 14-MAR-2023 14:08  
Client ID:  
Sample Info: 23C0181-11

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3,1\20230314g,1b\303142314g.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142314G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 14:08

ARI ID: 23C0181-11  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	1020530	0.018
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	2037098	0.021
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	766303	0.009
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	1930189	0.031
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	1502896	0.014

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.417	1083737	d5-Chlorobenzene
6.344	629015	d8-Toluene
9.096	1259129	d4-Dichlorobenzene
8.283	436184	4-Bromofluorobenzene
9.415	580206	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-02D-20230308**  
**23C0181-12 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 09:41  
Analyzed: 22-Mar-2023 17:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	84.3	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	81.3	%	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02D-20230308**  
**23C0181-12 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 09:41  
Analyzed: 16-Mar-2023 07:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	2.2	ug/L	
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	3.5	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	0.5	ug/L	J
Dibenzofuran	132-64-9	1	0.2	1.0	1.2	ug/L	
Fluorene	86-73-7	1	0.2	1.0	1.2	ug/L	
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	0.9	ug/L	J
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	0.4	ug/L	J
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	1.0	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	83.5 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	110 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	85.9 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02D-20230308**  
**23C0181-12 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 09:41  
Analyzed: 17-Mar-2023 22:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	93.5	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	131	%	*
Surrogate: Fluoranthene-d10			46-121 %	102	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02D-20230308**  
**23C0181-12 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 09:41  
Analyzed: 21-Mar-2023 21:02

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	101	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302133.D

Date : 21-MAR-2023 21:02

Client ID:

Sample Info: 23C0181-12

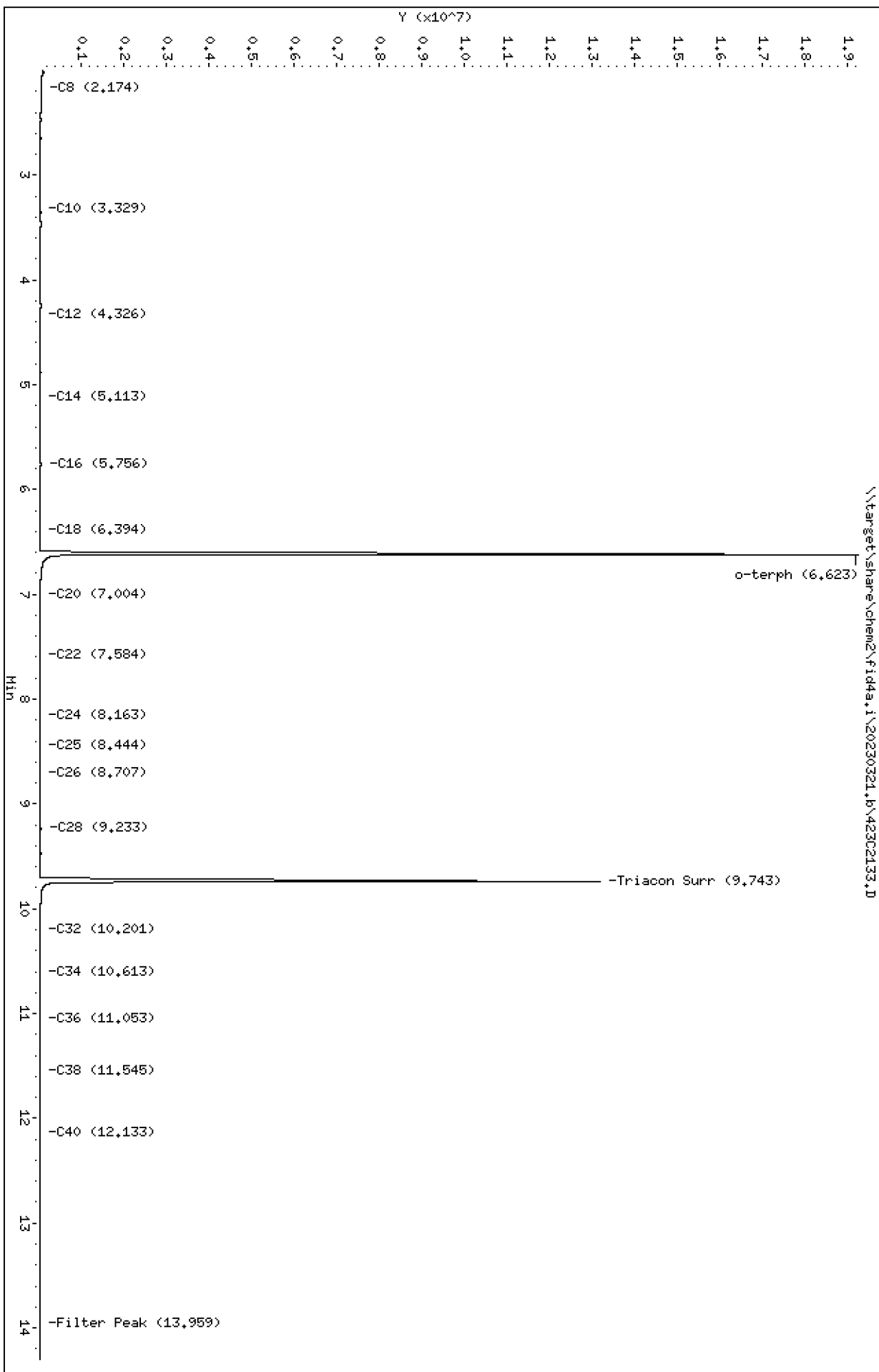
Column phase: RTX-1

Instrument: fid4a,1

Operator: AA

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2133.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-12  
Client ID:  
Injection: 21-MAR-2023 21:02  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

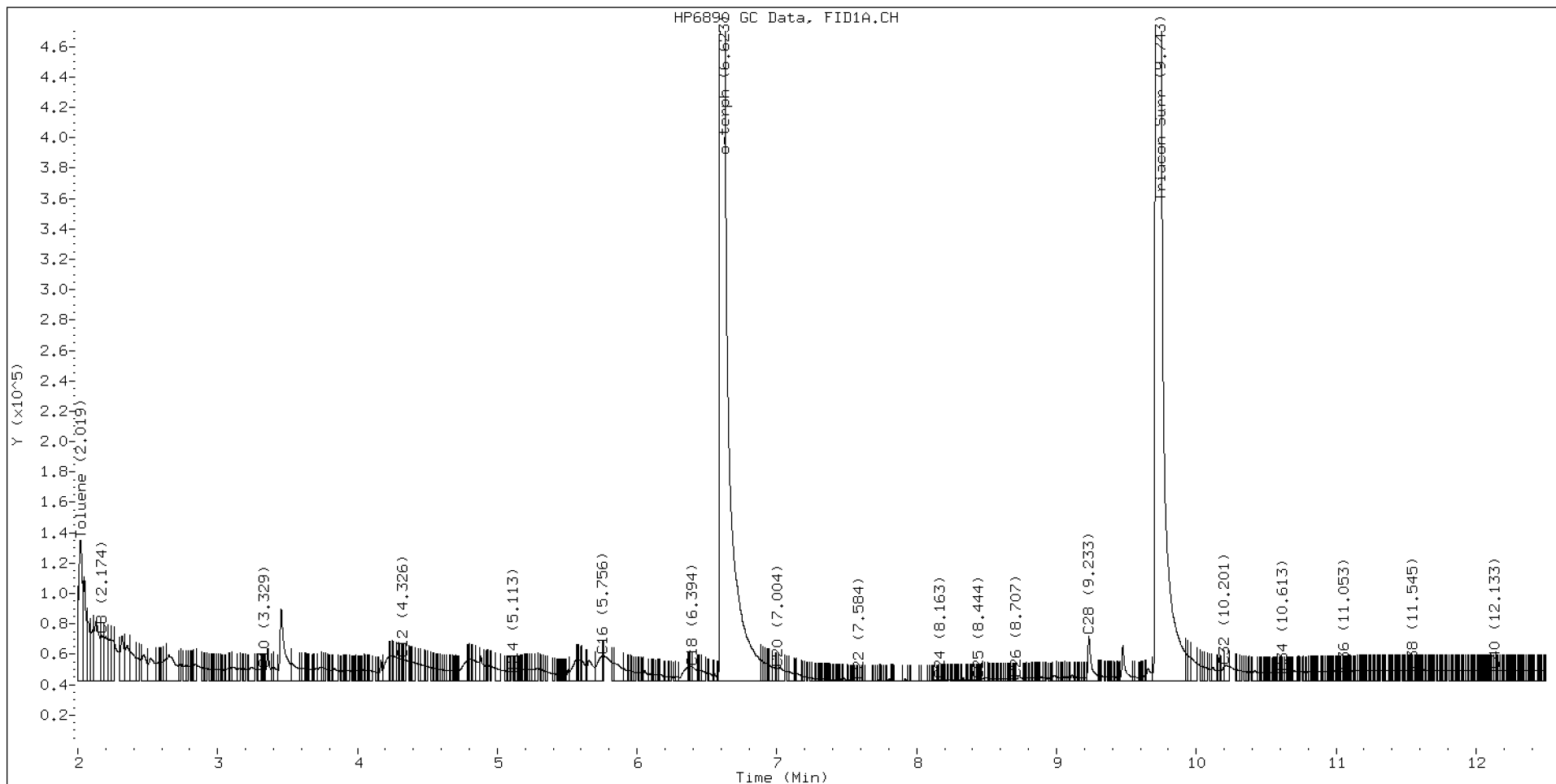
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.174	-0.002	29945	50583	WATPHD	(C12-C24)	1030753	6.5
C10	3.329	0.004	7632	1523	WATPHM	(C24-C38)	849742	6.4
C12	4.326	0.006	14165	9102	AK102	(C10-C25)	1624645	8.6
C14	5.113	0.008	6076	1511	AK103	(C25-C36)	664475	6.7
C16	5.756	-0.024	16780	13294	OR.DIES	(C10-C28)	1763781	9.3
C18	6.394	-0.009	9320	17799				
C20	7.004	-0.000	8621	8402	JET-A	(C10-C18)	1428902	8.3
C22	7.584	-0.011	266	140				
C24	8.163	-0.003	612	442				
C25	8.444	0.002	950	318				
C26	8.707	-0.007	1367	597				
C28	9.233	0.002	29767	53227				
C32	10.201	0.018	9547	12179				
C34	10.613	-0.004	5774	3420				
Filter Peak	13.959	-0.004	7244	3961	CREOSOT	(C12-C22)	1023119	38.6
C36	11.053	0.003	6517	1943				
C38	11.545	0.004	7240	2886				
C40	12.133	-0.005	7007	4850				
o-terph	6.623	0.001	19225391	23025346				
Triacon Surr	9.743	-0.006	13159348	17967610	NAS DIES	(C10-C24)	1616812	8.6

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23025346	113.1
Triacontane	17967610	82.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02D-20230308**  
**23C0181-12 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 09:41  
Analyzed: 14-Mar-2023 14:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	95.5	%	

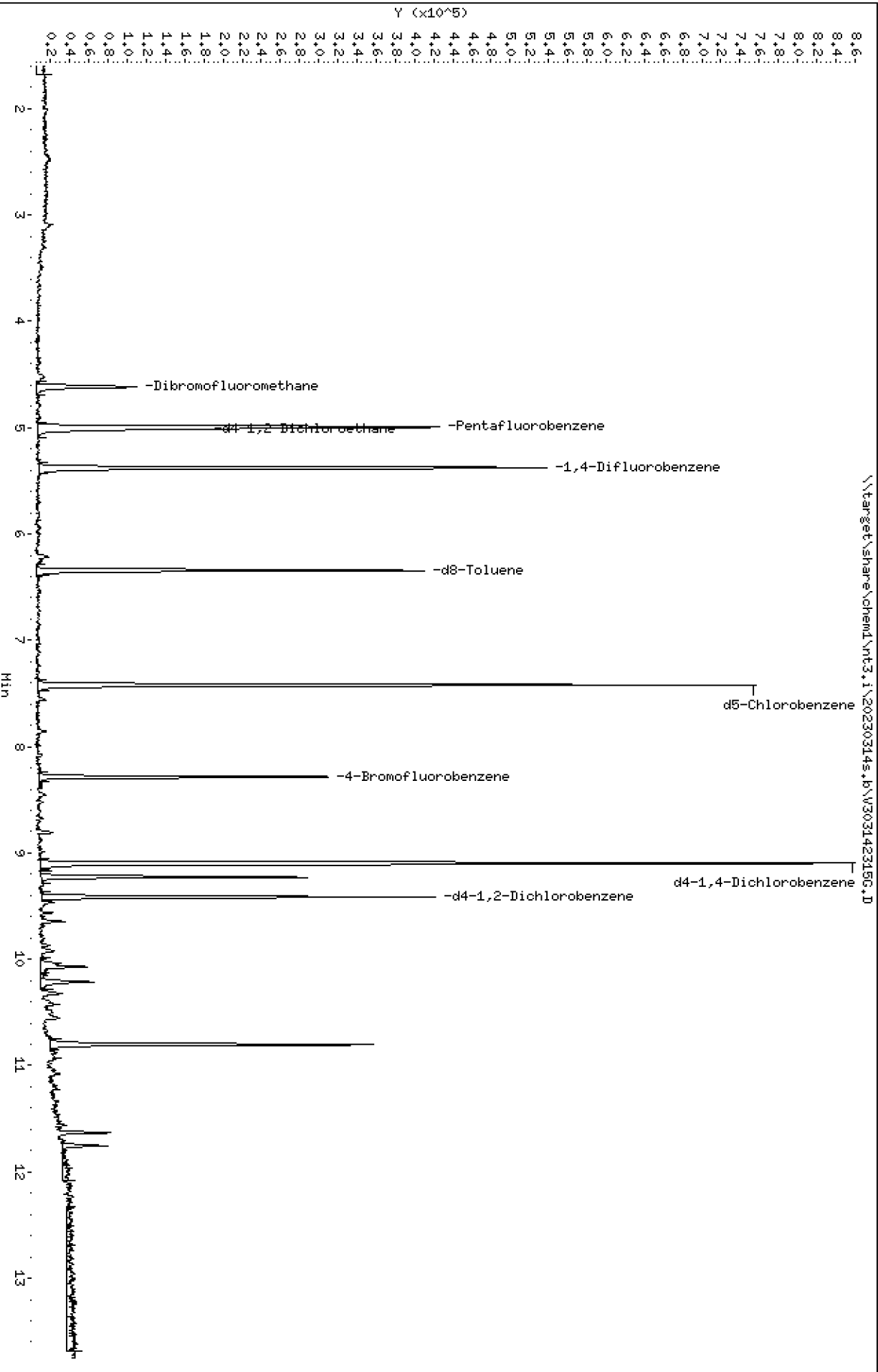
Data File: \\target\share\chend\nt3.1\20230314s.16\303142315G.D  
Date: 14-MAR-2023 14:30  
Client ID:  
Sample Info: 23C0181-12

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142315G.D  
 Lab Smp Id: 23C0181-12  
 Inj Date : 14-MAR-2023 14:30  
 Operator : PKC  
 Smp Info : 23C0181-12  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	56147	5.23791	5.238
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	247160	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.014	5.009	(1.004)	29006	5.05985	5.060
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	363404	10.0000	
\$ 43 d8-Toluene	98		6.342	6.343	(1.180)	203764	4.91474	4.915
* 53 d5-Chlorobenzene	117		7.421	7.421	(1.000)	350009	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.287	(1.117)	74151	4.77556	4.776
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	196262	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	92648	5.22883	5.229

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142315G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-12  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	247160	-3.88
37 1,4-Difluorobenze	368342	184171	736684	363404	-1.34
53 d5-Chlorobenzene	357223	178612	714446	350009	-2.02
76 d4-1,4-Dichlorobe	205758	102879	411516	196262	-4.62

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-12  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.238	104.76	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.060	101.20	80-128
\$ 43 d8-Toluene	5.000	4.915	98.29	80-120
\$ 62 4-Bromofluorobenze	5.000	4.776	95.51	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.229	104.58	80-120

REVIEW SUMMARY FOR FILE - V303142315G.D

Lab ID: 23C0181-12

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 14:30

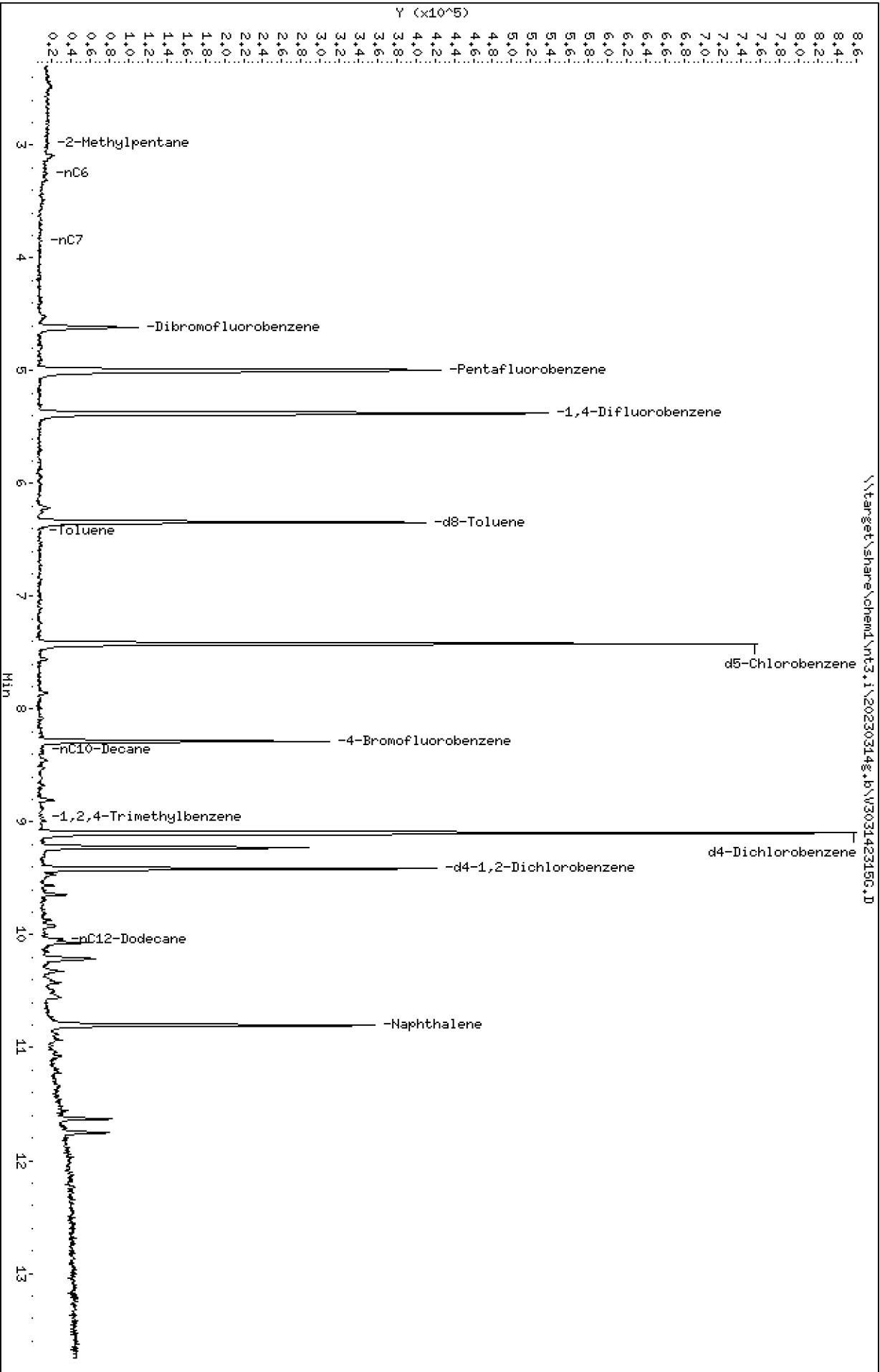
RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chend\nt3.1\20230314g.1b\202303142315G.D  
Date: 14-MAR-2023 14:30  
Client ID:  
Sample Info: 23C0181-12

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142315G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 14:30

ARI ID: 23C0181-12  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	787759	0.014
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	487942	0.005
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	274992	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	1427620	0.023
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	888289	0.008

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	985444	d5-Chlorobenzene
6.343	562747	d8-Toluene
9.095	1124194	d4-Dichlorobenzene
8.288	402820	4-Bromofluorobenzene
9.414	524742	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-12-20230308**  
**23C0181-13 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 13:16  
Analyzed: 22-Mar-2023 18:06

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	91.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	88.6	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-12-20230308**  
**23C0181-13 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 13:16  
Analyzed: 16-Mar-2023 07:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	77.0	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	100	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	79.5	%	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-12-20230308**  
**23C0181-13 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 13:16  
Analyzed: 17-Mar-2023 22:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	76.8	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	128	%	*
Surrogate: Fluoranthene-d10			46-121 %	96.7	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-12-20230308**  
**23C0181-13 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 13:16  
Analyzed: 21-Mar-2023 21:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	55.5	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302134.D

Date : 21-MAR-2023 21:22

Client ID:

Sample Info: 23C0181-13

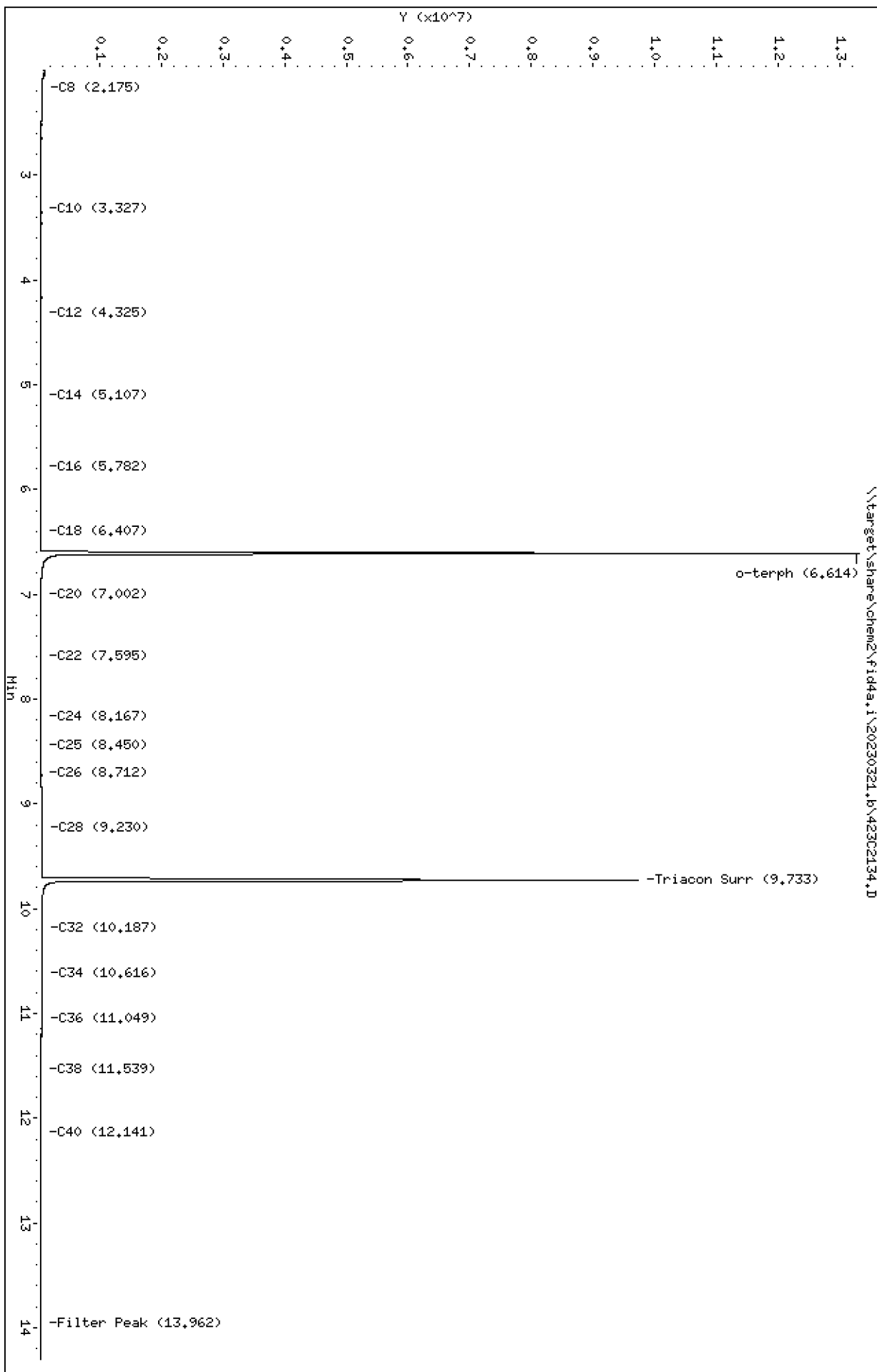
Column phase: RTX-1

Instrument: fid4a,1

Operator: AA

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2134.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-13  
Client ID:  
Injection: 21-MAR-2023 21:22  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

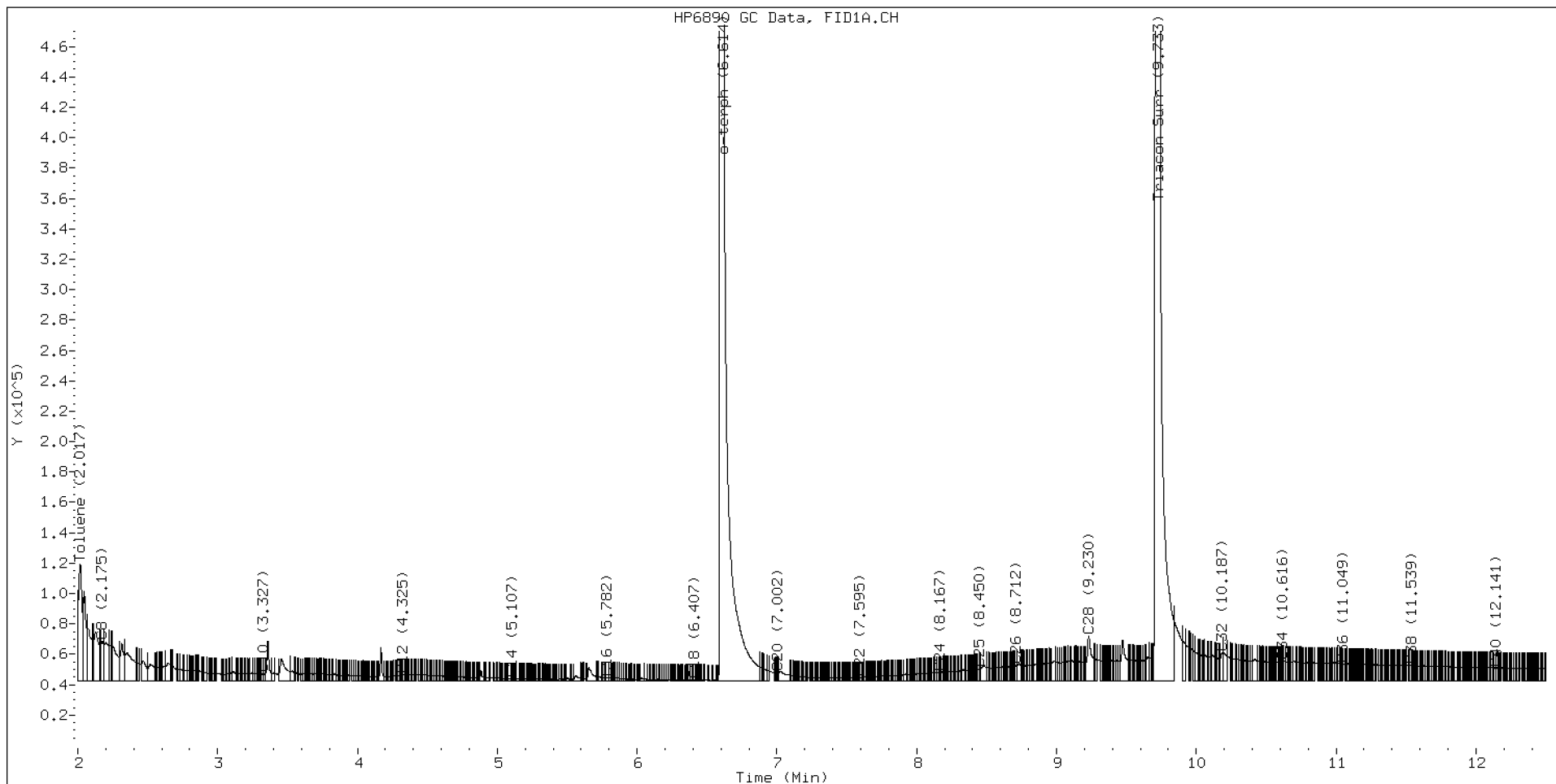
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.175	-0.000	26106	40218	WATPHD	(C12-C24)	521493	3.3
C10	3.327	0.002	5063	3866	WATPHM	(C24-C38)	2176422	16.4
C12	4.325	0.005	4129	2219	AK102	(C10-C25)	881682	4.7
C14	5.107	0.003	1671	572	AK103	(C25-C36)	1829927	18.5
C16	5.782	0.001	2645	3817	OR.DIES	(C10-C28)	1484527	7.8
C18	6.407	0.003	1283	855				
C20	7.002	-0.002	5649	1957	JET-A	(C10-C18)	527939	3.0
C22	7.595	0.000	2619	1936				
C24	8.167	0.001	5986	1781				
C25	8.450	0.007	8419	6884				
C26	8.712	-0.001	10245	5994				
C28	9.230	-0.001	29979	69173				
C32	10.187	0.004	18857	24542				
C34	10.616	-0.001	13171	8454				
Filter Peak	13.962	-0.001	8039	3199	CREOSOT	(C12-C22)	377315	14.2
C36	11.049	-0.000	11511	2863				
C38	11.539	-0.002	10277	2047				
C40	12.141	0.003	8844	2643				
o-terph	6.614	-0.008	13276415	12710833				
Triacon Surr	9.733	-0.015	9683967	11179201	NAS DIES	(C10-C24)	810417	4.3

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	12710833	62.4
Triacontane	11179201	51.3

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-12-20230308**  
**23C0181-13 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 03/08/2023 13:16  
Analyzed: 14-Mar-2023 14:52

**Analysis by: Analytical Resources, LLC**

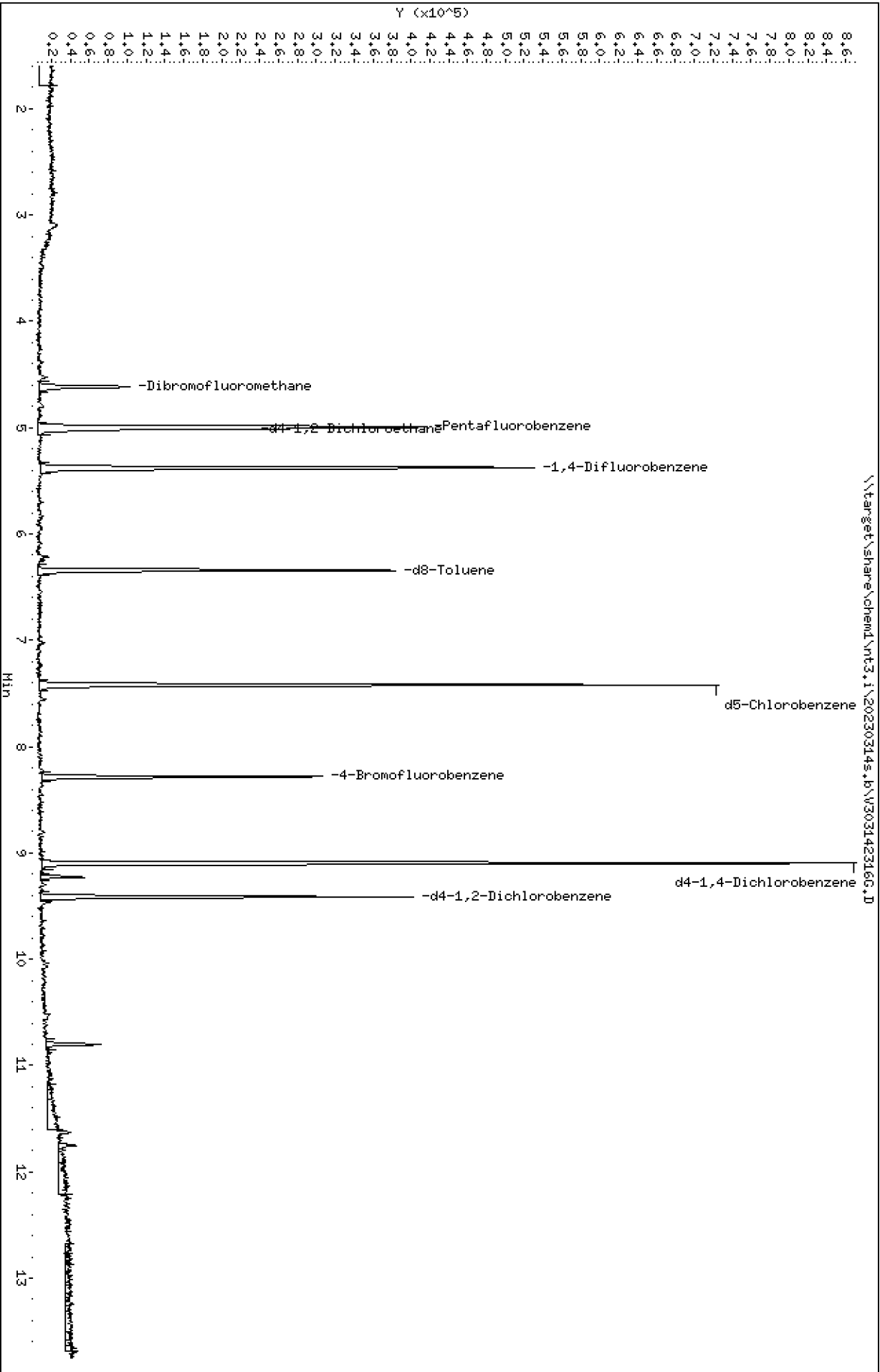
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.0	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.0	%	

Data File: \\target\share\chend\nt3.1\20230314s.1b\303142316G.D  
Date: 14-MAR-2023 14:52  
Client ID:  
Sample Info: 23C0181-13

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142316G.D  
 Lab Smp Id: 23C0181-13  
 Inj Date : 14-MAR-2023 14:52  
 Operator : PKC  
 Smp Info : 23C0181-13  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	54531	5.22864	5.229
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	240472	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	29510	5.29094	5.291
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	352882	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	199206	4.94807	4.948
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	330904	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	72681	4.95114	4.951
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	189210	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	86404	5.05819	5.058



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142316G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-13  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	240472	-6.48
37 1,4-Difluorobenze	368342	184171	736684	352882	-4.20
53 d5-Chlorobenzene	357223	178612	714446	330904	-7.37
76 d4-1,4-Dichlorobe	205758	102879	411516	189210	-8.04

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-13  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.229	104.57	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.291	105.82	80-128
\$ 43 d8-Toluene	5.000	4.948	98.96	80-120
\$ 62 4-Bromofluorobenze	5.000	4.951	99.02	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.058	101.16	80-120

REVIEW SUMMARY FOR FILE - V303142316G.D

Lab ID: 23C0181-13

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 14:52

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3,1\20230314g,1b\2303142316G.D

Date: 14-MAR-2023 14:52

Client ID:

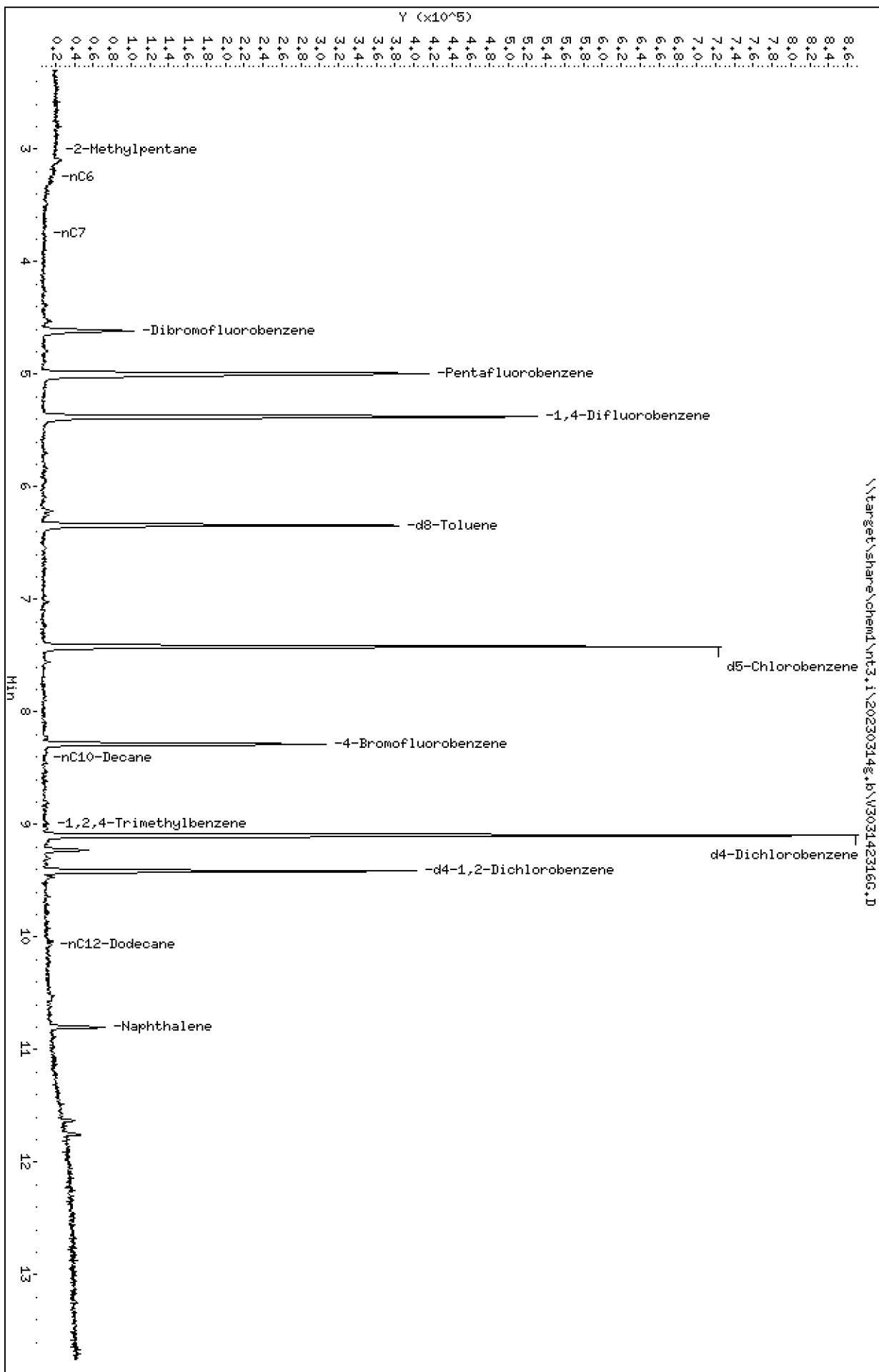
Sample Info: 23C0181-13

Instrument: nt3,1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142316G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 14:52

ARI ID: 23C0181-13  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	350511	0.006
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	536886	0.005
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	355773	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	491654	0.008
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	504419	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	949180	d5-Chlorobenzene
6.344	545069	d8-Toluene
9.096	1066459	d4-Dichlorobenzene
8.283	381712	4-Bromofluorobenzene
9.415	517775	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-19-20230308**  
**23C0181-14 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 14:18  
Analyzed: 22-Mar-2023 18:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	92.5	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	89.9	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-19-20230308**  
**23C0181-14 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 14:18  
Analyzed: 16-Mar-2023 08:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	0.6	ug/L	J
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	78.7 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	106 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	82.2 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**PZ-19-20230308**  
**23C0181-14 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 14:18  
Analyzed: 17-Mar-2023 22:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>92.1</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>133</i>	<i>%</i>	<i>*</i>
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>104</i>	<i>%</i>	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-19-20230308**  
**23C0181-14 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 14:18  
Analyzed: 21-Mar-2023 21:41

**Analysis by: Analytical Resources, LLC**

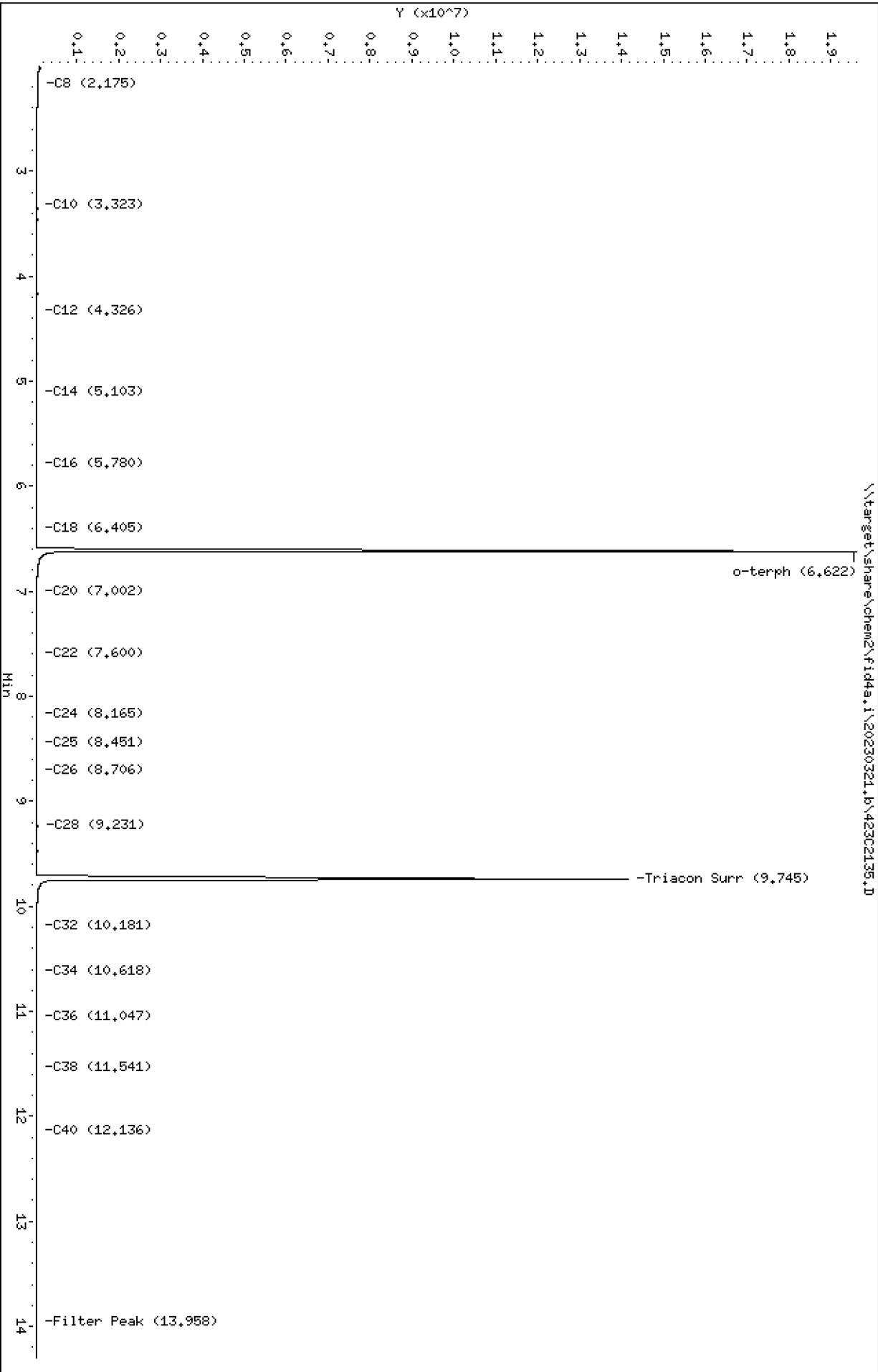
Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	102	%	

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302135.D  
Date : 21-MAR-2023 21:41  
Client ID:  
Sample Info: 23C0181-14

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2135.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-14  
Client ID:  
Injection: 21-MAR-2023 21:41  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

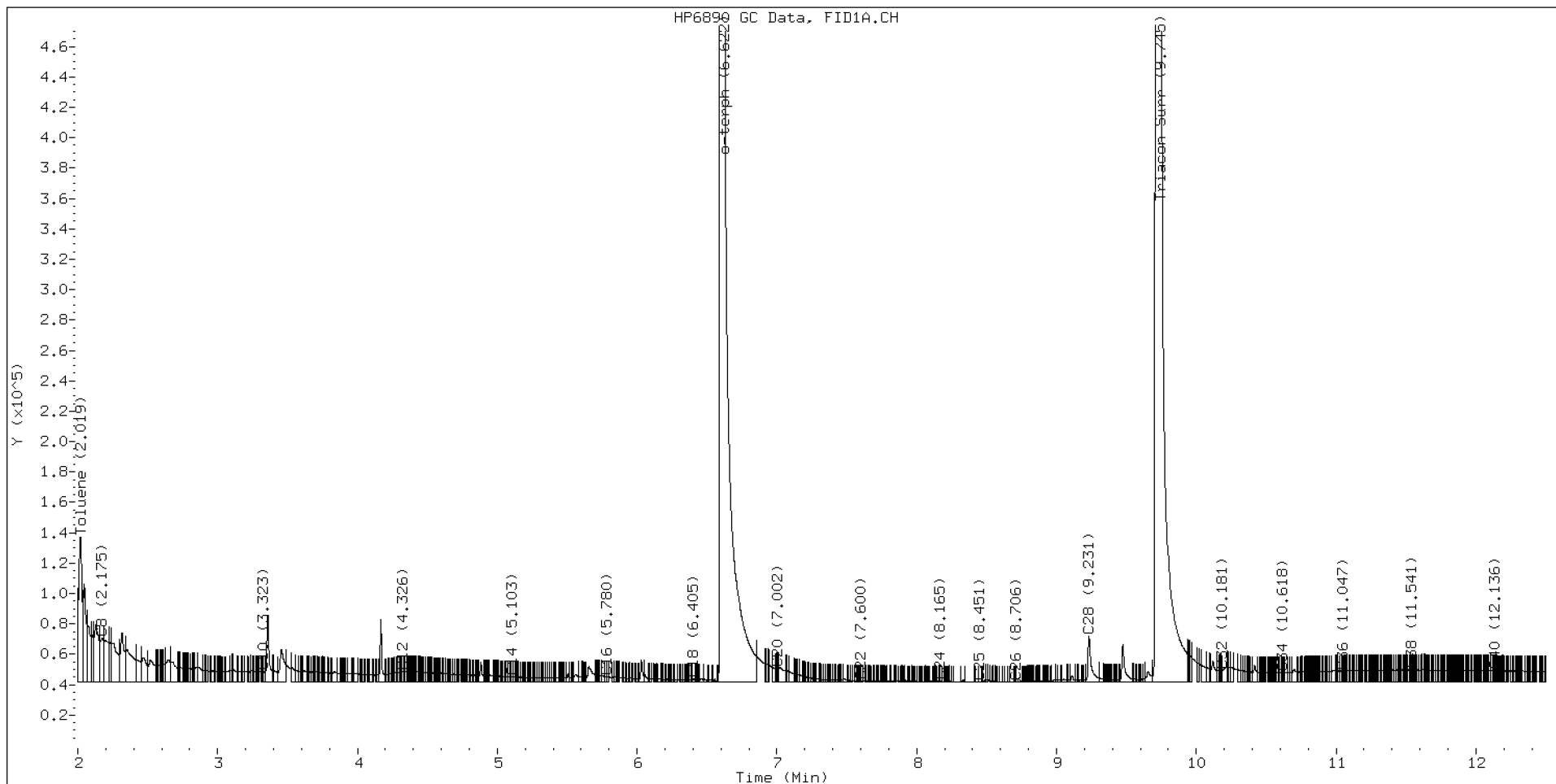
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.175	-0.001	28636	49714	WATPHD	(C12-C24)	561913	3.5
C10	3.323	-0.002	6705	2331	WATPHM	(C24-C38)	839518	6.3
C12	4.326	0.005	6726	4956	AK102	(C10-C25)	999619	5.3
C14	5.103	-0.001	3326	2399	AK103	(C25-C36)	627085	6.3
C16	5.780	-0.001	3729	2301	OR.DIES	(C10-C28)	1081764	5.7
C18	6.405	0.001	1744	2249				
C20	7.002	-0.002	8888	3965	JET-A	(C10-C18)	829383	4.8
C22	7.600	0.005	575	323				
C24	8.165	-0.001	513	172				
C25	8.451	0.009	173	114				
C26	8.706	-0.007	226	113				
C28	9.231	0.000	30308	51005				
C32	10.181	-0.001	7224	1797				
C34	10.618	0.001	6241	2794				
Filter Peak	13.958	-0.005	6001	1197	CREOSOT	(C12-C22)	549118	20.7
C36	11.047	-0.002	7154	2849				
C38	11.541	0.000	7946	4739				
C40	12.136	-0.002	7319	3266				
o-terph	6.622	0.000	19568717	23410612				
Triacon Surr	9.745	-0.004	14130013	20372219	NAS DIES	(C10-C24)	997737	5.3

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23410612	115.0
Triacontane	20372219	93.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**PZ-19-20230308**  
**23C0181-14 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 14:18  
Analyzed: 14-Mar-2023 15:14

**Analysis by: Analytical Resources, LLC**

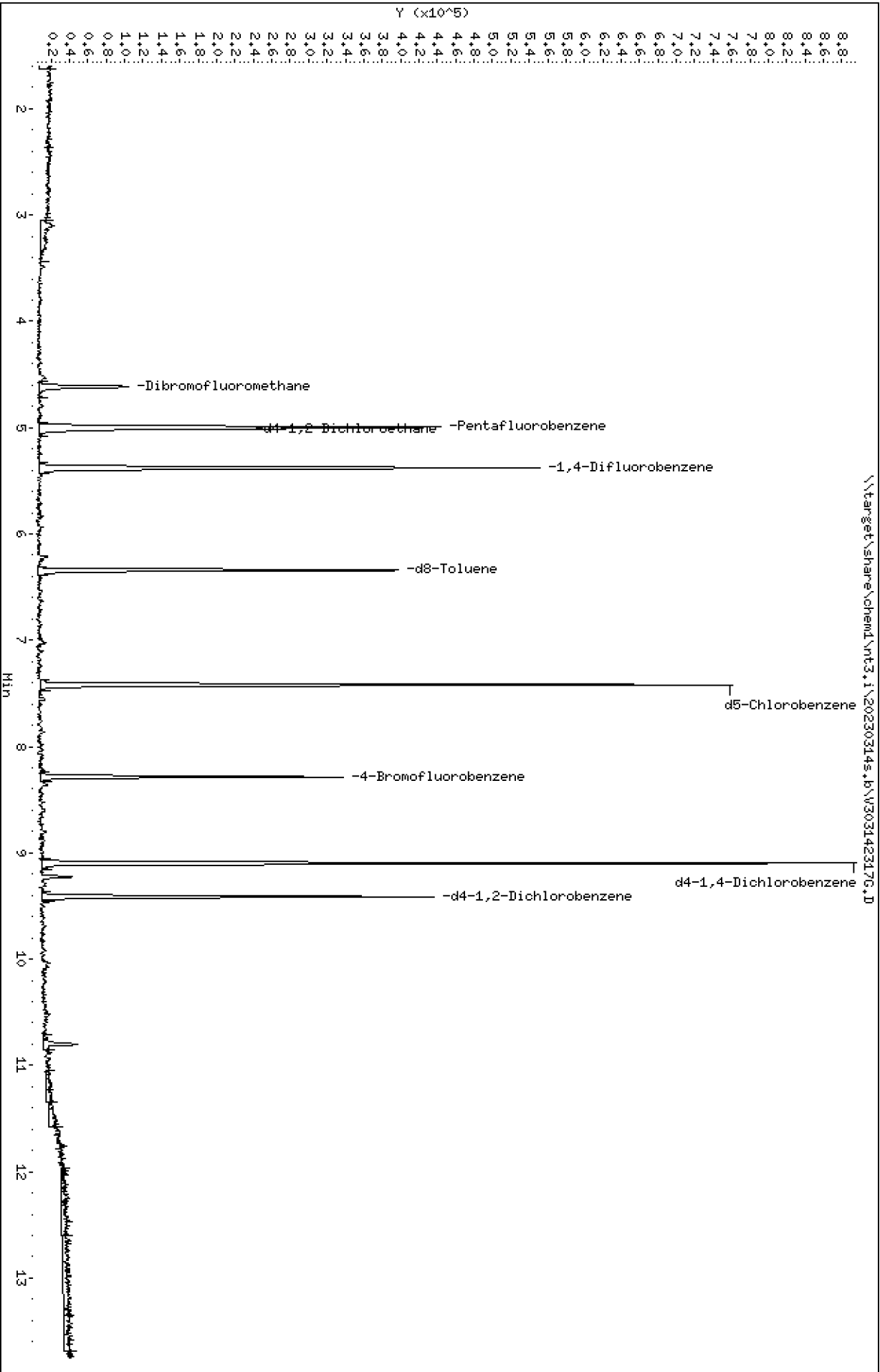
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	95.8	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.6	%	

Data File: \\target\share\chend\nt3.1\20230314s.16\303142317G.D  
Date : 14-MAR-2023 15:14  
Client ID:  
Sample Info: 23C0181-14

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142317G.D  
 Lab Smp Id: 23C0181-14  
 Inj Date : 14-MAR-2023 15:14  
 Operator : PKC  
 Smp Info : 23C0181-14  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.612	4.616	(0.923)	56620	5.12233	5.122
* 32 Pentafluorobenzene	168		4.995	4.993	(1.000)	254866	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.011	5.009	(1.003)	31339	5.30153	5.302
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	368135	10.0000	
\$ 43 d8-Toluene	98		6.339	6.343	(1.179)	201185	4.79018	4.790
* 53 d5-Chlorobenzene	117		7.417	7.421	(1.000)	355146	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.284	8.287	(1.117)	75342	4.78208	4.782
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	207457	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	96540	5.15447	5.154

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142317G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-14  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	254866	-0.88
37 1,4-Difluorobenze	368342	184171	736684	368135	-0.06
53 d5-Chlorobenzene	357223	178612	714446	355146	-0.58
76 d4-1,4-Dichlorobe	205758	102879	411516	207457	0.83

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	5.00	0.03
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.03
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.05
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.02

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-14  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.122	102.45	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.302	106.03	80-128
\$ 43 d8-Toluene	5.000	4.790	95.80	80-120
\$ 62 4-Bromofluorobenze	5.000	4.782	95.64	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.154	103.09	80-120

REVIEW SUMMARY FOR FILE - V303142317G.D

Lab ID: 23C0181-14

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 15:14

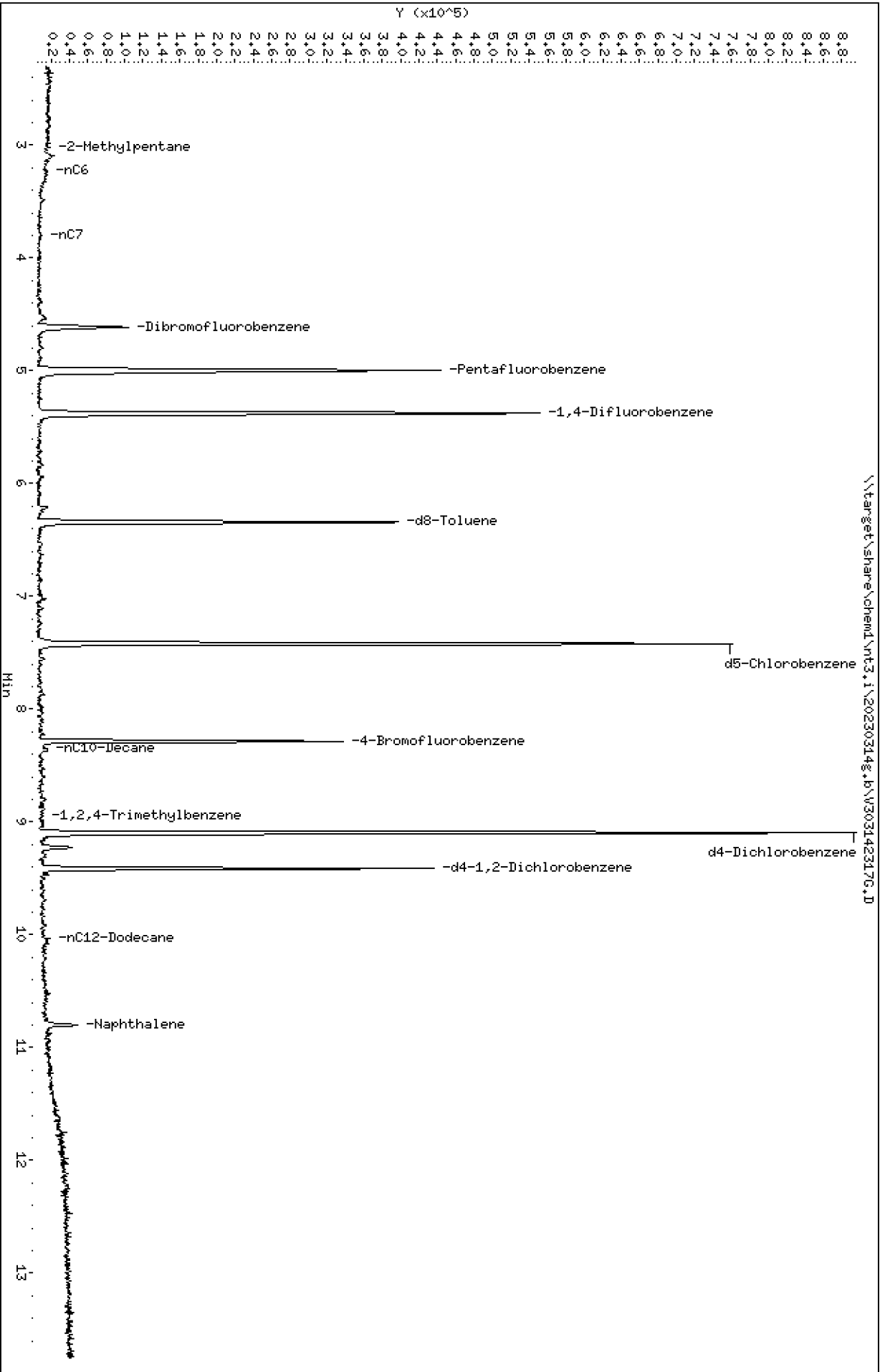
RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.b\303142317G.D  
Date: 14-MAR-2023 15:14  
Client ID:  
Sample Info: 23C0181-14

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142317G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 15:14

ARI ID: 23C0181-14  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	383976	0.007
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	631034	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	422075	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	501028	0.008
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	541821	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.418	998088	d5-Chlorobenzene
6.339	552705	d8-Toluene
9.097	1143348	d4-Dichlorobenzene
8.284	409043	4-Bromofluorobenzene
9.416	560209	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Tripblank**  
**23C0181-15 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 03/08/2023 00:00  
Instrument: NT3 Analyzed: 14-Mar-2023 12:14

**Analysis by: Analytical Resources, LLC**

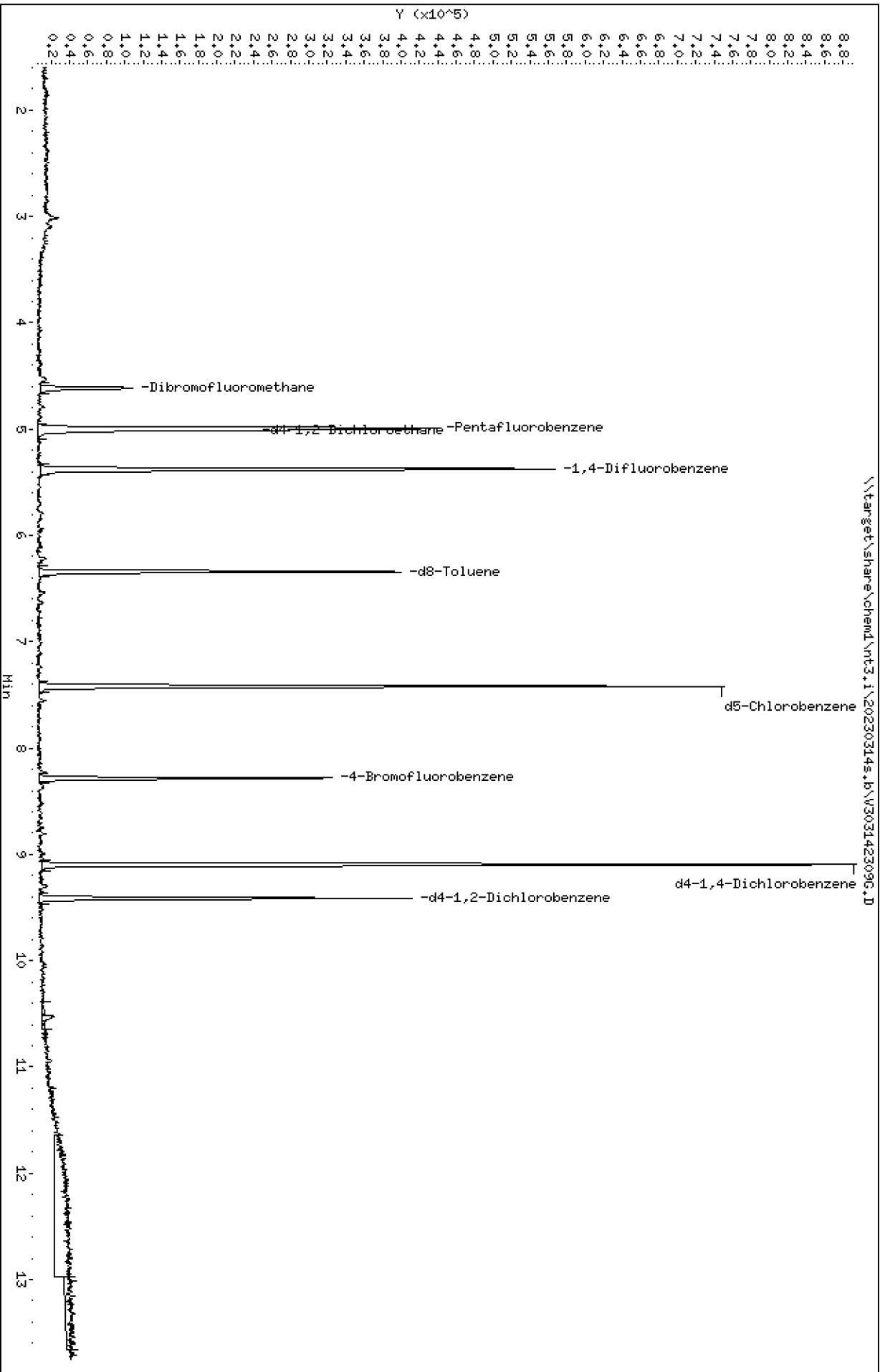
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.7	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.9	%	

Data File: \\target\share\chend\nt3.1\20230314s.1b\303142309G.D  
Date: 14-MAR-2023 12:14  
Client ID:  
Sample Info: 23C0181-15

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142309G.D  
 Lab Smp Id: 23C0181-15  
 Inj Date : 14-MAR-2023 12:14  
 Operator : PKC  
 Smp Info : 23C0181-15  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	55990	5.00177	5.002 (R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	258105	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	29635	4.95036	4.950 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	376672	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	209949	4.88555	4.886 (R)
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	354685	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	77000	4.89367	4.894 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	202313	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	90089	4.93234	4.932 (R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142309G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-15  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	258105	0.38
37 1,4-Difluorobenze	368342	184171	736684	376672	2.26
53 d5-Chlorobenzene	357223	178612	714446	354685	-0.71
76 d4-1,4-Dichlorobe	205758	102879	411516	202313	-1.67

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23C0181-15  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.002	100.04	
\$ 33 d4-1,2-Dichloroeth	5.000	4.950	99.01	
\$ 43 d8-Toluene	5.000	4.886	97.71	
\$ 62 4-Bromofluorobenze	5.000	4.894	97.87	
\$ 79 d4-1,2-Dichloroben	5.000	4.932	98.65	

REVIEW SUMMARY FOR FILE - V303142309G.D

Lab ID: 23C0181-15

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 12:14

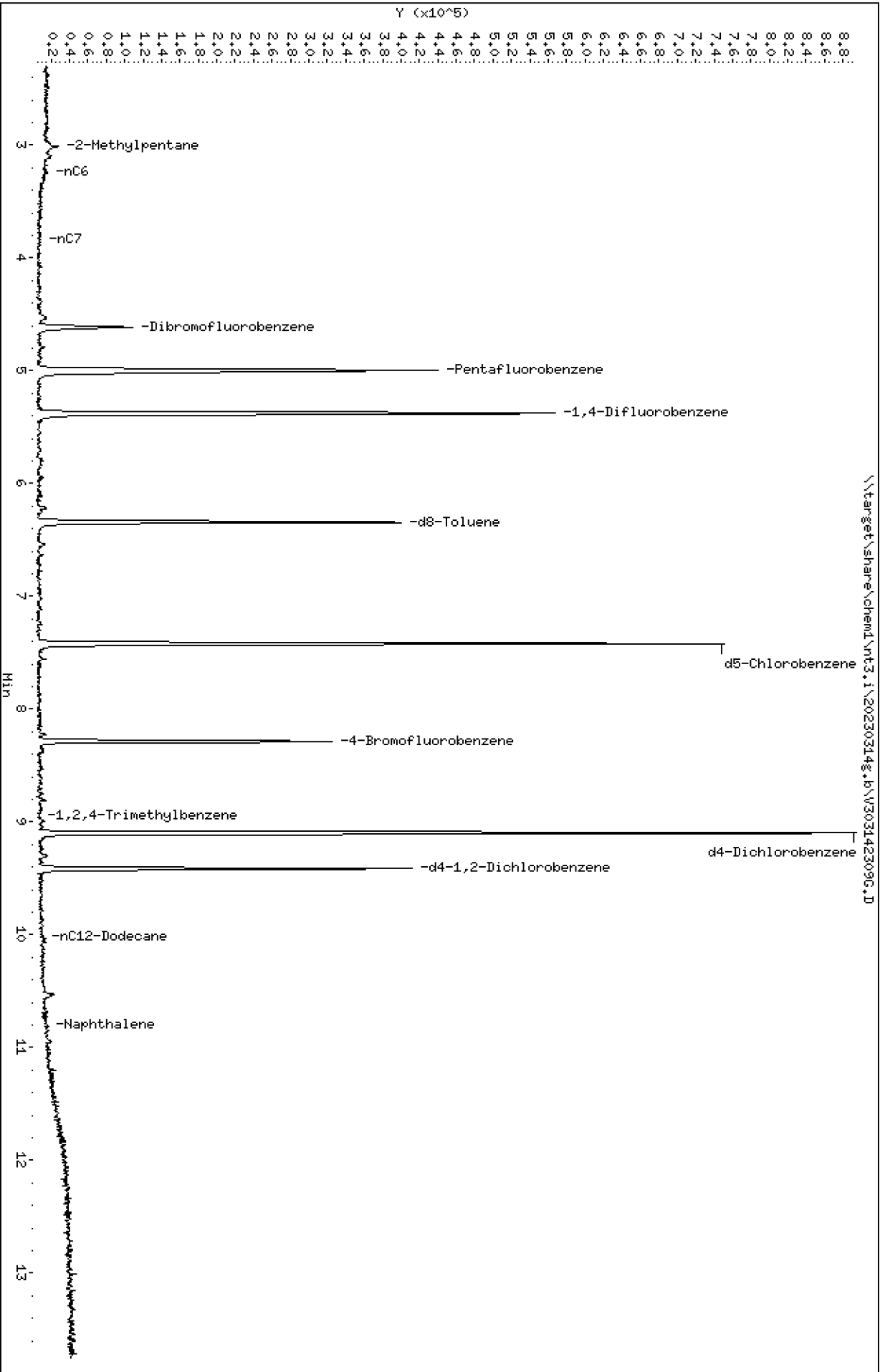
RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230314g.1b\2303142309G.D  
Date: 14-MAR-2023 12:14  
Client ID:  
Sample Info: 23C0181-15

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142309G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 12:14

ARI ID: 23C0181-15  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	234139	0.004
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	567899	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	350346	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	297408	0.005
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	411135	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.423	1019356	d5-Chlorobenzene
6.344	571709	d8-Toluene
9.096	1128111	d4-Dichlorobenzene
8.283	406656	4-Bromofluorobenzene
9.415	538464	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-02S-20230308**  
**23C0181-16 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 03/08/2023 09:50  
Analyzed: 22-Mar-2023 18:42

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0256 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	93.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	90.2	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02S-20230308**  
**23C0181-16 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 03/08/2023 09:50  
Analyzed: 17-Mar-2023 15:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0254 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	1.6	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	84.3 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	109 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	111 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

**MW-02S-20230308**  
**23C0181-16 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 03/08/2023 09:50  
Analyzed: 17-Mar-2023 23:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLC0257 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CLC0136 Initial Volume: 0.5 uL  
Cleaned: 16-Mar-2023 Final Volume: 0.5 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	88.2	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	105	%	
Surrogate: Fluoranthene-d10			46-121 %	93.7	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-02S-20230308**  
**23C0181-16 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 03/08/2023 09:50  
Analyzed: 21-Mar-2023 22:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLC0255 Sample Size: 500 mL  
Prepared: 13-Mar-2023 Final Volume: 1 mL

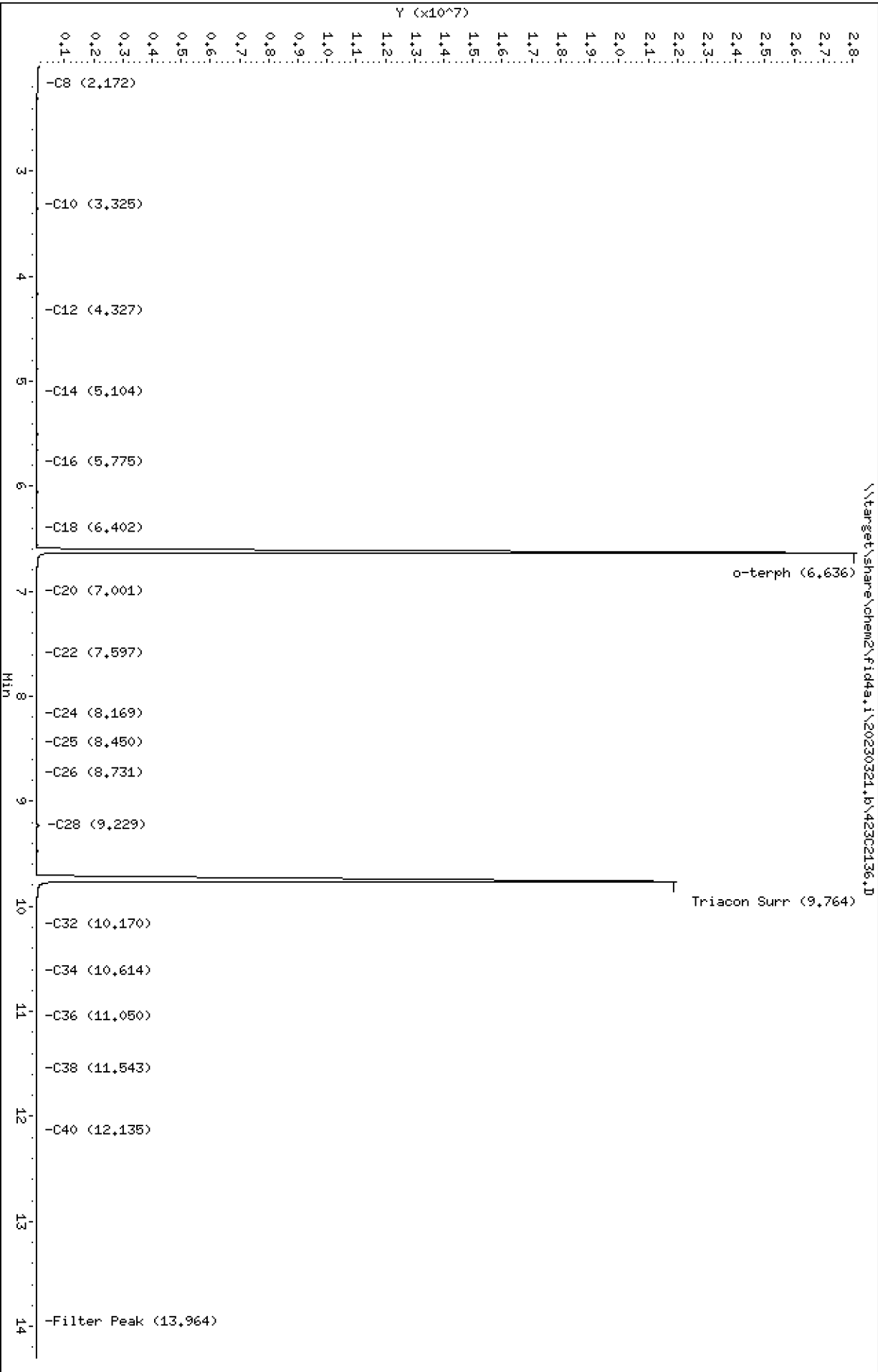
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	94.9	%	



Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302136.D  
Date: 21-MAR-2023 22:01  
Client ID:  
Sample Info: 23C0181-16

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2136.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: 23C0181-16  
Client ID:  
Injection: 21-MAR-2023 22:01  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

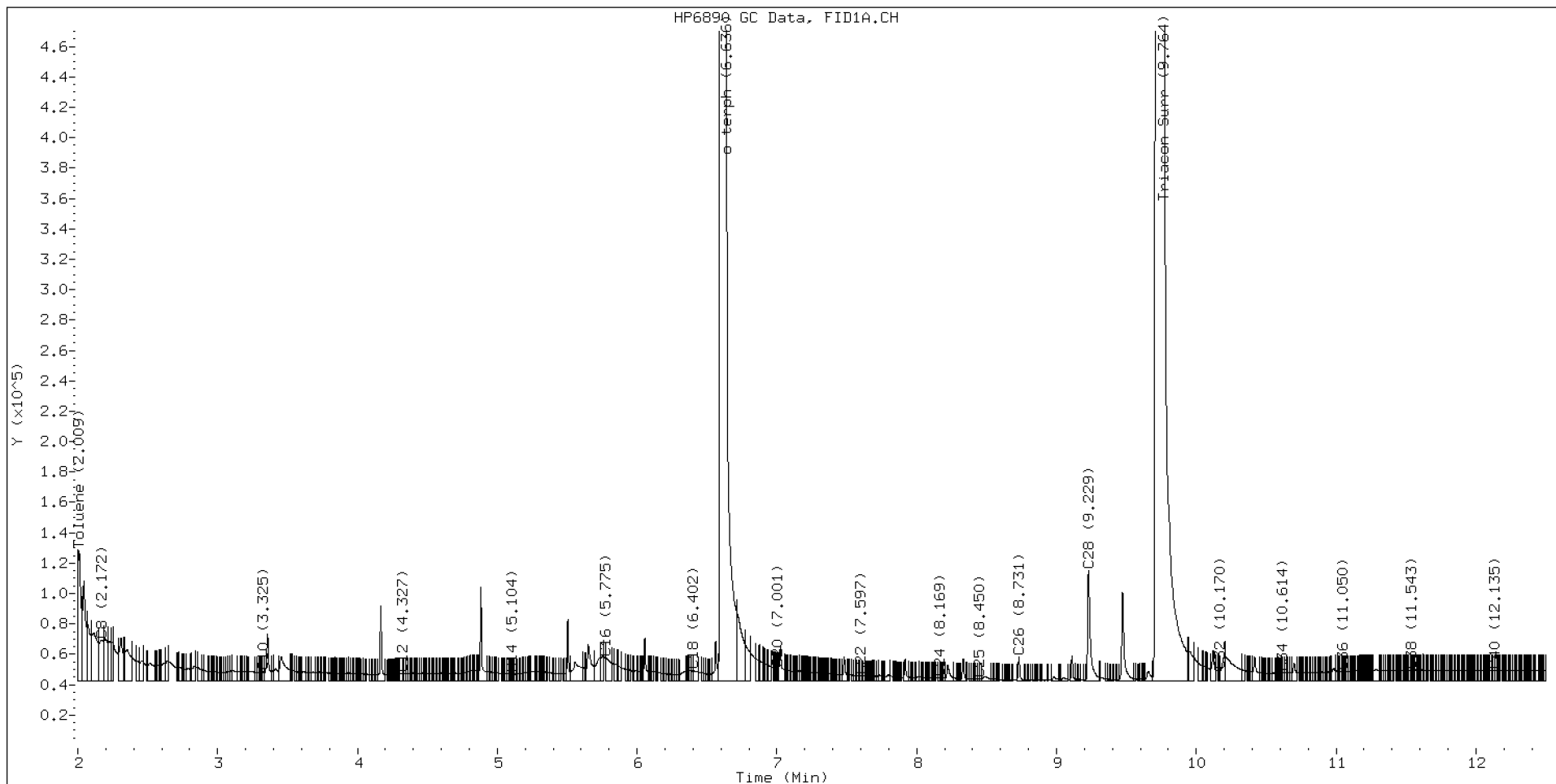
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.172	-0.003	26755	51642	WATPHD	(C12-C24)	1273632	8.0
C10	3.325	-0.001	5552	4924	WATPHM	(C24-C38)	902220	6.8
C12	4.327	0.007	4489	1750	AK102	(C10-C25)	1658110	8.8
C14	5.104	-0.001	4209	630	AK103	(C25-C36)	693499	7.0
C16	5.775	-0.005	15001	37309	OR.DIES	(C10-C28)	1805432	9.5
C18	6.402	-0.002	6422	15047				
C20	7.001	-0.003	8174	3655	JET-A	(C10-C18)	1097649	6.3
C22	7.597	0.003	2985	2326				
C24	8.169	0.003	1709	1083				
C25	8.450	0.007	992	289				
C26	8.731	0.018	15256	12514				
C28	9.229	-0.002	72256	95278				
C32	10.170	-0.012	6203	1234				
C34	10.614	-0.003	5028	3945				
Filter Peak	13.964	0.001	6346	1897	CREOSOT	(C12-C22)	1199691	45.2
C36	11.050	0.000	6117	3633				
C38	11.543	0.002	6881	1714				
C40	12.135	-0.003	6524	2591				
o-terph	6.636	0.014	28097985	43496202				
Triacon Surr	9.764	0.015	21921888	42187720	NAS DIES	(C10-C24)	1625218	8.6

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	43496202	213.6
Triacotane	42187720	193.6

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**MW-02S-20230308**  
**23C0181-16 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 03/08/2023 09:50  
Analyzed: 14-Mar-2023 15:36

**Analysis by: Analytical Resources, LLC**

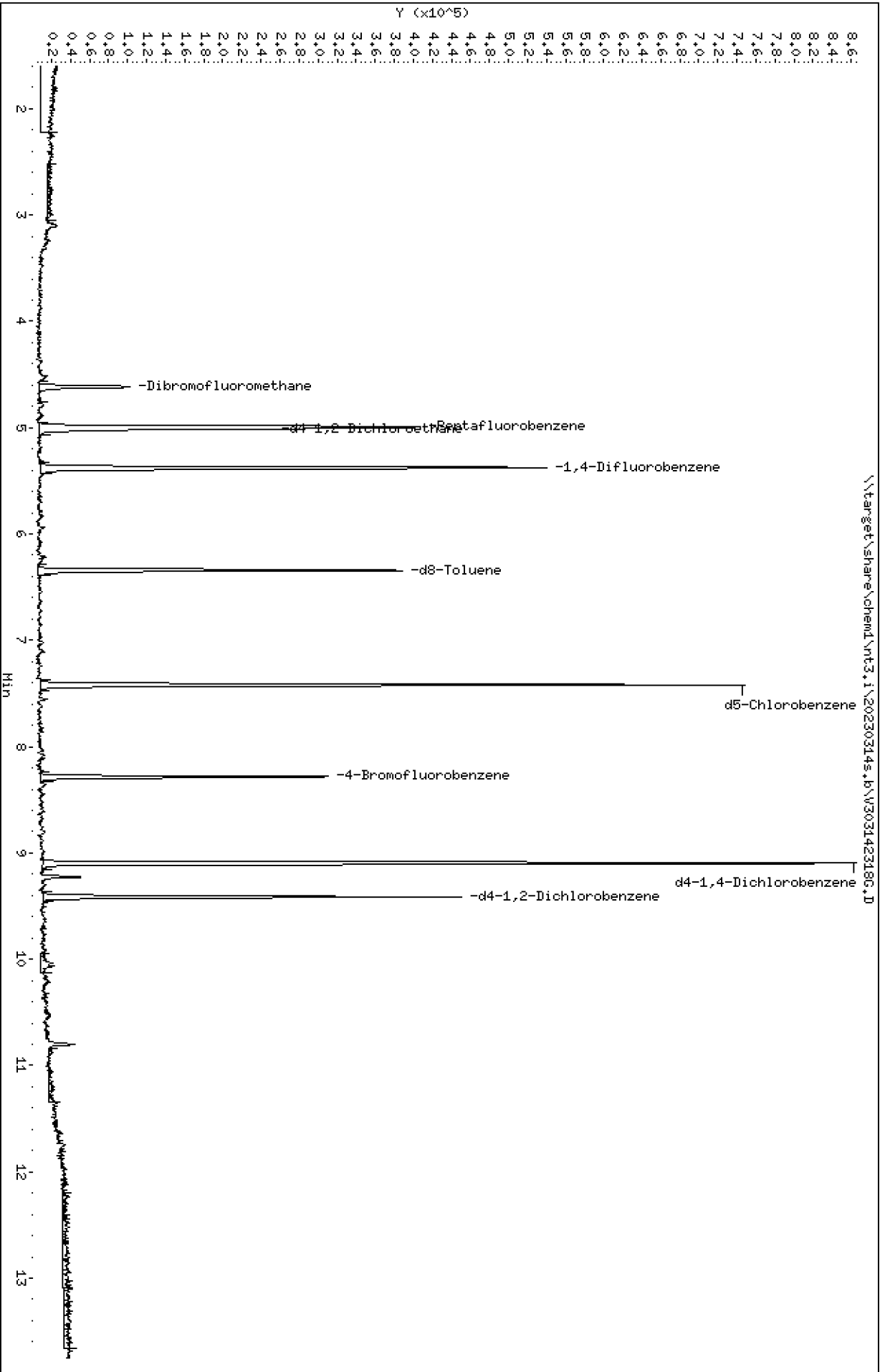
Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLC0344 Sample Size: 10 mL  
Prepared: 14-Mar-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.3	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	95.1	%	

Data File: \\target\share\chend\nt3.1\20230314s.16\303142318G.D  
Date : 14-MAR-2023 15:36  
Client ID:  
Sample Info: 23C0181-16

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142318G.D  
 Lab Smp Id: 23C0181-16  
 Inj Date : 14-MAR-2023 15:36  
 Operator : PKC  
 Smp Info : 23C0181-16  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	56321	5.39186	5.392
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	240847	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	33203	5.94380	5.944
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	355647	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	201420	4.96417	4.964
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	354589	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	74779	4.75380	4.754
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	204210	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	96393	5.22846	5.228

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142318G.D Calibration Time: 10:21  
 Lab Smp Id: 23C0181-16  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	240847	-6.33
37 1,4-Difluorobenze	368342	184171	736684	355647	-3.45
53 d5-Chlorobenzene	357223	178612	714446	354589	-0.74
76 d4-1,4-Dichlorobe	205758	102879	411516	204210	-0.75

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23C0181-16  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.392	107.84	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.944	118.88	80-128
\$ 43 d8-Toluene	5.000	4.964	99.28	80-120
\$ 62 4-Bromofluorobenze	5.000	4.754	95.08	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.228	104.57	80-120



REVIEW SUMMARY FOR FILE - V303142318G.D

Lab ID: 23C0181-16

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 15:36

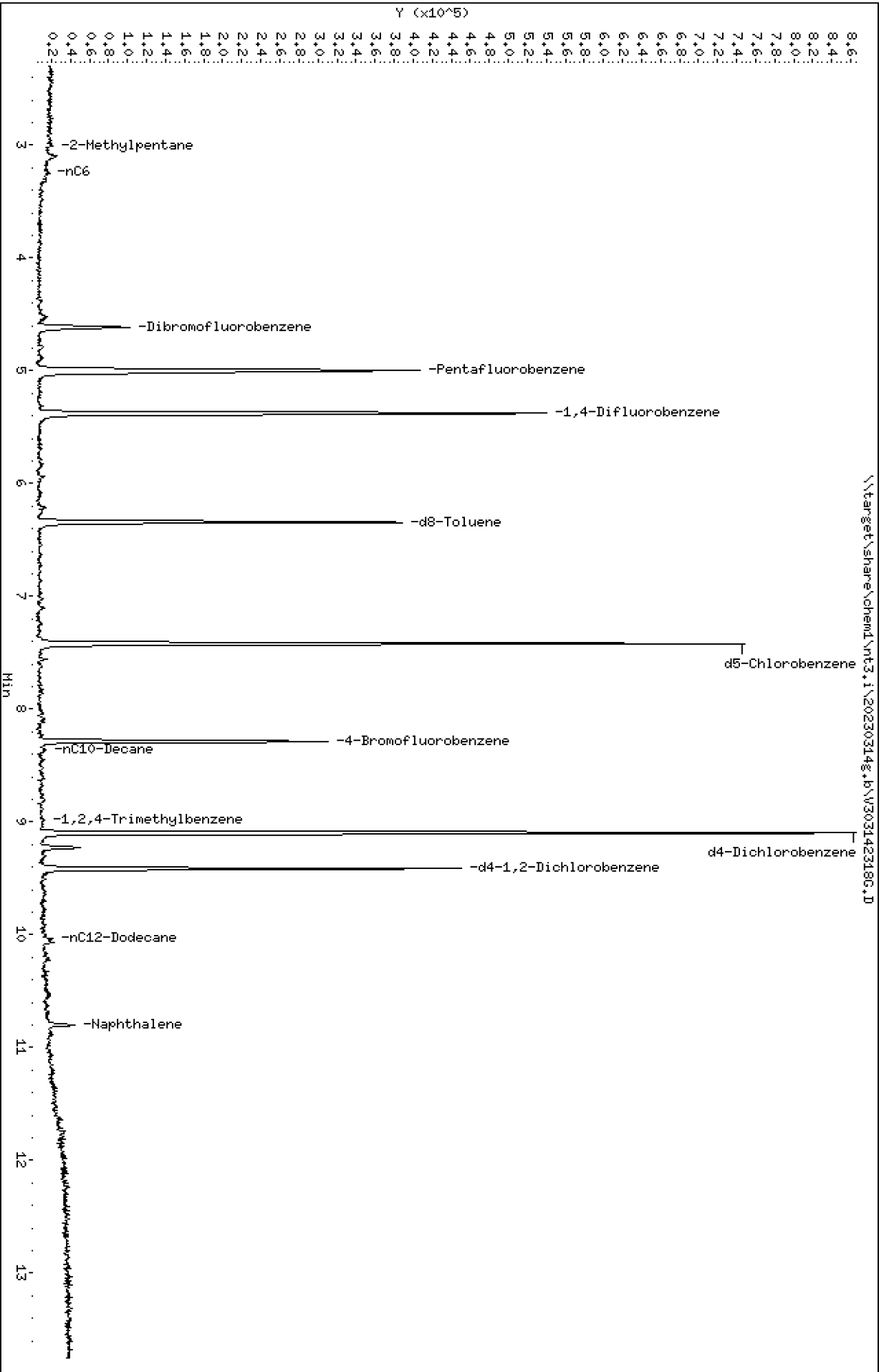
RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chend\nt3,1\20230314g,1b\2303142318G.D  
Date: 14-MAR-2023 15:36  
Client ID:  
Sample Info: 23C0181-16

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142318G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 15:36

ARI ID: 23C0181-16  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	415631	0.007
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	627677	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	397618	0.005
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	525526	0.009
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	588532	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.417	1015231	d5-Chlorobenzene
6.344	549542	d8-Toluene
9.096	1121985	d4-Dichlorobenzene
8.283	409243	4-Bromofluorobenzene
9.415	567150	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**Analysis by: Analytical Resources, LLC**

**Volatile Organic Compounds - Quality Control**

**Batch BLC0271 - EPA 5030C (Purge and Trap)**

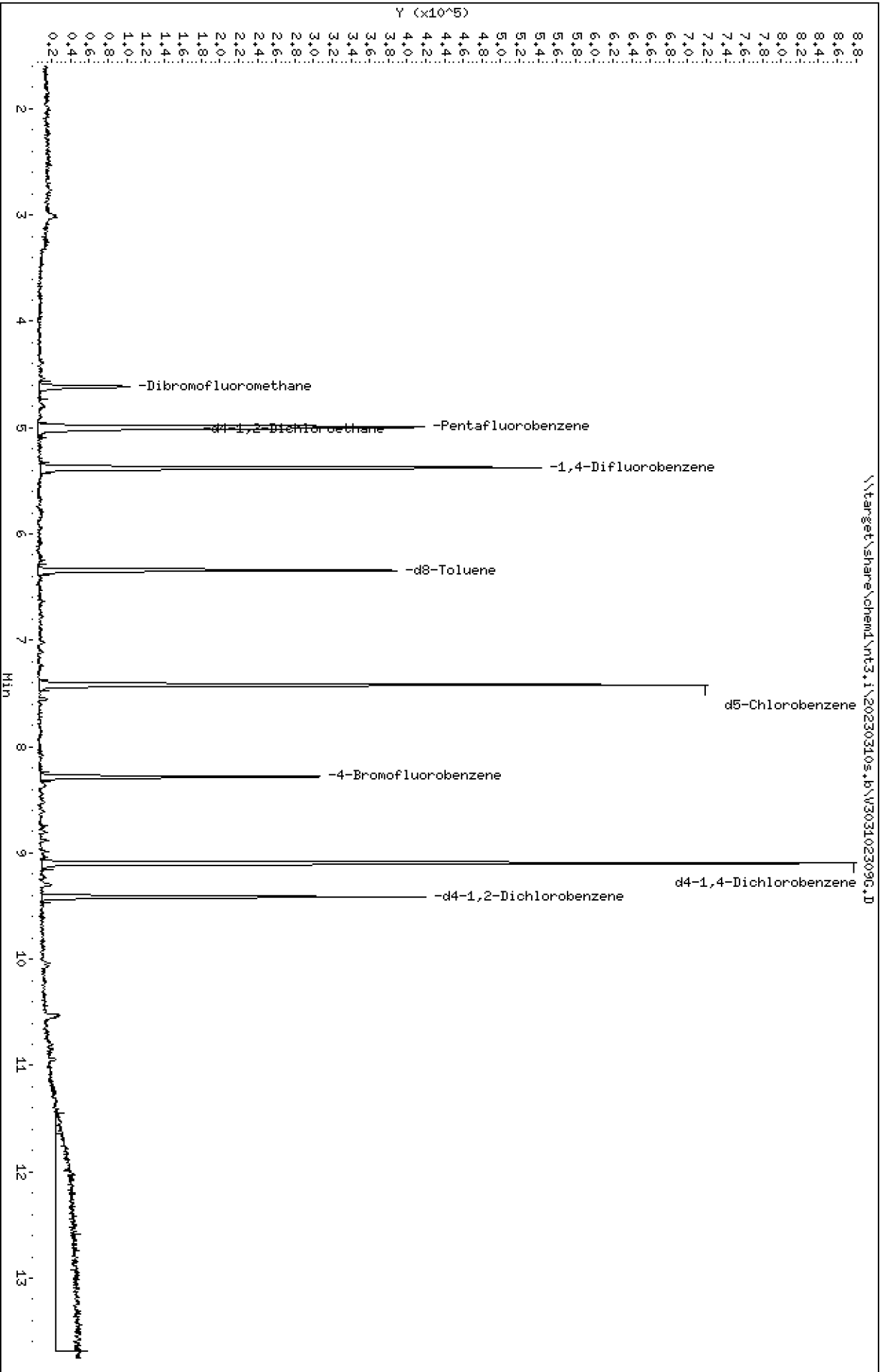
Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0271-BLK1)</b>				Prepared: 10-Mar-2023 Analyzed: 10-Mar-2023 12:32						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.87		ug/L	5.00		97.3	80-120			
Surrogate: 4-Bromofluorobenzene	4.83		ug/L	5.00		96.5	80-120			

Data File: \\target\share\chend\nt3.1\20230310s.16\303102309G.D  
Date: 10-HRR-2023 12:32  
Client ID:  
Sample Info: BLC0271-BLK1

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102309G.D  
 Lab Smp Id: BLC0271-BLK1  
 Inj Date : 10-MAR-2023 12:32  
 Operator : PKC  
 Smp Info : BLC0271-BLK1  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	53999	5.08503	5.085(R)
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	244851	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	28188	4.96353	4.964(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	361472	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	200690	4.86647	4.866(R)
* 53 d5-Chlorobenzene	117		7.422	7.422	(1.000)	341886	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.288	(1.117)	73207	4.82679	4.827(R)
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	196777	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	88040	4.95577	4.956(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102309G.D Calibration Time: 11:04  
 Lab Smp Id: BLC0271-BLK1  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	244851	-1.93
37 1,4-Difluorobenze	365813	182907	731626	361472	-1.19
53 d5-Chlorobenzene	354990	177495	709980	341886	-3.69
76 d4-1,4-Dichlorobe	212292	106146	424584	196777	-7.31

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: BLC0271-BLK1  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.085	101.70	
\$ 33 d4-1,2-Dichloroeth	5.000	4.964	99.27	
\$ 43 d8-Toluene	5.000	4.866	97.33	
\$ 62 4-Bromofluorobenze	5.000	4.827	96.54	
\$ 79 d4-1,2-Dichloroben	5.000	4.956	99.12	



REVIEW SUMMARY FOR FILE - V303102309G.D

Lab ID: BLC0271-BLK1

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 12:32

RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chend\nt3.1\20230310g.1b\2303102309G.D

Date: 10-HR-2023 12:32

Client ID:

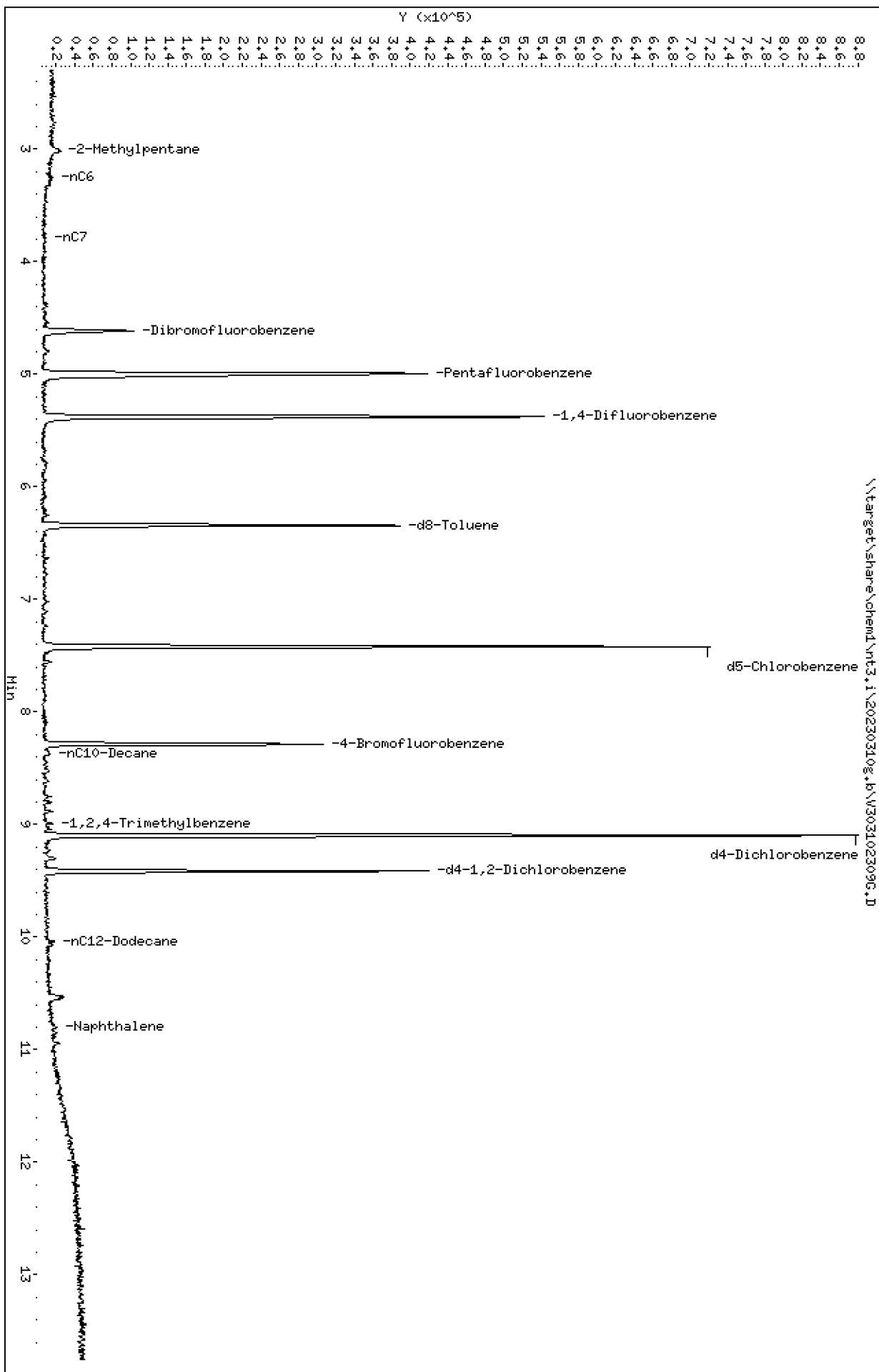
Sample Info: BLC0271-BLK1

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102309G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 12:32

ARI ID: BLC0271-BLK1  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	337225	0.006
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	533668	0.005
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	322665	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	428704	0.007
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	465399	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.417	980112	d5-Chlorobenzene
6.344	550915	d8-Toluene
9.096	1099383	d4-Dichlorobenzene
8.283	402911	4-Bromofluorobenzene
9.415	535327	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0271 - EPA 5030C (Purge and Trap)**

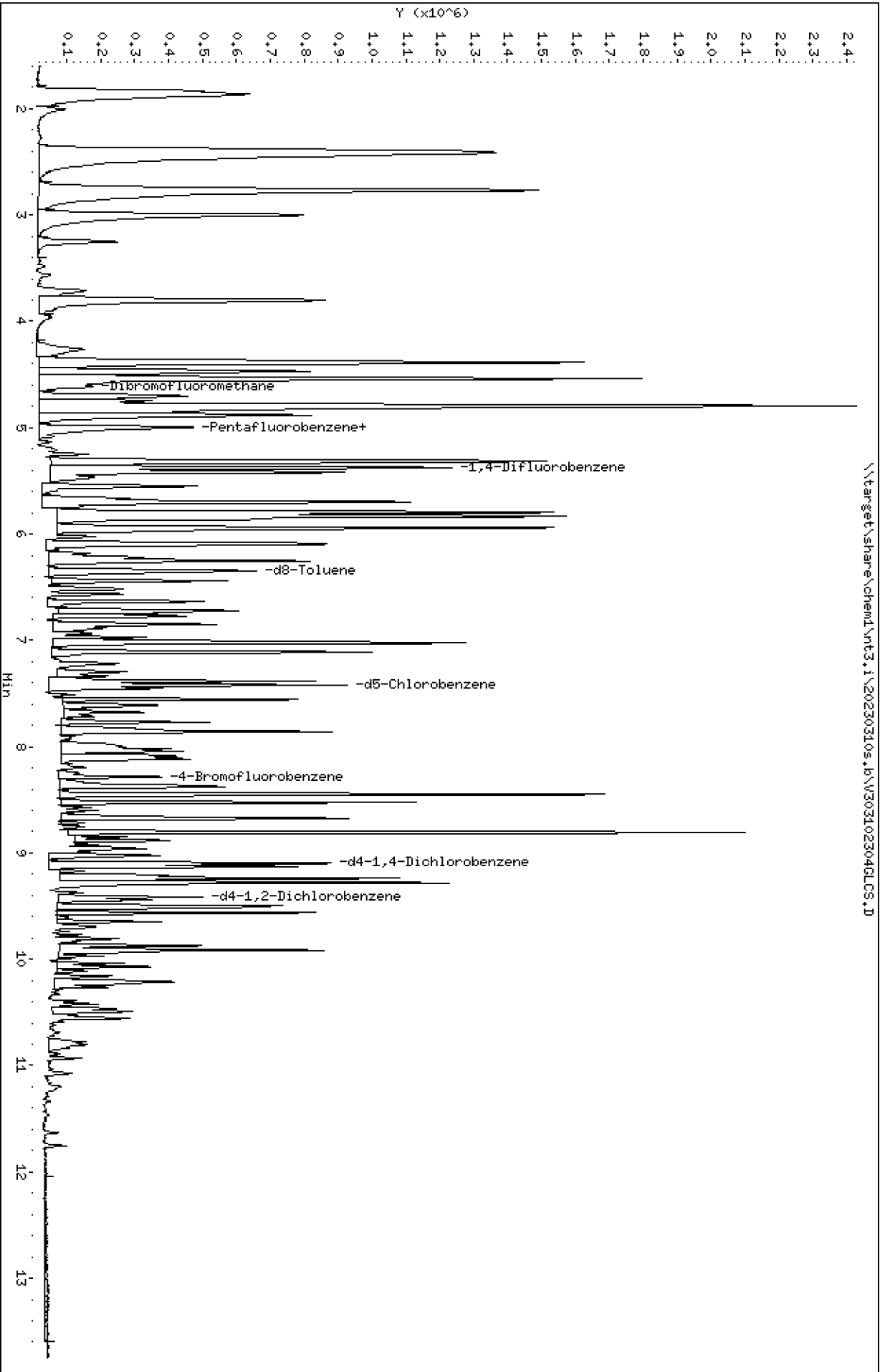
Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0271-BS1)</b>				Prepared: 10-Mar-2023 Analyzed: 10-Mar-2023 10:42						
Gasoline Range Organics (Tol-Nap)	912	100	ug/L	1000		91.2	72-128			
Surrogate: Toluene-d8	5.03		ug/L	5.00		101	80-120			
Surrogate: 4-Bromofluorobenzene	5.00		ug/L	5.00		100	80-120			

Data File: \\target\share\chemd\nt3,1\20230310s,b\303102304GLCS.D  
Date : 10-HR-2023 10:42  
Client ID:  
Sample Info: BLC0271-B51

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18



\\target\share\chemd\nt3,1\20230310s,b\303102304GLCS.D

ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102304GLCS.D  
 Lab Smp Id: BLC0271-BS1  
 Inj Date : 10-MAR-2023 10:42  
 Operator : PKC  
 Smp Info : BLC0271-BS1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.610	4.616	(0.923)	54207	4.91035	4.910
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	254538	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	36096	6.11413	6.114
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	389574	10.0000	
\$ 43 d8-Toluene	98		6.342	6.343	(1.180)	223344	5.02513	5.025
* 53 d5-Chlorobenzene	117		7.421	7.422	(1.000)	347253	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.288	(1.117)	77090	5.00425	5.004
* 76 d4-1,4-Dichlorobenzene	152		9.100	9.095	(1.000)	201759	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.034)	89708	4.92497	4.925

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102304GLCS.D Calibration Time: 11:04  
 Lab Smp Id: BLC0271-BS1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	254538	1.95
37 1,4-Difluorobenze	365813	182907	731626	389574	6.50
53 d5-Chlorobenzene	354990	177495	709980	347253	-2.18
76 d4-1,4-Dichlorobe	212292	106146	424584	201759	-4.96

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.05

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLC0271-BS1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.910	98.21	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.114	122.28	80-128
\$ 43 d8-Toluene	5.000	5.025	100.50	80-120
\$ 62 4-Bromofluorobenze	5.000	5.004	100.08	80-120
\$ 79 d4-1,2-Dichloroben	5.000	4.925	98.50	80-120



REVIEW SUMMARY FOR FILE - V303102304GLCS.D

Lab ID: BLC0271-BS1  
nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 10:42

RT CO-ELUTION COMPOUNDS

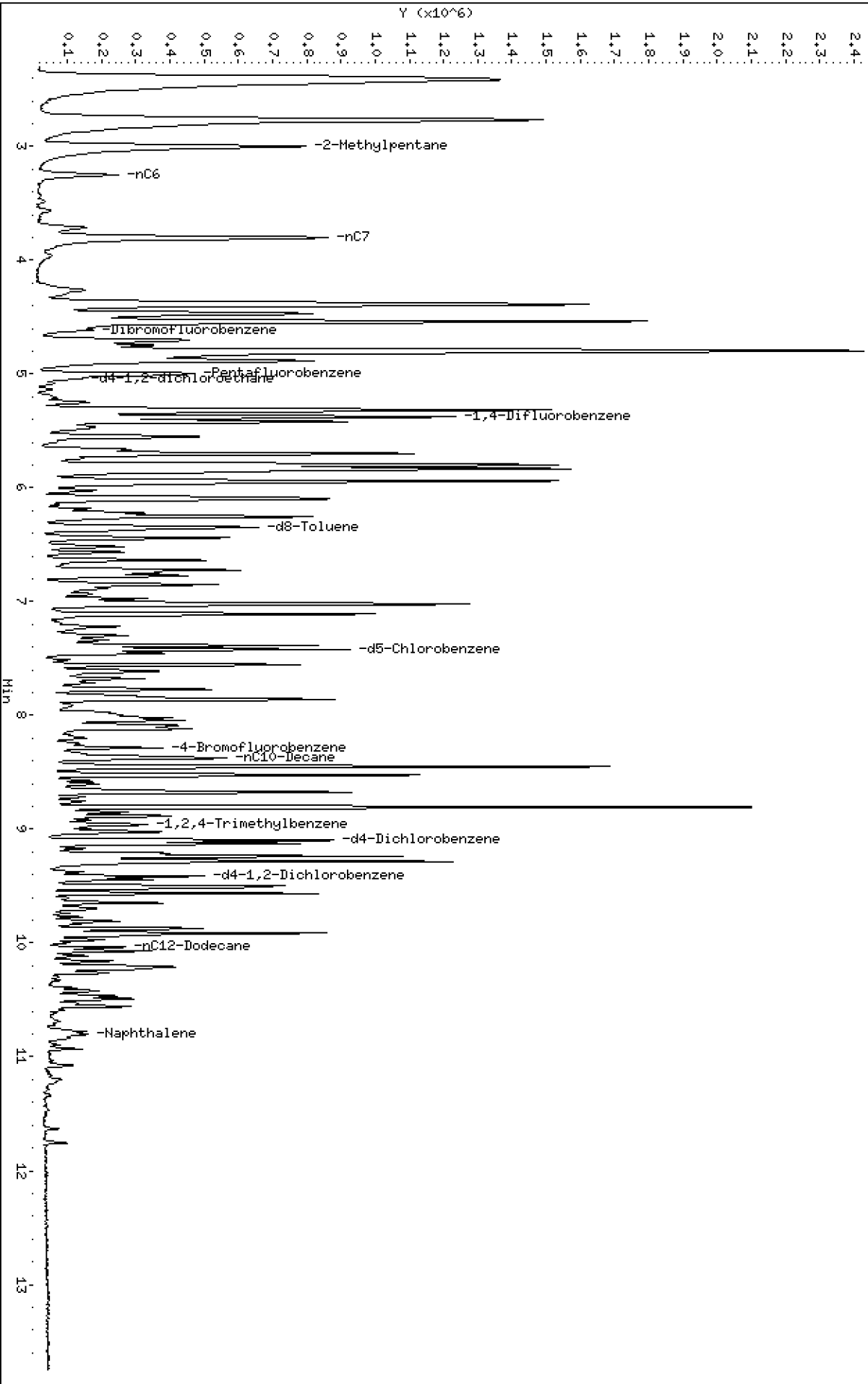
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Data File: \\target\share\chemd\nt3.1\20230310g.jb\202303102304GLCS.D  
Date: 10-HR-2023 10:42  
Client ID:  
Sample Info: BLC0271-B51

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chemd\nt3.1\20230310g.jb\202303102304GLCS.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102304GLCS.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 10:42

ARI ID: BLC0271-BS1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	51544290	0.911
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	88070795	0.887 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	71770715	0.881 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	56104773	0.912 M
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	98325351	0.896 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

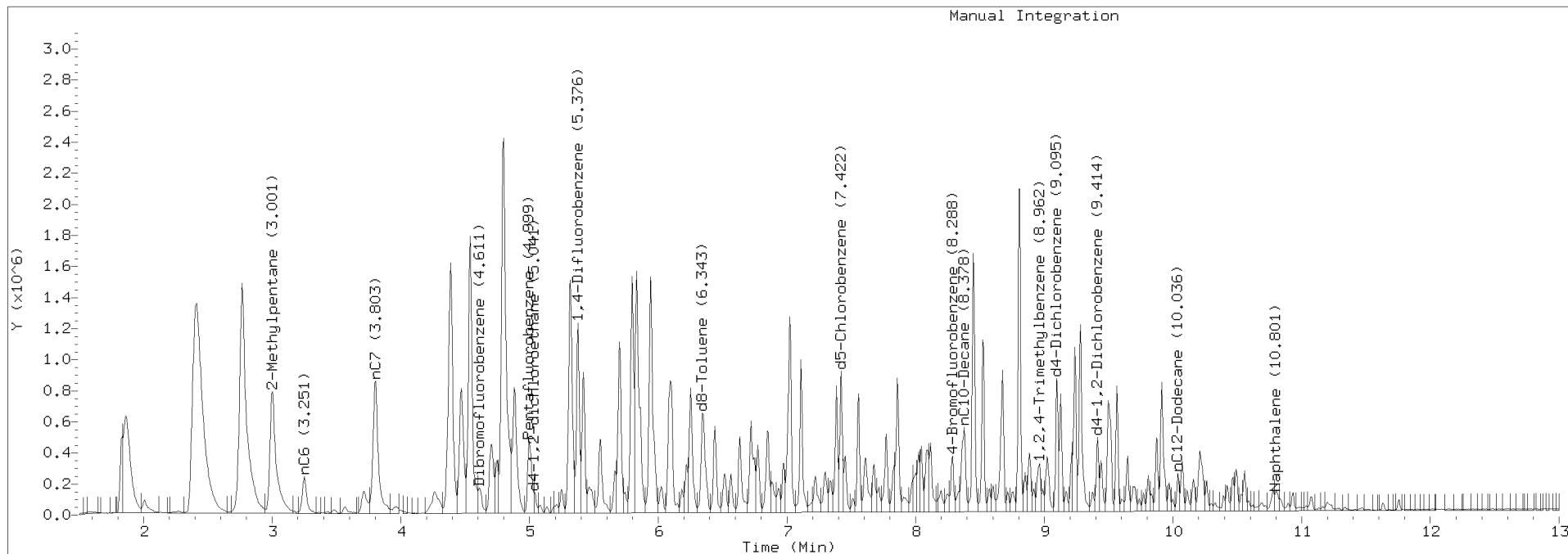
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7.422	1348486	d5-Chlorobenzene
6.343	1553242	d8-Toluene
9.095	1166967	d4-Dichlorobenzene
8.288	594630	4-Bromofluorobenzene
9.414	677044	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230310g.b/V303102304GLCS.D Injection: 10-MAR-2023 10:42

Lab ID: BLC0271-BS1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0271 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0271-BSD1)</b>				Prepared: 10-Mar-2023 Analyzed: 10-Mar-2023 11:26						
Gasoline Range Organics (Tol-Nap)	861	100	ug/L	1000		86.1	72-128	5.86	30	
Surrogate: Toluene-d8	5.00		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	4.87		ug/L	5.00		97.4	80-120			

Data File: \\target\share\chend\nt3.1\20230310s.16\303102306G.D

Date : 10-HR-2023 11:26

Client ID:

Sample Info: BLC0271-BSM1

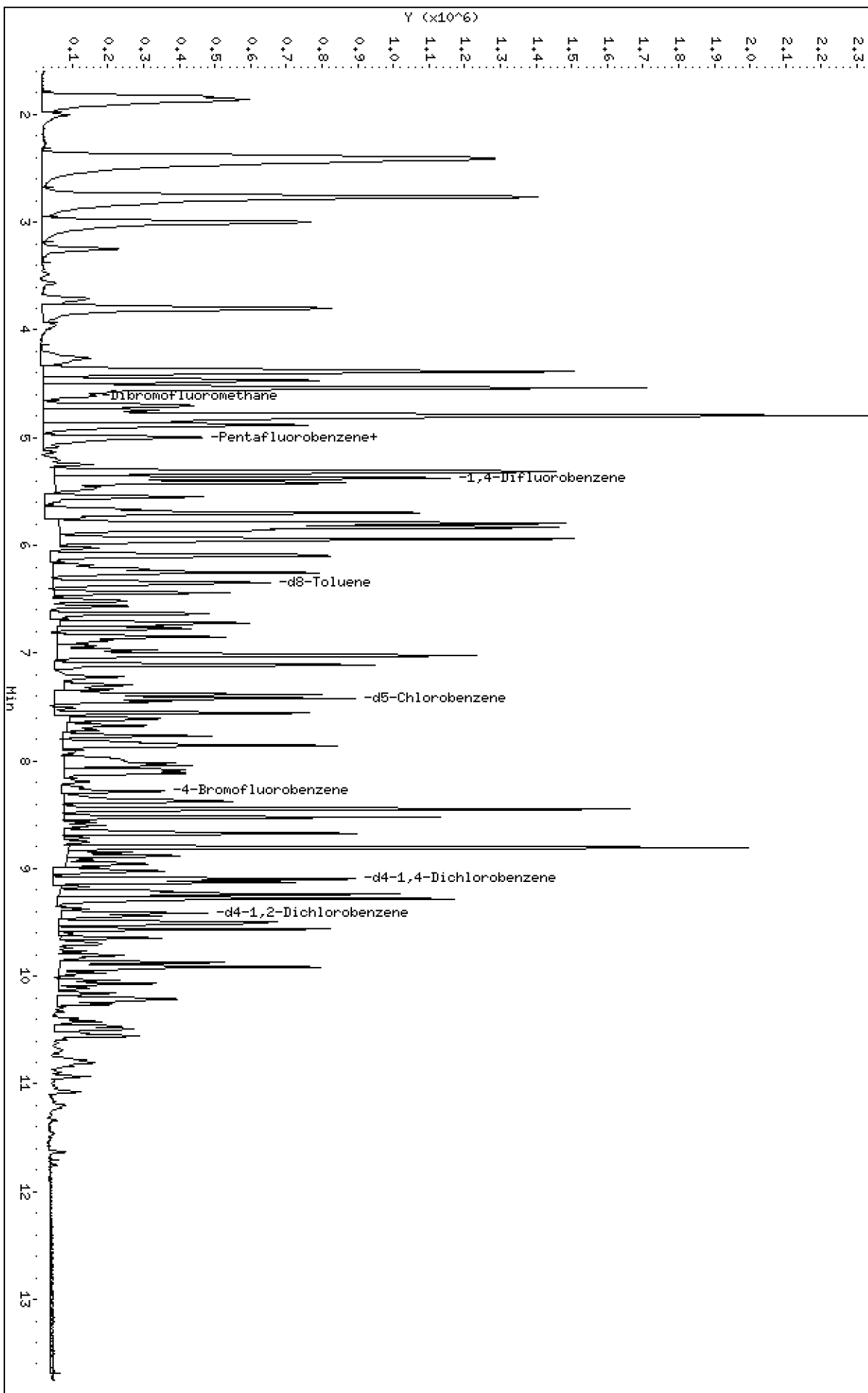
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230310s.16\303102306G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230310s.b\V303102306G.D  
 Lab Smp Id: BLC0271-BSD1  
 Inj Date : 10-MAR-2023 11:26  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : BLC0271-BSD1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Meth Date : 13-Mar-2023 13:02 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	52155	4.92335	4.923
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	244256	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	37249	6.57503	6.575(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	375169	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	213958	4.99879	4.999
* 53 d5-Chlorobenzene	117		7.421	7.422	(1.000)	337717	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.288	(1.117)	72949	4.86915	4.869
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	189958	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	88262	5.14661	5.147

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 10-MAR-2023  
 Lab File ID: V303102306G.D Calibration Time: 11:04  
 Lab Smp Id: BLC0271-BSD1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	249676	124838	499352	244256	-2.17
37 1,4-Difluorobenze	365813	182907	731626	375169	2.56
53 d5-Chlorobenzene	354990	177495	709980	337717	-4.87
76 d4-1,4-Dichlorobe	212292	106146	424584	189958	-10.52

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLC0271-BSD1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230310s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.923	98.47	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.575	131.50*	80-128
\$ 43 d8-Toluene	5.000	4.999	99.98	80-120
\$ 62 4-Bromofluorobenze	5.000	4.869	97.38	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.147	102.93	80-120

REVIEW SUMMARY FOR FILE - V303102306G.D

Lab ID: BLC0271-BSD1

nt3.i, 20230310s.b\8260D030923.m, 10-MAR-2023 11:26

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230310g.1b\202303102306G.D

Date: 10-HR-2023 11:26

Client ID:

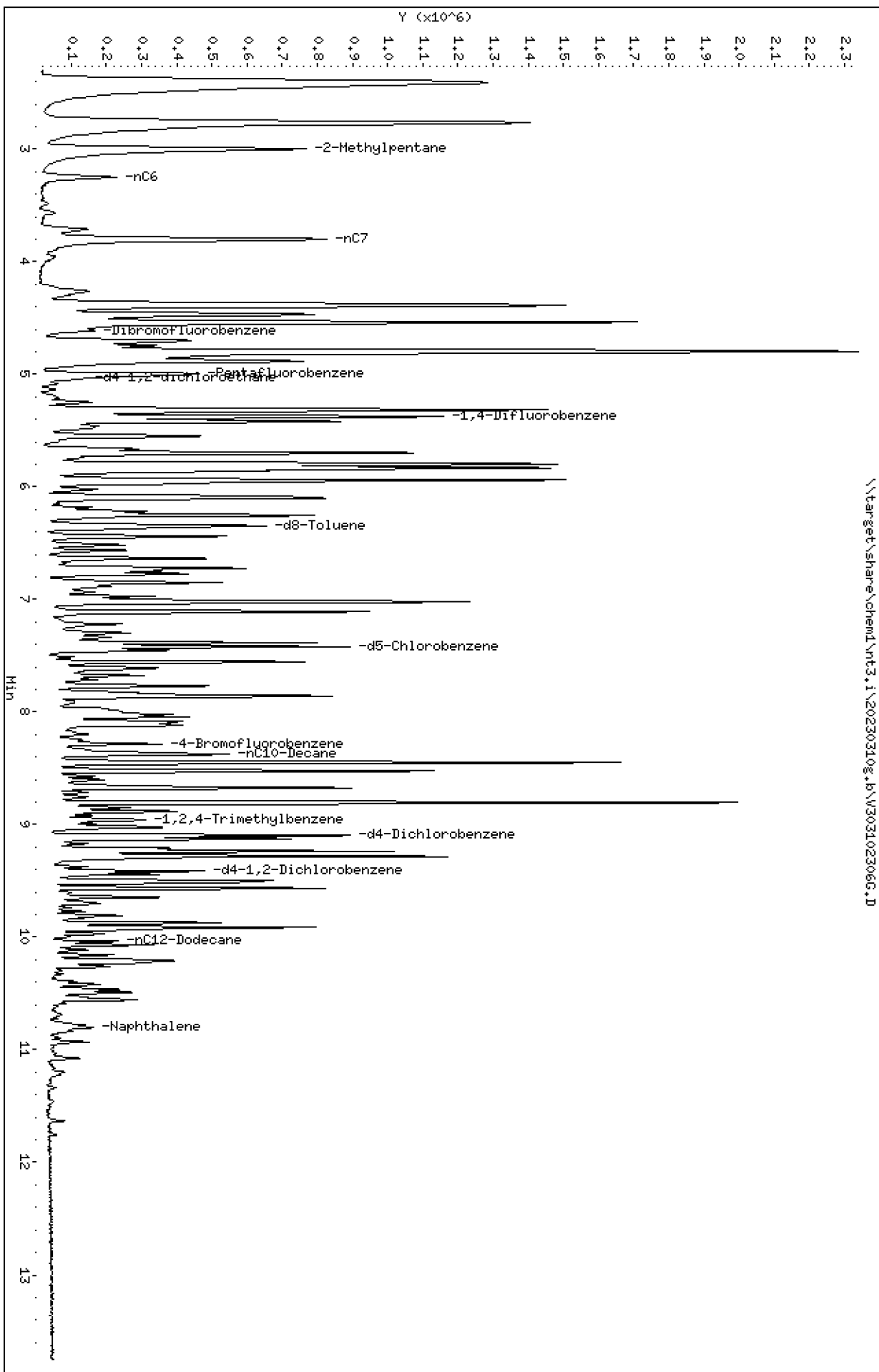
Sample Info: BLC0271-BSM1

Instrument: nt3.1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3.1\20230310g.1b\202303102306G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230310g.b/V303102306G.D  
Method: \20230310g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 10-MAR-2023 11:26

ARI ID: BLC0271-BSD1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	48661498	0.860
8015C 2MP-TMB ( 2.92 to 9.06)	99339031	83104033	0.837 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	67576296	0.829 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	52912780	0.861
mod8015 nC7-nC12 ( 3.71 to 10.14)	109774875	92759962	0.845 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	1294087	d5-Chlorobenzene
6.343	1487856	d8-Toluene
9.095	1154591	d4-Dichlorobenzene
8.282	595295	4-Bromofluorobenzene
9.414	687671	d4-1,2-Dichlorobenzene





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0344 - EPA 5030C (Purge and Trap)**

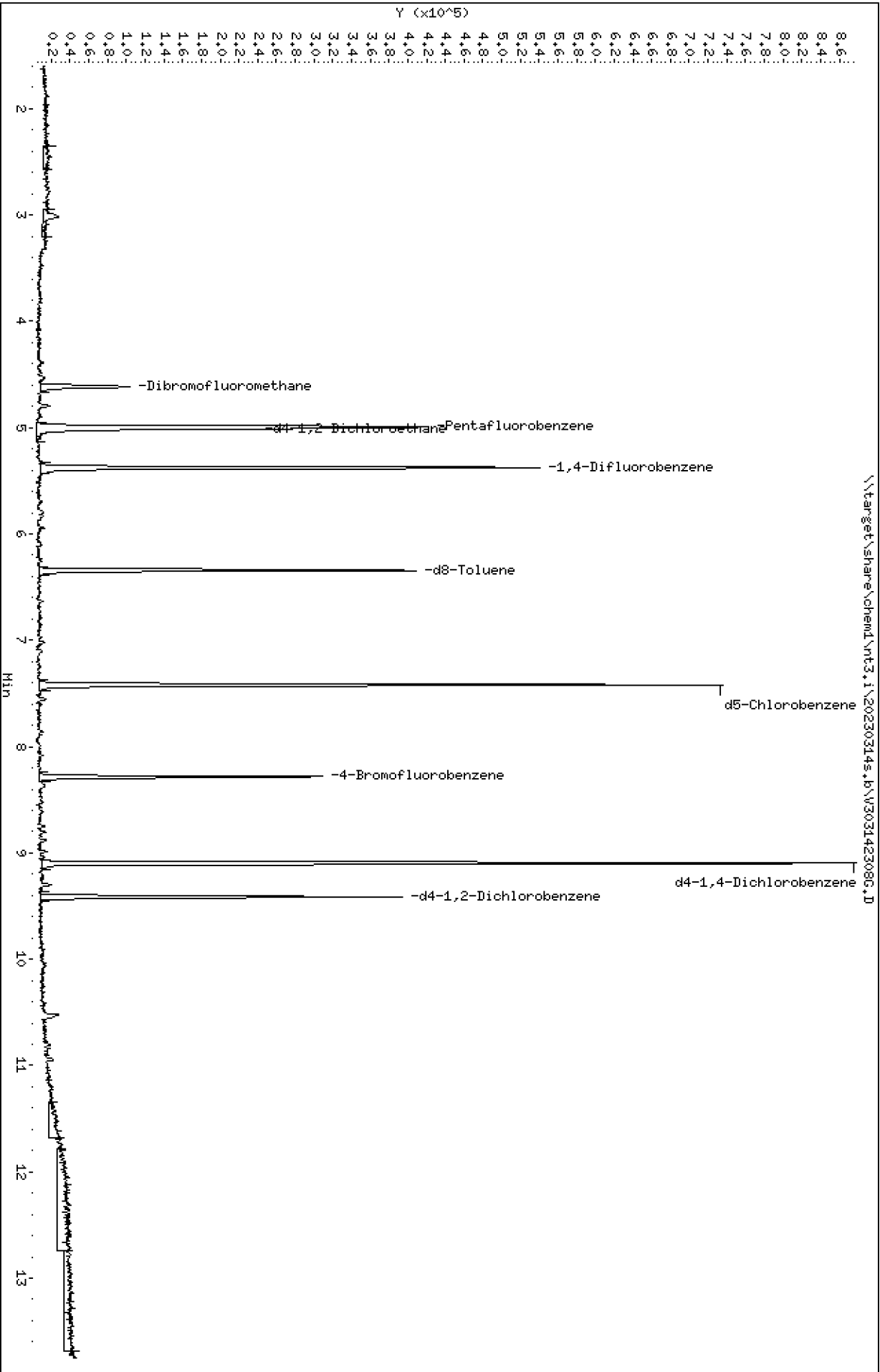
Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0344-BLK1)</b>					Prepared: 14-Mar-2023 Analyzed: 14-Mar-2023 11:51					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	5.00		ug/L	5.00		99.9	80-120			
Surrogate: 4-Bromofluorobenzene	4.75		ug/L	5.00		94.9	80-120			

Data File: \\target\share\chend\nt3.1\20230314s.1b\303142308G.D  
Date: 14-MAR-2023 11:51  
Client ID:  
Sample Info: BLC0344-BLK1

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142308G.D  
 Lab Smp Id: BLC0344-BLK1  
 Inj Date : 14-MAR-2023 11:51  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : BLC0344-BLK1  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.616	(0.924)	52972	4.96680	4.967 (R)
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	245912	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	28872	5.06204	5.062 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	357811	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	203941	4.99590	4.996 (R)
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	342064	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.282	8.287	(1.116)	72017	4.74585	4.746 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	194490	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.414	(1.035)	87870	5.00436	5.004 (R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142308G.D Calibration Time: 10:21  
 Lab Smp Id: BLC0344-BLK1  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	245912	-4.36
37 1,4-Difluorobenze	368342	184171	736684	357811	-2.86
53 d5-Chlorobenzene	357223	178612	714446	342064	-4.24
76 d4-1,4-Dichlorobe	205758	102879	411516	194490	-5.48

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: BLC0344-BLK1  
Level: Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.967	99.34	
\$ 33 d4-1,2-Dichloroeth	5.000	5.062	101.24	
\$ 43 d8-Toluene	5.000	4.996	99.92	
\$ 62 4-Bromofluorobenze	5.000	4.746	94.92	
\$ 79 d4-1,2-Dichloroben	5.000	5.004	100.09	

REVIEW SUMMARY FOR FILE - V303142308G.D

Lab ID: BLC0344-BLK1

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 11:51

RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chend\nt3.1\20230314g.1b\2303142308G.D

Date: 14-MAR-2023 11:51

Client ID:

Sample Info: BLC0344-BLK1

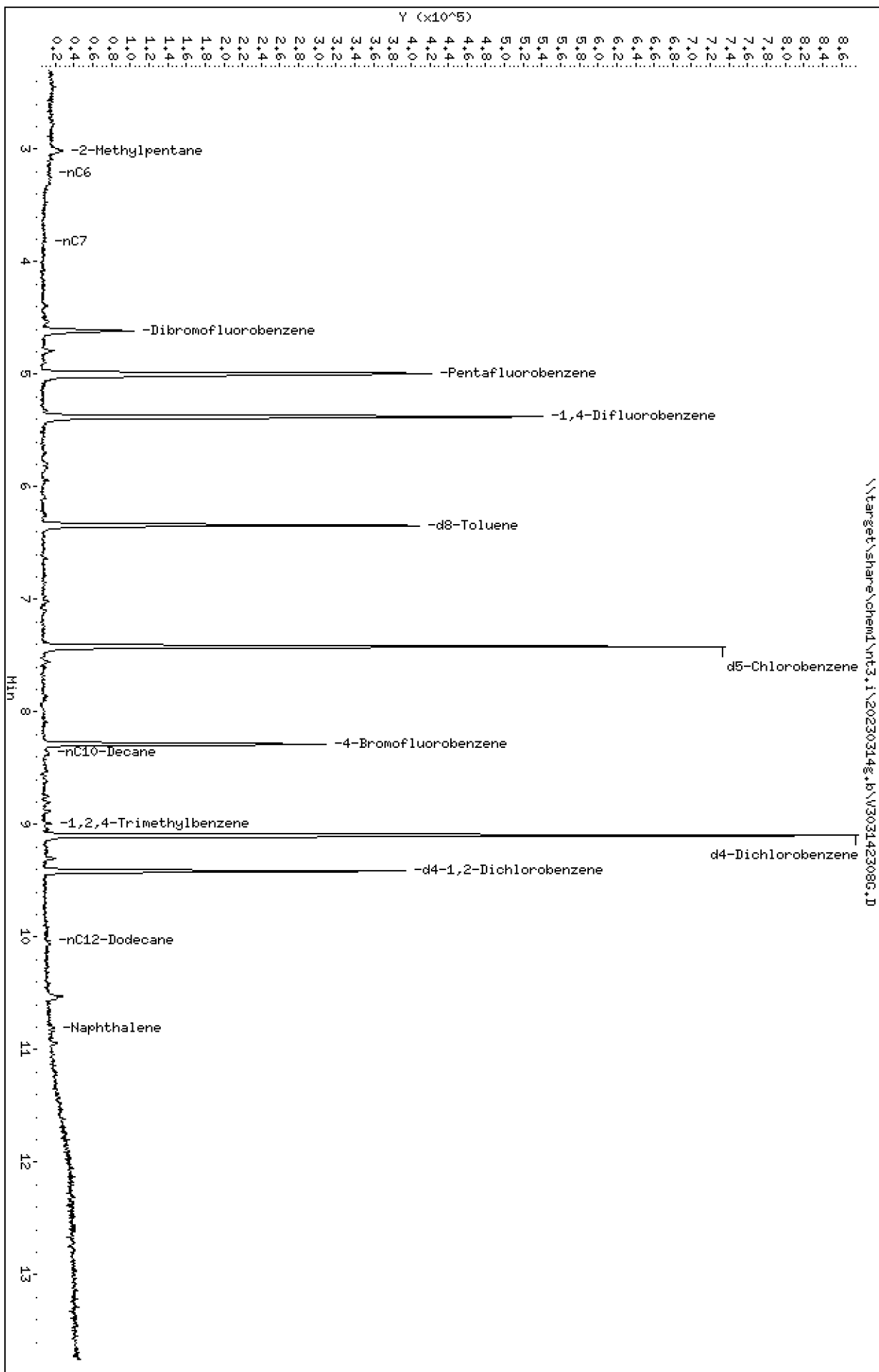
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142308G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 11:51

ARI ID: BLC0344-BLK1  
Client ID:  
Matrix: NONE  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

-----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	279800	0.005
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	575278	0.006
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	329842	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	348083	0.006
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	439148	0.004

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.422	984262	d5-Chlorobenzene
6.344	562336	d8-Toluene
9.096	1072055	d4-Dichlorobenzene
8.283	387276	4-Bromofluorobenzene
9.415	516982	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
---	--	---------------------------------------

**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0344 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0344-BS1)</b>				Prepared: 14-Mar-2023 Analyzed: 14-Mar-2023 09:58						
Gasoline Range Organics (Tol-Nap)	970	100	ug/L	1000		97.0	72-128			
Surrogate: Toluene-d8	4.97		ug/L	5.00		99.3	80-120			
Surrogate: 4-Bromofluorobenzene	4.83		ug/L	5.00		96.7	80-120			

Data File: \\target\share\chemd\nt3.1\20230314s.1\20230314s.1b\203142303GLCS.D

Date : 14-MAR-2023 09:58

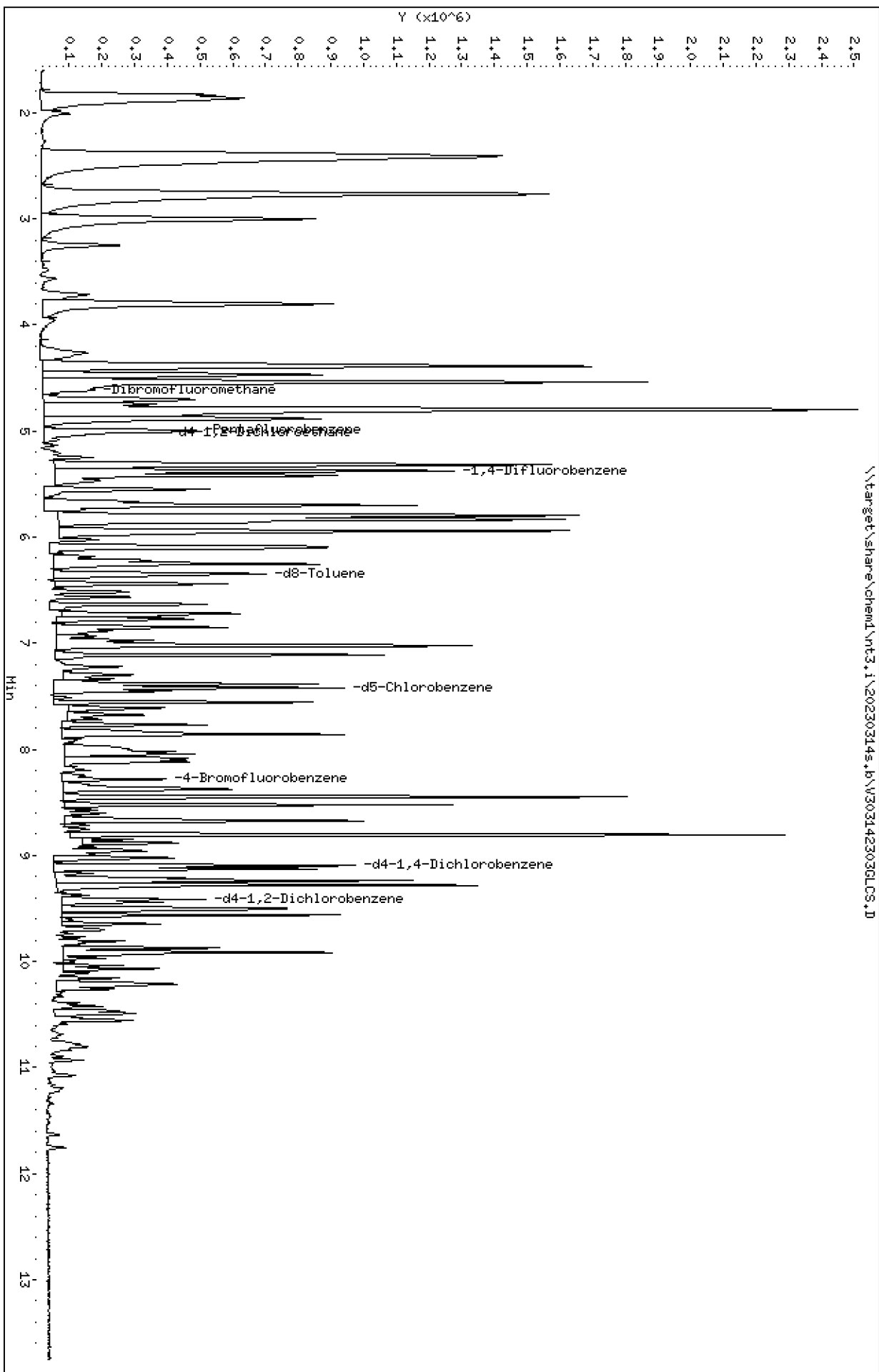
Client ID:

Sample Info: BLC0344-B51

Page 1

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142303GLCS.D  
 Lab Smp Id: BLC0344-BS1  
 Inj Date : 14-MAR-2023 09:58  
 Operator : PKC  
 Smp Info : BLC0344-BS1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i  
 Cal Date : 09-MAR-2023 13:44  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V303092311.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	57121	5.08441	5.084
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	259039	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	39605	6.59194	6.592 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	398247	10.0000	
\$ 43 d8-Toluene	98		6.343	6.343	(1.180)	225594	4.96522	4.965
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	363238	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	77911	4.83497	4.835
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	207055	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	93084	4.97960	4.980

QC Flag Legend

R - Spike/Surrogate failed recovery limits.



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142303GLCS.D Calibration Time: 10:21  
 Lab Smp Id: BLC0344-BS1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	259039	0.74
37 1,4-Difluorobenze	368342	184171	736684	398247	8.12
53 d5-Chlorobenzene	357223	178612	714446	363238	1.68
76 d4-1,4-Dichlorobe	205758	102879	411516	207055	0.63

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLC0344-BS1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.084	101.69	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.592	131.84*	80-128
\$ 43 d8-Toluene	5.000	4.965	99.30	80-120
\$ 62 4-Bromofluorobenze	5.000	4.835	96.70	80-120
\$ 79 d4-1,2-Dichloroben	5.000	4.980	99.59	80-120

REVIEW SUMMARY FOR FILE - V303142303GLCS.D

Lab ID: BLC0344-BS1

nt3.i, 20230314s.b\8260D030923.m,

14-MAR-2023 09:58

RT

CO-ELUTION COMPOUNDS

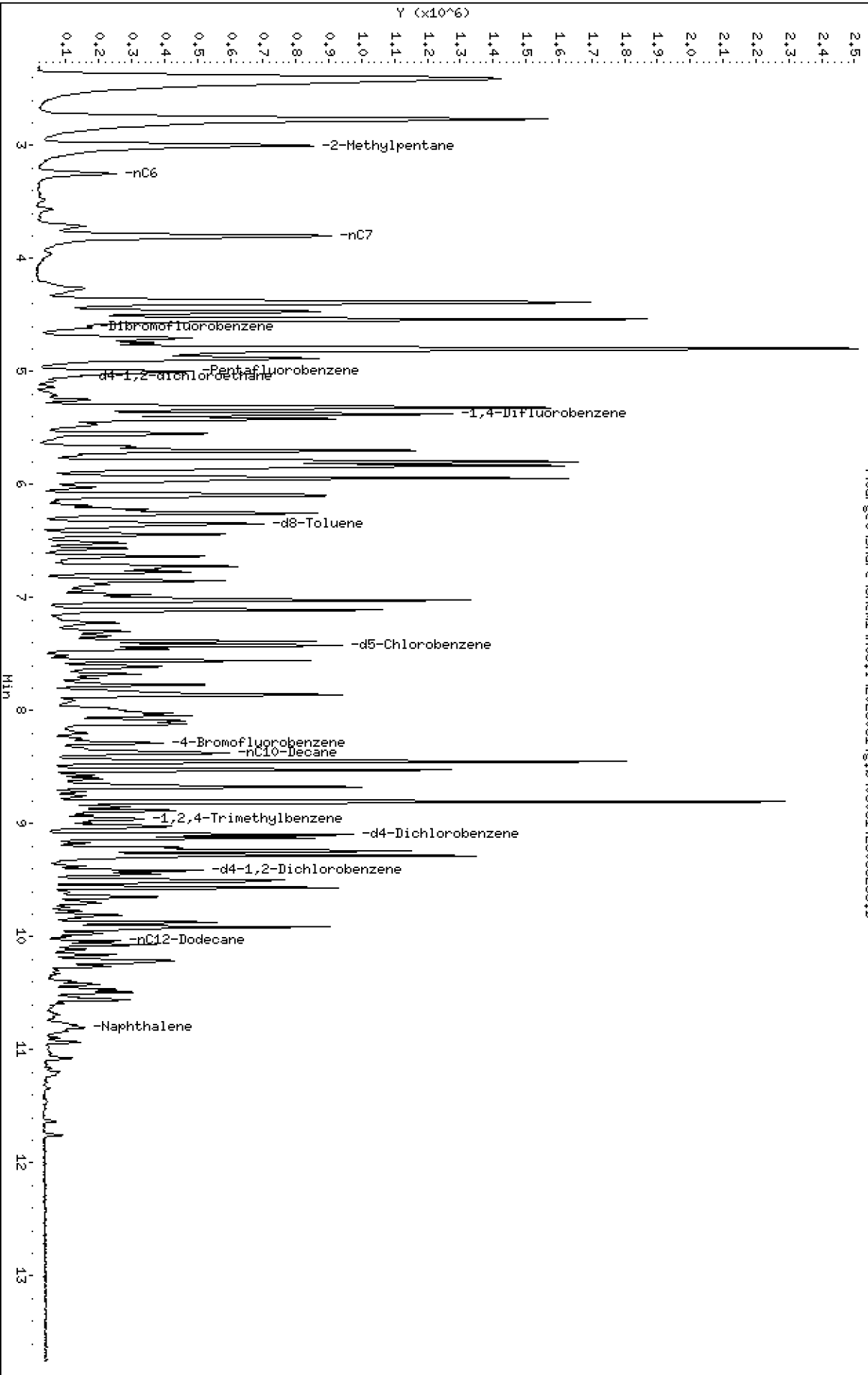
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Data File: \\target\share\chemd\nt3.1\20230314g.jb\202303142303GLCS.D  
Date: 14-MAR-2023 09:58  
Client ID:  
Sample Info: BLC0344-B51

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chemd\nt3.1\20230314g.jb\202303142303GLCS.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142303GLCS.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 09:58

ARI ID: BLC0344-BS1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	55024155	0.973
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	92974020	0.936 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	75425653	0.926 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	59639642	0.970
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	104061094	0.948 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

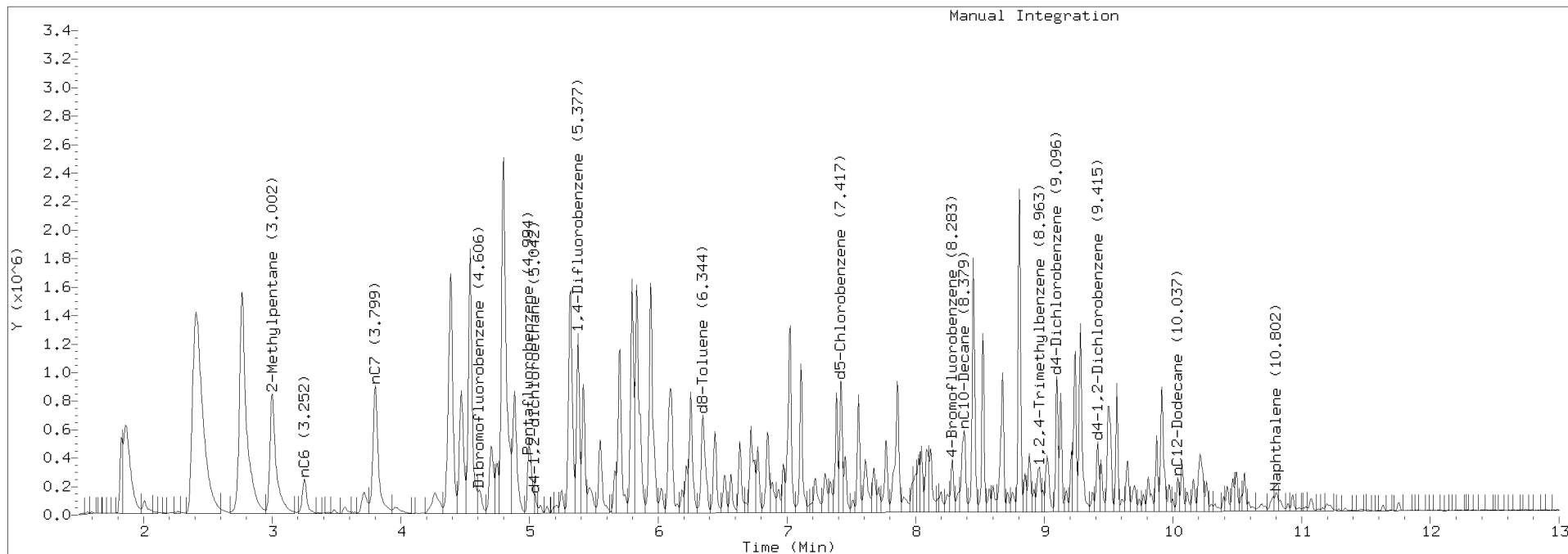
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7.417	1401867	d5-Chlorobenzene
6.344	1631004	d8-Toluene
9.096	1234039	d4-Dichlorobenzene
8.283	615169	4-Bromofluorobenzene
9.415	746580	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230314g.b/V303142303GLCS.D Injection: 14-MAR-2023 09:58

Lab ID: BLC0344-BS1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLC0344 - EPA 5030C (Purge and Trap)**

Instrument: NT3

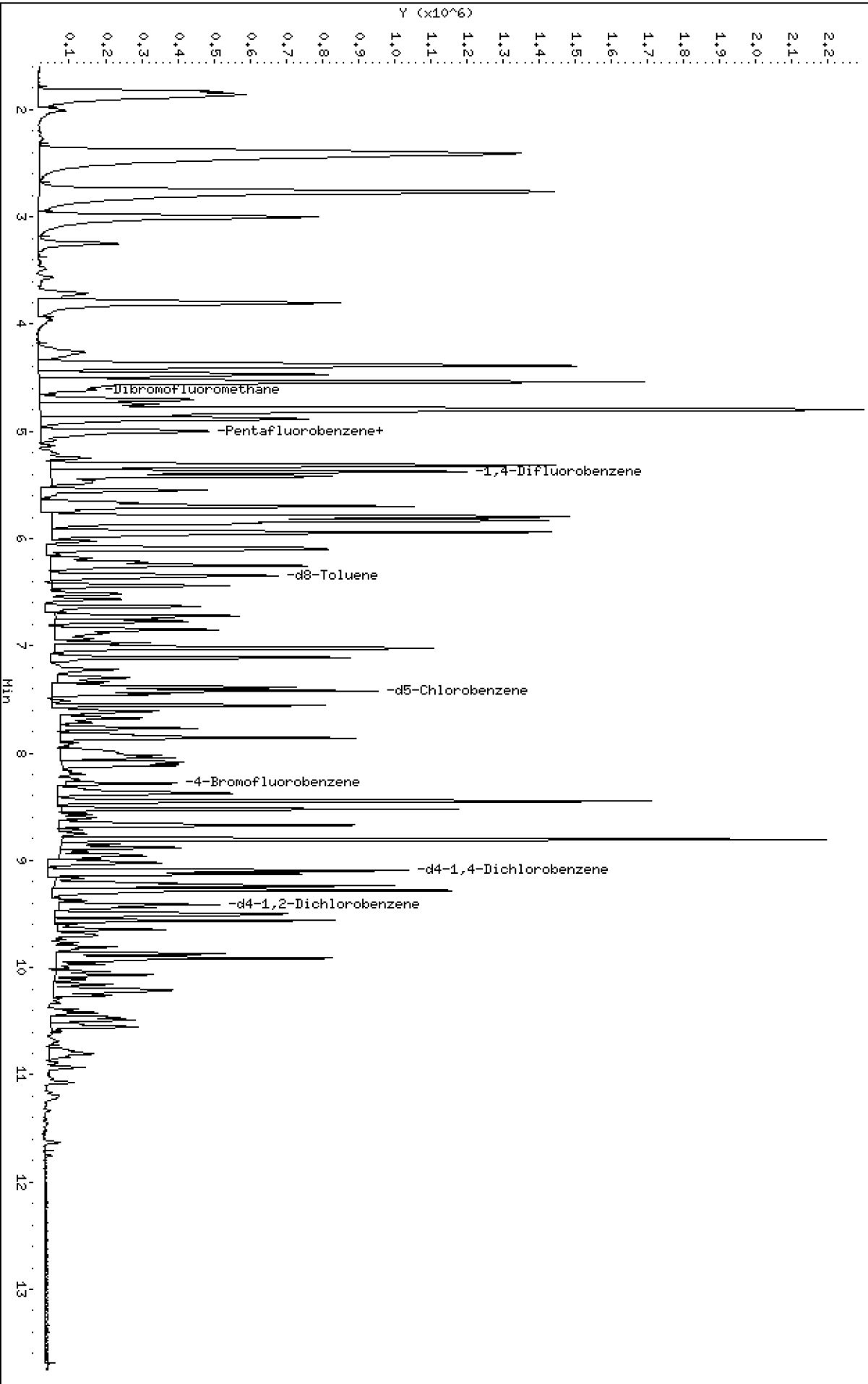
QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0344-BSD1)</b>				Prepared: 14-Mar-2023 Analyzed: 14-Mar-2023 10:43						
Gasoline Range Organics (Tol-Nap)	864	100	ug/L	1000		86.4	72-128	11.60	30	
Surrogate: Toluene-d8	5.01		ug/L	5.00		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.05		ug/L	5.00		101	80-120			

Data File: \\target\share\chend\nt3.1\20230314s.1b\303142305G.D  
Date : 14-MAR-2023 10:43  
Client ID:  
Sample Info: BLC0344-BSM1

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3.1\20230314s.1b\303142305G.D





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230314s.b\V303142305G.D  
 Lab Smp Id: BLC0344-BSD1  
 Inj Date : 14-MAR-2023 10:43  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : BLC0344-BSD1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Meth Date : 14-Mar-2023 14:03 nt3.i Quant Type: ISTD  
 Cal Date : 09-MAR-2023 13:44 Cal File: V303092311.D  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201906

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.611	4.616	(0.923)	56686	4.97871	4.979
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	262524	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	39235	6.44366	6.444 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	401650	10.0000	
\$ 43 d8-Toluene	98		6.338	6.343	(1.179)	229573	5.00998	5.010
* 53 d5-Chlorobenzene	117		7.422	7.421	(1.000)	365018	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.283	8.287	(1.116)	81709	5.04594	5.046
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	217747	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.414	(1.035)	98760	5.02382	5.024

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 14-MAR-2023  
 Lab File ID: V303142305G.D Calibration Time: 10:21  
 Lab Smp Id: BLC0344-BSD1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	257128	128564	514256	262524	2.10
37 1,4-Difluorobenze	368342	184171	736684	401650	9.04
53 d5-Chlorobenzene	357223	178612	714446	365018	2.18
76 d4-1,4-Dichlorobe	205758	102879	411516	217747	5.83

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLC0344-BSD1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230314s.b\8260D030923.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.979	99.57	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.444	128.87*	80-128
\$ 43 d8-Toluene	5.000	5.010	100.20	80-120
\$ 62 4-Bromofluorobenze	5.000	5.046	100.92	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.024	100.48	80-120

REVIEW SUMMARY FOR FILE - V303142305G.D

Lab ID: BLC0344-BSD1

nt3.i, 20230314s.b\8260D030923.m, 14-MAR-2023 10:43

RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chend\nt3.1\20230314g.1b\202303142305G.D

Date: 14-MAR-2023 10:43

Client ID:

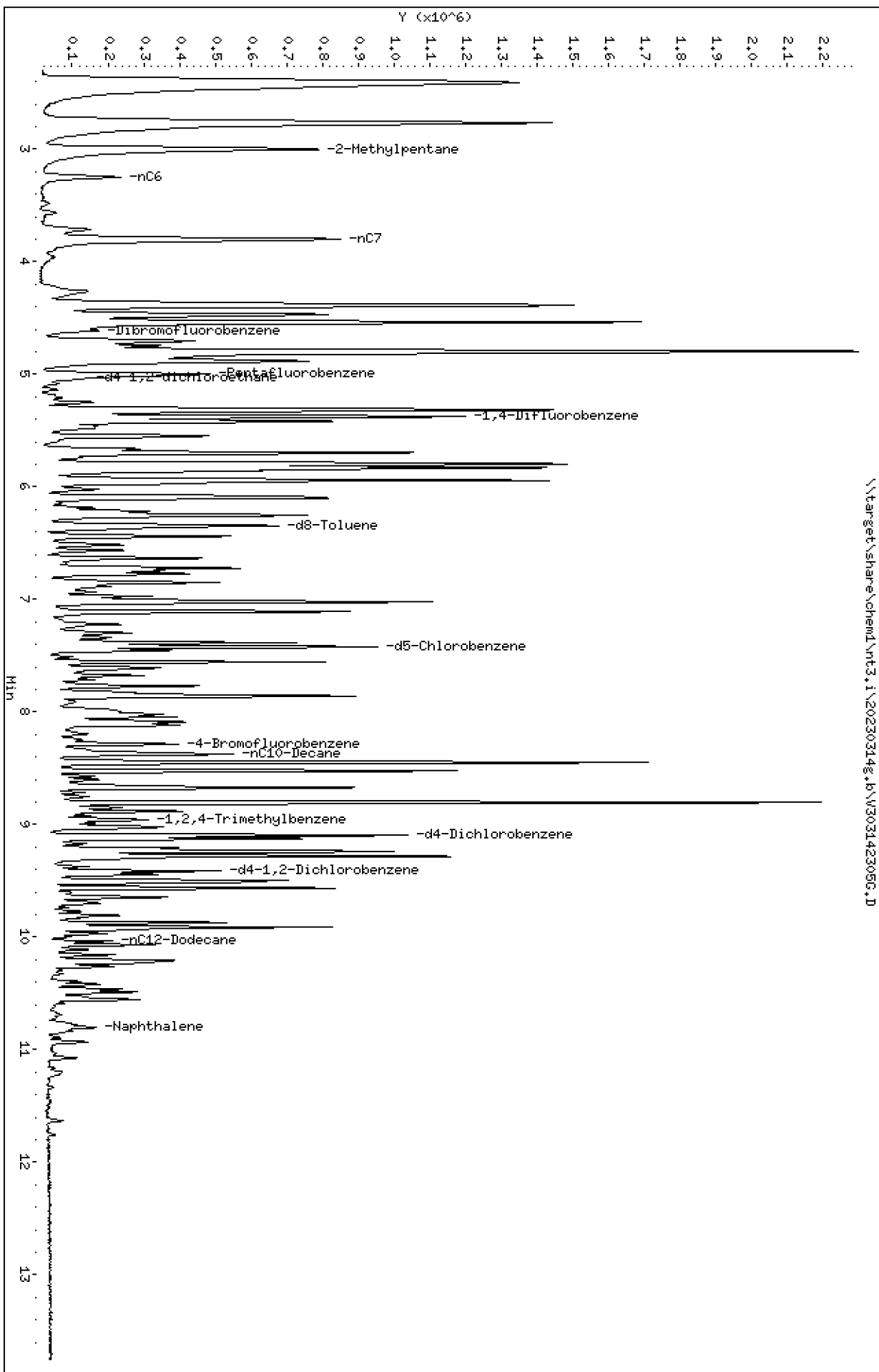
Sample Info: BLC0344-BSD1

Instrument: nt3.1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18

\\target\share\chend\nt3.1\20230314g.1b\202303142305G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230314g.b/V303142305G.D  
Method: \20230314g.b\NWTPHG011323.m  
Instrument: nt3.i  
Gas Ical Date: 17-FEB-2023  
Injection Date: 14-MAR-2023 10:43

ARI ID: BLC0344-BSD1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

-----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	56560604	48811299	0.863
8015C 2MP-TMB ( 2.90 to 9.06)	99339031	83066515	0.836 M
AK101 nC6-nC10 ( 3.15 to 8.26)	81480516	67438252	0.828 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	61486368	53104836	0.864
mod8015 nC7-nC12 ( 3.69 to 10.14)	109774875	93054130	0.848 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

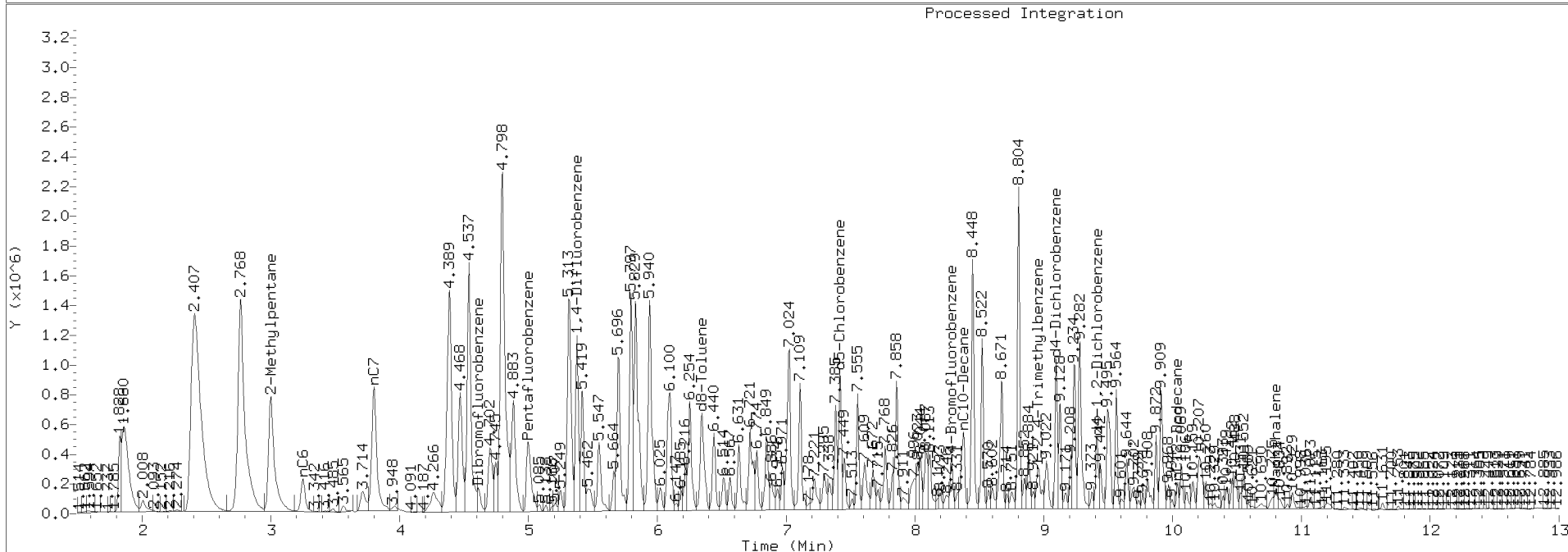
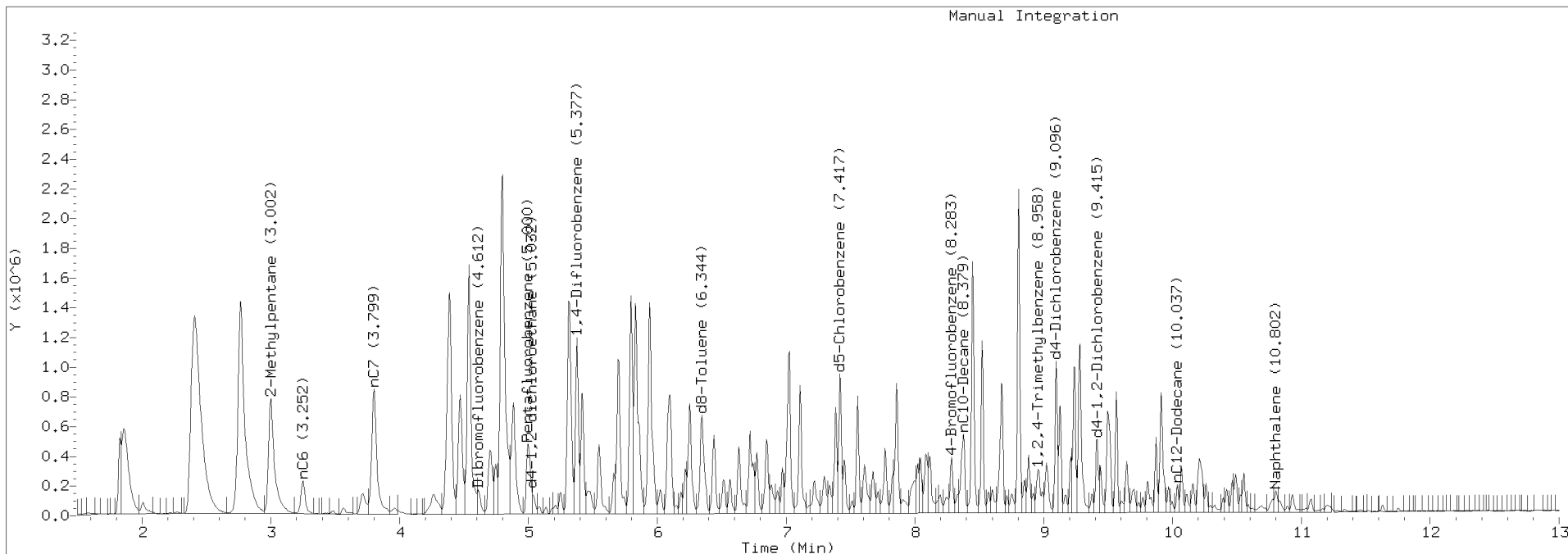
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7.417	1366566	d5-Chlorobenzene
6.344	1539709	d8-Toluene
9.096	1295522	d4-Dichlorobenzene
8.283	598237	4-Bromofluorobenzene
9.415	759931	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230314g.b/V303142305G.D Injection: 14-MAR-2023 10:43

Lab ID: BLC0344-BSD1





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BLC0254 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0254-BLK1)</b>						Prepared: 13-Mar-2023 Analyzed: 15-Mar-2023 23:14					
Naphthalene	ND	0.3	1.0	ug/L							U
Acenaphthylene	ND	0.2	1.0	ug/L							U
Acenaphthene	ND	0.2	1.0	ug/L							U
2-Methylnaphthalene	ND	0.2	1.0	ug/L							U
Dibenzofuran	ND	0.2	1.0	ug/L							U
Fluorene	ND	0.2	1.0	ug/L							U
Pentachlorophenol	ND	1.2	10.0	ug/L							U
Phenanthrene	ND	0.2	1.0	ug/L							U
Anthracene	ND	0.3	1.0	ug/L							U
Carbazole	ND	0.3	1.0	ug/L							U
Fluoranthene	ND	0.2	1.0	ug/L							U
Pyrene	ND	0.3	1.0	ug/L							U
Benzo(a)anthracene	ND	0.2	1.0	ug/L							U
Chrysene	ND	0.2	1.0	ug/L							U
Benzo(a)pyrene	ND	0.2	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.5	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	0.5	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	0.5	1.0	ug/L							U
1-Methylnaphthalene	ND	0.3	1.0	ug/L							U
Surrogate: 2-Fluorobiphenyl	21.7			ug/L	25.0		86.7	54.4-120			
Surrogate: 2,4,6-Tribromophenol	40.9			ug/L	37.5		109	49.3-128			
Surrogate: p-Terphenyl-d14	22.3			ug/L	25.0		89.2	60-120			





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC  
Semivolatile Organic Compounds - Quality Control

Batch BLC0254 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0254-BS1)</b>						Prepared: 13-Mar-2023 Analyzed: 15-Mar-2023 23:47					
Naphthalene	17.9	0.3	1.0	ug/L	25.0		71.5	51.9-120			
Acenaphthylene	20.4	0.2	1.0	ug/L	25.0		81.7	56.5-120			
Acenaphthene	20.3	0.2	1.0	ug/L	25.0		81.3	60.9-120			
2-Methylnaphthalene	19.4	0.2	1.0	ug/L	25.0		77.8	56.5-120			
Dibenzofuran	22.3	0.2	1.0	ug/L	25.0		89.3	61.9-120			
Fluorene	22.7	0.2	1.0	ug/L	25.0		90.9	62.3-120			
Pentachlorophenol	52.8	1.2	10.0	ug/L	65.0		81.2	40.7-124			
Phenanthrene	21.8	0.2	1.0	ug/L	25.0		87.1	61-120			
Anthracene	19.7	0.3	1.0	ug/L	25.0		78.8	64.6-120			
Carbazole	23.6	0.3	1.0	ug/L	25.0		94.5	42-177			
Fluoranthene	23.7	0.2	1.0	ug/L	25.0		94.8	67.9-120			
Pyrene	20.4	0.3	1.0	ug/L	25.0		81.5	69-135			
Benzo(a)anthracene	21.7	0.2	1.0	ug/L	25.0		86.8	65-133			
Chrysene	21.5	0.2	1.0	ug/L	25.0		85.9	61.5-120			
Benzo(a)pyrene	22.4	0.2	1.0	ug/L	25.0		89.8	74-121			
Indeno(1,2,3-cd)pyrene	20.1	0.5	1.0	ug/L	25.0		80.3	40-147			
Dibenzo(a,h)anthracene	20.4	0.5	1.0	ug/L	25.0		81.4	37-148			
Benzo(g,h,i)perylene	18.4	0.5	1.0	ug/L	25.0		73.6	42-168			
1-Methylnaphthalene	20.7	0.3	1.0	ug/L	25.0		82.6	54.4-120			
Surrogate: 2-Fluorobiphenyl	22.5			ug/L	25.0		90.2	54.4-120			
Surrogate: 2,4,6-Tribromophenol	43.1			ug/L	37.5		115	49.3-128			
Surrogate: p-Terphenyl-d14	22.1			ug/L	25.0		88.2	60-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC  
Semivolatile Organic Compounds - Quality Control

Batch BLC0254 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0254-BSD1)</b>						Prepared: 13-Mar-2023 Analyzed: 16-Mar-2023 00:20					
Naphthalene	18.4	0.3	1.0	ug/L	25.0		73.6	51.9-120	2.87	30	
Acenaphthylene	21.0	0.2	1.0	ug/L	25.0		84.1	56.5-120	2.93	30	
Acenaphthene	20.9	0.2	1.0	ug/L	25.0		83.6	60.9-120	2.75	30	
2-Methylnaphthalene	19.7	0.2	1.0	ug/L	25.0		78.8	56.5-120	1.28	30	
Dibenzofuran	22.7	0.2	1.0	ug/L	25.0		91.0	61.9-120	1.83	30	
Fluorene	23.5	0.2	1.0	ug/L	25.0		94.0	62.3-120	3.35	30	
Pentachlorophenol	51.4	1.2	10.0	ug/L	65.0		79.1	40.7-124	2.55	30	
Phenanthrene	22.1	0.2	1.0	ug/L	25.0		88.3	61-120	1.32	30	
Anthracene	19.9	0.3	1.0	ug/L	25.0		79.5	64.6-120	0.88	30	
Carbazole	23.7	0.3	1.0	ug/L	25.0		95.0	42-177	0.45	30	
Fluoranthene	24.1	0.2	1.0	ug/L	25.0		96.5	67.9-120	1.76	30	
Pyrene	21.1	0.3	1.0	ug/L	25.0		84.5	69-135	3.62	30	
Benzo(a)anthracene	22.3	0.2	1.0	ug/L	25.0		89.3	65-133	2.81	30	
Chrysene	22.0	0.2	1.0	ug/L	25.0		88.2	61.5-120	2.67	30	
Benzo(a)pyrene	23.6	0.2	1.0	ug/L	25.0		94.3	74-121	4.96	30	
Indeno(1,2,3-cd)pyrene	20.8	0.5	1.0	ug/L	25.0		83.2	40-147	3.57	30	
Dibenzo(a,h)anthracene	20.7	0.5	1.0	ug/L	25.0		82.8	37-148	1.71	30	
Benzo(g,h,i)perylene	18.8	0.5	1.0	ug/L	25.0		75.0	42-168	1.91	30	
1-Methylnaphthalene	21.4	0.3	1.0	ug/L	25.0		85.7	54.4-120	3.71	30	
Surrogate: 2-Fluorobiphenyl	22.3			ug/L	25.0		89.3	54.4-120			
Surrogate: 2,4,6-Tribromophenol	43.6			ug/L	37.5		116	49.3-128			
Surrogate: p-Terphenyl-d14	22.2			ug/L	25.0		88.8	60-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

**Analysis by: Analytical Resources, LLC**

**Analysis by: Analytical Resources, LLC**

**Semivolatile Organic Compounds - SIM - Quality Control**

**Batch BLC0257 - EPA 3520C (Liq Liq)**

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0257-BLK1)</b>				Prepared: 13-Mar-2023 Analyzed: 17-Mar-2023 14:26						
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	2.80		ug/L	3.00		93.3	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.91		ug/L	3.00		97.1	10-125			
Surrogate: Fluoranthene-d10	3.10		ug/L	3.00		103	46-121			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BLC0257 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0257-BS1)</b>				Prepared: 13-Mar-2023 Analyzed: 17-Mar-2023 14:53						
Benzo(a)anthracene	2.24	0.10	ug/L	3.00		74.7	37-120			
Chrysene	2.20	0.10	ug/L	3.00		73.4	48-120			
Benzo(a)fluoranthene, Total	9.25	0.20	ug/L	9.00		103	46-120			
Benzo(a)pyrene	2.02	0.10	ug/L	3.00		67.4	25-120			
Indeno(1,2,3-cd)pyrene	2.62	0.10	ug/L	3.00		87.4	32-120			
Dibenzo(a,h)anthracene	2.90	0.10	ug/L	3.00		96.7	21-120			
Surrogate: 2-Methylnaphthalene-d10	2.65		ug/L	3.00		88.3	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	4.62		ug/L	3.00		154	10-125			*
Surrogate: Fluoranthene-d10	3.23		ug/L	3.00		108	46-121			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BLC0257 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0257-BSD1)</b>				Prepared: 13-Mar-2023 Analyzed: 17-Mar-2023 15:20						
Benzo(a)anthracene	2.09	0.10	ug/L	3.00		69.7	37-120	6.92	30	
Chrysene	2.22	0.10	ug/L	3.00		73.9	48-120	0.60	30	
Benzo(a)fluoranthene, Total	9.37	0.20	ug/L	9.00		104	46-120	1.36	30	
Benzo(a)pyrene	1.87	0.10	ug/L	3.00		62.4	25-120	7.70	30	
Indeno(1,2,3-cd)pyrene	2.65	0.10	ug/L	3.00		88.2	32-120	0.92	30	
Dibenzo(a,h)anthracene	2.99	0.10	ug/L	3.00		99.7	21-120	3.06	30	
Surrogate: 2-Methylnaphthalene-d10	2.68		ug/L	3.00		89.4	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	4.45		ug/L	3.00		148	10-125			*
Surrogate: Fluoranthene-d10	3.11		ug/L	3.00		104	46-121			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**

**Analysis by: Analytical Resources, LLC**

**Petroleum Hydrocarbons - Quality Control**

**Batch BLC0255 - EPA 3510C SepF**

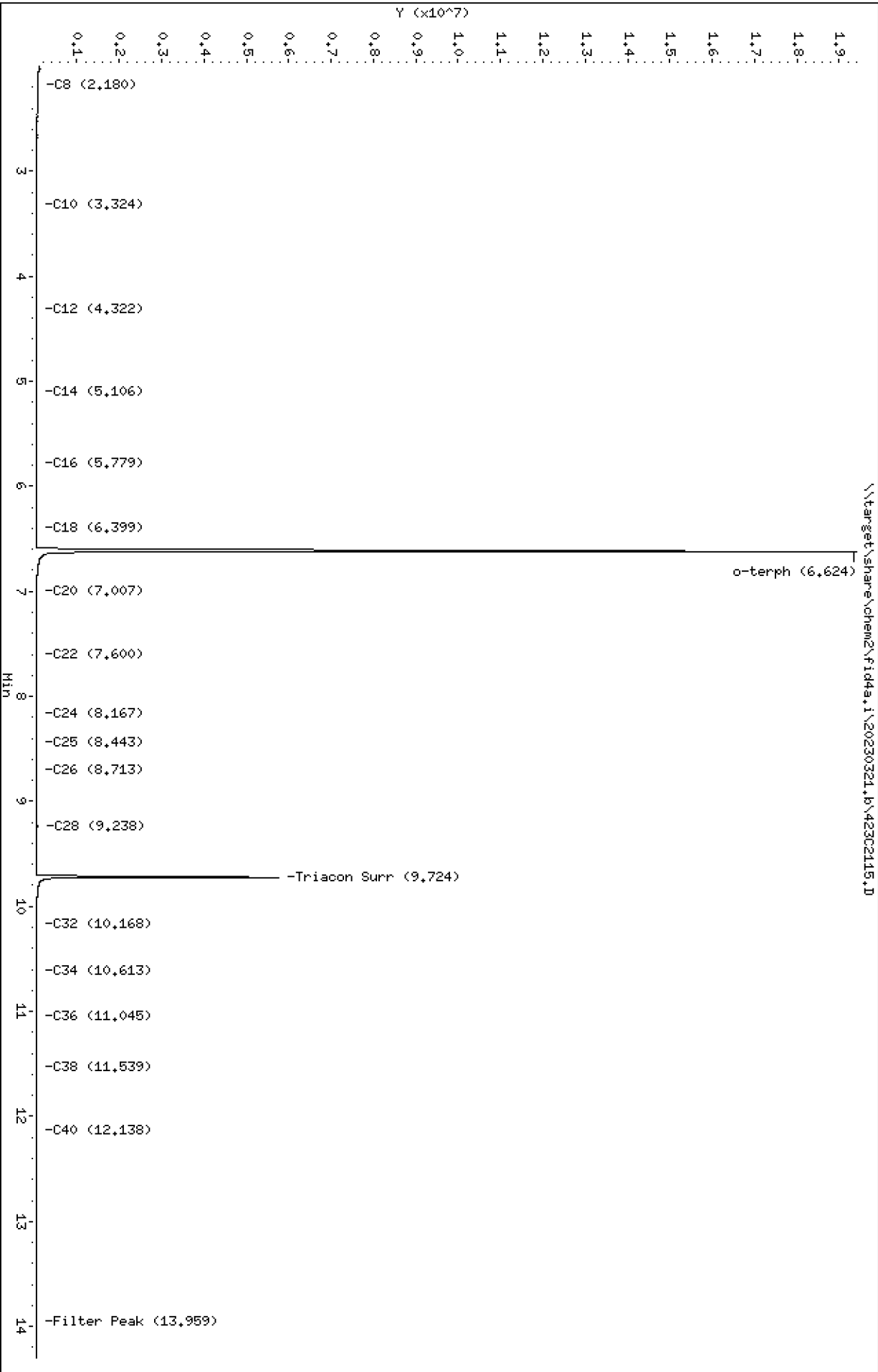
Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0255-BLK1)</b>				Prepared: 13-Mar-2023 Analyzed: 21-Mar-2023 15:08						
Diesel Range Organics (C12-C24)	ND	100	ug/L							U
Motor Oil Range Organics (C24-C38)	ND	200	ug/L							U
Creosote Range Organics (C12-C22)	ND	200	ug/L							U
Surrogate: <i>o</i> -Terphenyl	228		ug/L	225		101	50-150			

Data File: \\target\share\chem2\fid4a,1\20230321\_b\42302115.D  
Date: 21-MAR-2023 15:08  
Client ID:  
Sample Info: BLC0255-BLK1

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2115.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: BLC0255-BLK1  
Client ID:  
Injection: 21-MAR-2023 15:08  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.180	0.005	34419	56478	WATPHD	(C12-C24)	375459	2.4
C10	3.324	-0.001	6880	3766	WATPHM	(C24-C38)	1152046	8.7
C12	4.322	0.001	3532	1751	AK102	(C10-C25)	681234	3.6
C14	5.106	0.001	1265	971	AK103	(C25-C36)	854606	8.6
C16	5.779	-0.001	2673	2024	OR.DIES	(C10-C28)	831057	4.4
C18	6.399	-0.005	1981	3194				
C20	7.007	0.002	8121	2016	JET-A	(C10-C18)	523952	3.0
C22	7.600	0.005	798	119				
C24	8.167	0.000	787	258				
C25	8.443	0.000	1036	341				
C26	8.713	-0.001	825	240				
C28	9.238	0.007	20749	37363				
C32	10.168	-0.015	7957	7080				
C34	10.613	-0.004	10527	3633				
Filter Peak	13.959	-0.004	9306	6019	CREOSOT	(C12-C22)	351833	13.3
C36	11.045	-0.005	10184	4549				
C38	11.539	-0.002	10773	4287				
C40	12.138	0.000	10118	2521				
o-terph	6.624	0.002	19368715	23239226				
Triacon Surr	9.724	-0.025	5715855	5635504	NAS DIES	(C10-C24)	674101	3.6

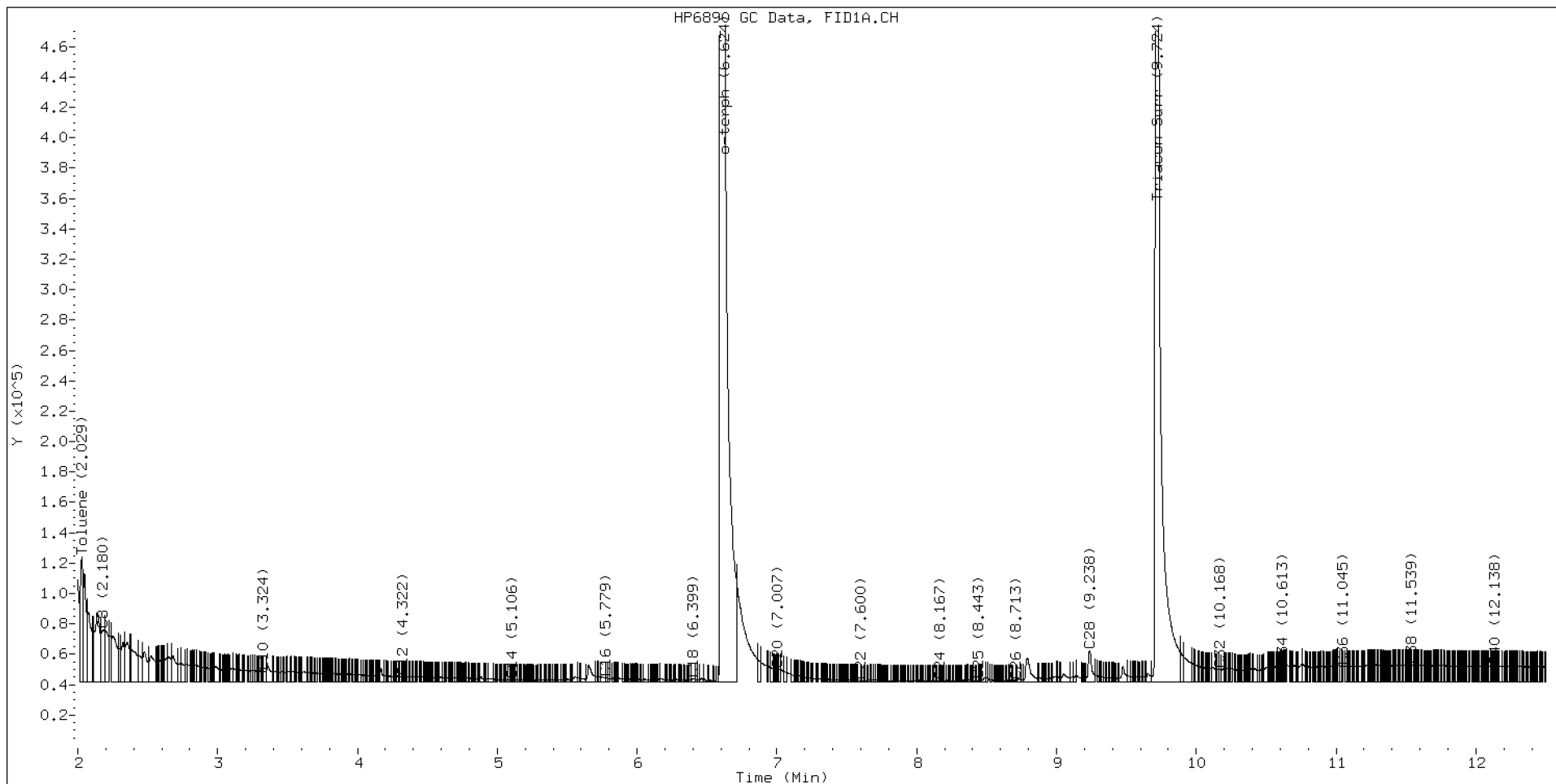
Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23239226	114.1
Triacontane	5635504	25.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023







Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BLC0255 - EPA 3510C SepF**

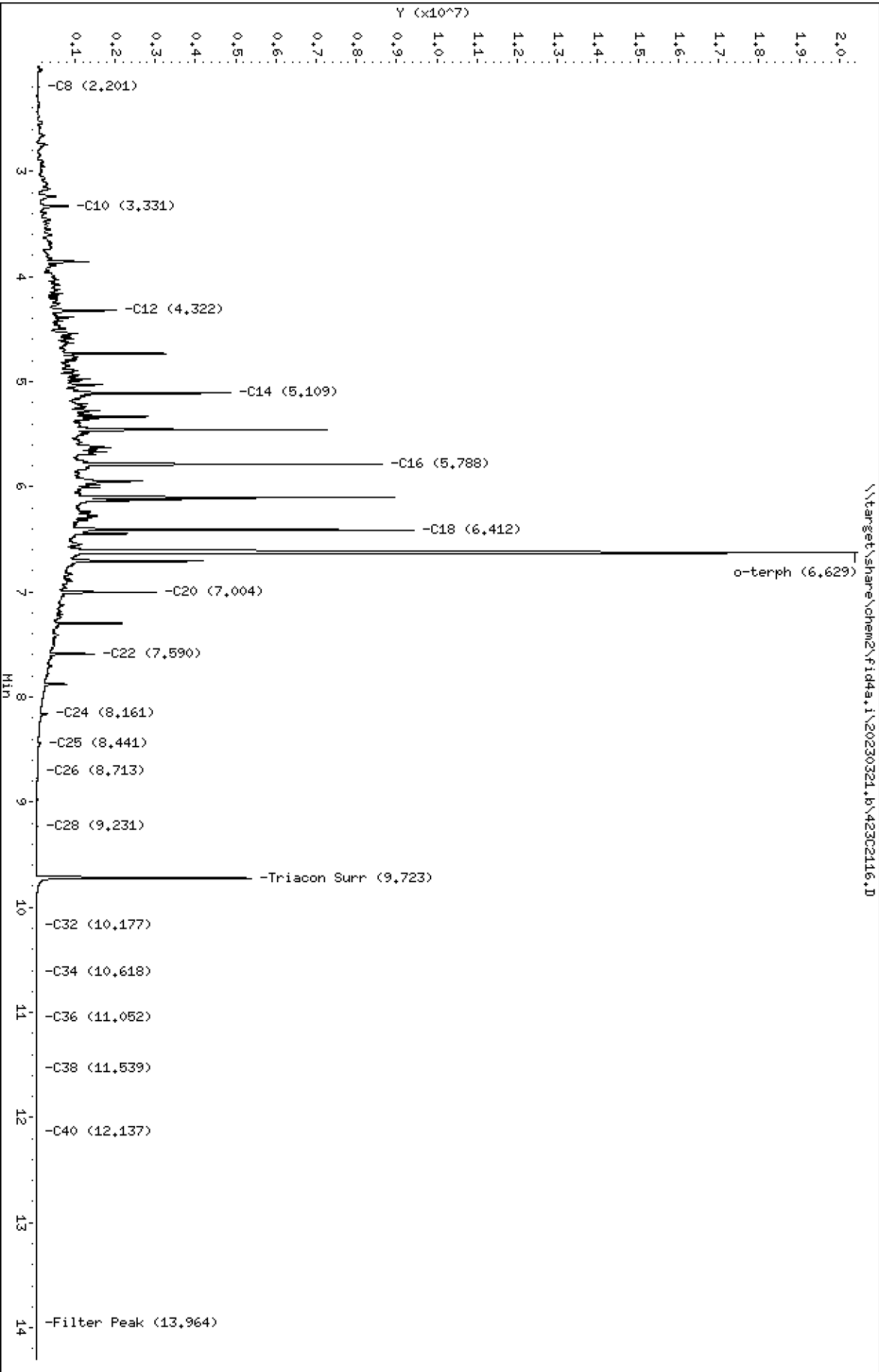
Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0255-BS1)</b>				Prepared: 13-Mar-2023 Analyzed: 21-Mar-2023 15:28						
Diesel Range Organics (C12-C24)	2660	100	ug/L	3000		88.7	56-120			
Surrogate: <i>o</i> -Terphenyl	233		ug/L	225		104	50-150			

Data File: \\target\share\chem2\fid4a,1\20230321.b\42302116.D  
Date: 21-MAR-2023 15:28  
Client ID:  
Sample Info: BLC0255-BS1

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2116.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: BLC0255-BS1  
Client ID:  
Injection: 21-MAR-2023 15:28  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

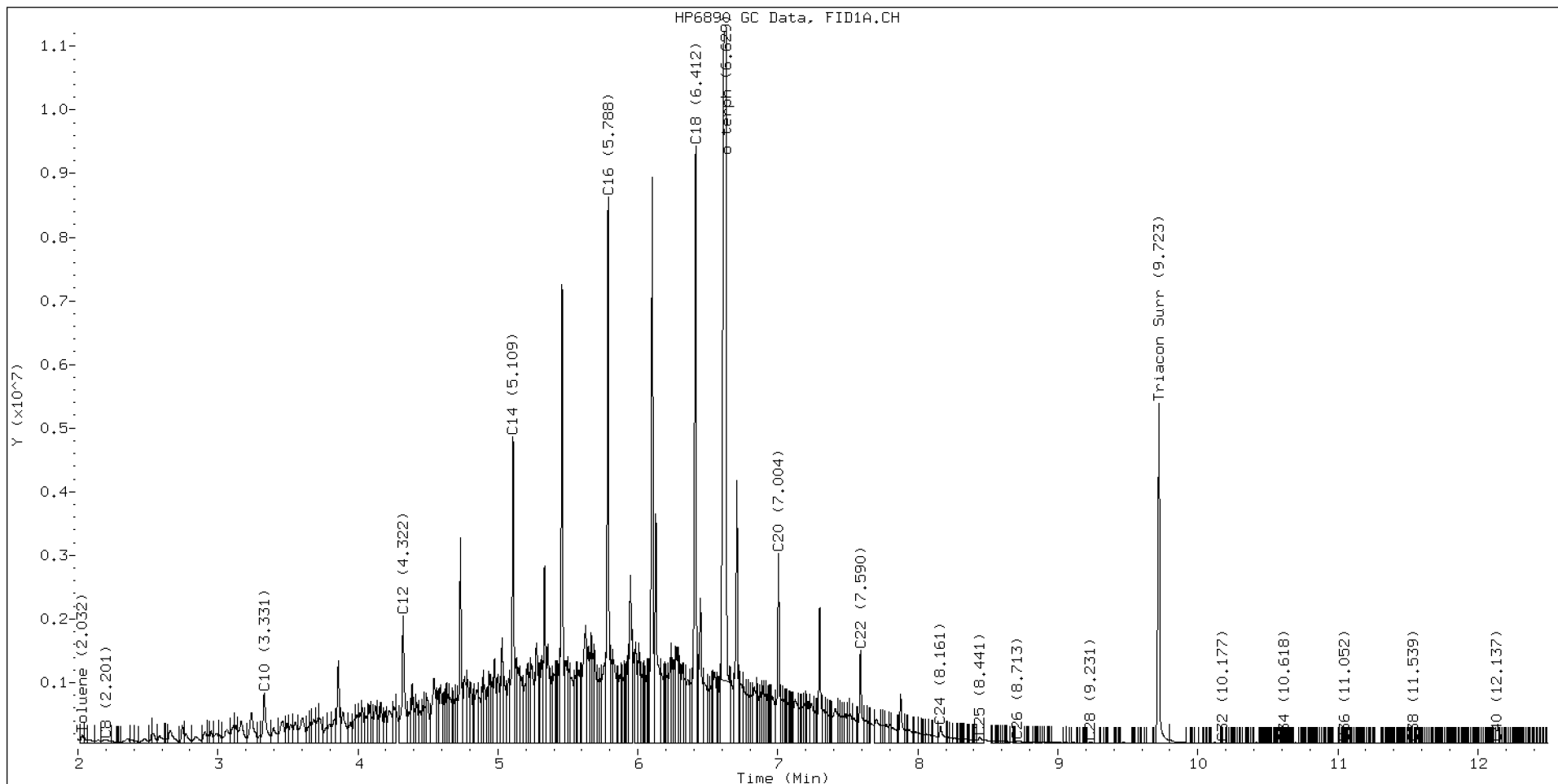
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.201	0.025	52589	177698	WATPHD	(C12-C24)	210969552	1329.9
C10	3.331	0.005	779095	1277086	WATPHM	(C24-C38)	2024466	15.3
C12	4.322	0.002	1995480	2860208	AK102	(C10-C25)	234921878	1242.5
C14	5.109	0.004	4811744	4379935	AK103	(C25-C36)	1291555	13.1
C16	5.788	0.008	8580596	7487256	OR.DIES	(C10-C28)	235828713	1242.9
C18	6.412	0.009	9390810	8791768				
C20	7.004	-0.001	2982746	2986571	JET-A	(C10-C18)	176176913	1017.2
C22	7.590	-0.005	1451301	1645067				
C24	8.161	-0.006	267815	498614				
C25	8.441	-0.002	90376	188111				
C26	8.713	-0.001	34296	103852				
C28	9.231	-0.001	23053	35094				
C32	10.177	-0.006	1686	648				
C34	10.618	0.001	2106	1042				
Filter Peak	13.964	0.001	2299	562	CREOSOT	(C12-C22)	204156044	7699.7
C36	11.052	0.002	3169	625				
C38	11.539	-0.002	3406	2012				
C40	12.137	-0.001	2586	2541				
o-terph	6.629	0.007	19424638	23749661				
Triacon Surr	9.723	-0.026	5347352	4990037	NAS DIES	(C10-C24)	234286189	1241.8

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23749661	116.6 M
Triacontane	4990037	22.9

M Indicates the peak was manually integrated

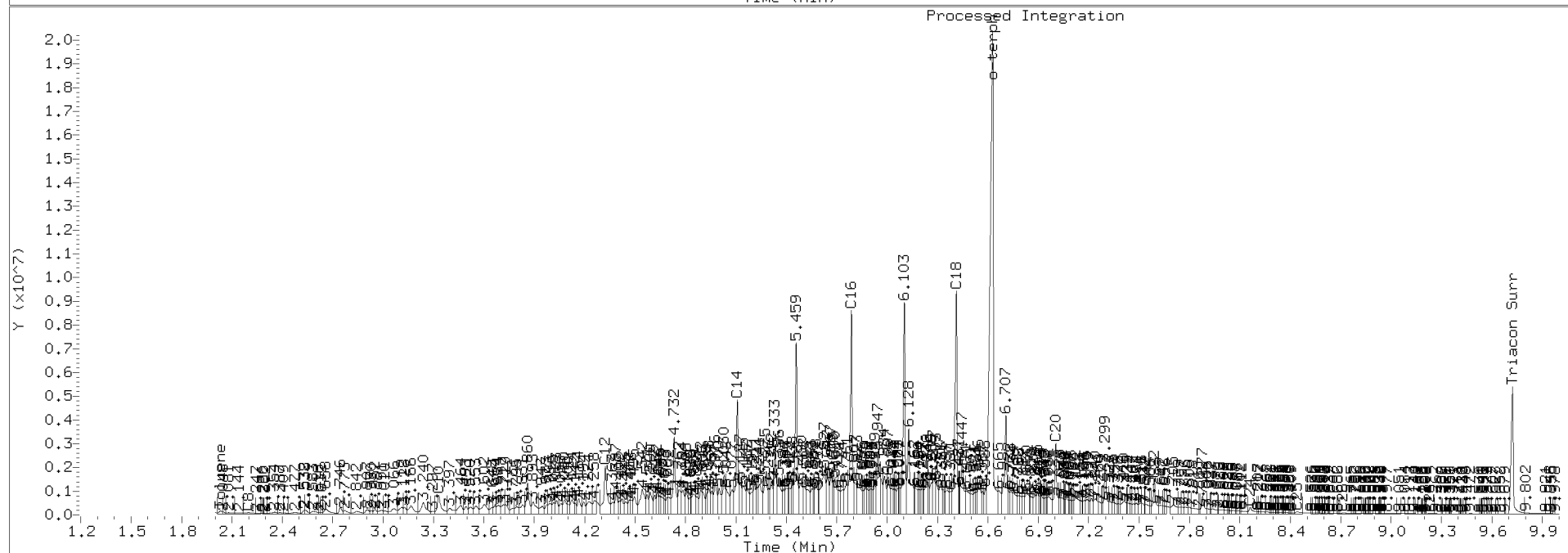
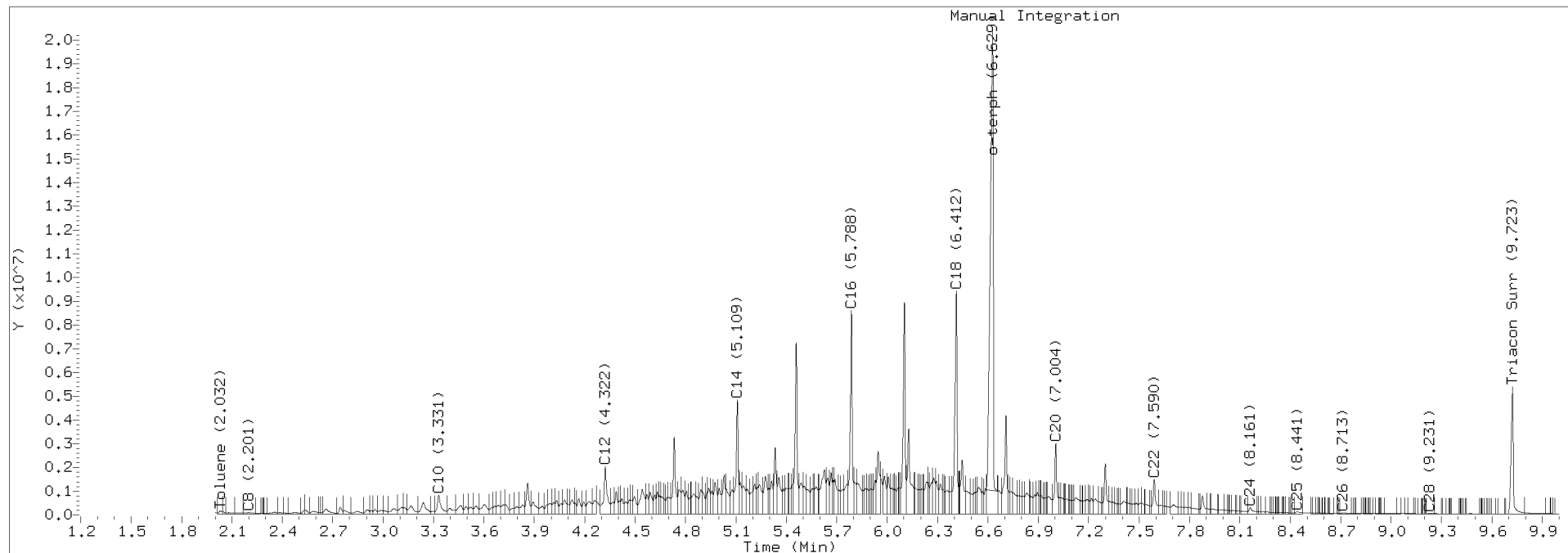
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20230321.b/423C2116.D Injection: 21-MAR-2023 15:28

Lab ID: BLC0255-BS1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BLC0255 - EPA 3510C SepF**

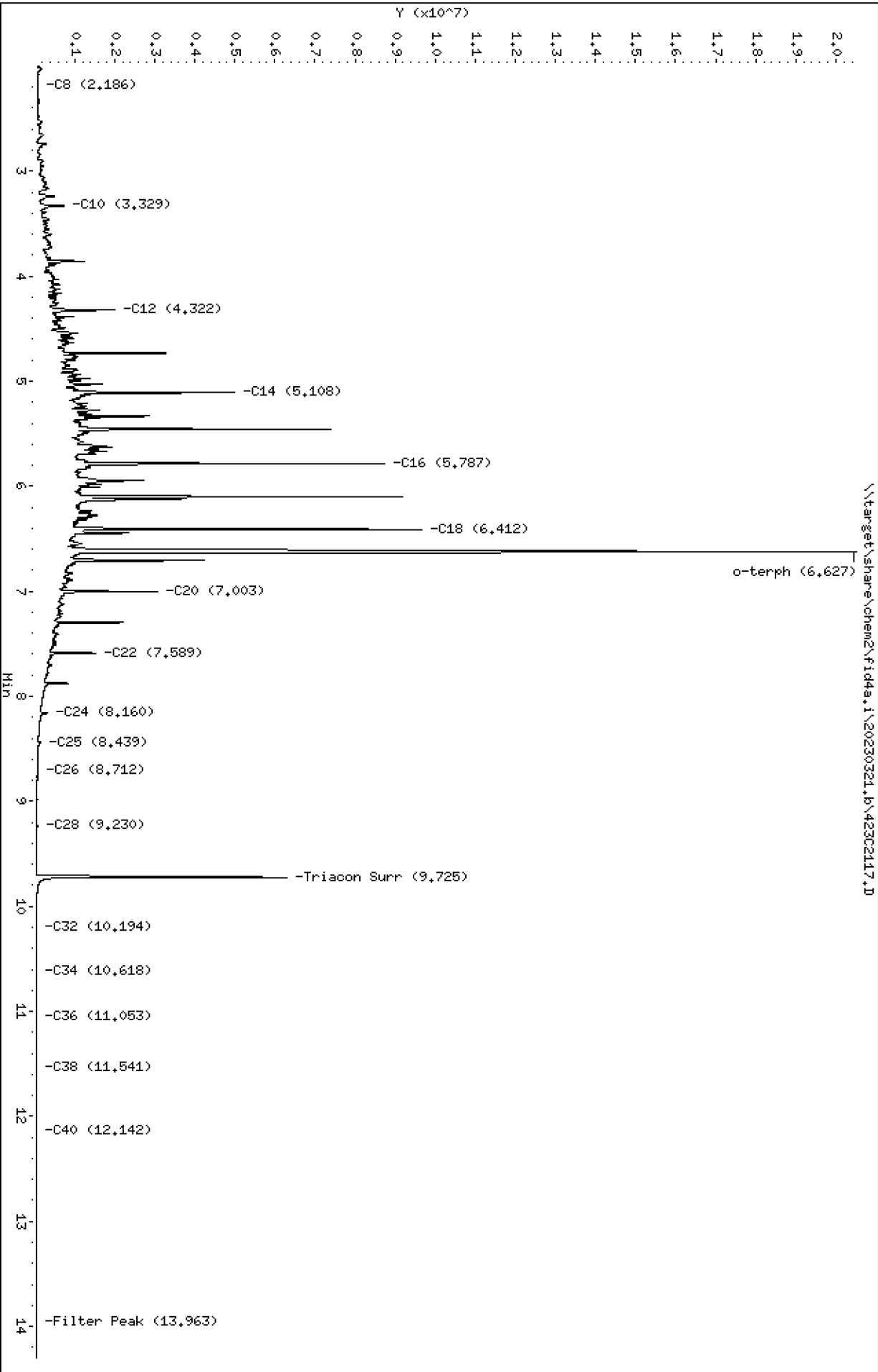
Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0255-BSD1)</b>				Prepared: 13-Mar-2023 Analyzed: 21-Mar-2023 15:48						
Diesel Range Organics (C12-C24)	2670	100	ug/L	3000		89.1	56-120	0.52	30	
Surrogate: <i>o</i> -Terphenyl	235		ug/L	225		104	50-150			

Data File: \\target\share\chem2\fid4a,1\20230321.b\42302117.D  
Date: 21-MAR-2023 15:48  
Client ID:  
Sample Info: BLC0265-BSM1

Column phase: RTX-1

Instrument: fid4a,1  
Operator: AA  
Column diameter: 0.25





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20230321.b/423C2117.D  
Method: 20230321.b\FID4TPH.m  
Instrument: fid4a.i, AA  
Report Date: 03/22/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:17-JAN-2023

ARI ID: BLC0255-BSD1  
Client ID:  
Injection: 21-MAR-2023 15:48  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

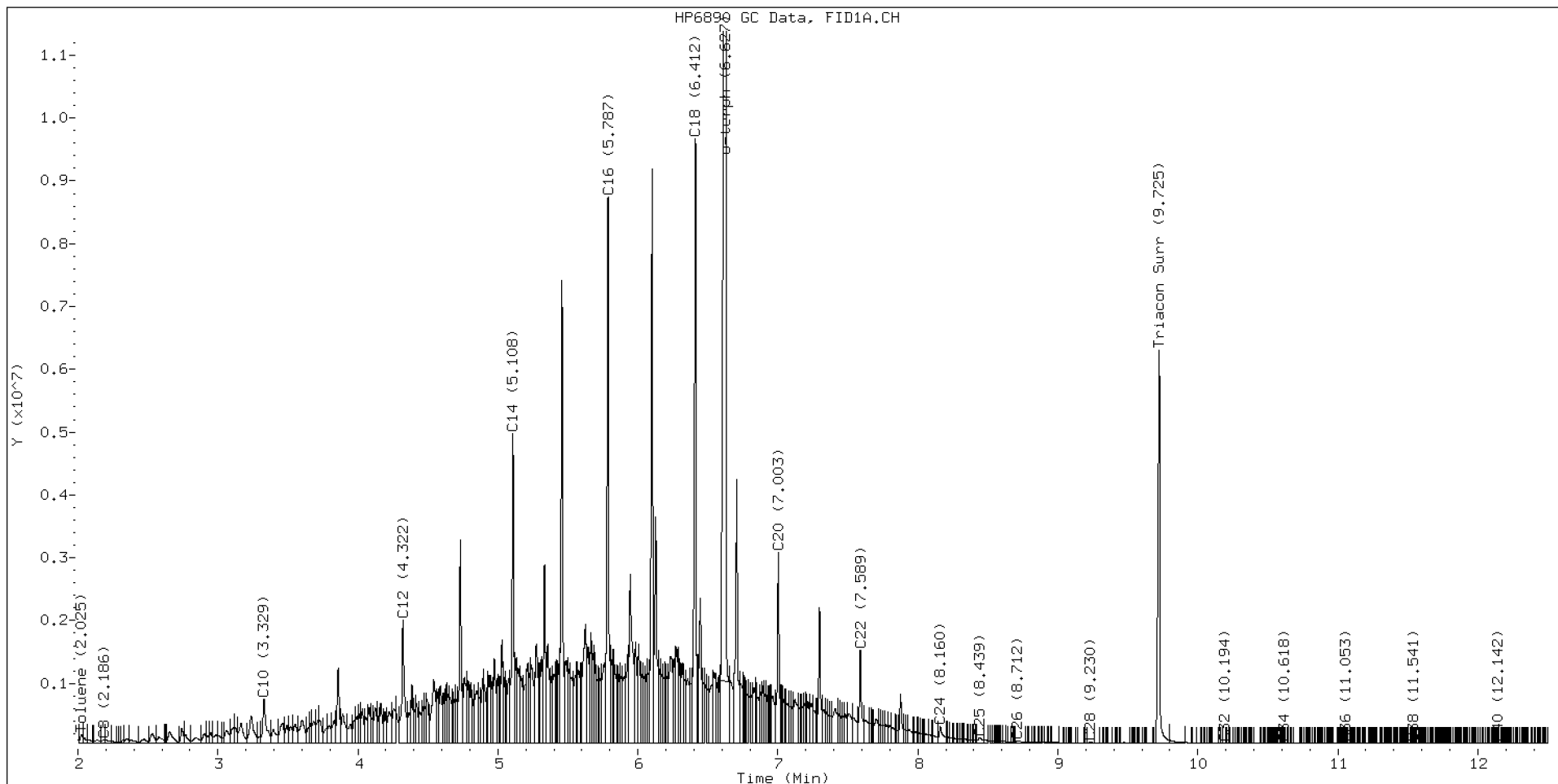
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.186	0.010	48231	76979	WATPHD	(C12-C24)	212059909	1336.8
C10	3.329	0.004	696273	1225716	WATPHM	(C24-C38)	2004756	15.1
C12	4.322	0.001	1965877	2836447	AK102	(C10-C25)	235078223	1243.3
C14	5.108	0.004	4933929	4422800	AK103	(C25-C36)	1340046	13.5
C16	5.787	0.007	8692312	7570223	OR.DIES	(C10-C28)	236085202	1244.2
C18	6.412	0.008	9619689	8937298				
C20	7.003	-0.001	3037852	2891963	JET-A	(C10-C18)	177504348	1024.9
C22	7.589	-0.006	1485306	1631040				
C24	8.160	-0.006	273795	525653				
C25	8.439	-0.004	89597	182896				
C26	8.712	-0.002	34596	110133				
C28	9.230	-0.001	24064	36939				
C32	10.194	0.011	2963	2428				
C34	10.618	0.001	1549	894				
Filter Peak	13.963	0.000	612	202	CREOSOT	(C12-C22)	205134074	7736.6
C36	11.053	0.004	2138	423				
C38	11.541	-0.001	2184	869				
C40	12.142	0.004	1139	447				
o-terph	6.627	0.005	19483831	23877380				
Triacon Surr	9.725	-0.024	6247279	6038411	NAS DIES	(C10-C24)	234475534	1242.8

Range Times: NW Diesel(4.320 - 8.166) AK102(3.33 - 8.44) Jet A(3.33 - 6.40)  
NW M.Oil(8.17 - 11.54) AK103(8.44 - 11.05) OR Diesel(3.33 - 9.23)

Surrogate	Area	Amount
o-Terphenyl	23877380	117.3 M
Triacontane	6038411	27.7

M Indicates the peak was manually integrated

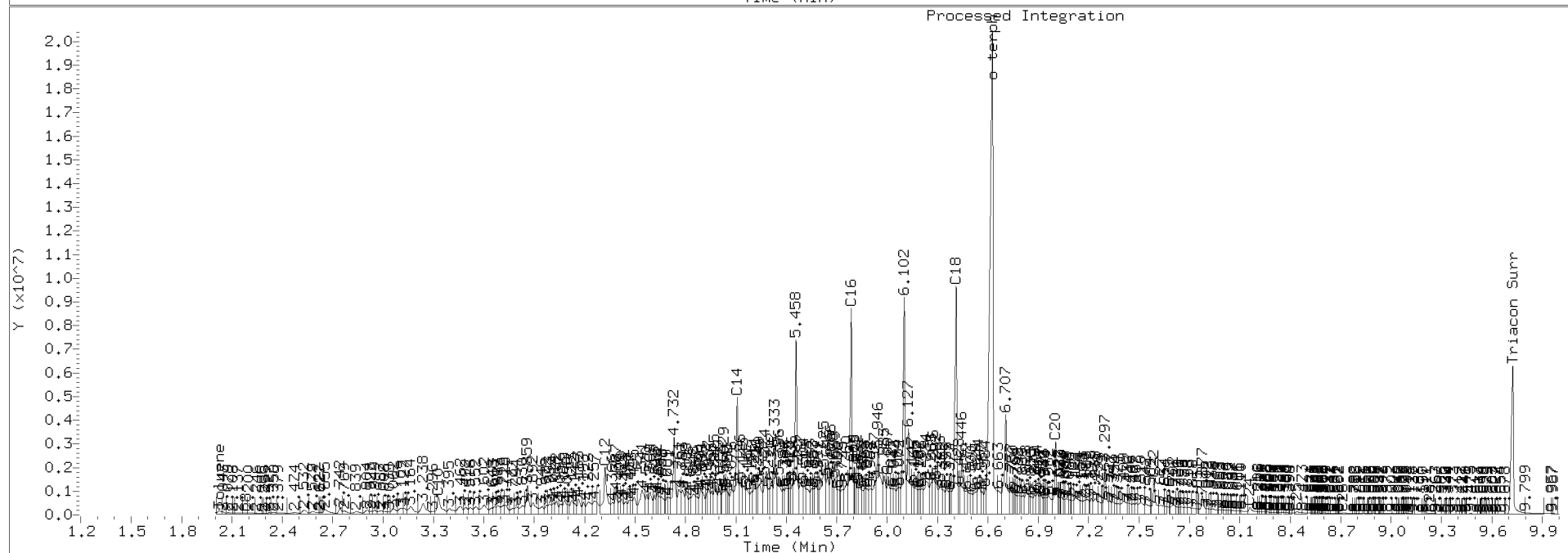
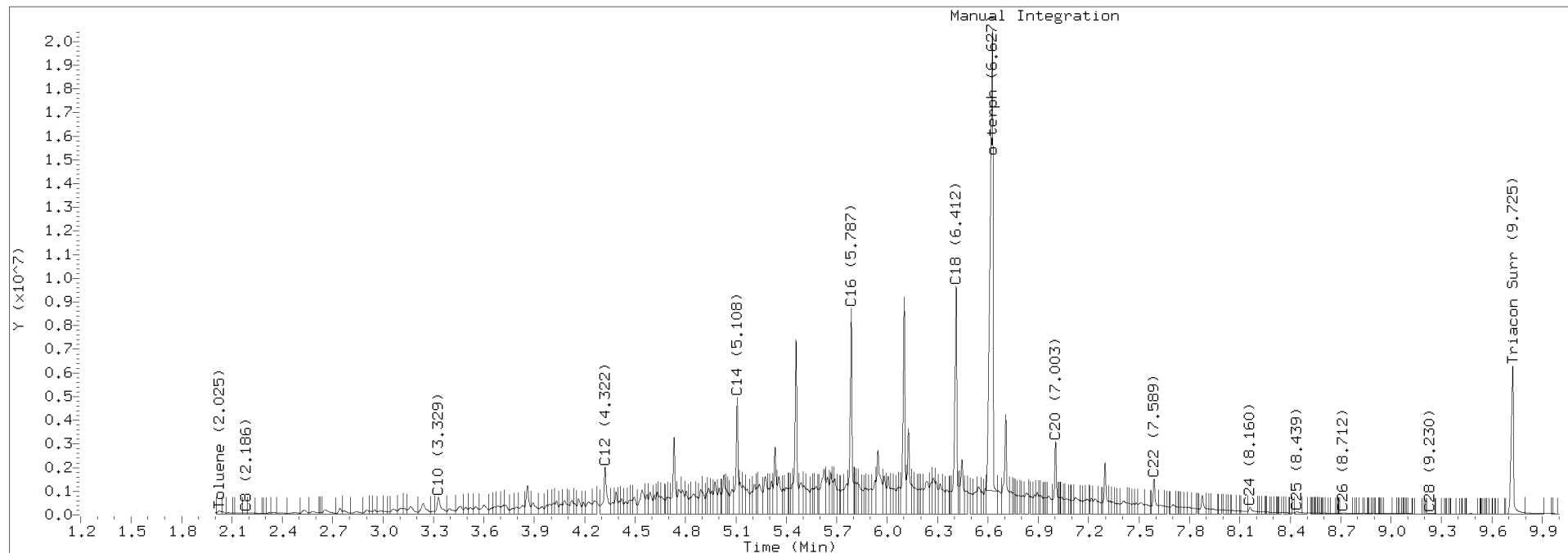
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	217860.7	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	132642.1	17-JAN-2023
AK102	189076.1	20-JAN-2022
AK103	98909.5	06-JAN-2022
JetA	173192.9	03-MAR-2022
OR Diesel	189743.0	20-JAN-2022
NAS Diesel	188673.2	20-JAN-2022
IT M.Oil	489533.3	XX-XXX-XXXX
Creosote	26514.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20230321.b/423C2117.D Injection: 21-MAR-2023 15:48

Lab ID: BLC0255-BS01





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**

**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BLC0256 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLC0256-BLK1)</b>				Prepared: 13-Mar-2023 Analyzed: 22-Mar-2023 13:39						
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol	2.07		ug/L	2.50		82.7	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.98		ug/L	2.50		79.3	26-120			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BLC0256 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLC0256-BS1)</b>				Prepared: 13-Mar-2023 Analyzed: 22-Mar-2023 13:57						
Pentachlorophenol	1.68	0.25	ug/L	2.50		67.2	48-120			
Surrogate: 2,4,6-Tribromophenol	1.98		ug/L	2.50		79.1	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.88		ug/L	2.50		75.2	26-120			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 28-Nov-2023 14:10
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**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BLC0256 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLC0256-BSD1)</b>					Prepared: 13-Mar-2023 Analyzed: 22-Mar-2023 14:15					
Pentachlorophenol	2.06	0.25	ug/L	2.50		82.2	48-120	20.20	30	
Surrogate: 2,4,6-Tribromophenol	2.13		ug/L	2.50		85.2	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	2.04		ug/L	2.50		81.7	26-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

### Certified Analyses included in this Report

Analyte	Certifications
<b>EPA 8270E in Water</b>	
Phenol	WADOE,DoD-ELAP,NELAP
bis(2-chloroethyl) ether	WADOE,DoD-ELAP,NELAP
2-Chlorophenol	WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
Benzyl alcohol	WADOE,DoD-ELAP,NELAP
2,2'-Oxybis(1-chloropropane)	WADOE,DoD-ELAP,NELAP
2-Methylphenol	WADOE,DoD-ELAP,NELAP
Hexachloroethane	WADOE,DoD-ELAP,NELAP
N-Nitroso-di-n-Propylamine	WADOE,DoD-ELAP,NELAP
4-Methylphenol	WADOE,DoD-ELAP,NELAP
Nitrobenzene	WADOE,DoD-ELAP,NELAP
Isophorone	WADOE,DoD-ELAP,NELAP
2-Nitrophenol	WADOE,DoD-ELAP,NELAP
2,4-Dimethylphenol	WADOE,DoD-ELAP,NELAP
Bis(2-Chloroethoxy)methane	WADOE,DoD-ELAP,NELAP
2,4-Dichlorophenol	WADOE,DoD-ELAP,NELAP
1,2,4-Trichlorobenzene	WADOE,DoD-ELAP,NELAP
Naphthalene	WADOE,DoD-ELAP,NELAP,ADEC
Benzoic acid	WADOE,DoD-ELAP,NELAP
4-Chloroaniline	WADOE,DoD-ELAP,NELAP
2,6-Dinitrotoluene	WADOE,DoD-ELAP,NELAP
Hexachlorobutadiene	WADOE,DoD-ELAP,NELAP
4-Chloro-3-Methylphenol	WADOE,DoD-ELAP,NELAP
Hexachlorocyclopentadiene	WADOE,DoD-ELAP,NELAP
2,4,6-Trichlorophenol	WADOE,DoD-ELAP,NELAP
2,4,5-Trichlorophenol	WADOE,DoD-ELAP,NELAP
2-Chloronaphthalene	WADOE,DoD-ELAP,NELAP
2-Nitroaniline	WADOE,DoD-ELAP,NELAP
Acenaphthylene	WADOE,DoD-ELAP,NELAP,ADEC
Dimethylphthalate	WADOE,DoD-ELAP,NELAP
Acenaphthene	WADOE,DoD-ELAP,NELAP,ADEC
3-Nitroaniline	WADOE,DoD-ELAP,NELAP
2-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,ADEC



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
28-Nov-2023 14:10

2,4-Dinitrophenol	WADOE,DoD-ELAP,NELAP
Dibenzofuran	WADOE,DoD-ELAP,NELAP
4-Nitrophenol	WADOE,DoD-ELAP,NELAP
2,4-Dinitrotoluene	WADOE,DoD-ELAP,NELAP
Fluorene	WADOE,DoD-ELAP,NELAP,ADEC
4-Chlorophenylphenyl ether	WADOE,DoD-ELAP,NELAP
Diethyl phthalate	WADOE,DoD-ELAP,NELAP
4-Nitroaniline	WADOE,DoD-ELAP,NELAP
4,6-Dinitro-2-methylphenol	WADOE,DoD-ELAP,NELAP
N-Nitrosodiphenylamine	WADOE,DoD-ELAP,NELAP
4-Bromophenyl phenyl ether	WADOE,DoD-ELAP,NELAP
Hexachlorobenzene	WADOE,DoD-ELAP,NELAP
Pentachlorophenol	WADOE,DoD-ELAP,NELAP
Phenanthrene	WADOE,DoD-ELAP,NELAP,ADEC
Anthracene	WADOE,DoD-ELAP,NELAP,ADEC
Carbazole	WADOE,DoD-ELAP,NELAP,ADEC
Di-n-butylphthalate	WADOE,DoD-ELAP,NELAP
Fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Butylbenzylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(a)anthracene	WADOE,DoD-ELAP,NELAP,ADEC
3,3'-Dichlorobenzidine	WADOE,DoD-ELAP,NELAP
Chrysene	WADOE,DoD-ELAP,NELAP,ADEC
bis(2-Ethylhexyl)phthalate	WADOE,DoD-ELAP,NELAP
Di-n-Octylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(b)fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(k)fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(a)pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Indeno(1,2,3-cd)pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Dibenzo(a,h)anthracene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(g,h,i)perylene	WADOE,DoD-ELAP,NELAP,ADEC
Benzofluoranthenes, Total	WADOE,DoD-ELAP,NELAP,ADEC
N-Nitrosodimethylamine	WADOE,DoD-ELAP,NELAP
Aniline	WADOE,DoD-ELAP,NELAP
1-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,ADEC
Azobenzene (1,2-DP-Hydrazine)	WADOE,NELAP
Benzidine	WADOE,DoD-ELAP
Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

2,6-Dichlorophenol	WADOE
alpha-Terpineol	WADOE,DoD-ELAP
1,4-Dioxane	WADOE,DoD-ELAP
2,3,4,6-Tetrachlorophenol	WADOE,DoD-ELAP
Triphenyl Phosphate	WADOE,DoD-ELAP
Butyl Diphenyl Phosphate	WADOE,DoD-ELAP
Dibutyl Phenyl Phosphate	WADOE,DoD-ELAP
Tributyl Phosphate	WADOE,DoD-ELAP
Butylated Hydroxytoluene	WADOE,DoD-ELAP
Tetrachloroguaiacol	WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	WADOE
3,4,6-Trichloroguaiacol	WADOE
4,5,6-Trichloroguaiacol	WADOE
Guaiacol	WADOE
1,2,4,5-Tetrachlorobenzene	WADOE

**EPA 8270E-SIM in Water**

Naphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
Biphenyl	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthene	DoD-ELAP
Dibenzofuran	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
Fluorene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Phenanthrene	DoD-ELAP
Anthracene	DoD-ELAP
Carbazole	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
Fluoranthene	DoD-ELAP
Pyrene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Chrysene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
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Reported:  
28-Nov-2023 14:10

Benzofluoranthenes, Total	DoD-ELAP
Benzo(e)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Perylene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(b)thiophene	DoD-ELAP

**NWTPH-Dx in Water**

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

**NWTPHg in Water**

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2023
WA-DW	Ecology - Drinking Water	C558	06/30/2023



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
28-Nov-2023 14:10

### Notes and Definitions

- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- NRS This surrogate not reported due to chromatographic interference
- J Estimated concentration value detected below the reporting limit.
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- D1 Surrogate was not detected due to sample extract dilution
- D The reported value is from a dilution
- \* Flagged value is not within established control limits.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



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

24 October 2023

Christine Kimmel  
Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds, WA 98020

RE: Cascade Pole

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

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

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

Associated Work Order(s)  
23I0388

Associated SDG ID(s)  
N/A

-----

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

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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



Project Name Port of Olympia Project No. 0021043.000.010.011  
 Project Location/Event Cascade Pole / September 2023  
 Sampler's Name DJP/503  
 Project Contact Katie Gauglitz, Chris Kimmel  
 Send Results To Kgauglitz@landauinc.com, dkimmel@landauinc.com, D.Buiche

Testing Parameters  
 NWTPH-GX  
 NWTPH-Dx \* ENDSOME  
 PAHs  
 LPAHs Jim  
 PCP 8270  
 PCP 8041

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

Sample I.D.	Date	Time	Matrix	No. of Containers	NWTPH-GX	NWTPH-Dx	PAHs	LPAHs	PCP 8270	PCP 8041
MW-05s-20230914	9/14/23	0923	Aq	10	X	X	X	X	X	X
PZ-30-20230914	9/14/23	0924	Aq	10	X	X	X	X	X	X
LW-13-20230914	9/14/23	0950	Aq	10	X	X	X	X	X	X
MW-05D-20230914	9/14/23	1115	Aq	10	X	X	X	X	X	X
PZ-12-20230914	9/14/23	1309	Aq	10	X	X	X	X	X	X
PZ-13-20230914	9/14/23	1310	Aq	10	X	X	X	X	X	X
LW-3-20230914	9/14/23	1549	Aq	10	X	X	X	X	X	X
PZ-17-20230914	9/14/23	1550	Aq	10	X	X	X	X	X	X
PZ-18-20230914	9/14/23	1705	Aq	10	X	X	X	X	X	X
LW-4R-20230914	9/14/23	1709	Aq	10	X	X	X	X	X	X
<del>MW-02s-20230914</del>										
MW-02s-20230915	9/15/23	755	Aq	10	X	X	X	X	X	X
MW-02D-20230915	9/15/23	755	Aq	10	X	X	X	X	X	X
PZ-19-20230915	9/15/23	0925	Aq	10	X	X	X	X	X	X
MW-01s-20230915	9/15/23	0918	Aq	10	X	X	X	X	X	X
MW-01D-20230915	9/15/23	1103	Aq	10	X	X	X	X	X	X
Trip blank - 20230915	9/15/23	---	Aq	2	X					
Trip blank - 20230914	9/14/23	---	Aq	2	X					

Observations/Comments

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

— NWTPH-Dx - Acid wash cleanup

— Silica gel cleanup

— Dissolved metal samples were field filtered

Other

Run all samples for PCP using 8270; if non-detect - run PCP 8041

\* NO silica gel cleanup

- GX is HCl pres

LW-3-20230914 Submitted 1 VOA per GX

Relinquished by  
 Signature [Signature]  
 Printed Name DANIEL PURLEN  
 Company LANDAU ASSOCIATES  
 Date 9/15/23 Time 1407

Received by  
 Signature [Signature]  
 Printed Name Jacob [Name]  
 Company ARJ LLC  
 Date 9/15/23 Time 1407

Relinquished by  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_

Received by  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

**Reported:**  
24-Oct-2023 09:34

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-05S-20230914	23I0388-01	Water	14-Sep-2023 09:23	15-Sep-2023 14:07
PZ-30-20230914	23I0388-02	Water	14-Sep-2023 09:24	15-Sep-2023 14:07
CW-13-20230914	23I0388-03	Water	14-Sep-2023 09:50	15-Sep-2023 14:07
MW-05D-20230914	23I0388-04	Water	14-Sep-2023 11:15	15-Sep-2023 14:07
PZ-12-20230914	23I0388-05	Water	14-Sep-2023 13:09	15-Sep-2023 14:07
PZ-13-20230914	23I0388-06	Water	14-Sep-2023 13:10	15-Sep-2023 14:07
LW-3-20230914	23I0388-07	Water	14-Sep-2023 15:48	15-Sep-2023 14:07
PZ-17-20230914	23I0388-08	Water	14-Sep-2023 15:50	15-Sep-2023 14:07
PZ-18-20230914	23I0388-09	Water	14-Sep-2023 17:05	15-Sep-2023 14:07
LW-4R-20230914	23I0388-10	Water	14-Sep-2023 17:09	15-Sep-2023 14:07
MW-02S-20230915	23I0388-11	Water	15-Sep-2023 07:55	15-Sep-2023 14:07
MW-02D-20230915	23I0388-12	Water	15-Sep-2023 07:56	15-Sep-2023 14:07
PZ-19-20230915	23I0388-13	Water	15-Sep-2023 09:25	15-Sep-2023 14:07
MW-01S-20230915	23I0388-14	Water	15-Sep-2023 09:18	15-Sep-2023 14:07
MW-01D-20230915	23I0388-15	Water	15-Sep-2023 11:03	15-Sep-2023 14:07
Tripblank-20230915	23I0388-16	Water	14-Sep-2023 09:23	15-Sep-2023 14:07
Tripblank-20230914	23I0388-17	Water	14-Sep-2023 09:23	15-Sep-2023 14:07



Landau Associates, Inc.  
130 2nd Avenue S.  
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Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

## Case Narrative

### Pentachlorophenol - EPA Method SW8041A

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The blank spike (BS/LCS) percent recoveries were within control limits.

### Gasoline by NWTPH-g (GC/MS)

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

### Semivolatiles - EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

The blank spike (BS/LCS) percent recoveries were within control limits.





Landau Associates, Inc.  
130 2nd Avenue S.  
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Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM**

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms.

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

The blank spike (BS/LCS) percent recoveries were within control limits.

**Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx**

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The blank spike (BS/LCS) percent recoveries were within control limits.



# Cooler Receipt Form

ARI Client: Landau Associates  
 COC No(s): \_\_\_\_\_ (NA)  
 Assigned ARI Job No: 23I0388

Project Name: Part of Olympia/Cascade pole  
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_  
 Tracking No: \_\_\_\_\_ (NA)

**Preliminary Examination Phase:**

Were intact, properly signed and dated custody seals attached to the outside of the cooler? YES  NO   
 Were custody papers included with the cooler? ..... YES  NO   
 Were custody papers properly filled out (ink, signed, etc.) ..... YES  NO   
 Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)  
 Time 1407 27 0.7 0.1 3.6 1.8 2.9 1.8 0.7  
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: 7009708

Cooler Accepted by: JS Date: 09/15/23 Time: 1407

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

**Log-In Phase:**

Was a temperature blank included in the cooler? ..... YES  NO   
 What kind of packing material was used? ... Bubble Wrap Wet Ice Gel Packs Baggies Foam Block Paper Other: \_\_\_\_\_  
 Was sufficient ice used (if appropriate)? ..... NA  YES  NO   
 How were bottles sealed in plastic bags? ..... Individually  Grouped  Not   
 Did all bottles arrive in good condition (unbroken)? ..... YES  NO   
 Were all bottle labels complete and legible? ..... YES  NO   
 Did the number of containers listed on COC match with the number of containers received? ..... YES  NO   
 Did all bottle labels and tags agree with custody papers? ..... YES  NO   
 Were all bottles used correct for the requested analyses? ..... YES  NO   
 Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs) ...  NA  YES  NO   
 Were all VOC vials free of air bubbles? ..... NA  YES  NO   
 Was sufficient amount of sample sent in each bottle? ..... YES  NO   
 Date VOC Trip Blank was made at ARI..... NA 05/31/23  
 Were the sample(s) split by ARI?  NA YES  Date/Time: \_\_\_\_\_ Equipment: \_\_\_\_\_ Split by: \_\_\_\_\_

Samples Logged by: MP Date: 09/18/23 Time: \_\_\_\_\_ Labels checked by: \_\_\_\_\_

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

**Additional Notes, Discrepancies, & Resolutions:**  
Sample time for sample MW-02D-20230915 is 0756 on C.O.C. ; bottle label lists sampling time as 0956. Sample logged by C.O.C.  
 By: MP Date: 09/18/23



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**MW-05S-20230914**  
**2310388-01 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/14/2023 09:23  
Instrument: ECD8 Analyzed: 11-Oct-2023 18:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>0.47</b>	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	78.9	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	93.1	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-05S-20230914**  
**2310388-01 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/14/2023 09:23  
Analyzed: 22-Sep-2023 15:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	7.2	ug/L	
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	14.0	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	1.3	ug/L	
Dibenzofuran	132-64-9	1	0.2	1.0	0.7	ug/L	J
Fluorene	86-73-7	1	0.2	1.0	1.1	ug/L	
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	0.7	ug/L	J
Anthracene	120-12-7	1	0.3	1.0	0.4	ug/L	J
Carbazole	86-74-8	1	0.3	1.0	0.3	ug/L	J
Fluoranthene	206-44-0	1	0.2	1.0	0.5	ug/L	J
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	4.3	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	80.5 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	113 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	97.5 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-05S-20230914**  
**2310388-01 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/14/2023 09:23  
Analyzed: 02-Oct-2023 17:05

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>73.8</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>96.0</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>94.7</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**MW-05S-20230914**  
**2310388-01 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 09:23  
Analyzed: 16-Oct-2023 20:46

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	153	ug/L	
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	557	ug/L	
HC ID: CREOSOTE						
Surrogate: <i>o</i> -Terphenyl			50-150 %	88.4	%	

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231634.D

Date: 16-OCT-2023 20:46

Client ID:

Sample Info: 2310388-01

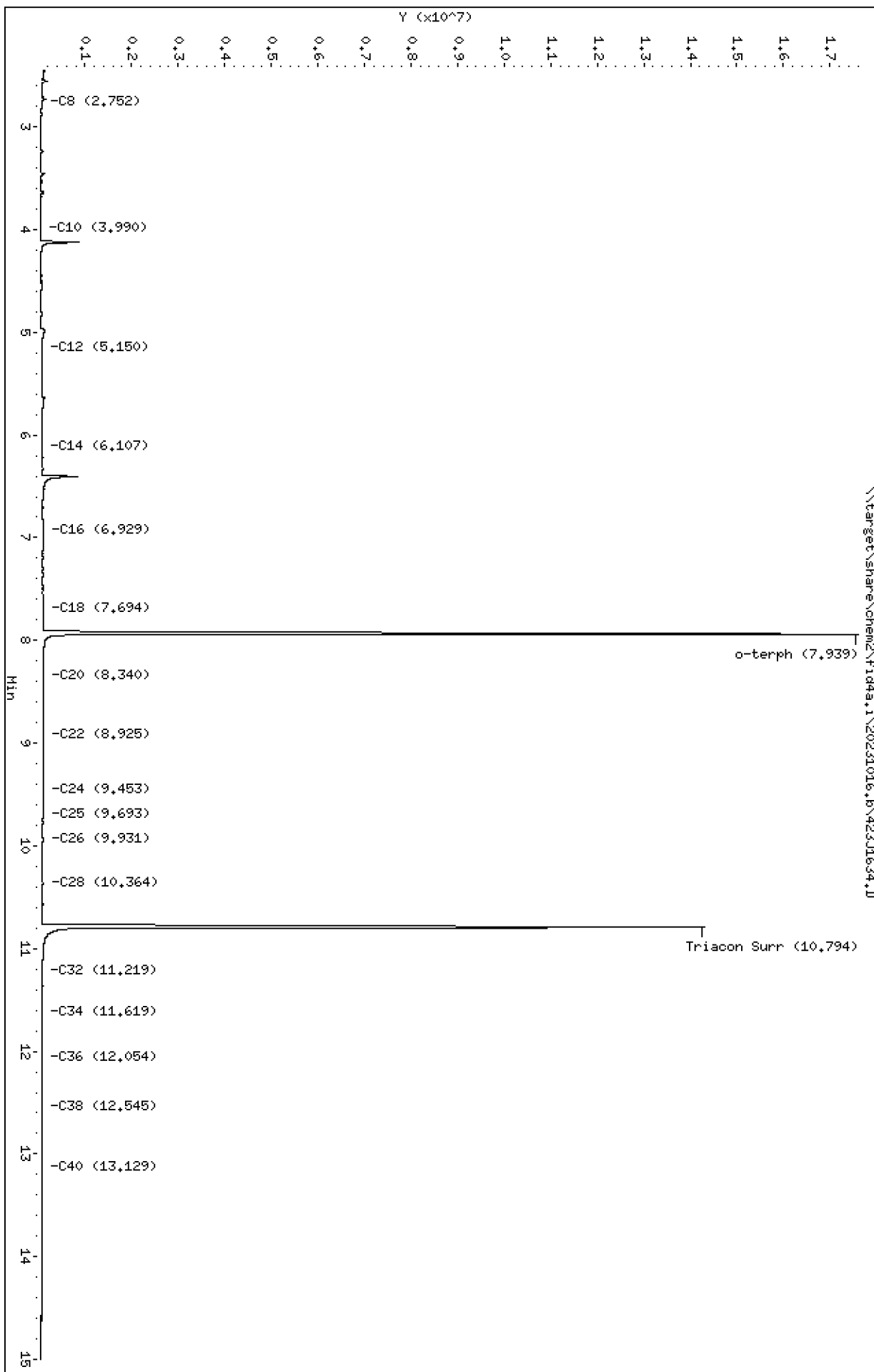
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1634.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-01  
Client ID:  
Injection: 16-OCT-2023 20:46  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.752	-0.005	44102	88239	WATPHD	(C12-C24)	12152830	76.6
C10	3.990	-0.000	1269	1040	WATPHM	(C24-C38)	5013385	42.1
C12	5.150	0.001	26918	13409	AK102	(C10-C25)	14393758	76.1
C14	6.107	-0.005	32640	43172	AK103	(C25-C36)	4016408	40.1
C16	6.929	-0.025	59880	191977				
C18	7.694	-0.005	47238	57636				
C20	8.340	-0.009	50355	93599				
C22	8.925	-0.003	52670	67591				
C24	9.453	0.003	48147	26390				
C25	9.693	-0.000	45358	33711				
C26	9.931	0.004	48886	44964				
C32	11.219	0.002	41222	58516				
C34	11.619	-0.000	38765	90152				
Filter Peak	----				CREOSOT	(C12-C22)	10665053	278.7 M
C36	12.054	0.001	26416	13184				
C38	12.545	0.000	23319	12796				
C40	13.129	-0.005	19632	17553				
o-terph	7.939	-0.003	17503963	20266548				
Triacon Surr	10.794	-0.031	14270437	18197862				

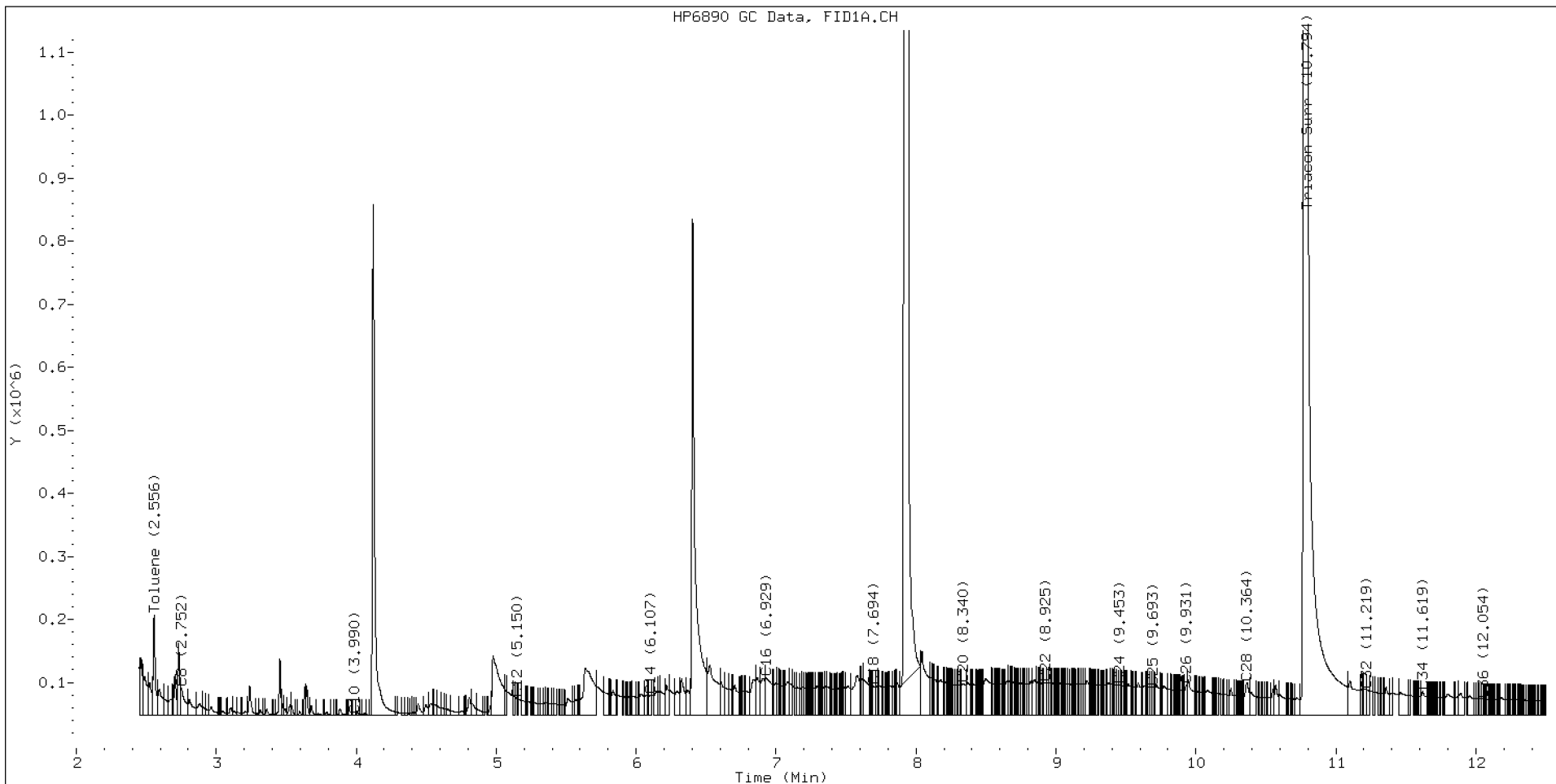
Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	20266548	99.5 M
Triacontane	18197862	133.6

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023

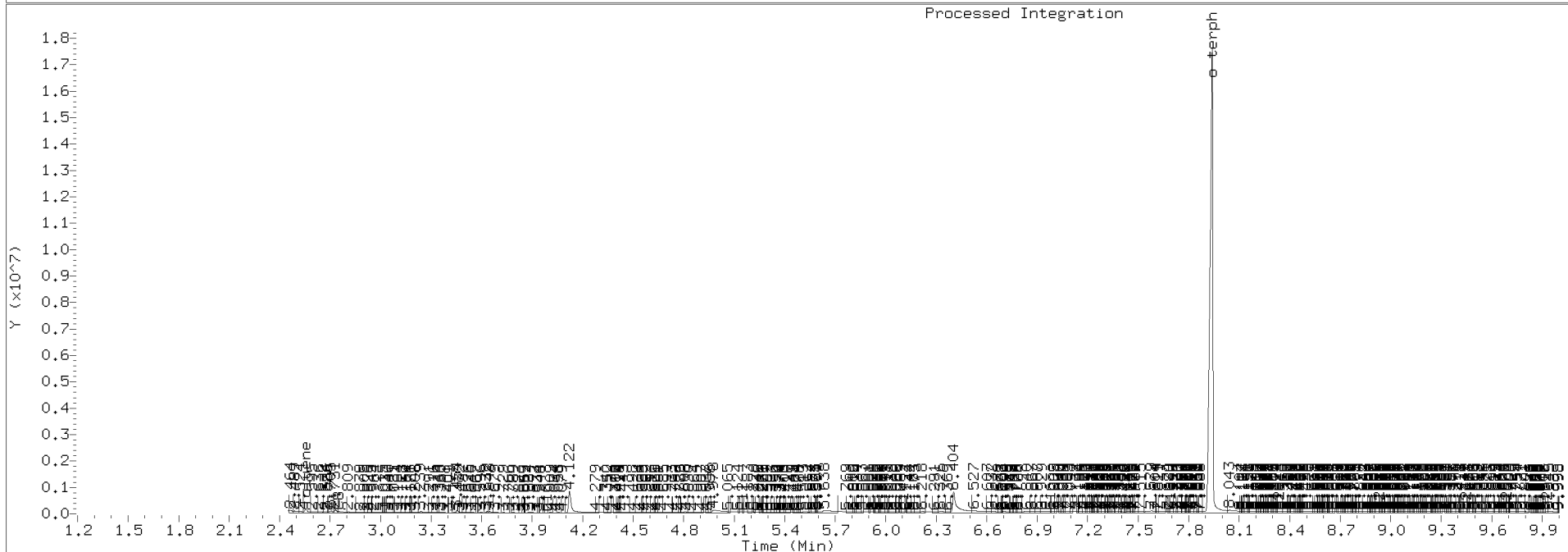
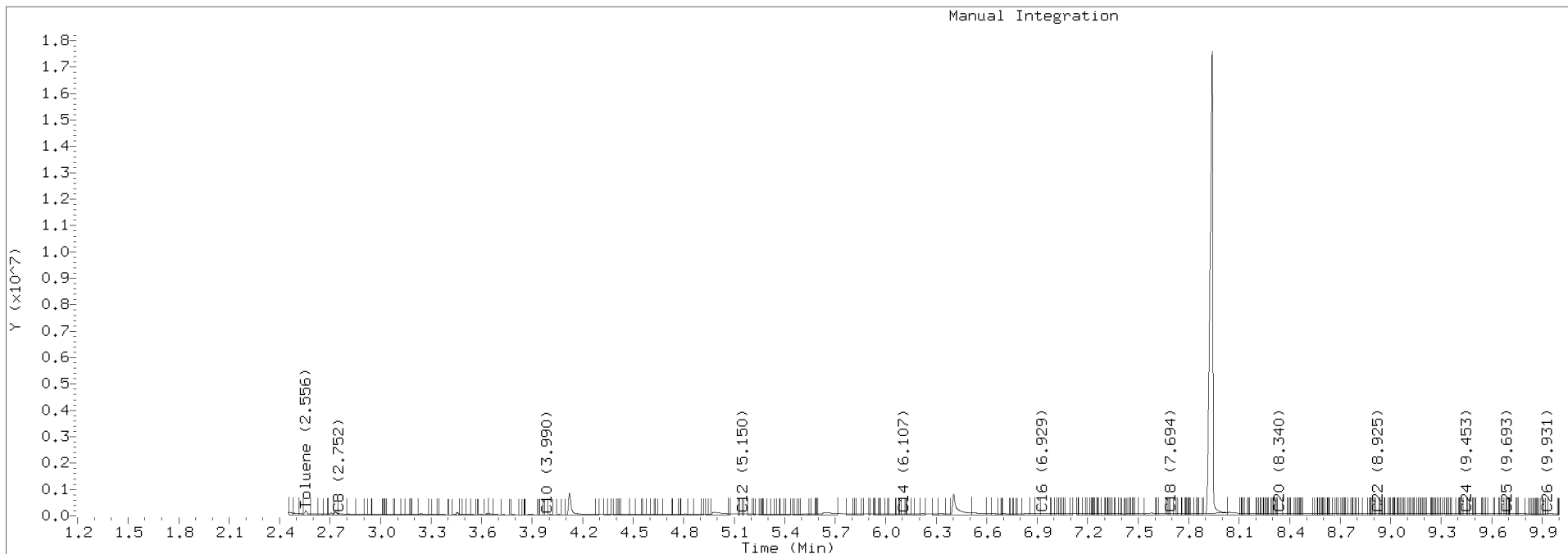




TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1634.D Injection: 16-OCT-2023 20:46

Lab ID:23I0388-01





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**MW-05S-20230914**  
**2310388-01 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT20

Sampled: 09/14/2023 09:23  
Analyzed: 19-Sep-2023 16:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0521 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	96.1	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	92.2	%	

Data File: \\target\share\chemd\nt20.1\0230919s.b\NT20\_09192327G.D

Date: 19-SEP-2023 16:10

Client ID:

Sample Info: 2310388-01

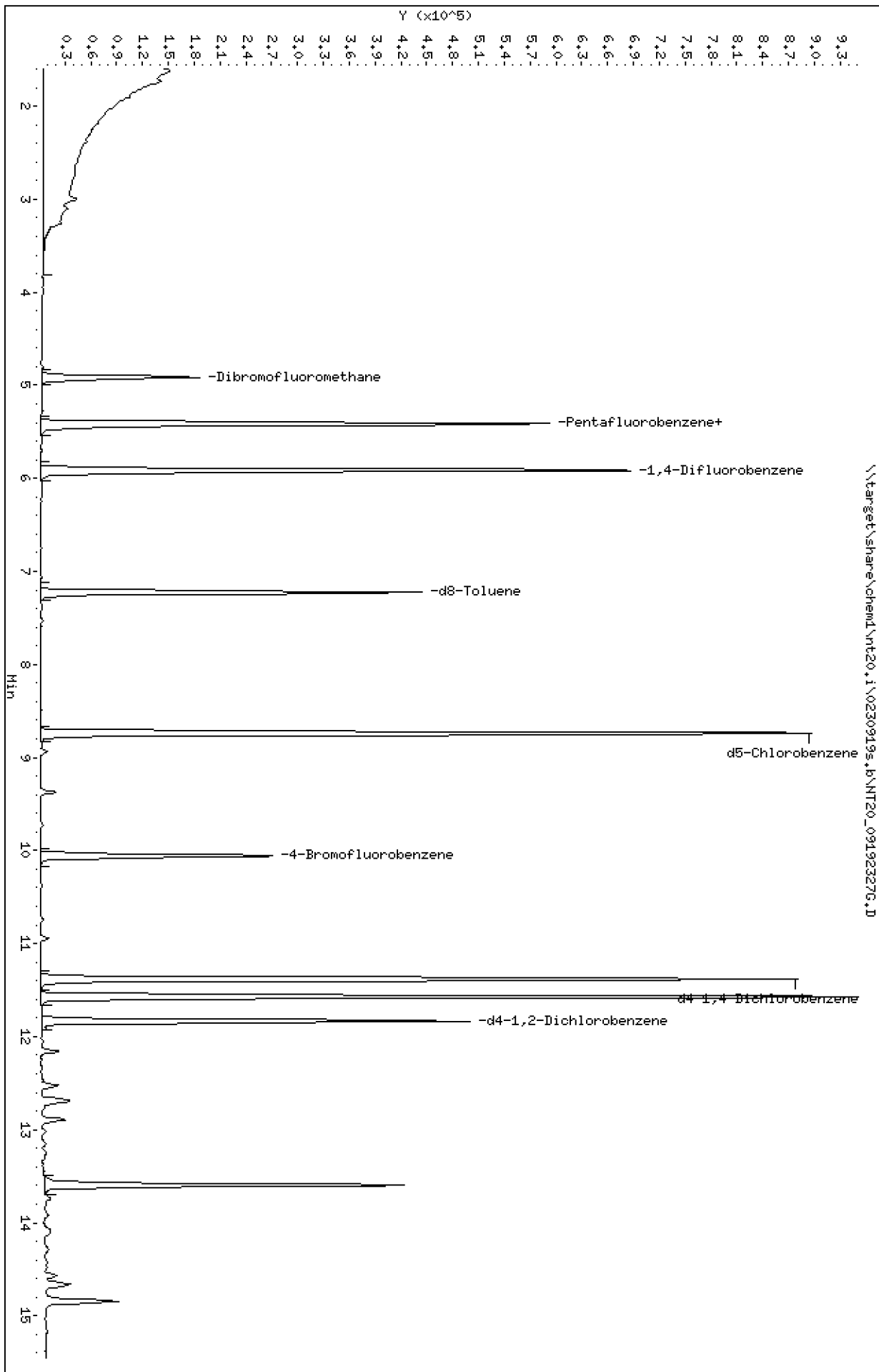
Column phase: RTXWMS

Instrument: nt20.1

Operator: LH

Column diameter: 0.18

\\target\share\chemd\nt20.1\0230919s.b\NT20\_09192327G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt20.i\0230919s.b\NT20\_09192327G.D  
 Lab Smp Id: 23I0388-01  
 Inj Date : 19-SEP-2023 16:10  
 Operator : LH  
 Smp Info : 23I0388-01  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Meth Date : 20-Sep-2023 07:12 nt20.i  
 Cal Date : 13-SEP-2023 10:38  
 Als bottle: 1  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: LANIH-202105A

Inst ID: nt20.i

Quant Type: ISTD  
 Cal File: NT20\_09132313.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.914	4.915	(0.908)	150148	5.63976	5.640(R)
* 32 Pentafluorobenzene	168		5.411	5.412	(1.000)	453732	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.422	5.422	(1.002)	72793	5.83243	5.832(R)
* 37 1,4-Difluorobenzene	114		5.919	5.908	(1.000)	777339	10.0000	
\$ 43 d8-Toluene	98		7.226	7.226	(1.221)	406383	4.80411	4.804(R)
* 53 d5-Chlorobenzene	117		8.742	8.742	(1.000)	770236	10.0000	
\$ 62 4-Bromofluorobenzene	174		10.055	10.065	(1.150)	137220	4.61238	4.612(R)
* 76 d4-1,4-Dichlorobenzene	152		11.384	11.384	(1.000)	400077	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		11.834	11.834	(1.040)	206323	5.89540	5.895(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt20.i Calibration Date: 19-SEP-2023  
 Lab File ID: NT20\_09192327G.D Calibration Time: 07:20  
 Lab Smp Id: 23I0388-01  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: LH  
 Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	576461	288231	1152922	453732	-21.29
37 1,4-Difluorobenze	921160	460580	1842320	777339	-15.61
53 d5-Chlorobenzene	953441	476721	1906882	770236	-19.22
76 d4-1,4-Dichlorobe	566088	283044	1132176	400077	-29.33

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.91	5.41	6.41	5.92	0.17
53 d5-Chlorobenzene	8.74	8.24	9.24	8.74	-0.00
76 d4-1,4-Dichlorobe	11.38	10.88	11.88	11.38	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
Sample Matrix: NONE Fraction: VOA  
Lab Smp Id: 23I0388-01  
Level: Operator: LH  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.640	112.80	
\$ 33 d4-1,2-Dichloroeth	5.000	5.832	116.65	
\$ 43 d8-Toluene	5.000	4.804	96.08	
\$ 62 4-Bromofluorobenze	5.000	4.612	92.25	
\$ 79 d4-1,2-Dichloroben	5.000	5.895	117.91	

REVIEW SUMMARY FOR FILE - NT20\_09192327G.D

Lab ID: 23I0388-01

nt20.i, 0230919s.b\8260D09132023.m, 19-SEP-2023 16:10

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chemd\nt20.1\0230919g.b\NT20\_09192327G.D

Date: 19-SEP-2023 16:10

Client ID:

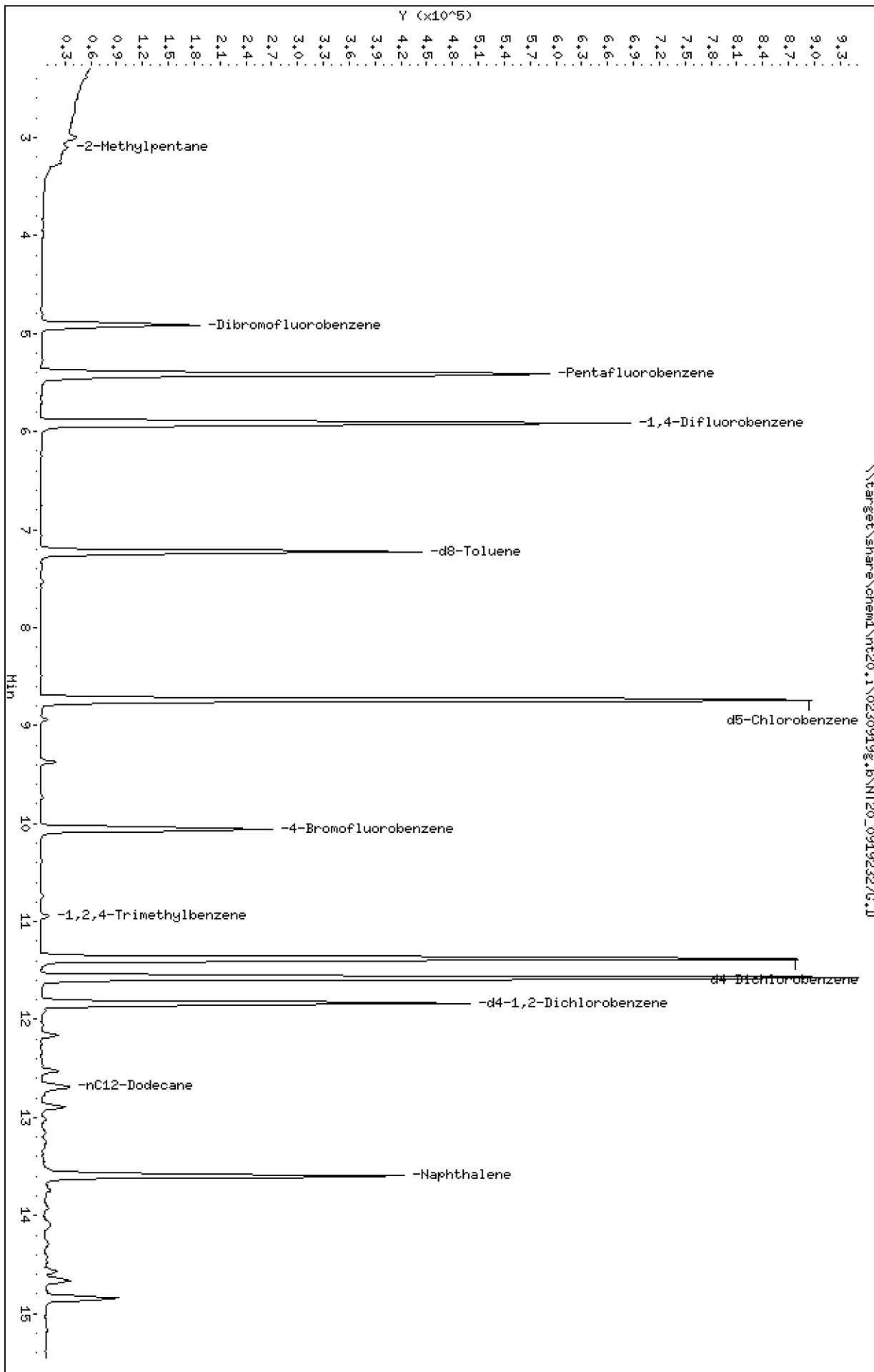
Sample Info: 2310388-01

Instrument: nt20.1

Page 1

Column phase: RTXWMS

Operator: LH  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 0230919g.b/NT20\_09192327G.D                      ARI ID: 23I0388-01  
Method: \0230919g.b\NWTPHG081623.m                      Client ID:  
Instrument: nt20.i    Matrix: NONE  
Gas Ical Date: 15-AUG-2023                                  Dilution Factor: 1.000  
Injection Date: 19-SEP-2023 16:10                         Operator: LH

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 7.18 to 12.78)	65668578	2657911	0.040
8015C 2MP-TMB ( 3.01 to 11.04)	105938831	103886	0.001
AK101 nC6-nC10 ( 3.17 to 10.12)	86214346	61384	0.001
NWTPHG Tol-Nap ( 7.18 to 13.69)	68996369	3879406	0.056
mod8015 nC7-nC12 ( 3.70 to 12.78)	108437924	2657912	0.025

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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8.743	2195536	d5-Chlorobenzene
7.227	1091689	d8-Toluene
11.385	2307783	d4-Dichlorobenzene
10.055	757057	4-Bromofluorobenzene
11.834	1248984	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**PZ-30-20230914**  
**2310388-02 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/14/2023 09:24  
Instrument: ECD8 Analyzed: 11-Oct-2023 19:12

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	80.2	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	93.6	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**PZ-30-20230914**  
**2310388-02 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/14/2023 09:24  
Analyzed: 22-Sep-2023 15:50

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	7.3	ug/L	
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	14.1	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	1.3	ug/L	
Dibenzofuran	132-64-9	1	0.2	1.0	0.7	ug/L	J
Fluorene	86-73-7	1	0.2	1.0	1.2	ug/L	
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	0.7	ug/L	J
Anthracene	120-12-7	1	0.3	1.0	0.4	ug/L	J
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	0.4	ug/L	J
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	4.2	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	80.6 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	108 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	99.4 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**PZ-30-20230914**  
**2310388-02 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/14/2023 09:24  
Analyzed: 02-Oct-2023 17:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>81.3</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>102</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>96.1</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-30-20230914**  
**2310388-02 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 09:24  
Analyzed: 16-Oct-2023 21:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	<b>168</b>	ug/L	
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	<b>599</b>	ug/L	
HC ID: CREOSOTE						
Surrogate: <i>o</i> -Terphenyl			50-150 %	89.3	%	

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231635.D

Date: 16-OCT-2023 21:07

Client ID:

Sample Info: 2310388-02

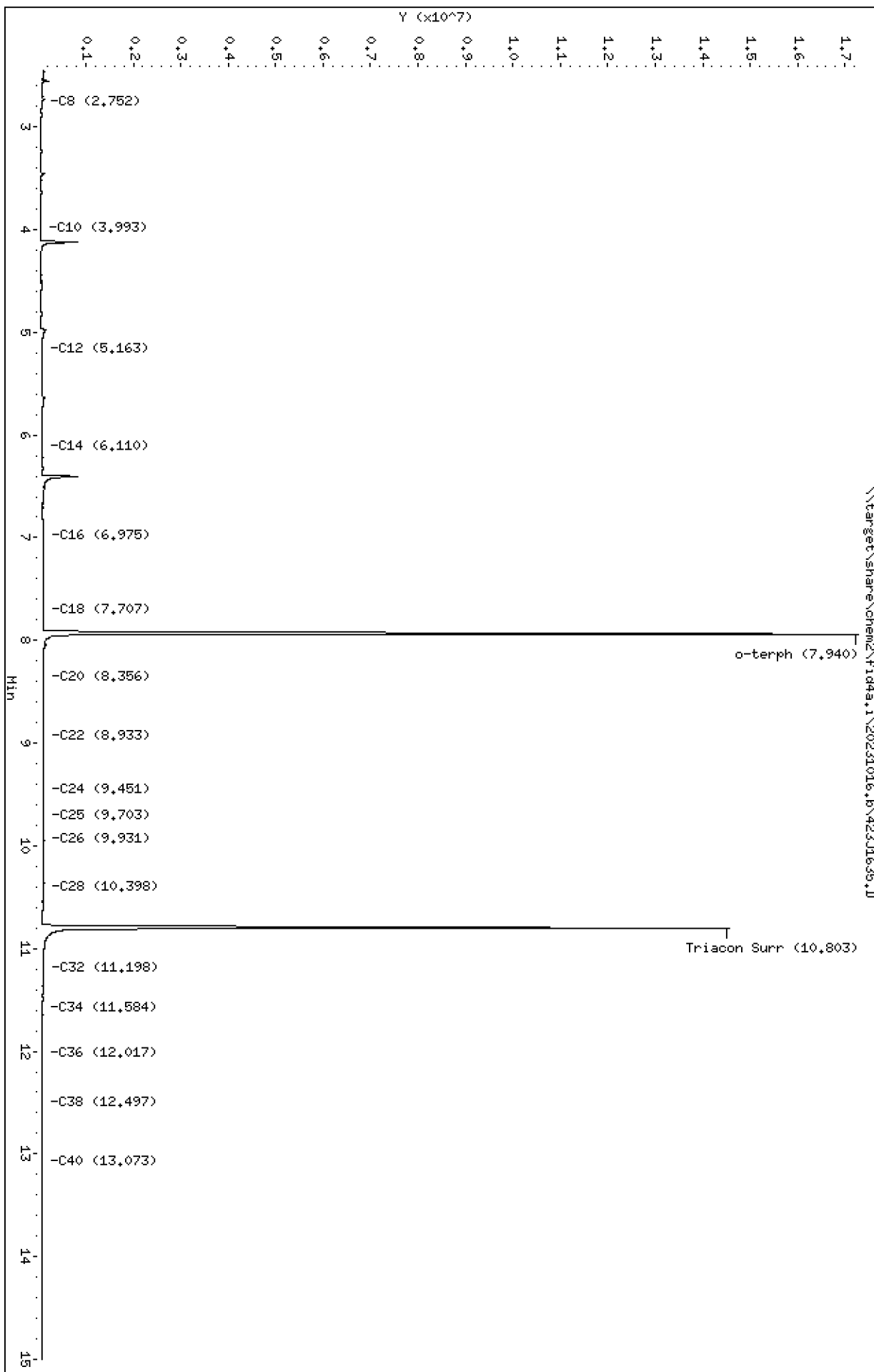
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1635.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-02  
Client ID:  
Injection: 16-OCT-2023 21:07  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.752	-0.006	38159	79496	WATPHD	(C12-C24)	13310890	83.9
C10	3.993	0.002	1134	220	WATPHM	(C24-C38)	7382483	62.0
C12	5.163	0.014	24948	8697	AK102	(C10-C25)	15628908	82.7
C14	6.110	-0.002	33189	61433	AK103	(C25-C36)	6085996	60.8
C16	6.975	0.020	52175	26006				
C18	7.707	0.008	52238	20763				
C20	8.356	0.007	56862	22654				
C22	8.933	0.005	61439	21409				
C24	9.451	0.001	59345	35479				
C25	9.703	0.010	56704	19798				
C26	9.931	0.004	58757	56625				
C32	11.198	-0.020	59443	324658				
C34	11.584	-0.036	39329	19611				
Filter Peak	----				CREOSOT	(C12-C22)	11465210	299.6 M
C36	12.017	-0.036	32896	22944				
C38	12.497	-0.048	28242	12692				
C40	13.073	-0.062	23186	17333				
o-terph	7.940	-0.002	17172056	20468373				
Triacon Surr	10.803	-0.022	14523219	18277915				

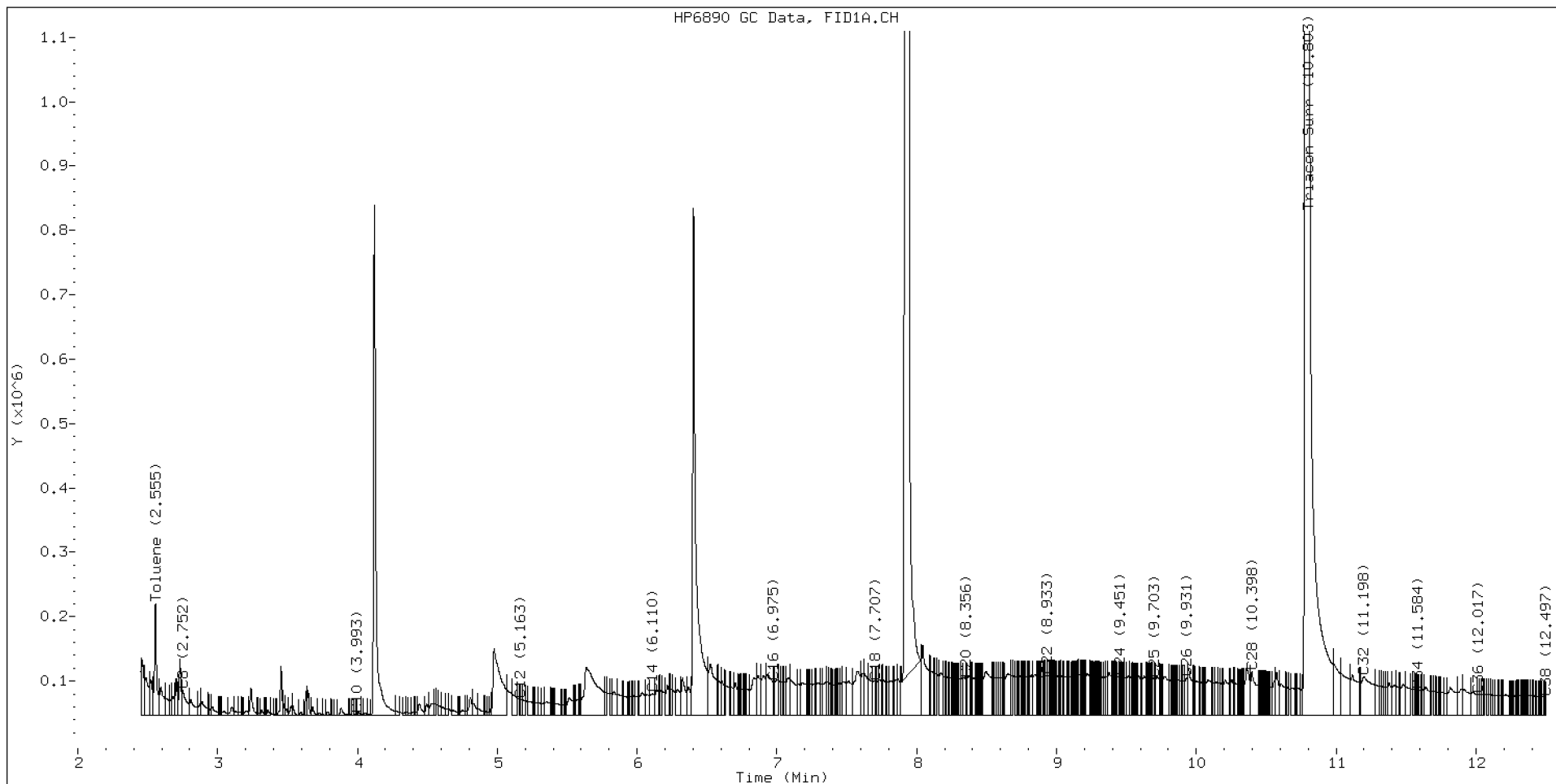
Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	20468373	100.5 M
Triacotane	18277915	134.1

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023

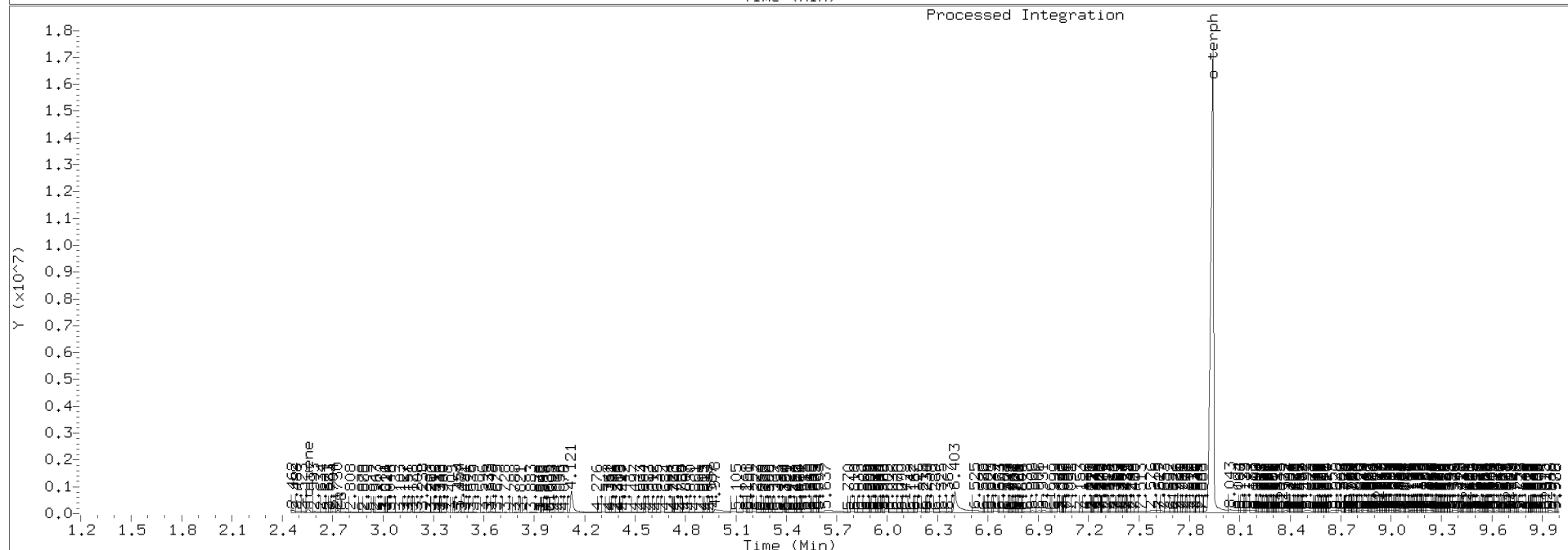
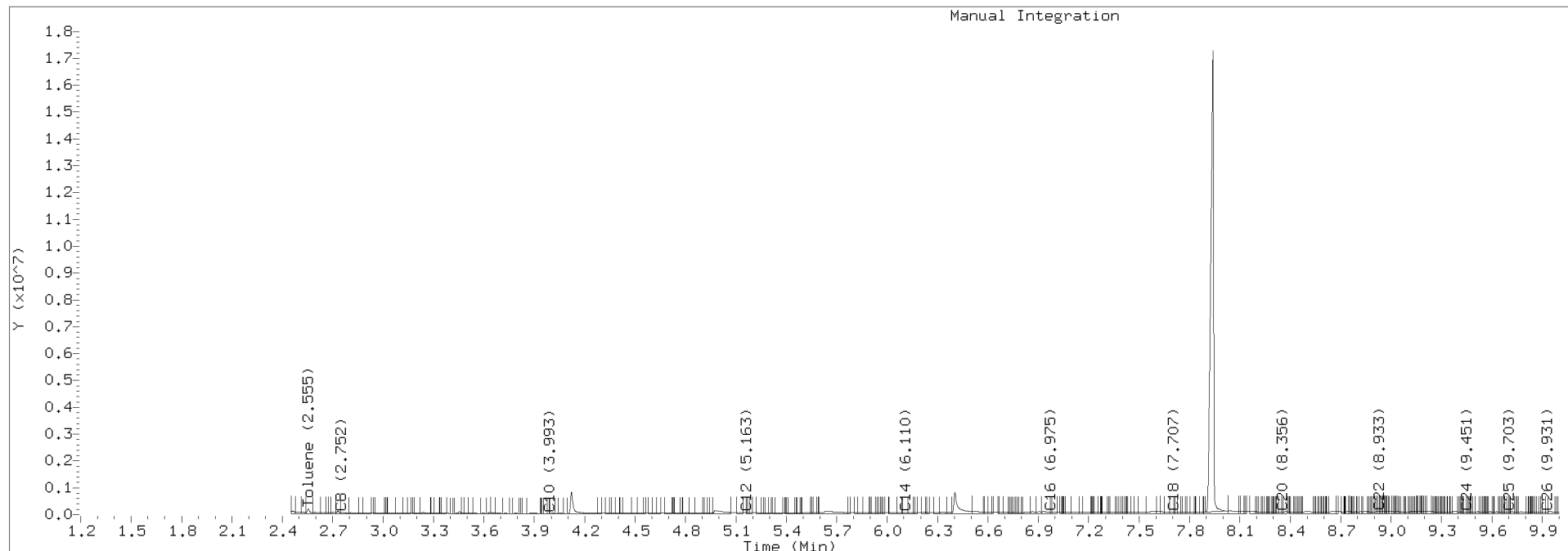




TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1635.D Injection: 16-OCT-2023 21:07

Lab ID:23I0388-02





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-30-20230914**  
**2310388-02 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT20

Sampled: 09/14/2023 09:24  
Analyzed: 20-Sep-2023 09:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0571 Sample Size: 10 mL  
Prepared: 20-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	95.6	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	93.3	%	

Data File: \\target\share\chemd\nt20.1\20230920s.b\NT20\_09202310G.D

Date: 20-SEP-2023 09:45

Client ID:

Sample Info: 2310388-02

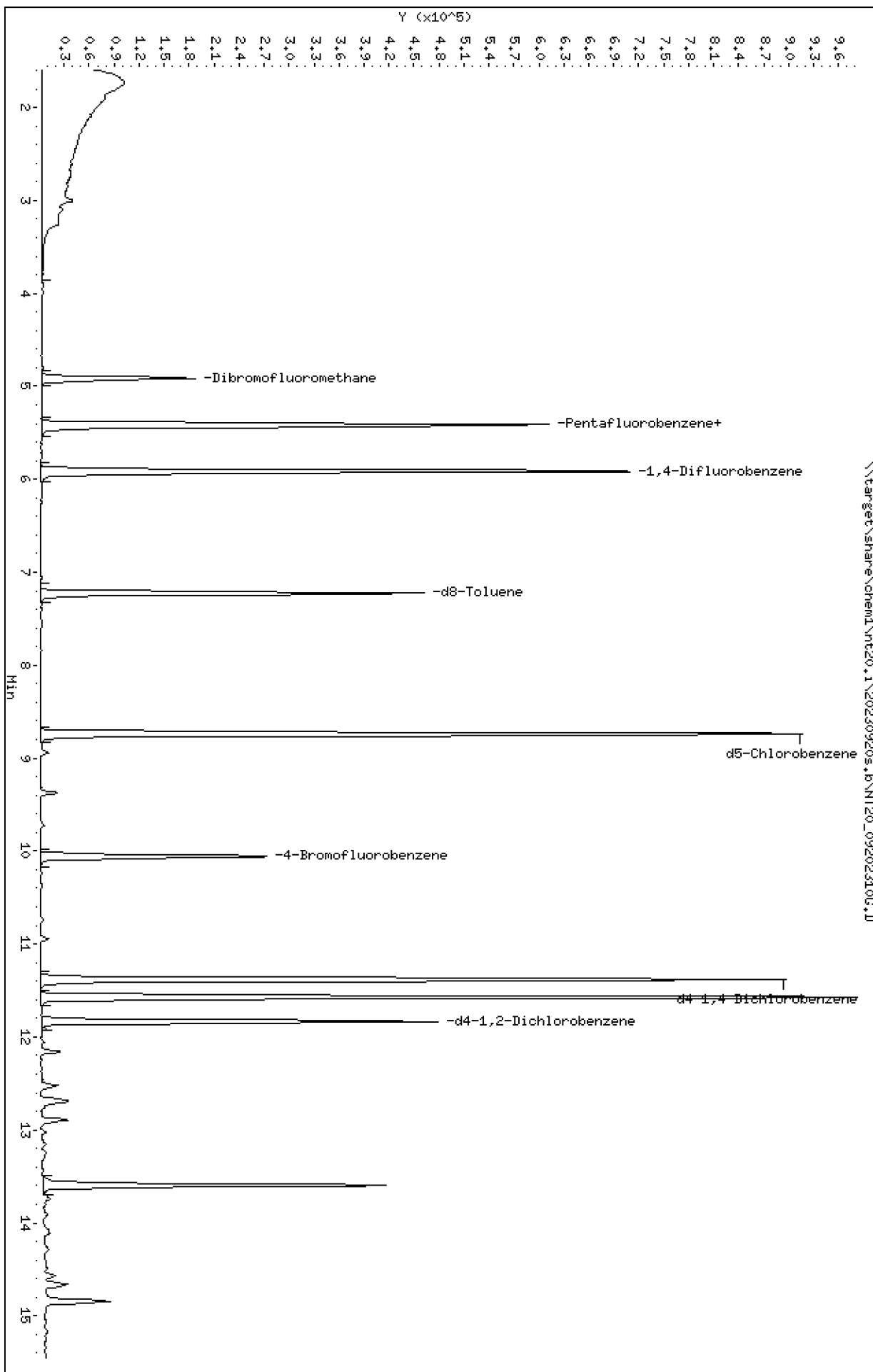
Instrument: nt20.1

Column phase: RTXWMS

Operator: LH

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt20.i\20230920s.b\NT20\_09202310G.D  
 Lab Smp Id: 23I0388-02  
 Inj Date : 20-SEP-2023 09:45  
 Operator : LH  
 Smp Info : 23I0388-02  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
 Meth Date : 20-Sep-2023 14:57 nt20.i  
 Cal Date : 13-SEP-2023 10:38  
 Als bottle: 1  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Inst ID: nt20.i

Quant Type: ISTD

Cal File: NT20\_09132313.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.915	4.914	(0.908)	152682	5.45429	5.454
* 32 Pentafluorobenzene	168		5.412	5.411	(1.000)	477079	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.422	5.422	(1.002)	69182	5.27184	5.272
* 37 1,4-Difluorobenzene	114		5.919	5.918	(1.000)	813460	10.0000	
\$ 43 d8-Toluene	98		7.227	7.226	(1.221)	423164	4.78036	4.780
* 53 d5-Chlorobenzene	117		8.743	8.742	(1.000)	782133	10.0000	
\$ 62 4-Bromofluorobenzene	174		10.065	10.055	(1.151)	140890	4.66371	4.664
* 76 d4-1,4-Dichlorobenzene	152		11.384	11.384	(1.000)	401067	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		11.834	11.834	(1.040)	194257	5.53693	5.537

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt20.i  
 Lab File ID: NT20 09202310G.D  
 Lab Smp Id: 23I0388-02  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: LH  
 Method File: \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
 Misc Info: 16-

Calibration Date: 20-SEP-2023  
 Calibration Time: 07:29  
 Level: LOW  
 Sample Type: WATER

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	567094	283547	1134188	477079	-15.87
37 1,4-Difluorobenze	915019	457510	1830038	813460	-11.10
53 d5-Chlorobenzene	918117	459059	1836234	782133	-14.81
76 d4-1,4-Dichlorobe	518843	259422	1037686	401067	-22.70

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	0.01
37 1,4-Difluorobenze	5.92	5.42	6.42	5.92	0.01
53 d5-Chlorobenzene	8.74	8.24	9.24	8.74	0.01
76 d4-1,4-Dichlorobe	11.38	10.88	11.88	11.38	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23I0388-02  
Level: LOW Operator: LH  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.454	109.09	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.272	105.44	80-128
\$ 43 d8-Toluene	5.000	4.780	95.61	80-120
\$ 62 4-Bromofluorobenze	5.000	4.664	93.27	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.537	110.74	80-120

REVIEW SUMMARY FOR FILE - NT20\_09202310G.D

Lab ID: 23I0388-02

nt20.i, 20230920s.b\8260D09132023.m, 20-SEP-2023 09:45

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chemd\nt20,1\0230920g.jb\NT20\_09202310G.D

Date: 20-SEP-2023 09:45

Client ID:

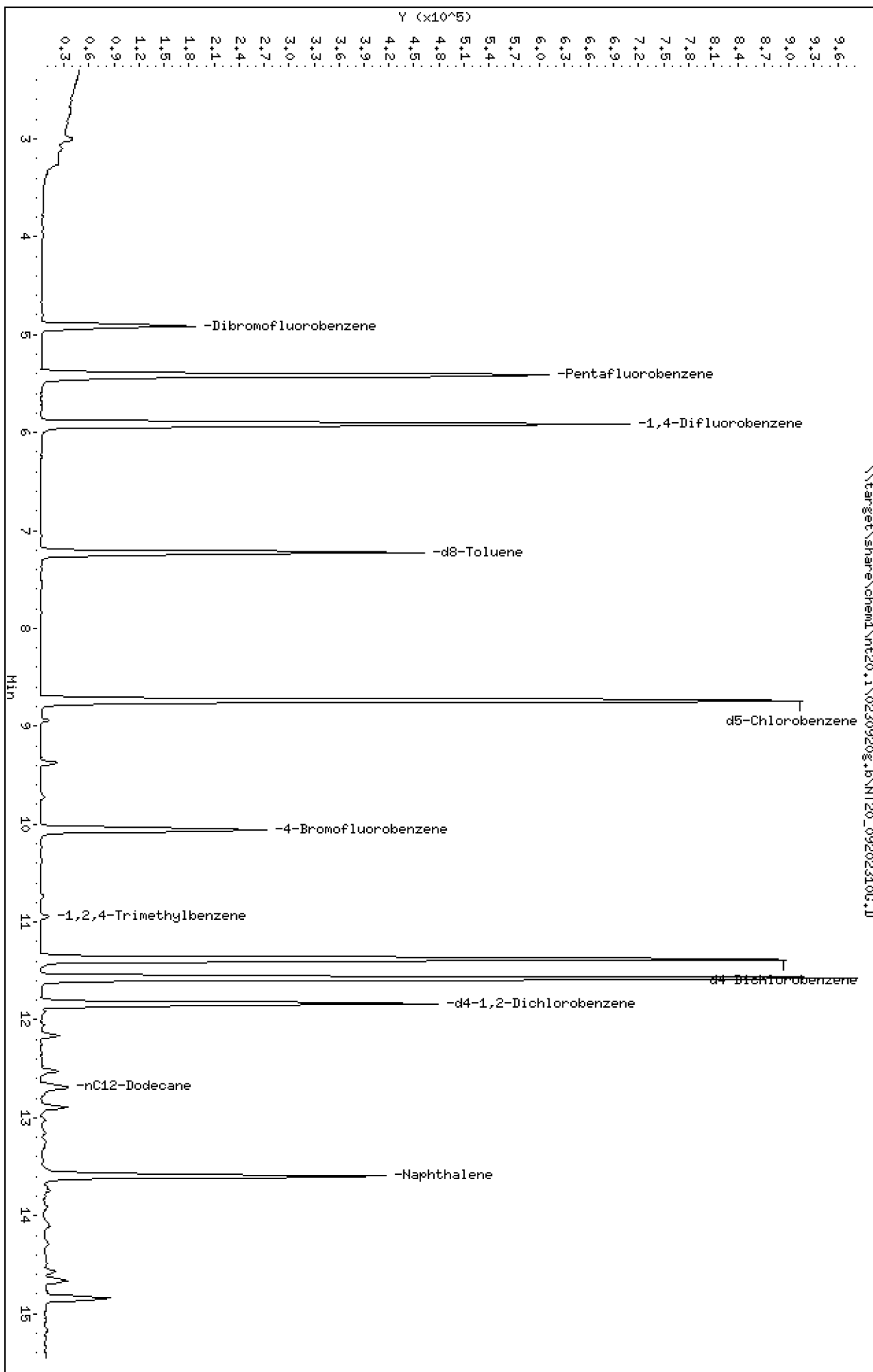
Sample Info: 2310388-02

Instrument: nt20,1

Page 1

Column phase: RTXWMS

Operator: LH  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 0230920g.b/NT20\_09202310G.D                      ARI ID: 23I0388-02  
 Method: \0230920g.b\NWTPHG081623.m                      Client ID:  
 Instrument: nt20.i    Matrix: WATER  
 Gas Ical Date: 15-AUG-2023                                  Dilution Factor: 1.000  
 Injection Date: 20-SEP-2023 09:45                         Operator: LH

-----  
 GASOLINE HYDROCARBONS  
 -----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 7.18 to 12.78)	65668578	2750568	0.042
8015C 2MP-TMB ( 3.01 to 11.04)	105938831	108659	0.001
AK101 nC6-nC10 ( 3.17 to 10.12)	86214346	76959	0.001
NWTPHG Tol-Nap ( 7.18 to 13.69)	68996369	3945426	0.057
mod8015 nC7-nC12 ( 3.70 to 12.78)	108437924	2756748	0.025

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks  
 -----

8.743	2233334	d5-Chlorobenzene
7.227	1123703	d8-Toluene
11.385	2318198	d4-Dichlorobenzene
10.055	774881	4-Bromofluorobenzene
11.834	1187573	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**CW-13-20230914**  
**2310388-03 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/14/2023 09:50  
Instrument: ECD8 Analyzed: 11-Oct-2023 19:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	80.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	96.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**CW-13-20230914**

**2310388-03 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E

Sampled: 09/14/2023 09:50

Instrument: NT6

Analyzed: 22-Sep-2023 16:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	13.2	ug/L	
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	7.3	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	2.2	ug/L	
Fluorene	86-73-7	1	0.2	1.0	1.6	ug/L	
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	0.4	ug/L	J
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	1.3	ug/L	
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	3.1	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	79.0 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	108 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	103 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**CW-13-20230914**  
**2310388-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/14/2023 09:50  
Analyzed: 02-Oct-2023 17:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>76.8</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>119</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>92.0</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**CW-13-20230914**  
**2310388-03 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 09:50  
Analyzed: 16-Oct-2023 21:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	<b>108</b>	ug/L	
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	<b>411</b>	ug/L	
HC ID: CREOSOTE						
Surrogate: <i>o</i> -Terphenyl			50-150 %	87.6	%	

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231636.D

Date: 16-OCT-2023 21:27

Client ID:

Sample Info: 2310388-03

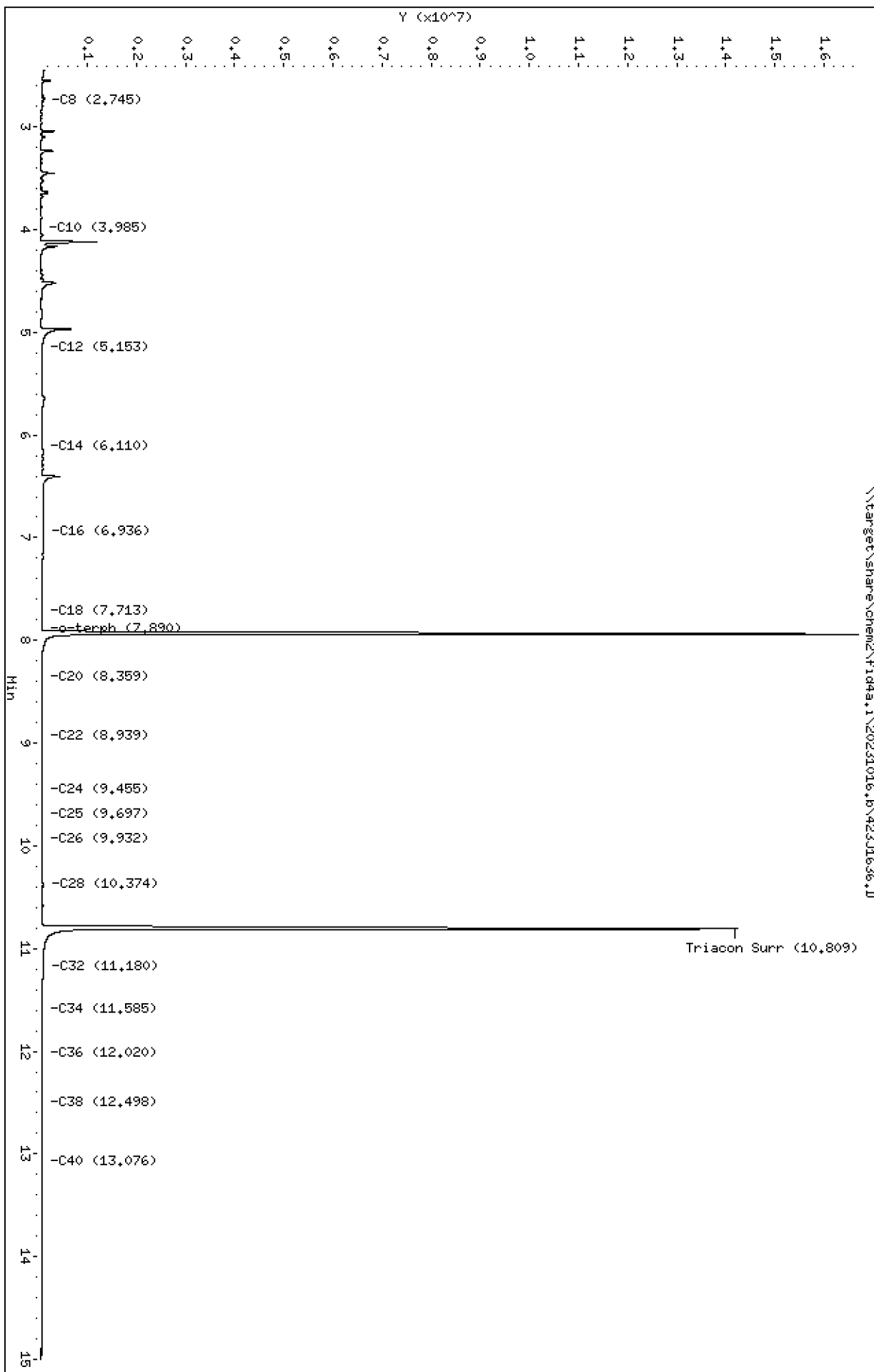
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1636.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-03  
Client ID:  
Injection: 16-OCT-2023 21:27  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.745	-0.012	61160	103252	WATPHD	(C12-C24)	8586985	54.1
C10	3.985	-0.005	3583	3695	WATPHM	(C24-C38)	5307953	44.6
C12	5.153	0.004	32776	28584	AK102	(C10-C25)	13097907	69.3
C14	6.110	-0.003	37782	75635	AK103	(C25-C36)	4362981	43.6
C16	6.936	-0.019	60594	255137				
C18	7.713	0.014	26079	10385				
C20	8.359	0.010	23414	4675				
C22	8.939	0.011	22203	15491				
C24	9.455	0.005	26330	9151				
C25	9.697	0.004	30220	17983				
C26	9.932	0.005	34353	61251				
C32	11.180	-0.037	45338	47232				
C34	11.585	-0.034	34840	12169				
Filter Peak	----				CREOSOT	(C12-C22)	7859377	205.4 M
C36	12.020	-0.033	28879	22987				
C38	12.498	-0.047	24284	18134				
C40	13.076	-0.059	19683	8827				
o-terph	7.940	-0.003	16611322	20063348				
Triacon Surr	10.809	-0.017	14199455	18516350				

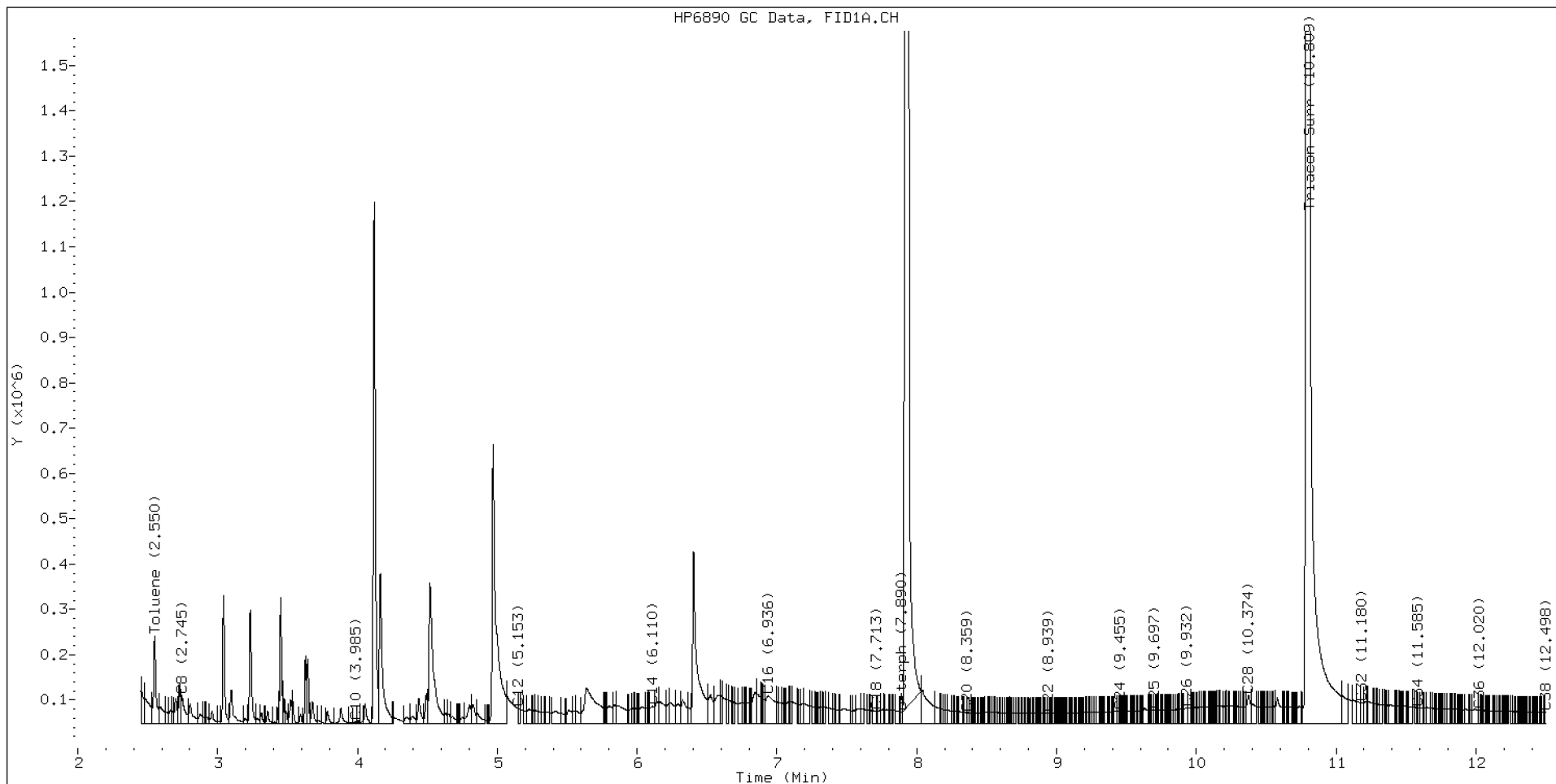
Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	20063348	98.5 M
Triacontane	18516350	135.9 M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023

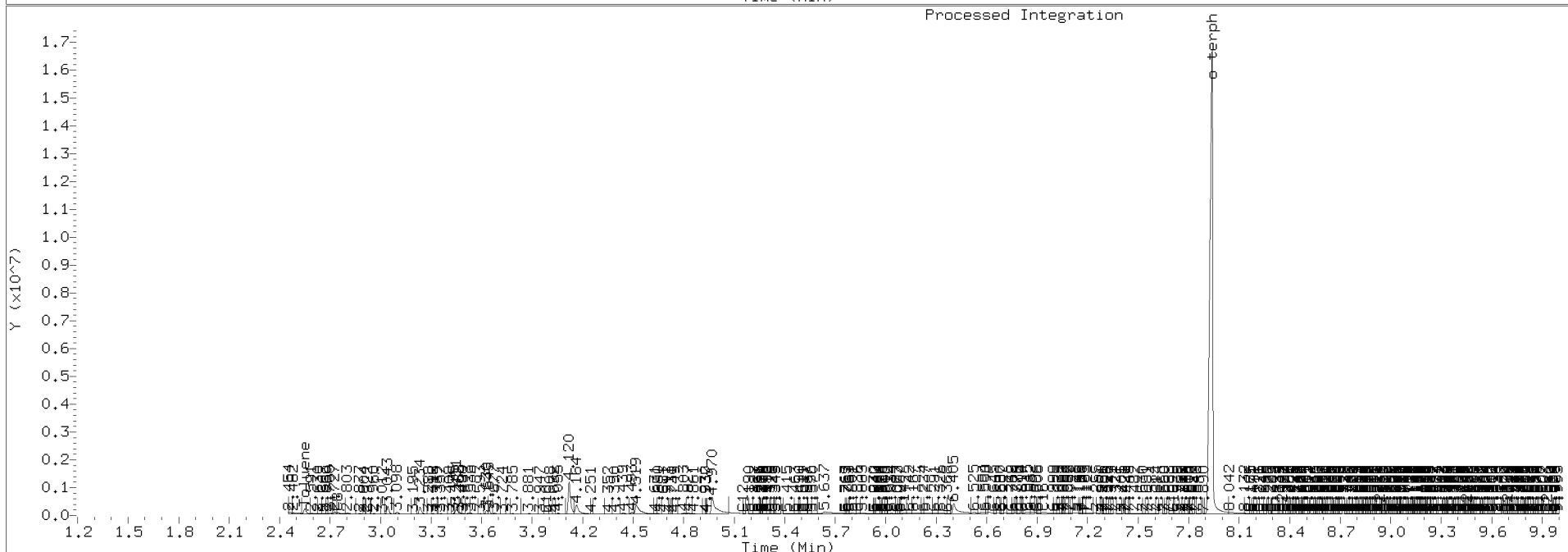
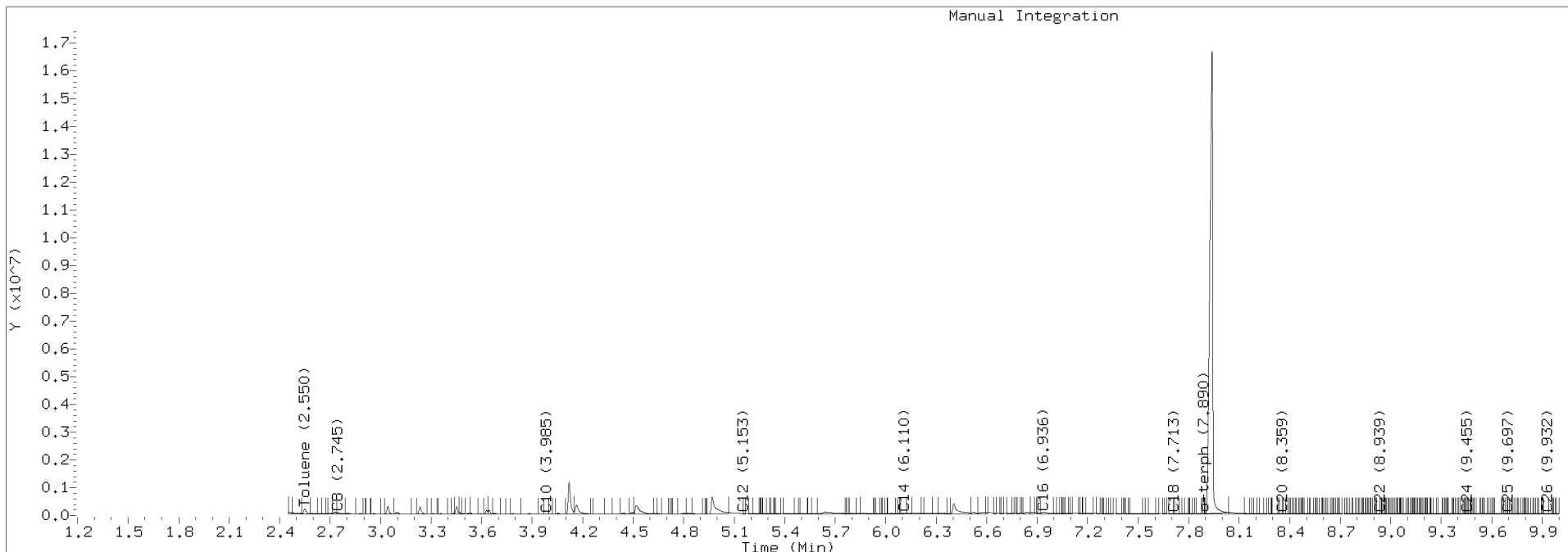




TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1636.D Injection: 16-OCT-2023 21:27

Lab ID:23I0388-03





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**CW-13-20230914**  
**2310388-03 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT20

Sampled: 09/14/2023 09:50  
Analyzed: 19-Sep-2023 16:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0521 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

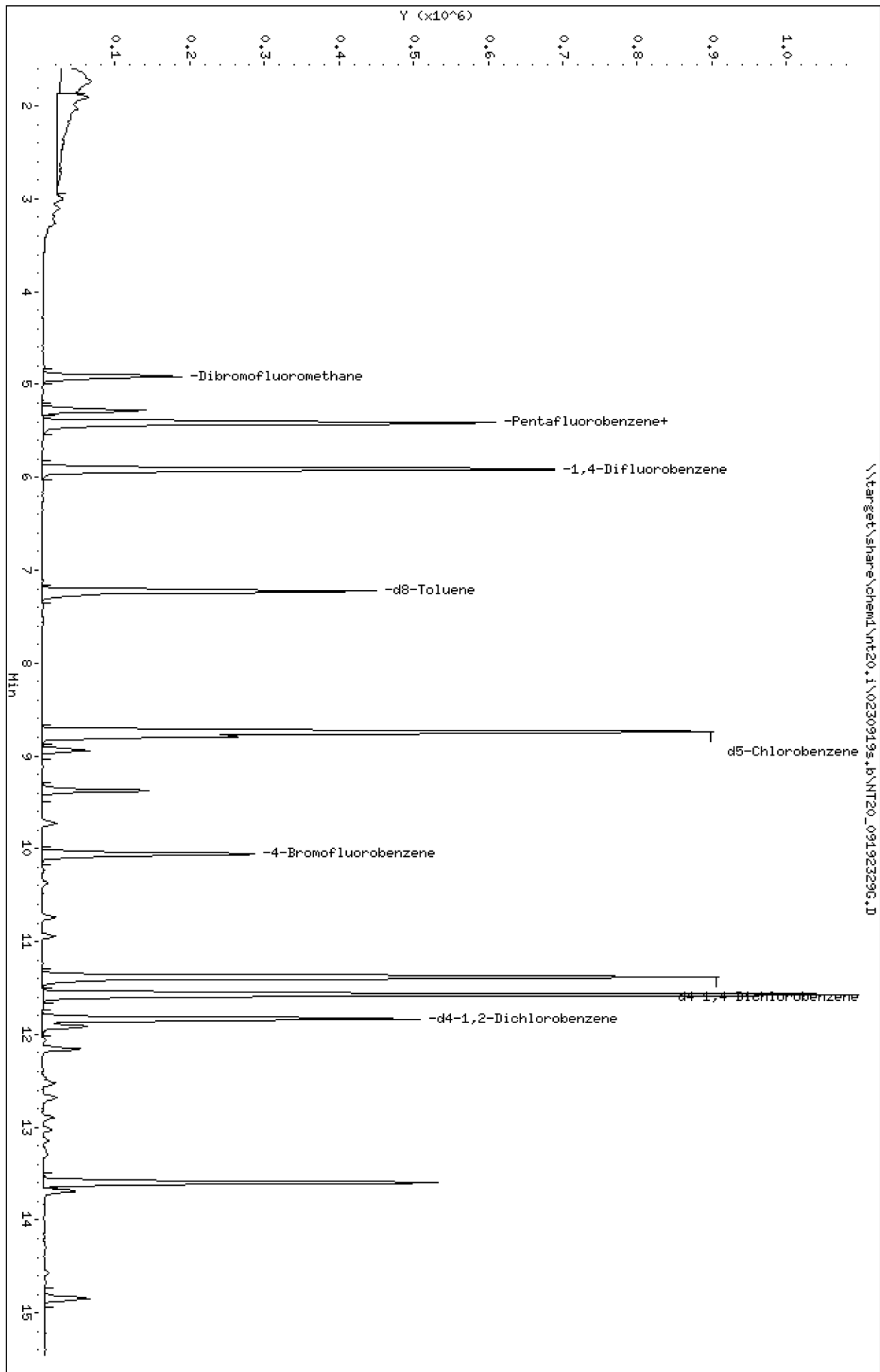
Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	96.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.7	%	

Data File: \\target\share\chemd\nt20.1\0230919s.b\NT20\_09192329G.D  
Date: 19-SEP-2023 16:58  
Client ID:  
Sample Info: 2310388-03

Column phase: RTXWMS

Instrument: nt20.1  
Operator: LH  
Column diameter: 0.18

\\target\share\chemd\nt20.1\0230919s.b\NT20\_09192329G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt20.i\0230919s.b\NT20\_09192329G.D  
 Lab Smp Id: 23I0388-03  
 Inj Date : 19-SEP-2023 16:58  
 Operator : LH  
 Smp Info : 23I0388-03  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Meth Date : 20-Sep-2023 07:12 nt20.i  
 Cal Date : 13-SEP-2023 10:38  
 Als bottle: 1  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: LANIH-202105A

Inst ID: nt20.i

Quant Type: ISTD  
 Cal File: NT20\_09132313.D

Compound Sublist: gsurr.sub

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.915	4.915	(0.908)	154249	5.63309	5.633(R)
* 32 Pentafluorobenzene	168		5.412	5.412	(1.000)	466677	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.422	5.422	(1.002)	73687	5.74029	5.740(R)
* 37 1,4-Difluorobenzene	114		5.919	5.908	(1.000)	787861	10.0000	
\$ 43 d8-Toluene	98		7.227	7.226	(1.221)	412760	4.81433	4.814(R)
* 53 d5-Chlorobenzene	117		8.743	8.742	(1.000)	767558	10.0000	
\$ 62 4-Bromofluorobenzene	174		10.065	10.065	(1.151)	144805	4.88432	4.884(R)
* 76 d4-1,4-Dichlorobenzene	152		11.385	11.384	(1.000)	409010	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		11.835	11.834	(1.040)	207887	5.81036	5.810(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt20.i Calibration Date: 19-SEP-2023  
 Lab File ID: NT20\_09192329G.D Calibration Time: 07:20  
 Lab Smp Id: 23I0388-03  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: LH  
 Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	576461	288231	1152922	466677	-19.04
37 1,4-Difluorobenze	921160	460580	1842320	787861	-14.47
53 d5-Chlorobenzene	953441	476721	1906882	767558	-19.50
76 d4-1,4-Dichlorobe	566088	283044	1132176	409010	-27.75

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.91	5.41	6.41	5.92	0.18
53 d5-Chlorobenzene	8.74	8.24	9.24	8.74	0.01
76 d4-1,4-Dichlorobe	11.38	10.88	11.88	11.39	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
 Sample Matrix: NONE Fraction: VOA  
 Lab Smp Id: 23I0388-03  
 Level: Operator: LH  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.633	112.66	
\$ 33 d4-1,2-Dichloroeth	5.000	5.740	114.81	
\$ 43 d8-Toluene	5.000	4.814	96.29	
\$ 62 4-Bromofluorobenze	5.000	4.884	97.69	
\$ 79 d4-1,2-Dichloroben	5.000	5.810	116.21	

REVIEW SUMMARY FOR FILE - NT20\_09192329G.D

Lab ID: 23I0388-03

nt20.i, 0230919s.b\8260D09132023.m, 19-SEP-2023 16:58

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chemd\nt20.1\0230919g.b\NT20\_09192329G.D

Date: 19-SEP-2023 16:58

Client ID:

Sample Info: 2310388-03

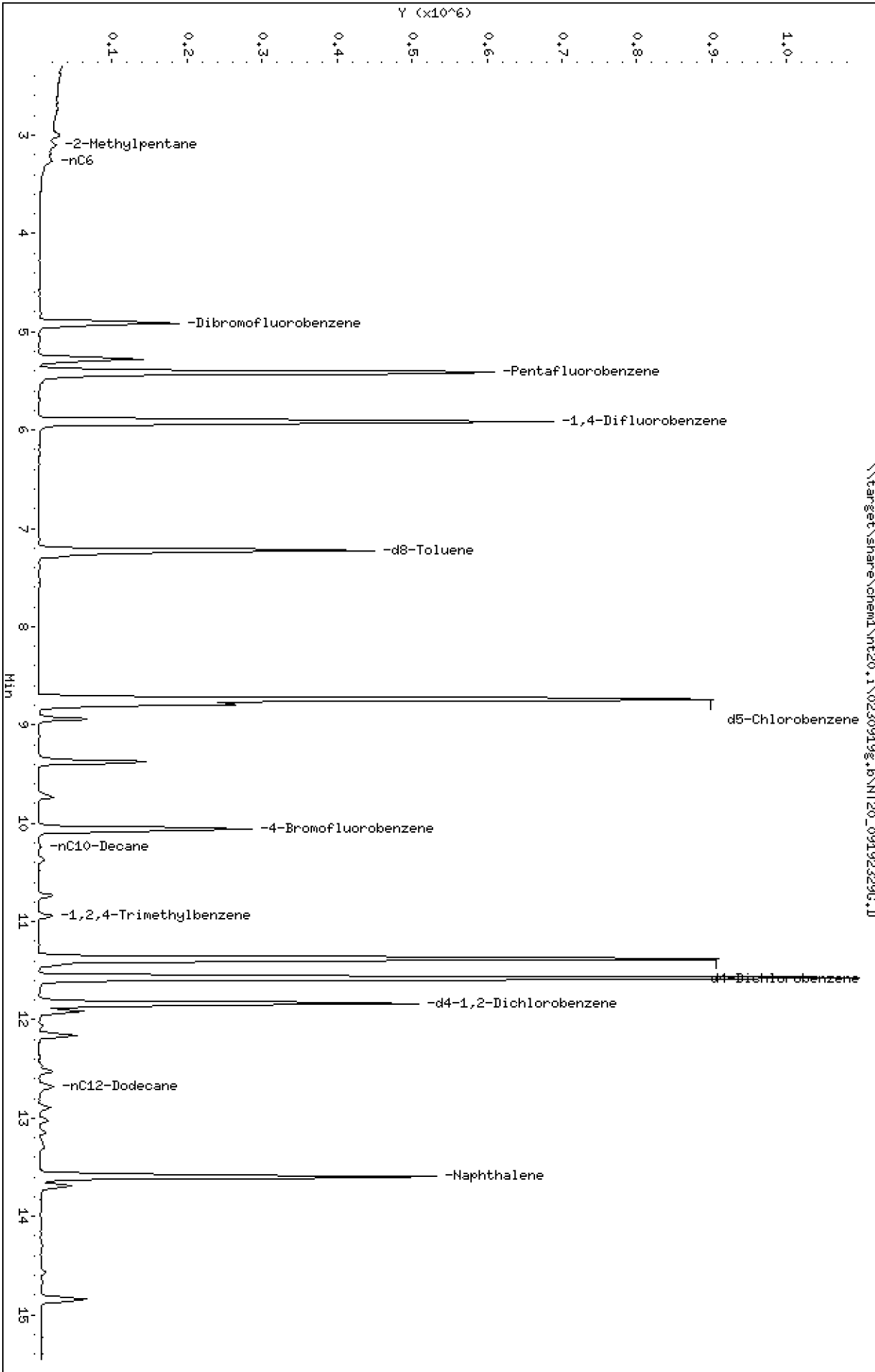
Column phase: RTXWMS

Instrument: nt20.1

Operator: LH

Column diameter: 0.18

\\target\share\chemd\nt20.1\0230919g.b\NT20\_09192329G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 0230919g.b/NT20\_09192329G.D                      ARI ID: 23I0388-03  
Method: \0230919g.b\NWTPHG081623.m                      Client ID:  
Instrument: nt20.i    Matrix: WATER  
Gas Ical Date: 15-AUG-2023                                  Dilution Factor: 1.000  
Injection Date: 19-SEP-2023 16:58                         Operator: LH

-----  
GASOLINE HYDROCARBONS  
-----

Range	RF	Total Area*	Amount (ug/mL)
-----	-----	-----	-----
WAGas Tol-C12 ( 7.18 to 12.78)	65668578	3766622	0.057
8015C 2MP-TMB ( 3.01 to 11.04)	105938831	1030100	0.010
AK101 nC6-nC10 ( 3.17 to 10.12)	86214346	897821	0.010
NWTPHG Tol-Nap ( 7.18 to 13.69)	68996369	5221580	0.076
mod8015 nC7-nC12 ( 3.70 to 12.78)	108437924	4115662	0.038

M Indicates manual integration within range  
\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks  
-----

8.743	2810197	d5-Chlorobenzene
7.227	1189600	d8-Toluene
11.375	2458759	d4-Dichlorobenzene
10.056	796776	4-Bromofluorobenzene
11.835	1259370	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**MW-05D-20230914**  
**2310388-04 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/14/2023 11:15  
Instrument: ECD8 Analyzed: 11-Oct-2023 19:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	71.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	88.9	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-05D-20230914**  
**2310388-04 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/14/2023 11:15  
Analyzed: 25-Sep-2023 12:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	3.1	ug/L	
Acenaphthene	83-32-9	1	0.2	1.0	51.3	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	22.7	ug/L	
Fluorene	86-73-7	1	0.2	1.0	40.0	ug/L	
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	18.2	ug/L	
Anthracene	120-12-7	1	0.3	1.0	3.4	ug/L	
Carbazole	86-74-8	1	0.3	1.0	14.0	ug/L	
Fluoranthene	206-44-0	1	0.2	1.0	3.8	ug/L	
Pyrene	129-00-0	1	0.3	1.0	2.6	ug/L	
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	7.2	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	72.5 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	103 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	88.8 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-05D-20230914**  
**2310388-04 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/14/2023 11:15  
Analyzed: 02-Oct-2023 18:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	<b>0.10</b>	ug/L	
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>12.7</i>	<i>%</i>	<i>*</i>
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>64.9</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>75.2</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**MW-05D-20230914**  
**2310388-04 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 11:15  
Analyzed: 16-Oct-2023 21:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	5	500	985	ug/L	D
Motor Oil Range Organics (C24-C38)	RRO	5	1000	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	5	1000	4040	ug/L	D
HC ID: CREOSOTE						
Surrogate: <i>o</i> -Terphenyl			50-150 %	73.8	%	

Data File: \\target\share\chem2\fid4a,1\20231016,8\4231637.D

Date: 16-OCT-2023 21:47

Client ID:

Sample Info: 2310388-04,5

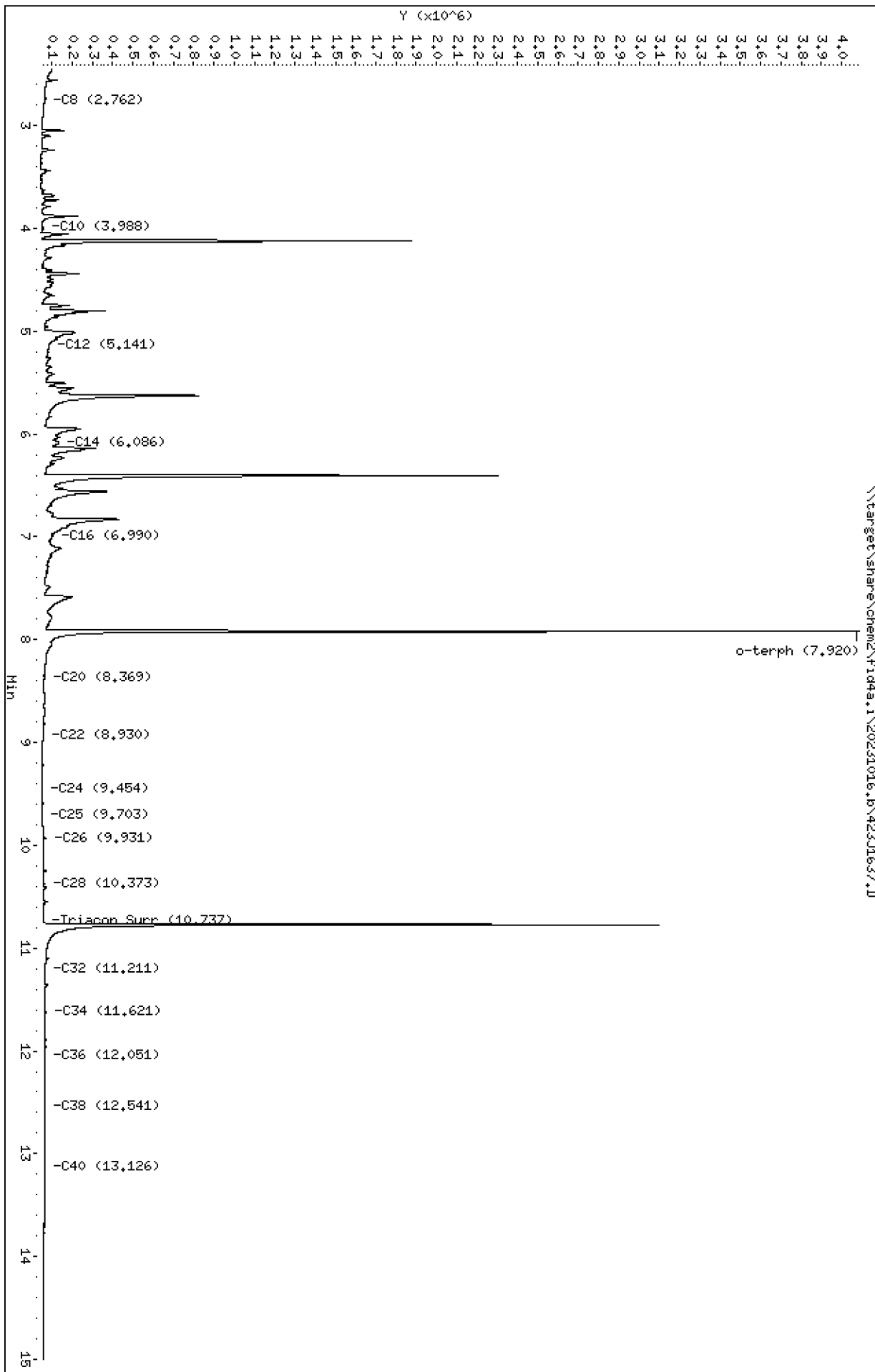
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0,25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1637.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-04  
Client ID:  
Injection: 16-OCT-2023 21:47  
Dilution Factor: 5  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.762	0.005	20607	53468	WATPHD	(C12-C24)	15623093	98.5
C10	3.988	-0.003	10984	15070	WATPHM	(C24-C38)	3191516	26.8
C12	5.141	-0.007	42945	61397	AK102	(C10-C25)	21173968	112.0
C14	6.086	-0.027	91120	308770	AK103	(C25-C36)	2552368	25.5
C16	6.990	0.035	59575	199141				
C18	----							
C20	8.369	0.020	22592	32540				
C22	8.930	0.002	10928	9731				
C24	9.454	0.004	5822	2867				
C25	9.703	0.010	8857	10426				
C26	9.931	0.003	23785	29606				
C32	11.211	-0.007	22832	13662				
C34	11.621	0.001	30410	62518				
Filter Peak	----				CREOSOT	(C12-C22)	15453496	403.9 M
C36	12.051	-0.002	20461	14269				
C38	12.541	-0.003	20273	15074				
C40	13.126	-0.008	18337	5487				
o-terph	7.920	-0.022	4011744	3390345				
Triacon Surr	10.774	-0.052	3039019	2988987				

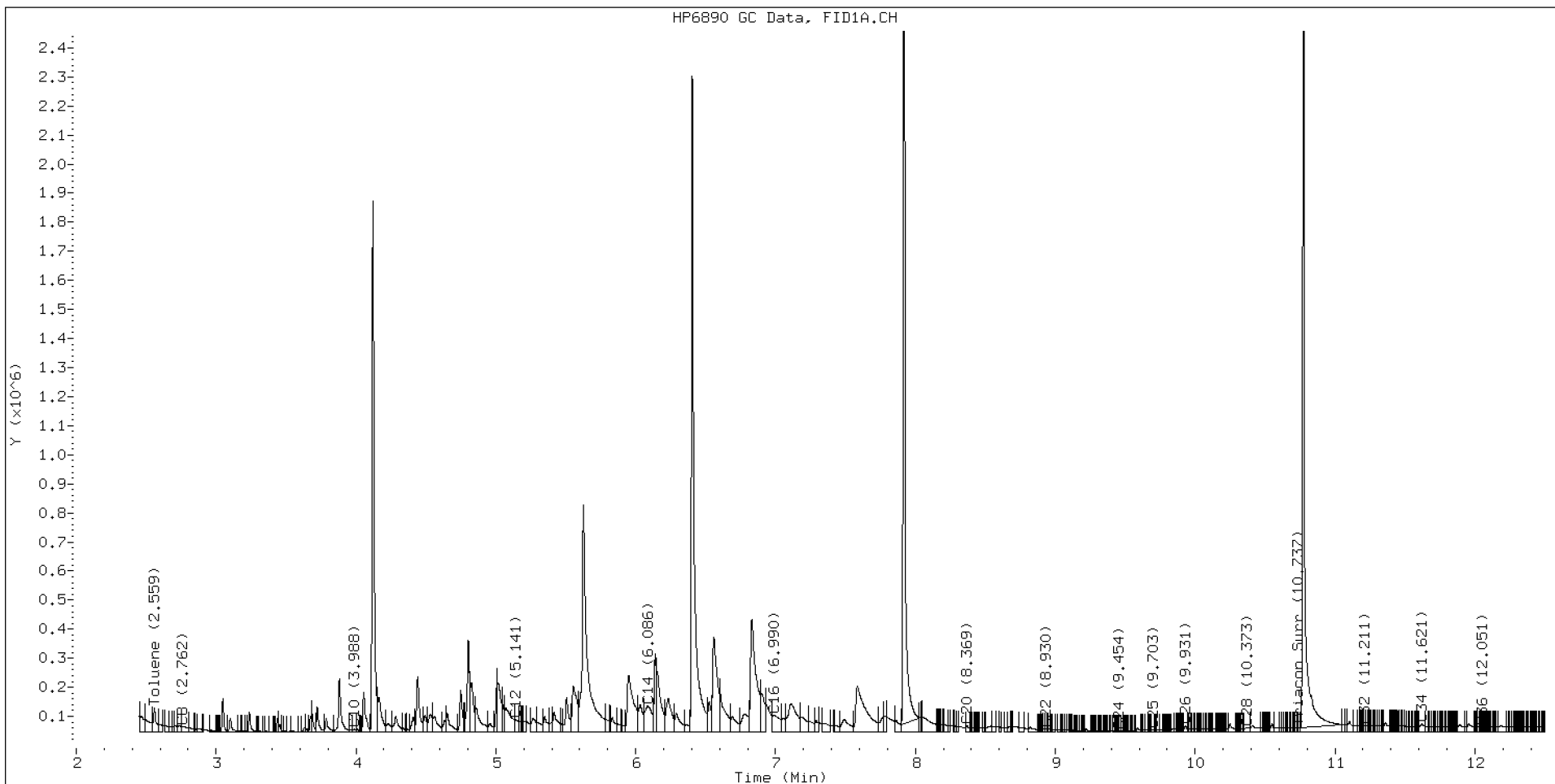
Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	3390345	16.6 M
Triacontane	2988987	21.9 M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023

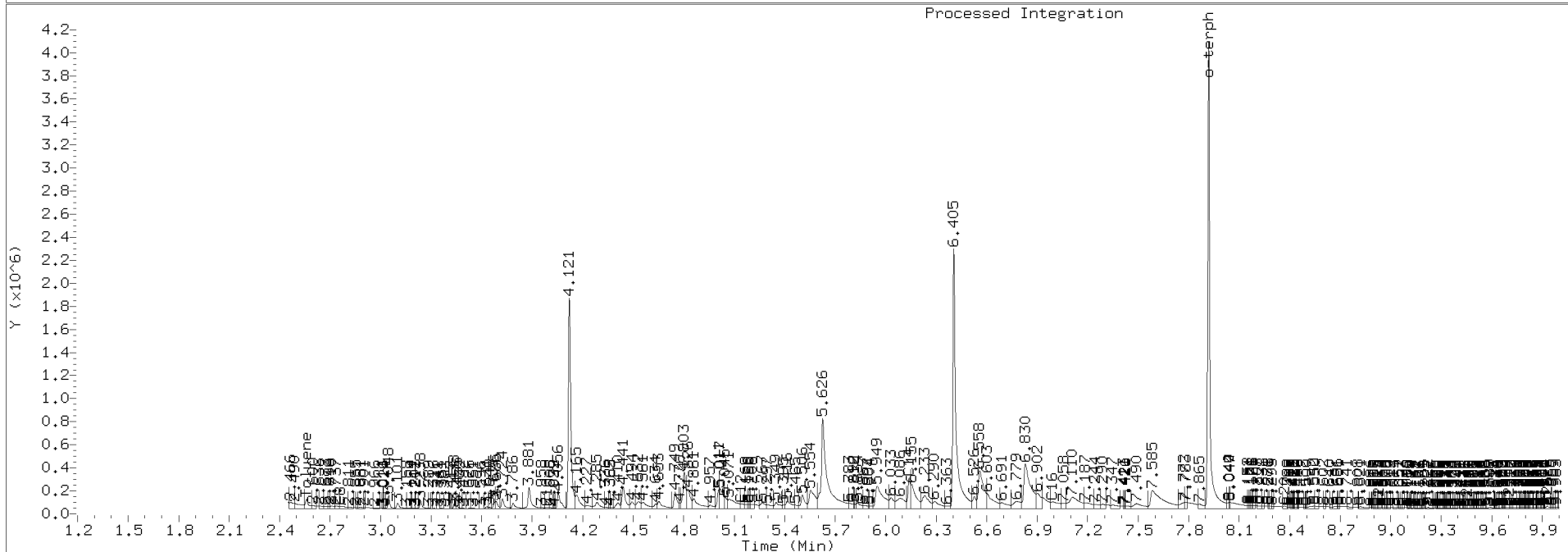
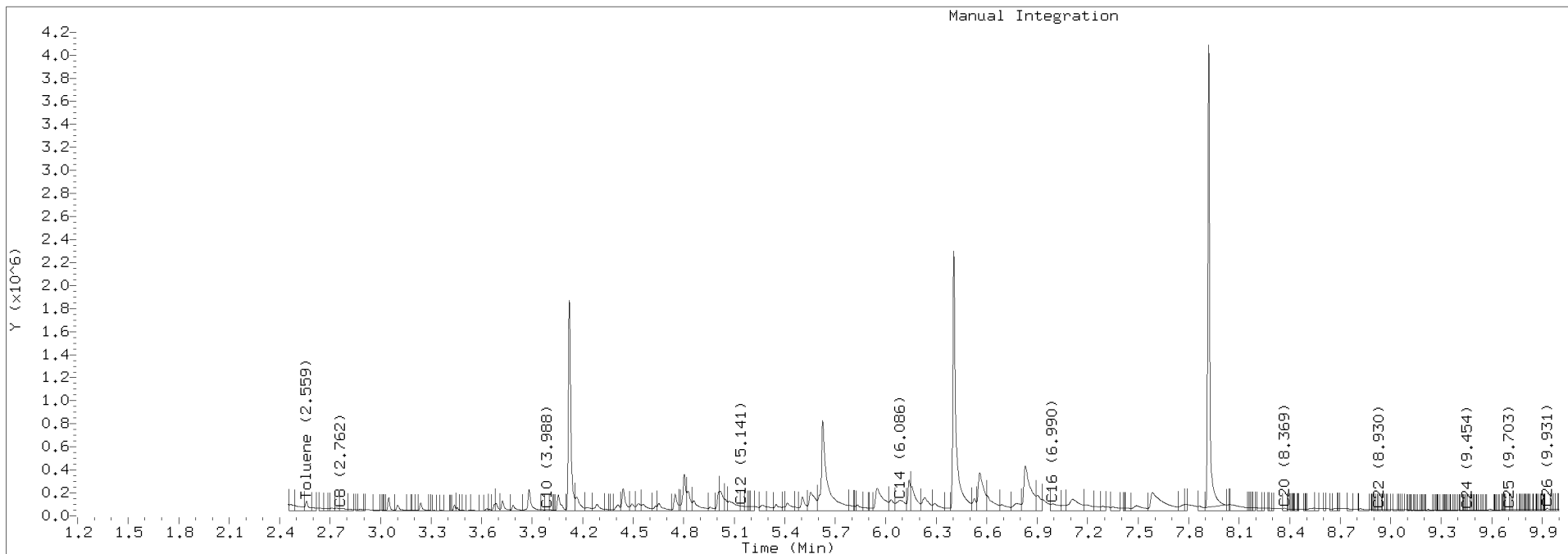




TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1637.D Injection: 16-OCT-2023 21:47

Lab ID:23I0388-04





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**MW-05D-20230914**  
**2310388-04 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 09/14/2023 11:15  
Analyzed: 19-Sep-2023 16:19

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	<b>3090</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	99.6	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	98.5	%	

Data File: \\target\share\chend\nt3.1\20230919s.1b\309192315G.D

Date: 19-SEP-2023 16:19

Client ID:

Sample Info: 2310388-04

Page 1

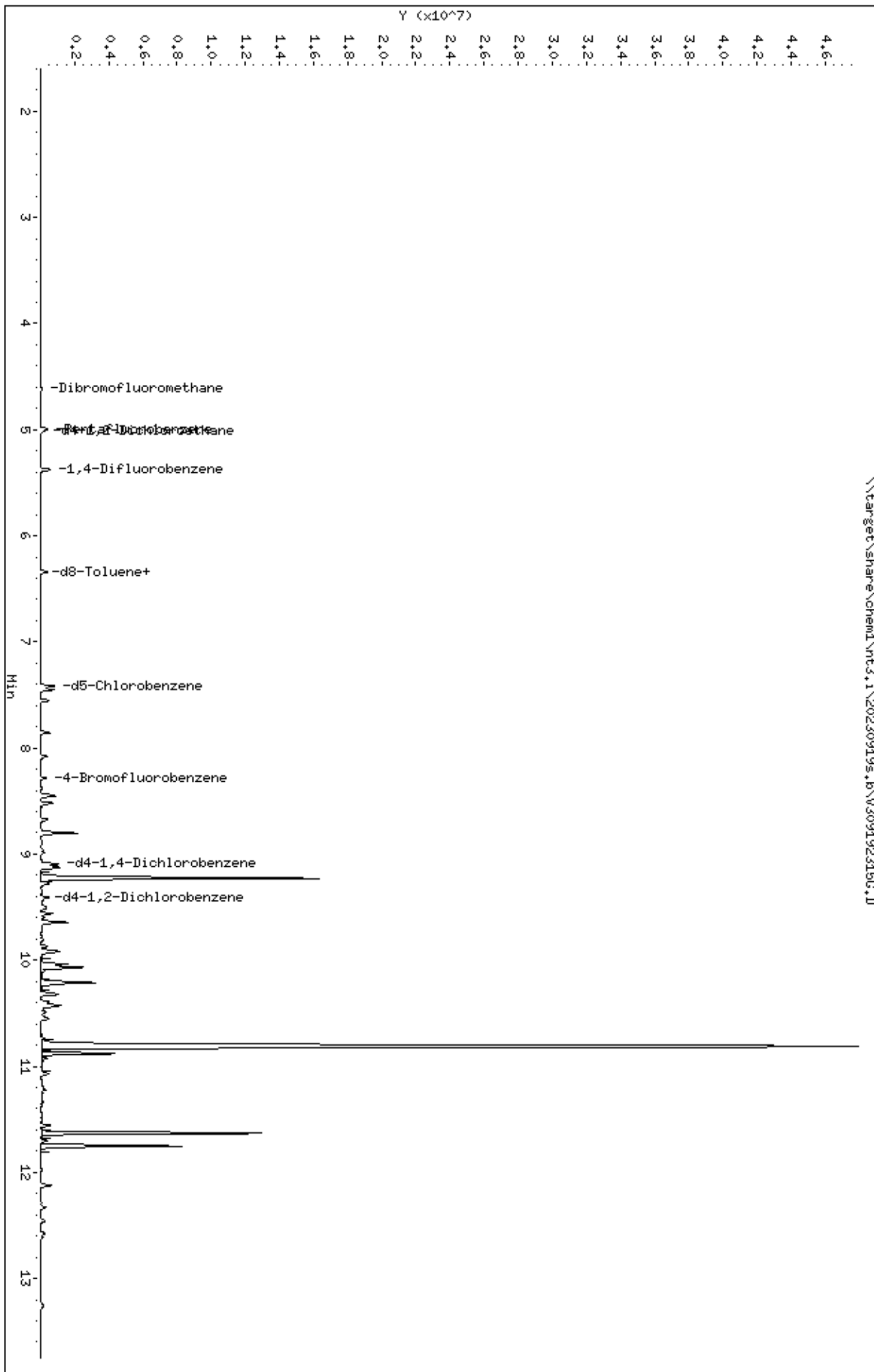
Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS

\\target\share\chend\nt3.1\20230919s.1b\309192315G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192315G.D  
 Lab Smp Id: 23I0388-04  
 Inj Date : 19-SEP-2023 16:19  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : 23I0388-04  
 Misc Info : 17-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.615	4.611	(0.923)	55278	4.99232	4.992 (R)
* 32 Pentafluorobenzene	168		4.998	4.993	(1.000)	231817	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.014	5.009	(1.003)	33869	5.21190	5.212 (R)
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	345195	10.0000	
\$ 43 d8-Toluene	98		6.342	6.337	(1.180)	198442	4.98041	4.980 (R)
* 53 d5-Chlorobenzene	117		7.421	7.416	(1.000)	327764	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.287	(1.117)	70900	4.92681	4.927 (R)
* 76 d4-1,4-Dichlorobenzene	152		9.094	9.095	(1.000)	196114	10.0000	(M)
\$ 79 d4-1,2-Dichlorobenzene	152		9.413	9.408	(0.000)	88894	5.22464	5.225 (RM)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.  
 M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192315G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-04  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 17-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	232702	116351	465404	231817	-0.38
37 1,4-Difluorobenze	350169	175085	700338	345195	-1.42
53 d5-Chlorobenzene	337155	168578	674310	327764	-2.79
76 d4-1,4-Dichlorobe	191021	95511	382042	196114	2.67

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	4.99	4.49	5.49	5.00	0.09
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.06
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.09	-0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
 Sample Matrix: NONE Fraction: VOA  
 Lab Smp Id: 23I0388-04  
 Level: Operator: TWC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 17-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.992	99.85	
\$ 33 d4-1,2-Dichloroeth	5.000	5.212	104.24	
\$ 43 d8-Toluene	5.000	4.980	99.61	
\$ 62 4-Bromofluorobenze	5.000	4.927	98.54	
\$ 79 d4-1,2-Dichloroben	5.000	5.225	104.49	

REVIEW SUMMARY FOR FILE - V309192315G.D

Lab ID: 23I0388-04

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 16:19

RT CO-ELUTION COMPOUNDS

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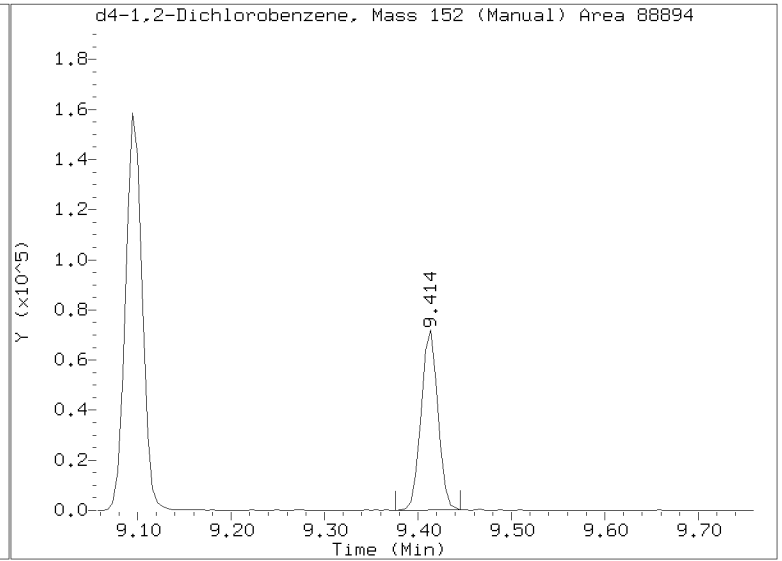
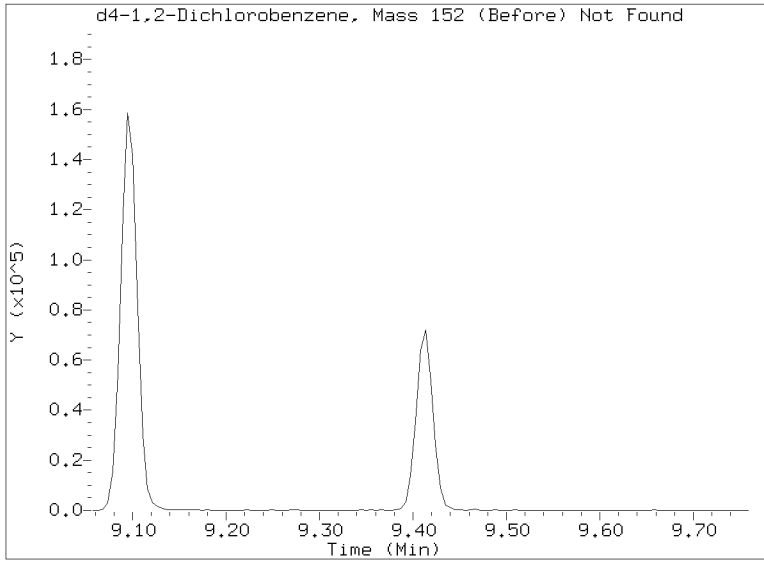
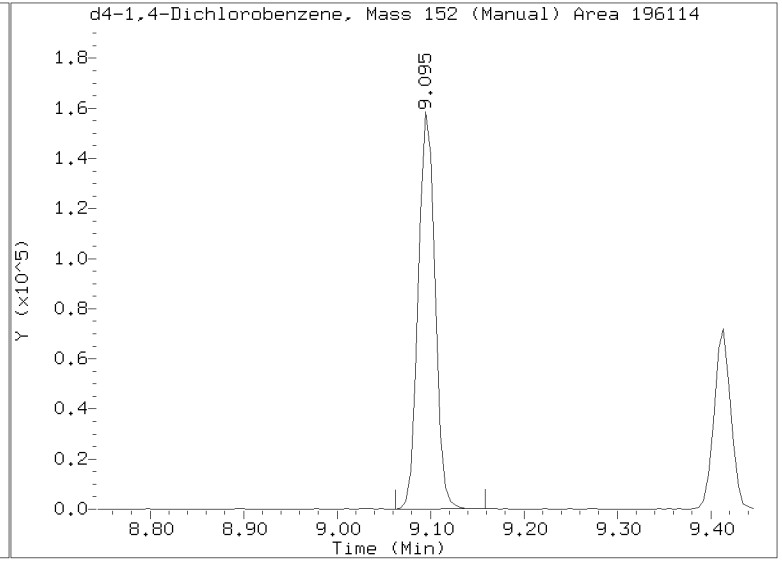
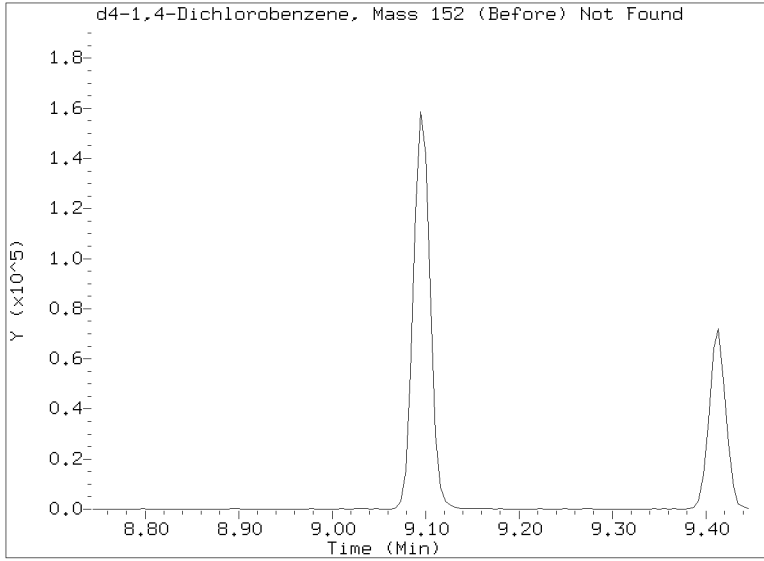
# Quant Ion Manual Peak Adjustment Report

Datafile: //target/share/chem1/nt3.i/20230919.b/V309192315.D

Injection Date: 19-SEP-2023 16:19

Lab ID:23I0388-04 Client ID:

Report Date: 09/19/2023 17:01



Data File: \\target\share\chend\nt3.1\20230919g.1b\2309192315G.D

Date: 19-SEP-2023 16:19

Client ID:

Sample Info: 2310388-04

Page 1

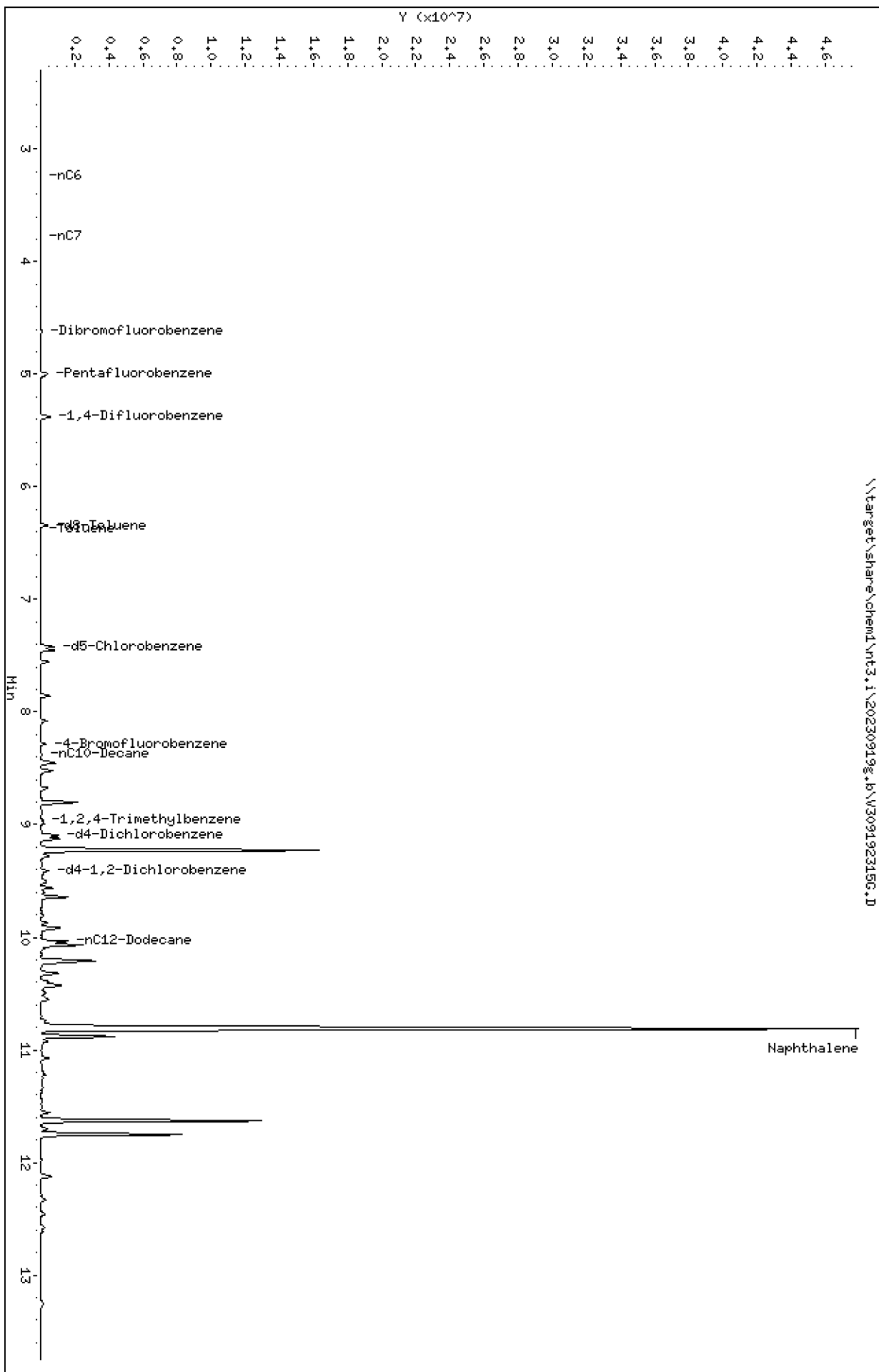
Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS

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Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192315G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 16:19

ARI ID: 23I0388-04  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	48967400	1.060 M
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	10460315	0.144 M
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	3292096	0.057 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	150656834	3.091 M
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	49099327	0.657 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

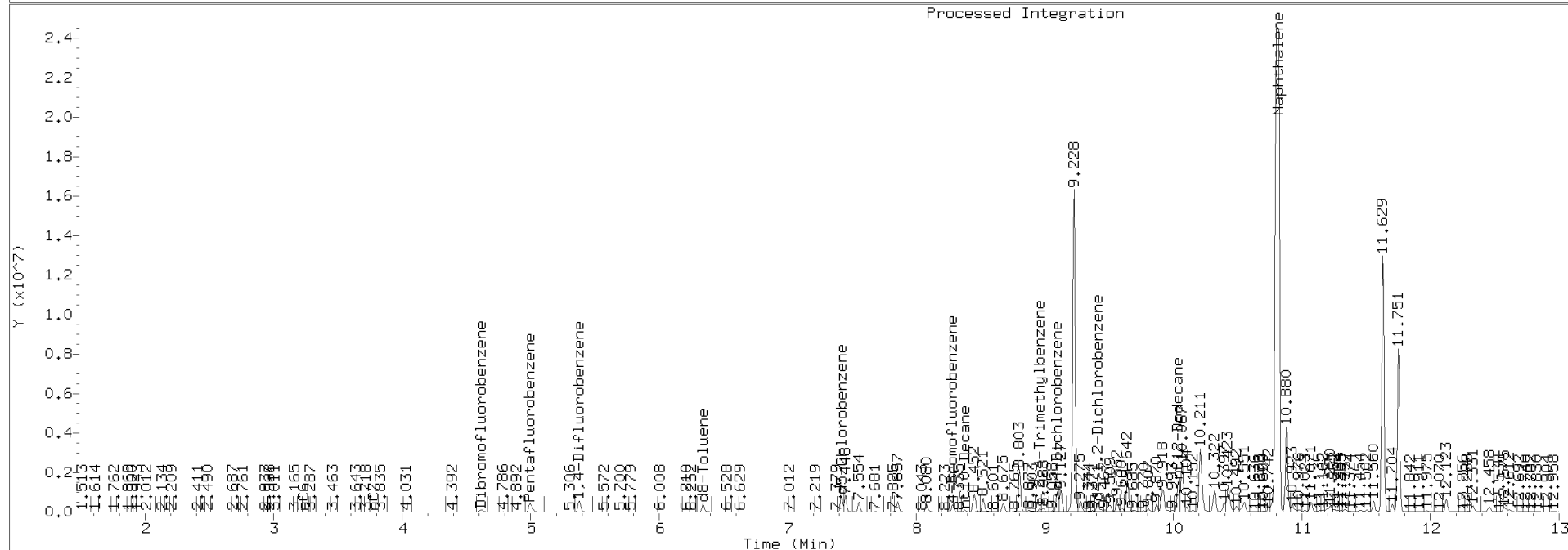
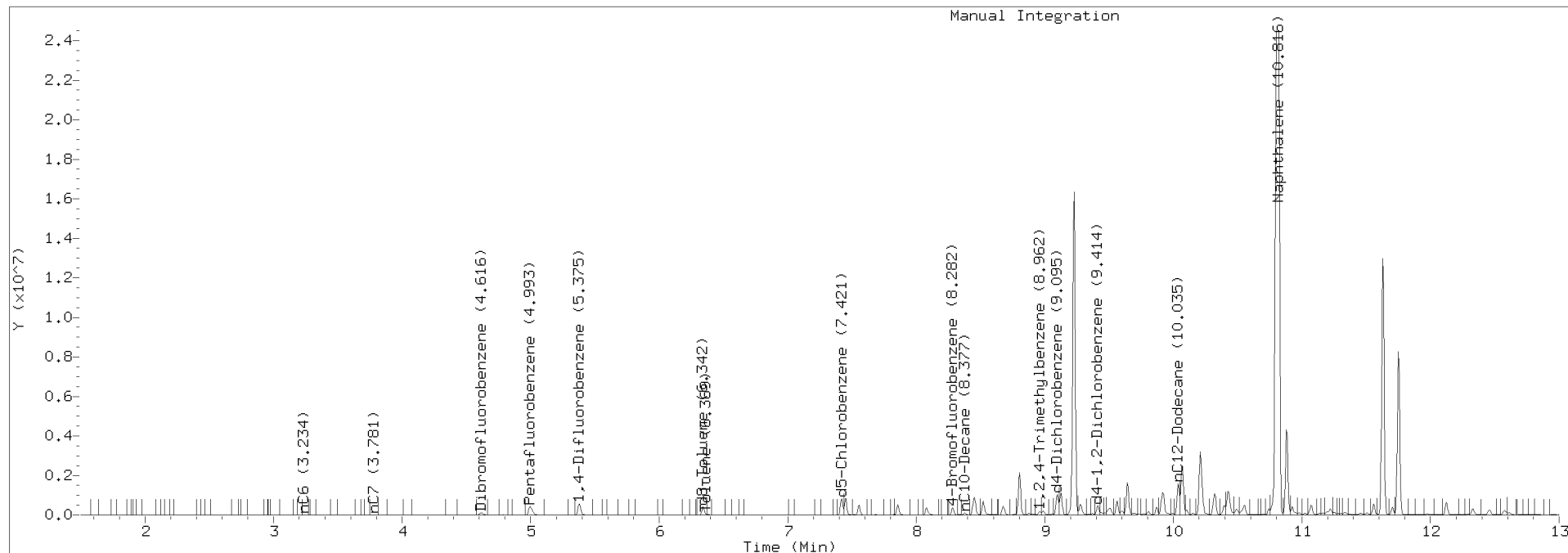
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7.421	1163235	d5-Chlorobenzene
6.342	578209	d8-Toluene
9.095	1509796	d4-Dichlorobenzene
8.282	467244	4-Bromofluorobenzene
9.414	657146	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230919g.b/V309192315G.D Injection: 19-SEP-2023 16:19

Lab ID:23I0388-04





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-12-20230914**  
**2310388-05 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/14/2023 13:09  
Instrument: ECD8 Analyzed: 11-Oct-2023 20:06

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	75.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	93.6	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**PZ-12-20230914**  
**2310388-05 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/14/2023 13:09  
Analyzed: 22-Sep-2023 19:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	81.0	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	108	%	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	105	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-12-20230914**  
**2310388-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/14/2023 13:09  
Instrument: NT8 Analyzed: 02-Oct-2023 18:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Sample Size: 500 mL  
Preparation Batch: BLI0553 Final Volume: 0.5 mL  
Prepared: 20-Sep-2023

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>67.4</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>76.0</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>83.1</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-12-20230914**  
**2310388-05 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 13:09  
Analyzed: 16-Oct-2023 22:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	92.6	%	



Data File: \\target\share\chem2\fid4a,1\20231016,8\4231638.D

Date: 16-OCT-2023 22:08

Client ID:

Sample Info: 2310388-05

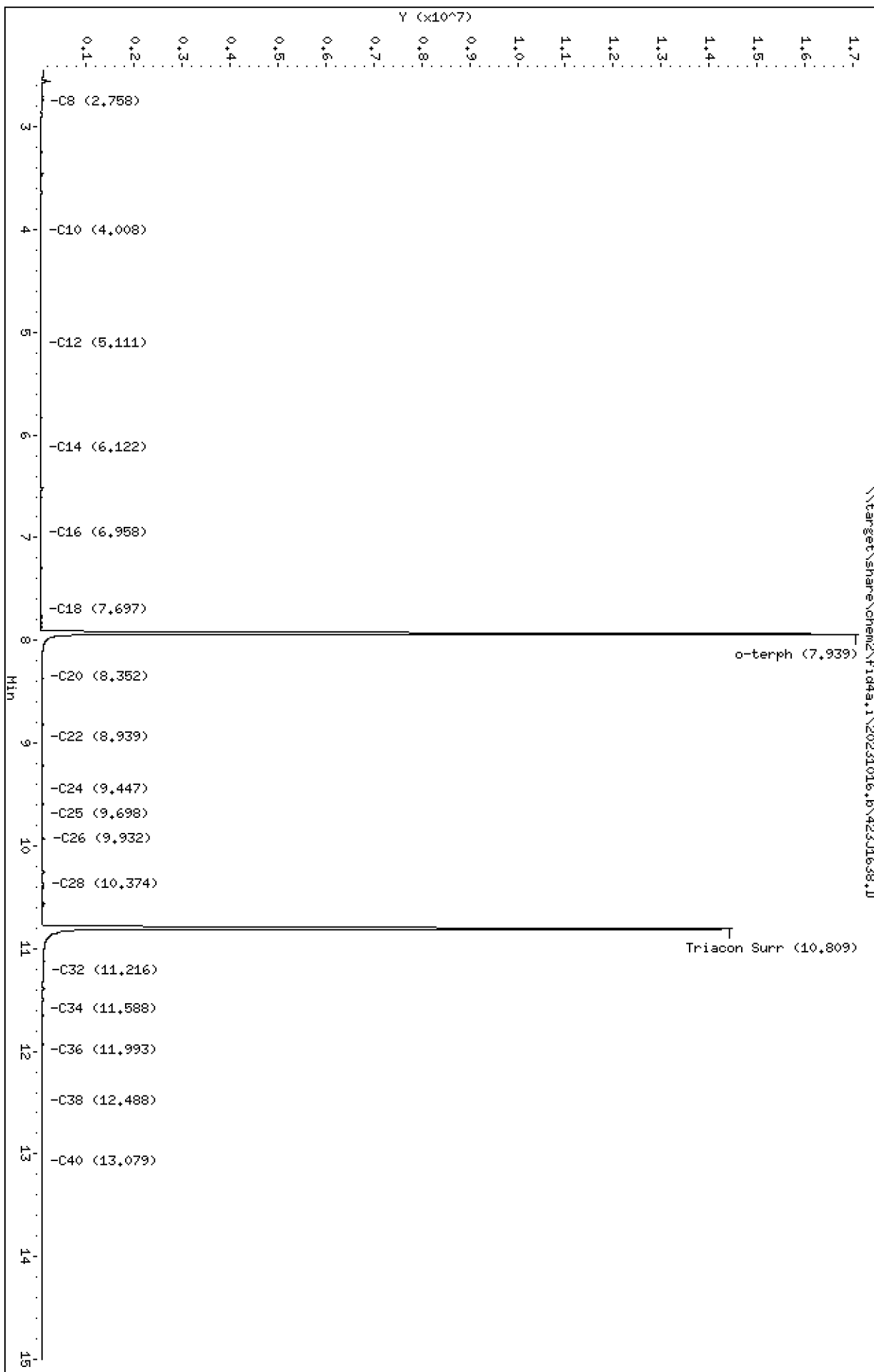
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

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Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1638.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-05  
Client ID:  
Injection: 16-OCT-2023 22:08  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

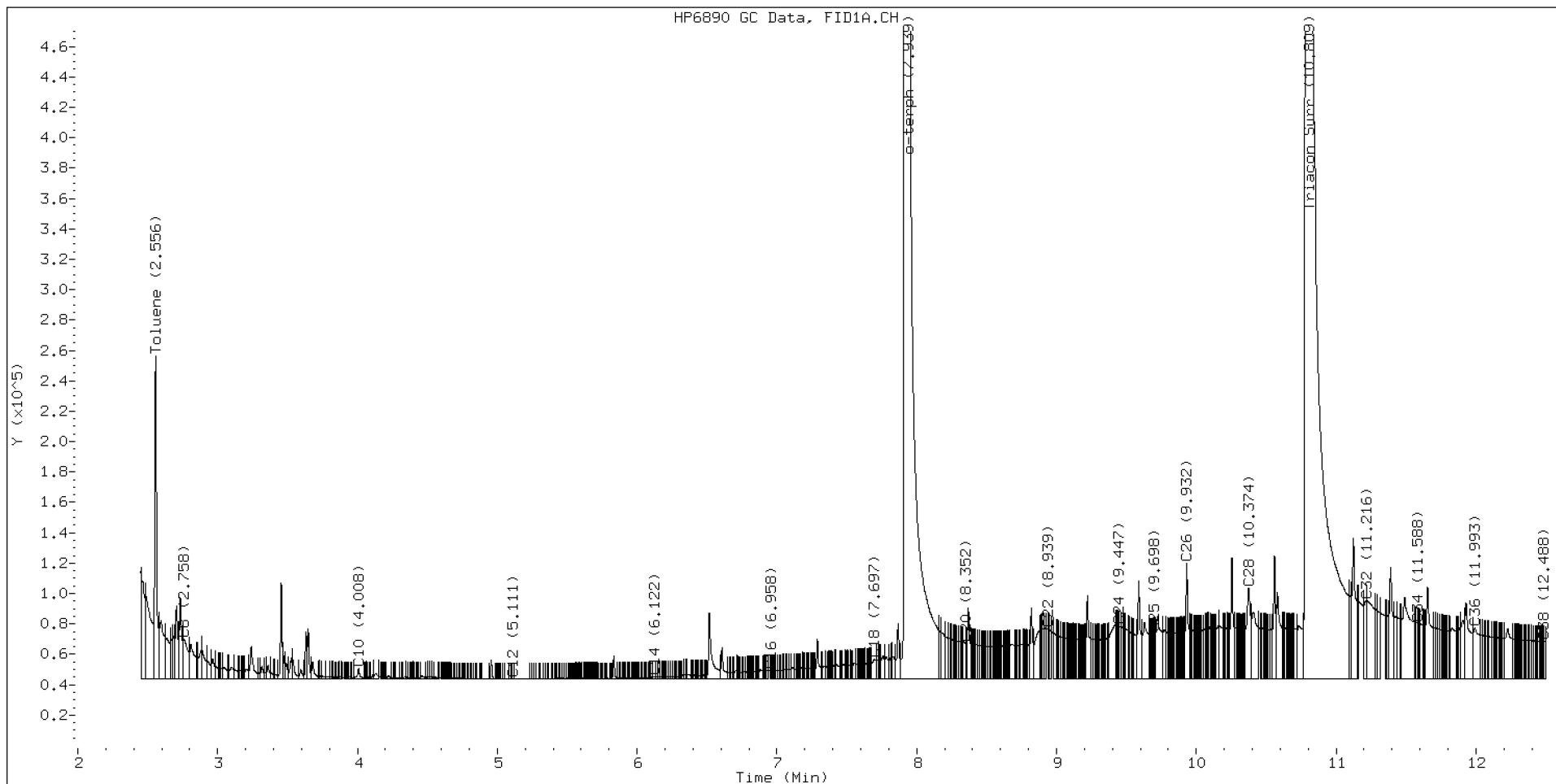
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.758	0.000	26443	61664	WATPHD	(C12-C24)	2797774	17.6
C10	4.008	0.017	6696	9217	WATPHM	(C24-C38)	5392054	45.3
C12	5.111	-0.038	197	101	AK102	(C10-C25)	3135071	16.6
C14	6.122	0.010	1723	2113	AK103	(C25-C36)	4469106	44.7
C16	6.958	0.003	5399	2681				
C18	7.697	-0.002	13018	25743				
C20	8.352	0.003	23605	8238				
C22	8.939	0.011	32781	17858				
C24	9.447	-0.003	34926	30995				
C25	9.698	0.005	30592	18210				
C26	9.932	0.005	76144	103185				
C32	11.216	-0.001	51878	75352				
C34	11.588	-0.032	36597	14603				
Filter Peak	----	----			CREOSOT	(C12-C22)	1970679	51.5 M
C36	11.993	-0.060	33839	94266				
C38	12.488	-0.056	24740	22160				
C40	13.079	-0.055	20360	3051				
o-terph	7.939	-0.003	17074212	21222916				
Triacon Surr	10.809	-0.016	14435155	19259309				

Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	21222916	104.2
Triacontane	19259309	141.3

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-12-20230914**  
**2310388-05 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/14/2023 13:09  
Analyzed: 19-Sep-2023 16:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	99.4	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	

Data File: \\target\share\chend\nt3.1\20230919s.16\309192316G.D

Date: 19-SEP-2023 16:41

Client ID:

Sample Info: 2310388-05

Page 1

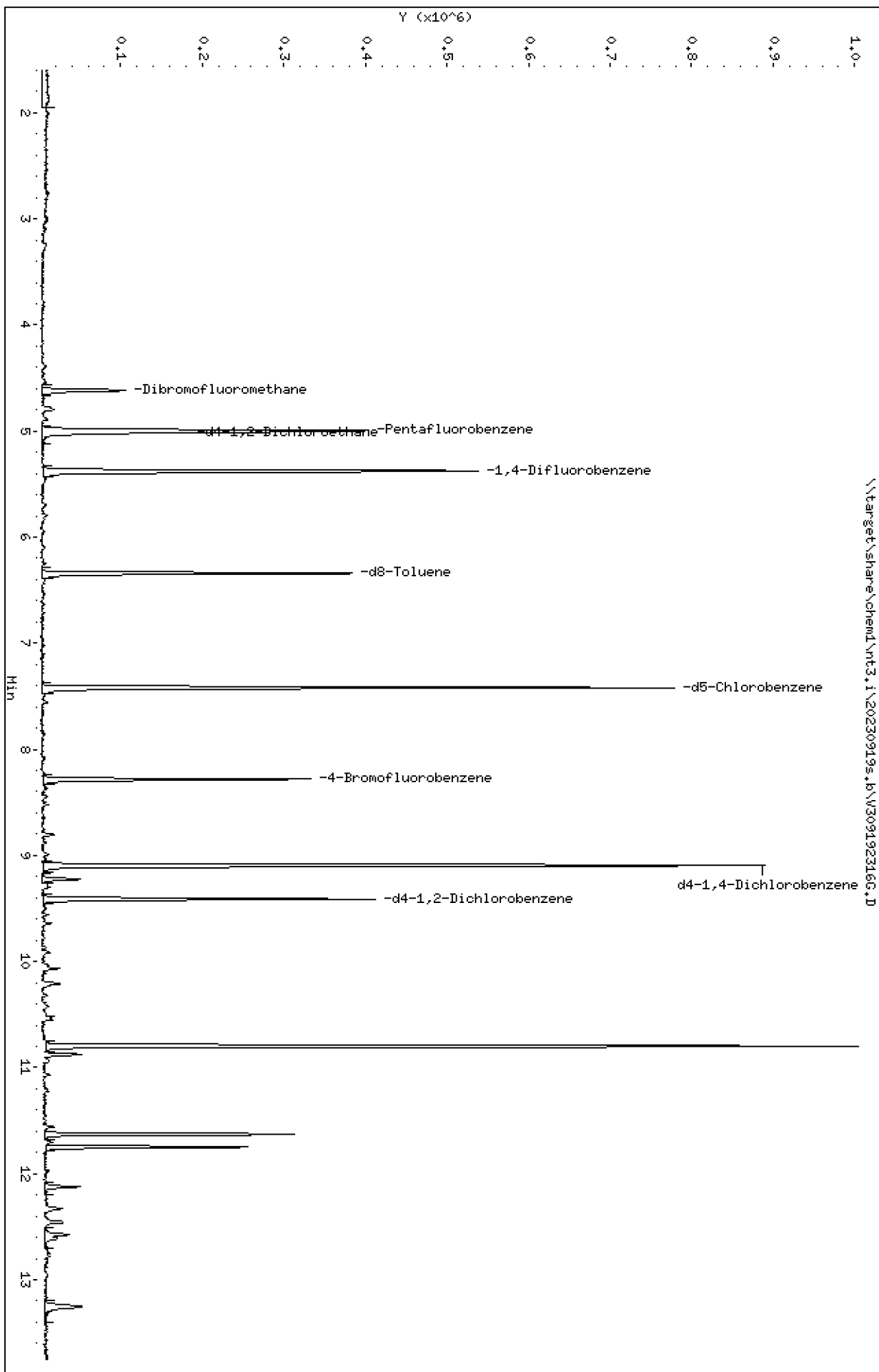
Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS

\\target\share\chend\nt3.1\20230919s.16\309192316G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192316G.D  
 Lab Smp Id: 23I0388-05  
 Inj Date : 19-SEP-2023 16:41  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : 23I0388-05  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.617	4.611	(0.924)	51227	4.98669	4.987
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	215071	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	33845	5.61373	5.614
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	322488	10.0000	
\$ 43 d8-Toluene	98		6.338	6.337	(1.179)	185031	4.97080	4.971
* 53 d5-Chlorobenzene	117		7.417	7.416	(1.000)	303956	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.283	8.287	(1.117)	67650	5.06918	5.069
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	178766	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.409	9.408	(1.034)	79361	5.11699	5.117

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192316G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-05  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	215071	-7.58
37 1,4-Difluorobenze	350169	175085	700338	322488	-7.91
53 d5-Chlorobenzene	337155	168578	674310	303956	-9.85
76 d4-1,4-Dichlorobe	191021	95511	382042	178766	-6.42

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.02
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.02
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23I0388-05  
Level: LOW Operator: TWC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.987	99.73	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.614	112.27	80-128
\$ 43 d8-Toluene	5.000	4.971	99.42	80-120
\$ 62 4-Bromofluorobenze	5.000	5.069	101.38	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.117	102.34	80-120



REVIEW SUMMARY FOR FILE - V309192316G.D

Lab ID: 23I0388-05

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 16:41

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.1b\2309192316g.D

Date: 19-SEP-2023 16:41

Client ID:

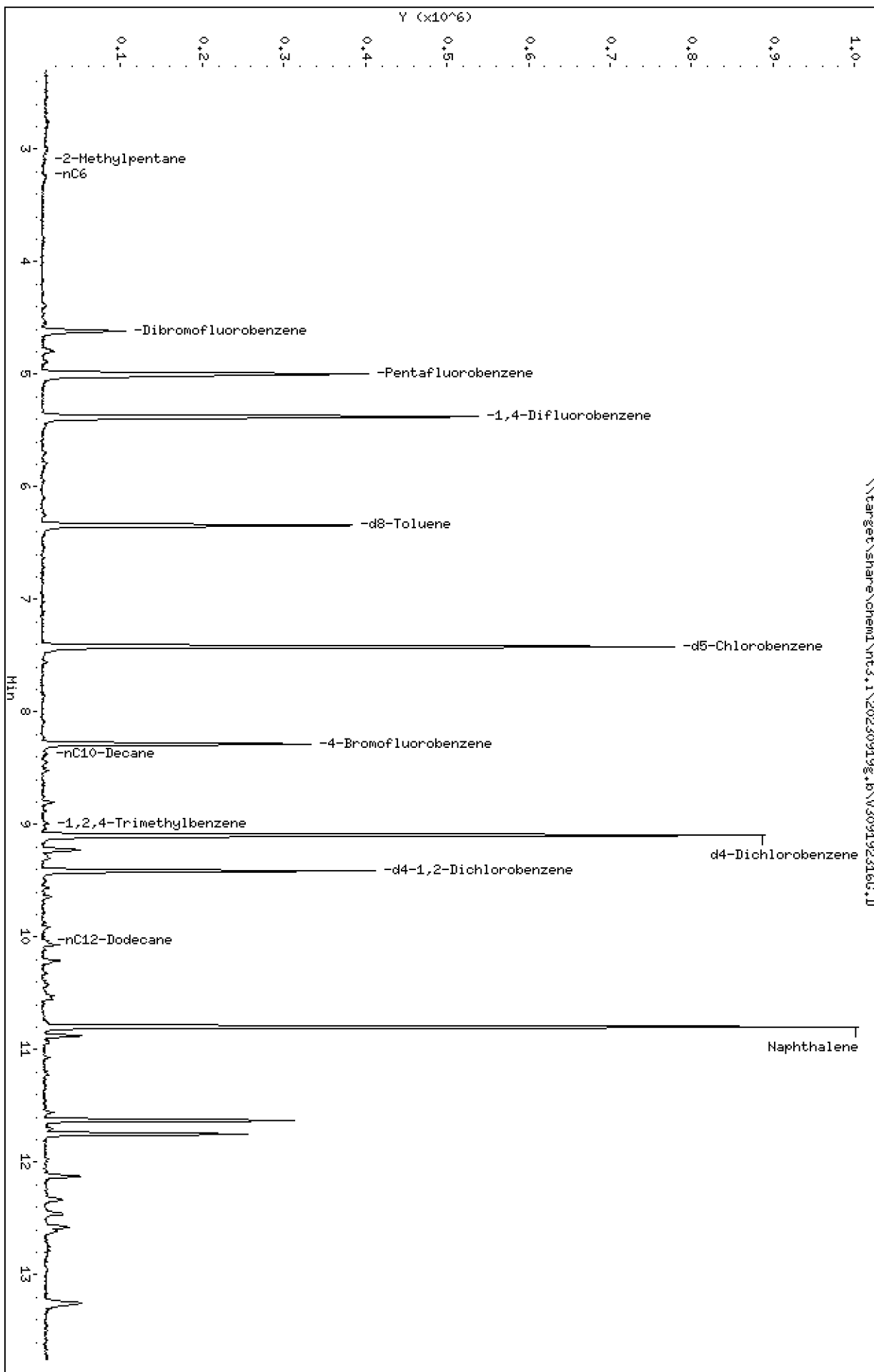
Sample Info: 2310388-05

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192316G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 16:41

ARI ID: 23I0388-05  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	362576	0.008
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	319335	0.004
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	219313	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	1742856	0.036
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	512458	0.007

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.417	1042621	d5-Chlorobenzene
6.339	557269	d8-Toluene
9.096	1147981	d4-Dichlorobenzene
8.284	433557	4-Bromofluorobenzene
9.410	550358	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**PZ-13-20230914**  
**2310388-06 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/14/2023 13:10  
Instrument: ECD8 Analyzed: 11-Oct-2023 20:24

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	83.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	101	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**PZ-13-20230914**  
**2310388-06 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/14/2023 13:10  
Analyzed: 22-Sep-2023 19:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	0.9	ug/L	J
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	70.4 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	97.8 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	91.4 %	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-13-20230914**  
**2310388-06 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/14/2023 13:10  
Instrument: NT8 Analyzed: 02-Oct-2023 19:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Sample Size: 500 mL  
Preparation Batch: BLI0553 Final Volume: 0.5 mL  
Prepared: 20-Sep-2023

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>67.0</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>105</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>80.4</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-13-20230914**  
**2310388-06 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 13:10  
Analyzed: 12-Oct-2023 21:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	85.7	%	

Data File: \\target\share\chem2\fid4a,1\20231012,6\4231223.D

Date: 12-OCT-2023 21:04

Client ID:

Sample Info: 2310388-06

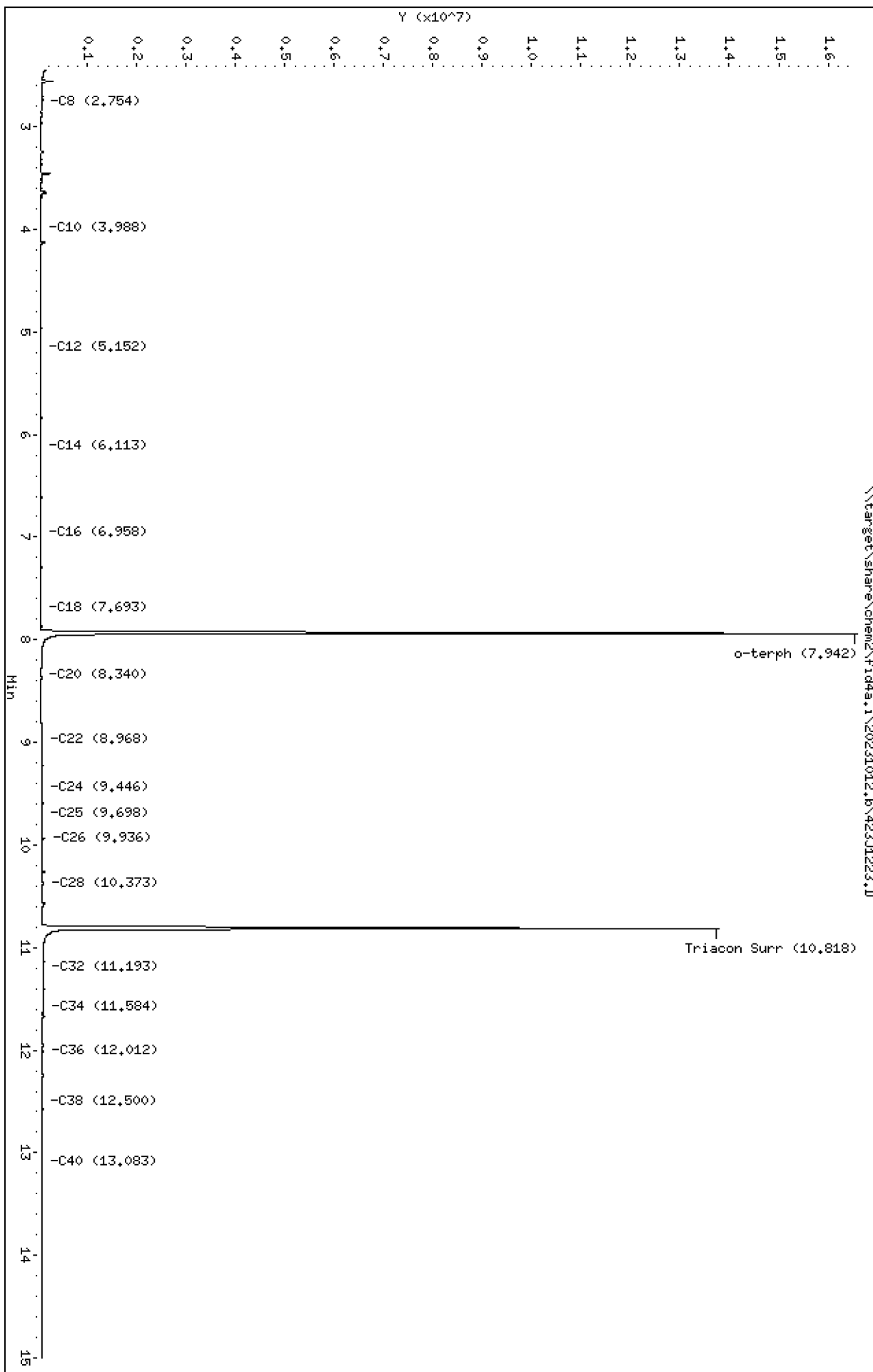
Column phase: RTX-1

Instrument: fid4a,1

Operator: NRB

Column diameter: 0.25

Page 1





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231012.b/423J1223.D  
Method: 20231012.b\FID4TPH.m  
Instrument: fid4a.i, NRB  
Report Date: 10/20/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-06  
Client ID:  
Injection: 12-OCT-2023 21:04  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

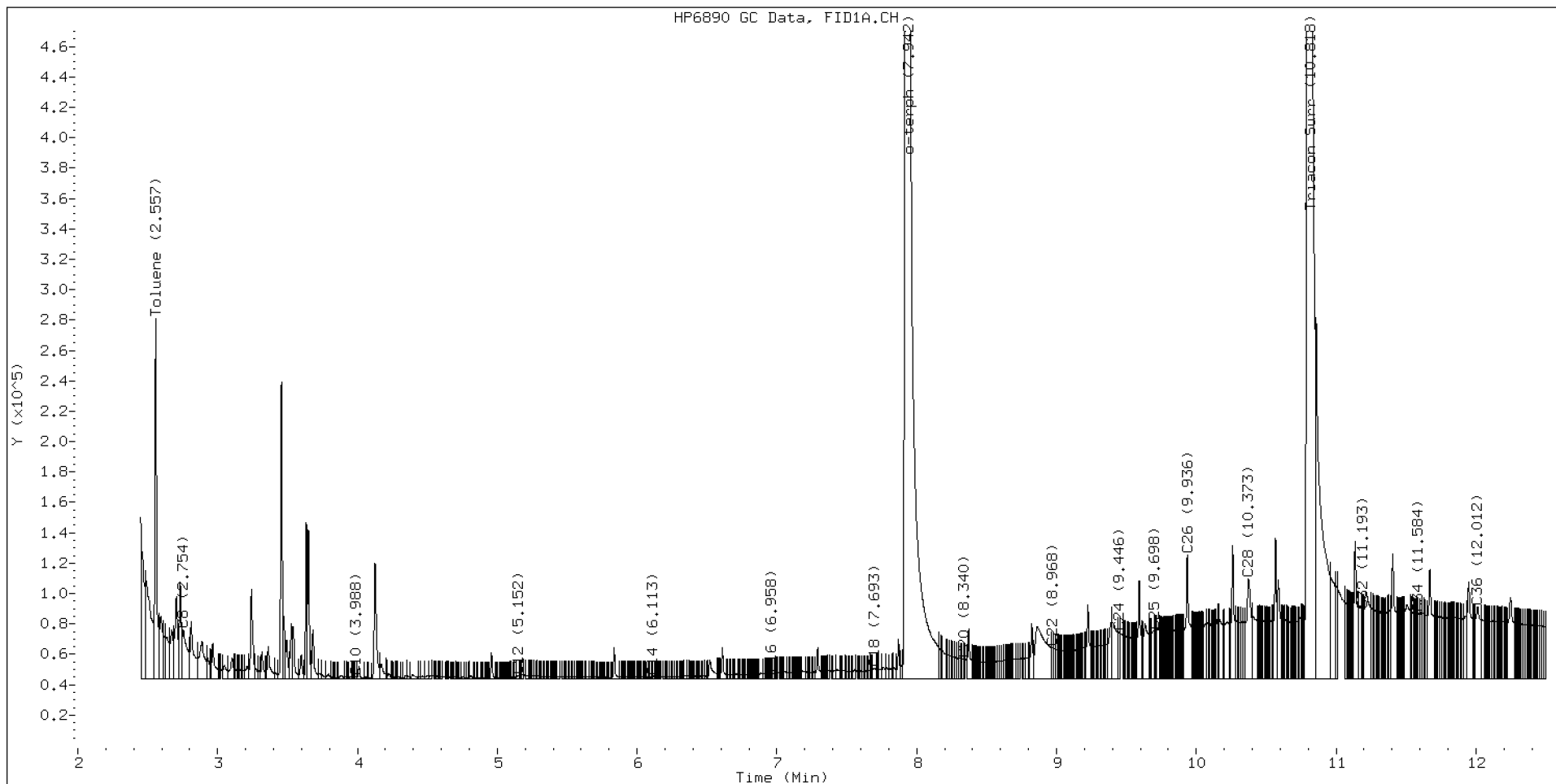
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.754	-0.001	31819	72178	WATPHD	(C12-C24)	1855606	11.7
C10	3.988	-0.004	1078	992	WATPHM	(C24-C38)	7175290	60.2
C12	5.152	0.001	1928	1766	AK102	(C10-C25)	2315549	12.2
C14	6.113	-0.001	1316	553	AK103	(C25-C36)	5920957	59.2
C16	6.958	-0.000	3297	972				
C18	7.693	-0.008	6850	12171				
C20	8.340	-0.013	12790	9509				
C22	8.968	0.036	20298	16082				
C24	9.446	-0.006	30497	21072				
C25	9.698	0.003	31419	42626				
C26	9.936	0.009	81402	141414				
C32	11.193	0.004	45135	18001				
C34	11.584	0.002	43004	12883				
Filter Peak	----				CREOSOT	(C12-C22)	1184858	36.1 M
C36	12.012	0.003	47011	117664				
C38	12.500	0.004	33958	22028				
C40	13.083	-0.003	28953	28808				
o-terph	7.942	-0.002	16552708	19624429				
Triacon Surr	10.818	0.011	13737424	16057684				

Range Times: NW Diesel(5.150 - 9.452) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.50) AK103(9.69 - 12.01) OR Diesel(3.99 - 10.37)

Surrogate	Area	Amount
o-Terphenyl	19624429	96.4
Triacontane	16057684	117.9

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	06-JAN-2022
OR Gas	28080.0	XX-XXX-XXXX
Creosote	32781.4	20-MAR-2023





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-13-20230914**  
**2310388-06 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/14/2023 13:10  
Analyzed: 19-Sep-2023 17:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.0	%	

Data File: \\target\share\chend\nt3.1\20230919s.16\309192317G.D

Date: 19-SEP-2023 17:03

Client ID:

Sample Info: 2310388-06

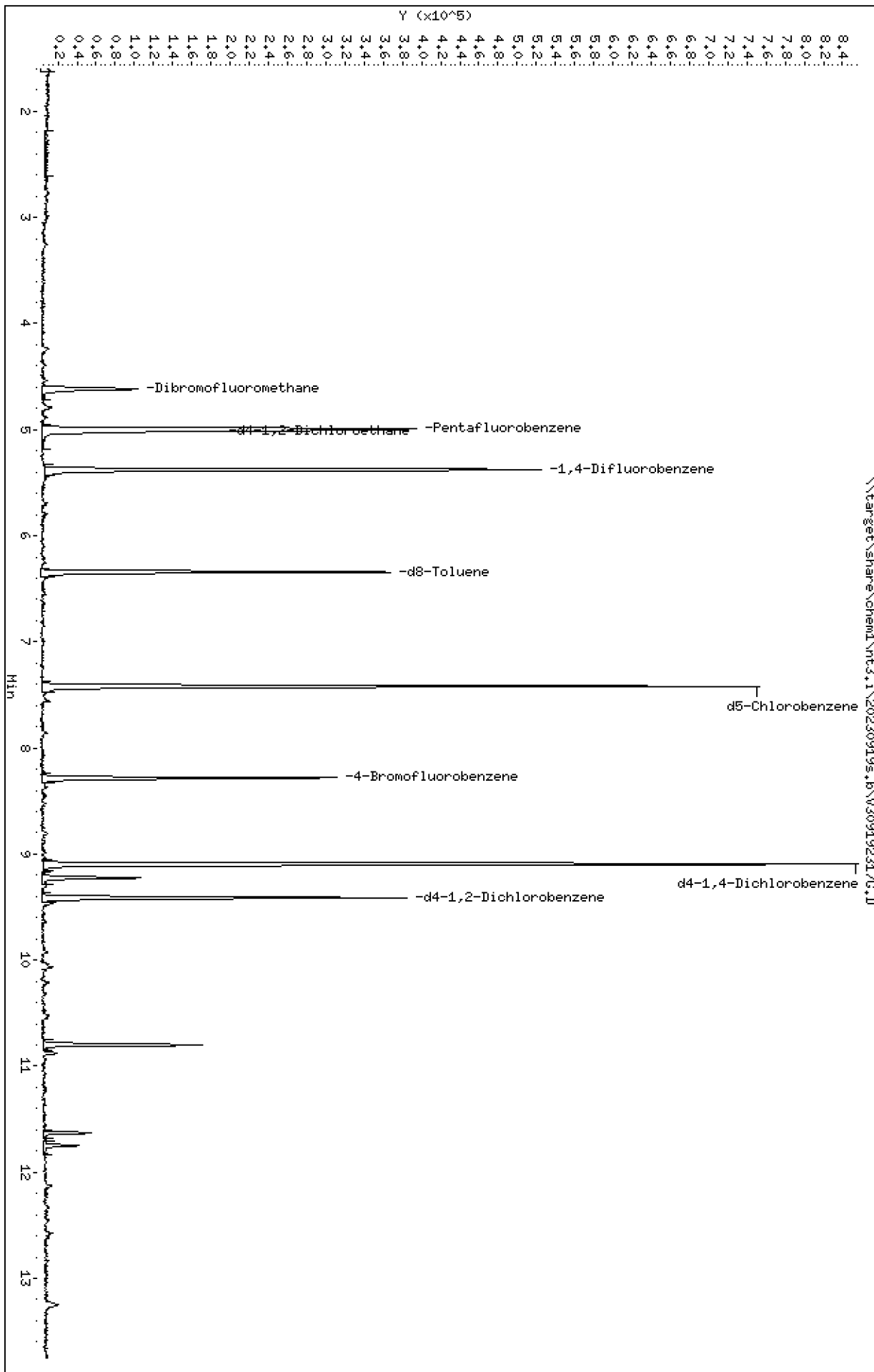
Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192317G.D  
 Lab Smp Id: 23I0388-06  
 Inj Date : 19-SEP-2023 17:03  
 Operator : TWC  
 Smp Info : 23I0388-06  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i  
 Cal Date : 18-SEP-2023 14:10  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309182318.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	52320	5.14389	5.144
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	212947	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	32139	5.38393	5.384
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	316288	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	183748	5.03310	5.033
* 53 d5-Chlorobenzene	117		7.421	7.416	(1.000)	304126	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.282	8.287	(1.116)	64755	4.84954	4.850
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	170015	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.408	(1.035)	77133	5.22932	5.229

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192317G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-06  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	212947	-8.49
37 1,4-Difluorobenze	350169	175085	700338	316288	-9.68
53 d5-Chlorobenzene	337155	168578	674310	304126	-9.80
76 d4-1,4-Dichlorobe	191021	95511	382042	170015	-11.00

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.07
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23I0388-06  
Level: LOW Operator: TWC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.144	102.88	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.384	107.68	80-128
\$ 43 d8-Toluene	5.000	5.033	100.66	80-120
\$ 62 4-Bromofluorobenze	5.000	4.850	96.99	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.229	104.59	80-120

REVIEW SUMMARY FOR FILE - V309192317G.D

Lab ID: 23I0388-06

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 17:03

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.b\309192317G.D

Date: 19-SEP-2023 17:03

Client ID:

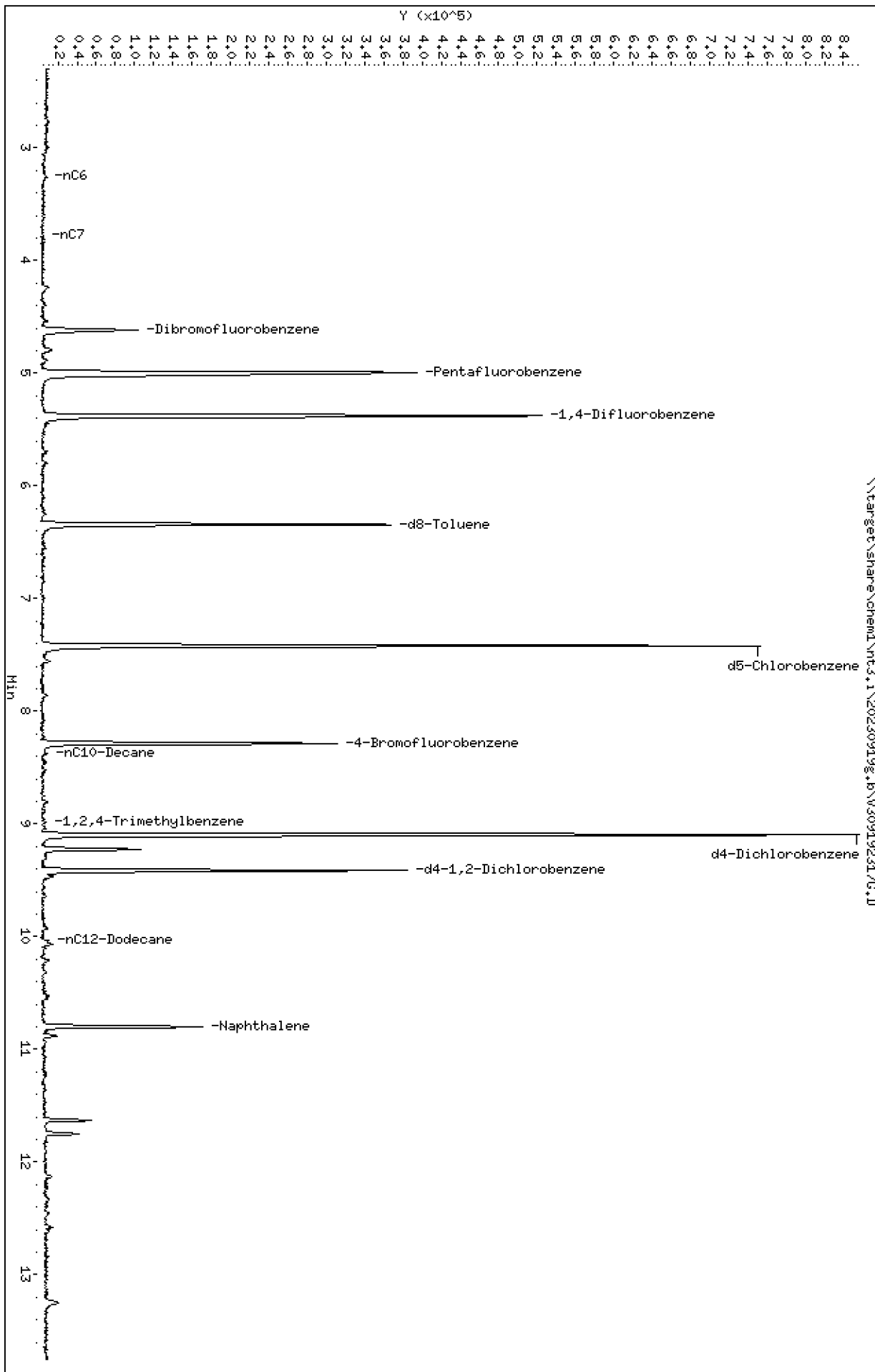
Sample Info: 2310388-06

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192317G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 17:03

ARI ID: 23I0388-06  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	342735	0.007
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	263986	0.004
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	217747	0.004
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	653991	0.013
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	460692	0.006

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.417	1031012	d5-Chlorobenzene
6.343	535169	d8-Toluene
9.096	1095086	d4-Dichlorobenzene
8.283	413109	4-Bromofluorobenzene
9.409	522802	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**LW-3-20230914**  
**2310388-07 (Water)**

**Phenols**  
Method: EPA 8041A  
Instrument: ECD8

Sampled: 09/14/2023 15:48  
Analyzed: 11-Oct-2023 20:42

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	81.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	96.0	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**LW-3-20230914**  
**2310388-07 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/14/2023 15:48  
Analyzed: 25-Sep-2023 13:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	<b>0.3</b>	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	<b>1.3</b>	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>70.6 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>98.1 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>79.0 %</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**LW-3-20230914**  
**2310388-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/14/2023 15:48  
Instrument: NT8 Analyzed: 06-Oct-2023 19:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Sample Size: 500 mL  
Preparation Batch: BLI0553 Final Volume: 0.5 mL  
Prepared: 20-Sep-2023

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	3	0.30	ND	ug/L	U
Chrysene	218-01-9	3	0.30	ND	ug/L	U
Benzo(a)fluoranthene, Total		3	0.60	ND	ug/L	U
Benzo(a)pyrene	50-32-8	3	0.30	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	3	0.30	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	3	0.30	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	78.6	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	35.6	%	
<i>Surrogate: Fluoranthene-d10</i>			46-121 %	32.7	%	*



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**LW-3-20230914**  
**2310388-07 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 15:48  
Analyzed: 16-Oct-2023 22:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	10	1000	<b>3570</b>	ug/L	D
Motor Oil Range Organics (C24-C38) HC ID: MOTOR OIL	RRO	10	2000	<b>4080</b>	ug/L	D
Creosote Range Organics (C12-C22)	8001-58-9	10	2000	<b>12100</b>	ug/L	D
Surrogate: o-Terphenyl			50-150 %	80.0	%	

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231639.D

Date: 16-OCT-2023 22:28

Client ID:

Sample Info: 2310388-07,10

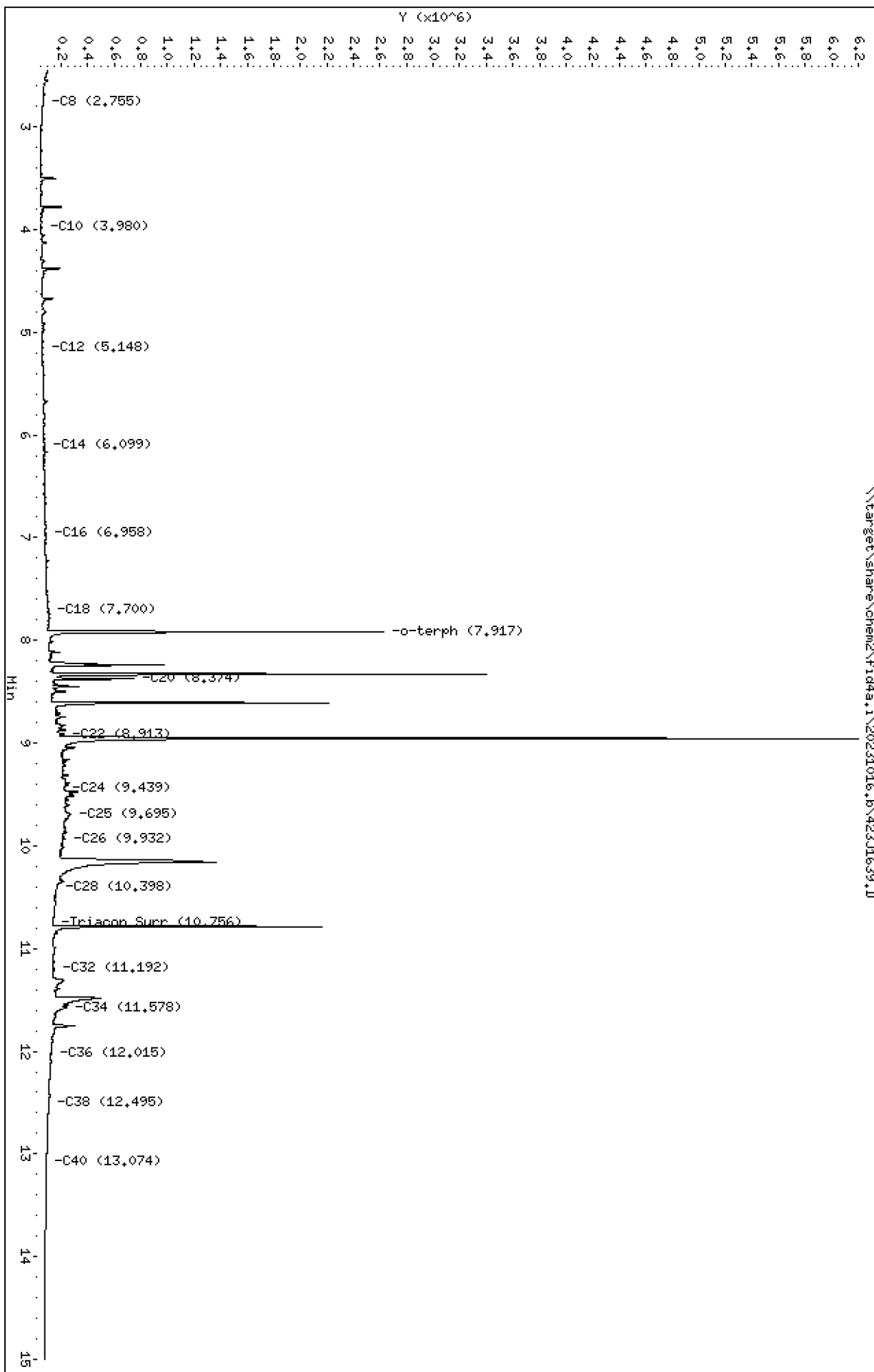
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1639.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-07  
Client ID:  
Injection: 16-OCT-2023 22:28  
Dilution Factor: 10  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.755	-0.002	22718	56770	WATPHD	(C12-C24)	28338577	178.6
C10	3.980	-0.010	6602	8002	WATPHM	(C24-C38)	24289907	204.0
C12	5.148	-0.001	16543	38832	AK102	(C10-C25)	30999493	164.0
C14	6.099	-0.014	29070	45372	AK103	(C25-C36)	21084390	210.7
C16	6.958	0.003	36781	37232				
C18	7.700	0.001	58559	11698				
C20	8.374	0.026	698705	642755				
C22	8.913	-0.015	180611	355184				
C24	9.439	-0.010	175482	104200				
C25	9.695	0.002	228120	409034				
C26	9.932	0.005	183364	259813				
C32	11.192	-0.025	100080	145032				
C34	11.578	-0.042	199579	620269				
Filter Peak	----				CREOSOT	(C12-C22)	23204178	606.4 M
C36	12.015	-0.038	77888	27208				
C38	12.495	-0.049	59733	29792				
C40	13.074	-0.061	45673	20469				
o-terph	7.917	-0.025	2522887	1827727				
Triacon Surr	10.786	-0.039	2019908	1424344				

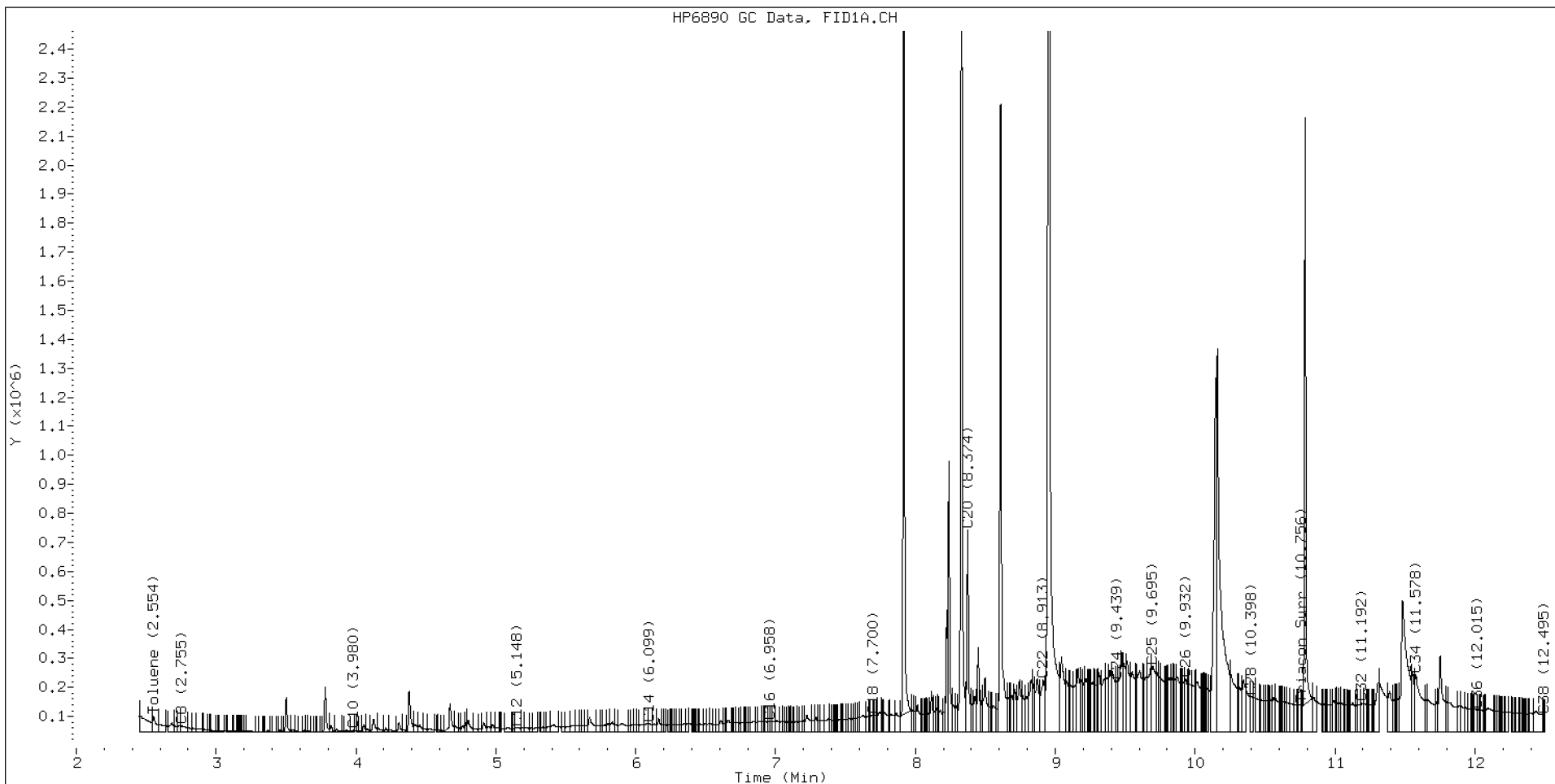
Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	1827727	9.0 M
Triacontane	1424344	10.5 M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023

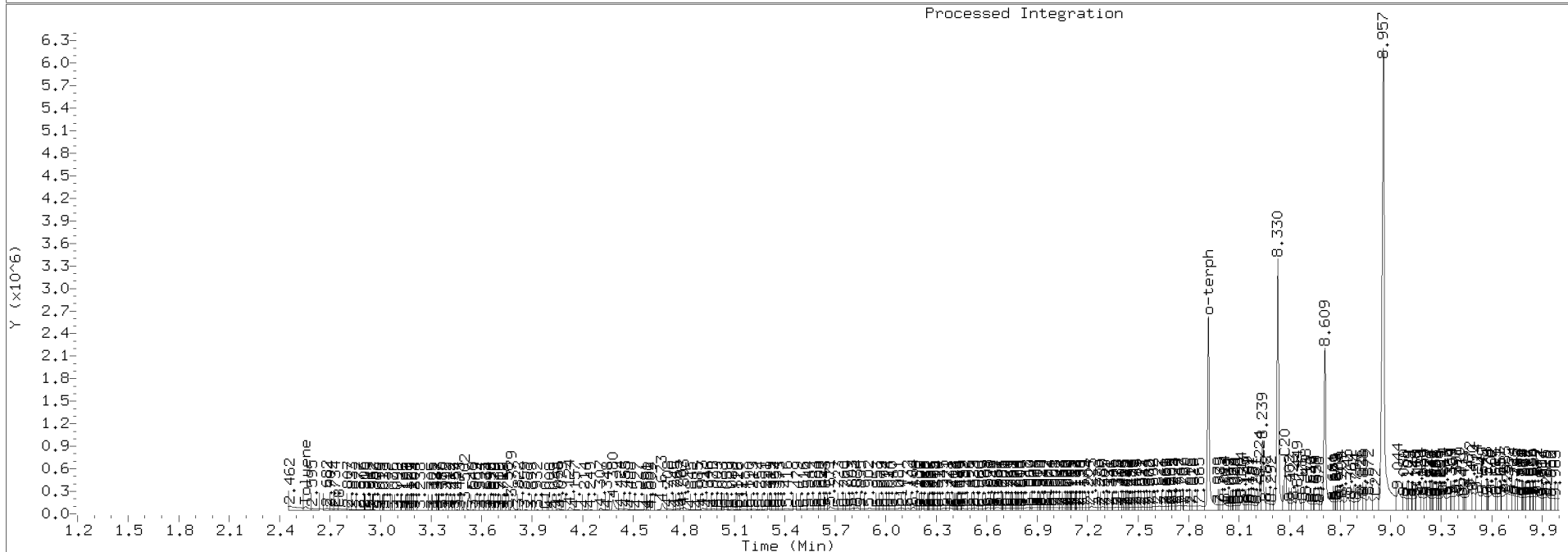
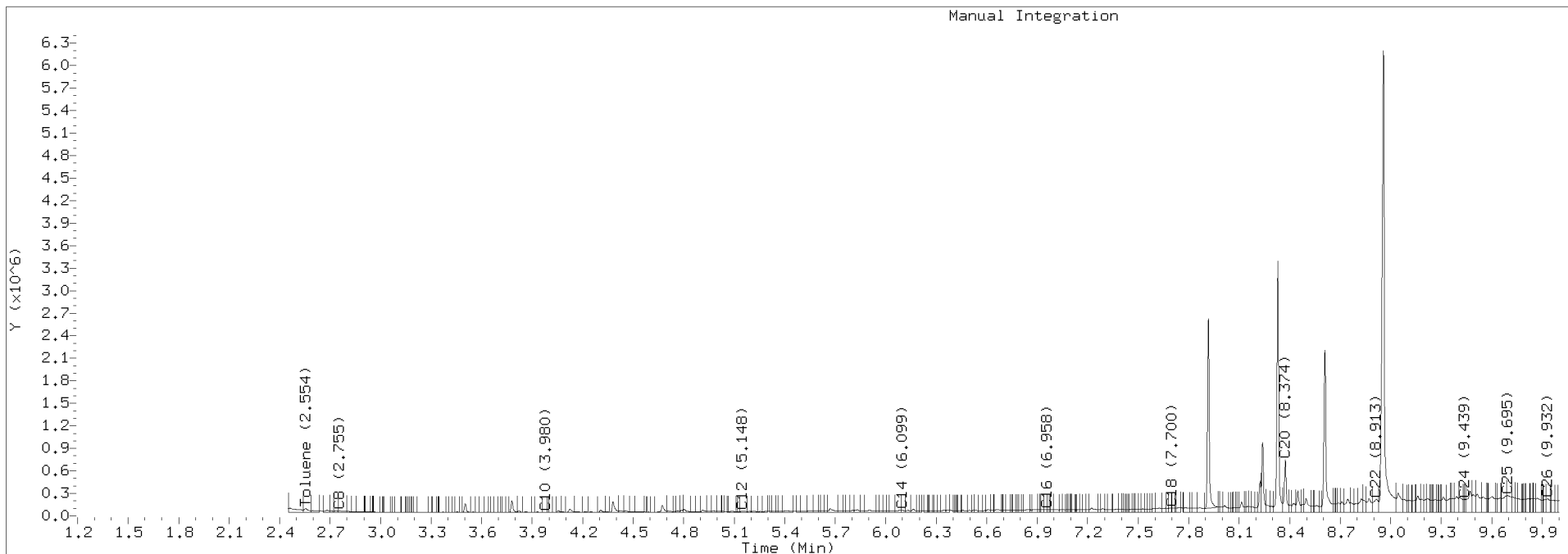




TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1639.D Injection: 16-OCT-2023 22:28

Lab ID:23I0388-07





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**LW-3-20230914**  
**2310388-07 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/14/2023 15:48  
Analyzed: 19-Sep-2023 17:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	97.8	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.0	%	

Data File: \\target\share\chend\nt3.1\20230919s.16\309192318G.D

Date: 19-SEP-2023 17:25

Client ID:

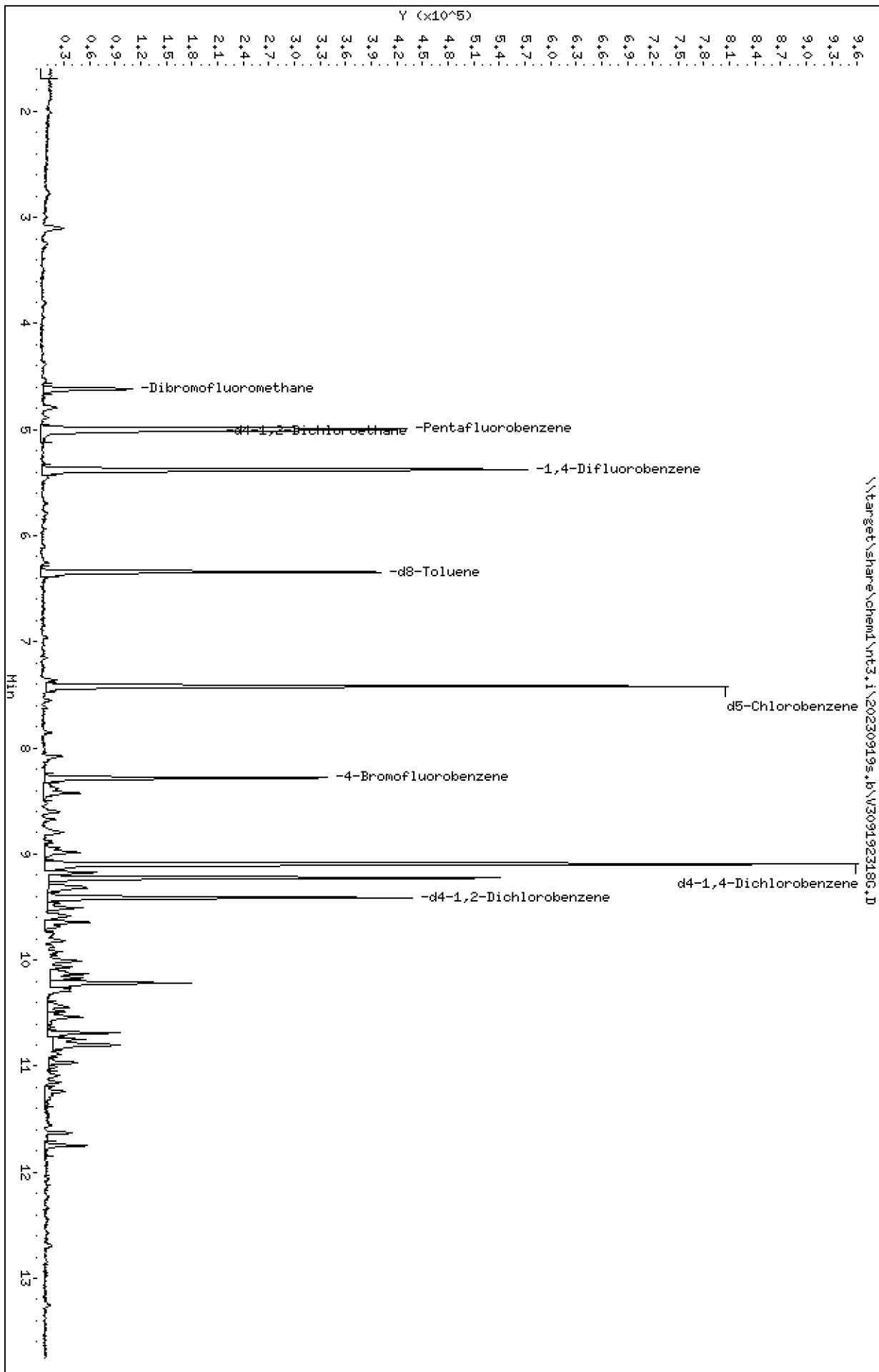
Sample Info: 2310388-07

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192318G.D  
 Lab Smp Id: 23I0388-07  
 Inj Date : 19-SEP-2023 17:25  
 Operator : TWC  
 Smp Info : 23I0388-07  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i  
 Cal Date : 18-SEP-2023 14:10  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309182318.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	54907	5.06123	5.061
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	227126	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	36201	5.68581	5.686
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	339440	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	191625	4.89085	4.891
* 53 d5-Chlorobenzene	117		7.417	7.416	(1.000)	319724	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.288	8.287	(1.117)	68086	4.85024	4.850
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	187440	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.408	(1.035)	85547	5.26060	5.261

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192318G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-07  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	227126	-2.40
37 1,4-Difluorobenze	350169	175085	700338	339440	-3.06
53 d5-Chlorobenzene	337155	168578	674310	319724	-5.17
76 d4-1,4-Dichlorobe	191021	95511	382042	187440	-1.87

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 23I0388-07  
 Level: LOW Operator: TWC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.061	101.22	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.686	113.72	80-128
\$ 43 d8-Toluene	5.000	4.891	97.82	80-120
\$ 62 4-Bromofluorobenze	5.000	4.850	97.00	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.261	105.21	80-120

REVIEW SUMMARY FOR FILE - V309192318G.D

Lab ID: 23I0388-07

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 17:25

RT CO-ELUTION COMPOUNDS

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Date: 19-SEP-2023 17:25

Client ID:

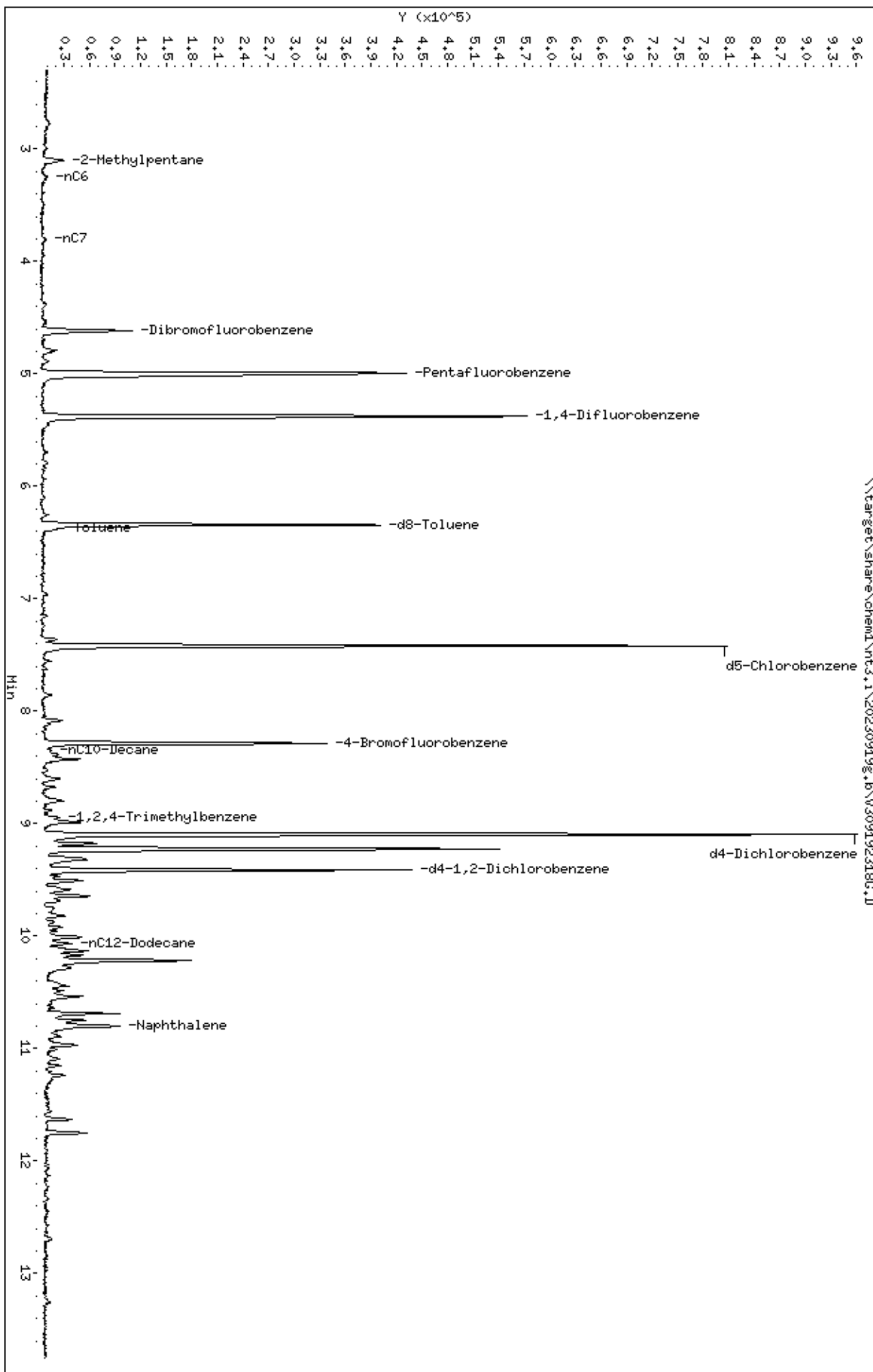
Sample Info: 2310388-07

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192318G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 17:25

ARI ID: 23I0388-07  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	2618909	0.057 M
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	1171607	0.016 M
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	606433	0.011 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	3968201	0.081 M
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	2922975	0.039 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

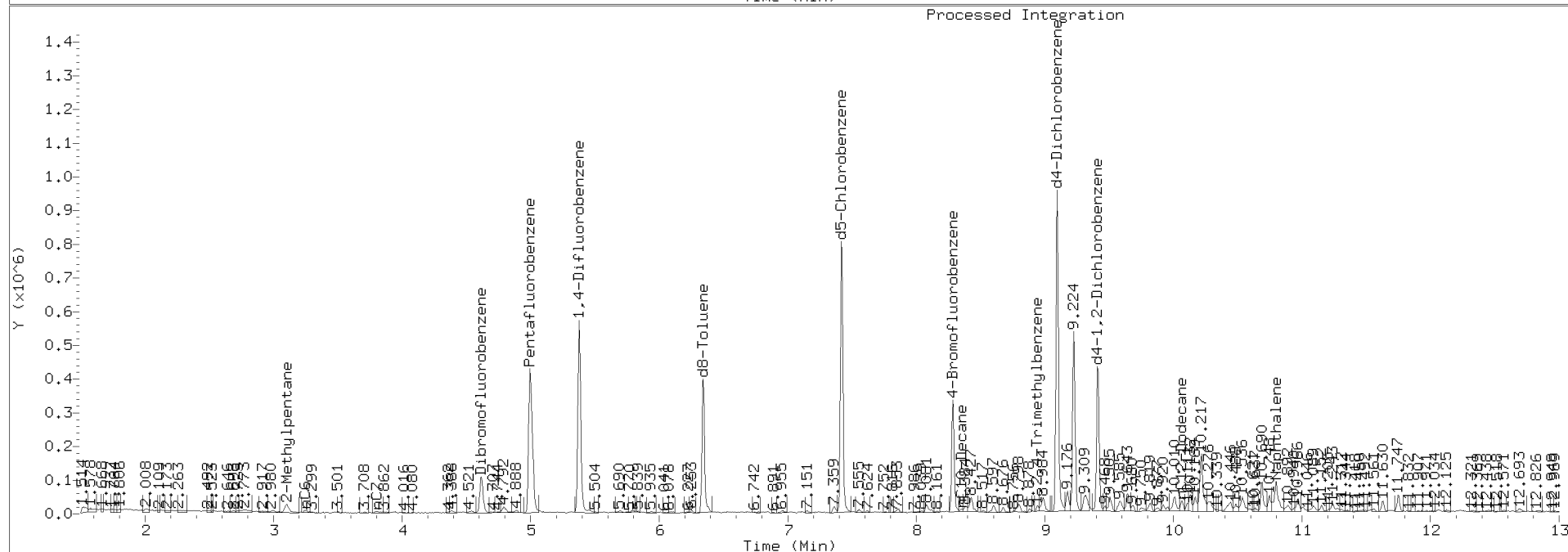
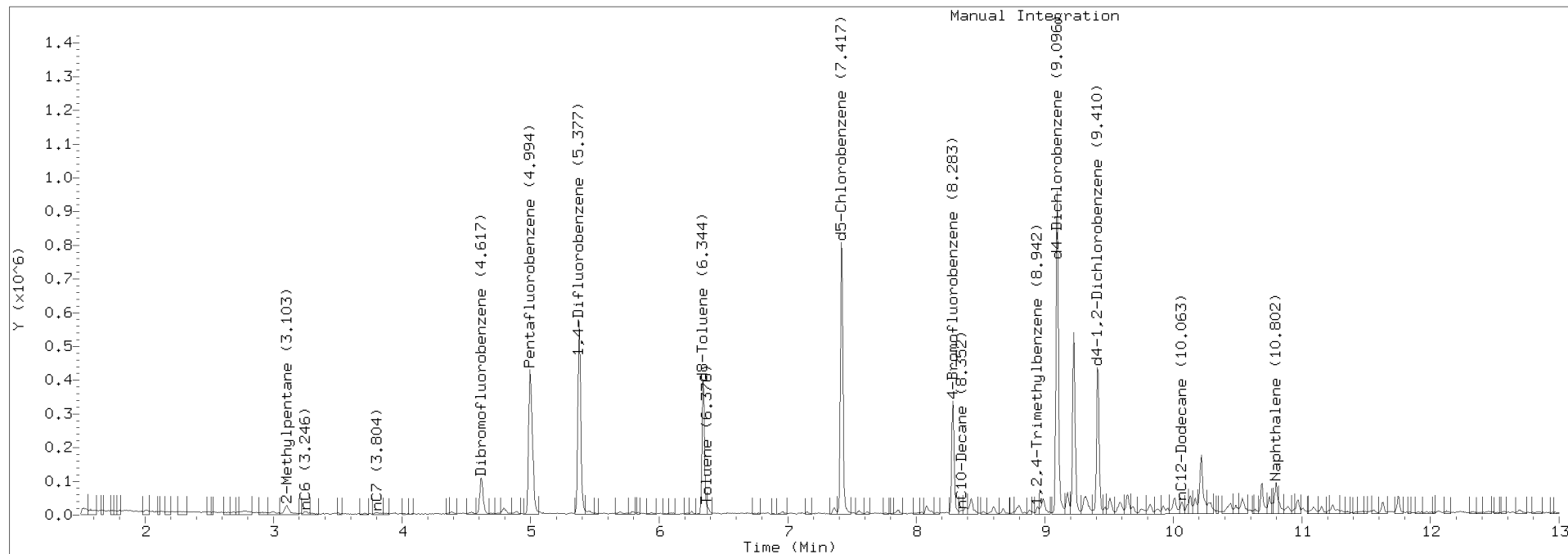
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7.417	1101659	d5-Chlorobenzene
6.344	573654	d8-Toluene
9.096	1258798	d4-Dichlorobenzene
8.283	459681	4-Bromofluorobenzene
9.410	622460	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230919g.b/V309192318G.D Injection: 19-SEP-2023 17:25

Lab ID:23I0388-07





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**PZ-17-20230914**  
**2310388-08 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/14/2023 15:50  
Instrument: ECD8 Analyzed: 11-Oct-2023 21:00

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	76.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	89.4	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**PZ-17-20230914**  
**2310388-08 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E

Sampled: 09/14/2023 15:50

Instrument: NT6

Analyzed: 22-Sep-2023 20:57

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	<b>0.3</b>	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>79.9 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>105 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>103 %</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**PZ-17-20230914**  
**2310388-08 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/14/2023 15:50  
Analyzed: 02-Oct-2023 20:15

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>74.0</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>76.1</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>82.2</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**PZ-17-20230914**  
**2310388-08 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 15:50  
Analyzed: 16-Oct-2023 22:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	<b>110</b>	ug/L	
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	<b>364</b>	ug/L	
Surrogate: <i>o</i> -Terphenyl			50-150 %	82.4	%	

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231640.D

Date: 16-OCT-2023 22:48

Client ID:

Sample Info: 2310388-08

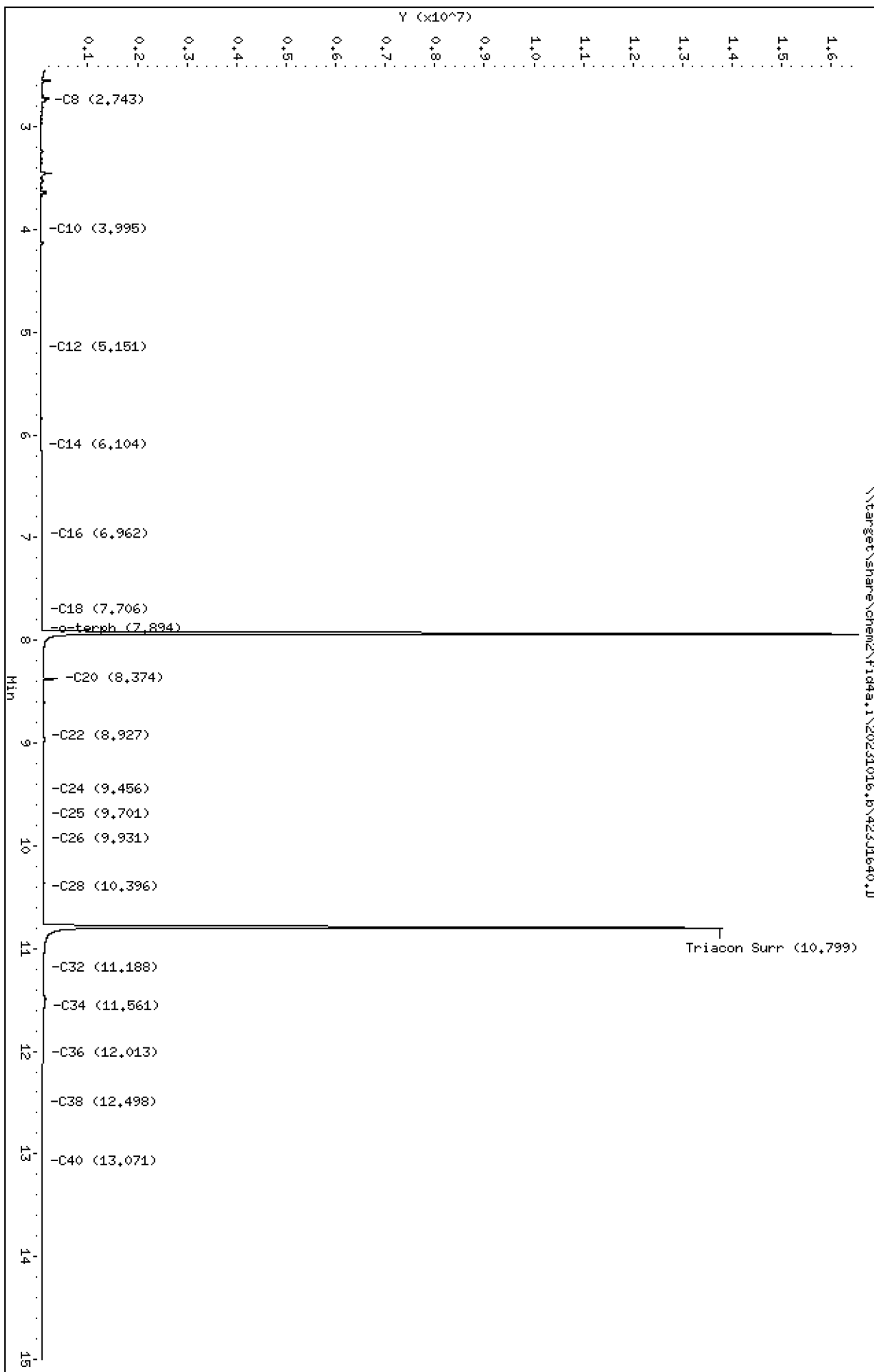
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1640.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-08  
Client ID:  
Injection: 16-OCT-2023 22:48  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

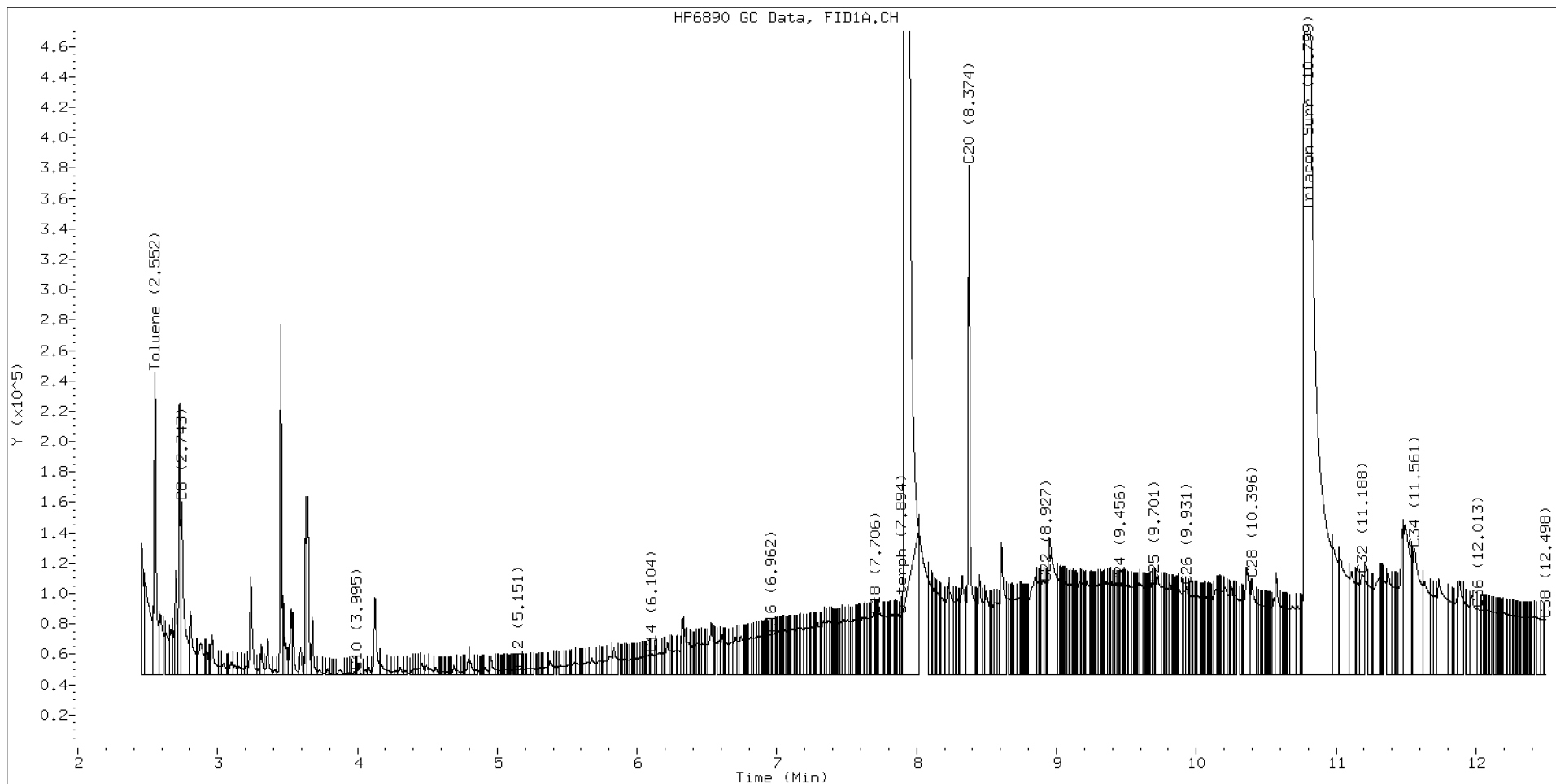
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.743	-0.014	113795	163970	WATPHD	(C12-C24)	8723649	55.0
C10	3.995	0.004	2232	1221	WATPHM	(C24-C38)	8586114	72.1
C12	5.151	0.002	3335	661	AK102	(C10-C25)	9499281	50.2
C14	6.104	-0.008	13753	19253	AK103	(C25-C36)	7145235	71.4
C16	6.962	0.008	26702	15932				
C18	7.706	0.008	39479	15722				
C20	8.374	0.025	335225	401698				
C22	8.927	-0.001	60189	17968				
C24	9.456	0.006	58633	14603				
C25	9.701	0.008	60115	29770				
C26	9.931	0.003	58562	83099				
C32	11.188	-0.029	66256	145522				
C34	11.561	-0.058	83126	300763				
Filter Peak	----				CREOSOT	(C12-C22)	6968921	182.1 M
C36	12.013	-0.040	43354	51643				
C38	12.498	-0.047	36386	25421				
C40	13.071	-0.063	30168	12044				
o-terph	7.938	-0.004	16439760	18884273				
Triacon Surr	10.799	-0.027	13766179	16993744				

Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	18884273	92.7 M
Triacontane	16993744	124.7

M Indicates the peak was manually integrated

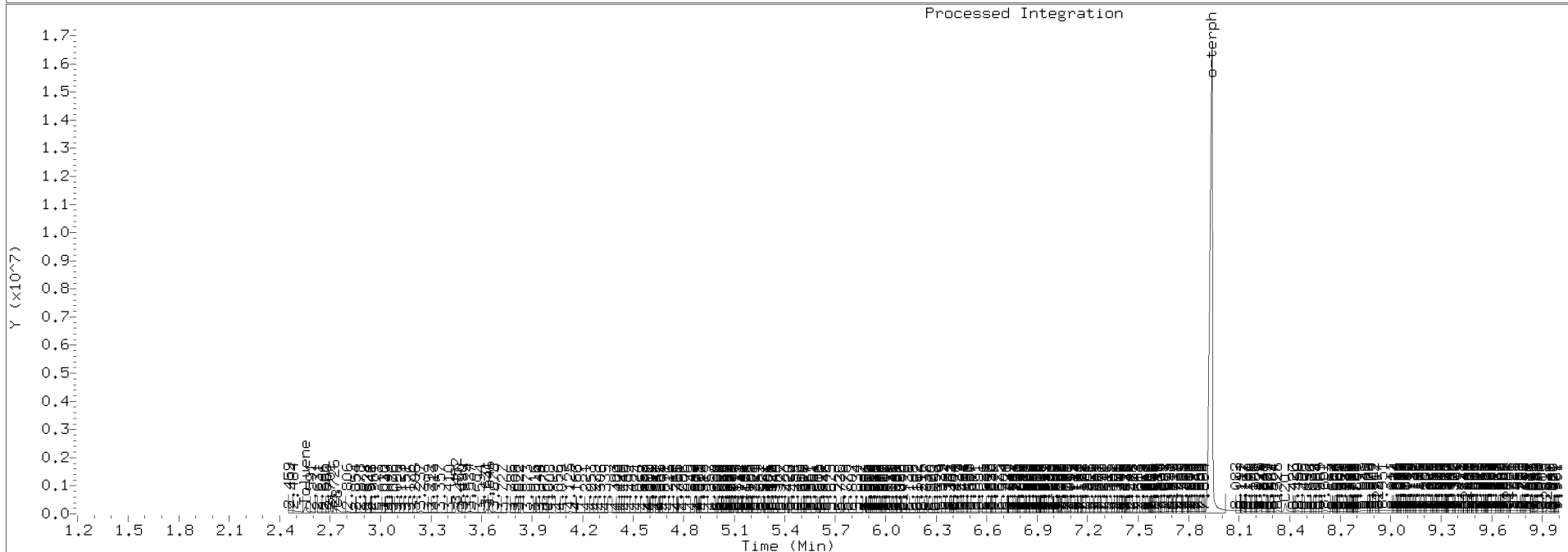
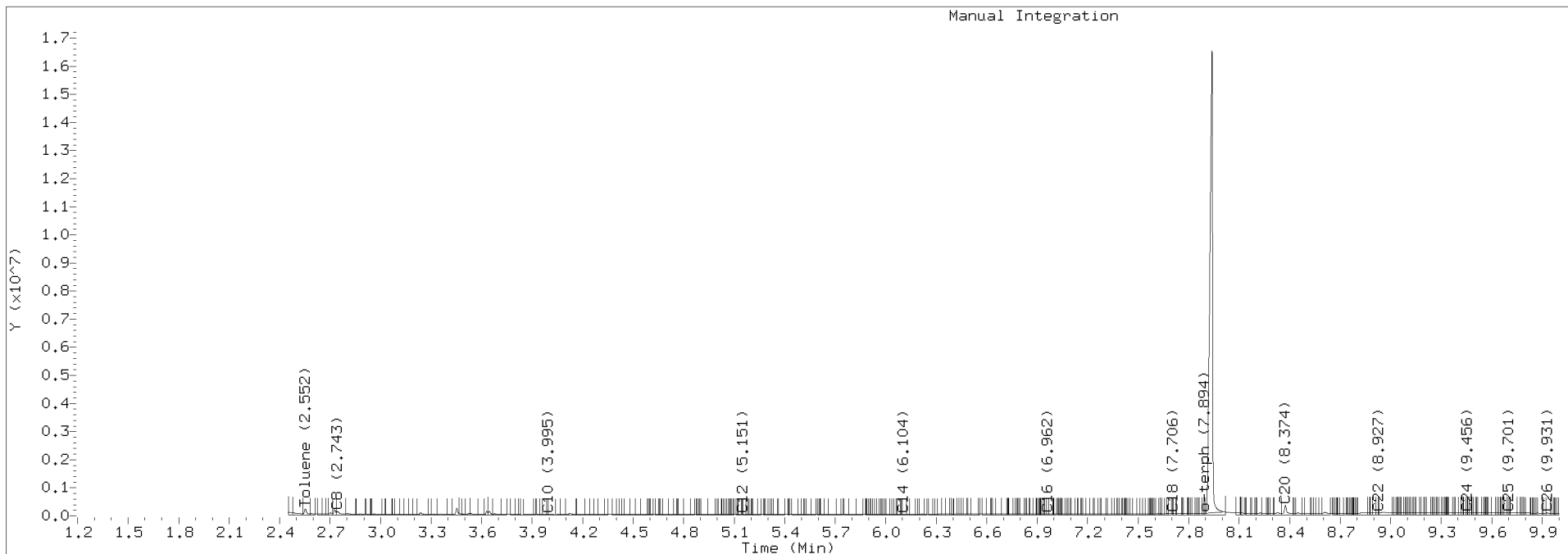
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1640.D Injection: 16-OCT-2023 22:48

Lab ID:23I0388-08





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-17-20230914**  
**2310388-08 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/14/2023 15:50  
Instrument: NT3 Analyzed: 19-Sep-2023 17:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	101	%	

Data File: \\target\share\chend\nt3.1\20230919s.1b\309192319G.D

Date: 19-SEP-2023 17:47

Client ID:

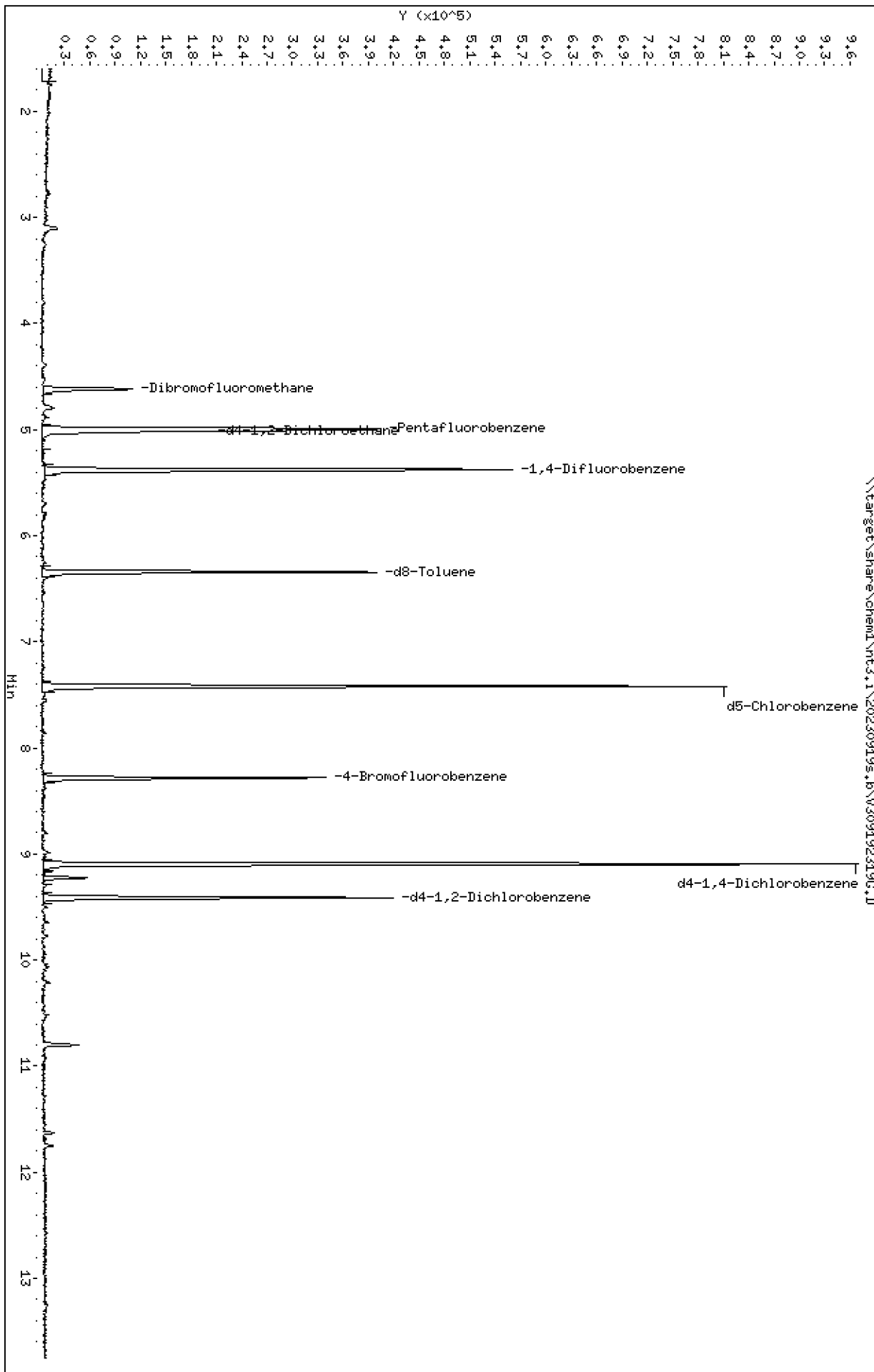
Sample Info: 2310388-08

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192319G.D  
 Lab Smp Id: 23I0388-08  
 Inj Date : 19-SEP-2023 17:47  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : 23I0388-08  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.923)	55704	5.48012	5.480
* 32 Pentafluorobenzene	168		4.999	4.993	(1.000)	212810	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.003)	36374	6.09730	6.097
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	329939	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	192358	5.05094	5.051
* 53 d5-Chlorobenzene	117		7.416	7.416	(1.000)	321835	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.283	8.287	(1.117)	71212	5.03965	5.040
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	187113	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.409	9.408	(1.034)	82742	5.09700	5.097

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192319G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-08  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	212810	-8.55
37 1,4-Difluorobenze	350169	175085	700338	329939	-5.78
53 d5-Chlorobenzene	337155	168578	674310	321835	-4.54
76 d4-1,4-Dichlorobe	191021	95511	382042	187113	-2.05

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	5.00	0.12
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23I0388-08  
Level: LOW Operator: TWC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.480	109.60	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.097	121.95	80-128
\$ 43 d8-Toluene	5.000	5.051	101.02	80-120
\$ 62 4-Bromofluorobenze	5.000	5.040	100.79	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.097	101.94	80-120



REVIEW SUMMARY FOR FILE - V309192319G.D

Lab ID: 23I0388-08

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 17:47

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.1b\202309192319G.D

Date: 19-SEP-2023 17:47

Client ID:

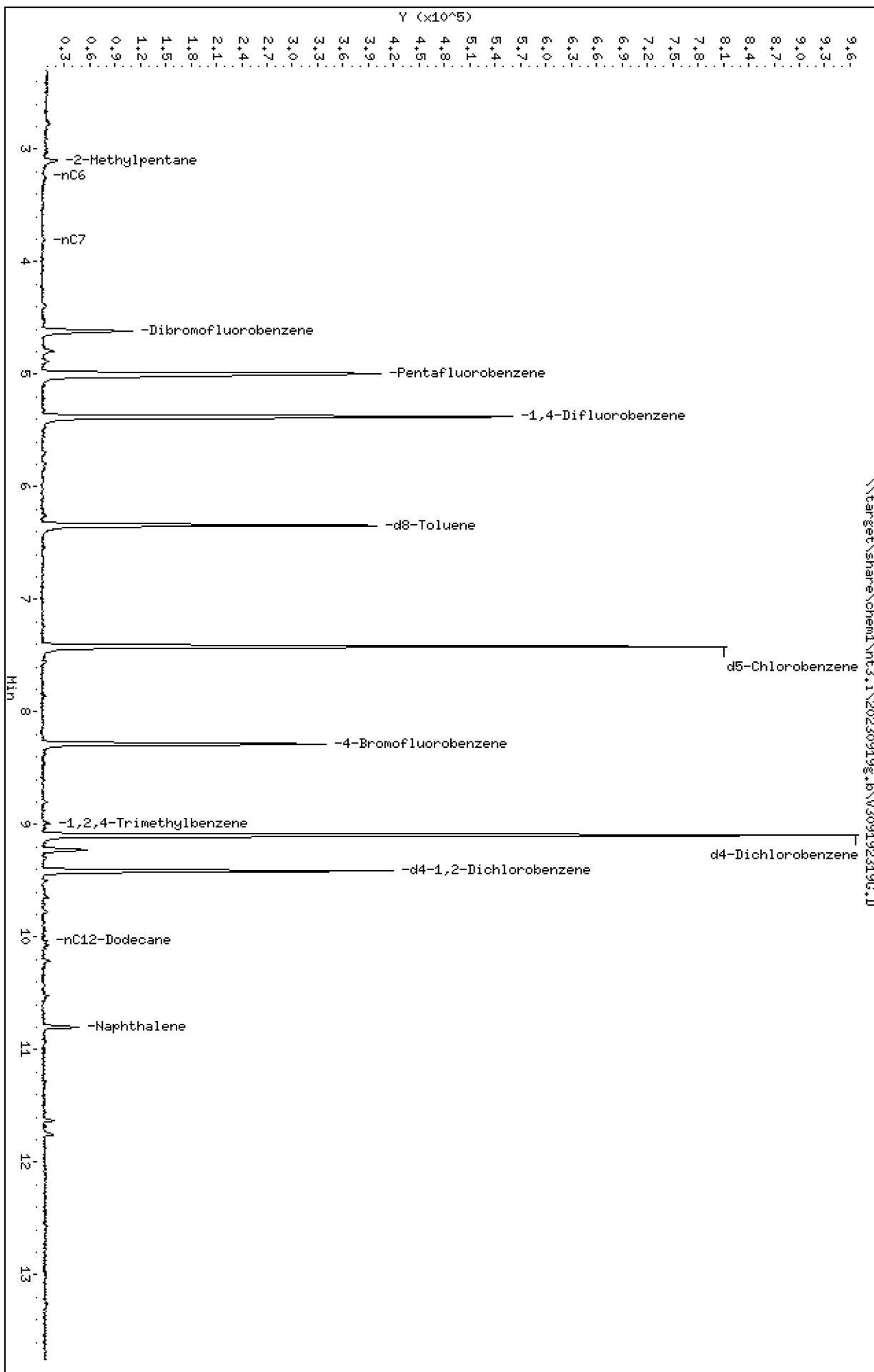
Sample Info: 2310388-08

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192319G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 17:47

ARI ID: 23I0388-08  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	266089	0.006
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	295277	0.004
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	196703	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	361982	0.007
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	387966	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.417	1094953	d5-Chlorobenzene
6.344	572984	d8-Toluene
9.096	1202343	d4-Dichlorobenzene
8.283	449921	4-Bromofluorobenzene
9.409	584259	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-18-20230914**  
**2310388-09 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/14/2023 17:05  
Instrument: ECD8 Analyzed: 11-Oct-2023 21:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	64.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	66.1	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**PZ-18-20230914**  
**2310388-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E

Sampled: 09/14/2023 17:05

Instrument: NT6

Analyzed: 22-Sep-2023 21:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>78.4 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>105 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>101 %</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**PZ-18-20230914**  
**2310388-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/14/2023 17:05  
Analyzed: 02-Oct-2023 20:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>64.8</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>76.6</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>76.5</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-18-20230914**  
**2310388-09 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 17:05  
Analyzed: 16-Oct-2023 23:08

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	91.0	%	

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231641.D

Date: 16-OCT-2023 23:08

Client ID:

Sample Info: 2310388-09

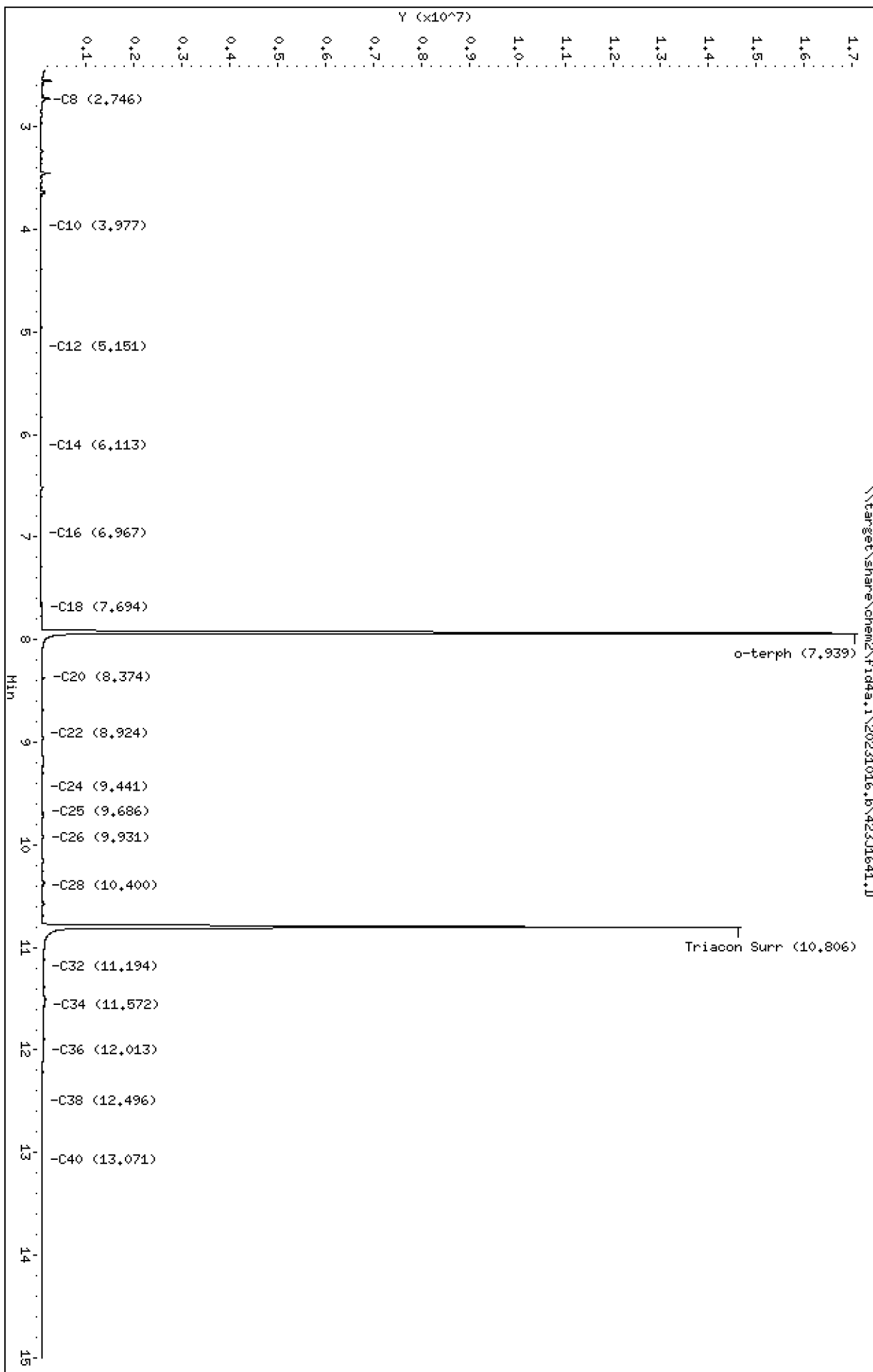
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1641.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-09  
Client ID:  
Injection: 16-OCT-2023 23:08  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

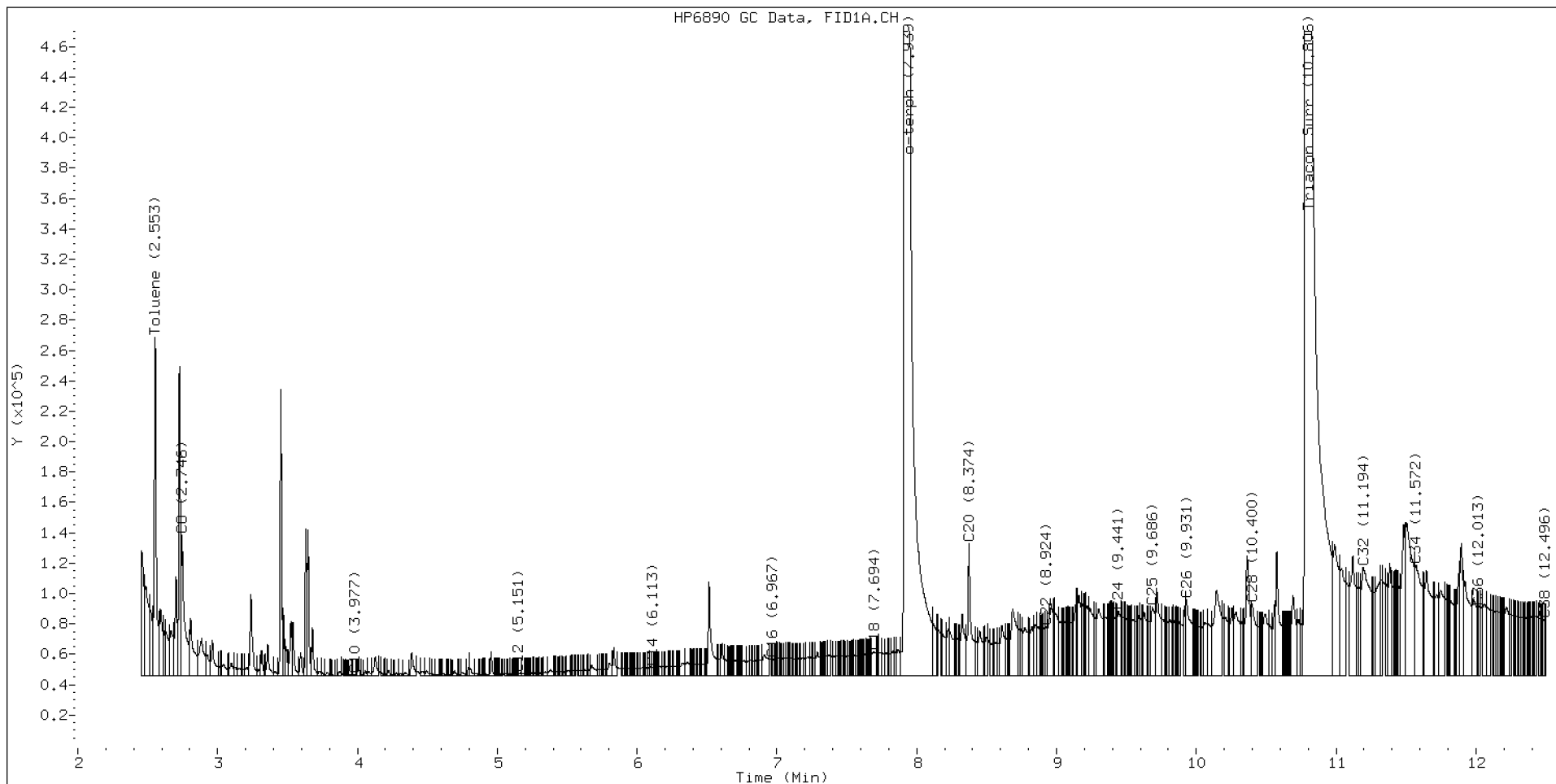
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.746	-0.012	92394	141218	WATPHD	(C12-C24)	4046310	25.5
C10	3.977	-0.013	961	794	WATPHM	(C24-C38)	7564224	63.5
C12	5.151	0.003	1314	447	AK102	(C10-C25)	4510487	23.9
C14	6.113	0.001	5712	5376	AK103	(C25-C36)	6240867	62.4
C16	6.967	0.013	10948	5415				
C18	7.694	-0.005	16275	31312				
C20	8.374	0.025	87363	144717				
C22	8.924	-0.004	32628	23989				
C24	9.441	-0.008	42564	74555				
C25	9.686	-0.007	45301	87888				
C26	9.931	0.003	49905	127045				
C32	11.194	-0.023	71412	307248				
C34	11.572	-0.047	72600	237196				
Filter Peak	----				CREOSOT	(C12-C22)	2797397	73.1 M
C36	12.013	-0.040	45178	15794				
C38	12.496	-0.049	37001	11080				
C40	13.071	-0.063	30465	22693				
o-terph	7.939	-0.003	17063389	20846037				
Triacon Surr	10.806	-0.020	14618431	18474641				

Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	20846037	102.4
Triacontane	18474641	135.6

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**PZ-18-20230914**  
**2310388-09 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/14/2023 17:05  
Instrument: NT3 Analyzed: 19-Sep-2023 18:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.6	%	

Data File: \\target\share\chend\nt3.1\20230919s.b\309192320G.D

Date: 19-SEP-2023 18:10

Client ID:

Sample Info: 2310388-09

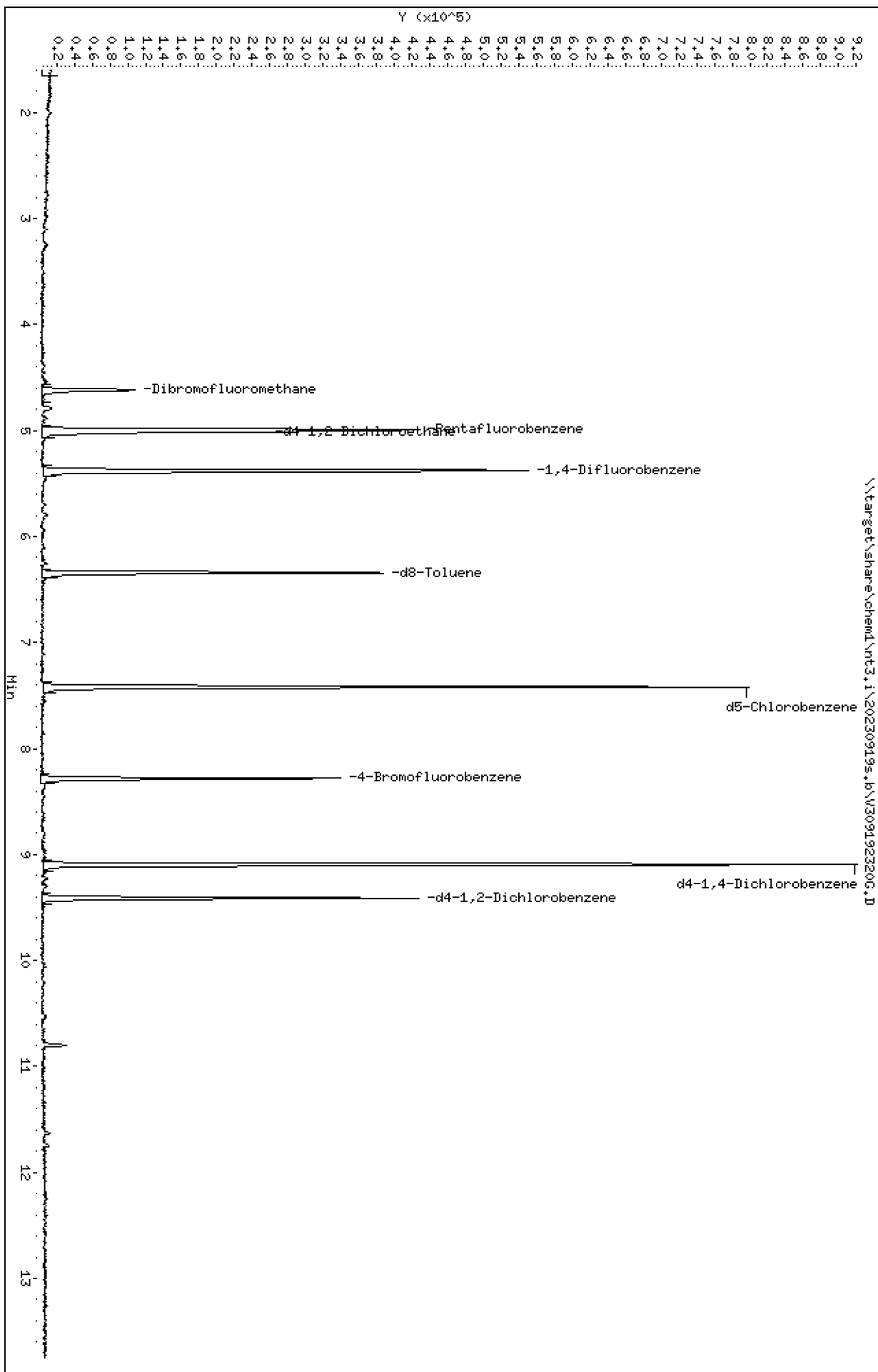
Page 1

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192320G.D  
 Lab Smp Id: 23I0388-09  
 Inj Date : 19-SEP-2023 18:10  
 Operator : TWC  
 Smp Info : 23I0388-09  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i  
 Cal Date : 18-SEP-2023 14:10  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309182318.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	53490	5.17035	5.170
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	216595	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.010	5.009	(1.003)	34496	5.68145	5.681
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	329434	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	190397	5.00711	5.007
* 53 d5-Chlorobenzene	117		7.416	7.416	(1.000)	314353	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.283	8.287	(1.117)	68735	4.98013	4.980
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	182530	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.409	9.408	(1.034)	82593	5.21557	5.216

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192320G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-09  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	216595	-6.92
37 1,4-Difluorobenze	350169	175085	700338	329434	-5.92
53 d5-Chlorobenzene	337155	168578	674310	314353	-6.76
76 d4-1,4-Dichlorobe	191021	95511	382042	182530	-4.45

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23I0388-09  
Level: LOW Operator: TWC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.170	103.41	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.681	113.63	80-128
\$ 43 d8-Toluene	5.000	5.007	100.14	80-120
\$ 62 4-Bromofluorobenze	5.000	4.980	99.60	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.216	104.31	80-120

REVIEW SUMMARY FOR FILE - V309192320G.D

Lab ID: 23I0388-09

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 18:10

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.1b\309192320G.D

Date: 19-SEP-2023 18:10

Client ID:

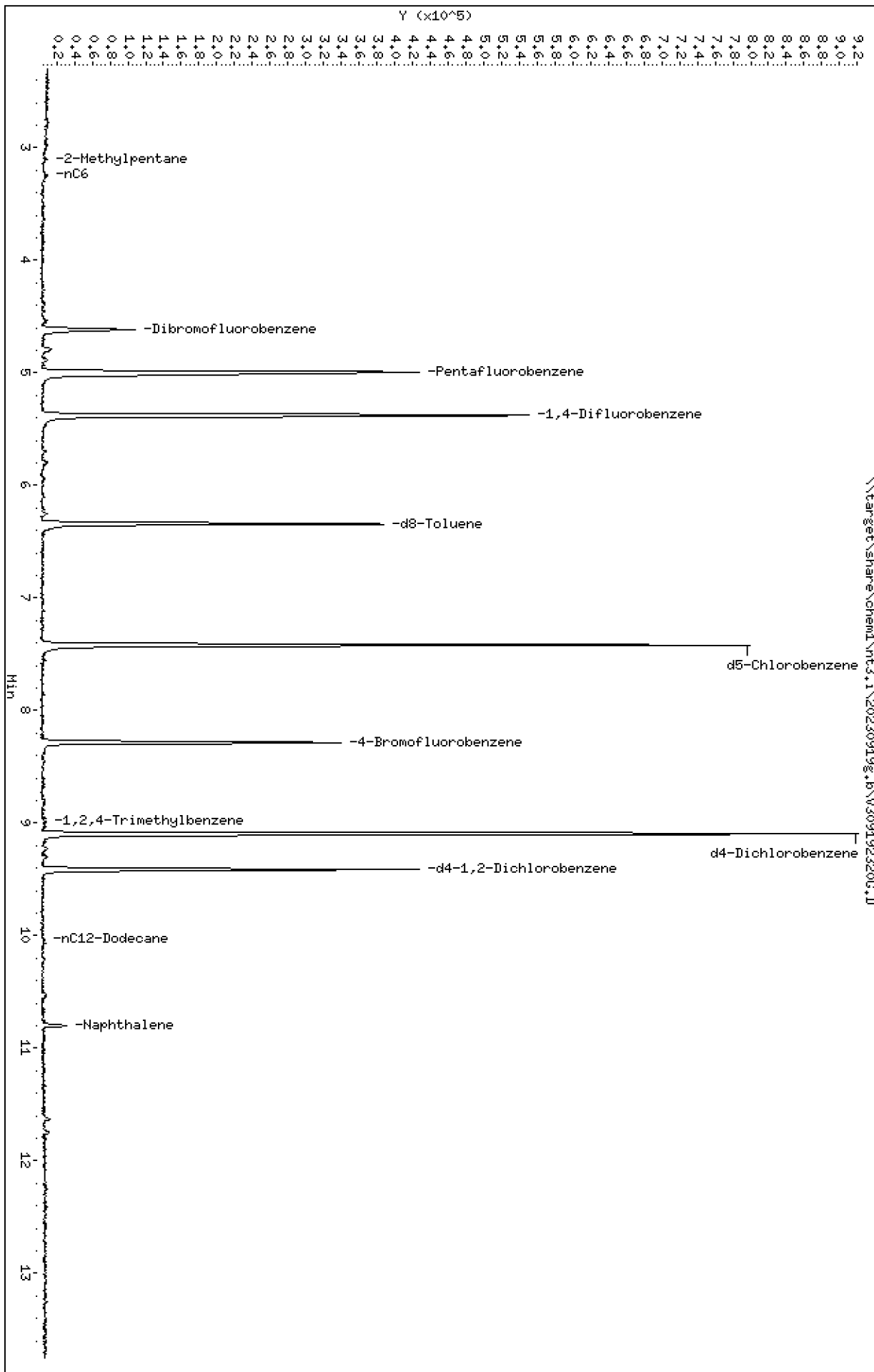
Sample Info: 2310388-09

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192320G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 18:10

ARI ID: 23I0388-09  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	99483	0.002
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	218570	0.003
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	180942	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	161378	0.003
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	227982	0.003

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.417	1078194	d5-Chlorobenzene
6.344	563209	d8-Toluene
9.096	1169465	d4-Dichlorobenzene
8.283	437687	4-Bromofluorobenzene
9.409	221831	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**LW-4R-20230914**  
**2310388-10 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/14/2023 17:09  
Instrument: ECD8 Analyzed: 11-Oct-2023 21:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	68.5	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	81.7	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**LW-4R-20230914**  
**2310388-10 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/14/2023 17:09  
Analyzed: 25-Sep-2023 14:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>79.2 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>104 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>88.4 %</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**LW-4R-20230914**  
**2310388-10 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/14/2023 17:09  
Analyzed: 02-Oct-2023 21:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>70.0</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>99.3</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>87.2</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**LW-4R-20230914**  
**2310388-10 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/14/2023 17:09  
Analyzed: 16-Oct-2023 23:29

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: <i>o</i> -Terphenyl			50-150 %	86.0	%	

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231642.D

Date: 16-OCT-2023 23:29

Client ID:

Sample Info: 2310388-10

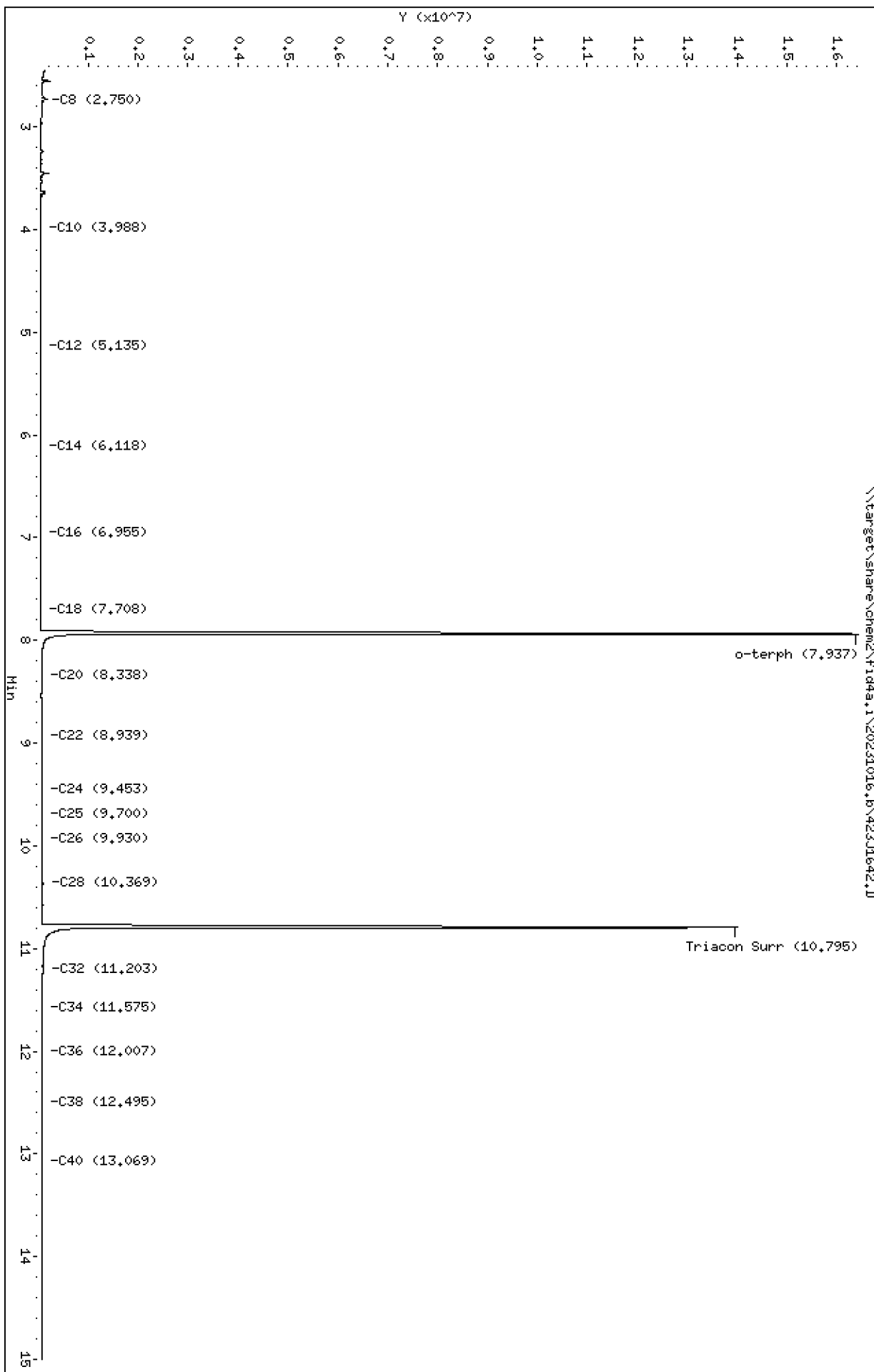
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1642.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-10  
Client ID:  
Injection: 16-OCT-2023 23:29  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.750	-0.008	46818	92523	WATPHD	(C12-C24)	1951350	12.3
C10	3.988	-0.003	1171	1240	WATPHM	(C24-C38)	4285469	36.0
C12	5.135	-0.013	272	200	AK102	(C10-C25)	2170631	11.5
C14	6.118	0.006	2820	1500	AK103	(C25-C36)	3395797	33.9
C16	6.955	-0.000	6201	7336				
C18	7.708	0.009	8176	4047				
C20	8.338	-0.011	17269	11093				
C22	8.939	0.011	15805	6303				
C24	9.453	0.003	20394	12095				
C25	9.700	0.007	21686	12973				
C26	9.930	0.003	24545	44414				
C32	11.203	-0.014	44144	159024				
C34	11.575	-0.044	36100	58425				
Filter Peak	----				CREOSOT	(C12-C22)	1366785	35.7 M
C36	12.007	-0.046	30281	39027				
C38	12.495	-0.050	26815	13384				
C40	13.069	-0.066	23315	16231				
o-terph	7.937	-0.005	16387523	19685183				
Triacon Surr	10.795	-0.030	13977926	17734939				

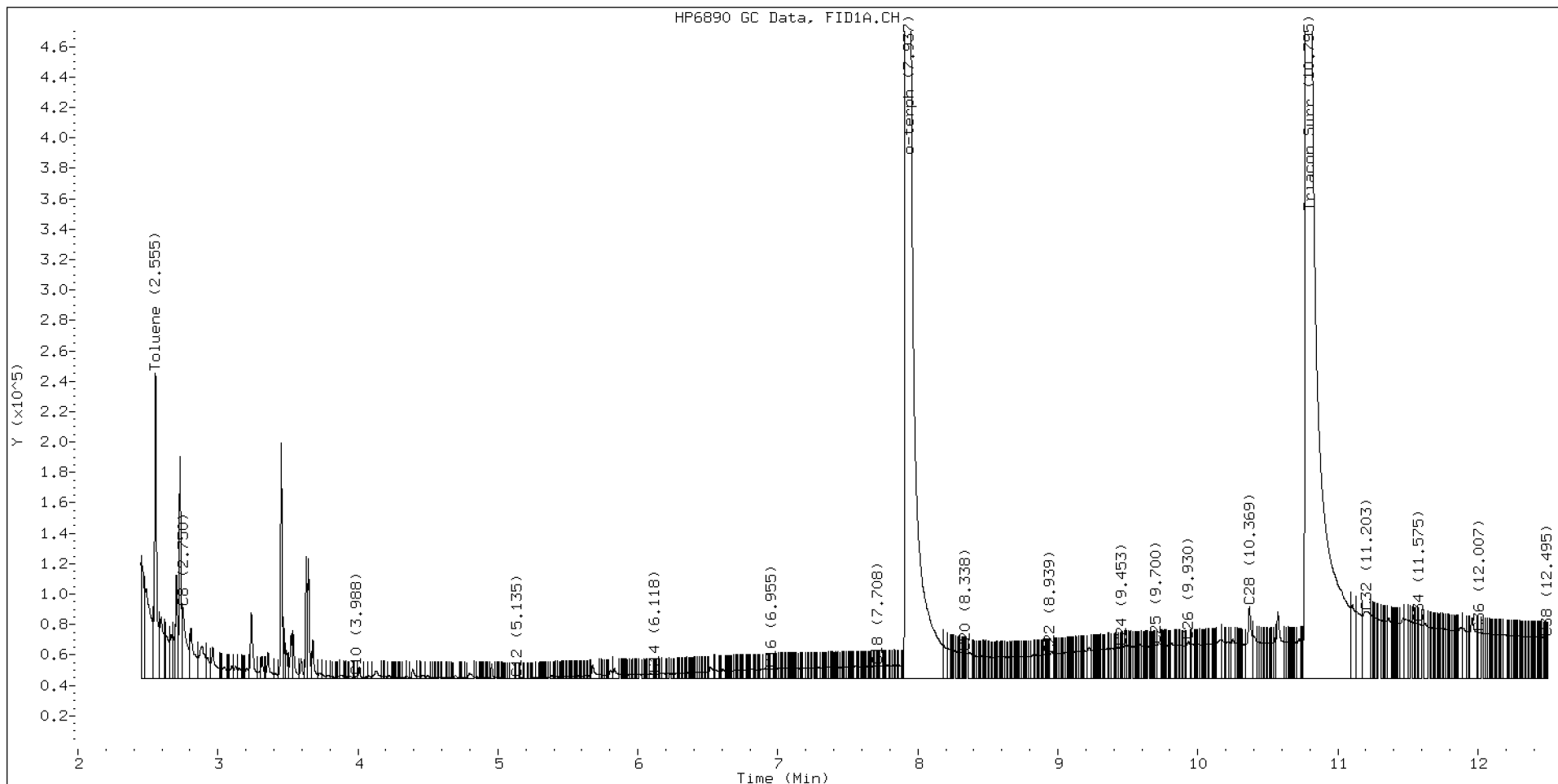
Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	19685183	96.7
Triacotane	17734939	130.2

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023







Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
---	---	---------------------------------------

**LW-4R-20230914**  
**2310388-10 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg Sampled: 09/14/2023 17:09  
Instrument: NT3 Analyzed: 19-Sep-2023 18:32

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.8	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.7	%	

Data File: \\target\share\chend\nt3.1\20230919s.16\309192321G.D

Date: 19-SEP-2023 18:32

Client ID:

Sample Info: 2310388-10

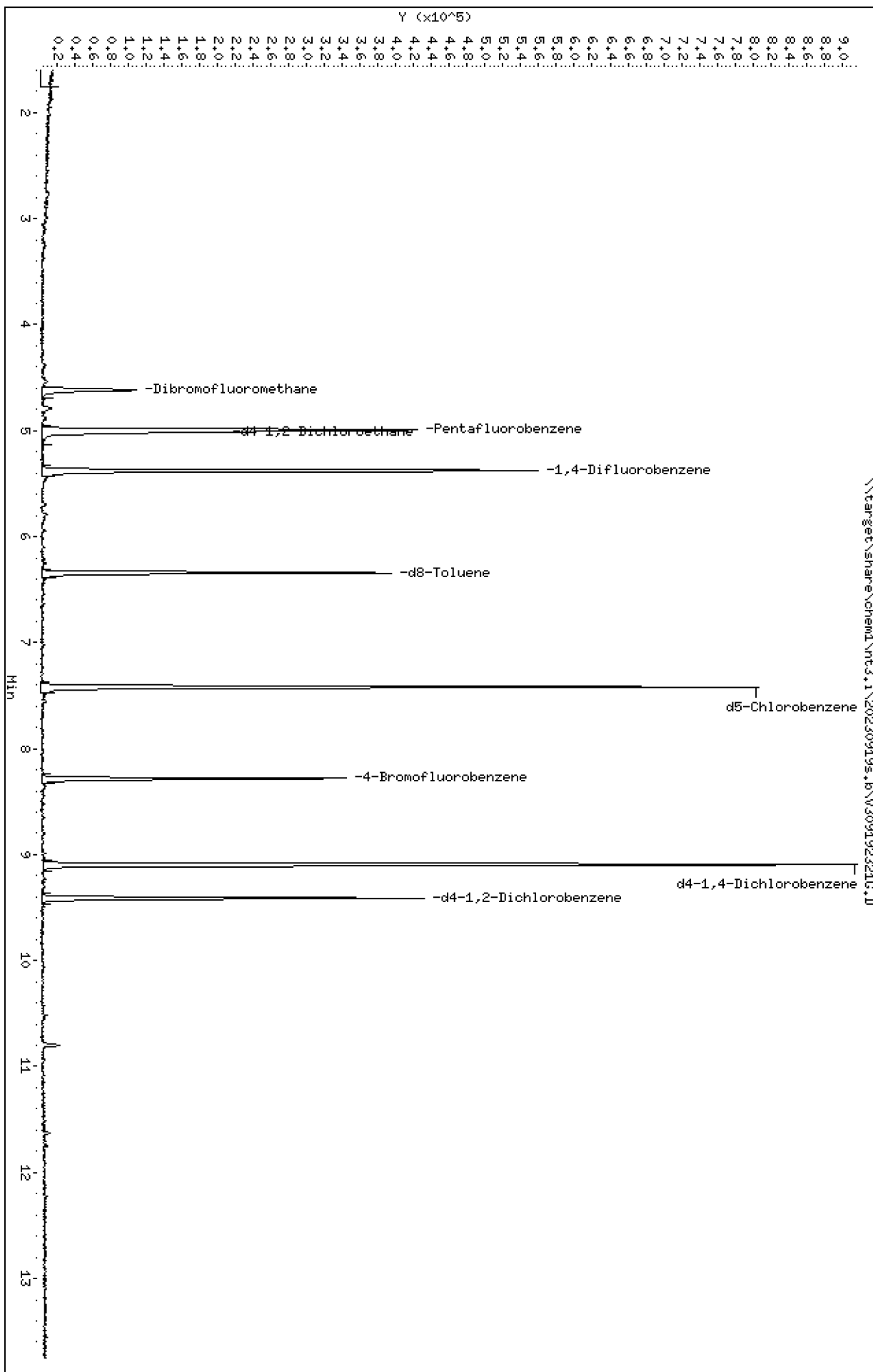
Page 1

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192321G.D  
 Lab Smp Id: 23I0388-10  
 Inj Date : 19-SEP-2023 18:32  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : 23I0388-10  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	54683	5.12099	5.121
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	223560	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.014	5.009	(1.004)	37117	5.92267	5.923
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	327169	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	188441	4.98998	4.990
* 53 d5-Chlorobenzene	117		7.421	7.416	(1.000)	319379	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.282	8.287	(1.116)	69905	4.98520	4.985
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	184654	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.408	(1.035)	84038	5.24577	5.246

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192321G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-10  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	223560	-3.93
37 1,4-Difluorobenze	350169	175085	700338	327169	-6.57
53 d5-Chlorobenzene	337155	168578	674310	319379	-5.27
76 d4-1,4-Dichlorobe	191021	95511	382042	184654	-3.33

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.07
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23I0388-10  
Level: LOW Operator: TWC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.121	102.42	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.923	118.45	80-128
\$ 43 d8-Toluene	5.000	4.990	99.80	80-120
\$ 62 4-Bromofluorobenze	5.000	4.985	99.70	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.246	104.92	80-120

REVIEW SUMMARY FOR FILE - V309192321G.D

Lab ID: 23I0388-10

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 18:32

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.1b\2309192321G.D

Date: 19-SEP-2023 18:32

Client ID:

Sample Info: 2310388-10

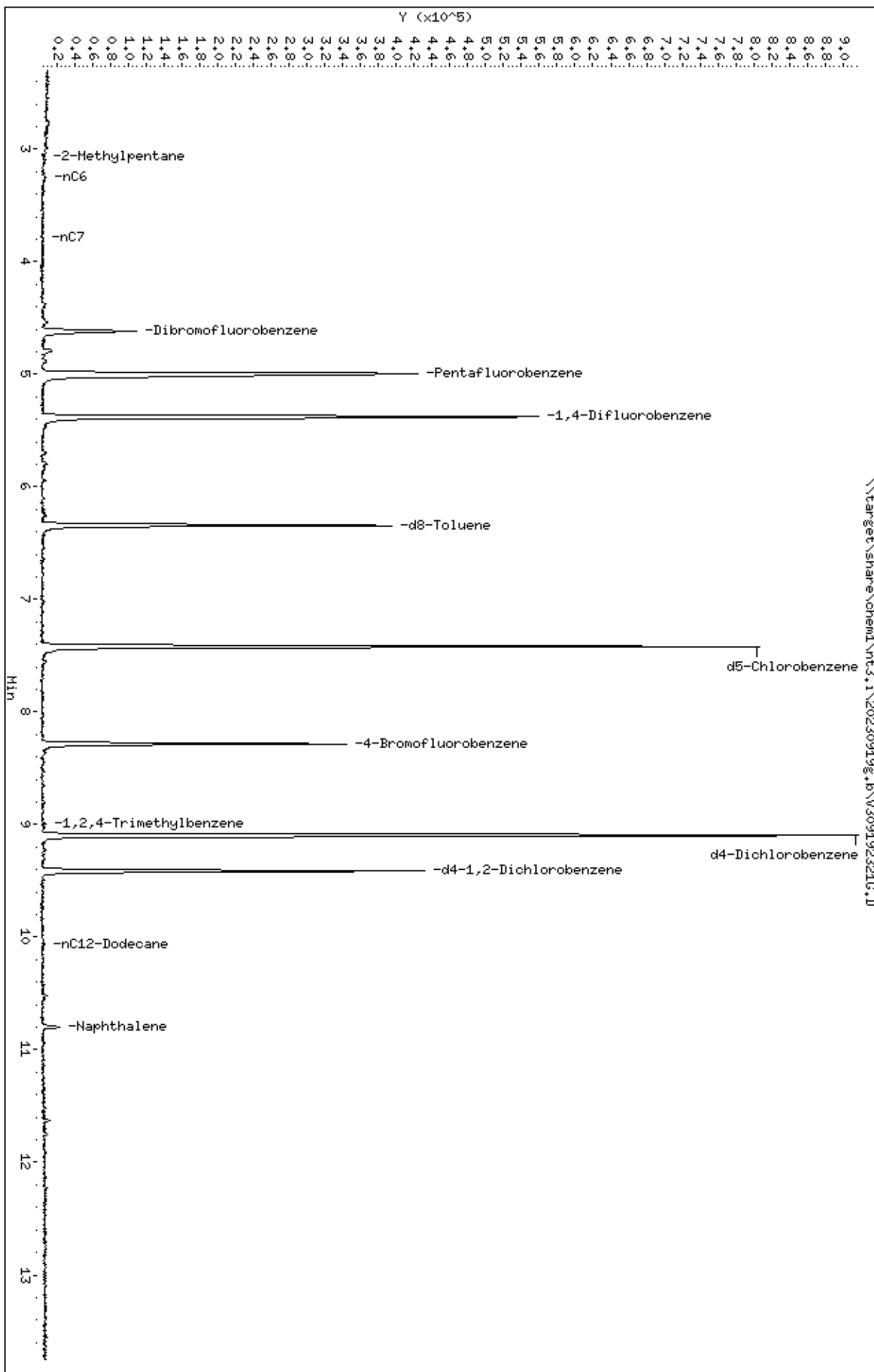
Page 1

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS





Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192321G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 18:32

ARI ID: 23I0388-10  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	85244	0.002
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	226846	0.003
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	178404	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	138375	0.003
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	220172	0.003

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.416	1078554	d5-Chlorobenzene
6.343	290394	d8-Toluene
9.095	1191461	d4-Dichlorobenzene
8.282	440599	4-Bromofluorobenzene
9.409	573918	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**MW-02S-20230915**  
**2310388-11 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2023 07:55  
Instrument: ECD8 Analyzed: 11-Oct-2023 22:13

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	78.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	95.2	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-02S-20230915**  
**2310388-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2023 07:55  
Analyzed: 25-Sep-2023 14:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	<b>5.8</b>	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	<b>0.4</b>	ug/L	J
Dibenzofuran	132-64-9	1	0.2	1.0	<b>1.1</b>	ug/L	
Fluorene	86-73-7	1	0.2	1.0	<b>1.5</b>	ug/L	
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	<b>0.4</b>	ug/L	J
Anthracene	120-12-7	1	0.3	1.0	<b>0.6</b>	ug/L	J
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	<b>0.3</b>	ug/L	J
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	<b>1.4</b>	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>					<i>54.4-120 %</i>	<i>81.2 %</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>					<i>49.3-128 %</i>	<i>107 %</i>	
<i>Surrogate: p-Terphenyl-d14</i>					<i>60-120 %</i>	<i>90.1 %</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-02S-20230915**  
**2310388-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/15/2023 07:55  
Analyzed: 02-Oct-2023 21:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>70.2</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>75.6</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>83.0</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-02S-20230915**  
**2310388-11 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/15/2023 07:55  
Analyzed: 16-Oct-2023 23:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	1	100	233	ug/L	
Motor Oil Range Organics (C24-C38) HC ID: MOTOR OIL	RRO	1	200	204	ug/L	
Creosote Range Organics (C12-C22)	8001-58-9	1	200	791	ug/L	
Surrogate: o-Terphenyl			50-150 %	76.0	%	

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231643.D

Date: 16-OCT-2023 23:49

Client ID:

Sample Info: 2310388-11

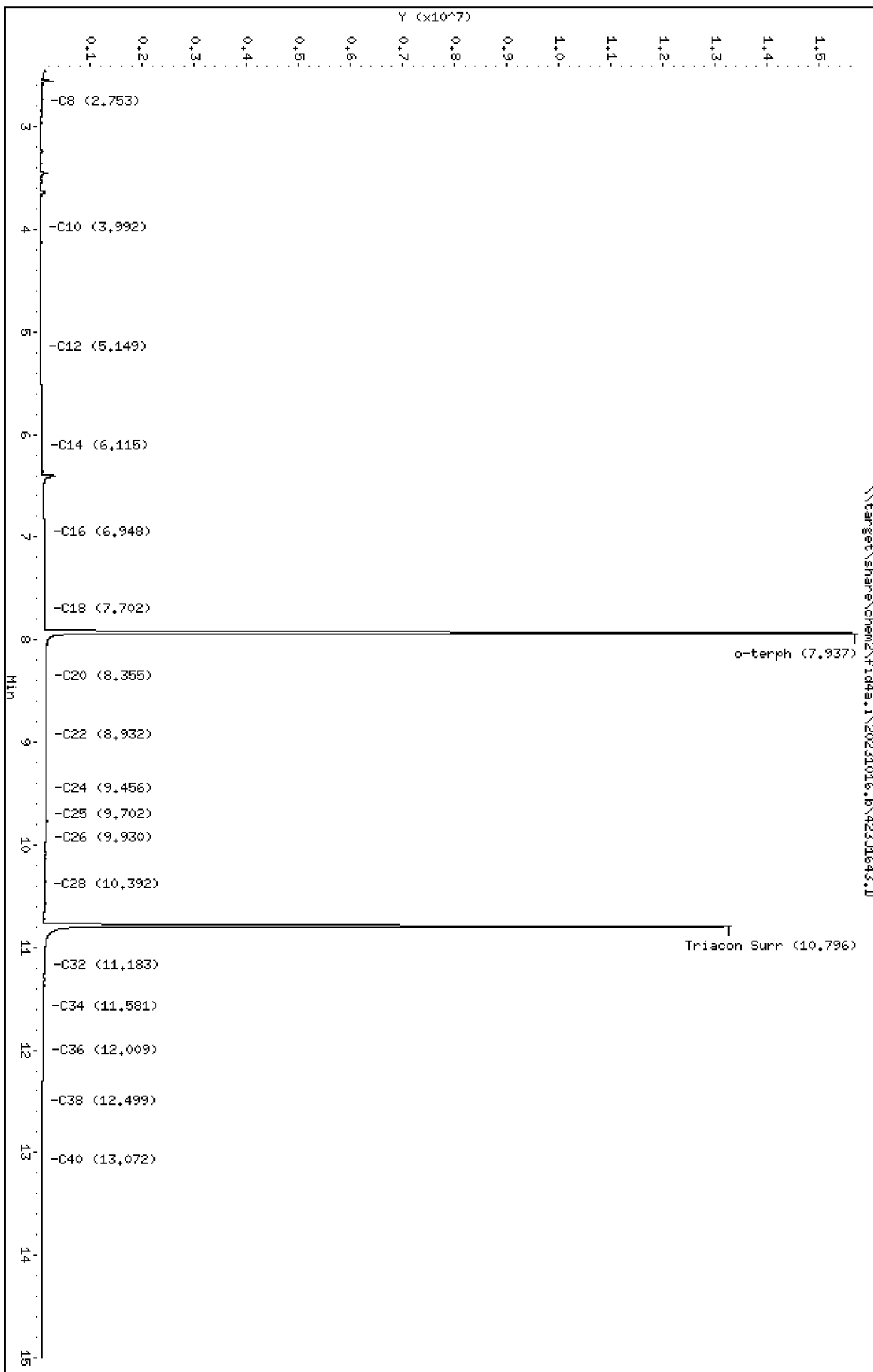
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1643.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-11  
Client ID:  
Injection: 16-OCT-2023 23:49  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

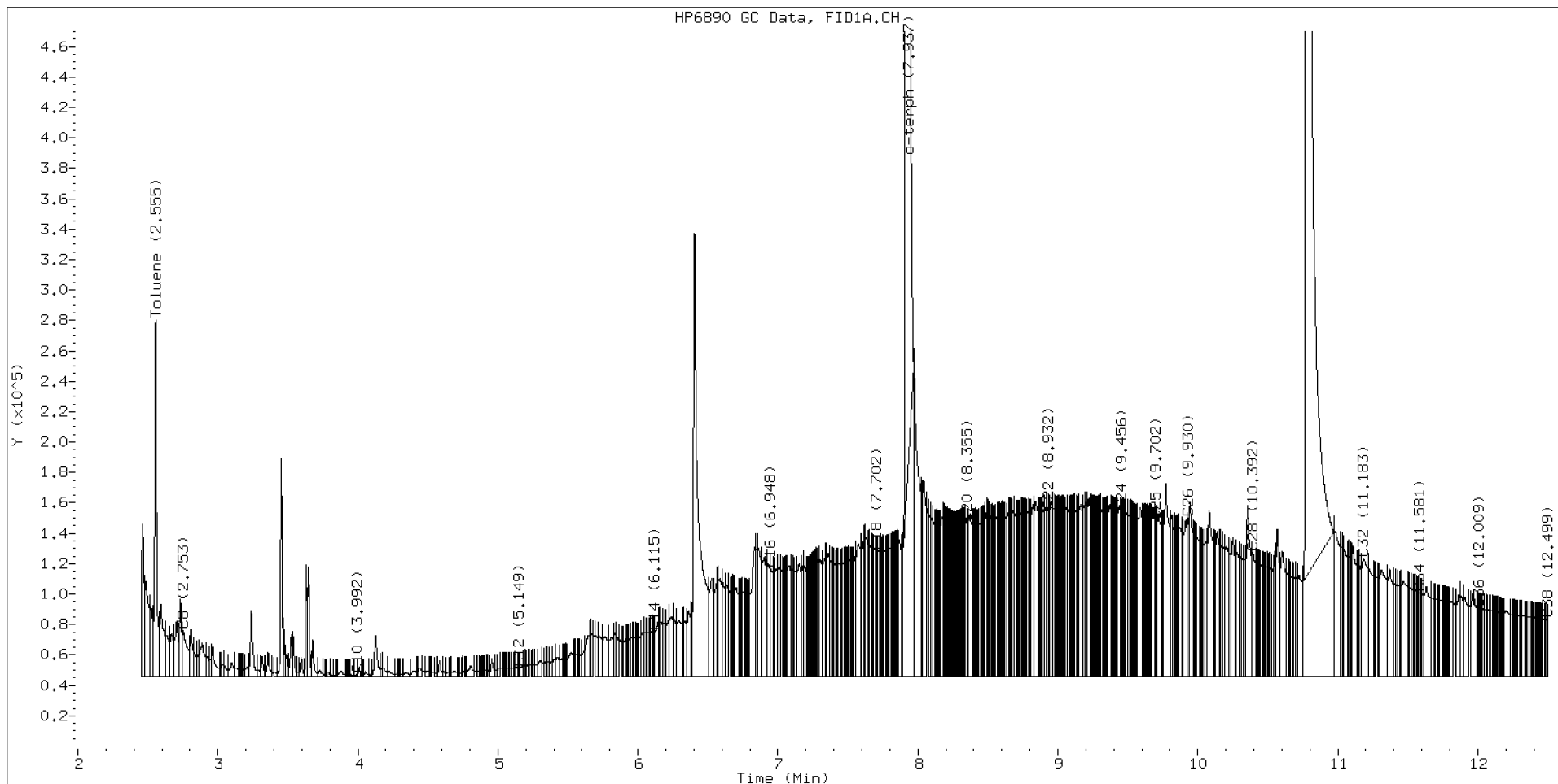
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.753	-0.004	29757	65315	WATPHD	(C12-C24)	18463848	116.4
C10	3.992	0.002	788	553	WATPHM	(C24-C38)	12148949	102.0
C12	5.149	0.000	5479	1893	AK102	(C10-C25)	19538969	103.3
C14	6.115	0.003	29287	11644	AK103	(C25-C36)	10347813	103.4
C16	6.948	-0.007	70189	72675				
C18	7.702	0.003	82154	40819				
C20	8.355	0.006	100433	30069				
C22	8.932	0.004	108567	27119				
C24	9.456	0.007	107084	37391				
C25	9.702	0.009	101585	55766				
C26	9.930	0.003	103470	80386				
C32	11.183	-0.034	76919	213177				
C34	11.581	-0.039	54767	40755				
Filter Peak	----	----			CREOSOT	(C12-C22)	15126048	395.3 M
C36	12.009	-0.044	44333	26518				
C38	12.499	-0.046	37011	20342				
C40	13.072	-0.062	30665	29026				
o-terph	7.937	-0.005	15543482	17418107				
Triacon Surr	10.796	-0.029	13212283	15260933				

Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	17418107	85.5 M
Triacontane	15260933	112.0 M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023

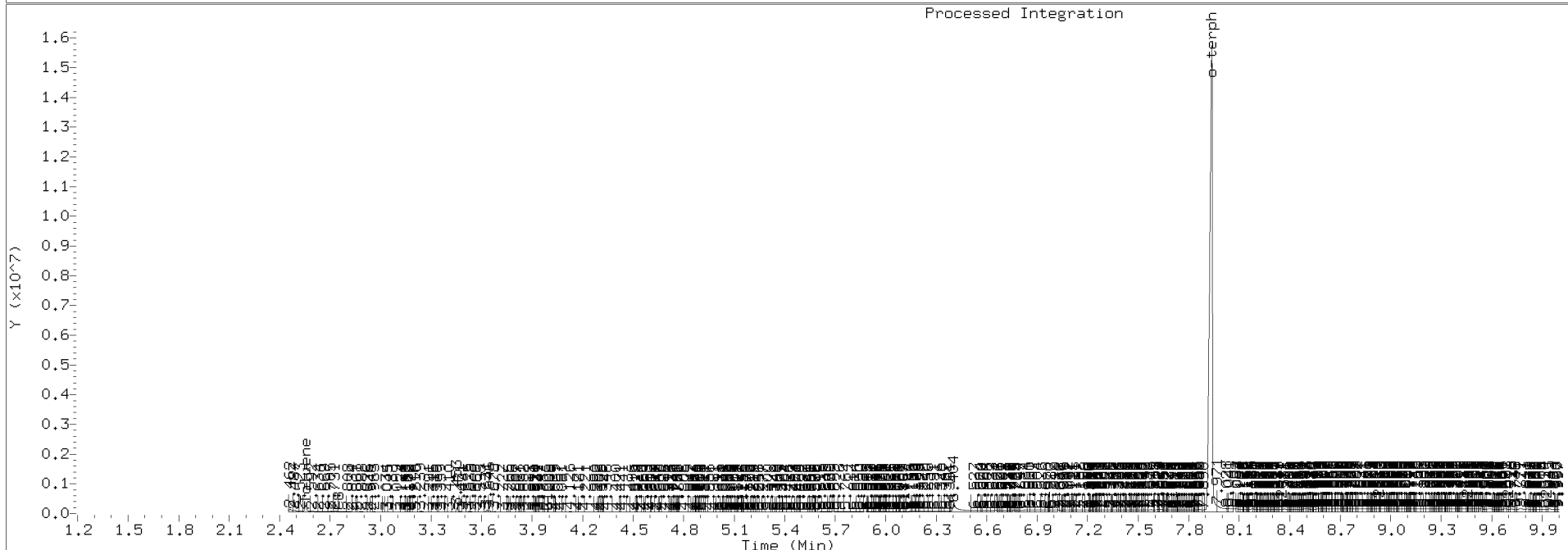
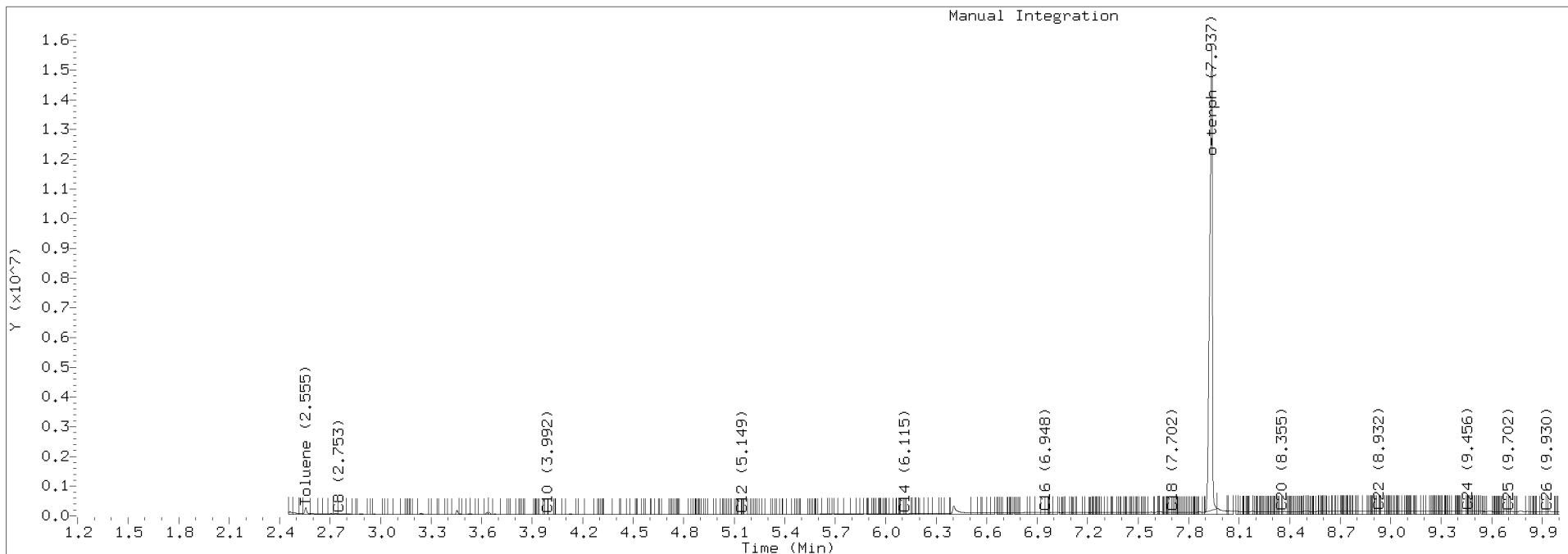




TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1643.D Injection: 16-OCT-2023 23:49

Lab ID:23I0388-11





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

**Reported:**  
24-Oct-2023 09:34

**MW-02S-20230915**  
**2310388-11 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 09/15/2023 07:55  
Analyzed: 19-Sep-2023 18:54

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	102	%	

Data File: \\target\share\chend\nt3.1\20230919s.1b\309192322G.D

Date: 19-SEP-2023 18:54

Client ID:

Sample Info: 2310388-11

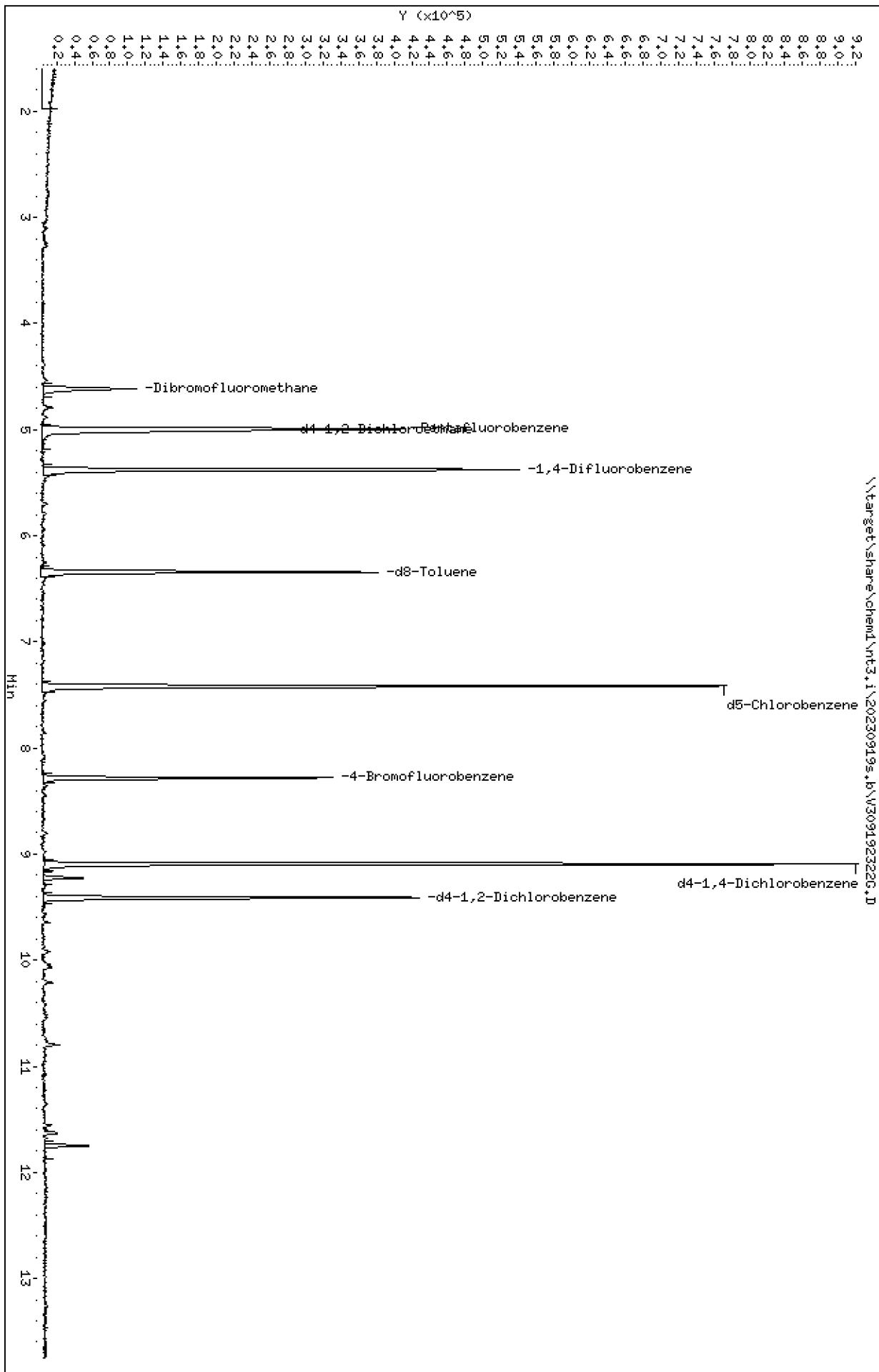
Page 1

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192322G.D  
 Lab Smp Id: 23I0388-11  
 Inj Date : 19-SEP-2023 18:54  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : 23I0388-11  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.615	4.611	(0.924)	52508	5.04271	5.043
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	218000	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	35114	5.74596	5.746
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	324251	10.0000	
\$ 43 d8-Toluene	98		6.342	6.337	(1.180)	183159	4.89376	4.894
* 53 d5-Chlorobenzene	117		7.421	7.416	(1.000)	313286	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.287	(1.117)	70188	5.10273	5.103
* 76 d4-1,4-Dichlorobenzene	152		9.094	9.095	(1.000)	187391	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.413	9.408	(1.035)	88739	5.45831	5.458

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192322G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-11  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	218000	-6.32
37 1,4-Difluorobenze	350169	175085	700338	324251	-7.40
53 d5-Chlorobenzene	337155	168578	674310	313286	-7.08
76 d4-1,4-Dichlorobe	191021	95511	382042	187391	-1.90

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.06
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.09	-0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 23I0388-11  
 Level: LOW Operator: TWC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.043	100.85	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.746	114.92	80-128
\$ 43 d8-Toluene	5.000	4.894	97.88	80-120
\$ 62 4-Bromofluorobenze	5.000	5.103	102.05	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.458	109.17	80-120

REVIEW SUMMARY FOR FILE - V309192322G.D

Lab ID: 23I0388-11  
nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 18:54

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.1b\2309192322G.D

Date: 19-SEP-2023 18:54

Client ID:

Sample Info: 2310388-11

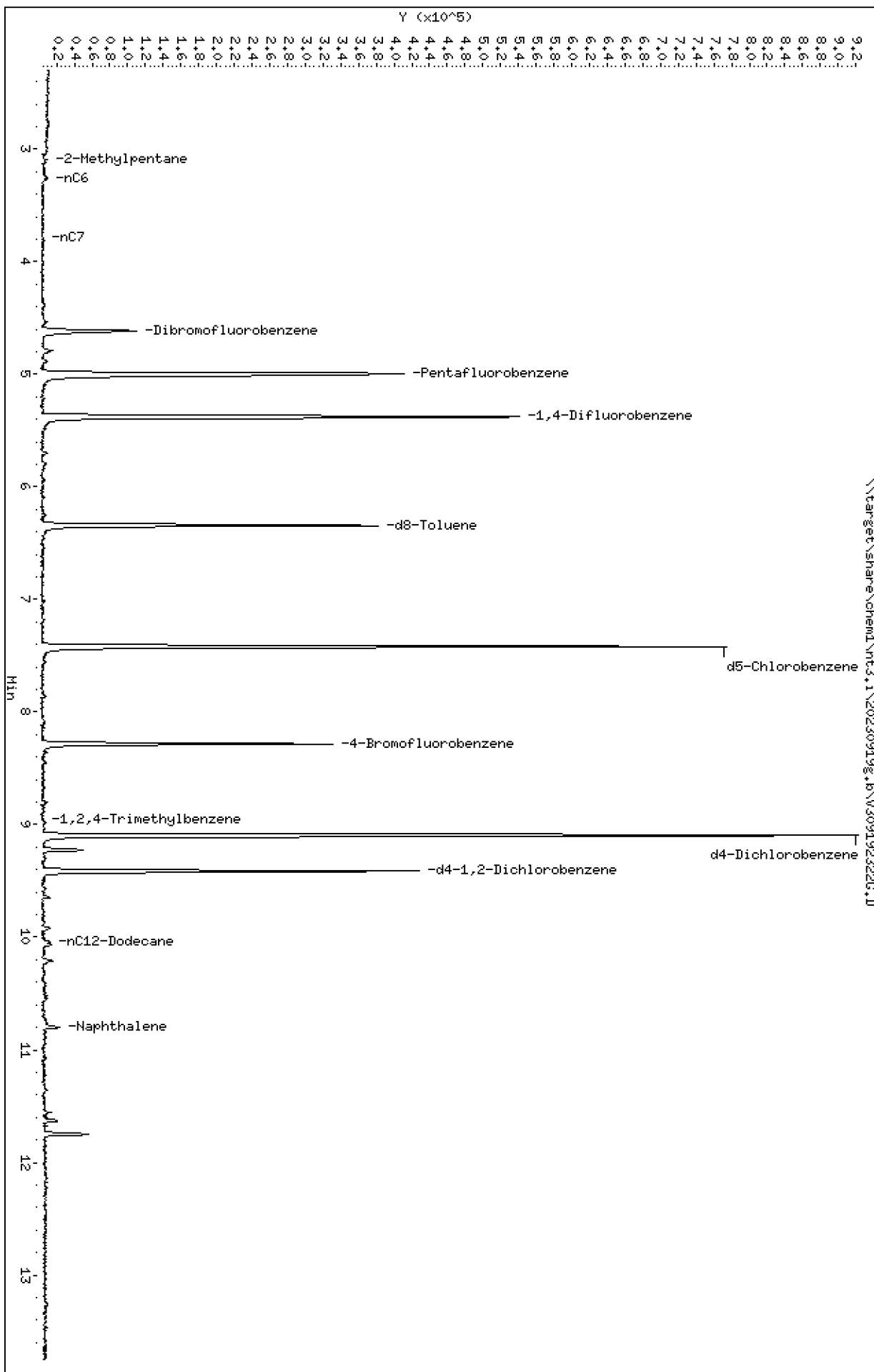
Page 1

Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18





Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192322G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 18:54

ARI ID: 23I0388-11  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	242572	0.005
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	240102	0.003
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	183076	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	328536	0.007
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	351295	0.005

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.416	1059560	d5-Chlorobenzene
6.343	545863	d8-Toluene
9.095	1186255	d4-Dichlorobenzene
8.282	430016	4-Bromofluorobenzene
9.414	578579	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**MW-02D-20230915**  
**2310388-12 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2023 07:56  
Instrument: ECD8 Analyzed: 11-Oct-2023 22:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>0.77</b>	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	83.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	101	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-02D-20230915**  
**2310388-12 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2023 07:56  
Analyzed: 25-Sep-2023 15:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	55.2	ug/L	
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	18.6	ug/L	
2-Methylnaphthalene	91-57-6	1	0.2	1.0	9.2	ug/L	
Dibenzofuran	132-64-9	1	0.2	1.0	6.0	ug/L	
Fluorene	86-73-7	1	0.2	1.0	6.8	ug/L	
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	5.5	ug/L	
Anthracene	120-12-7	1	0.3	1.0	0.4	ug/L	J
Carbazole	86-74-8	1	0.3	1.0	6.3	ug/L	
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	10.6	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	78.9 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	102 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	91.1 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-02D-20230915**  
**2310388-12 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/15/2023 07:56  
Analyzed: 02-Oct-2023 22:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>61.6</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>111</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>81.3</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-02D-20230915**  
**2310388-12 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/15/2023 07:56  
Analyzed: 17-Oct-2023 01:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	122	ug/L	
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	490	ug/L	
HC ID: CREOSOTE						
Surrogate: <i>o</i> -Terphenyl			50-150 %	91.4	%	

Data File: \\target\share\chem2\fid4a,1\20231016,8\4231647.D

Date: 17-OCT-2023 01:10

Client ID:

Sample Info: 2310388-12

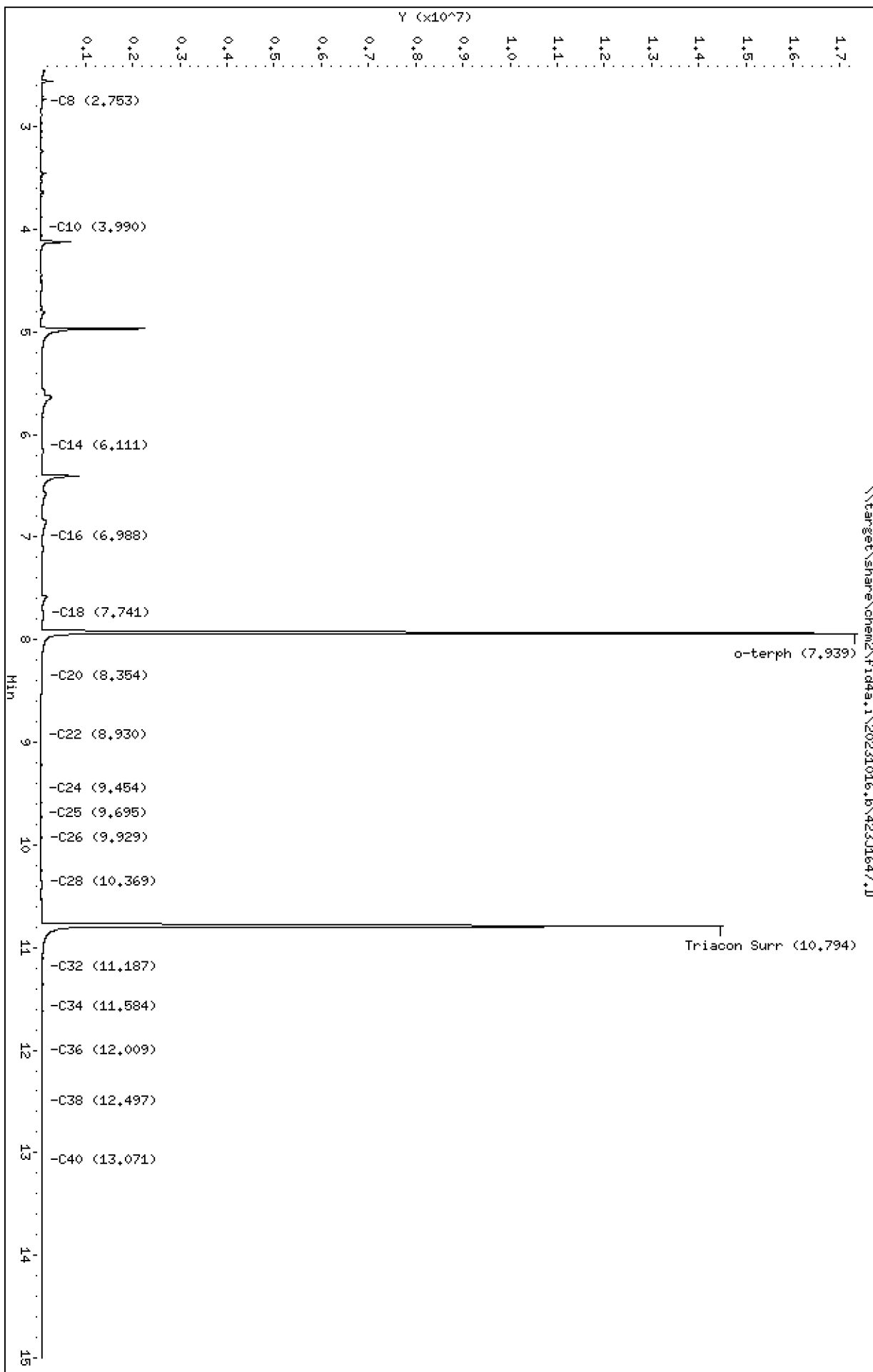
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1647.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-12  
Client ID:  
Injection: 17-OCT-2023 01:10  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

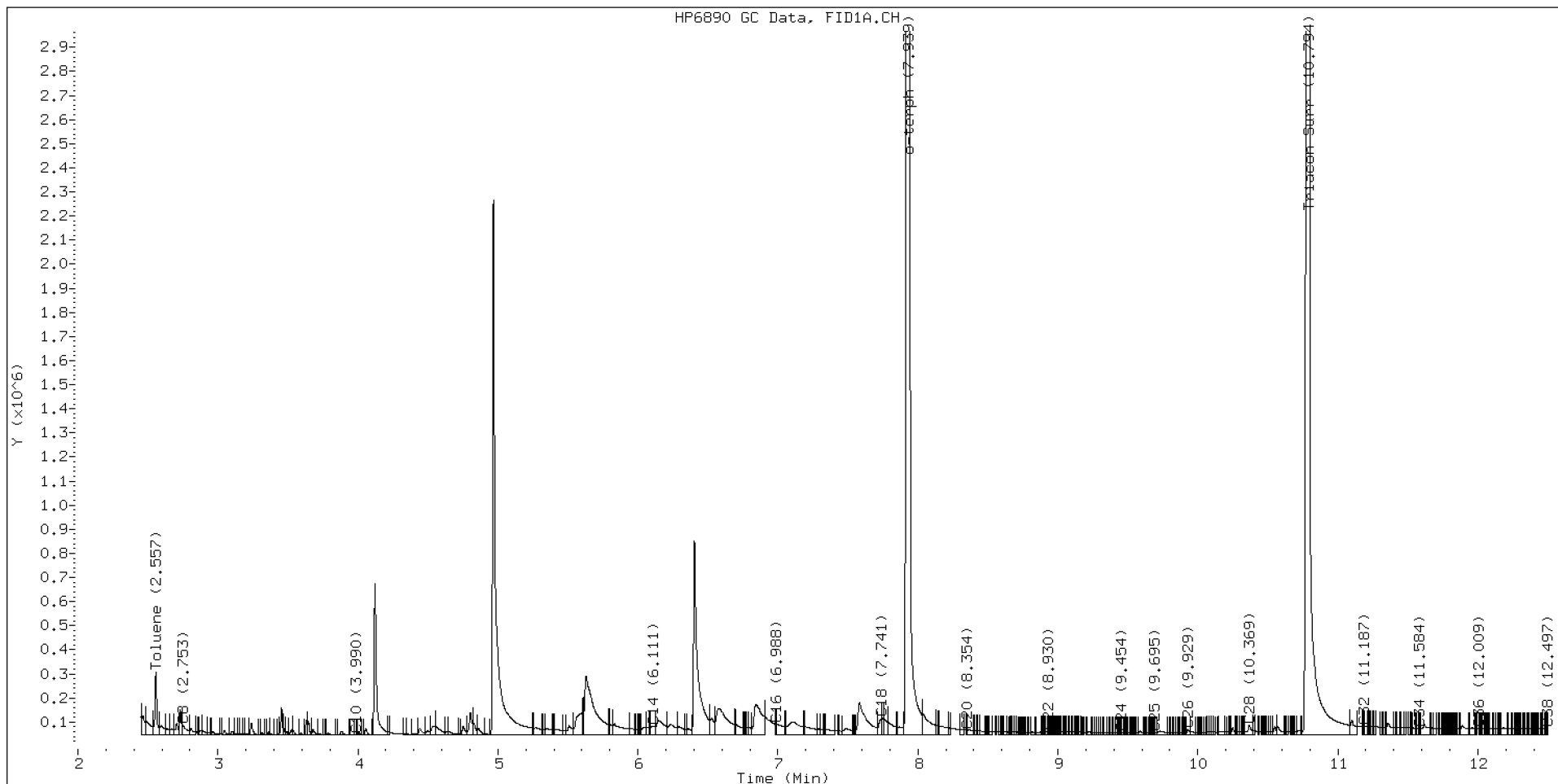
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.753	-0.004	37908	77545	WATPHD	(C12-C24)	9686222	61.1
C10	3.990	-0.000	1849	788	WATPHM	(C24-C38)	3308670	27.8
C12	----				AK102	(C10-C25)	14835443	78.5
C14	6.111	-0.001	34610	80921	AK103	(C25-C36)	2511440	25.1
C16	6.988	0.033	42626	12760				
C18	7.741	0.042	68445	97239				
C20	8.354	0.005	20135	5024				
C22	8.930	0.002	12571	3130				
C24	9.454	0.005	11551	6850				
C25	9.695	0.002	10824	2692				
C26	9.929	0.002	23493	26901				
C32	11.187	-0.030	34272	15369				
C34	11.584	-0.035	29002	17320				
Filter Peak	----				CREOSOT	(C12-C22)	9368900	244.9 M
C36	12.009	-0.044	27549	8243				
C38	12.497	-0.048	25694	3850				
C40	13.071	-0.064	22423	18978				
o-terph	7.939	-0.004	17318388	20933441				
Triacon Surr	10.794	-0.032	14459987	18602253				

Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	20933441	102.8
Triacontane	18602253	136.5

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023







Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**MW-02D-20230915**  
**2310388-12 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 09/15/2023 07:56  
Analyzed: 19-Sep-2023 19:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	137	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	97.9	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	96.9	%	

Data File: \\target\share\chend\nt3.1\20230919s.1b\3091923230.D

Date: 19-SEP-2023 19:16

Client ID:

Sample Info: 2310388-12

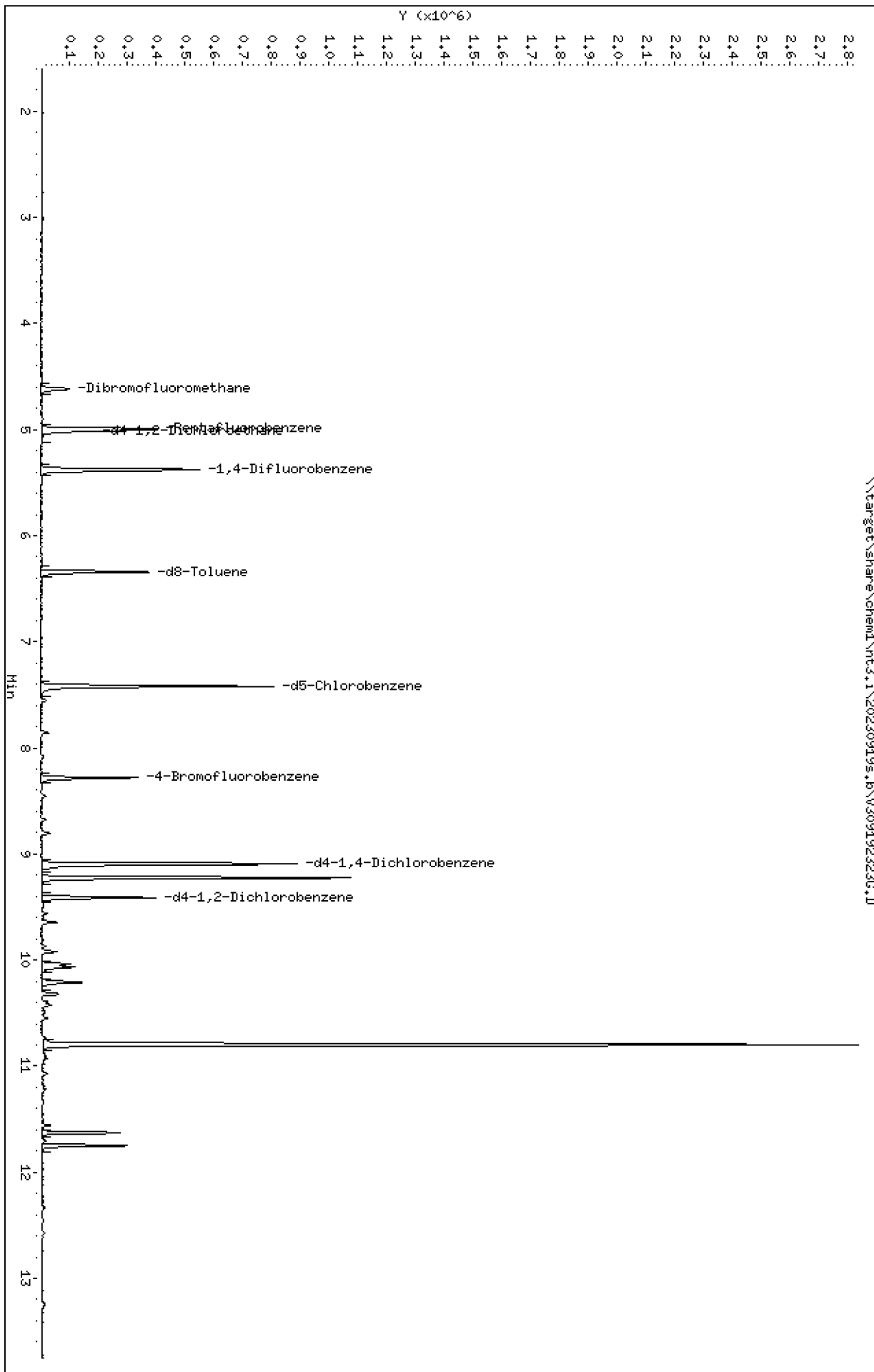
Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge  
 Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192323G.D  
 Lab Smp Id: 23I0388-12  
 Inj Date : 19-SEP-2023 19:16  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : 23I0388-12  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.617	4.611	(0.924)	53290	5.30571	5.306
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	210280	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	31788	5.39267	5.393
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	328209	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	185526	4.89722	4.897
* 53 d5-Chlorobenzene	117		7.417	7.416	(1.000)	312236	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.283	8.287	(1.117)	66451	4.84729	4.847
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	178152	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.408	(1.035)	80213	5.18975	5.190

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192323G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-12  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	210280	-9.64
37 1,4-Difluorobenze	350169	175085	700338	328209	-6.27
53 d5-Chlorobenzene	337155	168578	674310	312236	-7.39
76 d4-1,4-Dichlorobe	191021	95511	382042	178152	-6.74

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.02
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.02
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 23I0388-12  
 Level: LOW Operator: TWC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.306	106.11	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.393	107.85	80-128
\$ 43 d8-Toluene	5.000	4.897	97.94	80-120
\$ 62 4-Bromofluorobenze	5.000	4.847	96.95	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.190	103.80	80-120

REVIEW SUMMARY FOR FILE - V309192323G.D

Lab ID: 23I0388-12

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 19:16

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.1b\2309192323G.D

Date: 19-SEP-2023 19:16

Client ID:

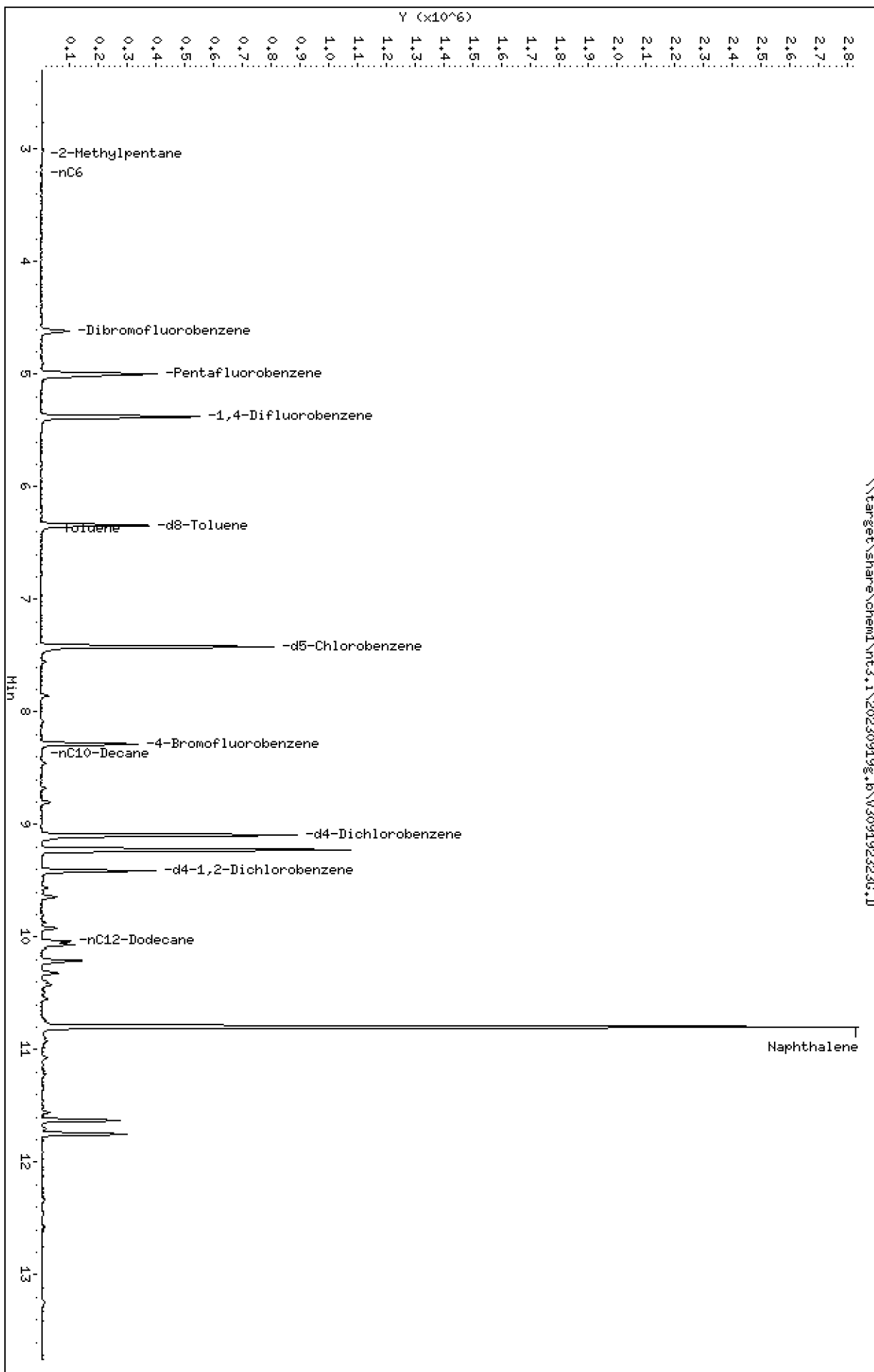
Sample Info: 2310388-12

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192323G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 19:16

ARI ID: 23I0388-12  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	2559197	0.055 M
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	533807	0.007 M
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	355401	0.006 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	6700210	0.137 M
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	2653566	0.035 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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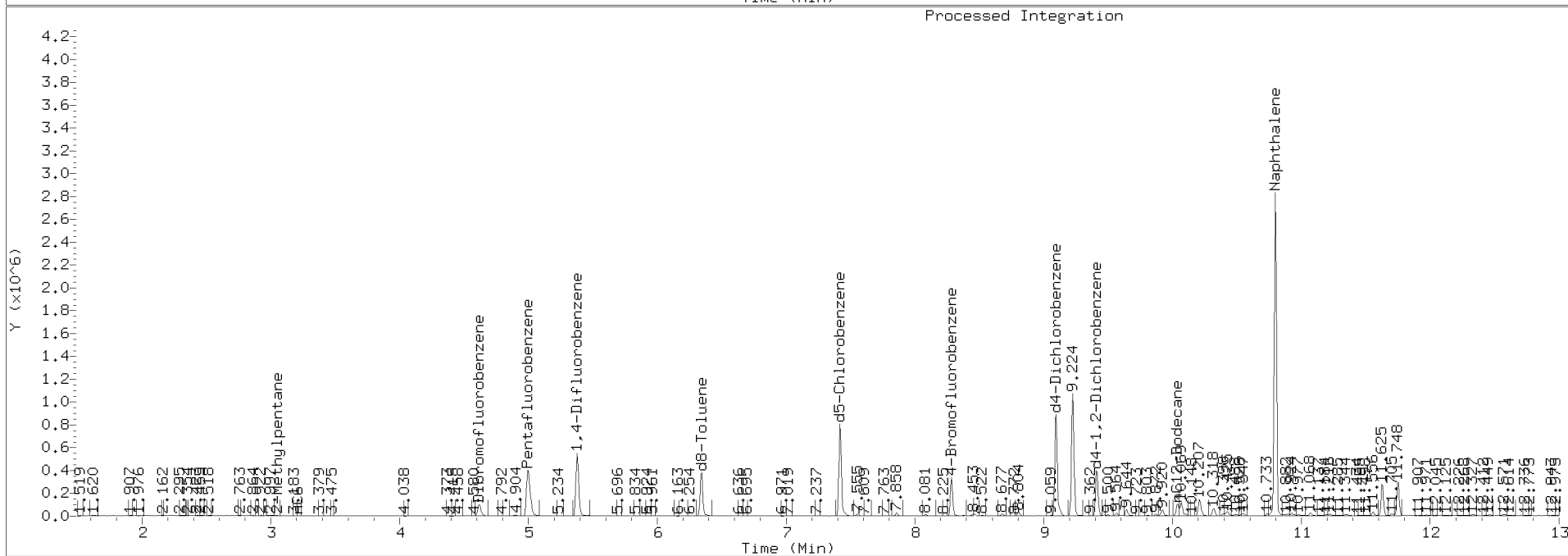
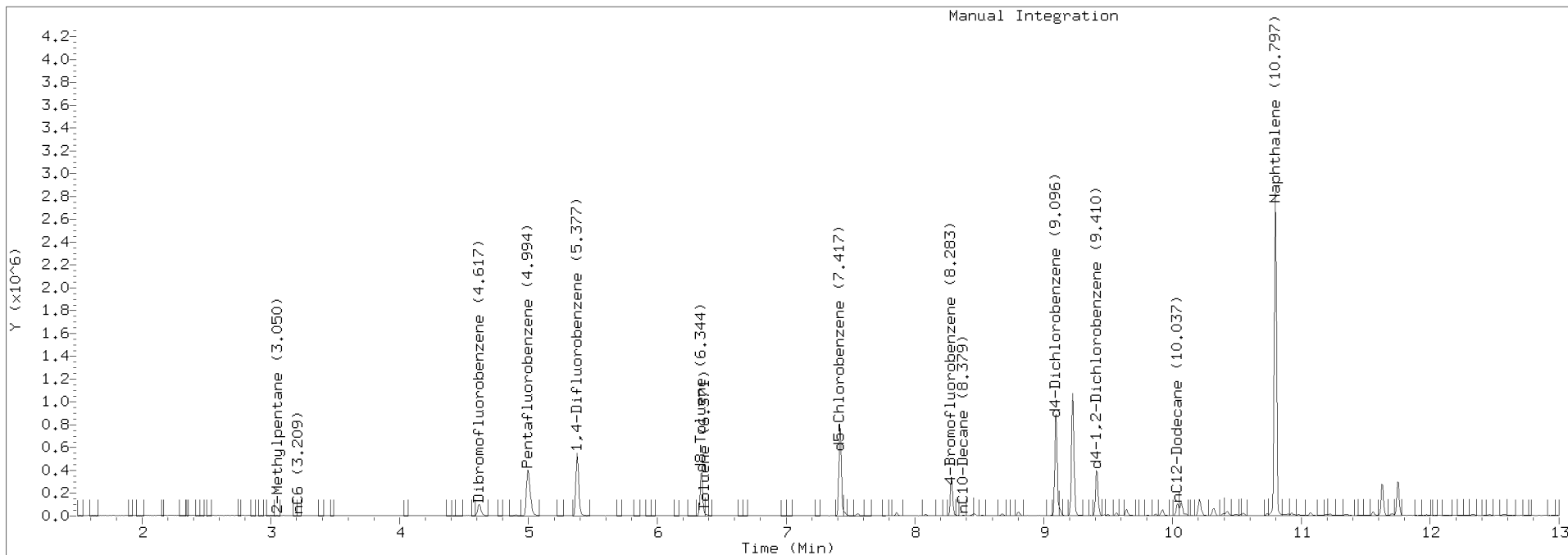
7.417	1036910	d5-Chlorobenzene
6.344	542784	d8-Toluene
9.096	1145395	d4-Dichlorobenzene
8.283	419195	4-Bromofluorobenzene
9.410	553368	d4-1,2-Dichlorobenzene



TPHG Manual Integrations Report

Datafile: NT3, 20230919g.b/V309192323G.D Injection: 19-SEP-2023 19:16

Lab ID:23I0388-12





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-19-20230915**  
**2310388-13 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2023 09:25  
Instrument: ECD8 Analyzed: 11-Oct-2023 22:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>1.28</b>	ug/L	
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	78.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	95.9	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**PZ-19-20230915**  
**2310388-13 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2023 09:25  
Analyzed: 25-Sep-2023 15:43

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	ND	ug/L	U
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	75.2 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	100 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	89.6 %	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-19-20230915**  
**2310388-13 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/15/2023 09:25  
Instrument: NT8 Analyzed: 02-Oct-2023 22:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq) Sample Size: 500 mL  
Preparation Batch: BLI0553 Final Volume: 0.5 mL  
Prepared: 20-Sep-2023

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			31-120 %	63.0	%	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			10-125 %	134	%	*
<i>Surrogate: Fluoranthene-d10</i>			46-121 %	80.1	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**PZ-19-20230915**  
**2310388-13 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/15/2023 09:25  
Analyzed: 13-Oct-2023 00:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
Surrogate: o-Terphenyl			50-150 %	126	%	

Data File: \\target\share\chem2\fid4a,1\20231012,8\4231234.D

Date: 13-OCT-2023 00:47

Client ID:

Sample Info: 2310388-13

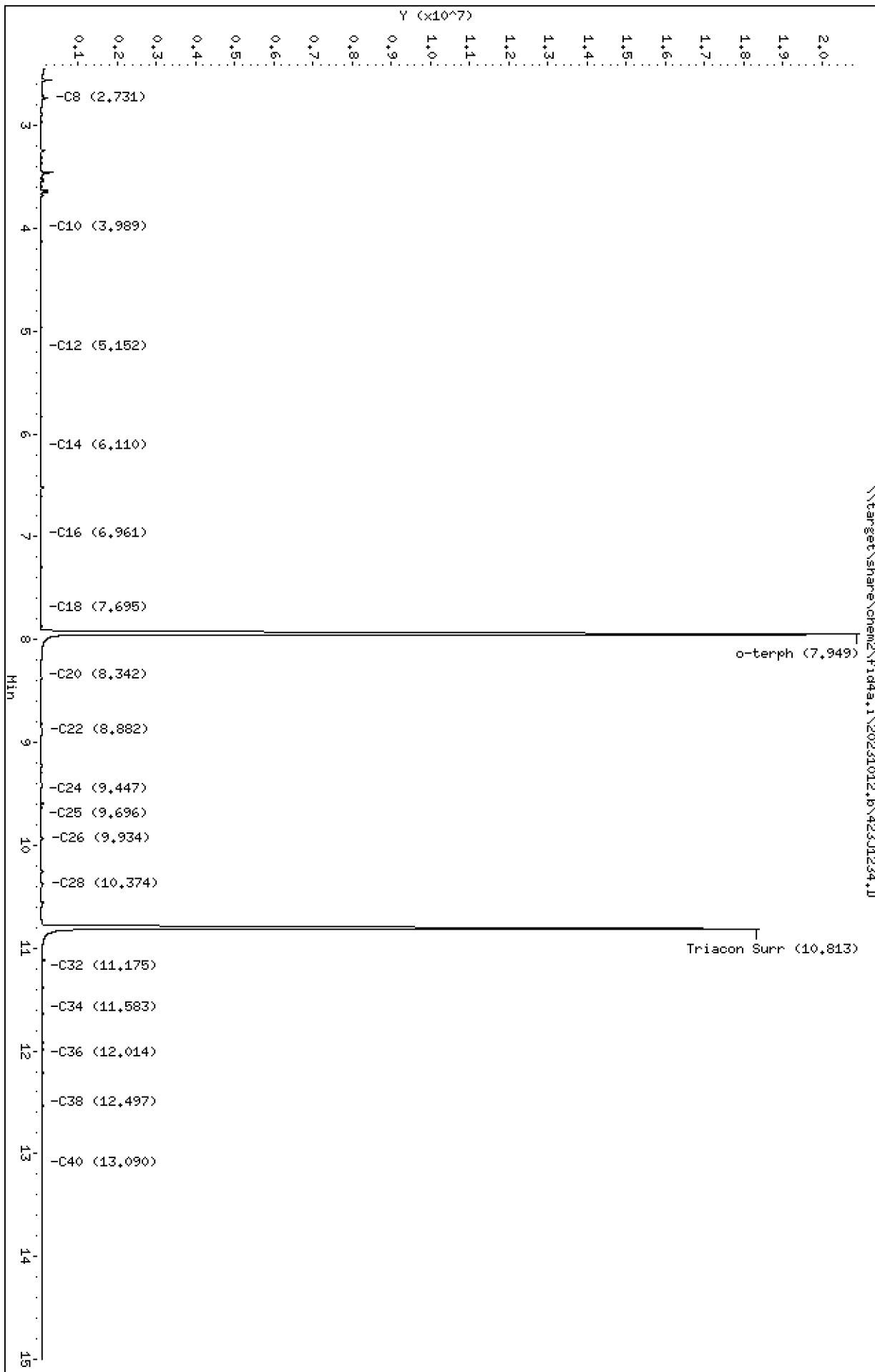
Column phase: RTX-1

Instrument: fid4a,1

Operator: NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231012.b/423J1234.D  
Method: 20231012.b\FID4TPH.m  
Instrument: fid4a.i, NRB  
Report Date: 10/20/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-13  
Client ID:  
Injection: 13-OCT-2023 00:47  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

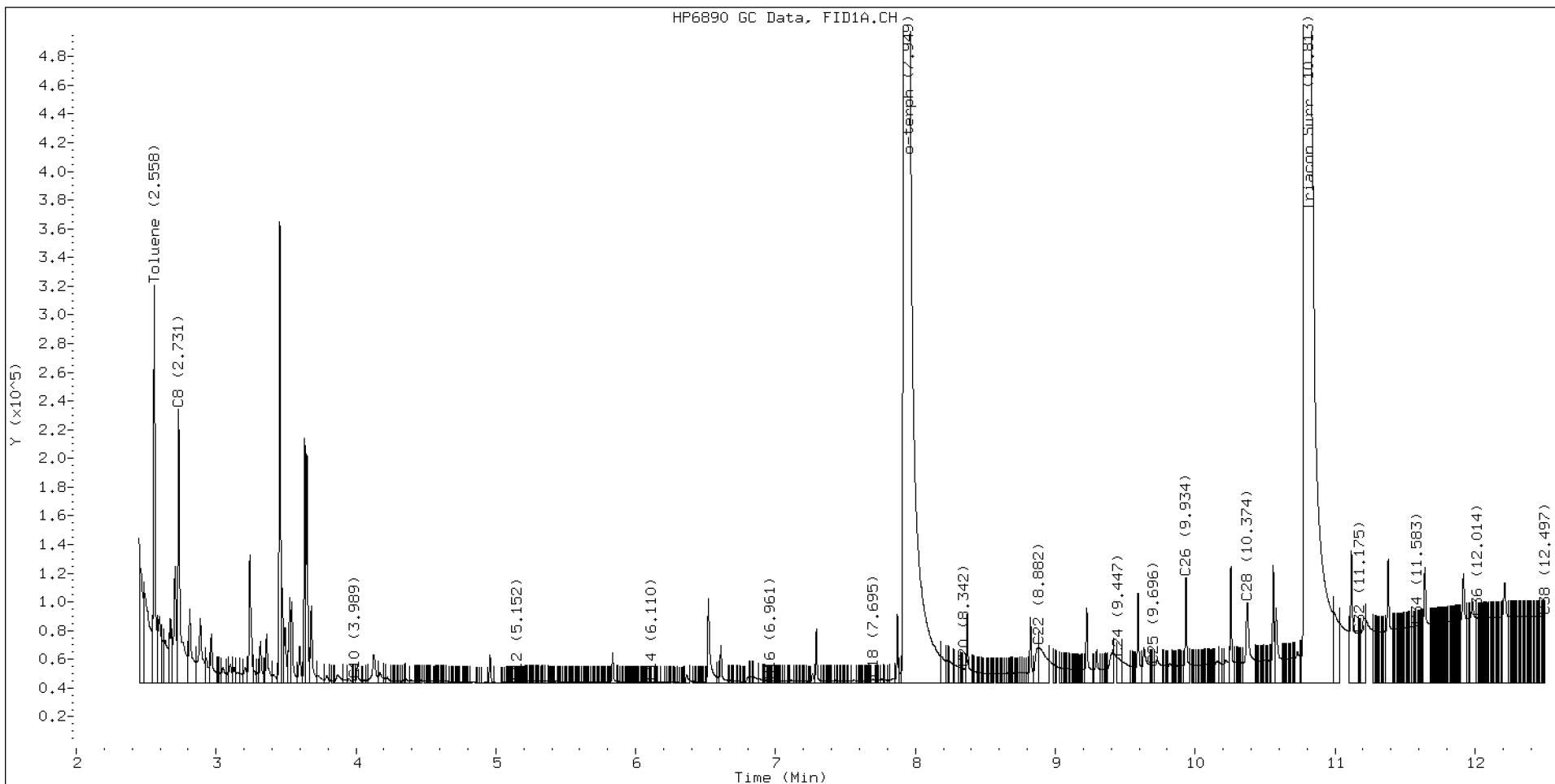
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.731	-0.024	190788	230607	WATPHD	(C12-C24)	1200343	7.6
C10	3.989	-0.003	1957	1774	WATPHM	(C24-C38)	4953403	41.6
C12	5.152	0.002	809	227	AK102	(C10-C25)	1466236	7.8
C14	6.110	-0.005	450	107	AK103	(C25-C36)	3469658	34.7
C16	6.961	0.003	1572	1030				
C18	7.695	-0.007	2404	3479				
C20	8.342	-0.011	9842	9152				
C22	8.882	-0.049	25003	95043				
C24	9.447	-0.005	17103	35157				
C25	9.696	0.002	12407	13478				
C26	9.934	0.007	73387	72557				
C32	11.175	-0.013	34262	17088				
C34	11.583	0.001	39514	21718				
Filter Peak	----				CREOSOT	(C12-C22)	837949	25.6 M
C36	12.014	0.005	45336	29356				
C38	12.497	0.001	46035	20694				
C40	13.090	0.004	43728	13103				
o-terph	7.949	0.005	20917660	28870286				
Triacon Surr	10.813	0.005	18362397	25206713				

Range Times: NW Diesel(5.150 - 9.452) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.50) AK103(9.69 - 12.01) OR Diesel(3.99 - 10.37)

Surrogate	Area	Amount
o-Terphenyl	28870286	141.8
Triacotane	25206713	185.0

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	06-JAN-2022
OR Gas	28080.0	XX-XXX-XXXX
Creosote	32781.4	20-MAR-2023







Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**PZ-19-20230915**  
**2310388-13 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/15/2023 09:25  
Instrument: NT3 Analyzed: 19-Sep-2023 19:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	101	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	94.5	%	

Data File: \\target\share\chend\nt3.1\20230919s.1b\309192324G.D

Date: 19-SEP-2023 19:38

Client ID:

Sample Info: 2310388-13

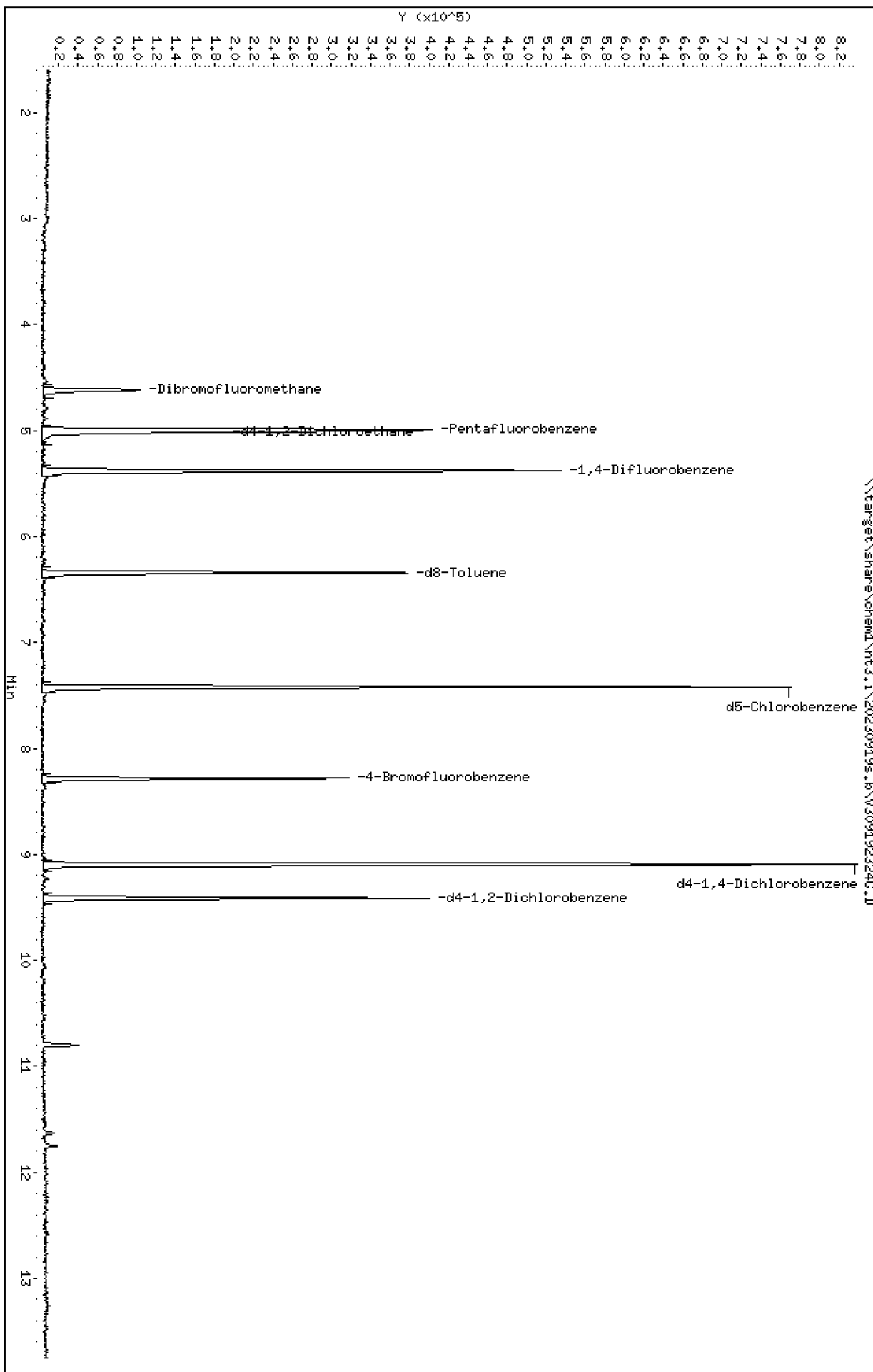
Page 1

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192324G.D  
 Lab Smp Id: 23I0388-13  
 Inj Date : 19-SEP-2023 19:38  
 Operator : TWC  
 Smp Info : 23I0388-13  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i  
 Cal Date : 18-SEP-2023 14:10  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309182318.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.617	4.611	(0.924)	53361	5.21715	5.217
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	214134	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	34909	5.81555	5.816
* 37 1,4-Difluorobenzene	114		5.377	5.376	(1.000)	318861	10.0000	
\$ 43 d8-Toluene	98		6.344	6.337	(1.180)	185514	5.04047	5.040
* 53 d5-Chlorobenzene	117		7.417	7.416	(1.000)	307983	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.283	8.287	(1.117)	63875	4.72373	4.724
* 76 d4-1,4-Dichlorobenzene	152		9.096	9.095	(1.000)	172632	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.415	9.408	(1.035)	78597	5.24780	5.248

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192324G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-13  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	214134	-7.98
37 1,4-Difluorobenze	350169	175085	700338	318861	-8.94
53 d5-Chlorobenzene	337155	168578	674310	307983	-8.65
76 d4-1,4-Dichlorobe	191021	95511	382042	172632	-9.63

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.02
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.02
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 23I0388-13  
 Level: LOW Operator: TWC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.217	104.34	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.816	116.31	80-128
\$ 43 d8-Toluene	5.000	5.040	100.81	80-120
\$ 62 4-Bromofluorobenze	5.000	4.724	94.47	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.248	104.96	80-120

REVIEW SUMMARY FOR FILE - V309192324G.D

Lab ID: 23I0388-13

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 19:38

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.1b\2309192324G.D

Date: 19-SEP-2023 19:38

Client ID:

Sample Info: 2310388-13

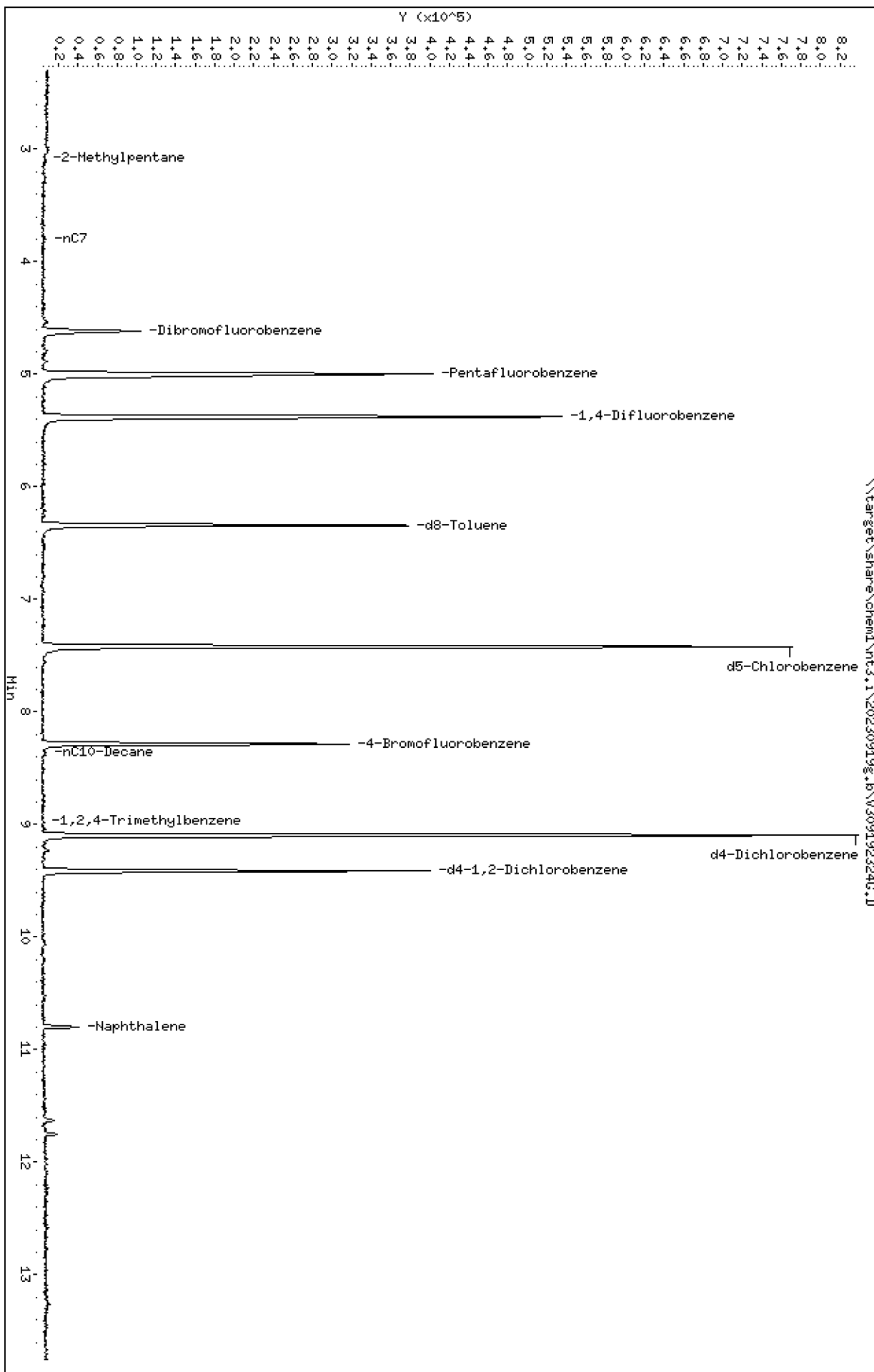
Page 1

Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192324G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 19:38

ARI ID: 23I0388-13  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	92062	0.002
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	155300	0.002
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	127961	0.002
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	150465	0.003
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	170092	0.002

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.417	1034313	d5-Chlorobenzene
6.344	550186	d8-Toluene
9.096	584344	d4-Dichlorobenzene
8.283	410718	4-Bromofluorobenzene
9.410	532470	d4-1,2-Dichlorobenzene





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-01S-20230915**

**2310388-14 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E

Sampled: 09/15/2023 09:18

Instrument: NT6

Analyzed: 27-Sep-2023 14:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	10	3.0	10.0	8900	ug/L	D, E
Acenaphthylene	208-96-8	10	1.9	10.0	5.9	ug/L	J, D
Acenaphthene	83-32-9	10	2.0	10.0	209	ug/L	D
2-Methylnaphthalene	91-57-6	10	2.1	10.0	392	ug/L	D
Dibenzofuran	132-64-9	10	1.9	10.0	75.5	ug/L	D
Fluorene	86-73-7	10	2.1	10.0	72.6	ug/L	D
Pentachlorophenol	87-86-5	10	12.1	100	1790	ug/L	D, E
Phenanthrene	85-01-8	10	2.0	10.0	91.7	ug/L	D
Anthracene	120-12-7	10	2.5	10.0	18.7	ug/L	D
Carbazole	86-74-8	10	2.7	10.0	41.4	ug/L	D
Fluoranthene	206-44-0	10	2.4	10.0	25.6	ug/L	D
Pyrene	129-00-0	10	3.4	10.0	20.7	ug/L	D
Benzo(a)anthracene	56-55-3	10	2.2	10.0	4.2	ug/L	J, D
Chrysene	218-01-9	10	2.2	10.0	3.3	ug/L	J, D
Benzo(a)pyrene	50-32-8	10	2.3	10.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	10	4.7	10.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	10	5.4	10.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	10	4.7	10.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	10	2.6	10.0	278	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	80.2 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	114 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	102 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-01S-20230915**  
**2310388-14 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/15/2023 09:18  
Analyzed: 04-Oct-2023 16:02

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	10	1.00	<b>1.99</b>	ug/L	D
Chrysene	218-01-9	10	1.00	<b>1.89</b>	ug/L	D
Benzo(a)fluoranthene, Total		10	2.00	ND	ug/L	U
Benzo(a)pyrene	50-32-8	10	1.00	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	10	1.00	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	10	1.00	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>69.8</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>70.4</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>80.7</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**MW-01S-20230915**  
**2310388-14 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID4

Sampled: 09/15/2023 09:18  
Analyzed: 17-Oct-2023 01:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	25	2500	<b>8220</b>	ug/L	D
Motor Oil Range Organics (C24-C38)	RRO	25	5000	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	25	5000	<b>33400</b>	ug/L	D
HC ID: CREOSOTE						
Surrogate: <i>o</i> -Terphenyl			50-150 %		DI	D1

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231648.D

Date: 17-OCT-2023 01:30

Client ID:

Sample Info: 2310388-14,25

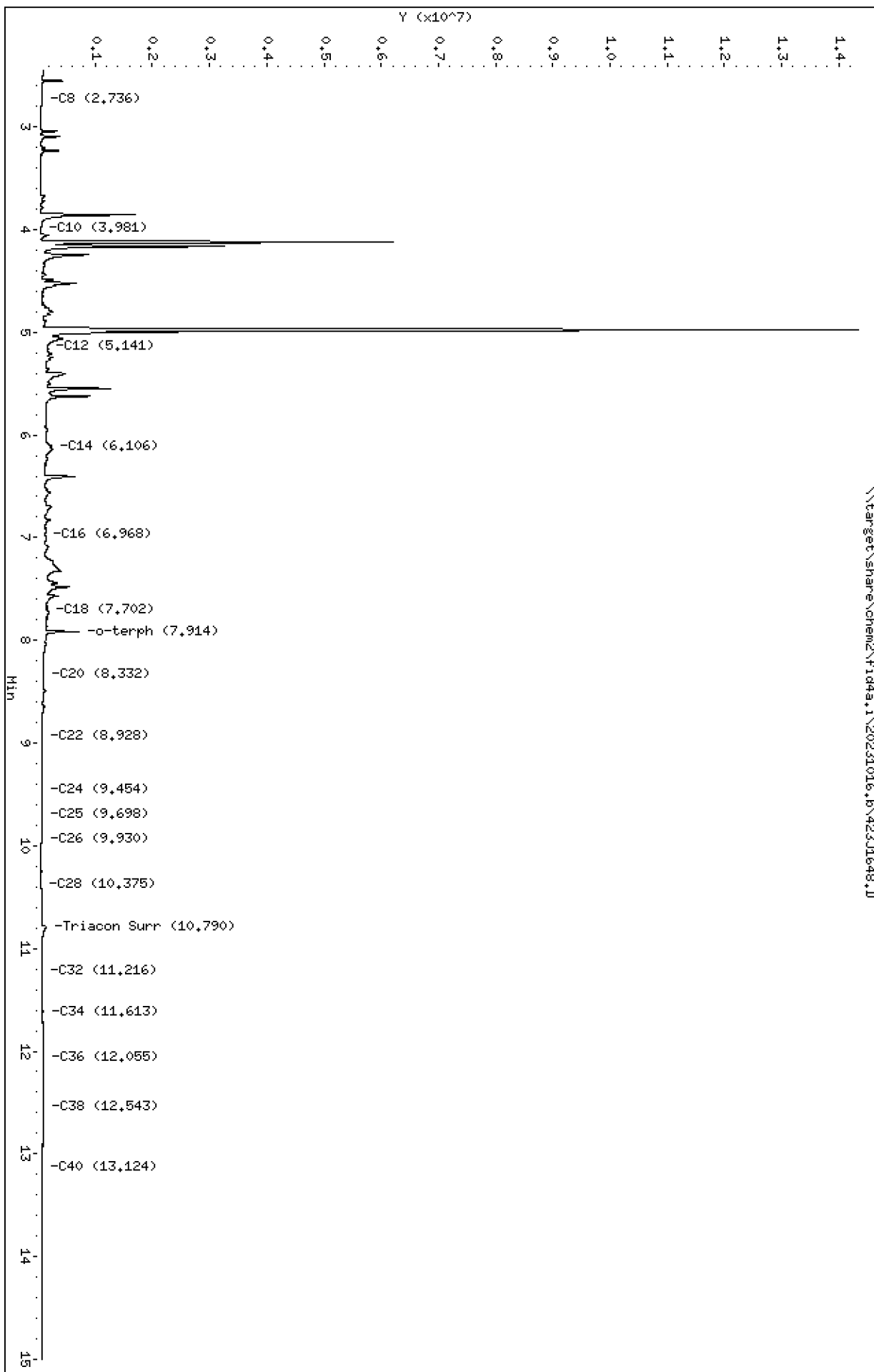
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

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Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1648.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-14  
Client ID:  
Injection: 17-OCT-2023 01:30  
Dilution Factor: 25  
RT Std: 422H1803.D

FID:4A RESULTS

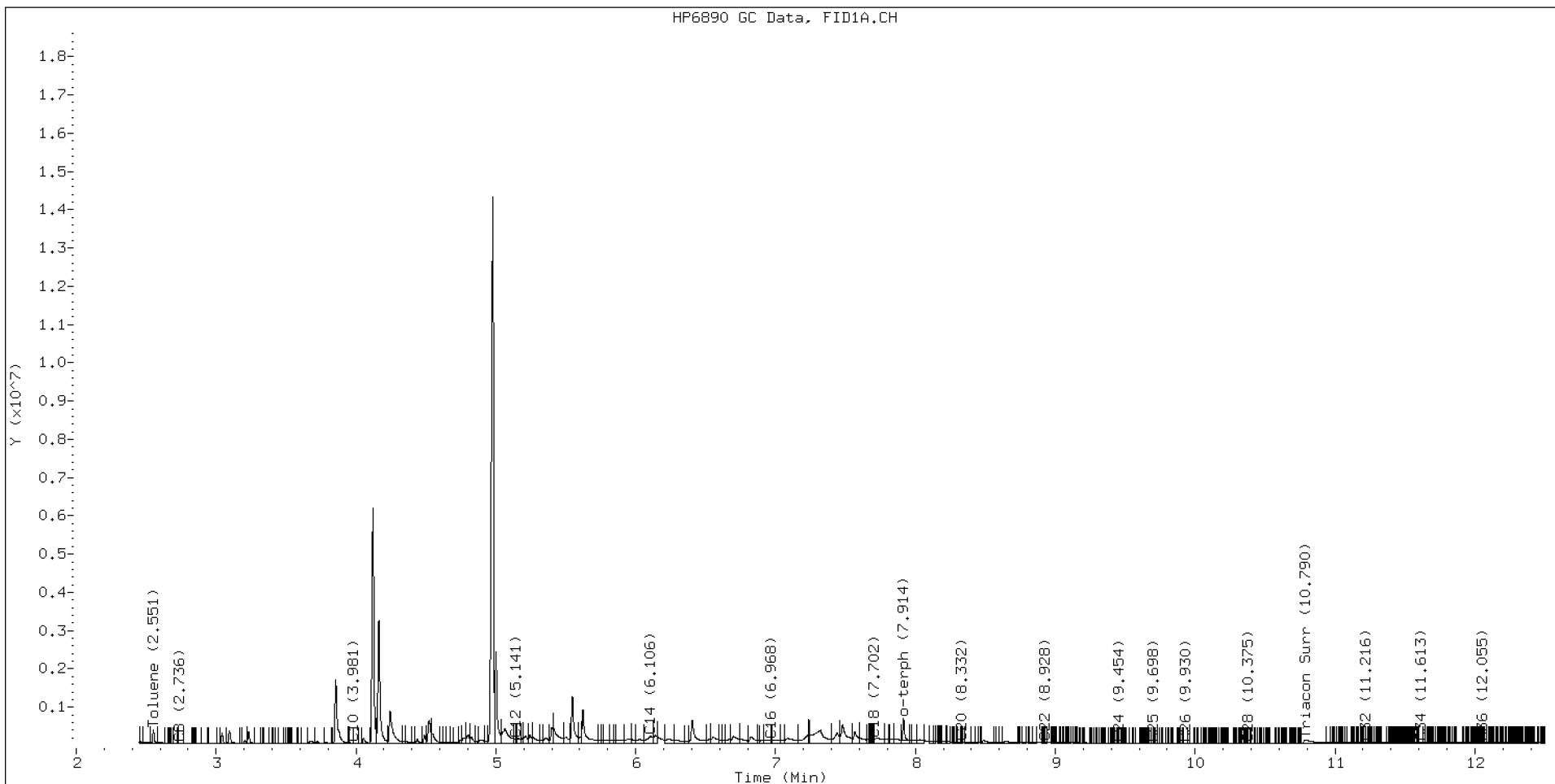
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.736	-0.021	18840	32672	WATPHD	(C12-C24)	26070069	164.3
C10	3.981	-0.010	10447	14388	WATPHM	(C24-C38)	4156239	34.9
C12	5.141	-0.008	129761	95722	AK102	(C10-C25)	60437401	319.6
C14	6.106	-0.006	191136	553970	AK103	(C25-C36)	3083078	30.8
C16	6.968	0.013	76560	34366				
C18	7.702	0.003	108235	32405				
C20	8.332	-0.017	44788	33418				
C22	8.928	-0.000	26565	27514				
C24	9.454	0.005	16692	4995				
C25	9.698	0.005	16482	17045				
C26	9.930	0.003	15061	24519				
C32	11.216	-0.001	28007	18127				
C34	11.613	-0.007	36638	67547				
Filter Peak	----				CREOSOT	(C12-C22)	25527414	667.2 M
C36	12.055	0.002	38893	13589				
C38	12.543	-0.001	38705	48159				
C40	13.124	-0.010	34324	17122				
o-terph	7.914	-0.028	579366	451111				
Triacon Surr	10.790	-0.035	91845	513348				

Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	451111	2.2 M
Triacontane	513348	3.8

M Indicates the peak was manually integrated

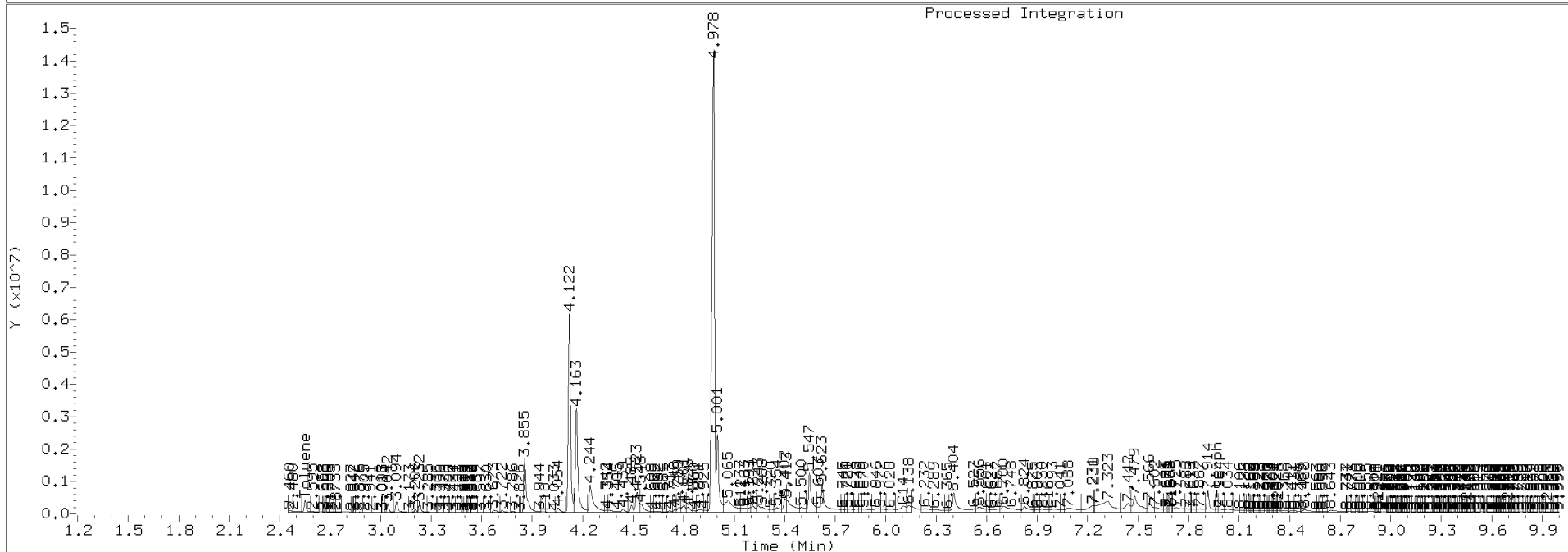
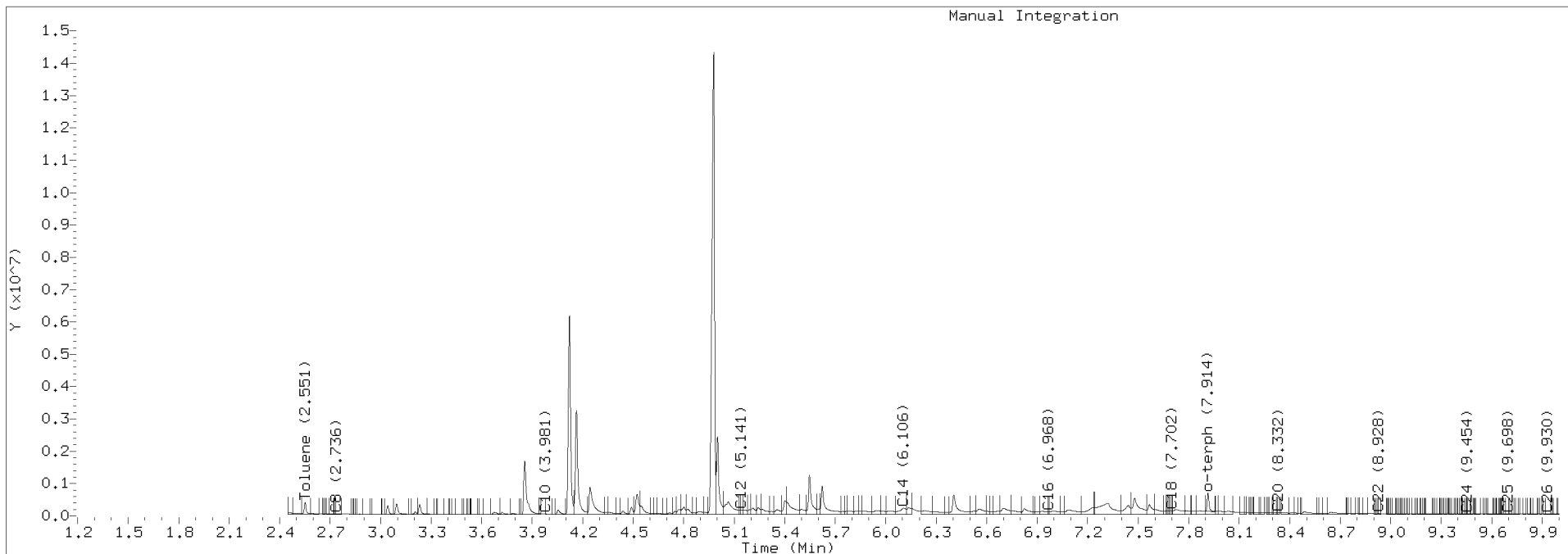
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1648.D Injection: 17-OCT-2023 01:30

Lab ID:23I0388-14





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**MW-01S-20230915**  
**2310388-14 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/15/2023 09:18  
Analyzed: 19-Sep-2023 20:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 0.4 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	2500	<b>26000</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	99.0	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	99.8	%	



Data File: \\target\share\chend\nt3.1\20230919s.1b\309192325G.D

Date: 19-SEP-2023 20:03

Client ID:

Sample Info: 2310388-14,25X

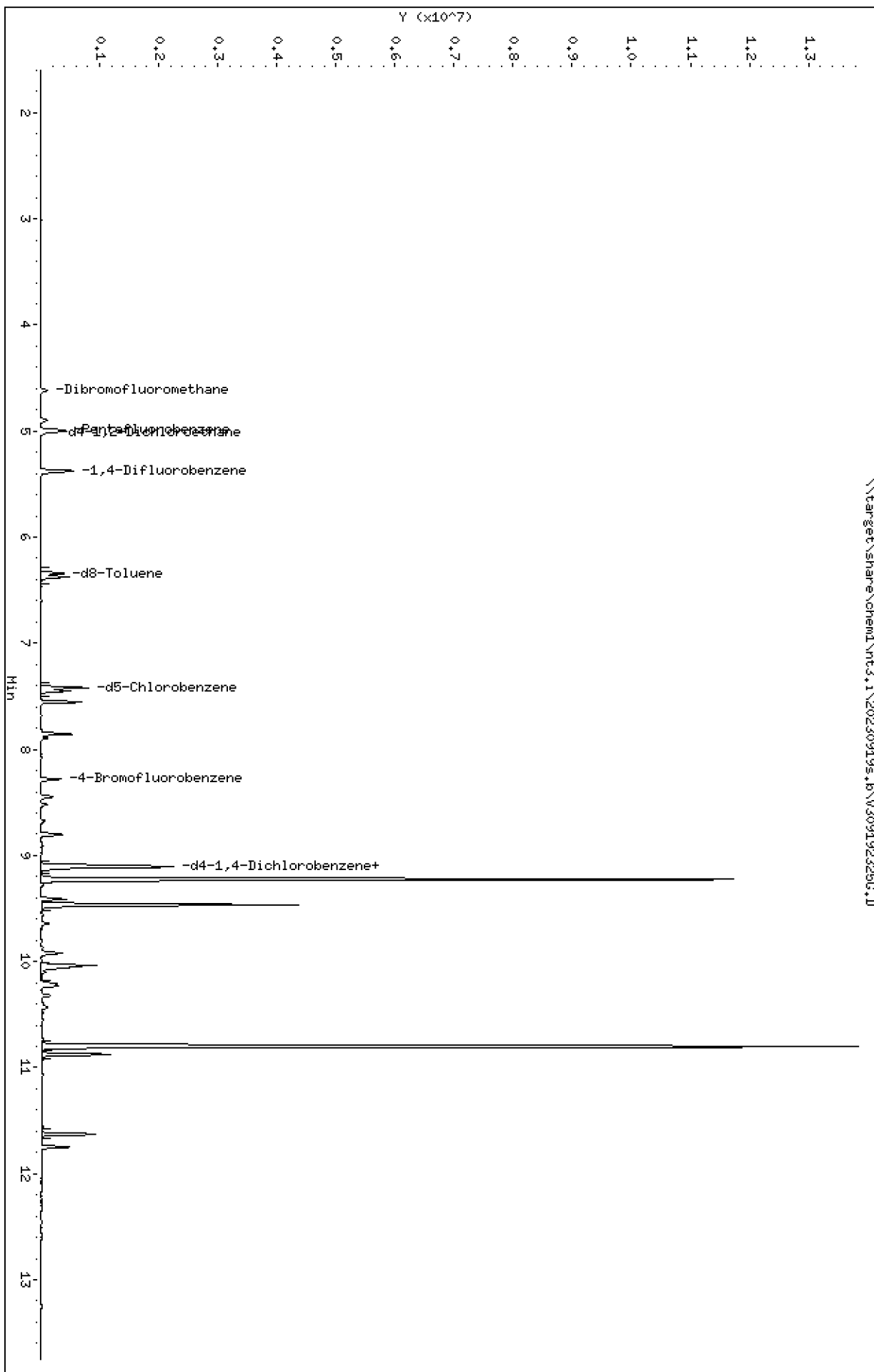
Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

\\target\share\chend\nt3.1\20230919s.1b\309192325G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192325G.D  
 Lab Smp Id: 23I0388-14  
 Inj Date : 19-SEP-2023 20:03  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : 23I0388-14,25X  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	25.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	54175	5.17964	12.949
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	218975	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	31201	5.08291	12.707
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	334397	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	191047	4.94964	12.374
* 53 d5-Chlorobenzene	117		7.416	7.416	(1.000)	317478	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.283	8.287	(1.117)	69554	4.98987	12.475
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	185607	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.095	9.408	(1.000)	185599	11.5259	28.815(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192325G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-14  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	218975	-5.90
37 1,4-Difluorobenze	350169	175085	700338	334397	-4.50
53 d5-Chlorobenzene	337155	168578	674310	317478	-5.84
76 d4-1,4-Dichlorobe	191021	95511	382042	185607	-2.83

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23I0388-14  
Level: LOW Operator: TWC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.180	103.59	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.083	101.66	80-128
\$ 43 d8-Toluene	5.000	4.950	98.99	80-120
\$ 62 4-Bromofluorobenze	5.000	4.990	99.80	80-120
\$ 79 d4-1,2-Dichloroben	5.000	11.526	230.52*	80-120

REVIEW SUMMARY FOR FILE - V309192325G.D

Lab ID: 23I0388-14

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 20:03

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.1b\309192325G.D

Date: 19-SEP-2023 20:03

Client ID:

Sample Info: 2310388-14,25X

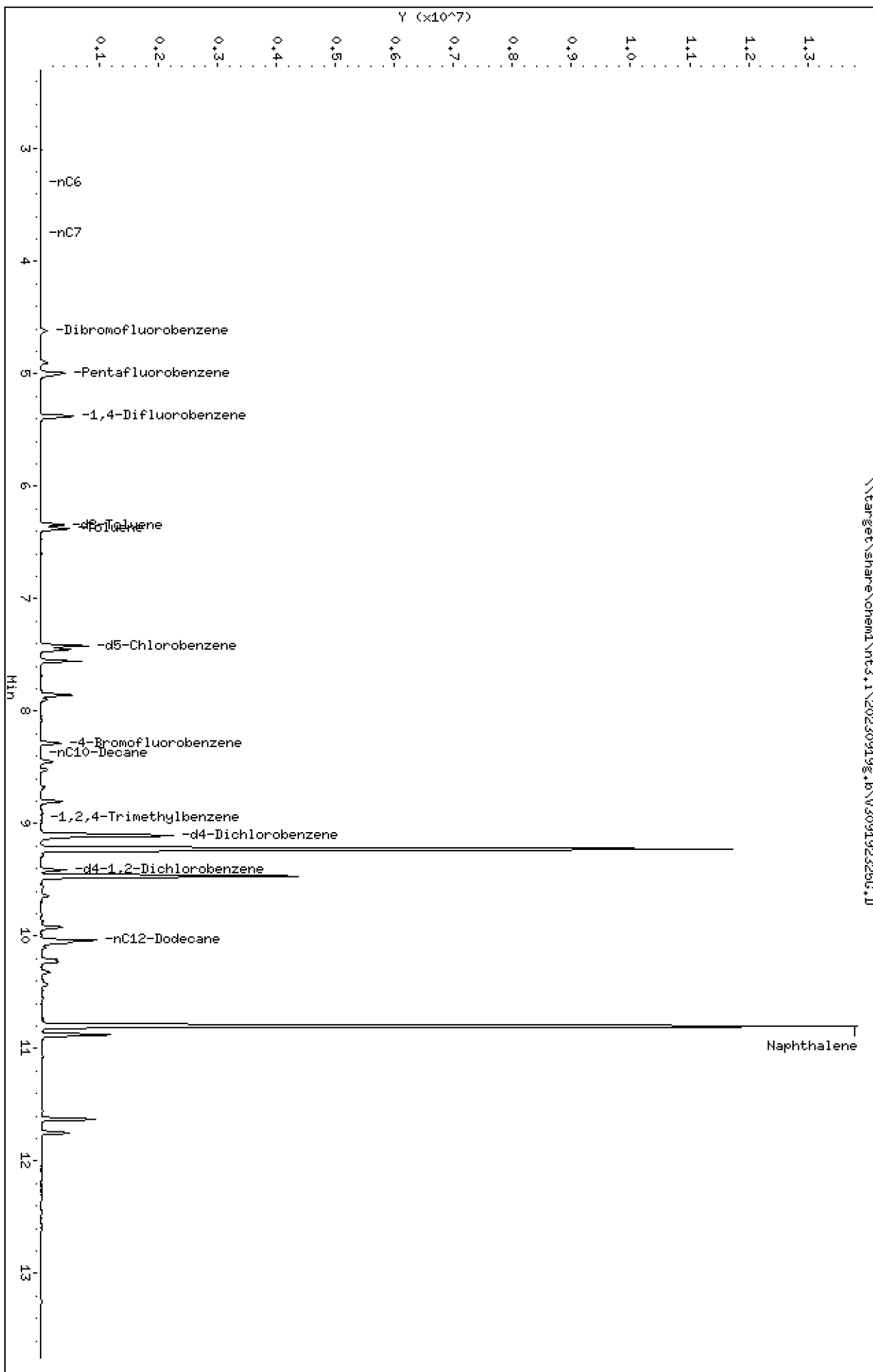
Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192325G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 20:03

ARI ID: 23I0388-14  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	28900717	0.625 M
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	4964018	0.068 M
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	3605559	0.063 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	50679358	1.040 M
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	29229431	0.391 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

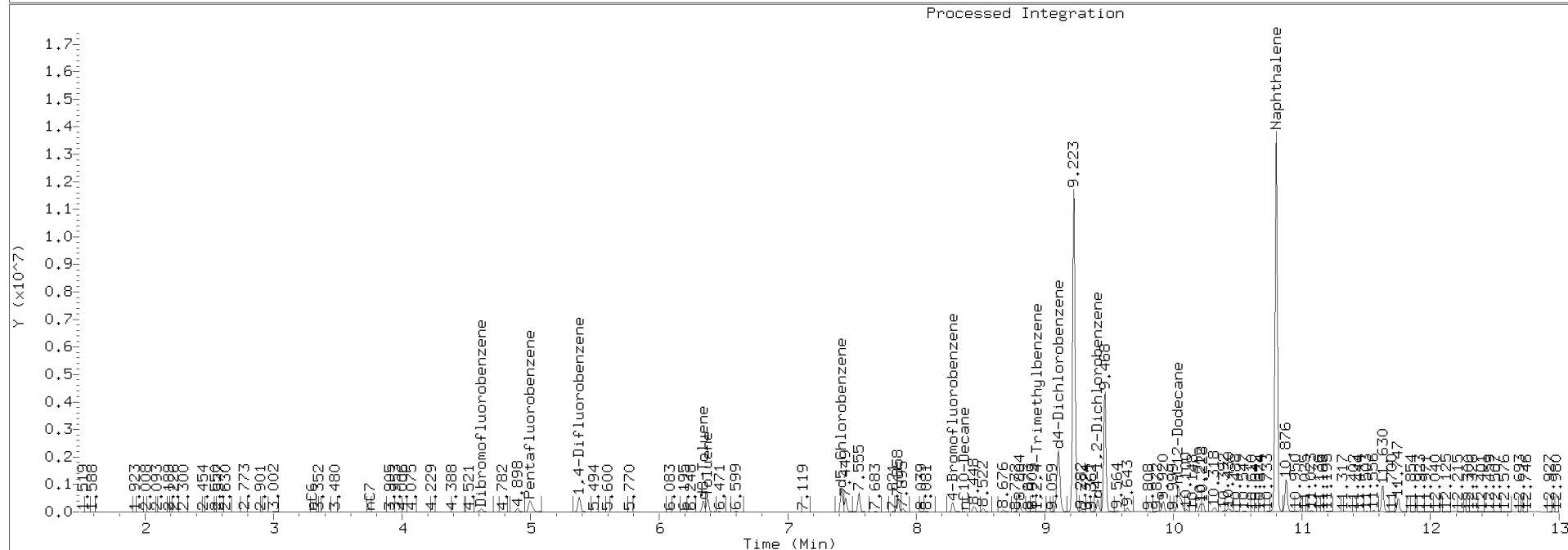
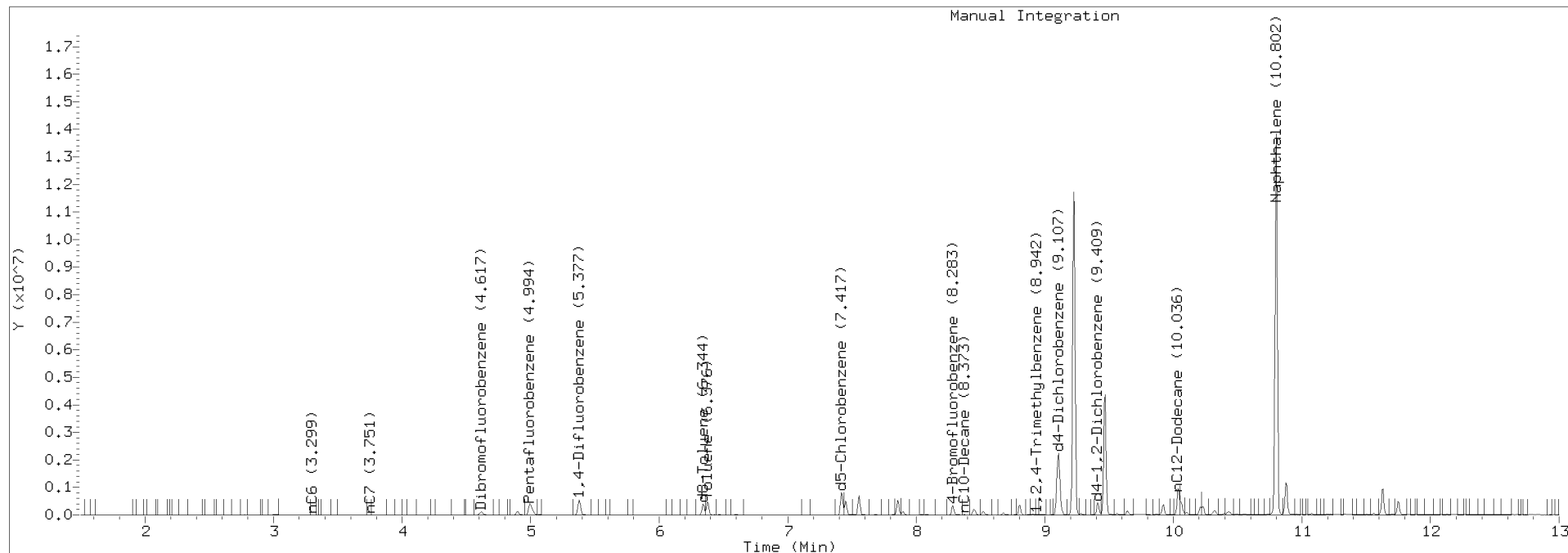
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7.417	1119752	d5-Chlorobenzene
6.344	570806	d8-Toluene
9.107	3870133	d4-Dichlorobenzene
8.283	451377	4-Bromofluorobenzene
9.409	568353	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230919g.b/V309192325G.D Injection: 19-SEP-2023 20:03

Lab ID:23I0388-14







Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-01S-20230915**  
**2310388-14RE1 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2023 09:18  
Analyzed: 27-Sep-2023 15:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	500	151	500	4440	ug/L	D
Acenaphthylene	208-96-8	500	96.5	500	ND	ug/L	U
Acenaphthene	83-32-9	500	99.5	500	246	ug/L	J, D
2-Methylnaphthalene	91-57-6	500	105	500	459	ug/L	J, D
Dibenzofuran	132-64-9	500	96.5	500	ND	ug/L	U
Fluorene	86-73-7	500	103	500	ND	ug/L	U
Pentachlorophenol	87-86-5	500	604	5000	1580	ug/L	J, D
Phenanthrene	85-01-8	500	98.5	500	227	ug/L	J, D
Anthracene	120-12-7	500	127	500	ND	ug/L	U
Carbazole	86-74-8	500	135	500	ND	ug/L	U
Fluoranthene	206-44-0	500	119	500	ND	ug/L	U
Pyrene	129-00-0	500	171	500	ND	ug/L	U
Benzo(a)anthracene	56-55-3	500	109	500	ND	ug/L	U
Chrysene	218-01-9	500	108	500	ND	ug/L	U
Benzo(a)pyrene	50-32-8	500	116	500	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	500	236	500	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	500	272	500	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	500	237	500	ND	ug/L	U
1-Methylnaphthalene	90-12-0	500	131	500	255	ug/L	J, D
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	D1	D1
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	D1	D1
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	D1	D1



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**MW-01D-20230915**  
**2310388-15 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2023 11:03  
Instrument: ECD8 Analyzed: 11-Oct-2023 23:07

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0554 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	82.7	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	103	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-01D-20230915**  
**2310388-15 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2023 11:03  
Analyzed: 25-Sep-2023 16:51

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0548  
Prepared: 20-Sep-2023

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Detection Limit	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	0.3	1.0	0.7	ug/L	J
Acenaphthylene	208-96-8	1	0.2	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	0.2	1.0	0.3	ug/L	J
2-Methylnaphthalene	91-57-6	1	0.2	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	0.2	1.0	ND	ug/L	U
Fluorene	86-73-7	1	0.2	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	1.2	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	0.2	1.0	0.3	ug/L	J
Anthracene	120-12-7	1	0.3	1.0	ND	ug/L	U
Carbazole	86-74-8	1	0.3	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	0.2	1.0	ND	ug/L	U
Pyrene	129-00-0	1	0.3	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	0.2	1.0	ND	ug/L	U
Chrysene	218-01-9	1	0.2	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.2	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.5	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.5	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	0.5	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	0.3	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>					54.4-120 %	73.5 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>					49.3-128 %	102 %	
<i>Surrogate: p-Terphenyl-d14</i>					60-120 %	88.4 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**MW-01D-20230915**  
**2310388-15 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/15/2023 11:03  
Analyzed: 04-Oct-2023 17:51

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BLI0553 Sample Size: 500 mL  
Prepared: 20-Sep-2023 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	3	0.30	ND	ug/L	U
Chrysene	218-01-9	3	0.30	ND	ug/L	U
Benzo(a)fluoranthene, Total		3	0.60	ND	ug/L	U
Benzo(a)pyrene	50-32-8	3	0.30	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	3	0.30	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	3	0.30	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>49.2</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>62.9</i>	<i>%</i>	
<i>Surrogate: Fluoranthene-d10</i>			<i>46-121 %</i>	<i>56.7</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**MW-01D-20230915**  
**2310388-15 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx Sampled: 09/15/2023 11:03  
Instrument: FID4 Analyzed: 13-Oct-2023 01:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BLI0549 Sample Size: 500 mL  
Prepared: 21-Sep-2023 Final Volume: 1 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	U
<i>Surrogate: o-Terphenyl</i>			50-150 %	109	%	

Data File: \\target\share\chem2\fid4a,1\20231012,8\4231237.D

Date: 13-OCT-2023 01:48

Client ID:

Sample Info: 2310388-15

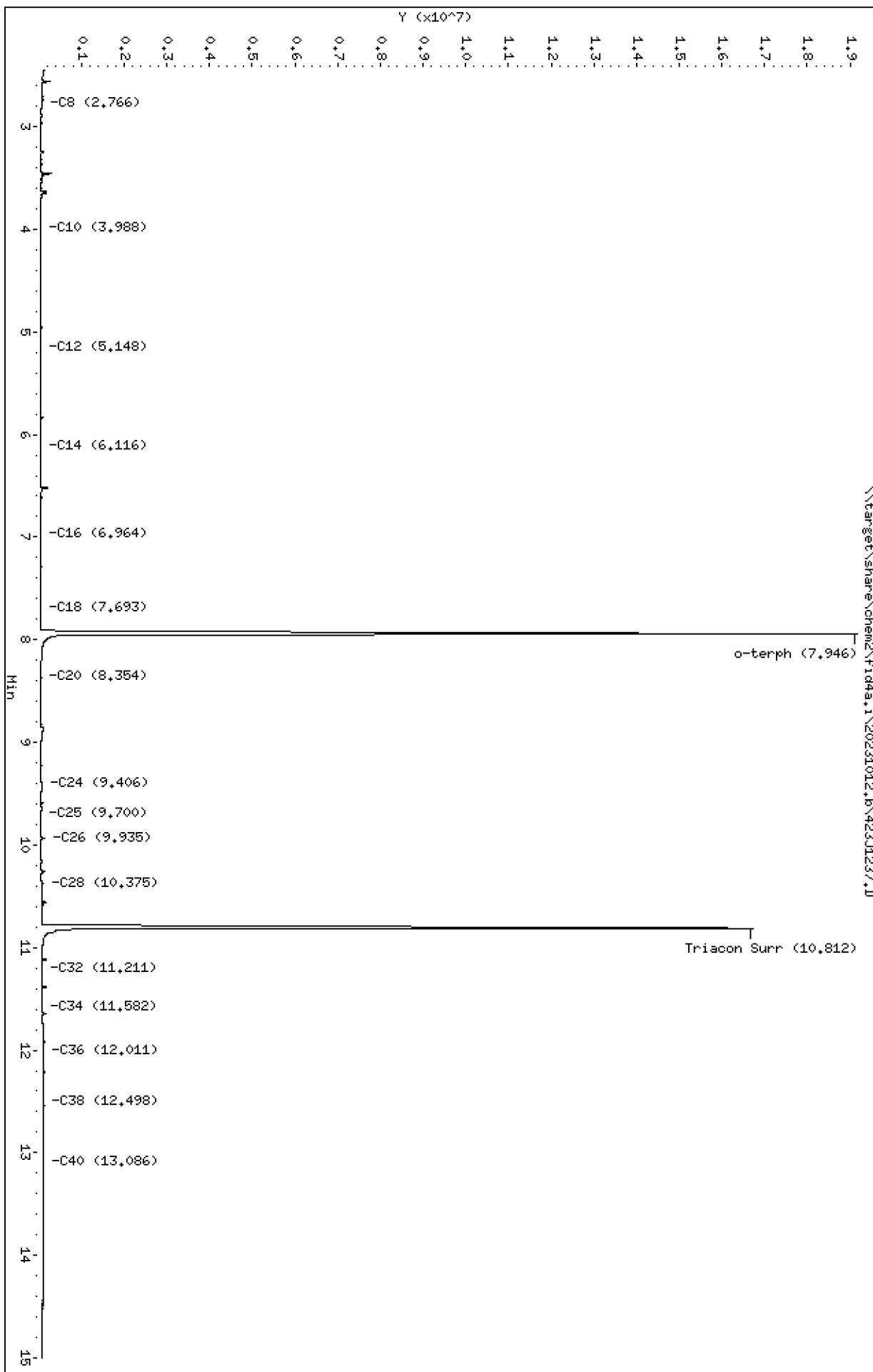
Column phase: RTX-1

Instrument: fid4a,1

Operator: NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231012.b/423J1237.D  
Method: 20231012.b\FID4TPH.m  
Instrument: fid4a.i, NRB  
Report Date: 10/20/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: 23I0388-15  
Client ID:  
Injection: 13-OCT-2023 01:48  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

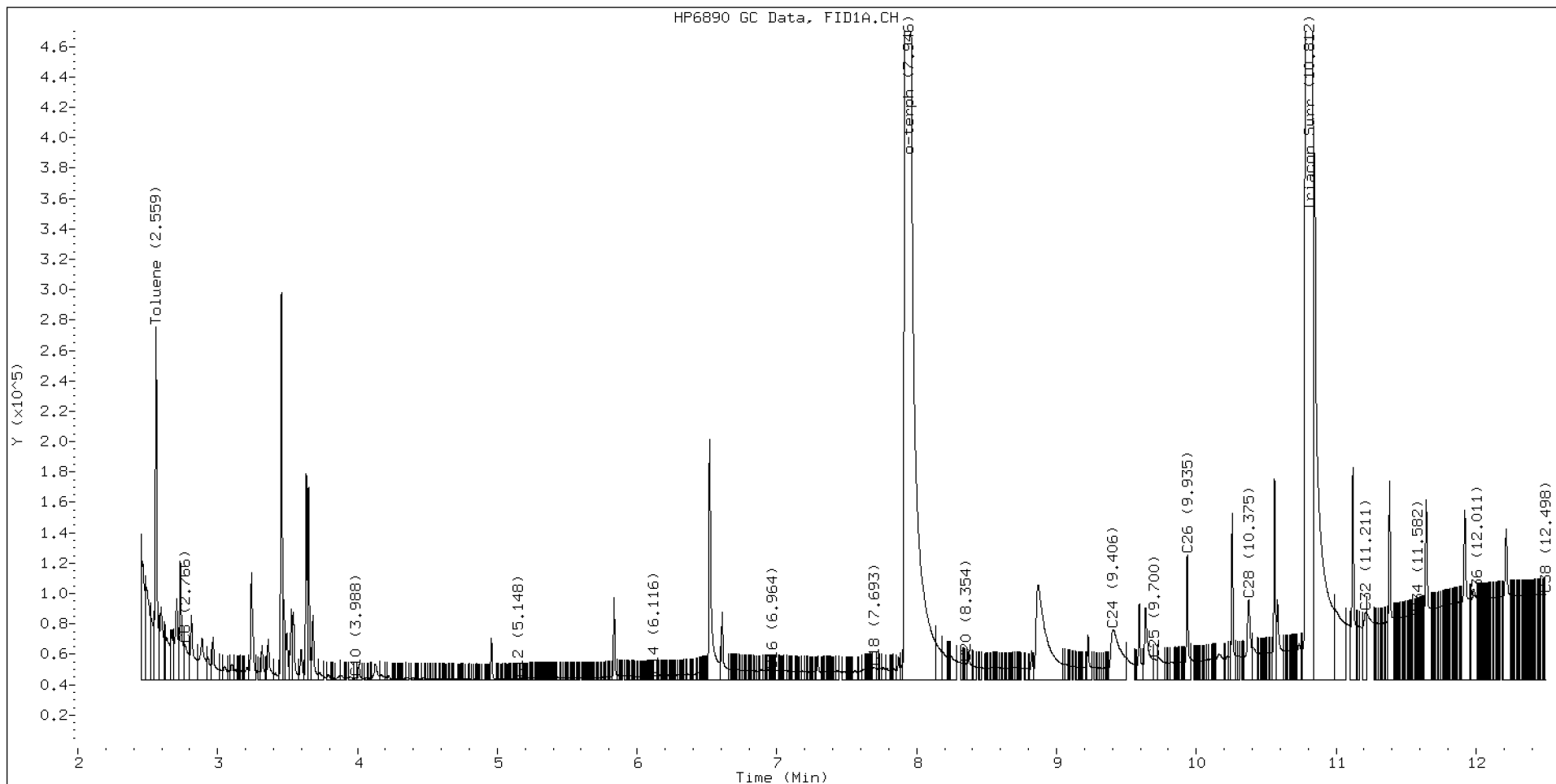
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.766	0.010	23344	48653	WATPHD	(C12-C24)	1943474	12.3
C10	3.988	-0.004	1590	1656	WATPHM	(C24-C38)	6788187	57.0
C12	5.148	-0.002	1039	806	AK102	(C10-C25)	2205030	11.7
C14	6.116	0.001	2971	2016	AK103	(C25-C36)	4953653	49.5
C16	6.964	0.006	6569	3269				
C18	7.693	-0.008	8548	14890				
C20	8.354	0.001	10859	7997				
C22	----							
C24	9.406	-0.046	33175	164153				
C25	9.700	0.005	13812	22840				
C26	9.935	0.008	82052	75796				
C32	11.211	0.022	44631	75755				
C34	11.582	0.000	43851	10944				
Filter Peak	----				CREOSOT	(C12-C22)	1626968	49.6 M
C36	12.011	0.003	53728	16112				
C38	12.498	0.002	56160	39265				
C40	13.086	0.000	53211	13294				
o-terph	7.946	0.002	19128811	24971725				
Triacon Surr	10.812	0.004	16699742	21173122				

Range Times: NW Diesel(5.150 - 9.452) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.50) AK103(9.69 - 12.01) OR Diesel(3.99 - 10.37)

Surrogate	Area	Amount
o-Terphenyl	24971725	122.6
Triacontane	21173122	155.4

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	06-JAN-2022
OR Gas	28080.0	XX-XXX-XXXX
Creosote	32781.4	20-MAR-2023







Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**MW-01D-20230915**  
**2310388-15 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/15/2023 11:03  
Instrument: NT3 Analyzed: 19-Sep-2023 20:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	98.8	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	96.4	%	

Data File: \\target\share\chend\nt3.1\20230919s.16\309192326G.D

Date: 19-SEP-2023 20:25

Client ID:

Sample Info: 2310388-15

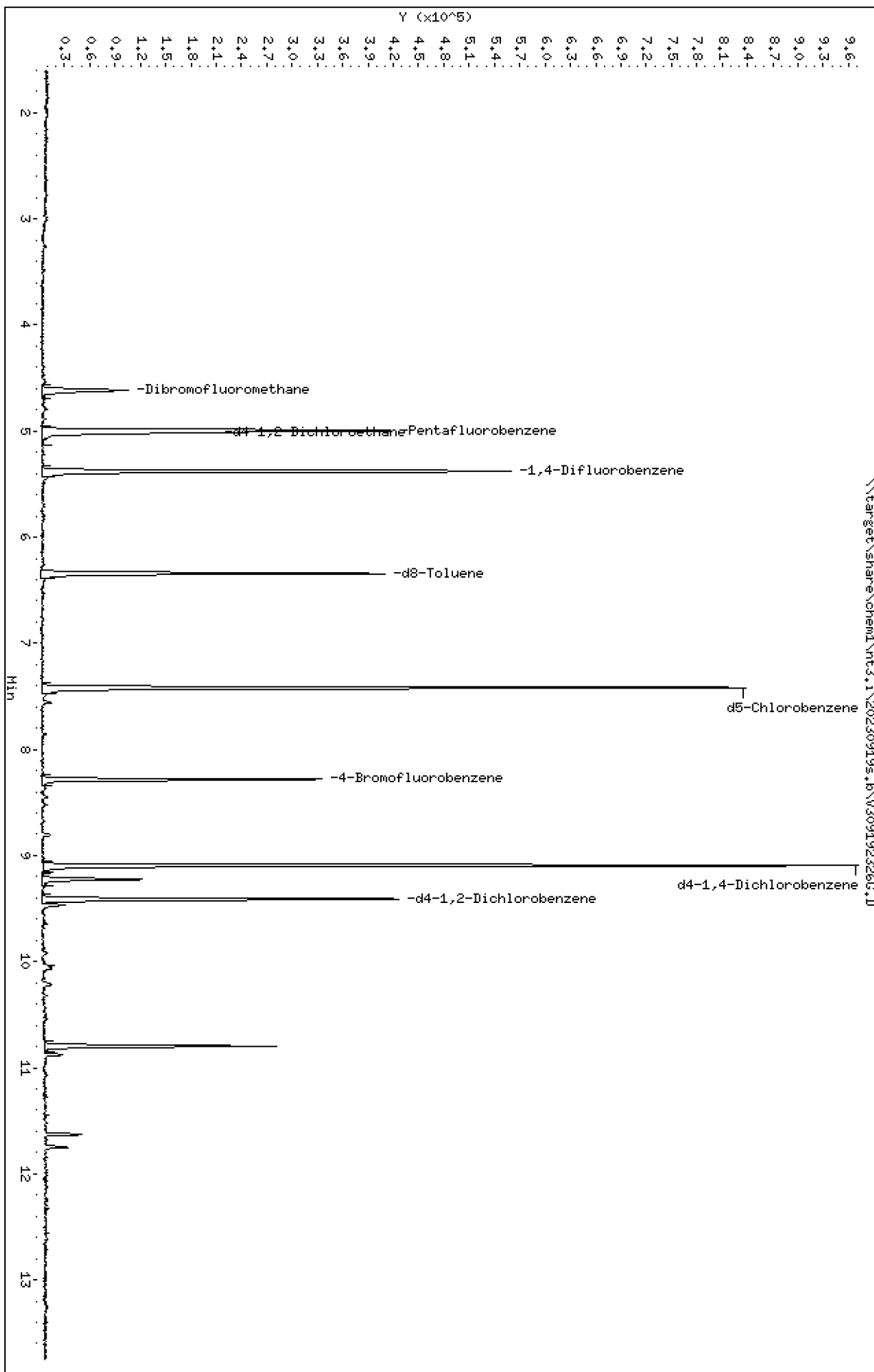
Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192326G.D  
 Lab Smp Id: 23I0388-15  
 Inj Date : 19-SEP-2023 20:25  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : 23I0388-15  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.615	4.611	(0.924)	55051	5.15105	5.151
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	223751	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.014	5.009	(1.004)	37352	5.95508	5.955
* 37 1,4-Difluorobenzene	114		5.380	5.376	(1.000)	341326	10.0000	
\$ 43 d8-Toluene	98		6.342	6.337	(1.179)	194553	4.93815	4.938
* 53 d5-Chlorobenzene	117		7.421	7.416	(1.000)	334280	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.287	(1.117)	70755	4.82089	4.821
* 76 d4-1,4-Dichlorobenzene	152		9.094	9.095	(1.000)	189783	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.413	9.408	(1.035)	86490	5.25293	5.253

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192326G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-15  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	223751	-3.85
37 1,4-Difluorobenze	350169	175085	700338	341326	-2.53
53 d5-Chlorobenzene	337155	168578	674310	334280	-0.85
76 d4-1,4-Dichlorobe	191021	95511	382042	189783	-0.65

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.09
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.06
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.09	-0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 23I0388-15  
 Level: LOW Operator: TWC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.151	103.02	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.955	119.10	80-128
\$ 43 d8-Toluene	5.000	4.938	98.76	80-120
\$ 62 4-Bromofluorobenze	5.000	4.821	96.42	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.253	105.06	80-120

REVIEW SUMMARY FOR FILE - V309192326G.D

Lab ID: 23I0388-15

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 20:25

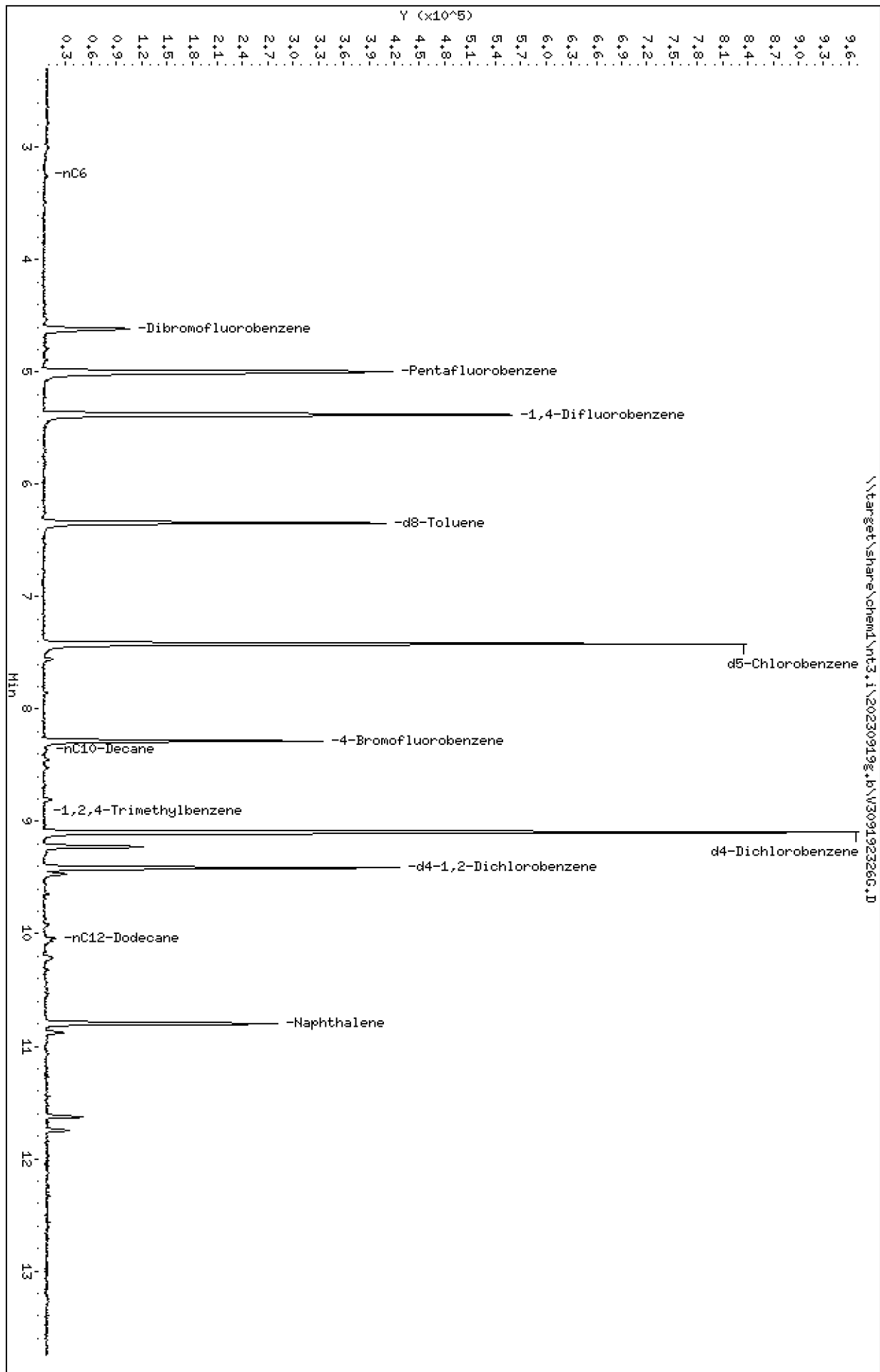
RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.1b\W309192326G.D  
 Date: 19-SEP-2023 20:25  
 Client ID:  
 Sample Info: 2310388-15

Column phase: RTXWMS

Instrument: nt3.1  
 Operator: TMC  
 Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192326G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 20:25

ARI ID: 23I0388-15  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	-----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	384427	0.008
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	195732	0.003
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	137734	0.002
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	868165	0.018
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	456524	0.006

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.421	1133218	d5-Chlorobenzene
6.343	579433	d8-Toluene
9.095	1236196	d4-Dichlorobenzene
8.282	449568	4-Bromofluorobenzene
9.414	583867	d4-1,2-Dichlorobenzene





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**Tripblank-20230915**  
**2310388-16 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/14/2023 09:23  
Analyzed: 19-Sep-2023 14:01

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	98.2	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.5	%	

Data File: \\target\share\chend\nt3.1\20230919s.16\309192309G.D

Date: 19-SEP-2023 14:01

Client ID:

Sample Info: 2310388-16

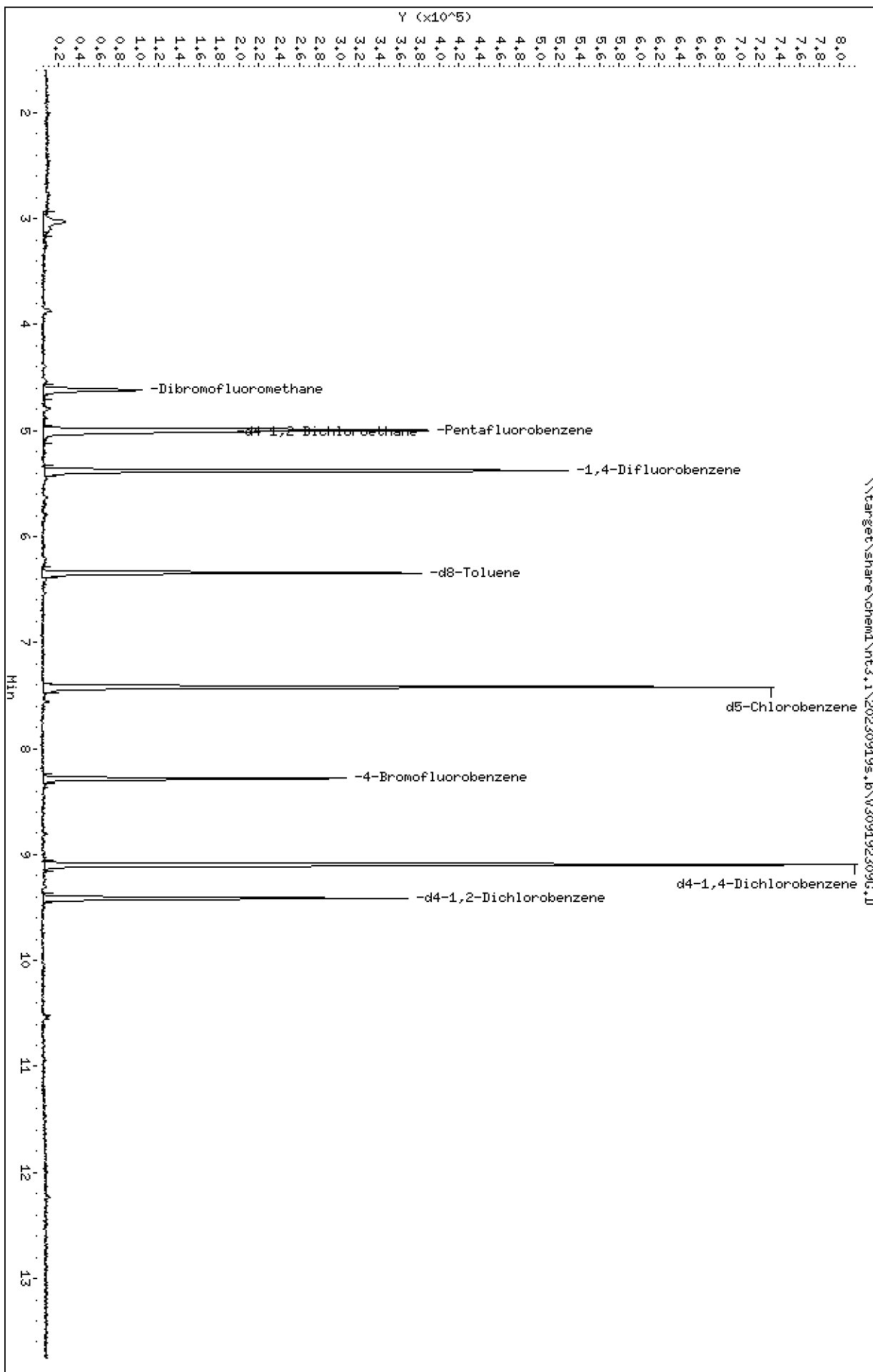
Page 1

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192309G.D  
 Lab Smp Id: 23I0388-16  
 Inj Date : 19-SEP-2023 14:01  
 Operator : TWC  
 Smp Info : 23I0388-16  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i  
 Cal Date : 18-SEP-2023 14:10  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309182318.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	50718	5.09560	5.096
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	208383	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.014	5.009	(1.004)	30202	5.17026	5.170
* 37 1,4-Difluorobenzene	114		5.375	5.376	(1.000)	315850	10.0000	
\$ 43 d8-Toluene	98		6.342	6.337	(1.180)	179016	4.91028	4.910
* 53 d5-Chlorobenzene	117		7.421	7.416	(1.000)	296678	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.287	(1.117)	63516	4.87616	4.876
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	163864	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.413	9.408	(1.035)	73255	5.15284	5.153

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192309G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-16  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	208383	-10.45
37 1,4-Difluorobenze	350169	175085	700338	315850	-9.80
53 d5-Chlorobenzene	337155	168578	674310	296678	-12.01
76 d4-1,4-Dichlorobe	191021	95511	382042	163864	-14.22

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.07
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23I0388-16  
Level: LOW Operator: TWC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.096	101.91	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.170	103.41	80-128
\$ 43 d8-Toluene	5.000	4.910	98.21	80-120
\$ 62 4-Bromofluorobenze	5.000	4.876	97.52	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.153	103.06	80-120

REVIEW SUMMARY FOR FILE - V309192309G.D

Lab ID: 23I0388-16

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 14:01

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.b\2309192309G.D

Date: 19-SEP-2023 14:01

Client ID:

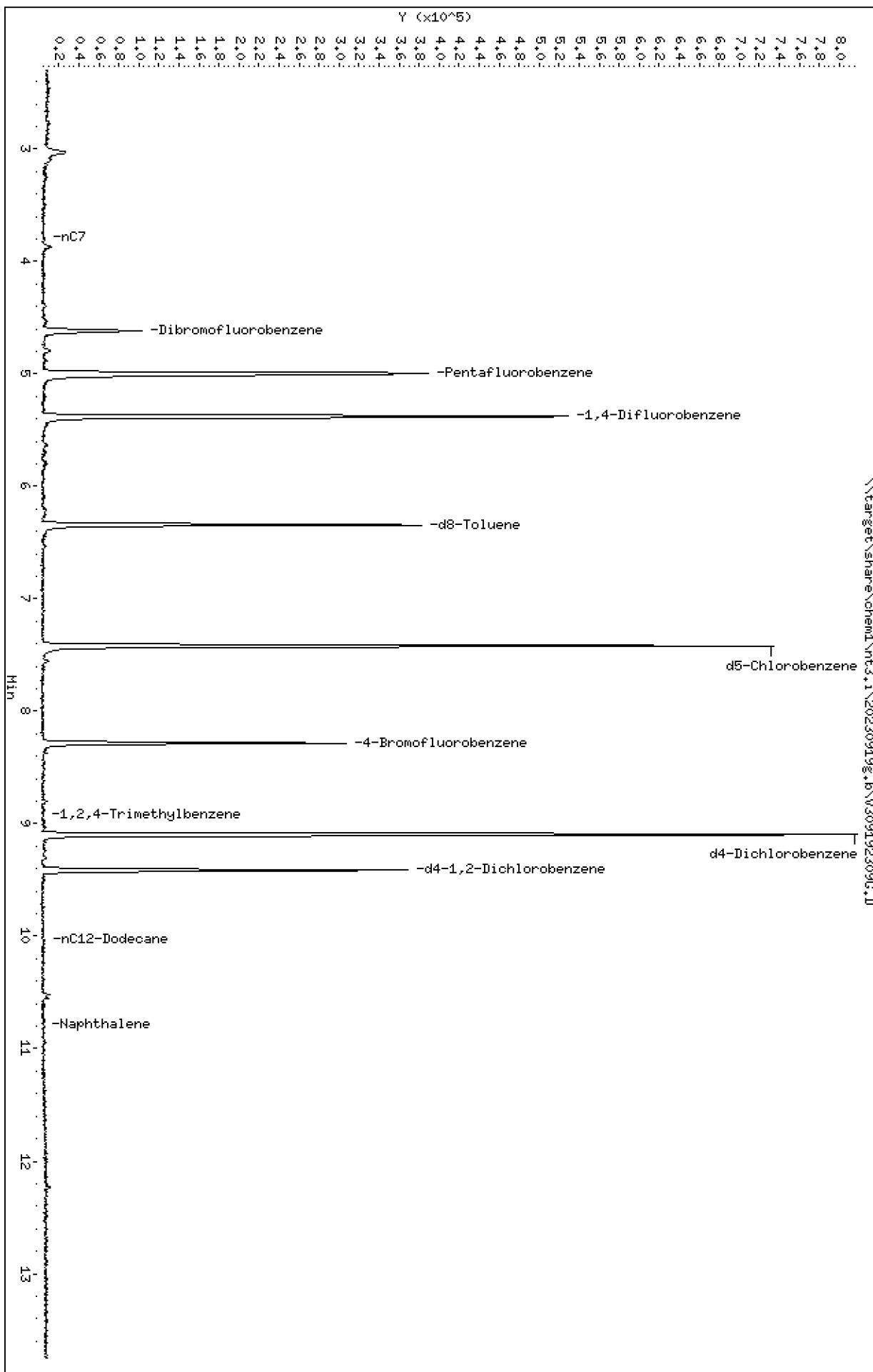
Sample Info: 2310388-16

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192309G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 14:01

ARI ID: 23I0388-16  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

-----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	98420	0.002
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	258074	0.004
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	150681	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	113703	0.002
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	197178	0.003

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.416	1005542	d5-Chlorobenzene
6.343	540208	d8-Toluene
9.095	1054300	d4-Dichlorobenzene
8.282	405349	4-Bromofluorobenzene
9.414	494140	d4-1,2-Dichlorobenzene





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Tripblank-20230914**  
**2310388-17 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/14/2023 09:23  
Instrument: NT3 Analyzed: 19-Sep-2023 14:23

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BLI0482 Sample Size: 10 mL  
Prepared: 19-Sep-2023 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.2	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.2	%	

Data File: \\target\share\chend\nt3.1\20230919s.16\309192310G.D

Date: 19-SEP-2023 14:23

Client ID:

Sample Info: 2310388-17

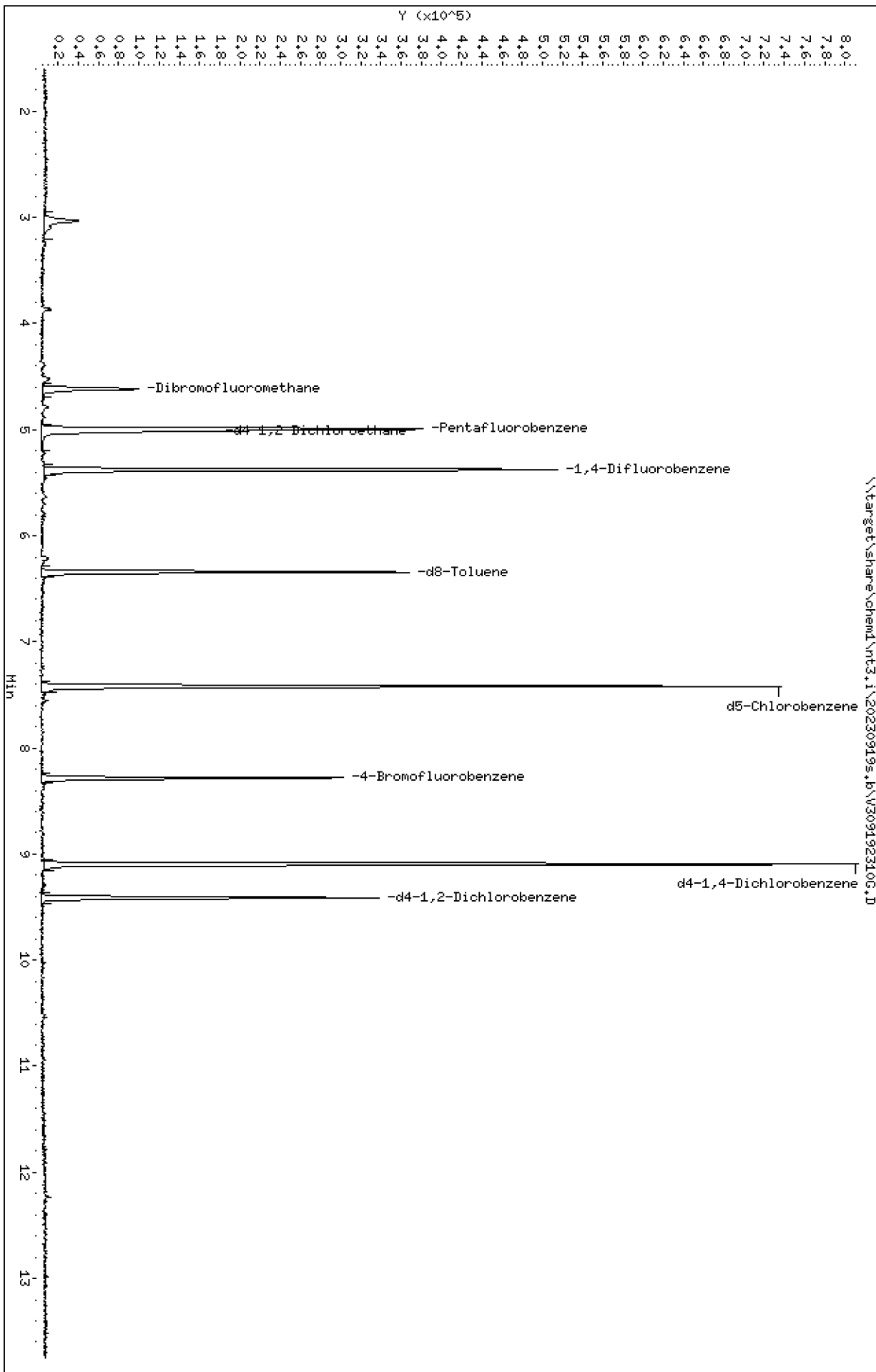
Page 1

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192310G.D  
 Lab Smp Id: 23I0388-17  
 Inj Date : 19-SEP-2023 14:23  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : 23I0388-17  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	49209	5.01499	5.015
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	205433	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.014	5.009	(1.004)	30471	5.29121	5.291
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	304319	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	174155	4.95795	4.958
* 53 d5-Chlorobenzene	117		7.416	7.416	(1.000)	292478	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.287	(1.117)	63663	4.95763	4.958
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	160778	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.408	(1.035)	71952	5.15833	5.158

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192310G.D Calibration Time: 12:09  
 Lab Smp Id: 23I0388-17  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	205433	-11.72
37 1,4-Difluorobenze	350169	175085	700338	304319	-13.09
53 d5-Chlorobenzene	337155	168578	674310	292478	-13.25
76 d4-1,4-Dichlorobe	191021	95511	382042	160778	-15.83

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	-0.00
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 23I0388-17  
Level: LOW Operator: TWC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.015	100.30	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.291	105.82	80-128
\$ 43 d8-Toluene	5.000	4.958	99.16	80-120
\$ 62 4-Bromofluorobenze	5.000	4.958	99.15	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.158	103.17	80-120

REVIEW SUMMARY FOR FILE - V309192310G.D

Lab ID: 23I0388-17

nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 14:23

RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chend\nt3.1\20230919g.b\W309192310G.D

Date: 19-SEP-2023 14:23

Client ID:

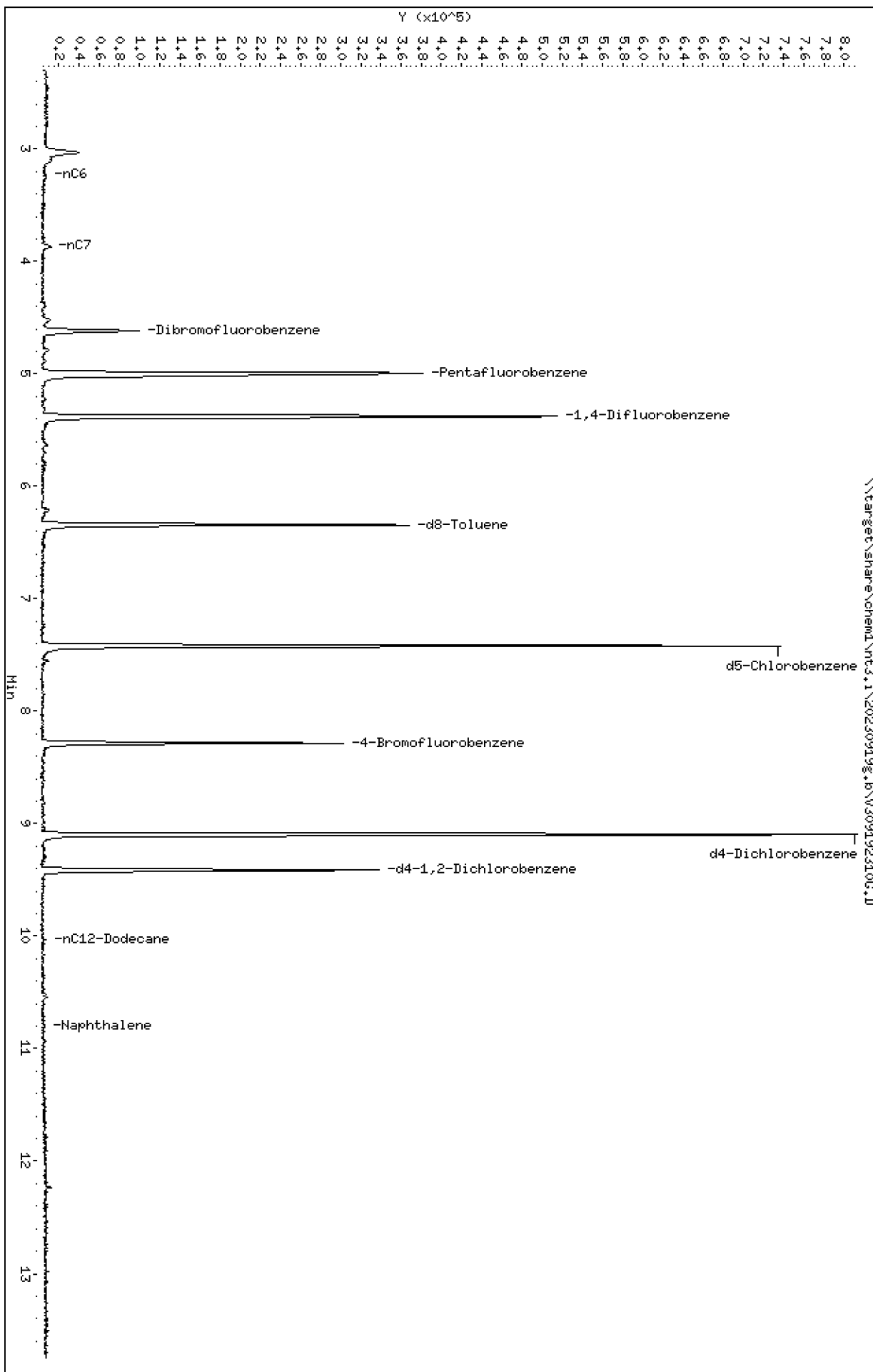
Sample Info: 2310388-17

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192310G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 14:23

ARI ID: 23I0388-17  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	88109	0.002
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	325171	0.004
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	186060	0.003
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	106124	0.002
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	217143	0.003

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.416	985433	d5-Chlorobenzene
6.343	529676	d8-Toluene
9.095	1024280	d4-Dichlorobenzene
8.282	402166	4-Bromofluorobenzene
9.414	486676	d4-1,2-Dichlorobenzene





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLI0482 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLI0482-BLK1)</b>				Prepared: 19-Sep-2023 Analyzed: 19-Sep-2023 13:39						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.89		ug/L	5.00		97.7	80-120			
Surrogate: 4-Bromofluorobenzene	4.80		ug/L	5.00		96.0	80-120			

Data File: \\target\share\chend\nt3.1\20230919s.16\309192308G.D

Date: 19-SEP-2023 13:39

Client ID:

Sample Info: BL10482-BLK1

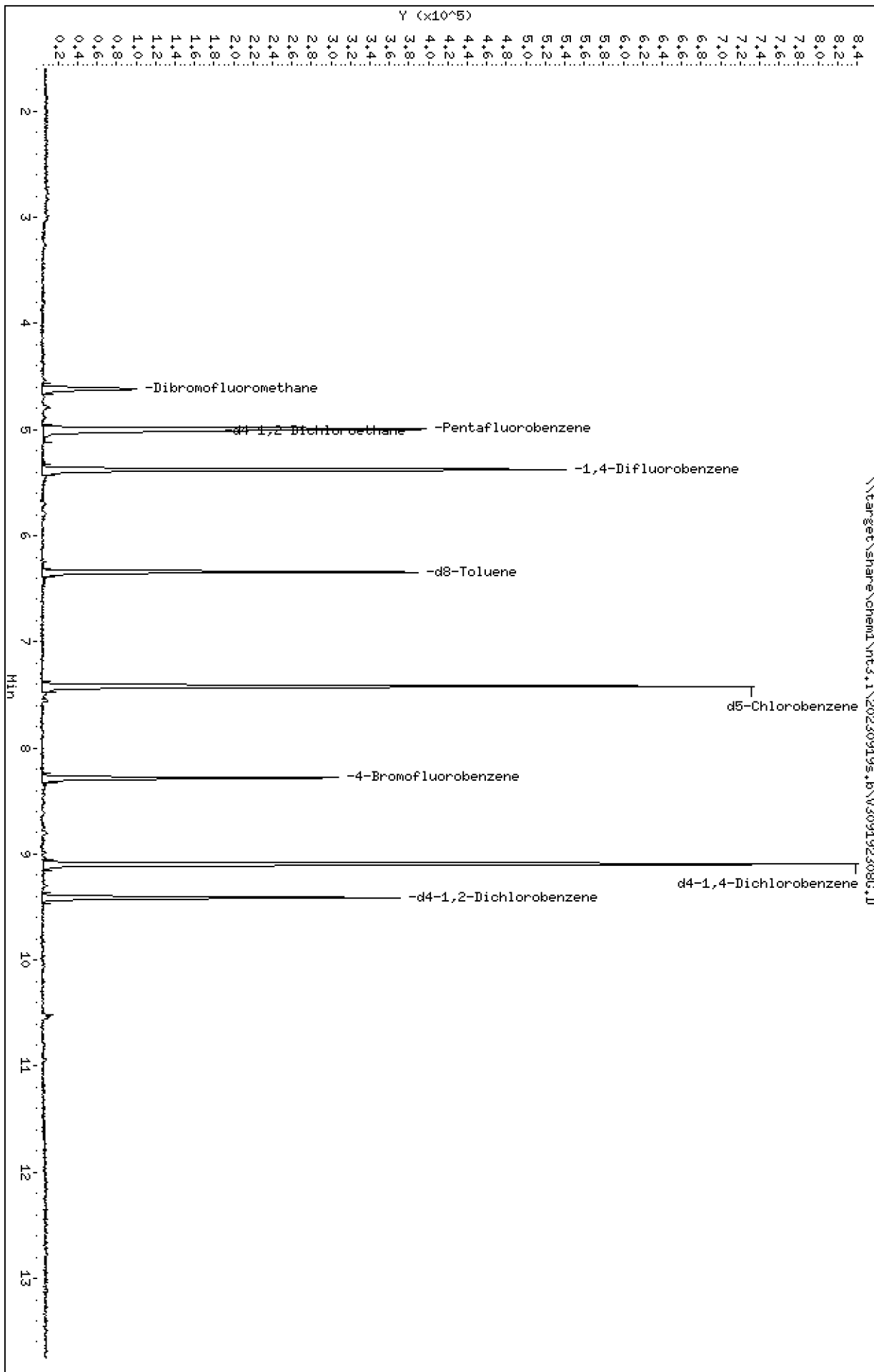
Page 1

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192308G.D  
 Lab Smp Id: BLI0482-BLK1  
 Inj Date : 19-SEP-2023 13:39  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : BLI0482-BLK1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	52052	5.12698	5.127
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	212555	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.014	5.009	(1.004)	30430	5.10704	5.107
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	320657	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	180879	4.88701	4.887
* 53 d5-Chlorobenzene	117		7.421	7.416	(1.000)	300365	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.287	8.287	(1.117)	63321	4.80152	4.802
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	166586	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.408	(1.035)	73233	5.06712	5.067

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192308G.D Calibration Time: 12:09  
 Lab Smp Id: BLI0482-BLK1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	212555	-8.66
37 1,4-Difluorobenze	350169	175085	700338	320657	-8.43
53 d5-Chlorobenzene	337155	168578	674310	300365	-10.91
76 d4-1,4-Dichlorobe	191021	95511	382042	166586	-12.79

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	-0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	-0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.07
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLI0482-BLK1  
Level: LOW Operator: TWC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.127	102.54	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.107	102.14	80-128
\$ 43 d8-Toluene	5.000	4.887	97.74	80-120
\$ 62 4-Bromofluorobenze	5.000	4.802	96.03	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.067	101.34	80-120

REVIEW SUMMARY FOR FILE - V309192308G.D

Lab ID: BLI0482-BLK1  
nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 13:39

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.b\W309192308G.D

Date: 19-SEP-2023 13:39

Client ID:

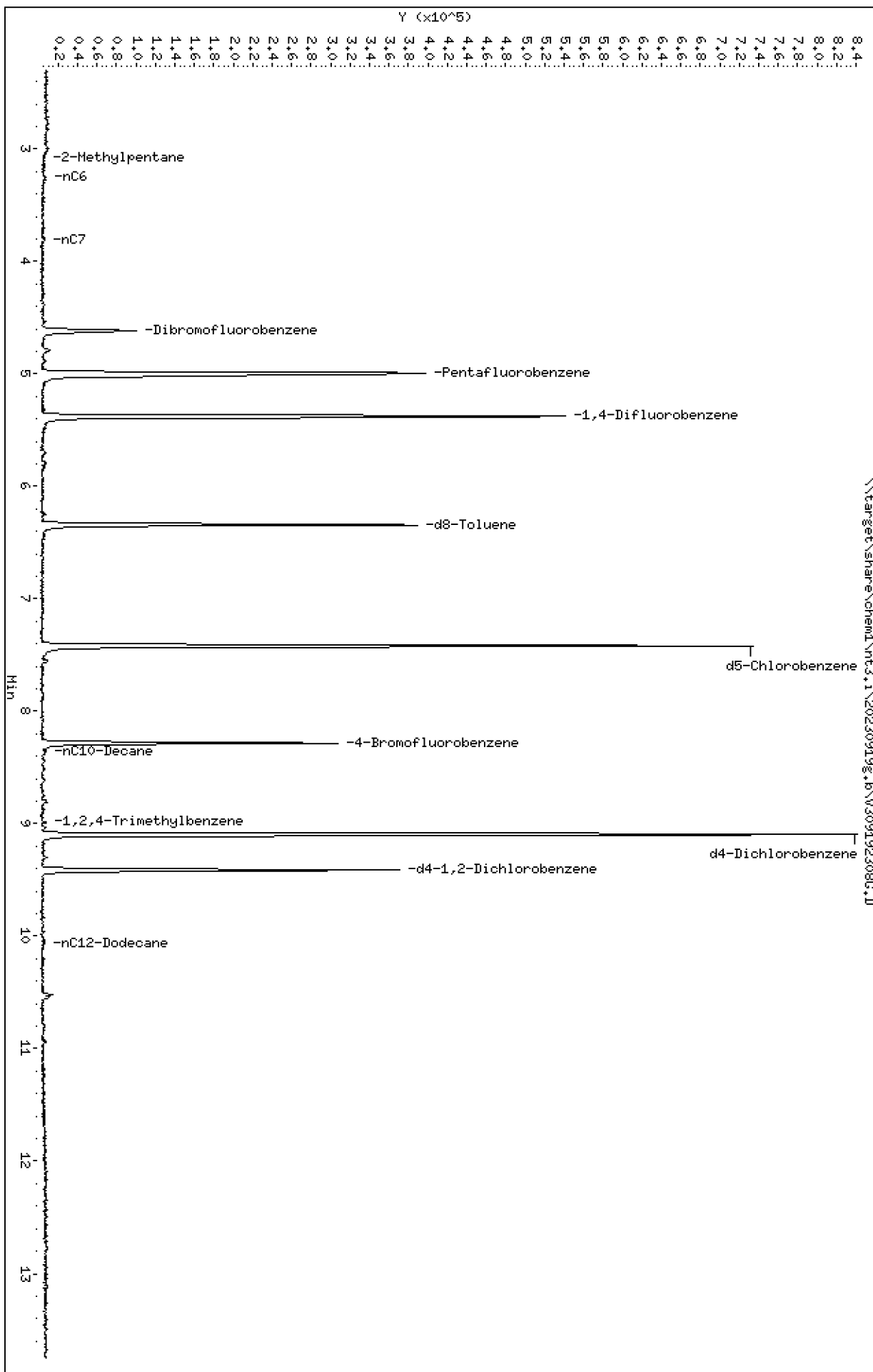
Sample Info: BL10482-BLK1

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: TMC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192308G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 13:39

ARI ID: BLI0482-BLK1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	103086	0.002
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	205099	0.003
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	122874	0.002
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	128854	0.003
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	183358	0.002

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.422	1013889	d5-Chlorobenzene
6.343	547104	d8-Toluene
9.095	1075360	d4-Dichlorobenzene
8.282	407539	4-Bromofluorobenzene
9.409	500570	d4-1,2-Dichlorobenzene





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLI0482 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLI0482-BS1)</b>				Prepared: 19-Sep-2023 Analyzed: 19-Sep-2023 11:47						
Gasoline Range Organics (Tol-Nap)	1060	100	ug/L	1000		106	72-128			
Surrogate: Toluene-d8	4.92		ug/L	5.00		98.5	80-120			
Surrogate: 4-Bromofluorobenzene	4.95		ug/L	5.00		99.0	80-120			

Data File: \\target\share\chemd\nt3.1\20230919s.b\309192303LCSG.D

Date: 19-SEP-2023 11:47

Client ID:

Sample Info: BL10482-BS1

Page 1

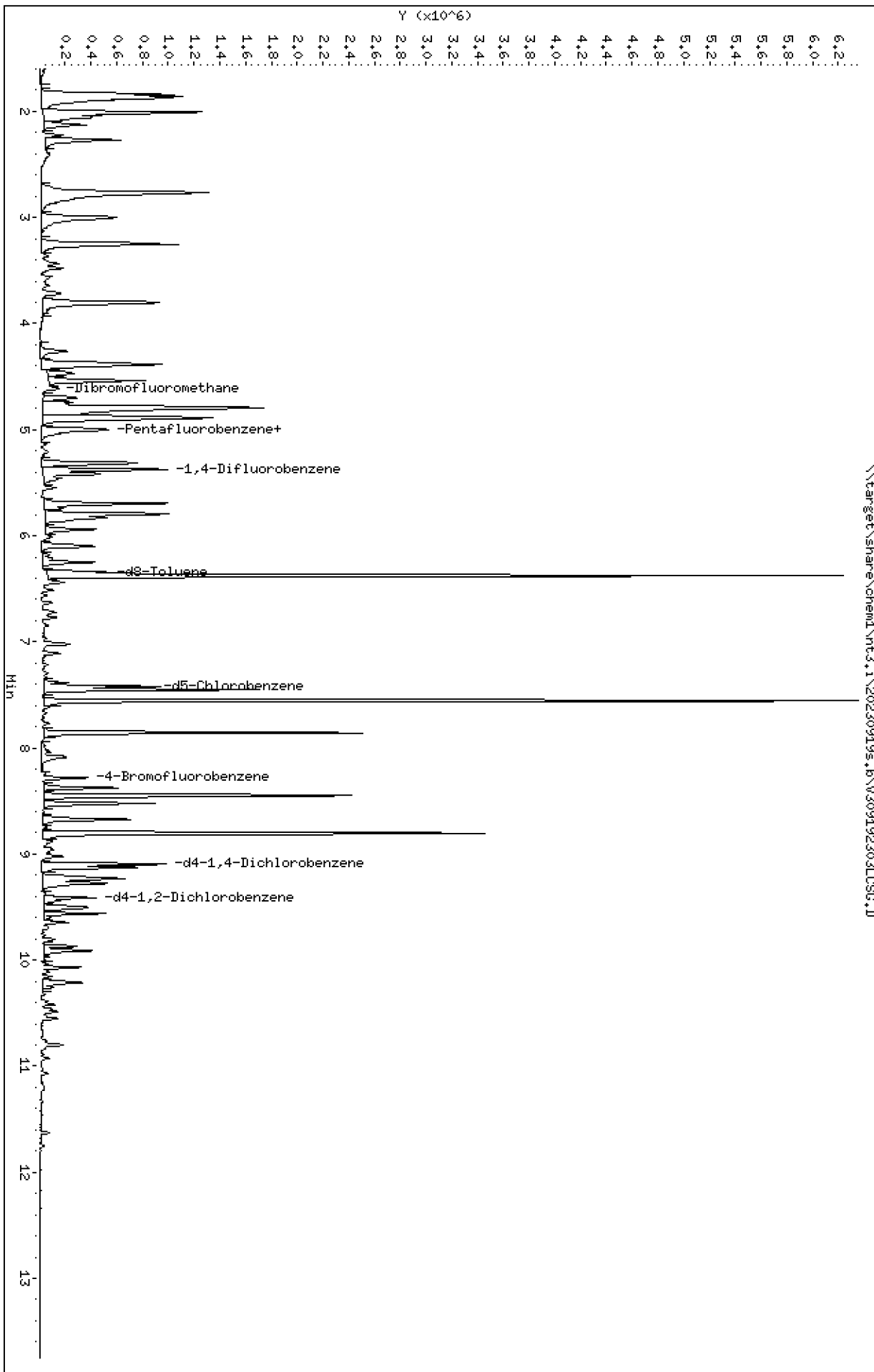
Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Column phase: RTXWMS

\\target\share\chemd\nt3.1\20230919s.b\309192303LCSG.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192303LCSG.D  
 Lab Smp Id: BLI0482-BS1  
 Inj Date : 19-SEP-2023 11:47  
 Operator : TWC  
 Smp Info : BLI0482-BS1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i  
 Cal Date : 18-SEP-2023 14:10  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309182318.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	60201	5.27664	5.277
* 32 Pentafluorobenzene	168		4.993	4.993	(1.000)	238859	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.009	5.009	(1.003)	44311	6.61772	6.618 (R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	372535	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	211682	4.92280	4.923
* 53 d5-Chlorobenzene	117		7.421	7.416	(1.000)	345590	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.282	8.287	(1.116)	75110	4.95014	4.950
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	195065	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.408	(1.035)	85249	5.03736	5.037

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192303LCSG.D Calibration Time: 12:09  
 Lab Smp Id: BLI0482-BS1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	238859	2.65
37 1,4-Difluorobenze	350169	175085	700338	372535	6.39
53 d5-Chlorobenzene	337155	168578	674310	345590	2.50
76 d4-1,4-Dichlorobe	191021	95511	382042	195065	2.12

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.00
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.00
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.07
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: BLI0482-BS1  
 Level: LOW Operator: TWC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.277	105.53	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.618	132.35*	80-128
\$ 43 d8-Toluene	5.000	4.923	98.46	80-120
\$ 62 4-Bromofluorobenze	5.000	4.950	99.00	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.037	100.75	80-120

REVIEW SUMMARY FOR FILE - V309192303LCSG.D

Lab ID: BLI0482-BS1  
nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 11:47

RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chemd\nt3.1\20230919g.b\309192303LCSG.D

Date: 19-SEP-2023 11:47

Client ID:

Sample Info: BL10482-BS1

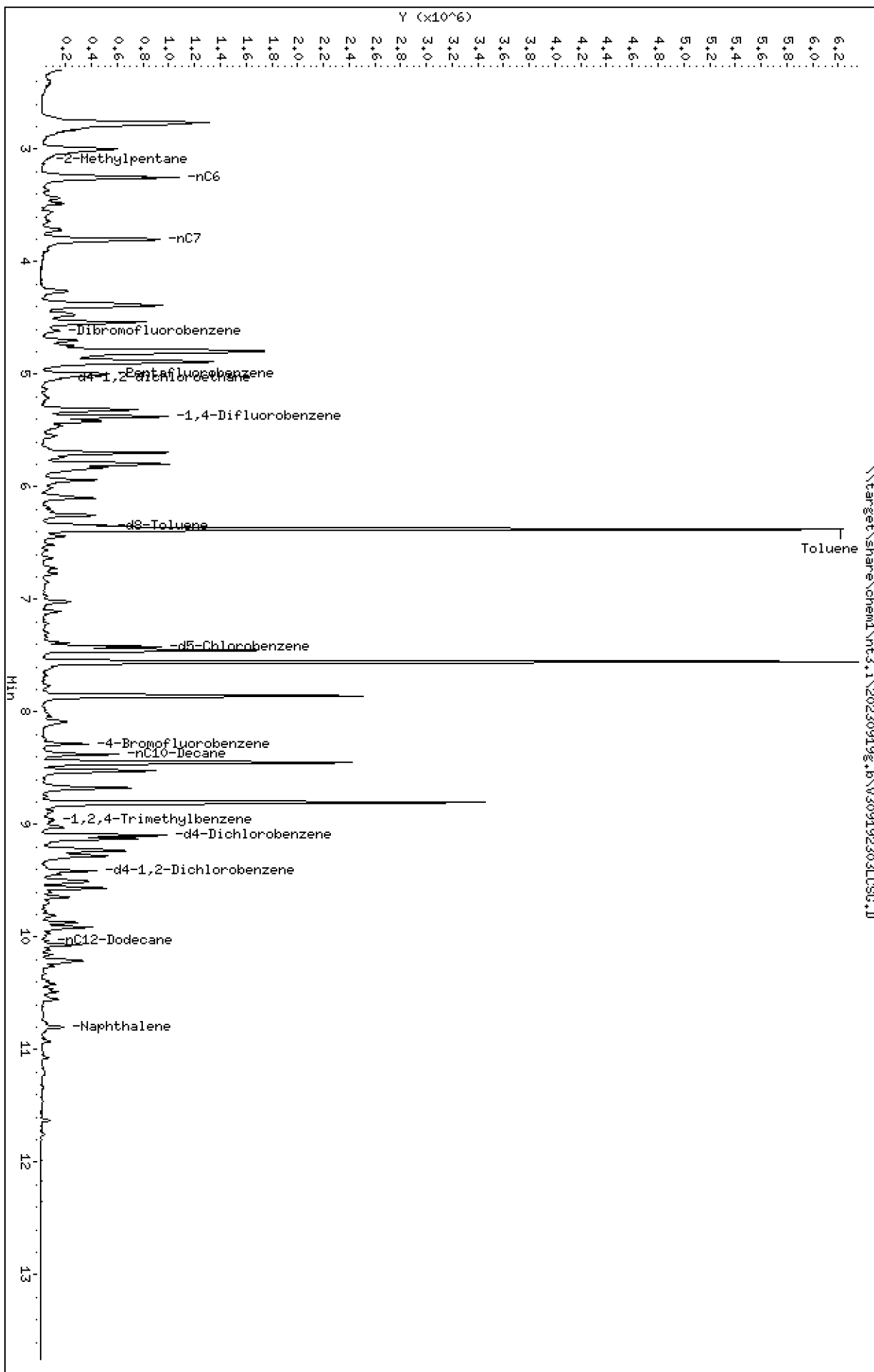
Page 1

Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192303G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 11:47

ARI ID: SLI0279-ICV1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	49150807	1.064
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	74243365	1.024 M
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	58847568	1.020 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	51729147	1.061 M
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	77318700	1.034 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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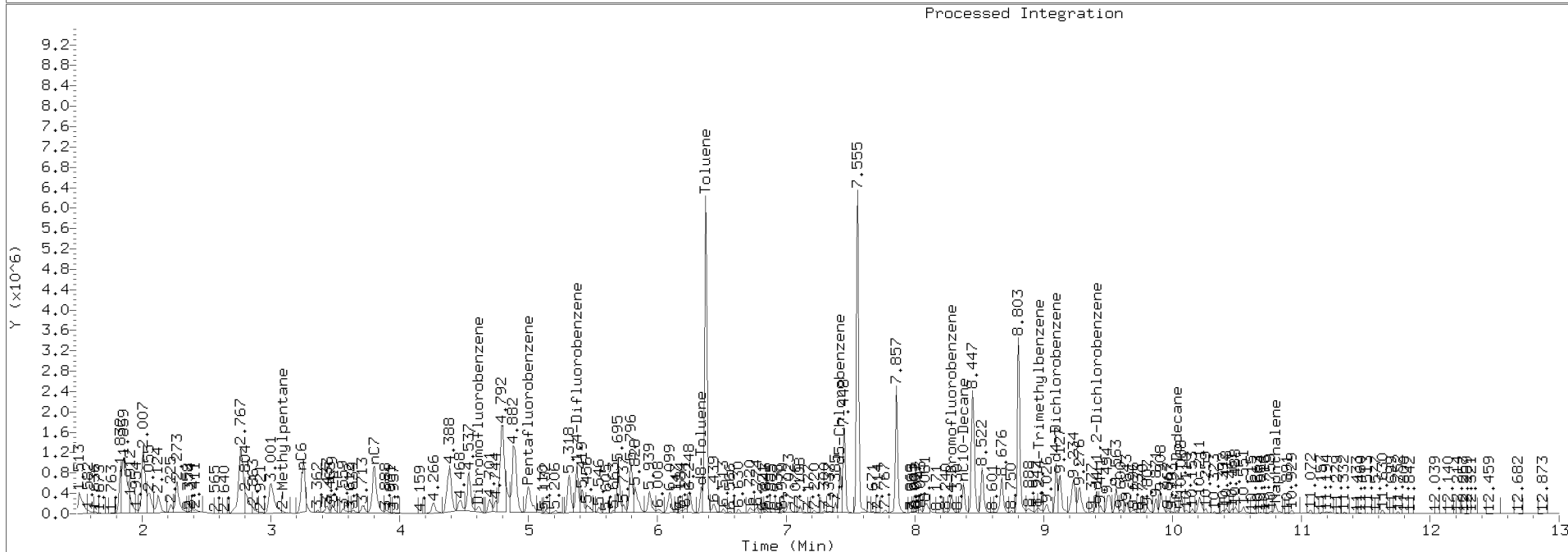
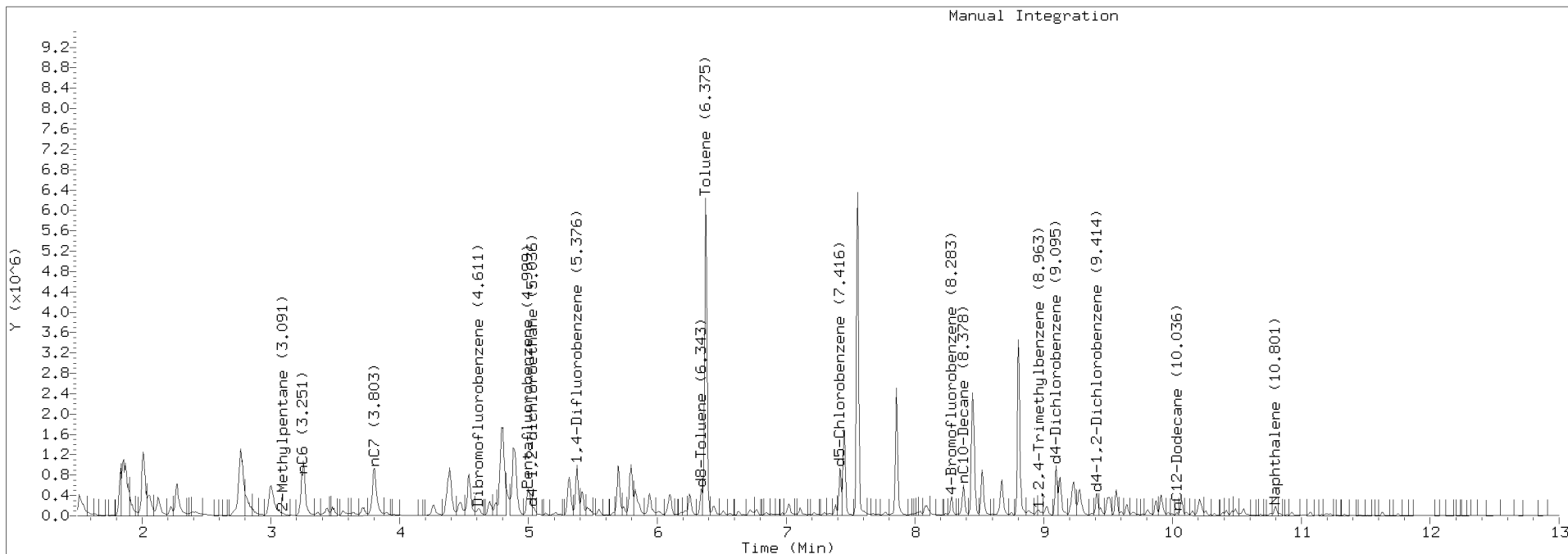
7.416	1265526	d5-Chlorobenzene
6.343	674226	d8-Toluene
9.095	1302079	d4-Dichlorobenzene
8.283	533808	4-Bromofluorobenzene
9.414	642798	d4-1,2-Dichlorobenzene



TPHG Manual Integrations Report

Datafile: NT3, 20230919g.b/V309192303G.D Injection: 19-SEP-2023 11:47

Lab ID:SLI0279-ICV1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLI0482 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLI0482-BSD1)</b>				Prepared: 19-Sep-2023 Analyzed: 19-Sep-2023 12:31						
Gasoline Range Organics (Tol-Nap)	992	100	ug/L	1000		99.2	72-128	6.72	30	
Surrogate: Toluene-d8	4.89		ug/L	5.00		97.7	80-120			
Surrogate: 4-Bromofluorobenzene	4.88		ug/L	5.00		97.6	80-120			

Data File: \\target\share\chend\nt3.1\20230919s.b\309192305G.D

Date: 19-SEP-2023 12:31

Client ID:

Sample Info: BL10482-BSM1

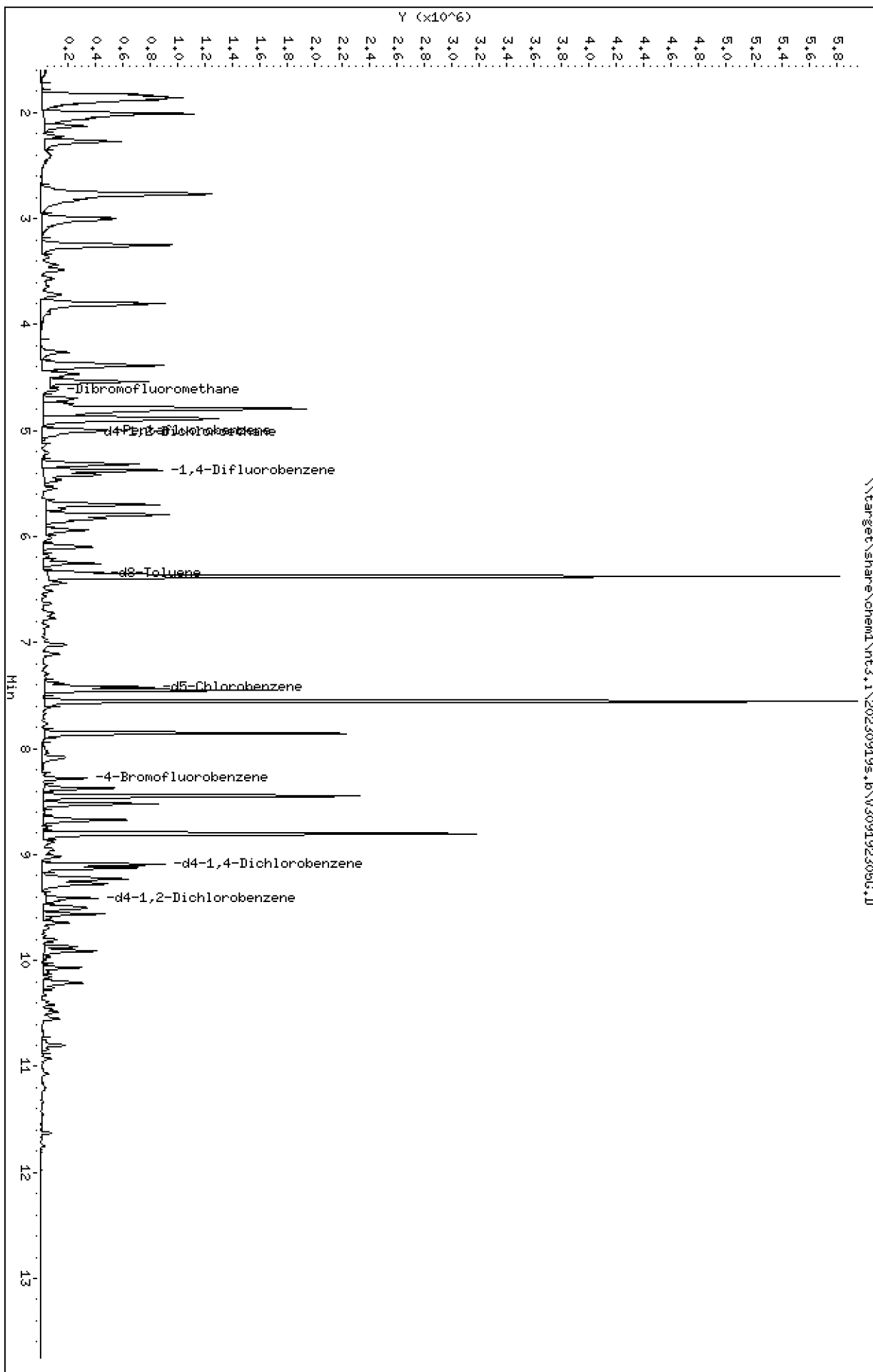
Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20230919s.b\V309192305G.D  
 Lab Smp Id: BLI0482-BSD1  
 Inj Date : 19-SEP-2023 12:31  
 Operator : TWC Inst ID: nt3.i  
 Smp Info : BLI0482-BSD1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Meth Date : 19-Sep-2023 16:27 nt3.i Quant Type: ISTD  
 Cal Date : 18-SEP-2023 14:10 Cal File: V309182318.D  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.616	4.611	(0.924)	51184	4.95587	4.956
* 32 Pentafluorobenzene	168		4.994	4.993	(1.000)	216227	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.015	5.009	(1.004)	43218	7.13006	7.130(R)
* 37 1,4-Difluorobenzene	114		5.376	5.376	(1.000)	332262	10.0000	
\$ 43 d8-Toluene	98		6.343	6.337	(1.180)	187419	4.88684	4.887
* 53 d5-Chlorobenzene	117		7.416	7.416	(1.000)	308451	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.283	8.287	(1.117)	66121	4.88240	4.882
* 76 d4-1,4-Dichlorobenzene	152		9.095	9.095	(1.000)	174816	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.414	9.408	(1.035)	77619	5.11776	5.118

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 19-SEP-2023  
 Lab File ID: V309192305G.D Calibration Time: 12:09  
 Lab Smp Id: BLI0482-BSD1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: TWC  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	232702	116351	465404	216227	-7.08
37 1,4-Difluorobenze	350169	175085	700338	332262	-5.11
53 d5-Chlorobenzene	337155	168578	674310	308451	-8.51
76 d4-1,4-Dichlorobe	191021	95511	382042	174816	-8.48

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	4.99	4.49	5.49	4.99	0.01
37 1,4-Difluorobenze	5.38	4.88	5.88	5.38	0.01
53 d5-Chlorobenzene	7.42	6.92	7.92	7.42	0.01
76 d4-1,4-Dichlorobe	9.10	8.60	9.60	9.10	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: BLI0482-BSD1  
 Level: LOW Operator: TWC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20230919s.b\8260D091823.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.956	99.12	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	7.130	142.60*	80-128
\$ 43 d8-Toluene	5.000	4.887	97.74	80-120
\$ 62 4-Bromofluorobenze	5.000	4.882	97.65	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.118	102.36	80-120

REVIEW SUMMARY FOR FILE - V309192305G.D

Lab ID: BLI0482-BSD1  
nt3.i, 20230919s.b\8260D091823.m, 19-SEP-2023 12:31

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20230919g.b\309192305G.D

Date: 19-SEP-2023 12:31

Client ID:

Sample Info: BL10482-BSM1

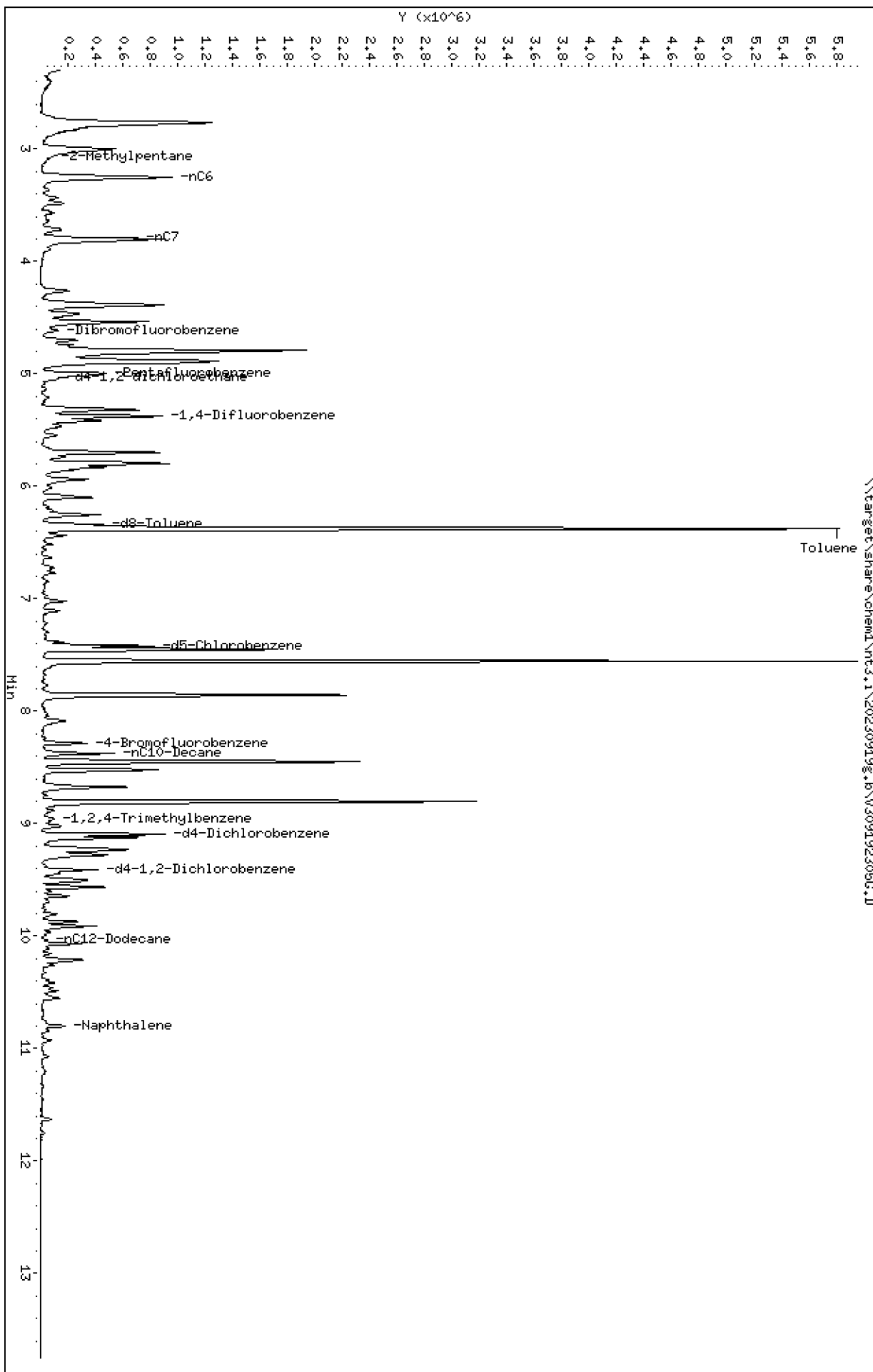
Column phase: RTXWMS

Instrument: nt3.1

Operator: TMC

Column diameter: 0.18

Page 1





Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20230919g.b/V309192305G.D  
Method: \20230919g.b\NWTPHG082223.m  
Instrument: nt3.i  
Gas Ical Date: 18-SEP-2023  
Injection Date: 19-SEP-2023 12:31

ARI ID: BLI0482-BSD1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: TWC

-----  
GASOLINE HYDROCARBONS  
-----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.28 to 10.14)	46209223	45861510	0.992 M
8015C 2MP-TMB ( 2.99 to 9.06)	72496576	70772217	0.976 M
AK101 nC6-nC10 ( 3.15 to 8.26)	57668995	56396801	0.978 M
NWTPHG Tol-Nap ( 6.28 to 10.90)	48737978	48367192	0.992 M
mod8015 nC7-nC12 ( 3.70 to 10.14)	74749724	73455197	0.983 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

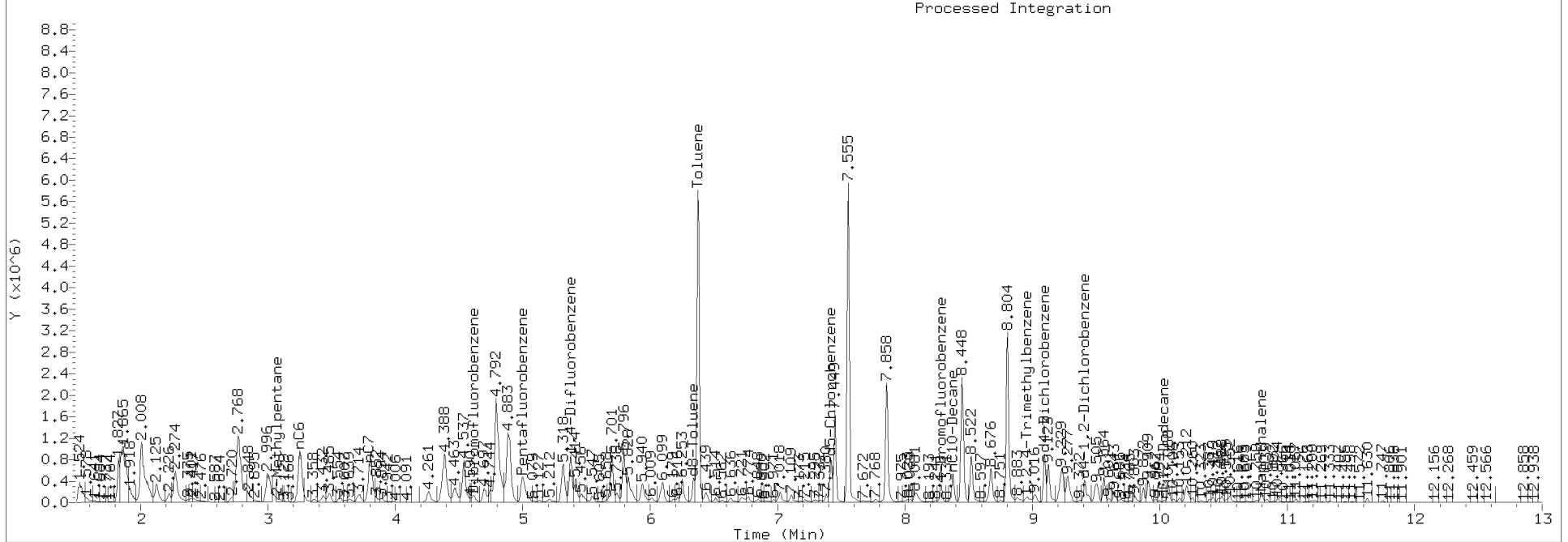
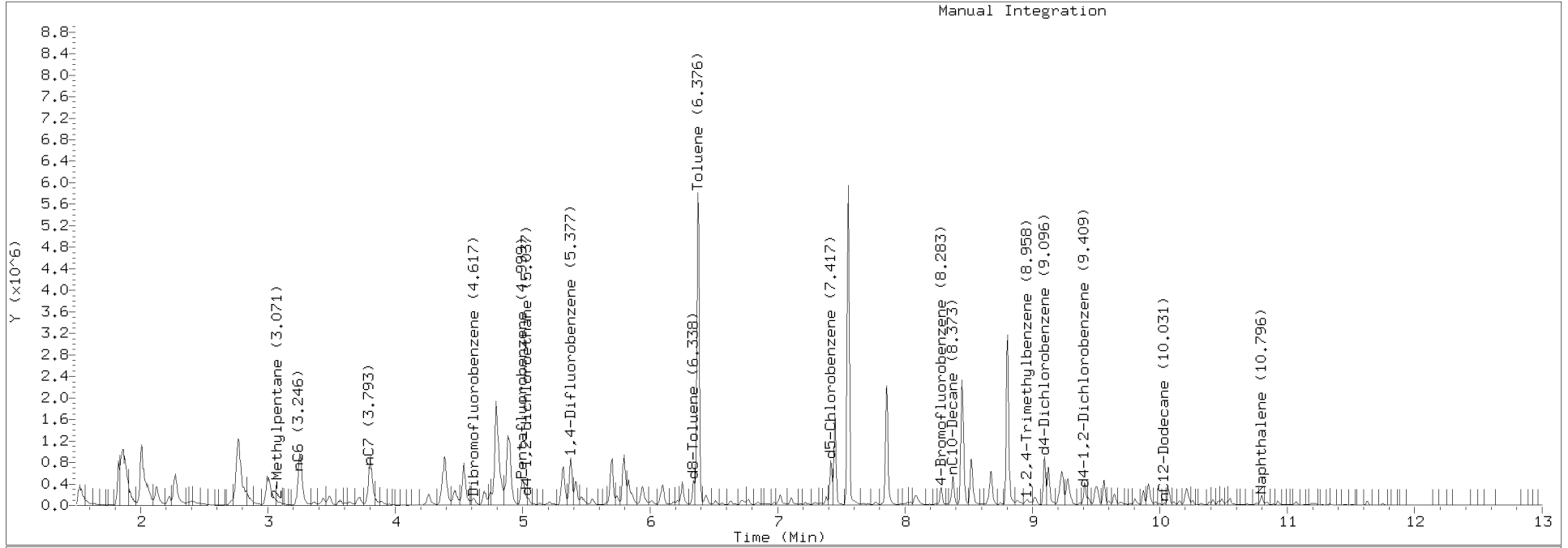
NW Gas Range Subtracted Peaks  
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7.417	1142245	d5-Chlorobenzene
6.338	620702	d8-Toluene
9.096	1194985	d4-Dichlorobenzene
8.283	482153	4-Bromofluorobenzene
9.409	606462	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20230919g.b/V309192305G.D Injection: 19-SEP-2023 12:31

Lab ID:BLI0482-BSD1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLI0521 - EPA 5030C (Purge and Trap)**

Instrument: NT20

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLI0521-BLK1)</b>					Prepared: 19-Sep-2023 Analyzed: 19-Sep-2023 09:14					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.73		ug/L	5.00		94.6	80-120			
Surrogate: 4-Bromofluorobenzene	4.64		ug/L	5.00		92.7	80-120			

Data File: \\target\share\chemd\nt20.1\0230919s.b\NT20\_09192309G.D

Date: 19-SEP-2023 09:14

Client ID:

Sample Info: BL10521-BLK1

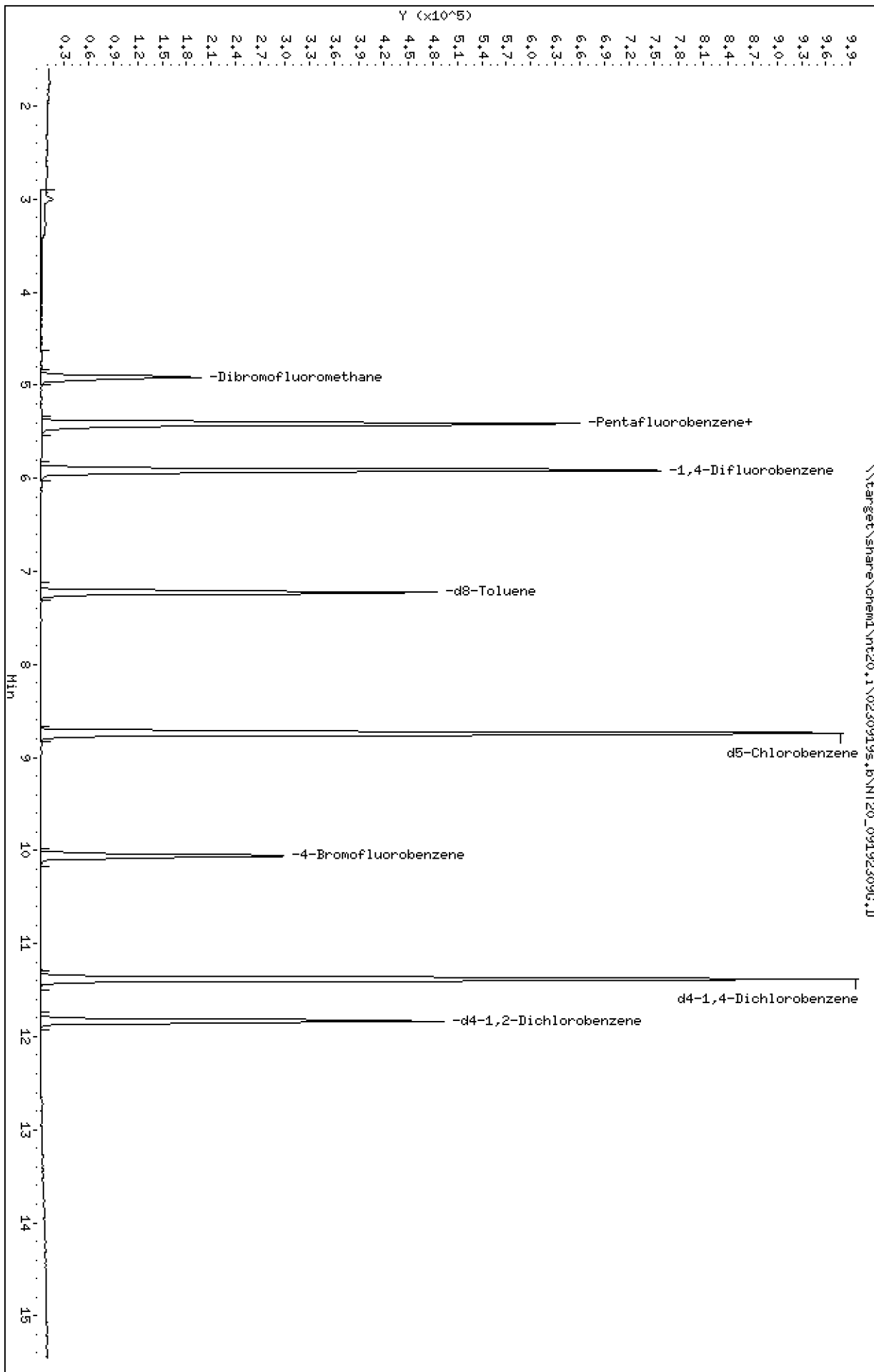
Column phase: RTXWMS

Instrument: nt20.1

Operator: LH

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt20.i\0230919s.b\NT20\_09192309G.D  
 Lab Smp Id: BLI0521-BLK1  
 Inj Date : 19-SEP-2023 09:14  
 Operator : LH Inst ID: nt20.i  
 Smp Info : BLI0521-BLK1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Meth Date : 20-Sep-2023 07:12 nt20.i Quant Type: ISTD  
 Cal Date : 13-SEP-2023 10:38 Cal File: NT20\_09132313.D  
 Als bottle: 1  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: LANIH-202105A

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.914	4.915	(0.908)	159985	5.22040	5.220(R)
* 32 Pentafluorobenzene	168		5.411	5.412	(1.000)	522295	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.422	5.422	(1.002)	71424	4.97151	4.972(R)
* 37 1,4-Difluorobenzene	114		5.919	5.908	(1.000)	868765	10.0000	
\$ 43 d8-Toluene	98		7.226	7.226	(1.221)	447292	4.73126	4.731(R)
* 53 d5-Chlorobenzene	117		8.742	8.742	(1.000)	845574	10.0000	
\$ 62 4-Bromofluorobenzene	174		10.065	10.065	(1.151)	151421	4.63624	4.636(R)
* 76 d4-1,4-Dichlorobenzene	152		11.384	11.384	(1.000)	450173	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		11.834	11.834	(1.040)	206877	5.25342	5.253(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt20.i Calibration Date: 19-SEP-2023  
 Lab File ID: NT20\_09192309G.D Calibration Time: 07:20  
 Lab Smp Id: BLI0521-BLK1  
 Analysis Type: VOA Level:  
 Quant Type: ISTD Sample Type:  
 Operator: LH  
 Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Misc Info: 16-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	576461	288231	1152922	522295	-9.40
37 1,4-Difluorobenze	921160	460580	1842320	868765	-5.69
53 d5-Chlorobenzene	953441	476721	1906882	845574	-11.31
76 d4-1,4-Dichlorobe	566088	283044	1132176	450173	-20.48

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.91	5.41	6.41	5.92	0.17
53 d5-Chlorobenzene	8.74	8.24	9.24	8.74	-0.00
76 d4-1,4-Dichlorobe	11.38	10.88	11.88	11.38	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
 Sample Matrix: NONE Fraction: VOA  
 Lab Smp Id: BLI0521-BLK1  
 Level: Operator: LH  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.220	104.41	
\$ 33 d4-1,2-Dichloroeth	5.000	4.972	99.43	
\$ 43 d8-Toluene	5.000	4.731	94.63	
\$ 62 4-Bromofluorobenze	5.000	4.636	92.72	
\$ 79 d4-1,2-Dichloroben	5.000	5.253	105.07	

REVIEW SUMMARY FOR FILE - NT20\_09192309G.D

Lab ID: BLI0521-BLK1

nt20.i, 0230919s.b\8260D09132023.m, 19-SEP-2023 09:14

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chemd\nt20.1\0230919g.b\NT20\_09192309G.D

Date: 19-SEP-2023 09:14

Client ID:

Sample Info: BL10521-BLK1

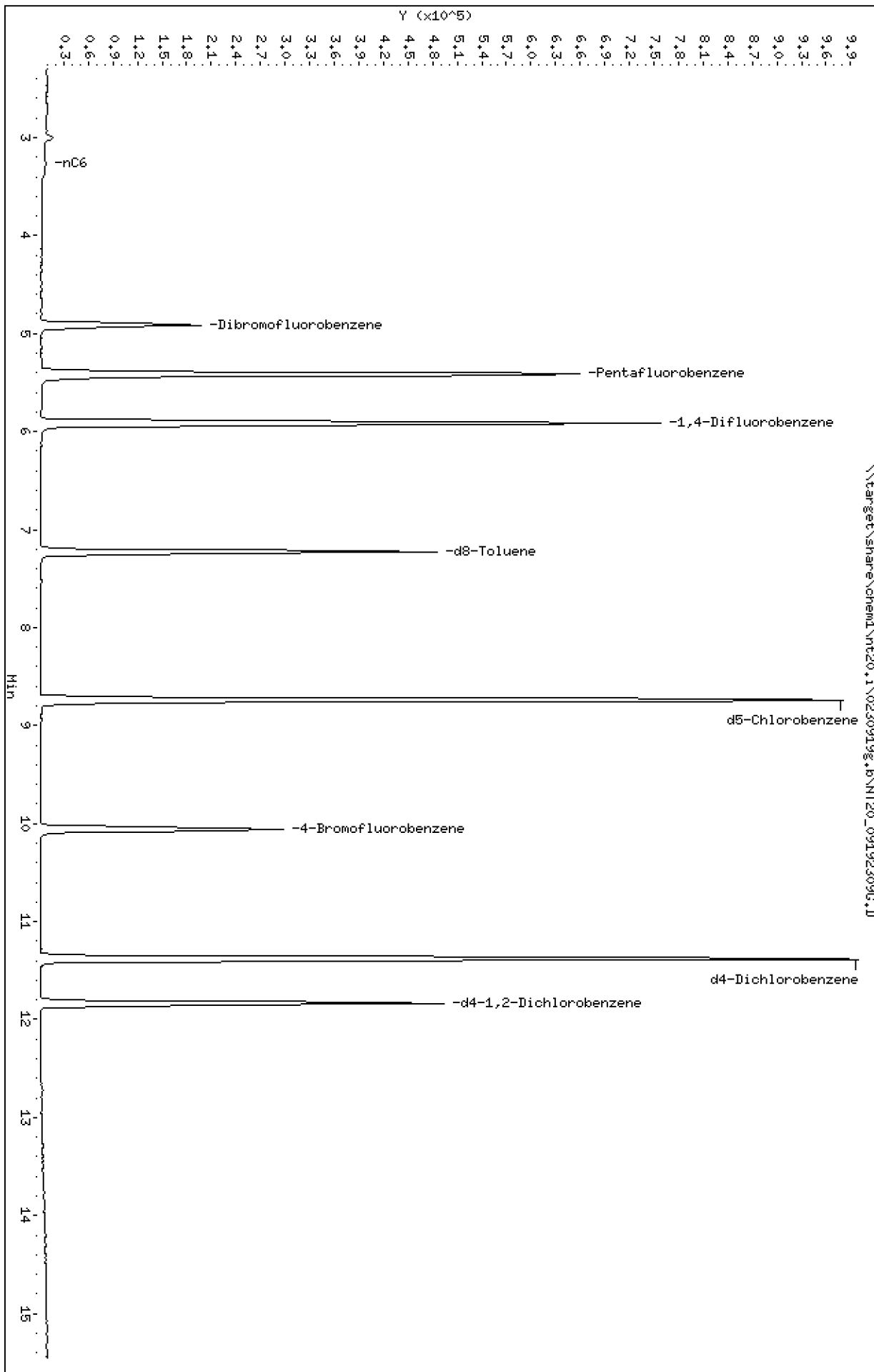
Column phase: RTXWMS

Instrument: nt20.1

Operator: LH

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 0230919g.b/NT20\_09192309G.D                      ARI ID: BLI0521-BLK1  
Method: \0230919g.b\NWTPHG081623.m                      Client ID:  
Instrument: nt20.i    Matrix: WATER  
Gas Ical Date: 15-AUG-2023                                  Dilution Factor: 1.000  
Injection Date: 19-SEP-2023 09:14                         Operator: LH

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 7.18 to 12.78)	65668578	2	0.000
8015C 2MP-TMB ( 3.01 to 11.04)	105938831	3813	0.000
AK101 nC6-nC10 ( 3.17 to 10.12)	86214346	3813	0.000
NWTPHG Tol-Nap ( 7.18 to 13.69)	68996369	2	0.000
mod8015 nC7-nC12 ( 3.70 to 12.78)	108437924	4	0.000

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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8.743	2391750	d5-Chlorobenzene
7.227	1177973	d8-Toluene
11.385	2574022	d4-Dichlorobenzene
10.055	838218	4-Bromofluorobenzene
11.834	1222376	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLI0521 - EPA 5030C (Purge and Trap)**

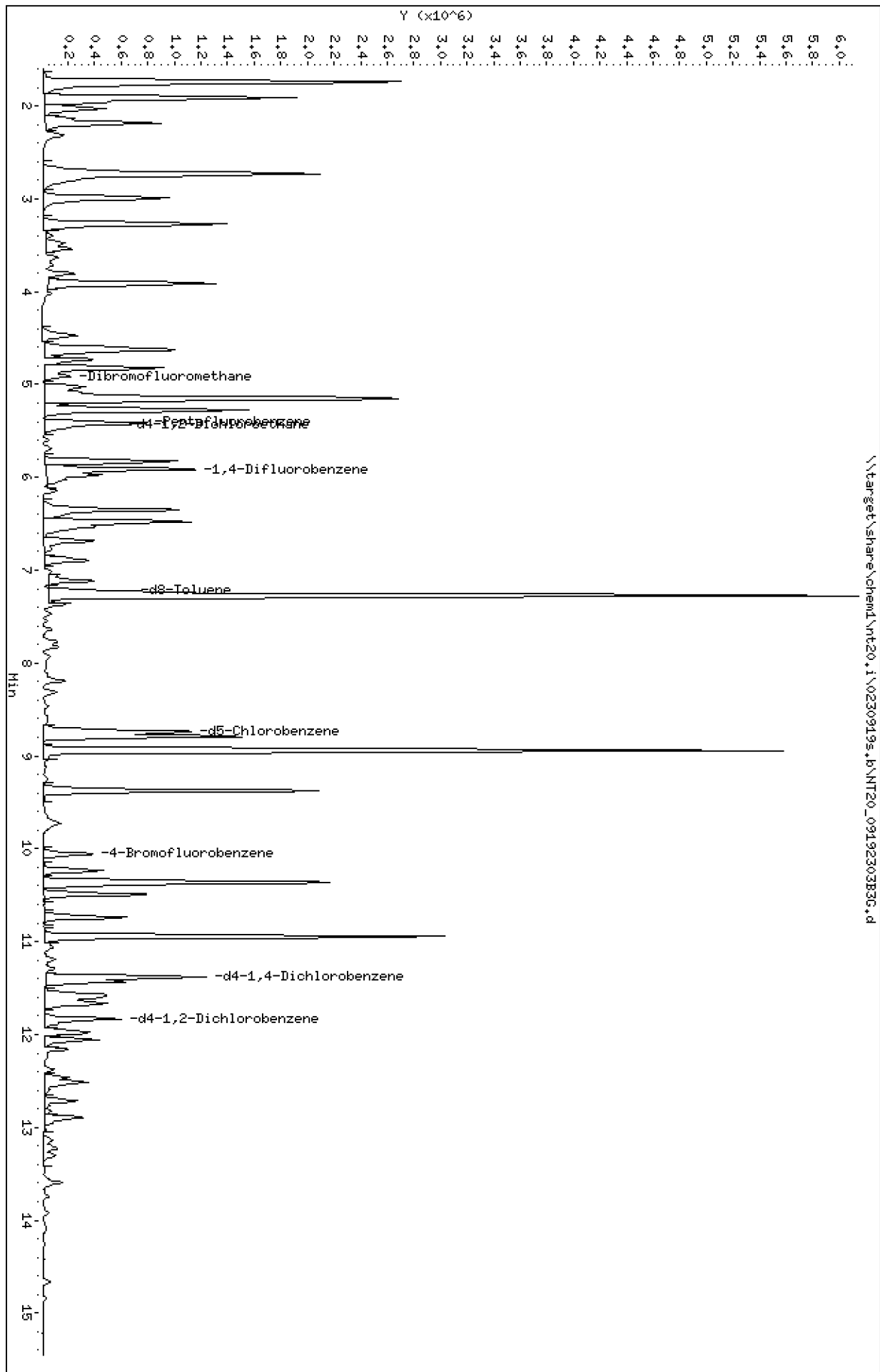
Instrument: NT20

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLI0521-BS1)</b>				Prepared: 19-Sep-2023 Analyzed: 19-Sep-2023 06:57						
Gasoline Range Organics (Tol-Nap)	1140	100	ug/L	1000		114	72-128			
Surrogate: Toluene-d8	4.83		ug/L	5.00		96.6	80-120			
Surrogate: 4-Bromofluorobenzene	5.13		ug/L	5.00		103	80-120			

Data File: \\target\share\chemd\nt20\_1\0230919s\_b\NT20\_09192303B3G.d  
Date: 19-SEP-2023 06:57  
Client ID: GAS  
Sample Info: BL10521-B51

Column phase: RTXWMS

Instrument: nt20\_1  
Operator: LH  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt20.i\0230919s.b\NT20\_09192303B3G.d  
 Lab Smp Id: BLI0521-BS1 Client Smp ID: GAS  
 Inj Date : 19-SEP-2023 06:57  
 Operator : LH Inst ID: nt20.i  
 Smp Info : BLI0521-BS1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Meth Date : 20-Sep-2023 07:12 nt20.i Quant Type: ISTD  
 Cal Date : 13-SEP-2023 10:38 Cal File: NT20\_09132313.D  
 Als bottle: 1  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: LANIH-202105A

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.914	4.915	(0.908)	157957	4.69225	4.692 (R)
* 32 Pentafluorobenzene	168		5.411	5.412	(1.000)	573718	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.432	5.422	(1.004)	95764	6.06825	6.068 (R)
* 37 1,4-Difluorobenzene	114		5.908	5.908	(1.000)	991215	10.0000	
\$ 43 d8-Toluene	98		7.226	7.226	(1.223)	520978	4.82992	4.830 (R)
* 53 d5-Chlorobenzene	117		8.743	8.742	(1.000)	943176	10.0000	
\$ 62 4-Bromofluorobenzene	174		10.065	10.065	(1.151)	186782	5.12712	5.127 (R)
* 76 d4-1,4-Dichlorobenzene	152		11.384	11.384	(1.000)	553209	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		11.834	11.834	(1.040)	239309	4.94515	4.945 (R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt20.i  
 Lab File ID: NT20 09192303B3G.d  
 Lab Smp Id: BLI0521-BS1  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: LH  
 Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Misc Info: 16-

Calibration Date: 19-SEP-2023  
 Calibration Time: 07:20  
 Client Smp ID: GAS  
 Level:  
 Sample Type:

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	576461	288231	1152922	573718	-0.48
37 1,4-Difluorobenze	921160	460580	1842320	991215	7.61
53 d5-Chlorobenzene	953441	476721	1906882	943176	-1.08
76 d4-1,4-Dichlorobe	566088	283044	1132176	553209	-2.28

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.91	5.41	6.41	5.91	-0.00
53 d5-Chlorobenzene	8.74	8.24	9.24	8.74	0.00
76 d4-1,4-Dichlorobe	11.38	10.88	11.88	11.38	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
 Sample Matrix: NONE Fraction: VOA  
 Lab Smp Id: BLI0521-BS1 Client Smp ID: GAS  
 Level: Operator: LH  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.692	93.84	
\$ 33 d4-1,2-Dichloroeth	5.000	6.068	121.36	
\$ 43 d8-Toluene	5.000	4.830	96.60	
\$ 62 4-Bromofluorobenze	5.000	5.127	102.54	
\$ 79 d4-1,2-Dichloroben	5.000	4.945	98.90	

REVIEW SUMMARY FOR FILE - NT20\_09192303B3G.d

Lab ID: BLI0521-BS1

nt20.i, 0230919s.b\8260D09132023.m, 19-SEP-2023 06:57

RT CO-ELUTION COMPOUNDS

---



Data File: \\target\share\chemd\nt20.1\0230919g.b\NT20\_09192303B3G.d

Date: 19-SEP-2023 06:57

Client ID:

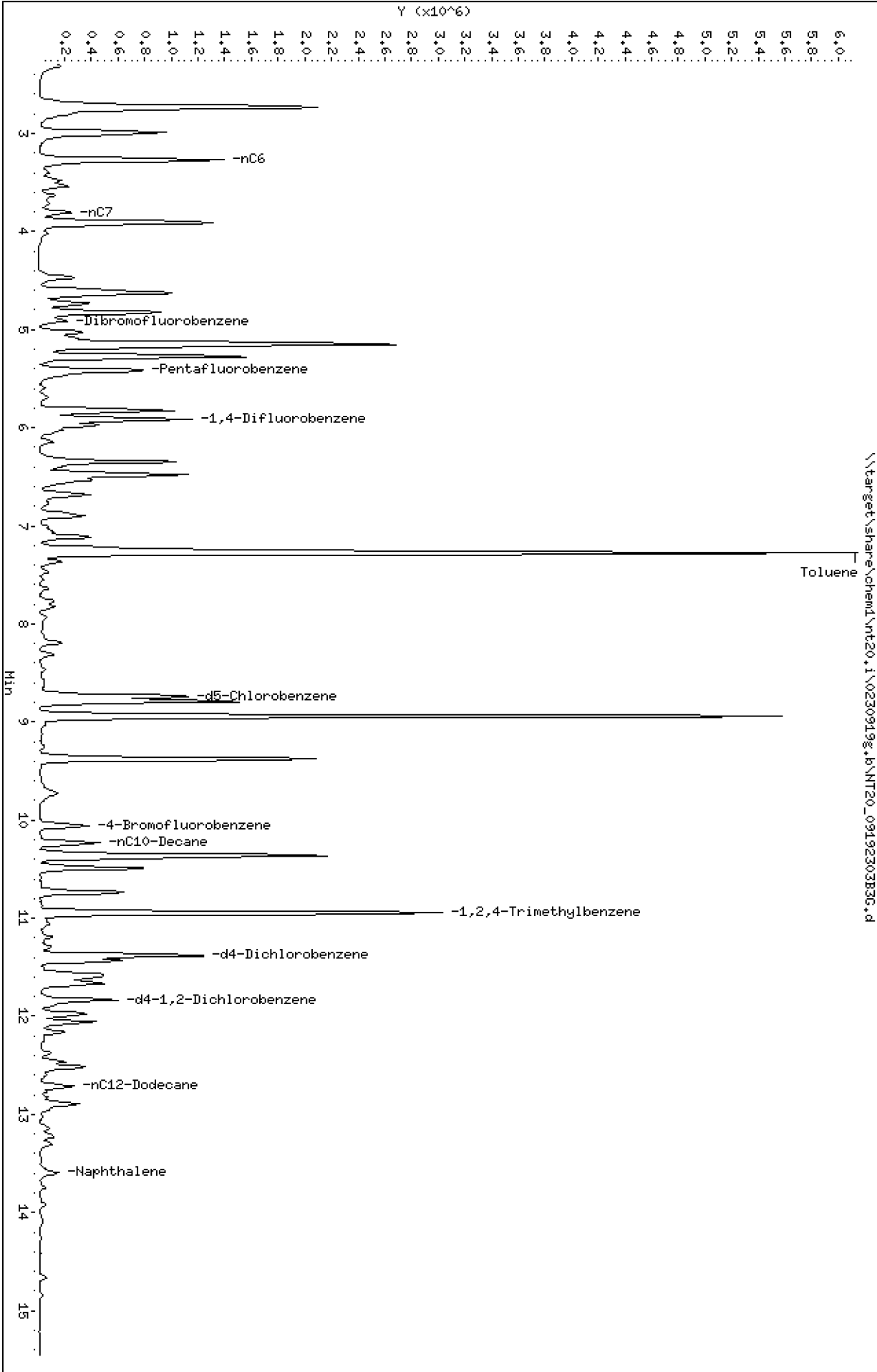
Sample Info: BL10521-B51

Column phase: RTXWMS

Instrument: nt20.1

Operator: LH

Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 0230919g.b/NT20\_09192303B3G.d  
Method: \0230919g.b\NWTPHG081623.m  
Instrument: nt20.i  
Gas Ical Date: 15-AUG-2023  
Injection Date: 19-SEP-2023 06:57

ARI ID: BLI0521-BS1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: LH

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 7.18 to 12.78)	65668578	75637110	1.152 M
8015C 2MP-TMB ( 3.01 to 11.04)	105938831	116265567	1.097
AK101 nC6-nC10 ( 3.17 to 10.12)	86214346	97190328	1.127
NWTPHG Tol-Nap ( 7.18 to 13.69)	68996369	78792226	1.142 M
mod8015 nC7-nC12 ( 3.70 to 12.78)	108437924	123045082	1.135 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

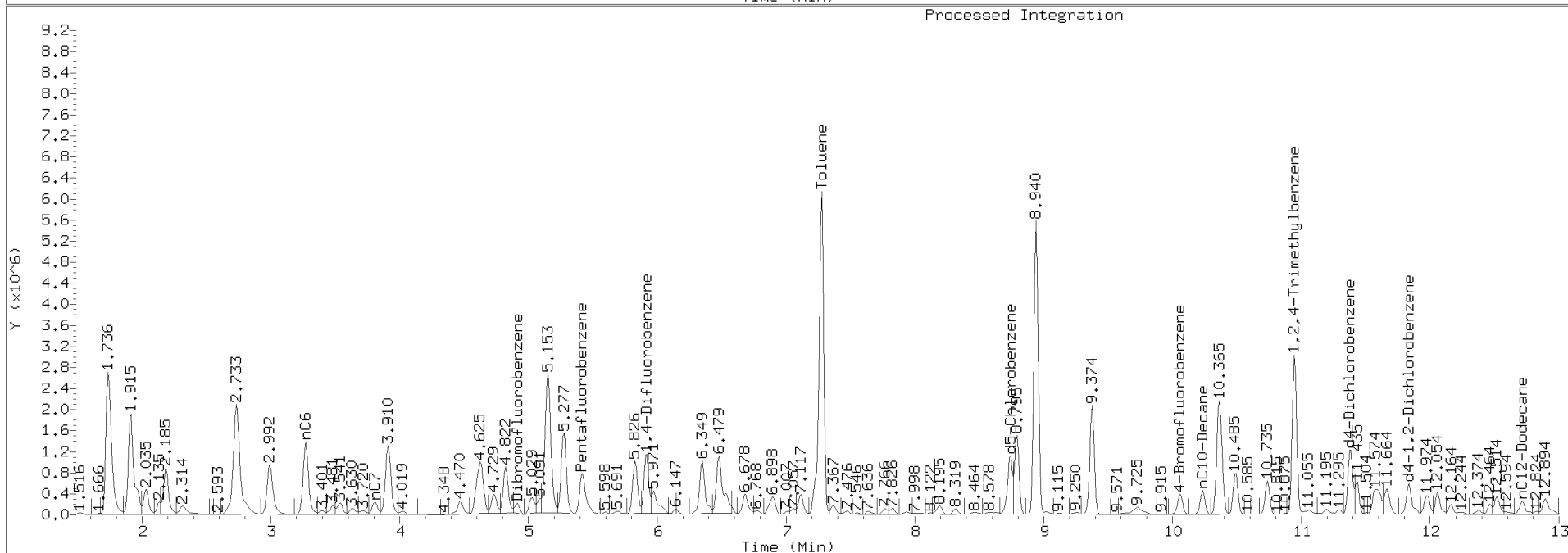
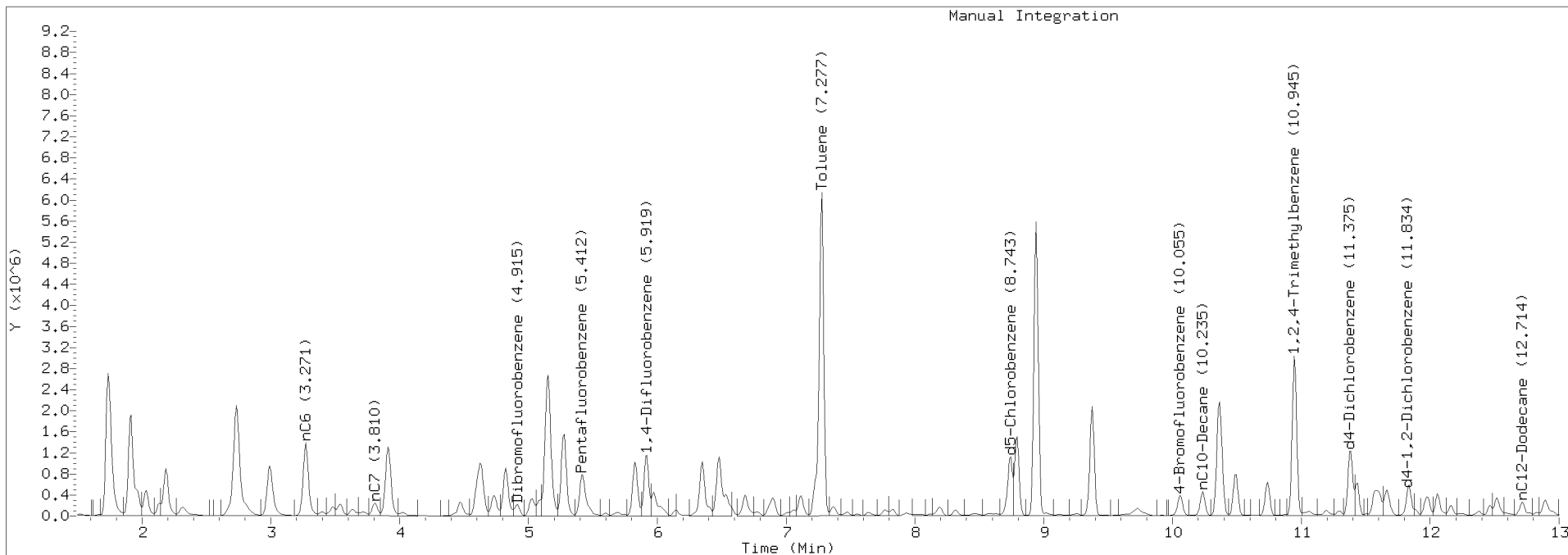
-----

8.743	3277936	d5-Chlorobenzene
11.375	3494761	d4-Dichlorobenzene
10.055	1107680	4-Bromofluorobenzene
11.834	1626864	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 0230919g.b/NT20\_09192303B3G.d Injection: 19-SEP-2023 06:57

Lab ID:BLI0521-BS1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
---	---	--------------------------------

**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLI0521 - EPA 5030C (Purge and Trap)**

Instrument: NT20

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLI0521-BSD1)</b>				Prepared: 19-Sep-2023 Analyzed: 19-Sep-2023 07:43						
Gasoline Range Organics (Tol-Nap)	1140	100	ug/L	1000		114	72-128	0.30	30	
Surrogate: Toluene-d8	4.80		ug/L	5.00		96.1	80-120			
Surrogate: 4-Bromofluorobenzene	5.22		ug/L	5.00		104	80-120			

Data File: \\target\share\chemd\nt20,1\0230919s,b\NT20\_09192305B3G.d

Date: 19-SEP-2023 07:43

Client ID: GAS

Sample Info: BL10521-BSD1

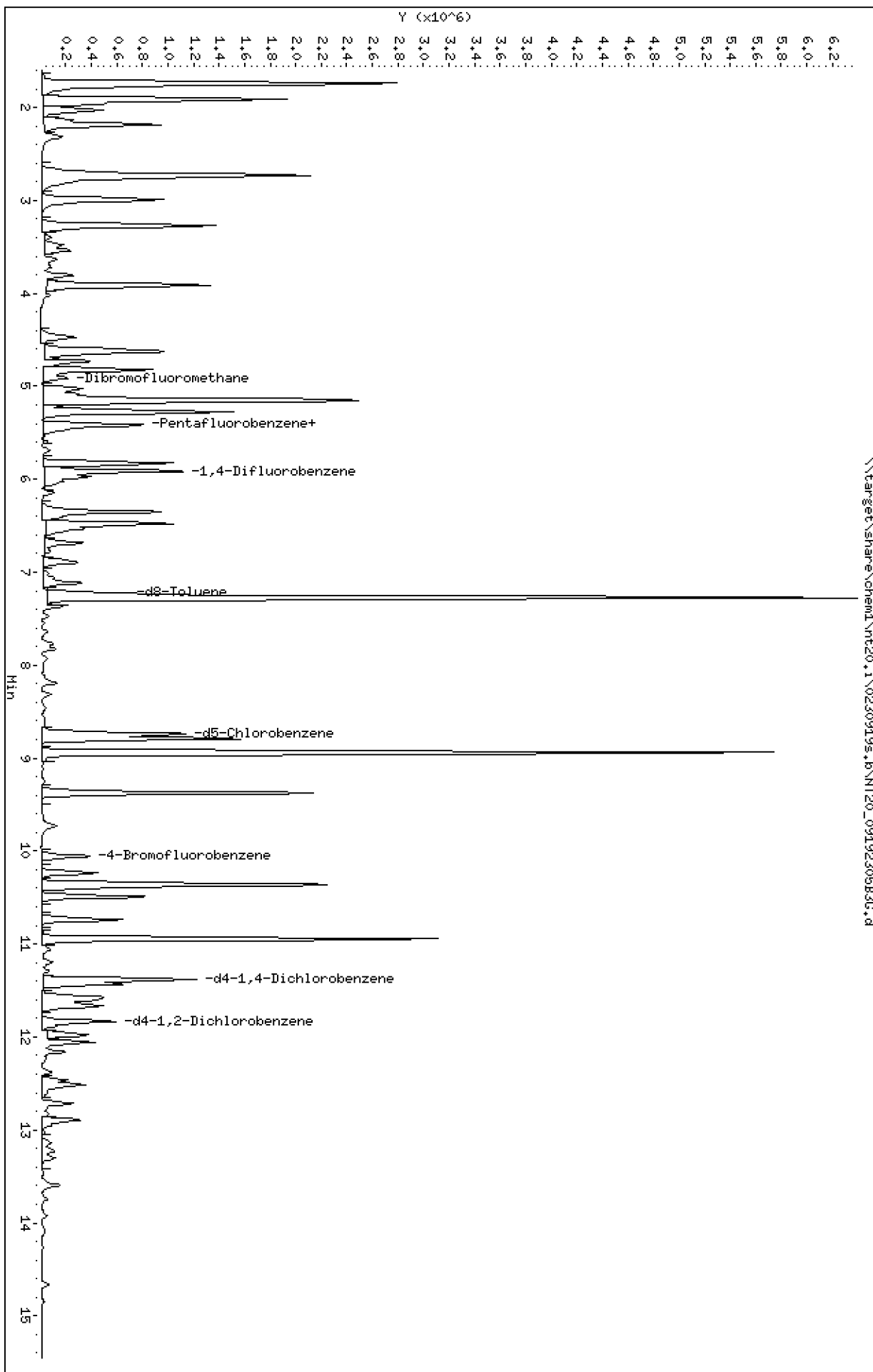
Page 1

Column phase: RTXWMS

Instrument: nt20,1

Operator: LH

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt20.i\0230919s.b\NT20\_09192305B3G.d  
 Lab Smp Id: BLI0521-BSD1 Client Smp ID: GAS  
 Inj Date : 19-SEP-2023 07:43  
 Operator : LH Inst ID: nt20.i  
 Smp Info : BLI0521-BSD1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Meth Date : 20-Sep-2023 07:12 nt20.i Quant Type: ISTD  
 Cal Date : 13-SEP-2023 10:38 Cal File: NT20\_09132313.D  
 Als bottle: 1  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: LANIH-202105A

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.915	4.915	(0.908)	160478	4.61865	4.619(R)
* 32 Pentafluorobenzene	168		5.411	5.412	(1.000)	592162	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.422	5.422	(1.002)	98573	6.05170	6.052(R)
* 37 1,4-Difluorobenzene	114		5.908	5.908	(1.000)	1007220	10.0000	
\$ 43 d8-Toluene	98		7.226	7.226	(1.223)	526645	4.80487	4.805(R)
* 53 d5-Chlorobenzene	117		8.742	8.742	(1.000)	946704	10.0000	
\$ 62 4-Bromofluorobenzene	174		10.055	10.065	(1.150)	190886	5.22025	5.220(R)
* 76 d4-1,4-Dichlorobenzene	152		11.384	11.384	(1.000)	554605	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		11.834	11.834	(1.040)	241851	4.98510	4.985(R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt20.i  
 Lab File ID: NT20 09192305B3G.d  
 Lab Smp Id: BLI0521-BSD1  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: LH  
 Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Misc Info: 16-

Calibration Date: 19-SEP-2023  
 Calibration Time: 07:20  
 Client Smp ID: GAS  
 Level:  
 Sample Type:

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	576461	288231	1152922	592162	2.72
37 1,4-Difluorobenze	921160	460580	1842320	1007220	9.34
53 d5-Chlorobenzene	953441	476721	1906882	946704	-0.71
76 d4-1,4-Dichlorobe	566088	283044	1132176	554605	-2.03

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.91	5.41	6.41	5.91	-0.00
53 d5-Chlorobenzene	8.74	8.24	9.24	8.74	-0.00
76 d4-1,4-Dichlorobe	11.38	10.88	11.88	11.38	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20150930a  
 Sample Matrix: NONE Fraction: VOA  
 Lab Smp Id: BLI0521-BSD1 Client Smp ID: GAS  
 Level: Operator: LH  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt20.i\0230919s.b\8260D09132023.m  
 Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.619	92.37	
\$ 33 d4-1,2-Dichloroeth	5.000	6.052	121.03	
\$ 43 d8-Toluene	5.000	4.805	96.10	
\$ 62 4-Bromofluorobenze	5.000	5.220	104.41	
\$ 79 d4-1,2-Dichloroben	5.000	4.985	99.70	



REVIEW SUMMARY FOR FILE - NT20\_09192305B3G.d

Lab ID: BLI0521-BSD1

nt20.i, 0230919s.b\8260D09132023.m, 19-SEP-2023 07:43

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chemd\nt20,1\0230919g,b\NT20\_09192305B3G.d

Date: 19-SEP-2023 07:43

Client ID:

Sample Info: BL10521-BSM1

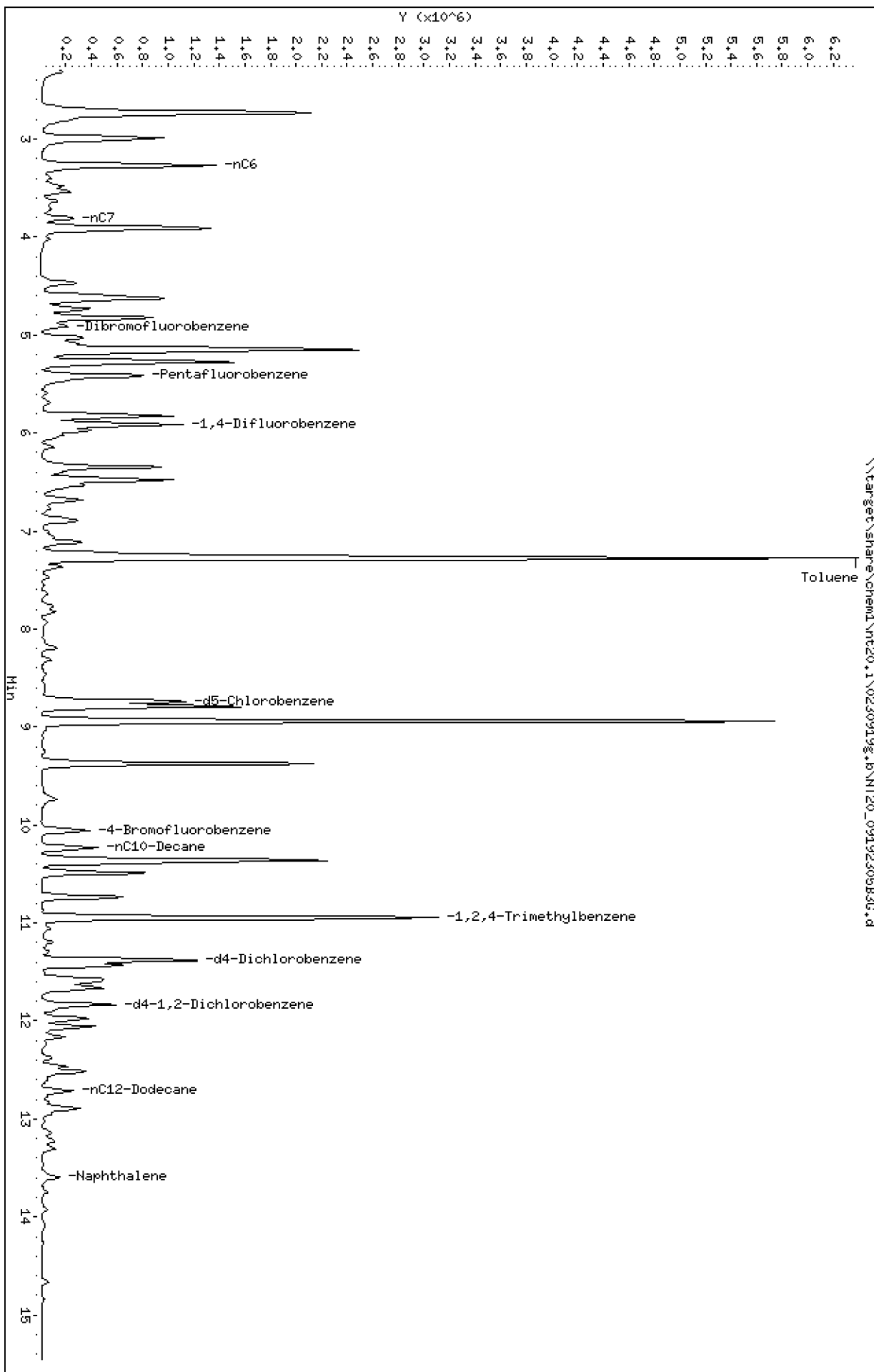
Column phase: RTXWMS

Instrument: nt20,1

Operator: LH

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 0230919g.b/NT20\_09192305B3G.d  
Method: \0230919g.b\NWTPHG081623.m  
Instrument: nt20.i  
Gas Ical Date: 15-AUG-2023  
Injection Date: 19-SEP-2023 07:43

ARI ID: BLI0521-BSD1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: LH

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 7.18 to 12.78)	65668578	75478759	1.149 M
8015C 2MP-TMB ( 3.01 to 11.04)	105938831	114777034	1.083
AK101 nC6-nC10 ( 3.17 to 10.12)	86214346	95521384	1.108
NWTPHG Tol-Nap ( 7.18 to 13.69)	68996369	78555690	1.139 M
mod8015 nC7-nC12 ( 3.70 to 12.78)	108437924	121014072	1.116 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

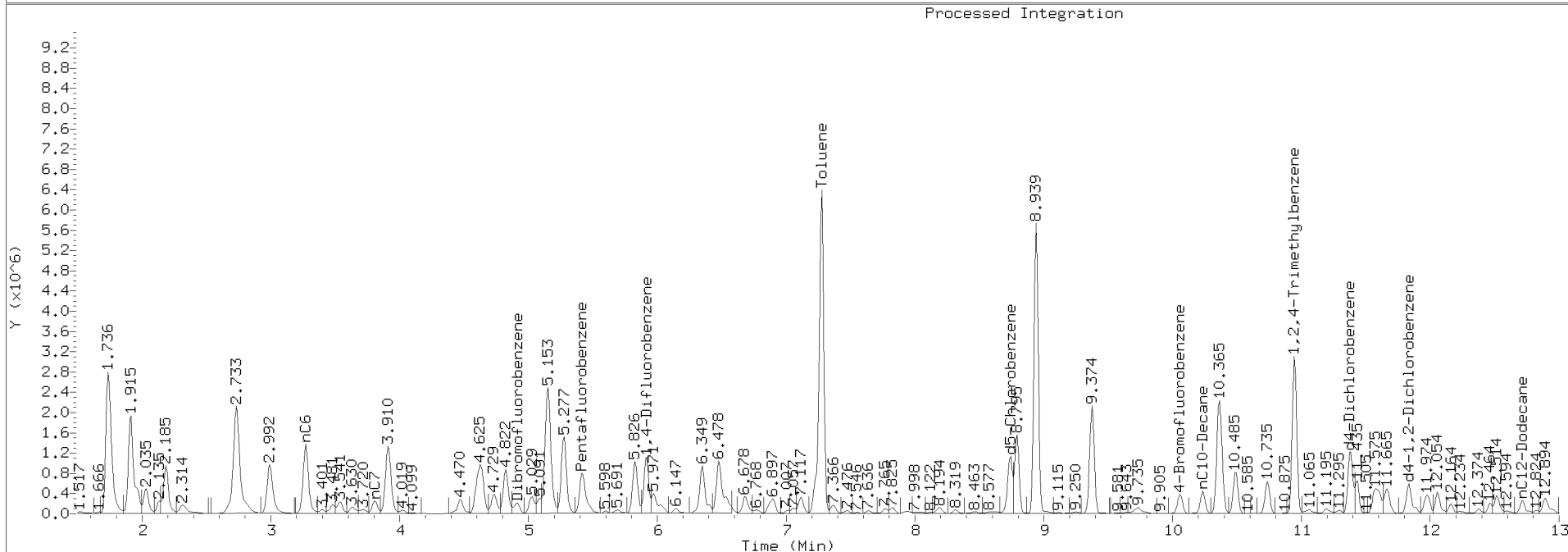
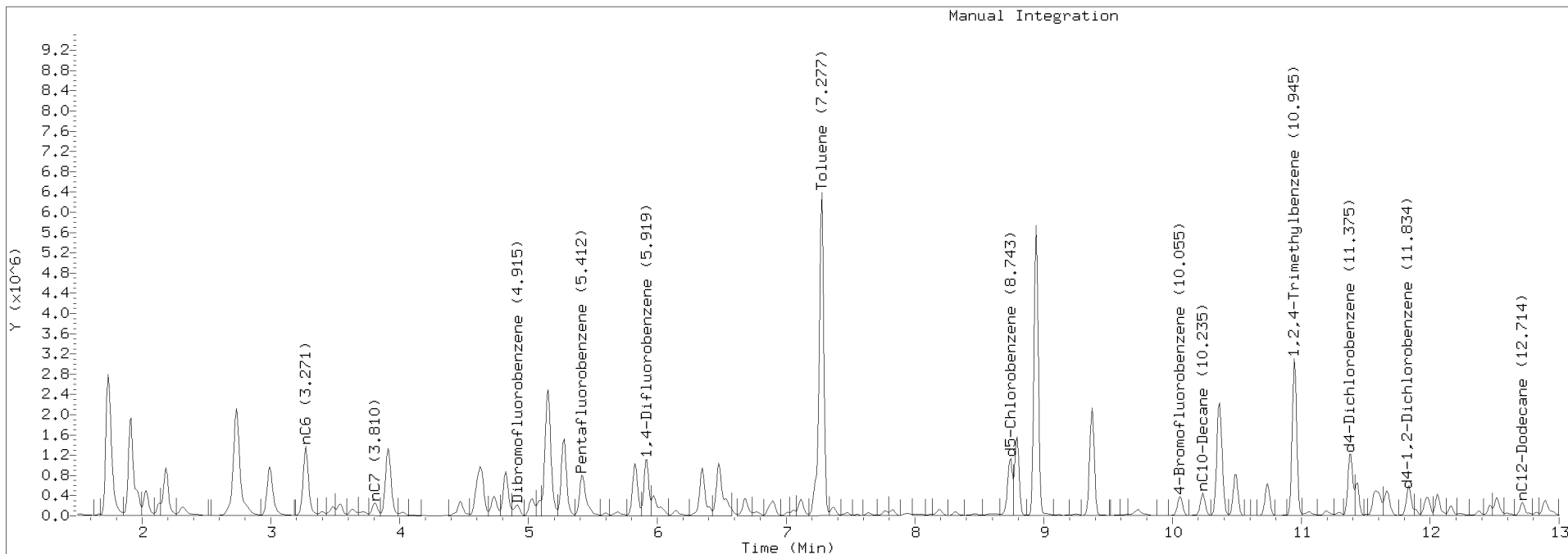
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8.743	3175005	d5-Chlorobenzene
11.375	3463578	d4-Dichlorobenzene
10.055	1071722	4-Bromofluorobenzene
11.834	1601908	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 0230919g.b/NT20\_09192305B3G.d Injection: 19-SEP-2023 07:43

Lab ID:BLI0521-BSD1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLI0571 - EPA 5030C (Purge and Trap)**

Instrument: NT20

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLI0571-BLK1)</b>					Prepared: 20-Sep-2023 Analyzed: 20-Sep-2023 09:22					
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.69		ug/L	5.00		93.7	80-120			
Surrogate: 4-Bromofluorobenzene	4.52		ug/L	5.00		90.4	80-120			

Data File: \\target\share\chemd\nt20.1\20230920s.b\NNT20\_09202309G.D

Date: 20-SEP-2023 09:22

Client ID:

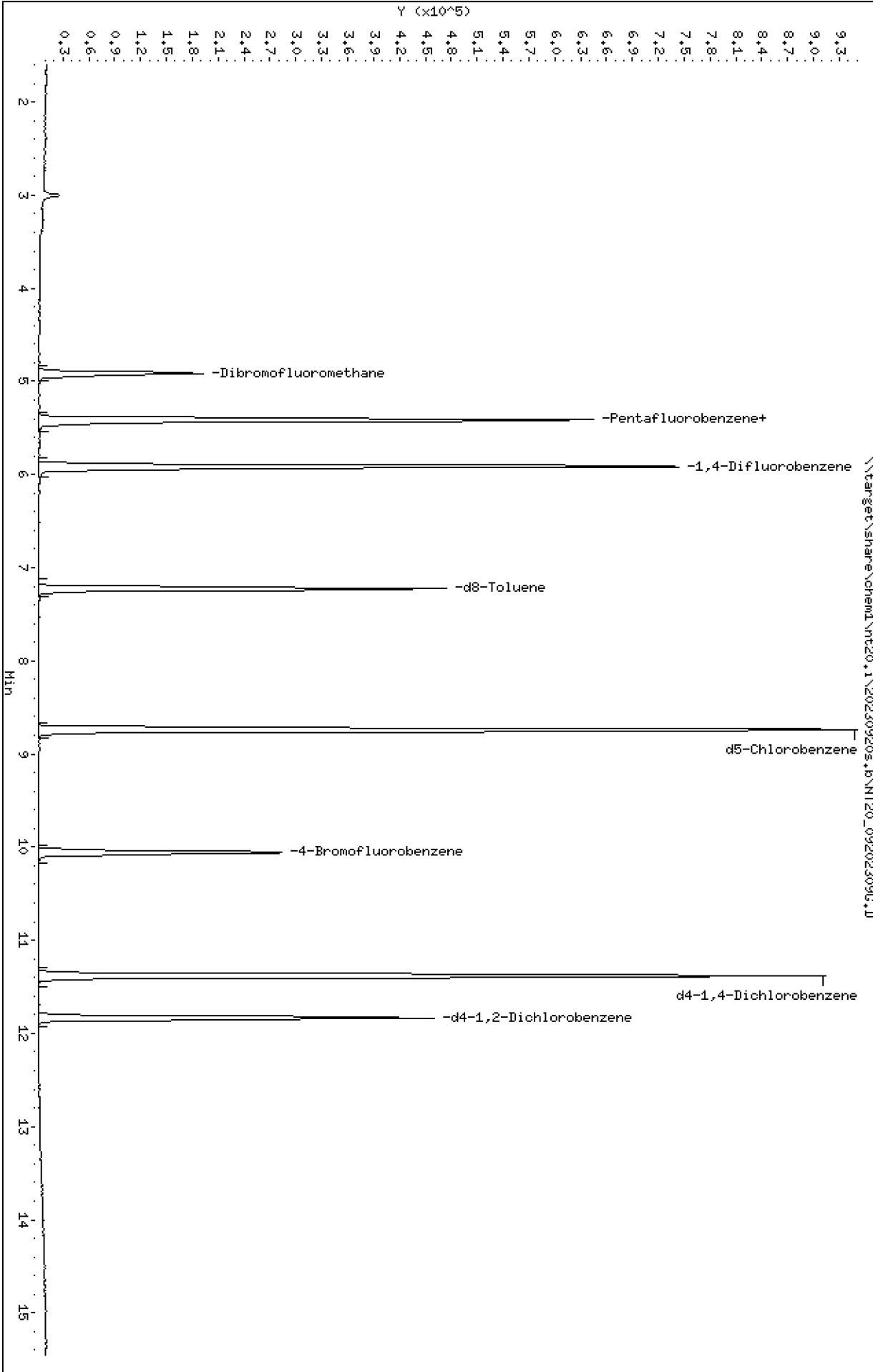
Sample Info: BL10571-BLK1

Column phase: RTXWMS

Instrument: nt20.1

Operator: LH

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt20.i\20230920s.b\NT20\_09202309G.D  
 Lab Smp Id: BLI0571-BLK1  
 Inj Date : 20-SEP-2023 09:22  
 Operator : LH Inst ID: nt20.i  
 Smp Info : BLI0571-BLK1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
 Meth Date : 20-Sep-2023 14:57 nt20.i Quant Type: ISTD  
 Cal Date : 13-SEP-2023 10:38 Cal File: NT20\_09132313.D  
 Als bottle: 1  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.915	4.914	(0.908)	155643	5.29005	5.290
* 32 Pentafluorobenzene	168		5.411	5.411	(1.000)	501430	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.422	5.422	(1.002)	69988	5.07426	5.074
* 37 1,4-Difluorobenzene	114		5.919	5.918	(1.000)	855637	10.0000	
\$ 43 d8-Toluene	98		7.226	7.226	(1.221)	436257	4.68534	4.685
* 53 d5-Chlorobenzene	117		8.742	8.742	(1.000)	815945	10.0000	
\$ 62 4-Bromofluorobenzene	174		10.065	10.055	(1.151)	142467	4.52048	4.520
* 76 d4-1,4-Dichlorobenzene	152		11.384	11.384	(1.000)	412292	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		11.834	11.834	(1.040)	190601	5.28481	5.285

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt20.i  
 Lab File ID: NT20 09202309G.D  
 Lab Smp Id: BLI0571-BLK1  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: LH  
 Method File: \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
 Misc Info: 16-

Calibration Date: 20-SEP-2023  
 Calibration Time: 07:29  
 Level: LOW  
 Sample Type: WATER

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	567094	283547	1134188	501430	-11.58
37 1,4-Difluorobenze	915019	457510	1830038	855637	-6.49
53 d5-Chlorobenzene	918117	459059	1836234	815945	-11.13
76 d4-1,4-Dichlorobe	518843	259422	1037686	412292	-20.54

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.92	5.42	6.42	5.92	0.00
53 d5-Chlorobenzene	8.74	8.24	9.24	8.74	0.00
76 d4-1,4-Dichlorobe	11.38	10.88	11.88	11.38	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLI0571-BLK1  
Level: LOW Operator: LH  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.290	105.80	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.074	101.49	80-128
\$ 43 d8-Toluene	5.000	4.685	93.71	80-120
\$ 62 4-Bromofluorobenze	5.000	4.520	90.41	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.285	105.70	80-120

REVIEW SUMMARY FOR FILE - NT20\_09202309G.D

Lab ID: BLI0571-BLK1

nt20.i, 20230920s.b\8260D09132023.m, 20-SEP-2023 09:22

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chemd\nt20,1\0230920g.b\NT20\_09202309G.D

Date: 20-SEP-2023 09:22

Client ID:

Sample Info: BL10571-BLK1

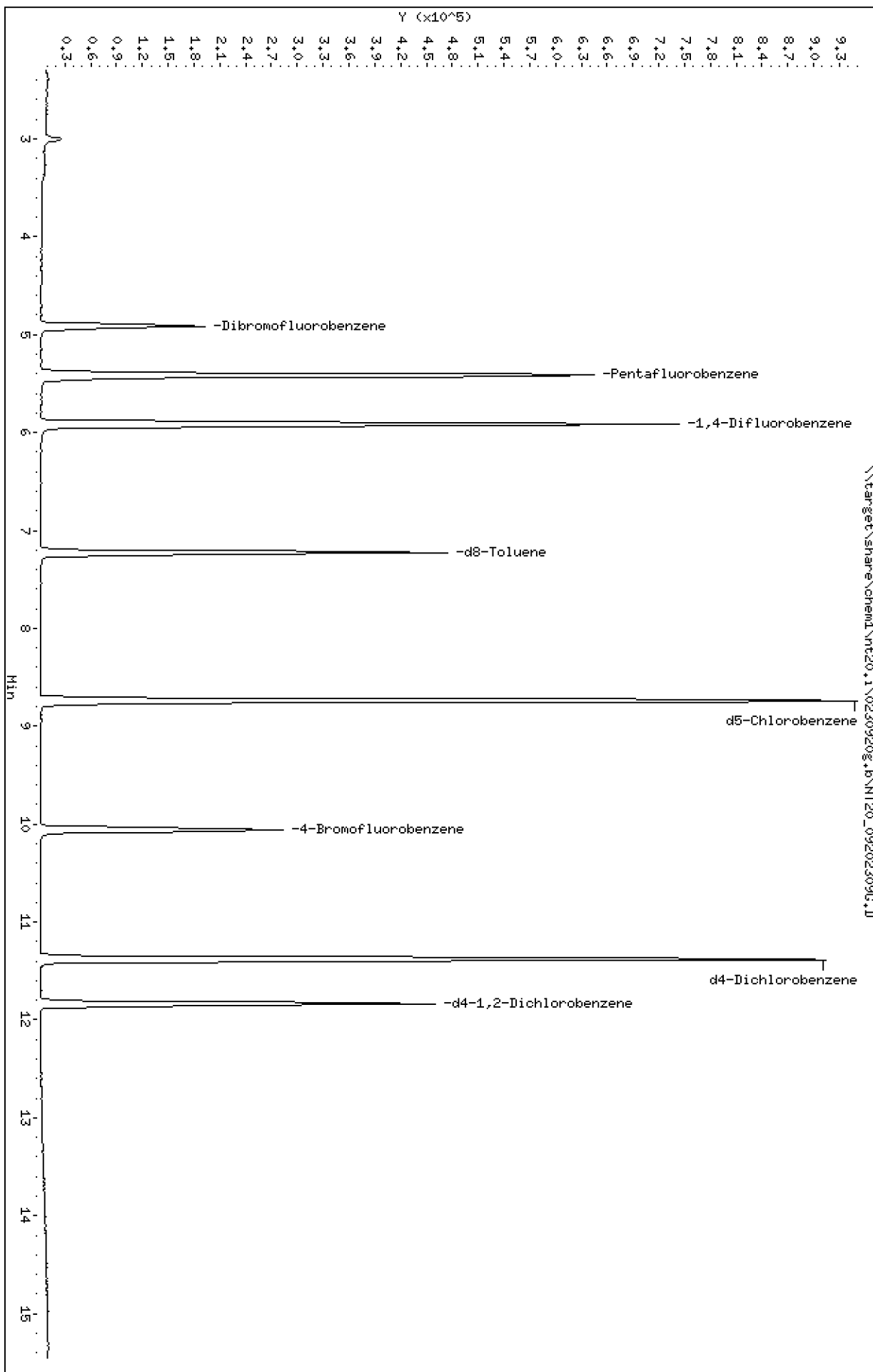
Column phase: RTXWMS

Instrument: nt20,1

Operator: LH

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 0230920g.b/NT20\_09202309G.D  
Method: \0230920g.b\NWTPHG081623.m  
Instrument: nt20.i  
Gas Ical Date: 15-AUG-2023  
Injection Date: 20-SEP-2023 09:22

ARI ID: BLI0571-BLK1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: LH

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 7.18 to 12.78)	65668578	3	0.000
8015C 2MP-TMB ( 3.01 to 11.04)	105938831	3	0.000
AK101 nC6-nC10 ( 3.17 to 10.12)	86214346	3	0.000
NWTPHG Tol-Nap ( 7.18 to 13.69)	68996369	3	0.000
mod8015 nC7-nC12 ( 3.70 to 12.78)	108437924	4	0.000

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

8.743	2296870	d5-Chlorobenzene
7.227	1156201	d8-Toluene
11.385	2352931	d4-Dichlorobenzene
10.055	791524	4-Bromofluorobenzene
11.834	1138431	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLI0571 - EPA 5030C (Purge and Trap)**

Instrument: NT20

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLI0571-BS1)</b>				Prepared: 20-Sep-2023 Analyzed: 20-Sep-2023 07:06						
Gasoline Range Organics (Tol-Nap)	1130	100	ug/L	1000		113	72-128			
Surrogate: Toluene-d8	4.83		ug/L	5.00		96.6	80-120			
Surrogate: 4-Bromofluorobenzene	5.03		ug/L	5.00		101	80-120			

Data File: \\target\share\chemd\nt20\_1\20230920s.b\NT20\_09202303LCSG.D

Date: 20-SEP-2023 07:06

Client ID:

Sample Info: BL10571-BS1

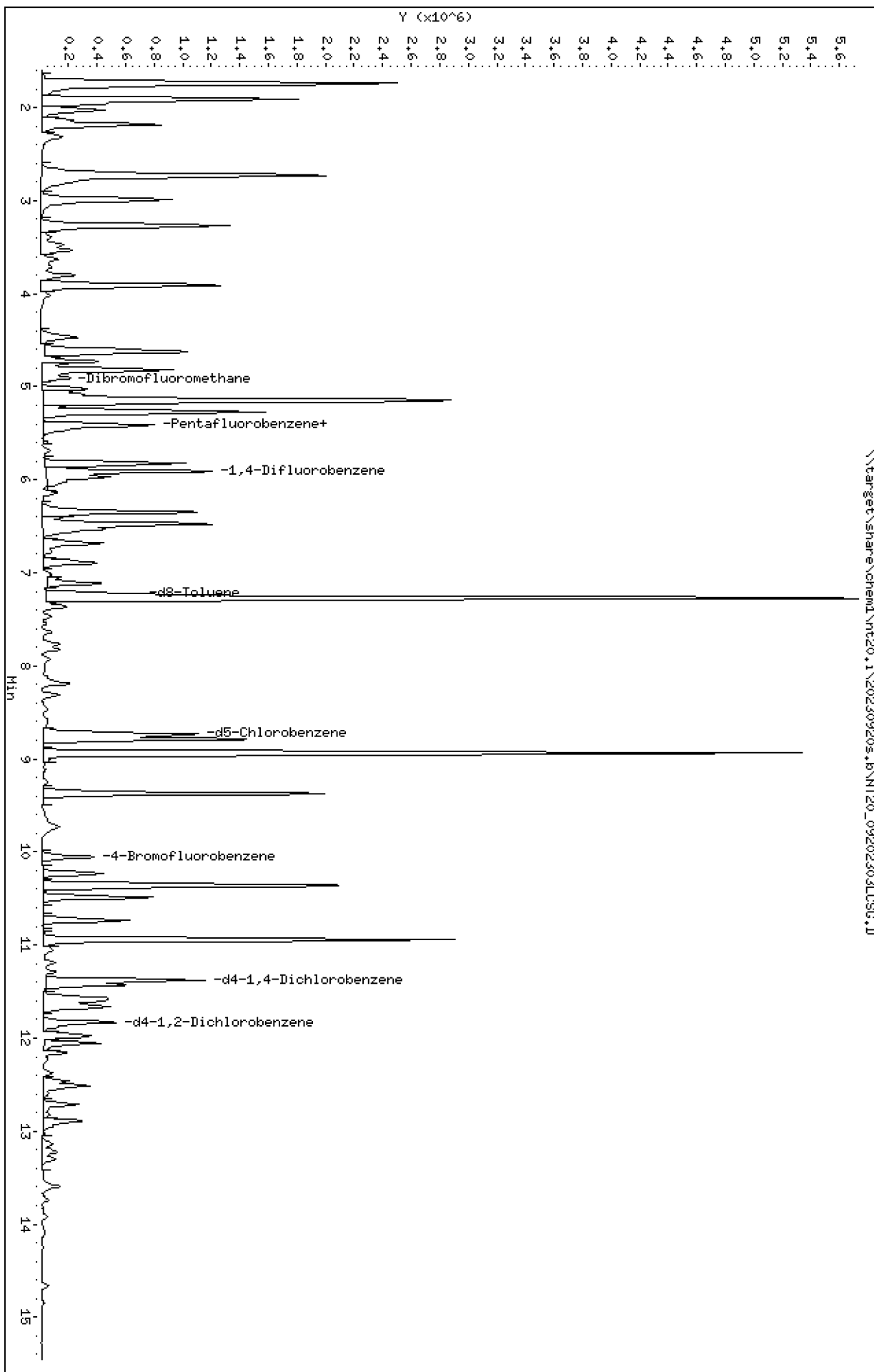
Column phase: RTXWMS

Instrument: nt20\_1

Operator: LH

Column diameter: 0.18

\\target\share\chemd\nt20\_1\20230920s.b\NT20\_09202303LCSG.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt20.i\20230920s.b\NT20\_09202303LCSG.D  
 Lab Smp Id: BLI0571-BS1  
 Inj Date : 20-SEP-2023 07:06  
 Operator : LH  
 Smp Info : BLI0571-BS1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
 Meth Date : 20-Sep-2023 14:57 nt20.i  
 Cal Date : 13-SEP-2023 10:38  
 Als bottle: 1  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Inst ID: nt20.i

Quant Type: ISTD

Cal File: NT20\_09132313.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.914	4.914	(0.908)	158146	4.70273	4.703
* 32 Pentafluorobenzene	168		5.411	5.411	(1.000)	573124	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.422	5.422	(1.002)	92929	5.89471	5.895
* 37 1,4-Difluorobenzene	114		5.908	5.918	(1.000)	981157	10.0000	
\$ 43 d8-Toluene	98		7.226	7.226	(1.223)	515732	4.83029	4.830
* 53 d5-Chlorobenzene	117		8.732	8.742	(1.000)	920330	10.0000	
\$ 62 4-Bromofluorobenzene	174		10.054	10.055	(1.151)	178643	5.02544	5.025
* 76 d4-1,4-Dichlorobenzene	152		11.374	11.384	(1.000)	502009	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		11.834	11.834	(1.040)	219611	5.00094	5.001

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt20.i  
 Lab File ID: NT20 09202303LCSG.D  
 Lab Smp Id: BLI0571-BS1  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: LH  
 Method File: \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
 Misc Info: 16-

Calibration Date: 20-SEP-2023  
 Calibration Time: 07:29  
 Level: LOW  
 Sample Type: WATER

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	567094	283547	1134188	573124	1.06
37 1,4-Difluorobenze	915019	457510	1830038	981157	7.23
53 d5-Chlorobenzene	918117	459059	1836234	920330	0.24
76 d4-1,4-Dichlorobe	518843	259422	1037686	502009	-3.24

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.41	4.91	5.91	5.41	-0.00
37 1,4-Difluorobenze	5.92	5.42	6.42	5.91	-0.18
53 d5-Chlorobenzene	8.74	8.24	9.24	8.73	-0.12
76 d4-1,4-Dichlorobe	11.38	10.88	11.88	11.37	-0.09

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLI0571-BS1  
Level: LOW Operator: LH  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.703	94.05	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.895	117.89	80-128
\$ 43 d8-Toluene	5.000	4.830	96.61	80-120
\$ 62 4-Bromofluorobenze	5.000	5.025	100.51	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.001	100.02	80-120

REVIEW SUMMARY FOR FILE - NT20\_09202303LCSG.d

Lab ID: BLI0571-BS1

nt20.i, 20230920s.b\8260D09132023.m, 20-SEP-2023 07:06

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chemd\nt20.1\0230920g.jb\NT20\_09202303LC06.d

Date: 20-SEP-2023 07:06

Client ID:

Sample Info: BL10571-BS1

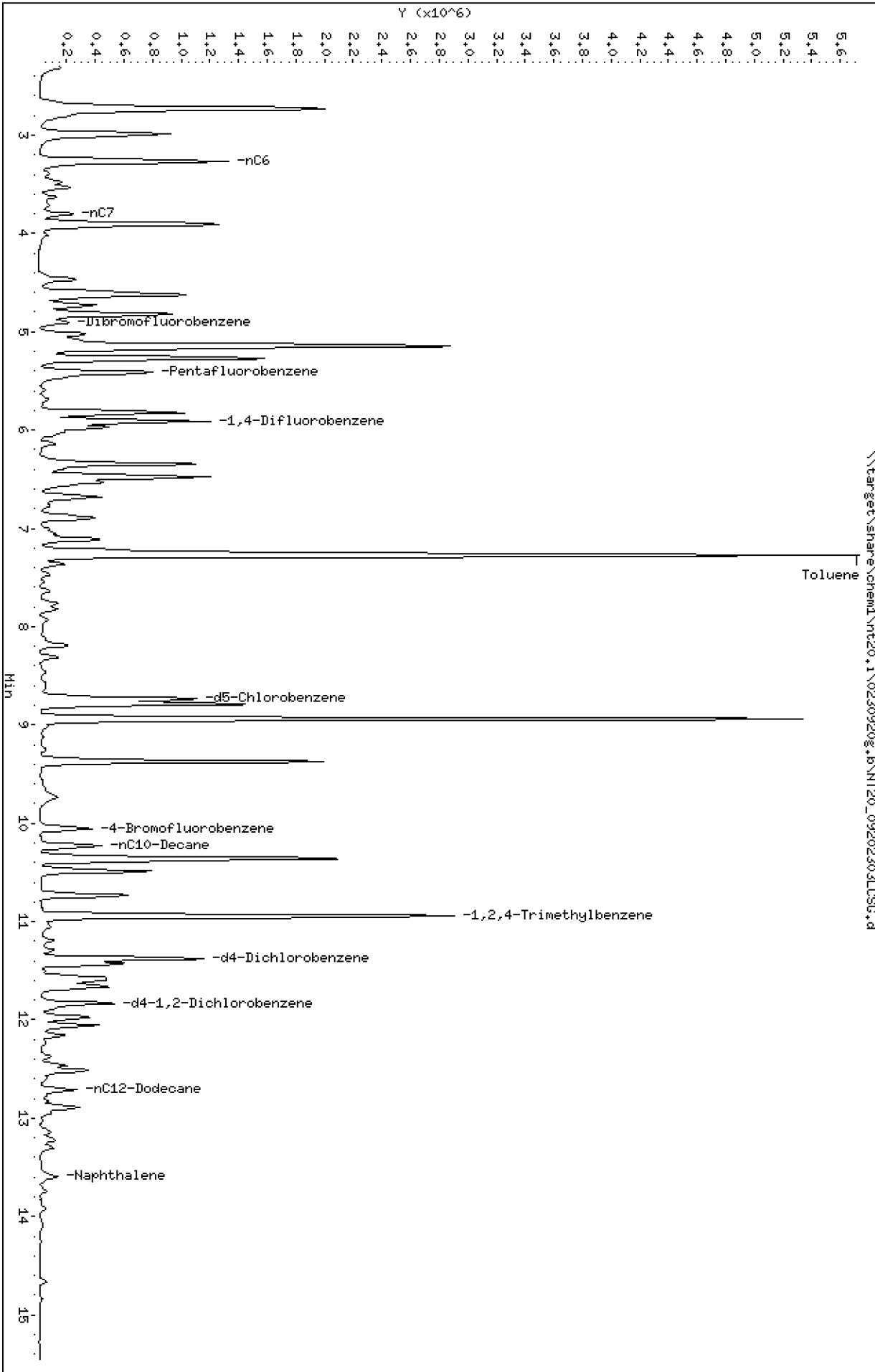
Column phase: RTXWMS

Instrument: nt20.i

Operator: LH

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 0230920g.b/NT20\_09202303G.D                   ARI ID: SLI0299-ICV1  
 Method: \0230920g.b\NWTPHG081623.m                   Client ID:  
 Instrument: nt20.i   Matrix: WATER  
 Gas Ical Date: 15-AUG-2023                             Dilution Factor: 1.000  
 Injection Date: 20-SEP-2023 07:06                   Operator: LH

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 7.18 to 12.78)	65668578	74876369	1.140 M
8015C 2MP-TMB ( 3.01 to 11.04)	105938831	116658563	1.101
AK101 nC6-nC10 ( 3.17 to 10.12)	86214346	97921960	1.136
NWTPHG Tol-Nap ( 7.18 to 13.69)	68996369	77998699	1.130 M
mod8015 nC7-nC12 ( 3.70 to 12.78)	108437924	123804454	1.142 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

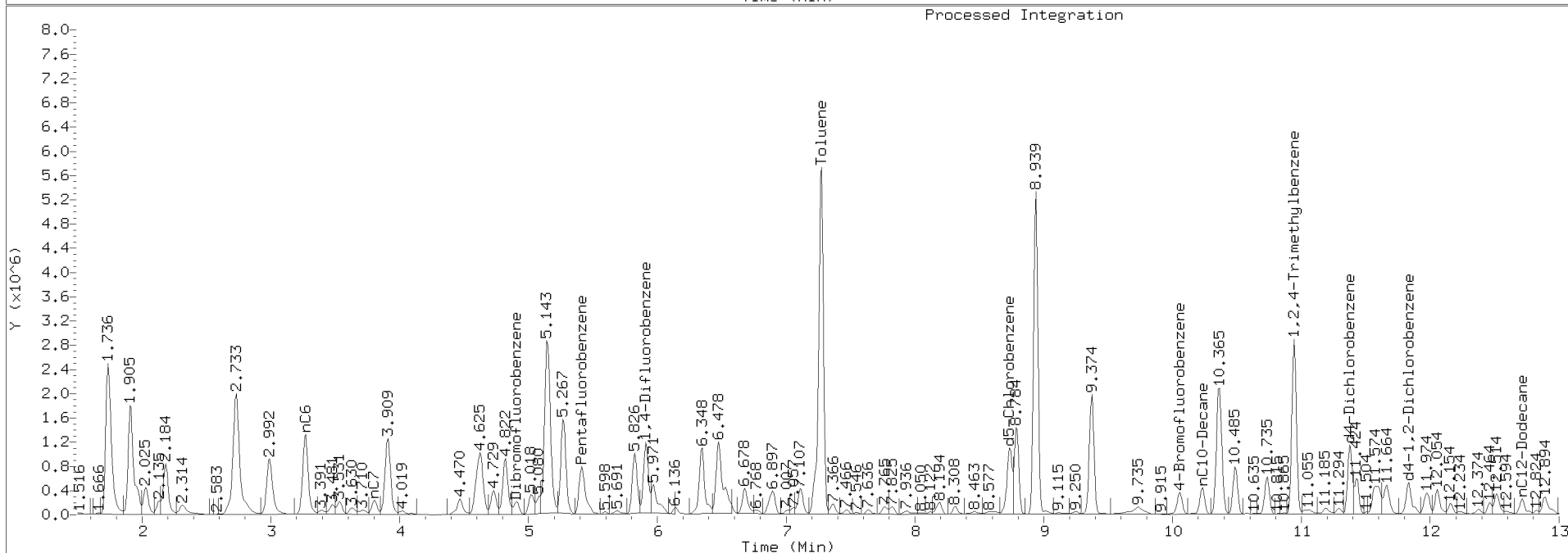
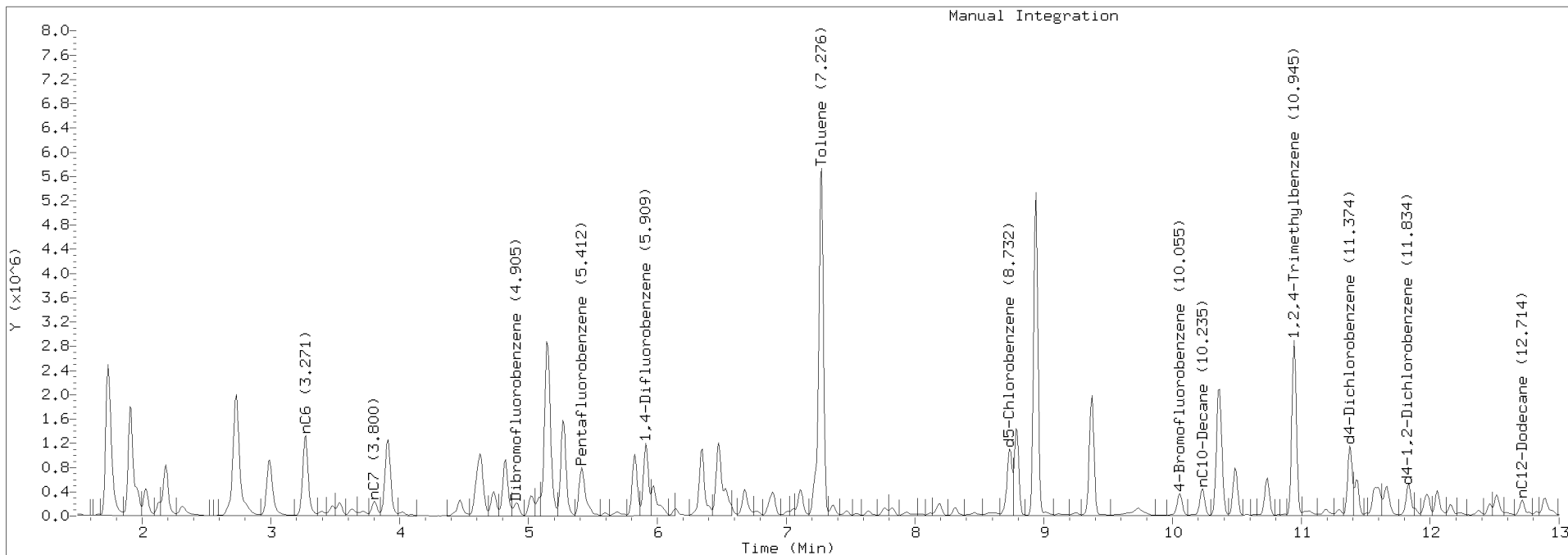
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8.732	3383100	d5-Chlorobenzene
11.374	2961898	d4-Dichlorobenzene
10.055	1081444	4-Bromofluorobenzene
11.834	1514899	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 0230920g.b/NT20\_09202303G.D Injection: 20-SEP-2023 07:06

Lab ID:SLI0299-ICV1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BLI0571 - EPA 5030C (Purge and Trap)**

Instrument: NT20

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLI0571-BSD1)</b>				Prepared: 20-Sep-2023 Analyzed: 20-Sep-2023 07:52						
Gasoline Range Organics (Tol-Nap)	1120	100	ug/L	1000		112	72-128	0.52	30	
Surrogate: Toluene-d8	4.85		ug/L	5.00		97.0	80-120			
Surrogate: 4-Bromofluorobenzene	5.14		ug/L	5.00		103	80-120			

Data File: \\target\share\chemd\nt20.1\20230920s.b\NT20\_09202305G.D

Date: 20-SEP-2023 07:52

Client ID:

Sample Info: BL10571-BSM1

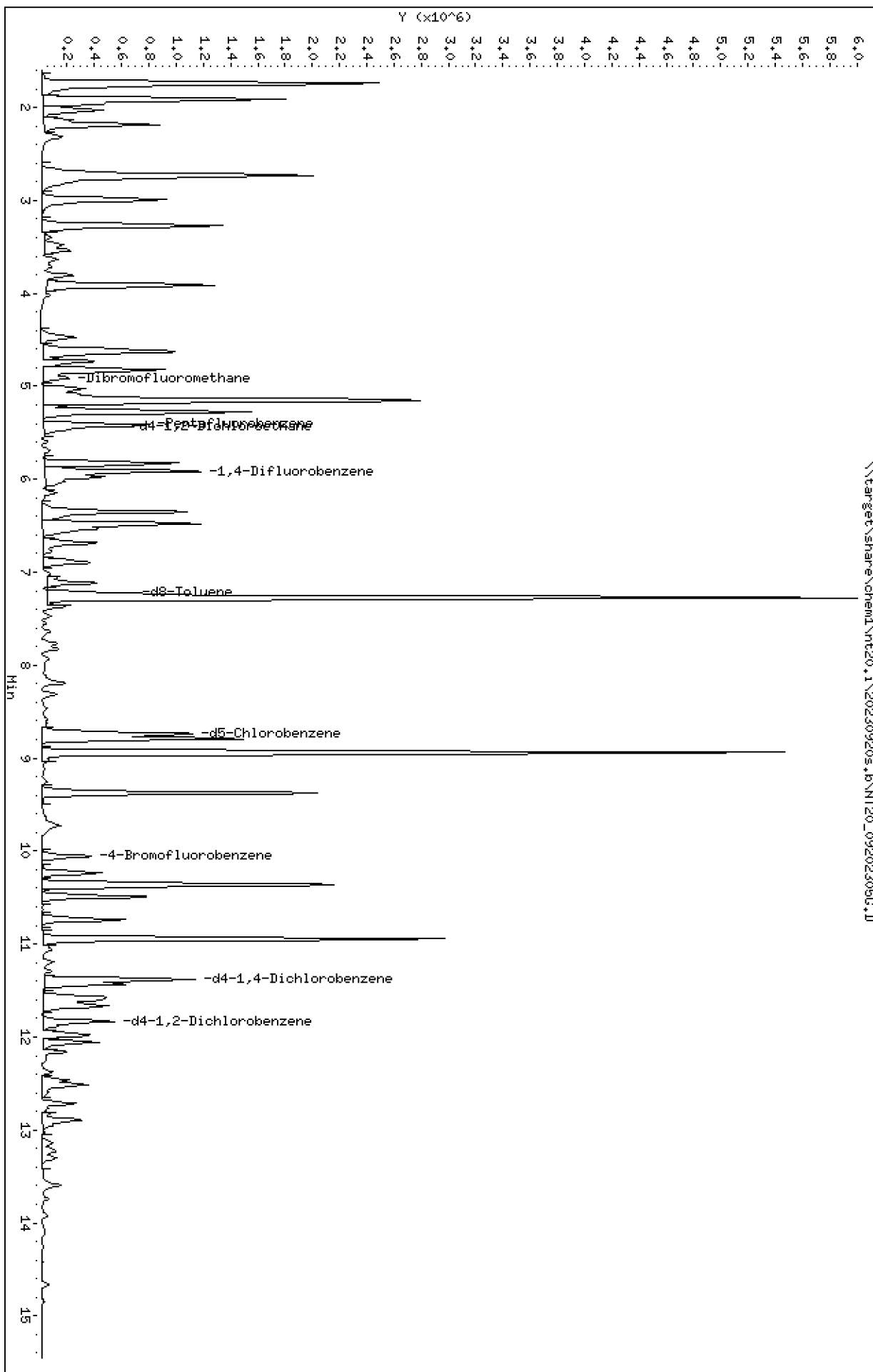
Column phase: RTXWMS

Instrument: nt20.1

Operator: LH

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt20.i\20230920s.b\NT20\_09202305G.D  
 Lab Smp Id: BLI0571-BSD1  
 Inj Date : 20-SEP-2023 07:52  
 Operator : LH Inst ID: nt20.i  
 Smp Info : BLI0571-BSD1  
 Misc Info : 16-  
 Comment :  
 Method : \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
 Meth Date : 20-Sep-2023 14:57 nt20.i Quant Type: ISTD  
 Cal Date : 13-SEP-2023 10:38 Cal File: NT20\_09132313.D  
 Als bottle: 1  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: TOKALAC-201801

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.915	4.914	(0.908)	159803	4.61510	4.615
* 32 Pentafluorobenzene	168		5.411	5.411	(1.000)	590126	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.432	5.422	(1.004)	96097	5.92004	5.920
* 37 1,4-Difluorobenzene	114		5.919	5.918	(1.000)	997905	10.0000	
\$ 43 d8-Toluene	98		7.226	7.226	(1.221)	526932	4.85236	4.852
* 53 d5-Chlorobenzene	117		8.742	8.742	(1.000)	919147	10.0000	
\$ 62 4-Bromofluorobenzene	174		10.064	10.055	(1.151)	182468	5.13965	5.140
* 76 d4-1,4-Dichlorobenzene	152		11.384	11.384	(1.000)	510873	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		11.834	11.834	(1.040)	218756	4.89504	4.895



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt20.i  
 Lab File ID: NT20 09202305G.D  
 Lab Smp Id: BLI0571-BSD1  
 Analysis Type: VOA  
 Quant Type: ISTD  
 Operator: LH  
 Method File: \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
 Misc Info: 16-

Calibration Date: 20-SEP-2023  
 Calibration Time: 07:29  
 Level: LOW  
 Sample Type: WATER

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	567094	283547	1134188	590126	4.06
37 1,4-Difluorobenze	915019	457510	1830038	997905	9.06
53 d5-Chlorobenzene	918117	459059	1836234	919147	0.11
76 d4-1,4-Dichlorobe	518843	259422	1037686	510873	-1.54

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.41	4.91	5.91	5.41	0.00
37 1,4-Difluorobenze	5.92	5.42	6.42	5.92	0.00
53 d5-Chlorobenzene	8.74	8.24	9.24	8.74	0.00
76 d4-1,4-Dichlorobe	11.38	10.88	11.88	11.38	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BLI0571-BSD1  
Level: LOW Operator: LH  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt20.i\20230920s.b\8260D09132023.m  
Misc Info: 16-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.615	92.30	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.920	118.40	80-128
\$ 43 d8-Toluene	5.000	4.852	97.05	80-120
\$ 62 4-Bromofluorobenze	5.000	5.140	102.79	80-120
\$ 79 d4-1,2-Dichloroben	5.000	4.895	97.90	80-120

REVIEW SUMMARY FOR FILE - NT20\_09202305G.D

Lab ID: BLI0571-BSD1

nt20.i, 20230920s.b\8260D09132023.m, 20-SEP-2023 07:52

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chemd\nt20.1\0230920g.jb\NT20\_09202305G.D

Date: 20-SEP-2023 07:52

Client ID:

Sample Info: BL10571-BSM1

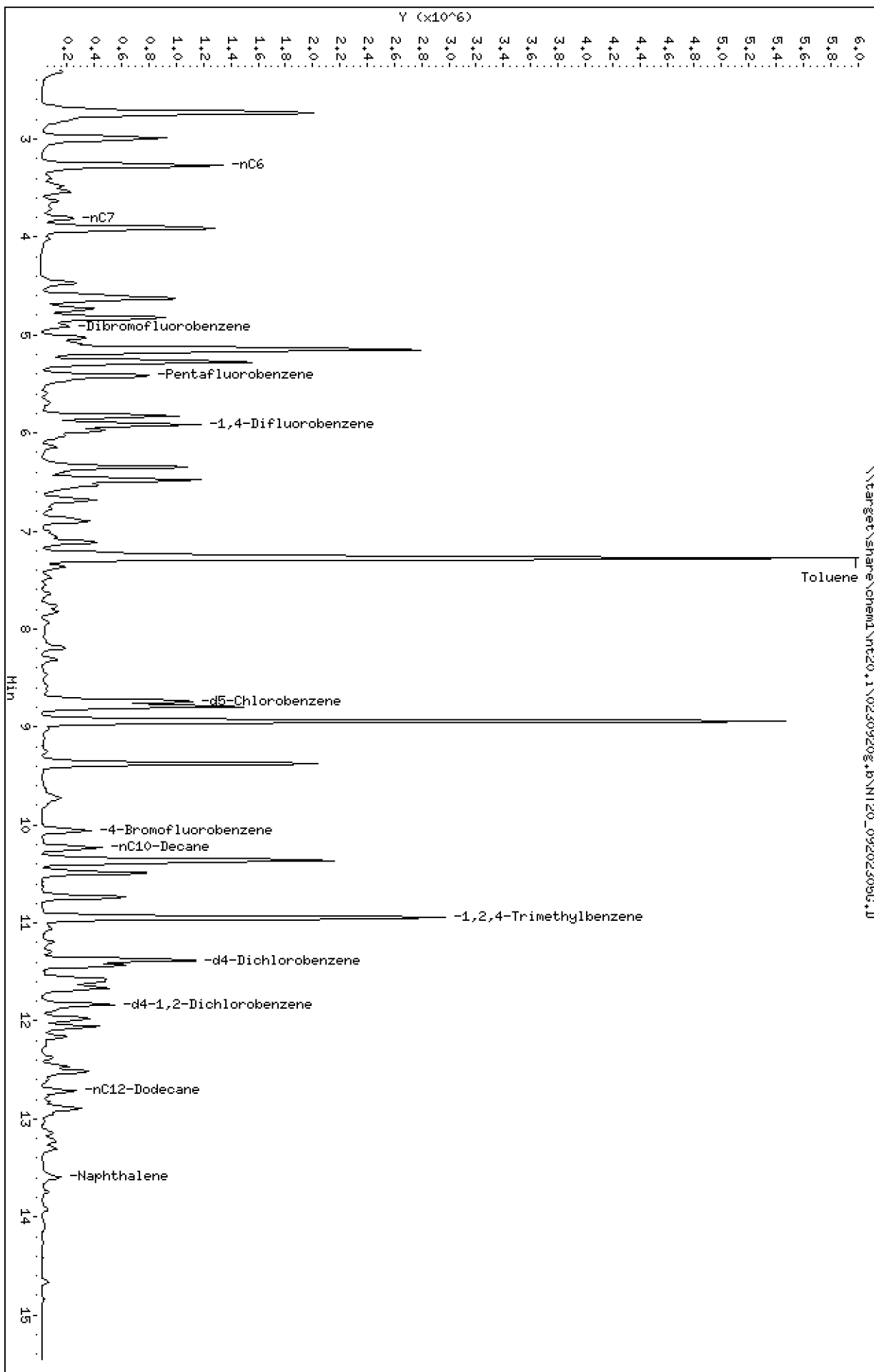
Column phase: RTXWMS

Instrument: nt20.1

Operator: LH

Column diameter: 0.18

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Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 0230920g.b/NT20\_09202305G.D                      ARI ID: BLI0571-BSD1  
 Method: \0230920g.b\NWTPHG081623.m                      Client ID:  
 Instrument: nt20.i    Matrix: WATER  
 Gas Ical Date: 15-AUG-2023                                  Dilution Factor: 1.000  
 Injection Date: 20-SEP-2023 07:52                         Operator: LH

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 7.18 to 12.78)	65668578	74413674	1.133 M
8015C 2MP-TMB ( 3.01 to 11.04)	105938831	116054648	1.095
AK101 nC6-nC10 ( 3.17 to 10.12)	86214346	97273622	1.128
NWTPHG Tol-Nap ( 7.18 to 13.69)	68996369	77595472	1.125 M
mod8015 nC7-nC12 ( 3.70 to 12.78)	108437924	122649255	1.131 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

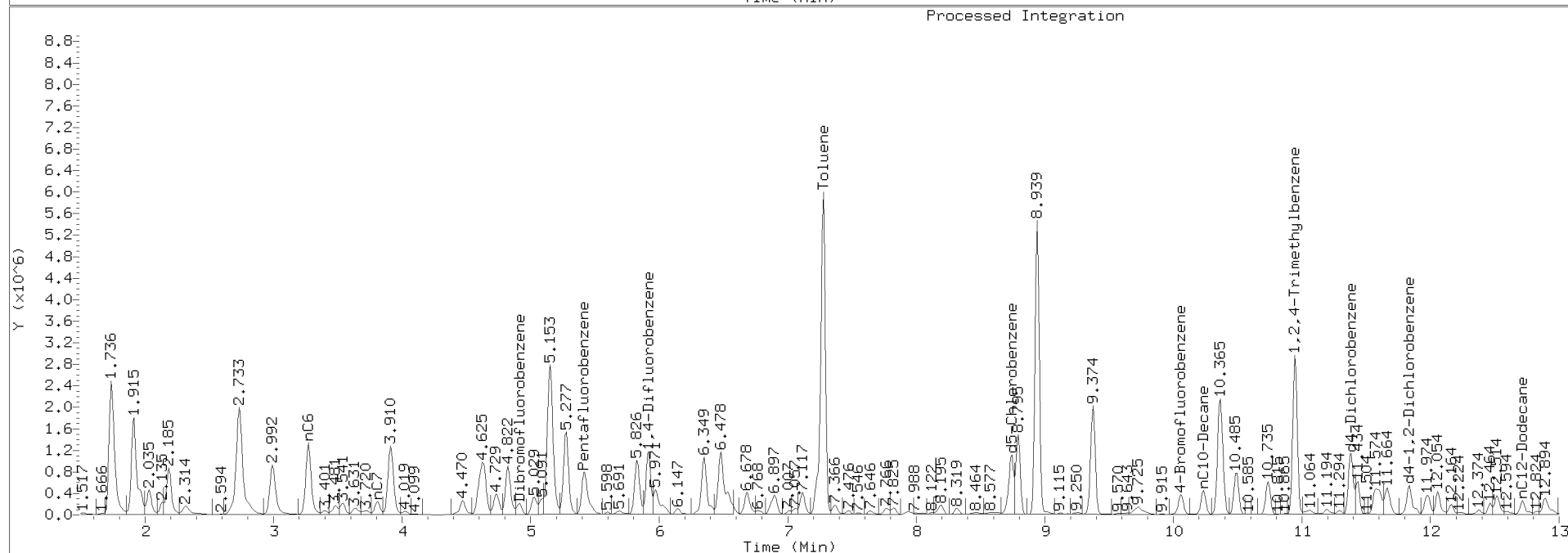
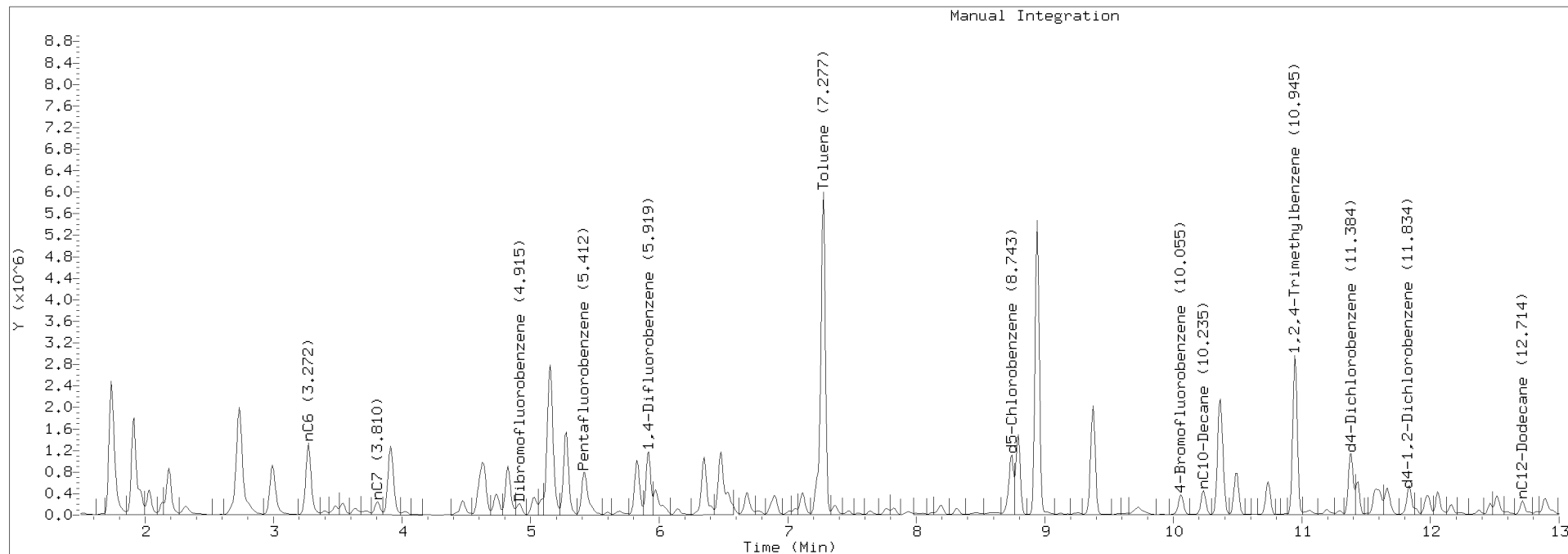
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8.743	3250496	d5-Chlorobenzene
11.384	3227107	d4-Dichlorobenzene
10.055	1076504	4-Bromofluorobenzene
11.834	1496732	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 0230920g.b/NT20\_09202305G.D Injection: 20-SEP-2023 07:52

Lab ID:BLI0571-BSD1





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

Analysis by: Analytical Resources, LLC

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BLI0548 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLI0548-BLK1)</b>						Prepared: 20-Sep-2023 Analyzed: 22-Sep-2023 12:59					
Naphthalene	ND	0.3	1.0	ug/L							U
Acenaphthylene	ND	0.2	1.0	ug/L							U
Acenaphthene	ND	0.2	1.0	ug/L							U
2-Methylnaphthalene	ND	0.2	1.0	ug/L							U
Dibenzofuran	ND	0.2	1.0	ug/L							U
Fluorene	ND	0.2	1.0	ug/L							U
Pentachlorophenol	ND	1.2	10.0	ug/L							U
Phenanthrene	ND	0.2	1.0	ug/L							U
Anthracene	ND	0.3	1.0	ug/L							U
Carbazole	ND	0.3	1.0	ug/L							U
Fluoranthene	ND	0.2	1.0	ug/L							U
Pyrene	ND	0.3	1.0	ug/L							U
Benzo(a)anthracene	ND	0.2	1.0	ug/L							U
Chrysene	ND	0.2	1.0	ug/L							U
Benzo(a)pyrene	ND	0.2	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.5	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	0.5	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	0.5	1.0	ug/L							U
1-Methylnaphthalene	ND	0.3	1.0	ug/L							U
Surrogate: 2-Fluorobiphenyl	20.8			ug/L	25.0		83.0	54.4-120			
Surrogate: 2,4,6-Tribromophenol	39.1			ug/L	37.5		104	49.3-128			
Surrogate: p-Terphenyl-d14	26.1			ug/L	25.0		104	60-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

Analysis by: Analytical Resources, LLC  
Semivolatile Organic Compounds - Quality Control

Batch BLI0548 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLI0548-BS1)</b>					Prepared: 20-Sep-2023		Analyzed: 22-Sep-2023 13:33				
Naphthalene	17.3	0.3	1.0	ug/L	25.0		69.4	48-120			
Acenaphthylene	17.0	0.2	1.0	ug/L	25.0		68.1	56.5-120			
Acenaphthene	18.2	0.2	1.0	ug/L	25.0		72.9	54-120			
2-Methylnaphthalene	17.4	0.2	1.0	ug/L	25.0		69.8	51-120			
Dibenzofuran	19.4	0.2	1.0	ug/L	25.0		77.6	61.9-120			
Fluorene	19.2	0.2	1.0	ug/L	25.0		76.8	62.3-120			
Pentachlorophenol	61.7	1.2	10.0	ug/L	65.0		95.0	40.7-124			
Phenanthrene	18.1	0.2	1.0	ug/L	25.0		72.4	61-120			
Anthracene	18.0	0.3	1.0	ug/L	25.0		72.0	45-120			
Carbazole	18.6	0.3	1.0	ug/L	25.0		74.3	58-123			
Fluoranthene	18.9	0.2	1.0	ug/L	25.0		75.7	67.9-120			
Pyrene	22.5	0.3	1.0	ug/L	25.0		90.1	47-124			
Benzo(a)anthracene	18.2	0.2	1.0	ug/L	25.0		72.7	54-120			
Chrysene	17.8	0.2	1.0	ug/L	25.0		71.3	55-120			
Benzo(a)pyrene	16.9	0.2	1.0	ug/L	25.0		67.7	57-122			
Indeno(1,2,3-cd)pyrene	18.1	0.5	1.0	ug/L	25.0		72.4	40-147			
Dibenzo(a,h)anthracene	18.3	0.5	1.0	ug/L	25.0		73.2	37-148			
Benzo(g,h,i)perylene	19.2	0.5	1.0	ug/L	25.0		76.7	42-168			
1-Methylnaphthalene	18.3	0.3	1.0	ug/L	25.0		73.1	54.4-120			
Surrogate: 2-Fluorobiphenyl	20.3			ug/L	25.0		81.1	54.4-120			
Surrogate: 2,4,6-Tribromophenol	41.0			ug/L	37.5		109	49.3-128			
Surrogate: p-Terphenyl-d14	25.3			ug/L	25.0		101	60-120			





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

Analysis by: Analytical Resources, LLC  
Semivolatile Organic Compounds - Quality Control

Batch BLI0548 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Detection Limit	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLI0548-BSD1)</b>					Prepared: 20-Sep-2023 Analyzed: 22-Sep-2023 14:07						
Naphthalene	17.5	0.3	1.0	ug/L	25.0		70.0	48-120	0.99	30	
Acenaphthylene	17.5	0.2	1.0	ug/L	25.0		69.9	56.5-120	2.59	30	
Acenaphthene	18.7	0.2	1.0	ug/L	25.0		75.0	54-120	2.85	30	
2-Methylnaphthalene	17.7	0.2	1.0	ug/L	25.0		70.8	51-120	1.38	30	
Dibenzofuran	19.8	0.2	1.0	ug/L	25.0		79.3	61.9-120	2.09	30	
Fluorene	20.1	0.2	1.0	ug/L	25.0		80.4	62.3-120	4.52	30	
Pentachlorophenol	62.1	1.2	10.0	ug/L	65.0		95.5	40.7-124	0.59	30	
Phenanthrene	19.1	0.2	1.0	ug/L	25.0		76.2	61-120	5.08	30	
Anthracene	19.0	0.3	1.0	ug/L	25.0		76.0	45-120	5.39	30	
Carbazole	19.8	0.3	1.0	ug/L	25.0		79.3	58-123	6.62	30	
Fluoranthene	20.1	0.2	1.0	ug/L	25.0		80.4	67.9-120	6.01	30	
Pyrene	23.6	0.3	1.0	ug/L	25.0		94.3	47-124	4.54	30	
Benzo(a)anthracene	19.2	0.2	1.0	ug/L	25.0		76.8	54-120	5.48	30	
Chrysene	18.8	0.2	1.0	ug/L	25.0		75.4	55-120	5.55	30	
Benzo(a)pyrene	18.7	0.2	1.0	ug/L	25.0		74.7	57-122	9.84	30	
Indeno(1,2,3-cd)pyrene	19.1	0.5	1.0	ug/L	25.0		76.2	40-147	5.14	30	
Dibenzo(a,h)anthracene	19.0	0.5	1.0	ug/L	25.0		76.0	37-148	3.78	30	
Benzo(g,h,i)perylene	19.9	0.5	1.0	ug/L	25.0		79.7	42-168	3.88	30	
1-Methylnaphthalene	18.6	0.3	1.0	ug/L	25.0		74.3	54.4-120	1.63	30	
Surrogate: 2-Fluorobiphenyl	20.6			ug/L	25.0		82.2	54.4-120			
Surrogate: 2,4,6-Tribromophenol	43.2			ug/L	37.5		115	49.3-128			
Surrogate: p-Terphenyl-d14	27.2			ug/L	25.0		109	60-120			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**

**Analysis by: Analytical Resources, LLC**

**Semivolatile Organic Compounds - SIM - Quality Control**

**Batch BLI0553 - EPA 3520C (Liq Liq)**

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLI0553-BLK1)</b>				Prepared: 20-Sep-2023 Analyzed: 02-Oct-2023 15:16						
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	1.81		ug/L	3.00		60.2	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.54		ug/L	3.00		84.7	10-125			
Surrogate: Fluoranthene-d10	1.79		ug/L	3.00		59.5	46-121			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BLI0553 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLI0553-BS1)</b>				Prepared: 20-Sep-2023 Analyzed: 02-Oct-2023 16:10						
Benzo(a)anthracene	1.45	0.10	ug/L	3.00		48.3	25-120			
Chrysene	1.53	0.10	ug/L	3.00		51.2	31-120			
Benzo(a)fluoranthene, Total	6.69	0.20	ug/L	9.00		74.3	33-148			
Benzo(a)pyrene	1.42	0.10	ug/L	3.00		47.2	20-120			
Indeno(1,2,3-cd)pyrene	1.96	0.10	ug/L	3.00		65.2	46-130			
Dibenzo(a,h)anthracene	2.28	0.10	ug/L	3.00		76.1	43-146			
Surrogate: 2-Methylnaphthalene-d10	1.28		ug/L	3.00		42.5	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.54		ug/L	3.00		84.6	10-125			
Surrogate: Fluoranthene-d10	1.63		ug/L	3.00		54.3	46-121			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BLI0553 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLI0553-BSD1)</b>				Prepared: 20-Sep-2023 Analyzed: 02-Oct-2023 16:38						
Benzo(a)anthracene	1.81	0.10	ug/L	3.00		60.2	25-120	21.90	30	
Chrysene	1.95	0.10	ug/L	3.00		65.0	31-120	23.90	30	
Benzo(a)fluoranthene, Total	8.98	0.20	ug/L	9.00		99.7	33-148	29.30	30	
Benzo(a)pyrene	1.83	0.10	ug/L	3.00		60.9	20-120	25.50	30	
Indeno(1,2,3-cd)pyrene	2.45	0.10	ug/L	3.00		81.6	46-130	22.30	30	
Dibenzo(a,h)anthracene	2.90	0.10	ug/L	3.00		96.8	43-146	24.00	30	
Surrogate: 2-Methylnaphthalene-d10	1.79		ug/L	3.00		59.8	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	2.96		ug/L	3.00		98.7	10-125			
Surrogate: Fluoranthene-d10	1.82		ug/L	3.00		60.6	46-121			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	Reported: 24-Oct-2023 09:34
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Analysis by: Analytical Resources, LLC

Analysis by: Analytical Resources, LLC

Petroleum Hydrocarbons - Quality Control

Batch BLI0549 - EPA 3510C SepF

Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLI0549-BLK1)</b>				Prepared: 21-Sep-2023 Analyzed: 16-Oct-2023 19:46						
Diesel Range Organics (C12-C24)	ND	100	ug/L							U
Motor Oil Range Organics (C24-C38)	ND	200	ug/L							U
Creosote Range Organics (C12-C22)	ND	200	ug/L							U
Surrogate: o-Terphenyl	183		ug/L	225		81.2	50-150			

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231631.D

Date: 16-OCT-2023 19:46

Client ID:

Sample Info: BL10549-BLK1

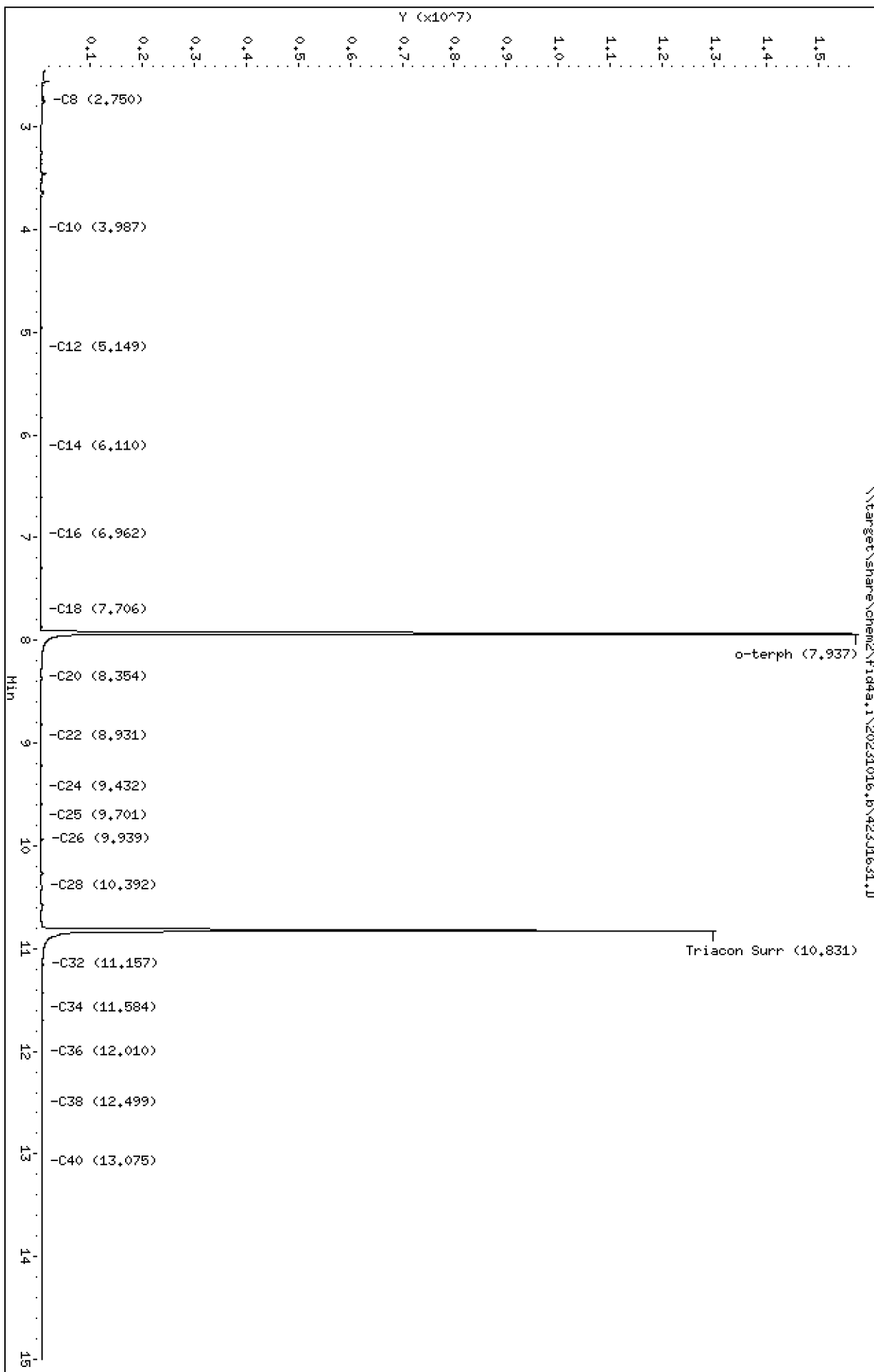
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1631.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: BLI0549-BLK1  
Client ID:  
Injection: 16-OCT-2023 19:46  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

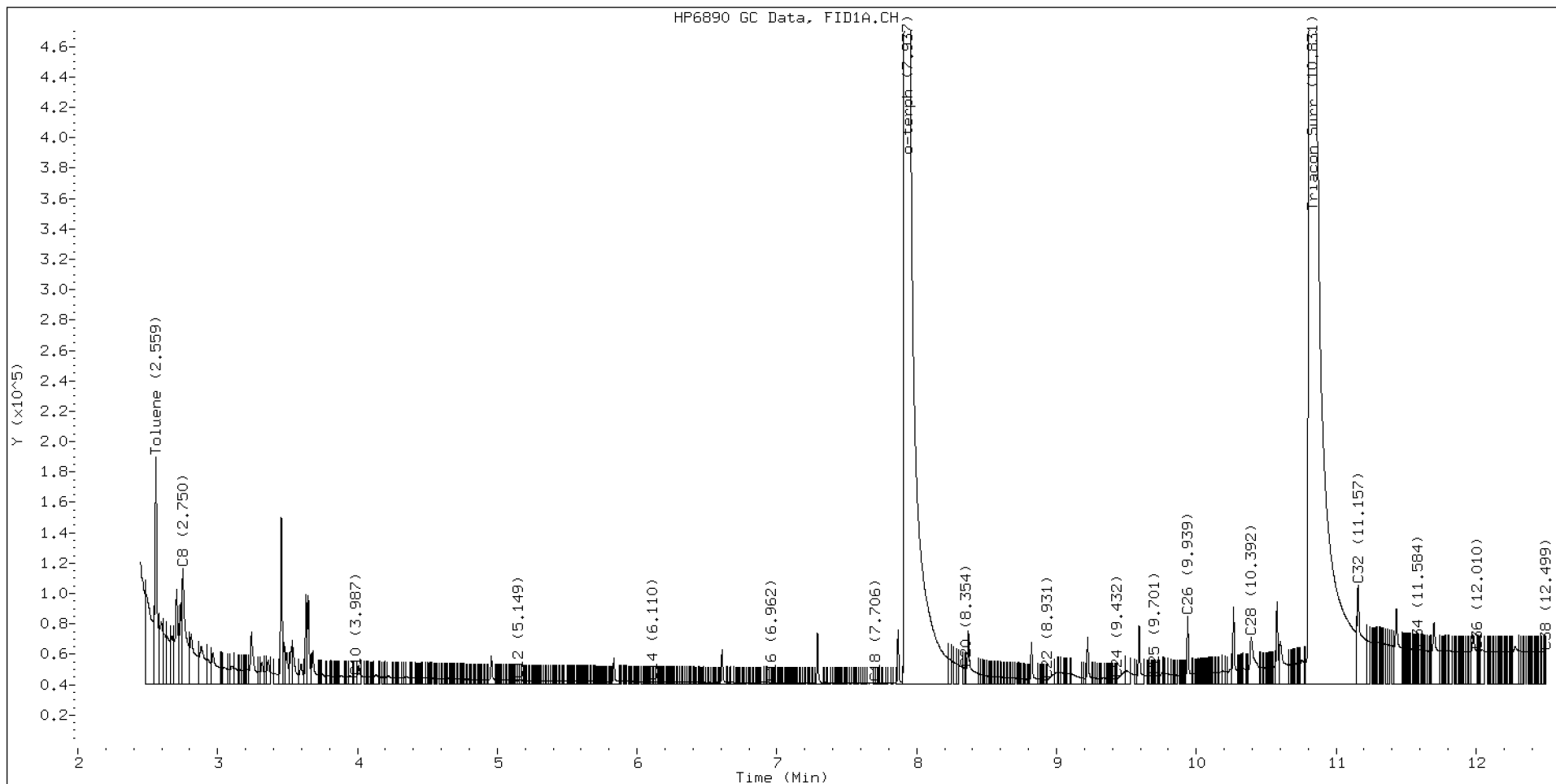
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.750	-0.007	75673	137216	WATPHD	(C12-C24)	603322	3.8
C10	3.987	-0.004	4613	5111	WATPHM	(C24-C38)	2564930	21.5
C12	5.149	0.001	2150	1448	AK102	(C10-C25)	895489	4.7
C14	6.110	-0.002	1194	613	AK103	(C25-C36)	1933890	19.3
C16	6.962	0.007	548	235				
C18	7.706	0.007	351	243				
C20	8.354	0.005	9644	1443				
C22	8.931	0.003	2538	1367				
C24	9.432	-0.018	3348	1133				
C25	9.701	0.008	4919	1956				
C26	9.939	0.011	44512	40236				
C32	11.157	-0.060	64944	167374				
C34	11.584	-0.035	22702	9057				
Filter Peak	----				CREOSOT	(C12-C22)	432992	11.3 M
C36	12.010	-0.043	21590	15012				
C38	12.499	-0.045	20986	11506				
C40	13.075	-0.059	19598	14667				
o-terph	7.937	-0.005	15737273	18585099				
Triacon Surr	10.831	0.006	12999995	16871719				

Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	18585099	91.3
Triacotane	16871719	123.8 M

M Indicates the peak was manually integrated

Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023

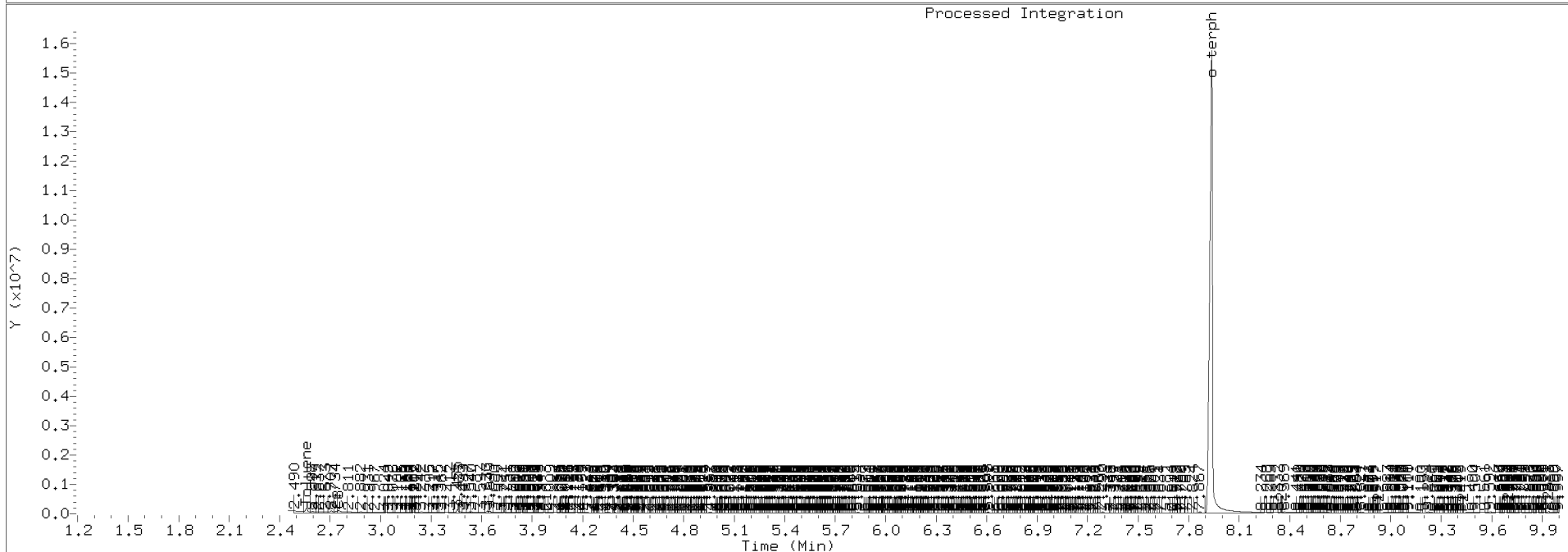
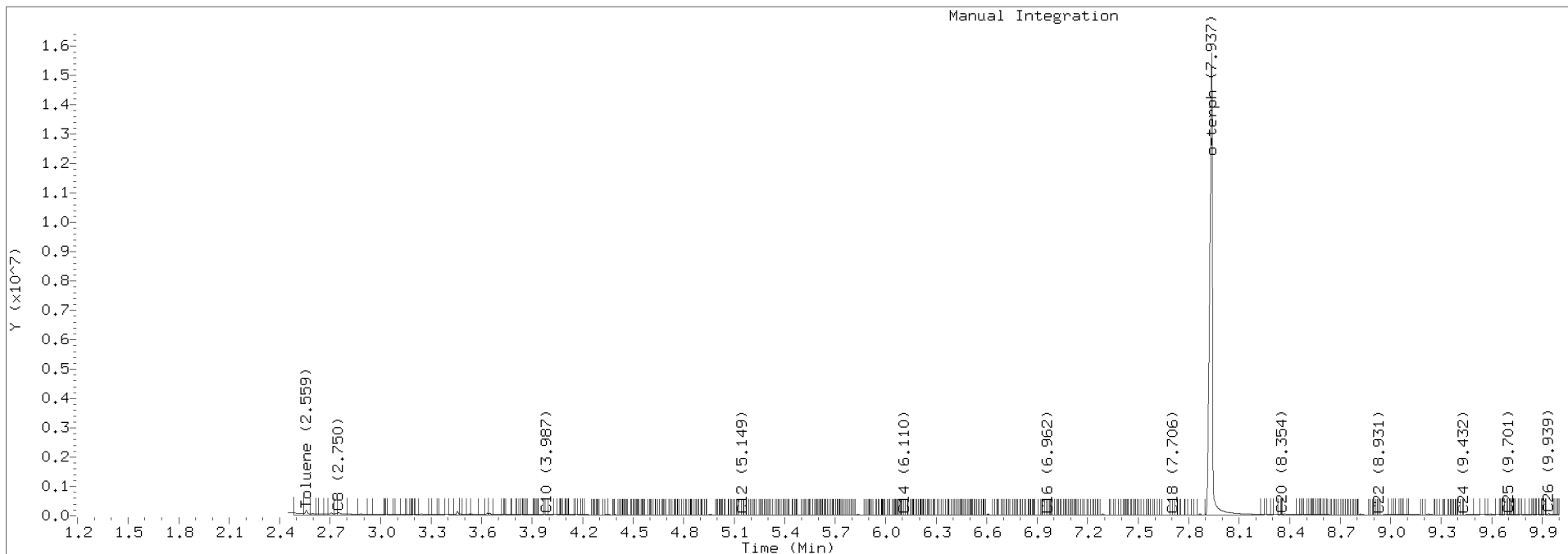




TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1631.D Injection: 16-OCT-2023 19:46

Lab ID:BLI0549-BLK1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BLI0549 - EPA 3510C SepF**

Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLI0549-BS1)</b>				Prepared: 21-Sep-2023 Analyzed: 16-Oct-2023 20:06						
Diesel Range Organics (C12-C24)	2730	100	ug/L	3000		91.1	56-120			
Surrogate: <i>o</i> -Terphenyl	209		ug/L	225		93.1	50-150			

Data File: \\target\share\chem2\fid4a,1\20231016,b\4231632.D

Date: 16-OCT-2023 20:06

Client ID:

Sample Info: BL10549-BS1

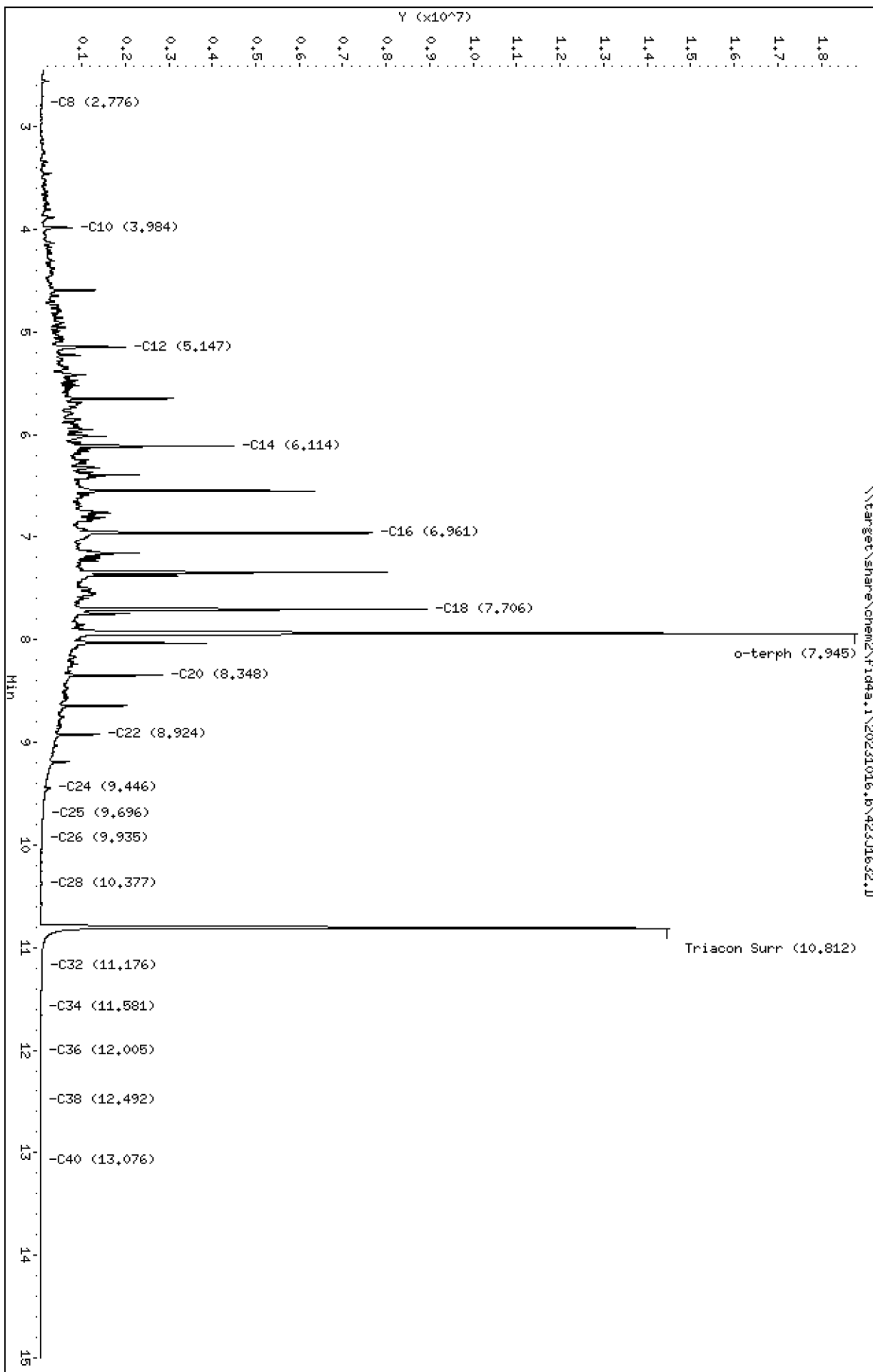
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1632.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: BLI0549-BS1  
Client ID:  
Injection: 16-OCT-2023 20:06  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

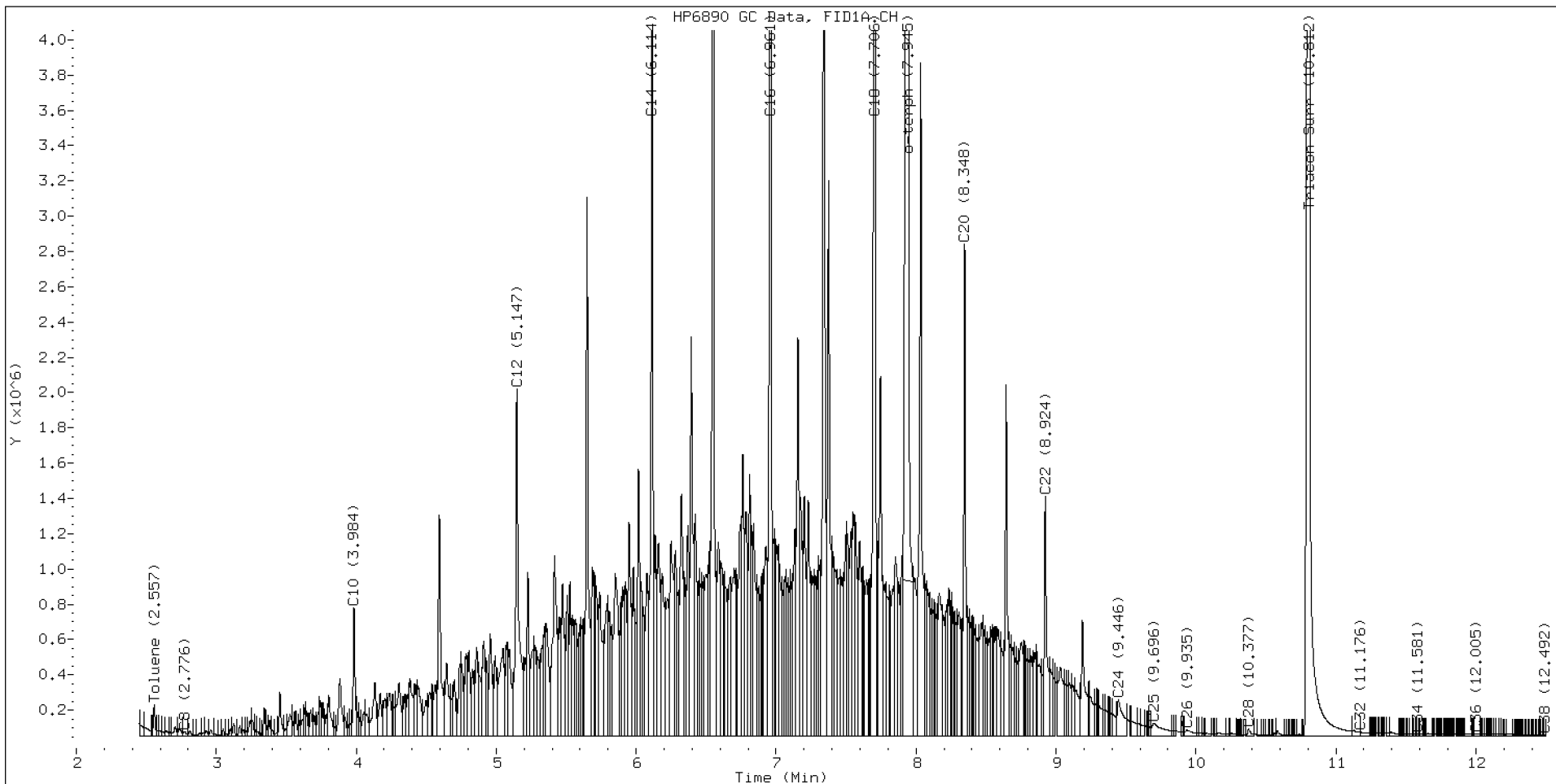
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.776	0.019	26948	42040	WATPHD	(C12-C24)	216727013	1366.2
C10	3.984	-0.007	727608	707246	WATPHM	(C24-C38)	2697087	22.6
C12	5.147	-0.002	1967520	3176466	AK102	(C10-C25)	239447304	1266.4
C14	6.114	0.002	4438727	4338257	AK103	(C25-C36)	1986079	19.8
C16	6.961	0.006	7612977	7252442				
C18	7.706	0.007	8881289	8767942				
C20	8.348	-0.001	2790899	2838303				
C22	8.924	-0.004	1360379	1691054				
C24	9.446	-0.003	209613	622478				
C25	9.696	0.003	73278	417904				
C26	9.935	0.008	36698	131050				
C32	11.176	-0.042	22114	84719				
C34	11.581	-0.039	12653	7545				
Filter Peak	----				CREOSOT	(C12-C22)	210119277	5491.5 M
C36	12.005	-0.048	11064	25149				
C38	12.492	-0.053	9253	5507				
C40	13.076	-0.059	7097	2474				
o-terph	7.945	0.003	17899545	21311642				
Triacon Surr	10.812	-0.013	14454671	18780321				

Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	21311642	104.7 M
Triacotane	18780321	137.8 M

M Indicates the peak was manually integrated

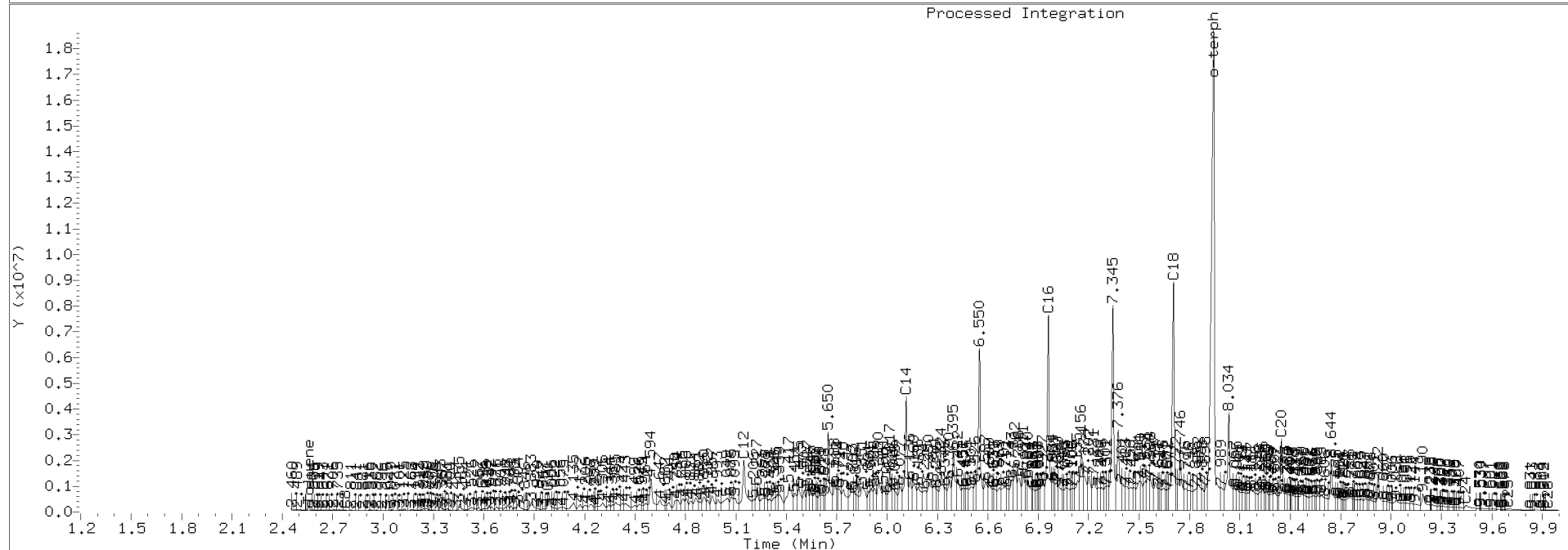
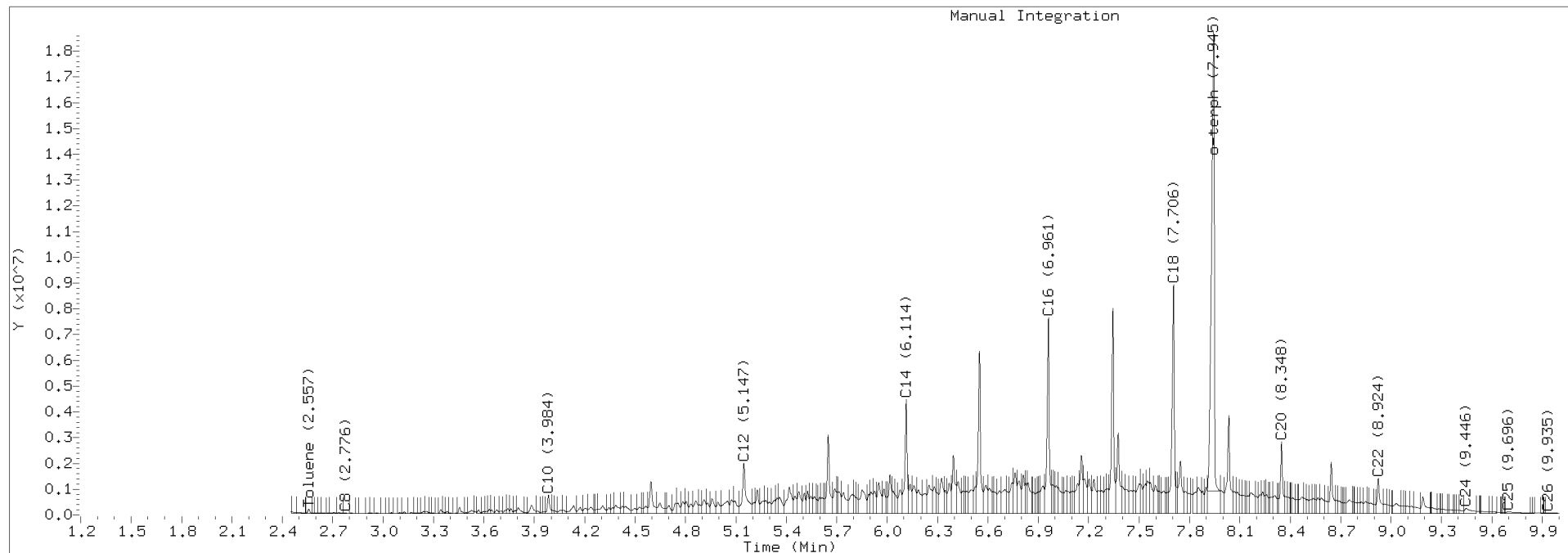
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1632.D Injection: 16-OCT-2023 20:06

Lab ID:BLI0549-BS1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BLI0549 - EPA 3510C SepF**

Instrument: FID4

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLI0549-BSD1)</b>				Prepared: 21-Sep-2023 Analyzed: 16-Oct-2023 20:26						
Diesel Range Organics (C12-C24)	2370	100	ug/L	3000		78.9	56-120	14.40	30	
Surrogate: <i>o</i> -Terphenyl	148		ug/L	225		65.9	50-150			

Data File: \\target\share\chem2\fid4a,1\20231016\_b\4231633.D

Date: 16-OCT-2023 20:26

Client ID:

Sample Info: BL10549-BSM1

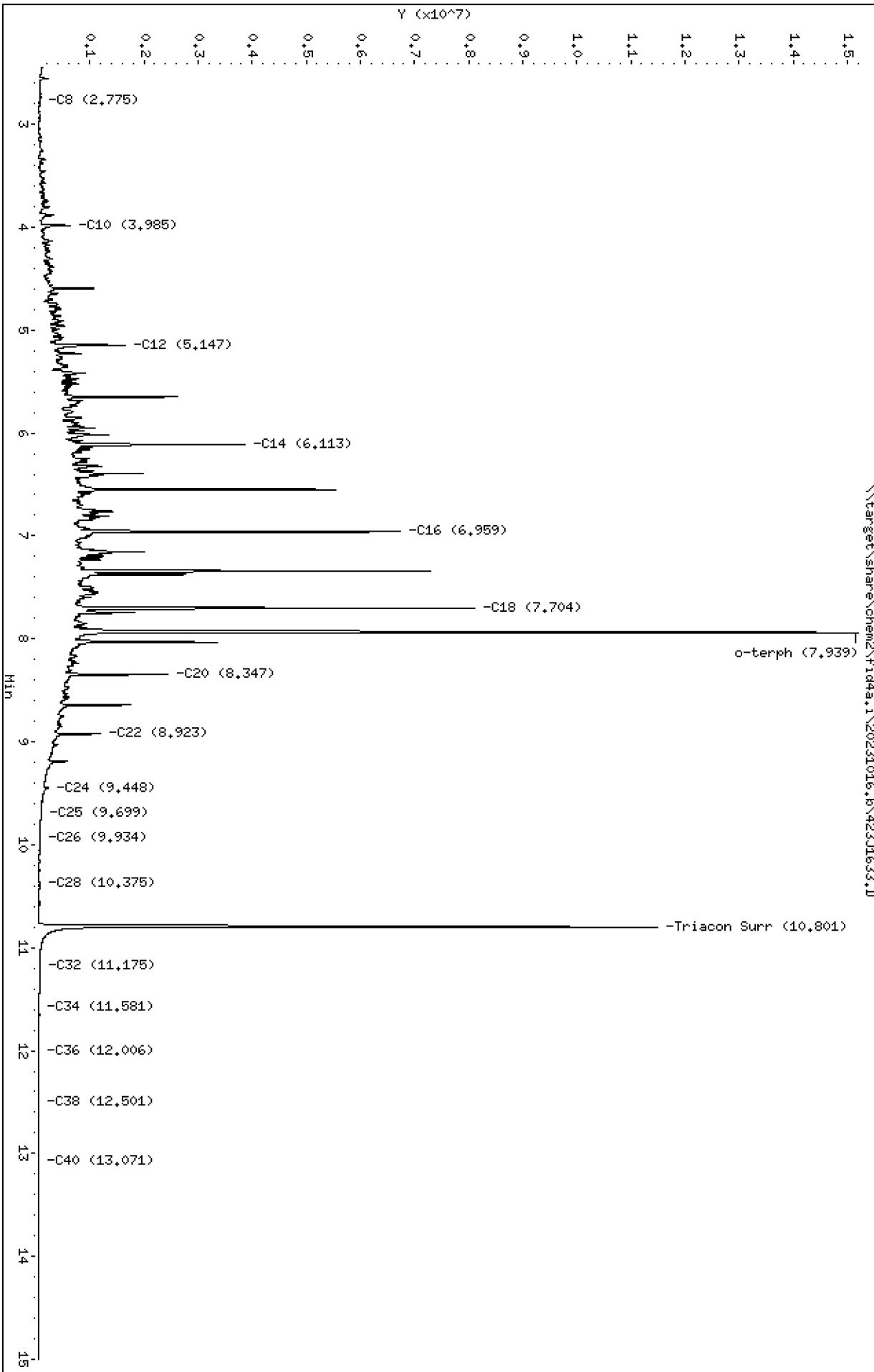
Column phase: RTX-1

Instrument: fid4a,1

Operator: JGR/NRB

Column diameter: 0.25

Page 1





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20231016.b/423J1633.D  
Method: 20231016.b\FID4TPH.m  
Instrument: fid4a.i, JGR/NRB  
Report Date: 10/19/2023  
Macro: 09-SEP-2019  
Calibration Dates: Gas:XX-XXX-XXXX Diesel:20-JAN-2022 M.Oil:28-SEP-2023

ARI ID: BLI0549-BSD1  
Client ID:  
Injection: 16-OCT-2023 20:26  
Dilution Factor: 1  
RT Std: 422H1803.D

FID:4A RESULTS

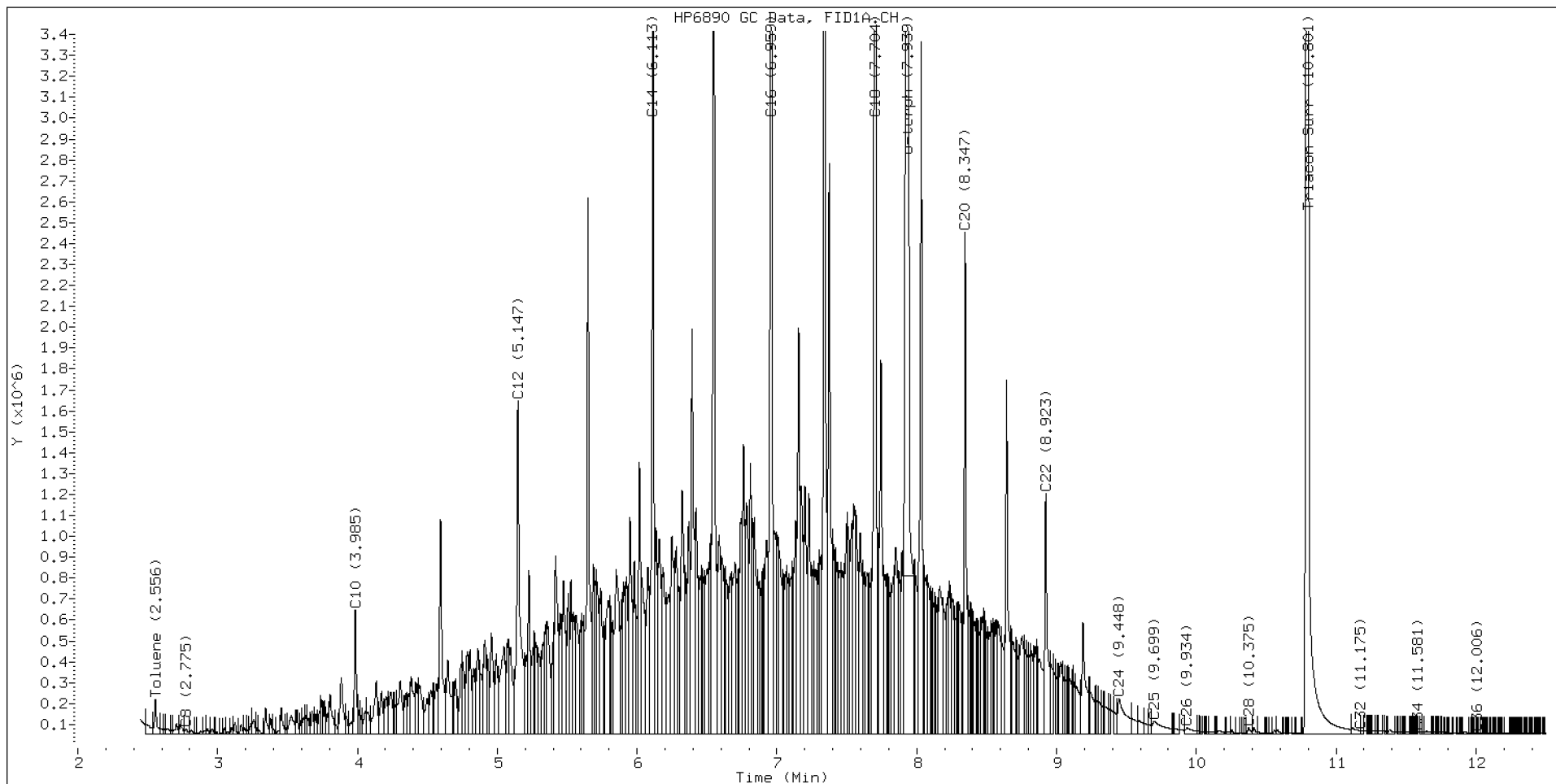
Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg/L)
C8	2.775	0.017	25297	41112	WATPHD	(C12-C24)	187646244	1182.9
C10	3.985	-0.006	596710	577494	WATPHM	(C24-C38)	2385126	20.0
C12	5.147	-0.002	1596584	2679935	AK102	(C10-C25)	206764022	1093.5
C14	6.113	0.001	3804939	3704847	AK103	(C25-C36)	1738053	17.4
C16	6.959	0.004	6686887	6227847				
C18	7.704	0.005	8068354	7533557				
C20	8.347	-0.002	2400663	2489268				
C22	8.923	-0.005	1154623	1435433				
C24	9.448	-0.002	171632	661508				
C25	9.699	0.006	61711	354745				
C26	9.934	0.007	33352	117046				
C32	11.175	-0.043	18678	30671				
C34	11.581	-0.039	10859	5403				
Filter Peak	----				CREOSOT	(C12-C22)	181594172	4746.0 M
C36	12.006	-0.047	8912	4422				
C38	12.501	-0.043	7819	5036				
C40	13.071	-0.064	5580	1382				
o-terph	7.939	-0.003	14395672	15091391				
Triacon Surr	10.801	-0.025	11447972	13538503				

Range Times: NW Diesel(5.149 - 9.450) AK102(3.99 - 9.69) Jet A(3.99 - 7.70)  
NW M.Oil(9.45 - 12.54) AK103(9.69 - 12.05) OR Diesel(3.99 - 10.38)

Surrogate	Area	Amount
o-Terphenyl	15091391	74.1 M
Triacotane	13538503	99.4

M Indicates the peak was manually integrated

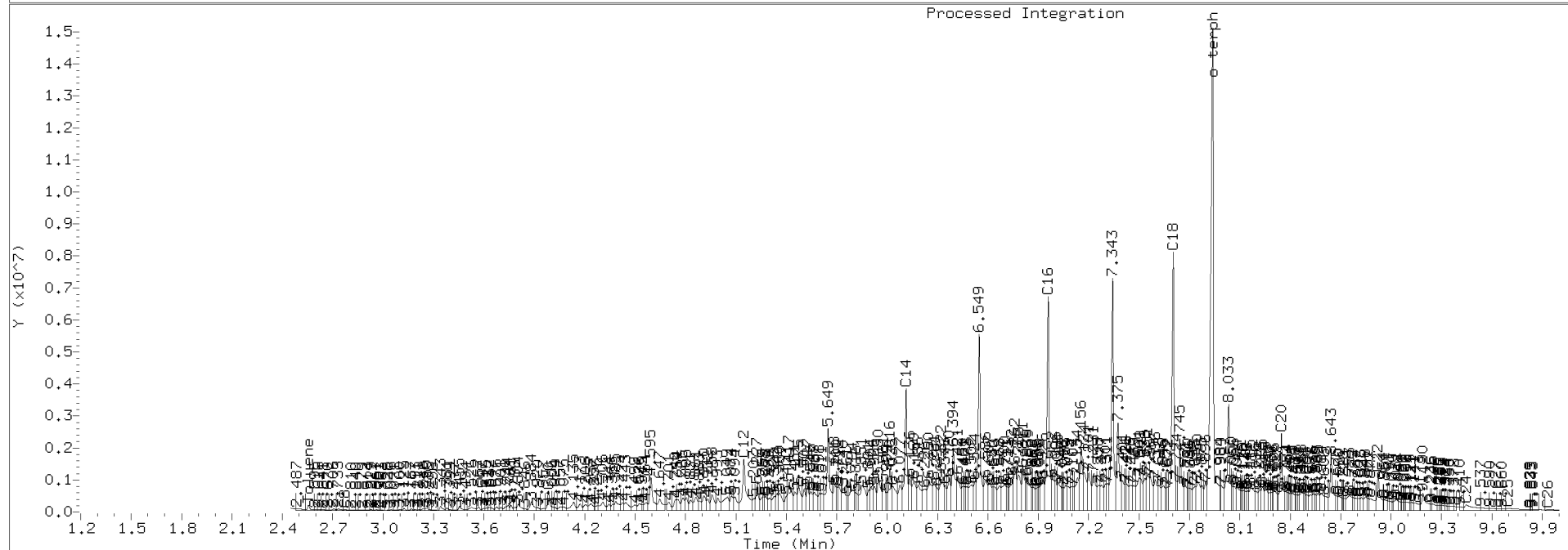
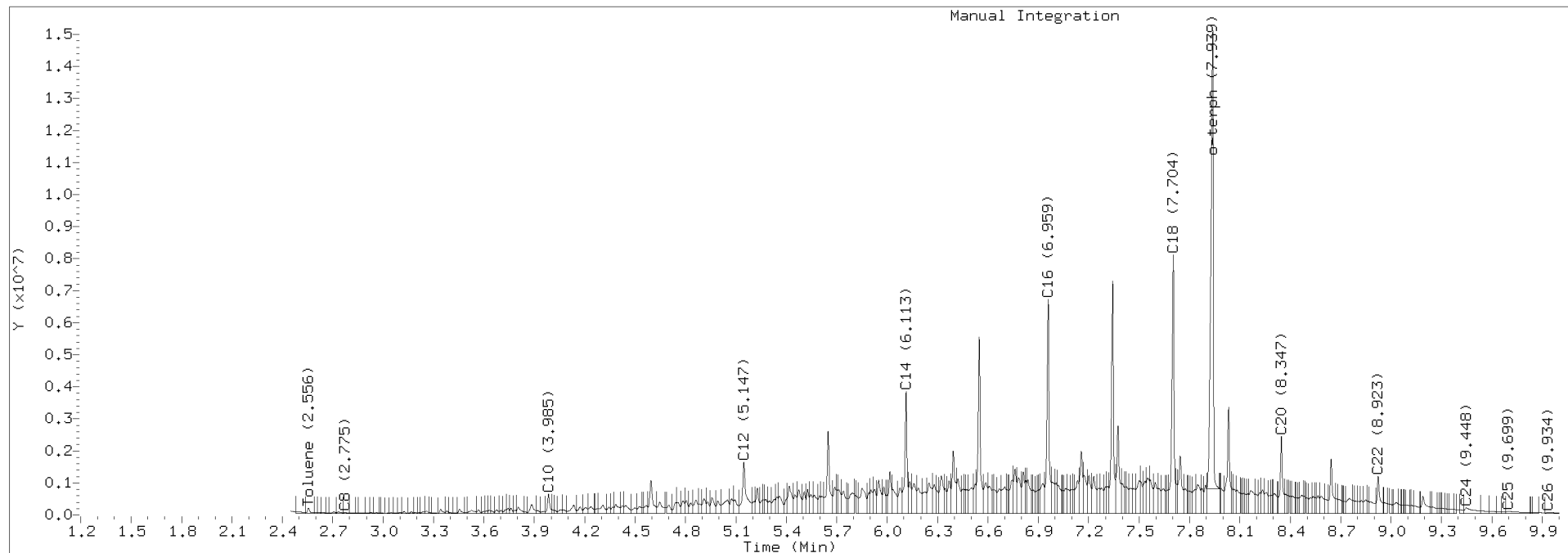
Analyte	RF	Curve Date
o-Terph Surr	203634.1	
Triacon Surr	136253.8	
Gas	15000.0	XX-XXX-XXXX
Diesel	158638.4	20-JAN-2022
Motor Oil	119095.3	28-SEP-2023
AK102	189076.1	20-JAN-2022
AK103	100056.8	09-OCT-2023
OR Gas	28080.0	XX-XXX-XXXX
Creosote	38262.7	20-MAR-2023



TPH Manual Integrations Report

Datafile: FID4A, 20231016.b/423J1633.D Injection: 16-OCT-2023 20:26

Lab ID:BLI0549-BSD1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**

**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BLI0554 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BLI0554-BLK1)</b>				Prepared: 21-Sep-2023 Analyzed: 11-Oct-2023 17:41						
Pentachlorophenol	ND	0.25	ug/L							U
Surrogate: 2,4,6-Tribromophenol	1.78		ug/L	2.50		71.3	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	2.12		ug/L	2.50		84.8	26-120			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**  
**Phenols - Quality Control**

**Batch BLI0554 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BLI0554-BS1)</b>				Prepared: 21-Sep-2023 Analyzed: 11-Oct-2023 18:00						
Pentachlorophenol [2C]	2.04	0.25	ug/L	2.50		81.7	48-120			
Surrogate: 2,4,6-Tribromophenol	1.99		ug/L	2.50		79.8	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	2.42		ug/L	2.50		96.8	26-120			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BLI0554 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BLI0554-BSD1)</b>				Prepared: 21-Sep-2023 Analyzed: 11-Oct-2023 18:18						
Pentachlorophenol [2C]	2.41	0.25	ug/L	2.50		96.5	48-120	16.60	30	
Surrogate: 2,4,6-Tribromophenol	1.97		ug/L	2.50		78.9	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	2.40		ug/L	2.50		96.1	26-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: 0021043.000.010.011  
Project Manager: Christine Kimmel

Reported:  
24-Oct-2023 09:34

**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 8270E in Water</b>	
Phenol	WADOE,DoD-ELAP,NELAP
bis(2-chloroethyl) ether	WADOE,DoD-ELAP,NELAP
2-Chlorophenol	WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
Benzyl alcohol	WADOE,DoD-ELAP,NELAP
2,2'-Oxybis(1-chloropropane)	WADOE,DoD-ELAP,NELAP
2-Methylphenol	WADOE,DoD-ELAP,NELAP
Hexachloroethane	WADOE,DoD-ELAP,NELAP
N-Nitroso-di-n-Propylamine	WADOE,DoD-ELAP,NELAP
4-Methylphenol	WADOE,DoD-ELAP,NELAP
Nitrobenzene	WADOE,DoD-ELAP,NELAP
Isophorone	WADOE,DoD-ELAP,NELAP
2-Nitrophenol	WADOE,DoD-ELAP,NELAP
2,4-Dimethylphenol	WADOE,DoD-ELAP,NELAP
Bis(2-Chloroethoxy)methane	WADOE,DoD-ELAP,NELAP
2,4-Dichlorophenol	WADOE,DoD-ELAP,NELAP
1,2,4-Trichlorobenzene	WADOE,DoD-ELAP,NELAP
Naphthalene	WADOE,DoD-ELAP,NELAP,ADEC
Benzoic acid	WADOE,DoD-ELAP,NELAP
4-Chloroaniline	WADOE,DoD-ELAP,NELAP
2,6-Dinitrotoluene	WADOE,DoD-ELAP,NELAP
Hexachlorobutadiene	WADOE,DoD-ELAP,NELAP
4-Chloro-3-Methylphenol	WADOE,DoD-ELAP,NELAP
Hexachlorocyclopentadiene	WADOE,DoD-ELAP,NELAP
2,4,6-Trichlorophenol	WADOE,DoD-ELAP,NELAP
2,4,5-Trichlorophenol	WADOE,DoD-ELAP,NELAP
2-Chloronaphthalene	WADOE,DoD-ELAP,NELAP
2-Nitroaniline	WADOE,DoD-ELAP,NELAP
Acenaphthylene	WADOE,DoD-ELAP,NELAP,ADEC
Dimethylphthalate	WADOE,DoD-ELAP,NELAP
Acenaphthene	WADOE,DoD-ELAP,NELAP,ADEC
3-Nitroaniline	WADOE,DoD-ELAP,NELAP
2-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,ADEC



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24-Oct-2023 09:34

2,4-Dinitrophenol	WADOE,DoD-ELAP,NELAP
Dibenzofuran	WADOE,DoD-ELAP,NELAP
4-Nitrophenol	WADOE,DoD-ELAP,NELAP
2,4-Dinitrotoluene	WADOE,DoD-ELAP,NELAP
Fluorene	WADOE,DoD-ELAP,NELAP,ADEC
4-Chlorophenylphenyl ether	WADOE,DoD-ELAP,NELAP
Diethyl phthalate	WADOE,DoD-ELAP,NELAP
4-Nitroaniline	WADOE,DoD-ELAP,NELAP
4,6-Dinitro-2-methylphenol	WADOE,DoD-ELAP,NELAP
N-Nitrosodiphenylamine	WADOE,DoD-ELAP,NELAP
4-Bromophenyl phenyl ether	WADOE,DoD-ELAP,NELAP
Hexachlorobenzene	WADOE,DoD-ELAP,NELAP
Pentachlorophenol	WADOE,DoD-ELAP,NELAP
Phenanthrene	WADOE,DoD-ELAP,NELAP,ADEC
Anthracene	WADOE,DoD-ELAP,NELAP,ADEC
Carbazole	WADOE,DoD-ELAP,NELAP,ADEC
Di-n-butylphthalate	WADOE,DoD-ELAP,NELAP
Fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Butylbenzylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(a)anthracene	WADOE,DoD-ELAP,NELAP,ADEC
3,3'-Dichlorobenzidine	WADOE,DoD-ELAP,NELAP
Chrysene	WADOE,DoD-ELAP,NELAP,ADEC
bis(2-Ethylhexyl)phthalate	WADOE,DoD-ELAP,NELAP
Di-n-Octylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(b)fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(k)fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(a)pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Indeno(1,2,3-cd)pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Dibenzo(a,h)anthracene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(g,h,i)perylene	WADOE,DoD-ELAP,NELAP,ADEC
Benzofluoranthenes, Total	WADOE,DoD-ELAP,NELAP,ADEC
N-Nitrosodimethylamine	WADOE,DoD-ELAP,NELAP
Aniline	WADOE,DoD-ELAP,NELAP
1-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,ADEC
Azobenzene (1,2-DP-Hydrazine)	WADOE,NELAP
Benzidine	WADOE,DoD-ELAP
Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP





Landau Associates, Inc.  
130 2nd Avenue S.  
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24-Oct-2023 09:34

2,6-Dichlorophenol	WADOE
alpha-Terpineol	WADOE,DoD-ELAP
1,4-Dioxane	WADOE,DoD-ELAP
2,3,4,6-Tetrachlorophenol	WADOE,DoD-ELAP
Triphenyl Phosphate	WADOE,DoD-ELAP
Butyl Diphenyl Phosphate	WADOE,DoD-ELAP
Dibutyl Phenyl Phosphate	WADOE,DoD-ELAP
Tributyl Phosphate	WADOE,DoD-ELAP
Butylated Hydroxytoluene	WADOE,DoD-ELAP
Tetrachloroguaiacol	WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	WADOE
3,4,6-Trichloroguaiacol	WADOE
4,5,6-Trichloroguaiacol	WADOE
Guaiacol	WADOE
1,2,4,5-Tetrachlorobenzene	WADOE

**EPA 8270E-SIM in Water**

Naphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
Biphenyl	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthene	DoD-ELAP
Dibenzofuran	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
Fluorene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Phenanthrene	DoD-ELAP
Anthracene	DoD-ELAP
Carbazole	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
Fluoranthene	DoD-ELAP
Pyrene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Chrysene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP



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Reported:  
24-Oct-2023 09:34

Benzofluoranthenes, Total	DoD-ELAP
Benzo(e)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Perylene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(b)thiophene	DoD-ELAP

**NWTPH-Dx in Water**

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

**NWTPHg in Water**

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: 0021043.000.010.011 Project Manager: Christine Kimmel	<b>Reported:</b> 24-Oct-2023 09:34
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Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024



Landau Associates, Inc.  
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Reported:  
24-Oct-2023 09:34

### Notes and Definitions

- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
- M Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
- J Estimated concentration value detected below the reporting limit.
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- D1 Surrogate was not detected due to sample extract dilution
- D The reported value is from a dilution
- \* Flagged value is not within established control limits.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.



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

05 September 2023

Christine Kimmel  
Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds, WA 98020

RE: Cascade Pole

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

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

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

Associated Work Order(s)  
22I0247

Associated SDG ID(s)  
N/A

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

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

Analytical Resources, LLC

Kelly Bottem, Client Services Manager

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



AR: 22I0247



# Chain-of-Custody Record

North Seattle (206) 631-8660  
 Tacoma (253) 926-2493  
 Olympia (360) 791-3178

Spokane (509) 327-9737  
 Portland (503) 542-1080

Date 9/15/22  
 Page 1 of 1

Turnaround Time:  
 Standard  
 Accelerated

Project Name Port of Olympia Project No. 0071041.010.020  
 Project Location/Event Cascade Pole / Dry season  
 Sampler's Name SMR/SJL  
 Project Contact Sierra Mott, Chris Kimmel  
 Send Results To S. Mott, data@landauinc.com, D. Baehr

Testing Parameters						
NWTPH - Gx	NWTPH - Dx + Ceramic	PAMS	CPAMS Sim	PCP 8270	PCP 8041	

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

Sample I.D.	Date	Time	Matrix	No. of Containers	NWTPH - Gx	NWTPH - Dx + Ceramic	PAMS	CPAMS Sim	PCP 8270	PCP 8041	Observations/Comments
Trip blank - 20220915	9/15		AU	2	X						
CW-13-20220910	9/10/22	932		10	X	X	X	X	X	X	Allow water samples to settle, collect aliquot from clear portion <input type="checkbox"/> NWTPH-Dx - Acid wash cleanup <input checked="" type="checkbox"/> - Silica gel cleanup <input checked="" type="checkbox"/> Dissolved metal samples were field filtered
MW-01D-20220910	9/10/22	808			X	X	X	X	X	X	
MW-01S-20220910	9/10/22	809			X	X	X	X	X	X	
MW-05D-20220915	9/15/22	956			X	X	X	X	X	X	
MW-05S-20220915	9/15/22	1000			X	X	X	X	X	X	
MW-02D-20220915	9/15/22	1433			X	X	X	X	X	X	
MW-02S-20220915	9/15/22	1424			X	X	X	X	X	X	
LW-3-20220915	9/15/22	1101			X	X	X	X	X	X	
LW-4R-20220915	9/15/22	1203			X	X	X	X	X	X	
PZ-12-20220915	9/15/22	1307		9	X	X	X	X	X	X	
PZ-13-20220915	9/15/22	1308			X	X	X	X	X	X	
PZ-17-20220915	9/15/22	1112			X	X	X	X	X	X	
PZ-18-20220915	9/15/22	1200			X	X	X	X	X	X	
PZ-19-20220910	9/10/22	929			X	X	X	X	X	X	
<del>PZ-30-202209</del>					X	X	X	X	X	X	Other: <input checked="" type="checkbox"/> Run all samples for PCP using 8270. IF results ND, then run PCP by 8041. <input checked="" type="checkbox"/> HCl pres <del>Gx</del> NO HCl pres <b><u>DANGER</u></b>
PZ-30-20220910	9/10/22	811	AQ	10	X	X	X	X	X	X	

Relinquished by  
 Signature SMR  
 Printed Name Simone Rodriguez  
 Company Landau Associates  
 Date 9/16/22 Time 12:19

Received by  
 Signature Phillip Bates  
 Printed Name Phillip Bates  
 Company AR  
 Date 9/16/22 Time 12:16

Relinquished by  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_

Received by  
 Signature \_\_\_\_\_  
 Printed Name \_\_\_\_\_  
 Company \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
05-Sep-2023 12:20

**ANALYTICAL REPORT FOR SAMPLES**

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Tripblank-20220915	22I0247-01	Water	15-Sep-2022 00:00	16-Sep-2022 12:28
CW-13-20220916	22I0247-02	Water	16-Sep-2022 09:32	16-Sep-2022 12:28
MW-01D-20220916	22I0247-03	Water	16-Sep-2022 08:08	16-Sep-2022 12:28
MW-01S-20220916	22I0247-04	Water	16-Sep-2022 08:09	16-Sep-2022 12:28
MW-05D-20220915	22I0247-05	Water	15-Sep-2022 09:56	16-Sep-2022 12:28
MW-05S-20220915	22I0247-06	Water	15-Sep-2022 10:00	16-Sep-2022 12:28
MW-02D-20220915	22I0247-07	Water	15-Sep-2022 14:33	16-Sep-2022 12:28
MW-02S-20220915	22I0247-08	Water	15-Sep-2022 14:24	16-Sep-2022 12:28
LW-3-20220915	22I0247-09	Water	15-Sep-2022 11:01	16-Sep-2022 12:28
LW-4R-20220915	22I0247-10	Water	15-Sep-2022 12:03	16-Sep-2022 12:28
PZ-12-20220915	22I0247-11	Water	15-Sep-2022 13:07	16-Sep-2022 12:28
PZ-13-20220915	22I0247-12	Water	15-Sep-2022 13:08	16-Sep-2022 12:28
PZ-17-20220915	22I0247-13	Water	15-Sep-2022 11:12	16-Sep-2022 12:28
PZ-18-20220915	22I0247-14	Water	15-Sep-2022 12:00	16-Sep-2022 12:28
PZ-19-20220916	22I0247-15	Water	16-Sep-2022 09:29	16-Sep-2022 12:28
PZ-30-20220916	22I0247-16	Water	16-Sep-2022 08:11	16-Sep-2022 12:28



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

## Case Narrative

### Pentachlorophenol - EPA Method SW8041A

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

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

The method blank(s) contained pentachlorophenol. Associated samples that contain pentachlorophenol have been flagged with a "B" qualifier.

The blank spike (BS/LCS) percent recoveries were within control limits.

### Polynuclear Aromatic Hydrocarbons (PAH) - EPA Method SW8270E-SIM

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits with the exception of surrogates flagged on the associated forms.

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

The blank spike (BS/LCS) percent recoveries were within control limits with the exception of analytes flagged on the associated forms which are out of control high. Associated samples are non-detect.

### Semivolatiles - EPA Method SW8270E

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

The blank spike (BS/LCS) percent recoveries were within control limits.





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**Gasoline by NWTPH-g (GC/MS)**

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

Initial and continuing calibrations were within method requirements.

Internal standard areas were within limits.

The surrogate percent recoveries were within control limits.

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

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

Sample 22I0247-16 VOCs vial A has a large naphthalene peak resulting in an overrange quantitation . The analyst re-analyzed from the second vial provided and the original analysis and re-analysis values did not match. The client was notified that all VOCs vials were consumed and AR LLC was instructed to report only the original analysis with an overrange value .

**Diesel/Heavy Oil Range Organics - WA-Ecology Method NW-TPHDx**

The sample(s) were extracted and analyzed outside the recommended holding times. The method blank contained contamination and the original analysis was no reportable. The client was notified and only the re-analysis data will be reported. Samples have been flagged with a "H" qualifer.

Initial and continuing calibrations were within method requirements.

The surrogate percent recoveries were within control limits.

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

The blank spike (BS/LCS) percent recoveries were within control limits.



**WORK ORDER**

**22I0247**

Samples will be discarded 90 days after submission of a final report unless other instructions are received

<b>Client:</b> Landau Associates, Inc.	<b>Project Manager:</b> Kelly Bottem
<b>Project:</b> Cascade Pole	<b>Project Number:</b> Cascade Pole

<b>Report To:</b> Landau Associates, Inc. Christine Kimmel 130 2nd Avenue S. Edmonds, WA 98020 Phone: 425-778-0907 Fax: -	<b>Invoice To:</b> Port of Olympia Don Bache 606 Columbia St NW, Suite 300 Olympia, WA 98501 Phone :360-786-8570 Fax: -
---	---

Date Due: 30-Sep-2022 18:00 (10 day TAT)	Date Received: 16-Sep-2022 12:28
Received By: Phillip Bates	Date Logged In: 16-Sep-2022 13:52
Logged In By: Phillip Bates	

Samples Received at: 5°C	
Intact, properly signed and dated custody seals attached to outside of cooler(s).....No	Custody papers included with the cooler..... Yes
Custody papers properly filled out (in, signed, analyses requested, etc).....Yes	Was a temperature blank included in the cooler..... No
Was sufficient ice used (if appropriate).....Yes	All bottles sealed in individual plastic bags..... No
All bottles arrived in good condition (unbroken).....Yes	All bottle labels complete and legible..... Yes
Number of containers listed on COC match number received.....No	Bottle labels and tags agree with COC..... Yes
Correct bottles used for the requested analyses.....Yes	All VOC vials free of air bubbles..... Yes
Analyses/bottles require preservation (attach preservation sheet excluding VOC).....No	Sufficient amount of sample sent in each bottle..... Yes
Sample split at ARI.....No	

Analysis	Due	TAT	Expires	Comments
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**WORK ORDER**

**2210247**

Samples will be discarded 90 days after submission of a final report unless other instructions are received

Client: Landau Associates, Inc.

Project Manager: Kelly Bottem

Project: Cascade Pole

Project Number: Cascade Pole

Analysis	Due	TAT	Expires	Comments
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**2210247-01 Tripblank-20220915 [Water] Sampled 15-Sep-2022 00:00 (GMT-08:00) Pacific Time (US & Canada)**

A = VOA Vial, Clear, 40 mL, HCL    B = VOA Vial, Clear, 40 mL, HCL

8260D Gas (NWTPH)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Some samples may be hot.
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**2210247-02 CW-13-20220916 [Water] Sampled 16-Sep-2022 09:32 (GMT-08:00) Pacific Time (US & Canada)**

A = VOA Vial, Clear, 40 mL    B = VOA Vial, Clear, 40 mL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL  
E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL  
I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL

8041A Chlorinated Phenols	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPH)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 RfD.
TPH NW (Extractables) low level	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.

**2210247-03 MW-01D-20220916 [Water] Sampled 16-Sep-2022 08:08 (GMT-08:00) Pacific Time (US & Canada)**

A = VOA Vial, Clear, 40 mL    B = VOA Vial, Clear, 40 mL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL  
E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL  
I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL

8041A Chlorinated Phenols	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPH)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 RfD.
TPH NW (Extractables) low level	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.

**2210247-04 MW-01S-20220910 [Water] Sampled 16-Sep-2022 08:09 (GMT-08:00) Pacific Time (US & Canada)**

A = VOA Vial, Clear, 40 mL    B = VOA Vial, Clear, 40 mL    C = Glass NM, Amber, 500 mL    D = Glass NM, Amber, 500 mL  
E = Glass NM, Amber, 500 mL    F = Glass NM, Amber, 500 mL    G = Glass NM, Amber, 500 mL    H = Glass NM, Amber, 500 mL  
I = Glass NM, Amber, 500 mL    J = Glass NM, Amber, 500 mL

8041A Chlorinated Phenols	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPH)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 RfD.
TPH NW (Extractables) low level	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.



**WORK ORDER**

**22I0247**

Samples will be discarded 90 days after submission of a final report unless other instructions are received

**Client:** Landau Associates, Inc.

**Project Manager:** Kelly Bottem

**Project:** Cascade Pole

**Project Number:** Cascade Pole

Analysis	Due	TAT	Expires	Comments
<b>22I0247-08 MW-02S-20220915 [Water] Sampled 15-Sep-2022 14:24 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL</i>	<i>B = VOA Vial, Clear, 40 mL</i>	<i>C = Glass NM, Amber, 500 mL</i>	<i>D = Glass NM, Amber, 500 mL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
<i>I = Glass NM, Amber, 500 mL</i>	<i>J = Glass NM, Amber, 500 mL</i>			
8041A Chlorinated Phenols	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPII)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 Rf.
TPH NW (Extractables) low level	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>22I0247-09 LW-3-20220915 [Water] Sampled 15-Sep-2022 11:01 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL</i>	<i>B = VOA Vial, Clear, 40 mL</i>	<i>C = Glass NM, Amber, 500 mL</i>	<i>D = Glass NM, Amber, 500 mL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
<i>I = Glass NM, Amber, 500 mL</i>	<i>J = Glass NM, Amber, 500 mL</i>			
8041A Chlorinated Phenols	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPII)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 Rf.
TPH NW (Extractables) low level	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>22I0247-10 LW-4R-20220915 [Water] Sampled 15-Sep-2022 12:03 (GMT-08:00) Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL</i>	<i>B = VOA Vial, Clear, 40 mL</i>	<i>C = Glass NM, Amber, 500 mL</i>	<i>D = Glass NM, Amber, 500 mL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
<i>I = Glass NM, Amber, 500 mL</i>	<i>J = Glass NM, Amber, 500 mL</i>			
8041A Chlorinated Phenols	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPII)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 Rf.
TPH NW (Extractables) low level	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.



**WORK ORDER**

**22I0247**

Samples will be discarded 90 days after submission of a final report unless other instructions are received

**Client:** Landau Associates, Inc.

**Project Manager:** Kelly Bottem

**Project:** Cascade Pole

**Project Number:** Cascade Pole

Analysis	Due	TAT	Expires	Comments
<b>22I0247-11 PZ-12-20220915 [Water] Sampled 15-Sep-2022 13:07 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL</i>	<i>B = VOA Vial, Clear, 40 mL</i>	<i>C = Glass NM, Amber, 500 mL</i>	<i>D = Glass NM, Amber, 500 mL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
<i>I = Glass NM, Amber, 500 mL</i>	<i>J = Glass NM, Amber, 500 mL</i>			
8041A Chlorinated Phenols	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPII)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 Rf.
TPII NW (Extractables) low level	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>22I0247-12 PZ-13-20220915 [Water] Sampled 15-Sep-2022 13:08 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL</i>	<i>B = VOA Vial, Clear, 40 mL</i>	<i>C = Glass NM, Amber, 500 mL</i>	<i>D = Glass NM, Amber, 500 mL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
<i>I = Glass NM, Amber, 500 mL</i>	<i>J = Glass NM, Amber, 500 mL</i>			
8041A Chlorinated Phenols	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPII)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 Rf.
TPII NW (Extractables) low level	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>22I0247-13 PZ-17-20220915 [Water] Sampled 15-Sep-2022 11:12 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL</i>	<i>B = VOA Vial, Clear, 40 mL</i>	<i>C = Glass NM, Amber, 500 mL</i>	<i>D = Glass NM, Amber, 500 mL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
<i>I = Glass NM, Amber, 500 mL</i>	<i>J = Glass NM, Amber, 500 mL</i>			
8041A Chlorinated Phenols	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPII)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 Rf.
TPII NW (Extractables) low level	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.



**WORK ORDER**

**2210247**

Samples will be discarded 90 days after submission of a final report unless other instructions are received

**Client:** Landau Associates, Inc.

**Project Manager:** Kelly Bottem

**Project:** Cascade Pole

**Project Number:** Cascade Pole

Analysis	Due	TAT	Expires	Comments
<b>2210247-14 PZ-18-20220915 [Water] Sampled 15-Sep-2022 12:00 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL</i>	<i>B = VOA Vial, Clear, 40 mL</i>	<i>C = Glass NM, Amber, 500 mL</i>	<i>D = Glass NM, Amber, 500 mL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
<i>I = Glass NM, Amber, 500 mL</i>	<i>J = Glass NM, Amber, 500 mL</i>			
8041A Chlorinated Phenols	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPII)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	22-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 RFL.
TPII NW (Extractables) low level	30-Sep-2022 15:00	10	22-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>2210247-15 PZ-19-20220916 [Water] Sampled 16-Sep-2022 09:29 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL</i>	<i>B = VOA Vial, Clear, 40 mL</i>	<i>C = Glass NM, Amber, 500 mL</i>	<i>D = Glass NM, Amber, 500 mL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
<i>I = Glass NM, Amber, 500 mL</i>	<i>J = Glass NM, Amber, 500 mL</i>			
8041A Chlorinated Phenols	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPII)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 RFL.
TPII NW (Extractables) low level	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.
<b>2210247-16 PZ-30-20220916 [Water] Sampled 16-Sep-2022 08:11 (GMT-08:00)</b>				
<b>Pacific Time (US &amp; Canada)</b>				
<i>A = VOA Vial, Clear, 40 mL</i>	<i>B = VOA Vial, Clear, 40 mL</i>	<i>C = Glass NM, Amber, 500 mL</i>	<i>D = Glass NM, Amber, 500 mL</i>	
<i>E = Glass NM, Amber, 500 mL</i>	<i>F = Glass NM, Amber, 500 mL</i>	<i>G = Glass NM, Amber, 500 mL</i>	<i>H = Glass NM, Amber, 500 mL</i>	
<i>I = Glass NM, Amber, 500 mL</i>				
8041A Chlorinated Phenols	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Only run PCP if PCP 8270 is ND. Some samples may be hot.
8260D Gas (NWTPII)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Some samples may be hot.
8270E SVOC (1-20ug/L SepF)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	PAHs plus PCP. Try to run full strength except MW-01S.
8270E-SIM PAH (0.1ug/L or 5ug/kg)	30-Sep-2022 15:00	10	23-Sep-2022 23:59	MW-01S should be diluted - HOT sample. Meet 0.1 RFL.
TPII NW (Extractables) low level	30-Sep-2022 15:00	10	23-Sep-2022 23:59	Plus Creosote, Acid cleaned. Some samples may be hot.

Reviewed By \_\_\_\_\_

Date \_\_\_\_\_



# Cooler Receipt Form

ARI Client: Port of Olympia  
 COC No(s): \_\_\_\_\_ (NA)  
 Assigned ARI Job No: 22I024Z

Project Name: Cascade port  
 Delivered by: Fed-Ex UPS Courier Hand Delivered Other: \_\_\_\_\_  
 Tracking No: \_\_\_\_\_ (NA)

**Preliminary Examination Phase:**

Were in tact, properly signed and dated custody seals attached to the outside of the cooler? YES NO  
 Were custody papers included with the cooler? ..... YES NO  
 Were custody papers properly filled out (ink, signed, etc.) ..... YES NO  
 Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry)

Time 12:25 5.0 4.2 1.3 4.6 5.5  
 If cooler temperature is out of compliance fill out form 00070F Temp Gun ID#: Inepm01  
 Cooler Accepted by: Phillip Bates Date: 9/16/22 Time: 12:28

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

**Log-In Phase:**

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

Samples Logged by: Phillip Bates Date: 9/16/22 13:52 PB Time: 13:52 Labels checked by: \_\_\_\_\_

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

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

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

9 containers listed for PZ-12-20220915, received 10 and  
10 containers listed for PZ-30-20220916, received 9

By: Phillip Bates Date: 9/16/22



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
05-Sep-2023 12:20

**Tripblank-20220915**  
**2210247-01 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/15/2022 00:00  
Analyzed: 16-Sep-2022 16:27

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	93.6	%	



Data File: \\target\share\chend\nt3.1\20220916s.1b\309162214G.D

Date: 16-SEP-2022 16:27

Client ID:

Sample Info: 2210247-01

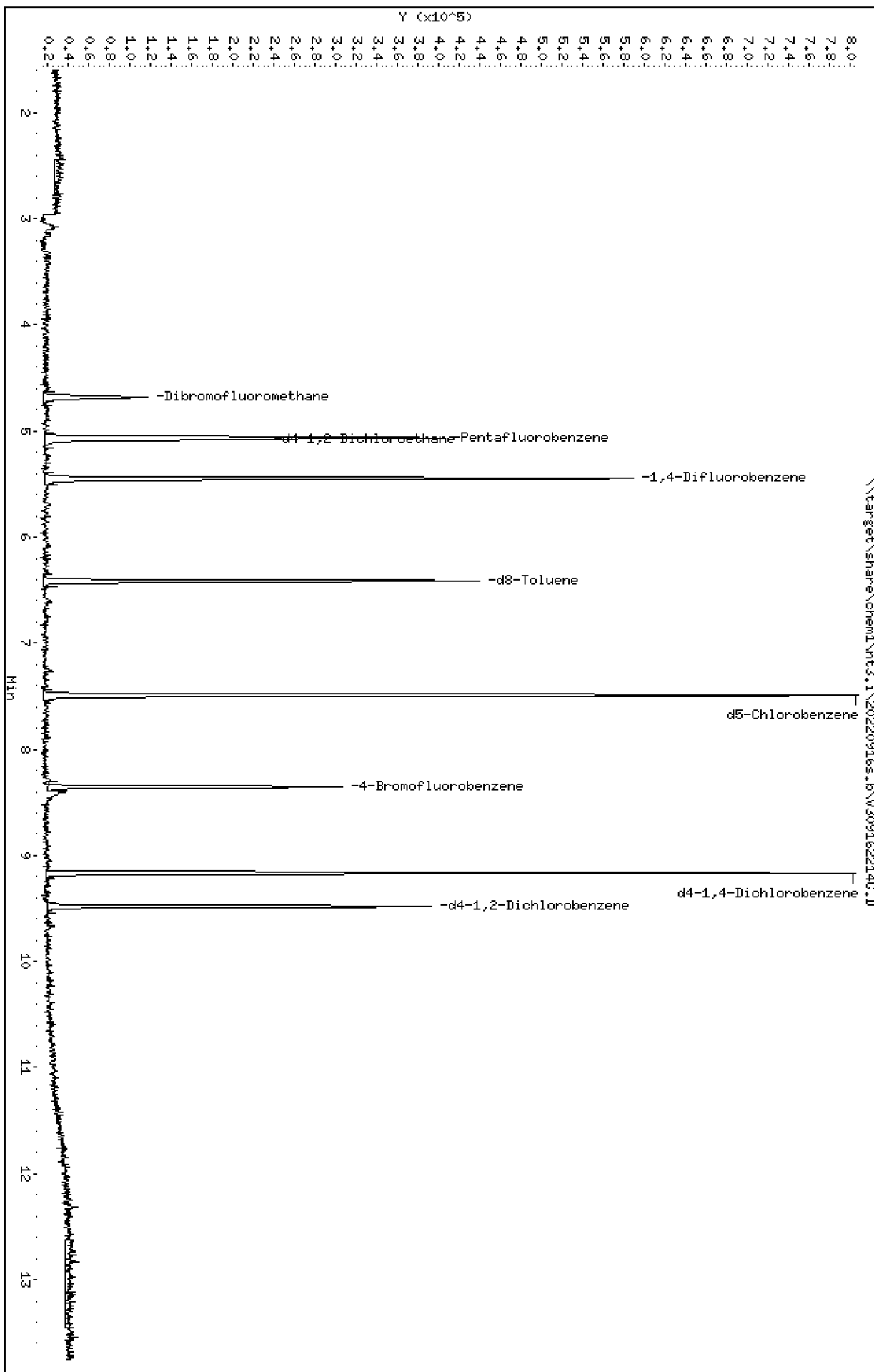
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162214G.D  
 Lab Smp Id: 22I0247-01  
 Inj Date : 16-SEP-2022 16:27  
 Operator : PKC  
 Smp Info : 22I0247-01  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i  
 Cal Date : 12-SEP-2022 13:39  
 Als bottle: 61  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309122211.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.679	4.675	(0.924)	57654	5.24372	5.244
* 32 Pentafluorobenzene	168		5.062	5.057	(1.000)	190352	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.078	5.084	(1.003)	32497	4.80391	4.804
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	355666	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	206301	4.89555	4.896
* 53 d5-Chlorobenzene	117		7.490	7.491	(1.000)	324197	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.356	8.357	(1.116)	55555	4.68225	4.682
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	160987	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.483	9.483	(1.035)	73611	4.99622	4.996

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162214G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-01  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	190352	-8.33
37 1,4-Difluorobenze	387680	193840	775360	355666	-8.26
53 d5-Chlorobenzene	359638	179819	719276	324197	-9.85
76 d4-1,4-Dichlorobe	189756	94878	379512	160987	-15.16

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.10
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	-0.01
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	-0.01
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 22I0247-01  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.244	104.87	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	4.804	96.08	80-128
\$ 43 d8-Toluene	5.000	4.896	97.91	80-120
\$ 62 4-Bromofluorobenze	5.000	4.682	93.64	80-120
\$ 79 d4-1,2-Dichloroben	5.000	4.996	99.92	80-120

REVIEW SUMMARY FOR FILE - V309162214G.D

Lab ID: 22I0247-01

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 16:27

RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chend\nt3.1\20220916g.b\309162214g.D

Date: 16-SEP-2022 16:27

Client ID:

Sample Info: 2210247-01

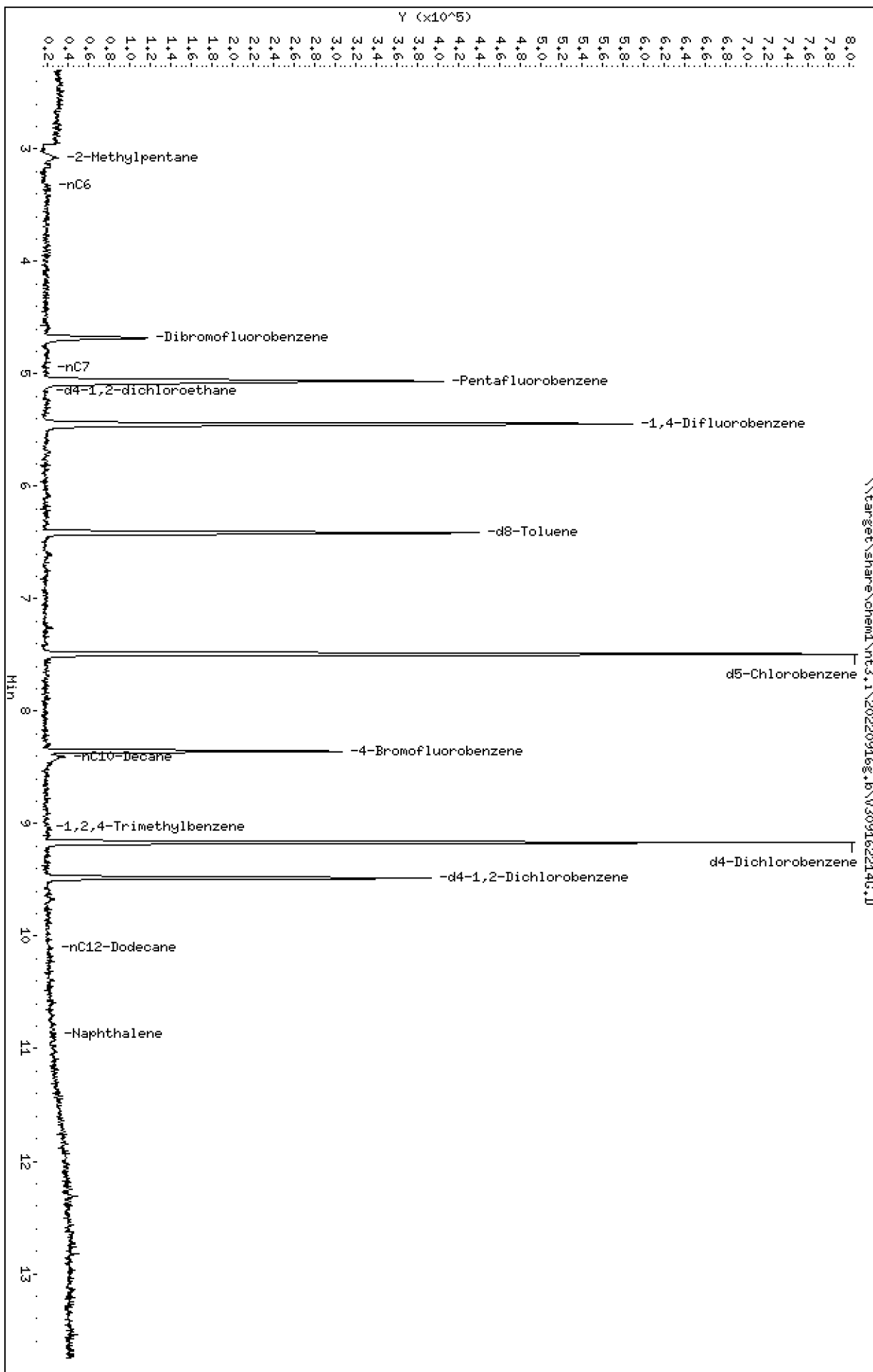
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162214G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 16:27

ARI ID: 22I0247-01  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	441190	0.010
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	825427	0.009
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	657603	0.009
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	539790	0.011
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	612093	0.008

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.491	1086669	d5-Chlorobenzene
6.412	588753	d8-Toluene
9.164	1026927	d4-Dichlorobenzene
8.357	368458	4-Bromofluorobenzene
9.483	488467	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**CW-13-20220916**  
**2210247-02 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 09/16/2022 09:32  
Analyzed: 07-Oct-2022 14:29

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	48.6	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	55.6	%	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**CW-13-20220916**  
**2210247-02 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E

Sampled: 09/16/2022 09:32

Instrument: NT6

Analyzed: 26-Sep-2022 11:41

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BK10381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	85.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	108	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	106	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**CW-13-20220916**  
**2210247-02 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/16/2022 09:32  
Analyzed: 26-Sep-2022 18:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	62.1	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	141	%	*



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**CW-13-20220916**  
**2210247-02 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/16/2022 09:32  
Instrument: NT3 Analyzed: 16-Sep-2022 16:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	96.1	%	

Data File: \\target\share\chend\nt3.1\20220916s.b\309162215G.D

Date: 16-SEP-2022 16:49

Client ID:

Sample Info: 2210247-02

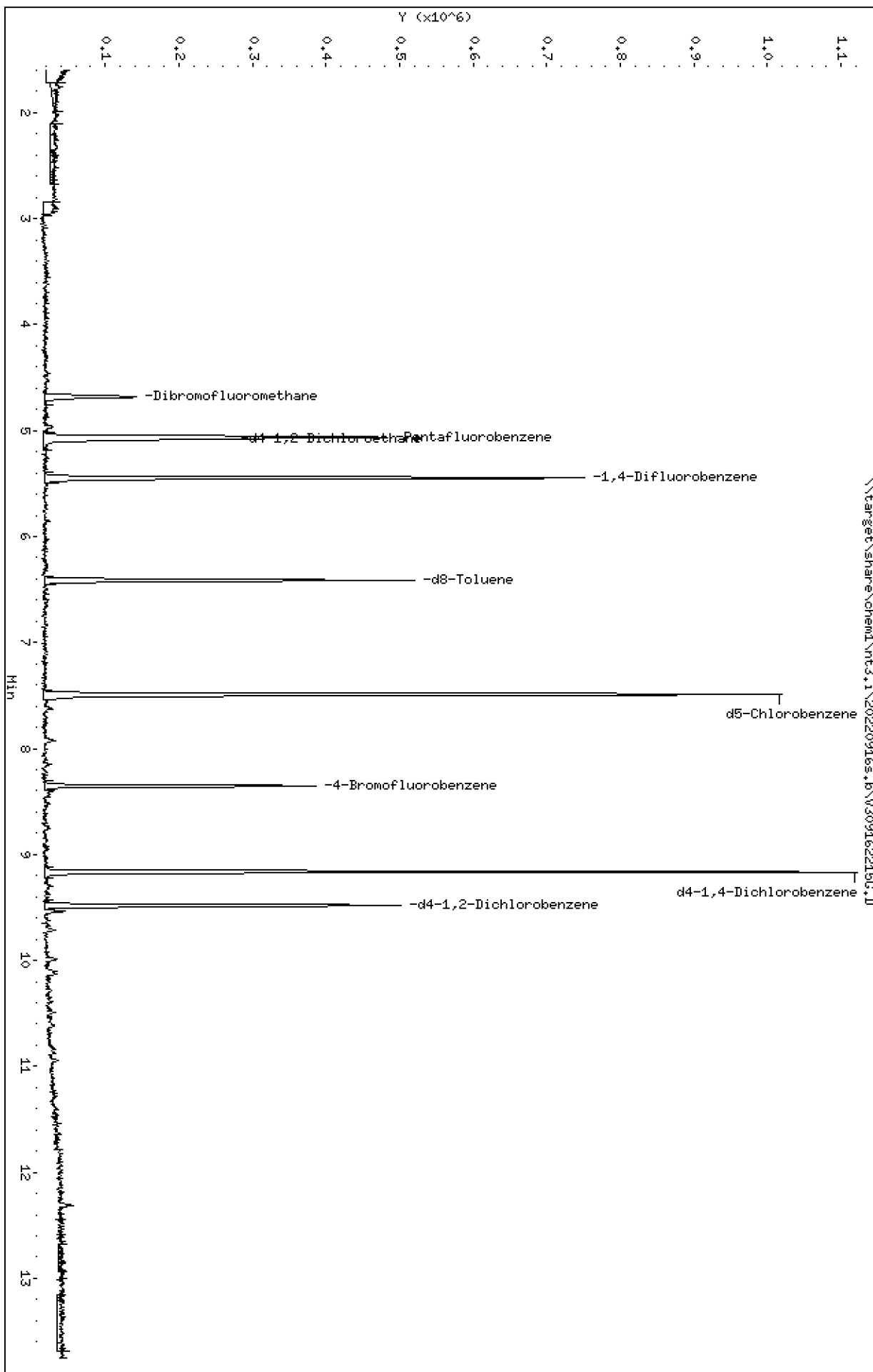
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162215G.D  
 Lab Smp Id: 22I0247-02  
 Inj Date : 16-SEP-2022 16:49  
 Operator : PKC  
 Smp Info : 22I0247-02  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i  
 Cal Date : 12-SEP-2022 13:39  
 Als bottle: 62  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309122211.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.681	4.675	(0.924)	70746	5.23032	5.230
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	234175	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.079	5.084	(1.003)	41439	4.97941	4.979
* 37 1,4-Difluorobenzene	114		5.446	5.445	(1.000)	436591	10.0000	
\$ 43 d8-Toluene	98		6.413	6.412	(1.178)	259872	5.02374	5.024
* 53 d5-Chlorobenzene	117		7.492	7.491	(1.000)	409138	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.358	8.357	(1.116)	71933	4.80395	4.804
* 76 d4-1,4-Dichlorobenzene	152		9.165	9.164	(1.000)	208597	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.484	9.483	(1.035)	98371	5.15286	5.153

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162215G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-02  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	234175	12.77
37 1,4-Difluorobenze	387680	193840	775360	436591	12.62
53 d5-Chlorobenzene	359638	179819	719276	409138	13.76
76 d4-1,4-Dichlorobe	189756	94878	379512	208597	9.93

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.12
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.02
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.01
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.17	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 22I0247-02  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.230	104.61	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	4.979	99.59	80-128
\$ 43 d8-Toluene	5.000	5.024	100.47	80-120
\$ 62 4-Bromofluorobenze	5.000	4.804	96.08	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.153	103.06	80-120

REVIEW SUMMARY FOR FILE - V309162215G.D

Lab ID: 22I0247-02

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 16:49

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162215G.D

Date: 16-SEP-2022 16:49

Client ID:

Sample Info: 2210247-02

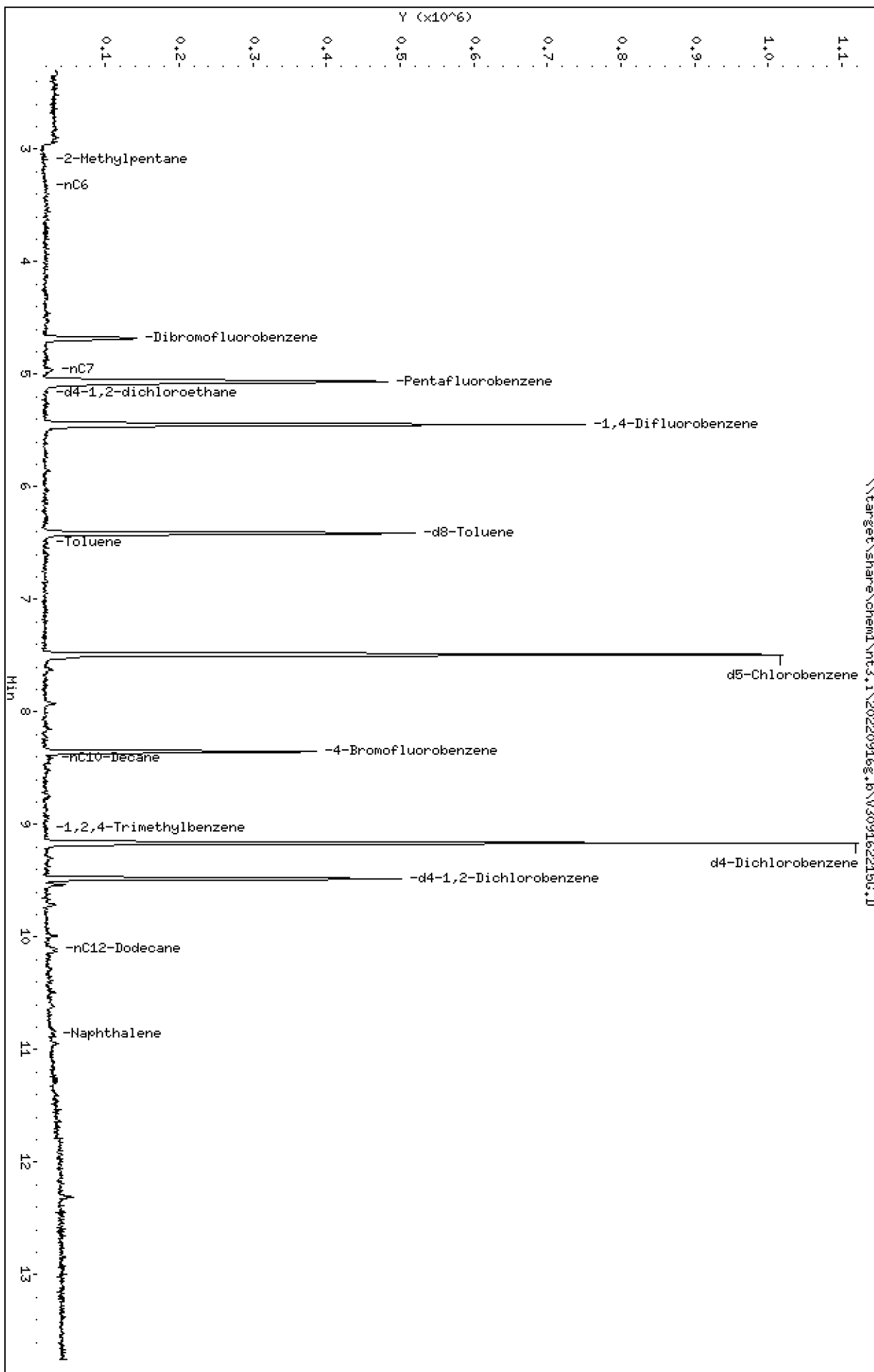
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

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Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162215G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 16:49

ARI ID: 22I0247-02  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	620493	0.014
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	740674	0.008
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	608987	0.008
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	767632	0.016
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	776292	0.010

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.492	1375508	d5-Chlorobenzene
6.413	735433	d8-Toluene
9.166	1359938	d4-Dichlorobenzene
8.353	482141	4-Bromofluorobenzene
9.479	661387	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**CW-13-20220916**  
**22I0247-02RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/16/2022 09:32  
Analyzed: 24-Oct-2022 19:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
<i>Surrogate: o-Terphenyl</i>			50-150 %	94.6	%	H

Data File: \\target\share\chem2\fid3b,1\20221024,8\32202435.D

Date: 24-OCT-2022 19:49

Client ID:

Sample Info: 2210247-02RE1

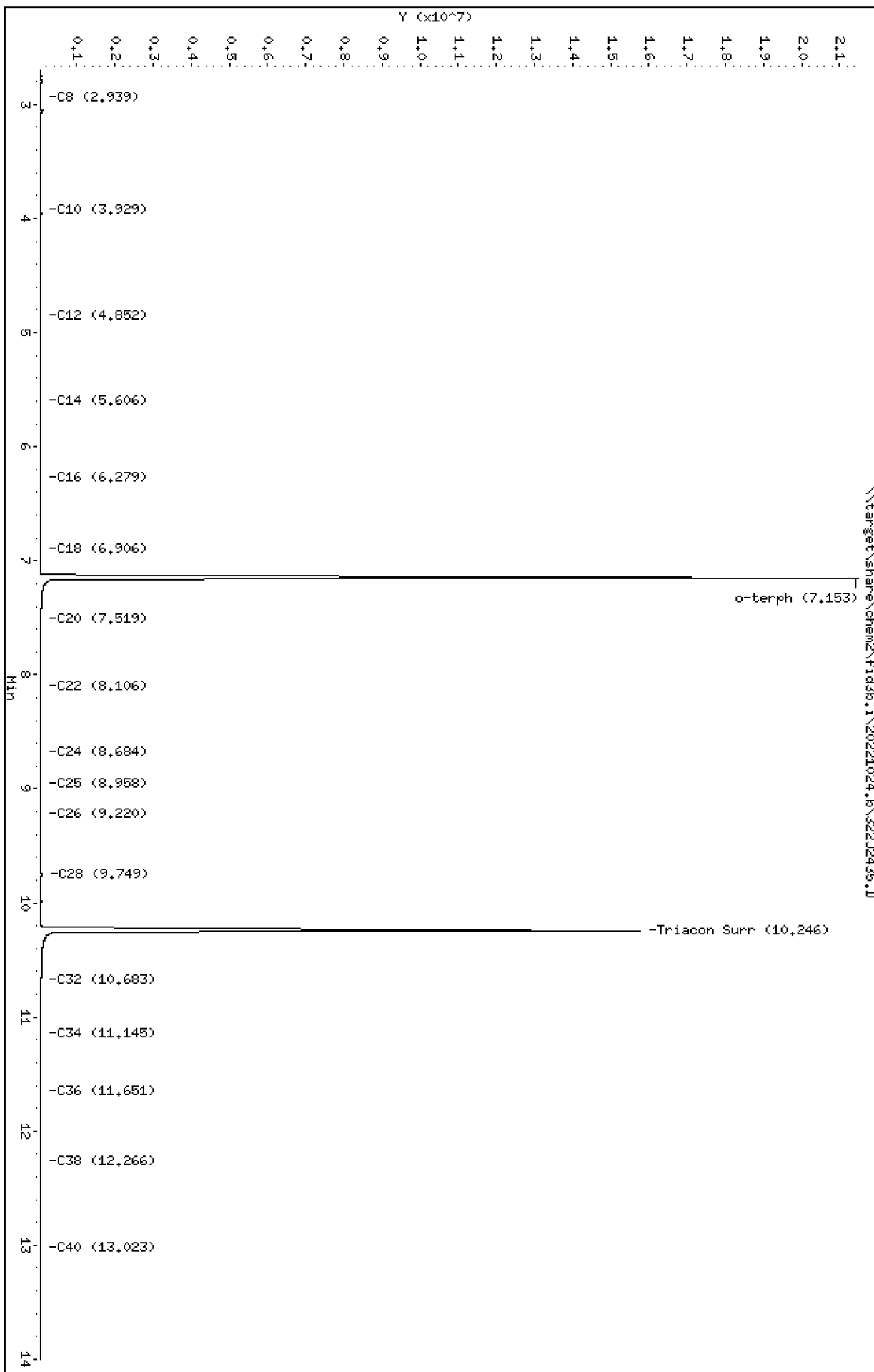
Column phase: RTX-1

Instrument: fid3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2435.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-02RE1  
Client ID:  
Injection: 24-OCT-2022 19:49  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.798	0.024	45712	73158	WATPHG	(Tol-C12)	475868	2.7
C8	2.939	0.011	7549	2617	WATPHD	(C12-C24)	660864	3.8
C10	3.929	-0.003	3887	5014	WATPHM	(C24-C38)	1865099	12.5
C12	4.852	0.002	448	320	AK102	(C10-C25)	813031	4.0
C14	5.606	-0.002	2411	593	AK103	(C25-C36)	1532871	16.1
C16	6.279	0.002	1977	481	OR.DIES	(C10-C28)	1157775	5.7
C18	6.906	-0.002	2430	2760				
C20	7.519	0.004	13121	2617				
C22	8.106	-0.002	3830	2986				
C24	8.684	0.004	3751	1629				
C25	8.958	0.002	4643	1382				
C26	9.220	-0.003	5087	2518				
C28	9.749	0.010	27496	69317	IT.DIES	(C10-C24)	774957	3.8
C32	10.683	0.002	16963	10890				
C34	11.145	0.003	11685	6985	CREOSOT	(C12-C22)	554398	22.4
Filter Peak	13.991	0.003	9475	5189				
C36	11.651	-0.003	11081	7176	BUNKERC	(C10-C38)	2640056	27.6
o-terph	7.153	0.003	21440226	25609104	JET-A	(C10-C18)	340993	1.6
Triacon Surr	10.246	-0.002	15725800	21415191				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

Surrogate	Area	Amount
o-Terphenyl	25609104	106.4
Triacontane	21415191	124.6

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-01D-20220916**  
**2210247-03 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/16/2022 08:08  
Instrument: ECD8 Analyzed: 07-Oct-2022 14:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	42.3	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	48.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-01D-20220916**  
**2210247-03 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/16/2022 08:08  
Analyzed: 26-Sep-2022 15:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381 Sample Size: 500 mL  
Prepared: 21-Sep-2022 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	1.9	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	71.3	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	82.4	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	88.1	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-01D-20220916**  
**2210247-03 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/16/2022 08:08  
Analyzed: 26-Sep-2022 19:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	56.1	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	93.4	%	





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**MW-01D-20220916**  
**2210247-03 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg Sampled: 09/16/2022 08:08  
Instrument: NT3 Analyzed: 16-Sep-2022 17:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	98.4	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	92.9	%	

Data File: \\target\share\chend\nt3.1\20220916s.16\309162216G.D

Date: 16-SEP-2022 17:11

Client ID:

Sample Info: 2210247-03

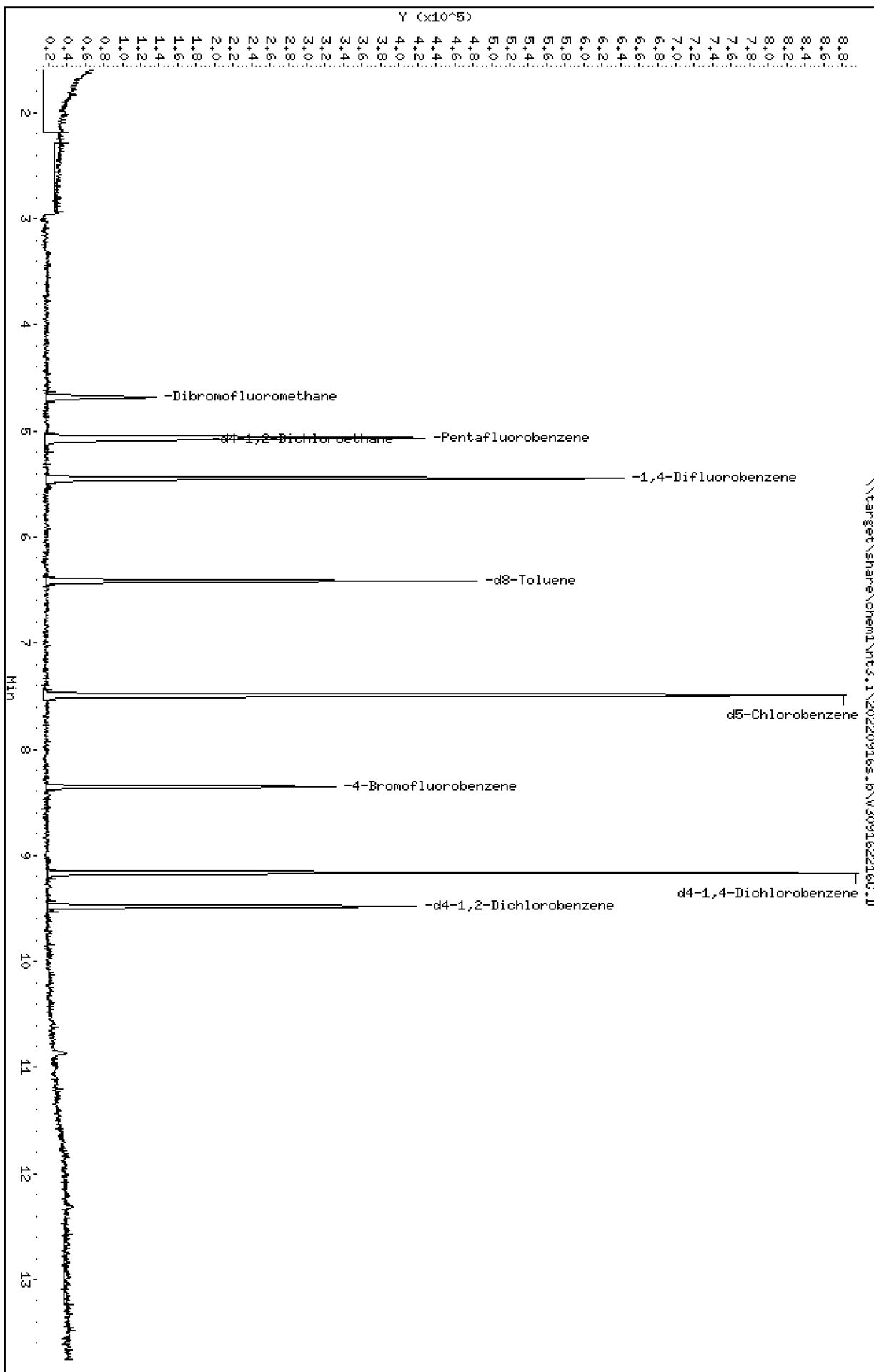
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162216G.D  
 Lab Smp Id: 22I0247-03  
 Inj Date : 16-SEP-2022 17:11  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 22I0247-03  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 63  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.681	4.675	(0.924)	61491	5.20914	5.209
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	204368	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.084	5.084	(1.004)	38385	5.28516	5.285
* 37 1,4-Difluorobenzene	114		5.446	5.445	(1.000)	378014	10.0000	
\$ 43 d8-Toluene	98		6.413	6.412	(1.178)	220466	4.92239	4.922
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	354248	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.357	8.357	(1.116)	60238	4.64626	4.646
* 76 d4-1,4-Dichlorobenzene	152		9.165	9.164	(1.000)	175243	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.484	9.483	(1.035)	78547	4.89755	4.898

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162216G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-03  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	204368	-1.58
37 1,4-Difluorobenze	387680	193840	775360	378014	-2.49
53 d5-Chlorobenzene	359638	179819	719276	354248	-1.50
76 d4-1,4-Dichlorobe	189756	94878	379512	175243	-7.65

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.12
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.01
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.01
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.17	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 22I0247-03  
 Level: LOW Operator: PKC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.209	104.18	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.285	105.70	80-128
\$ 43 d8-Toluene	5.000	4.922	98.45	80-120
\$ 62 4-Bromofluorobenze	5.000	4.646	92.93	80-120
\$ 79 d4-1,2-Dichloroben	5.000	4.898	97.95	80-120

REVIEW SUMMARY FOR FILE - V309162216G.D

Lab ID: 22I0247-03

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 17:11

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162216g.D

Date: 16-SEP-2022 17:11

Client ID:

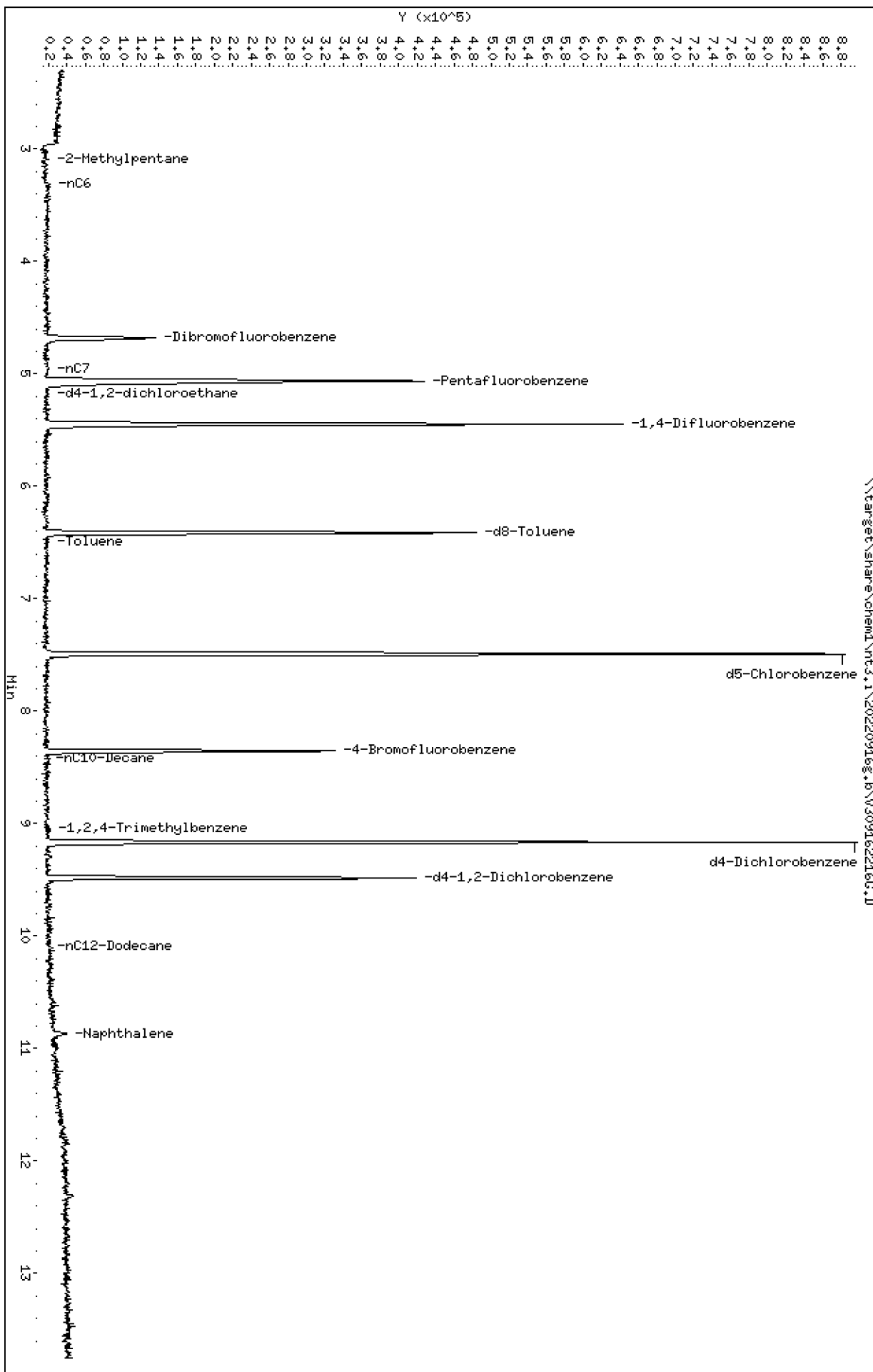
Sample Info: 2210247-03

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162216G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 17:11

ARI ID: 22I0247-03  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	387648	0.009
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	597336	0.007
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	494982	0.007
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	542065	0.011
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	512187	0.007

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.492	1151374	d5-Chlorobenzene
6.413	636661	d8-Toluene
9.166	1106784	d4-Dichlorobenzene
8.353	411718	4-Bromofluorobenzene
9.484	538983	d4-1,2-Dichlorobenzene





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-01D-20220916**  
**22I0247-03RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/16/2022 08:08  
Analyzed: 24-Oct-2022 20:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
<i>Surrogate: o-Terphenyl</i>			50-150 %	96.8	%	H

Data File: \\target\share\chem2\fid3b.1\20221024.8\32232436.D

Date: 24-OCT-2022 20:10

Client ID:

Sample Info: 2210247-03RE1

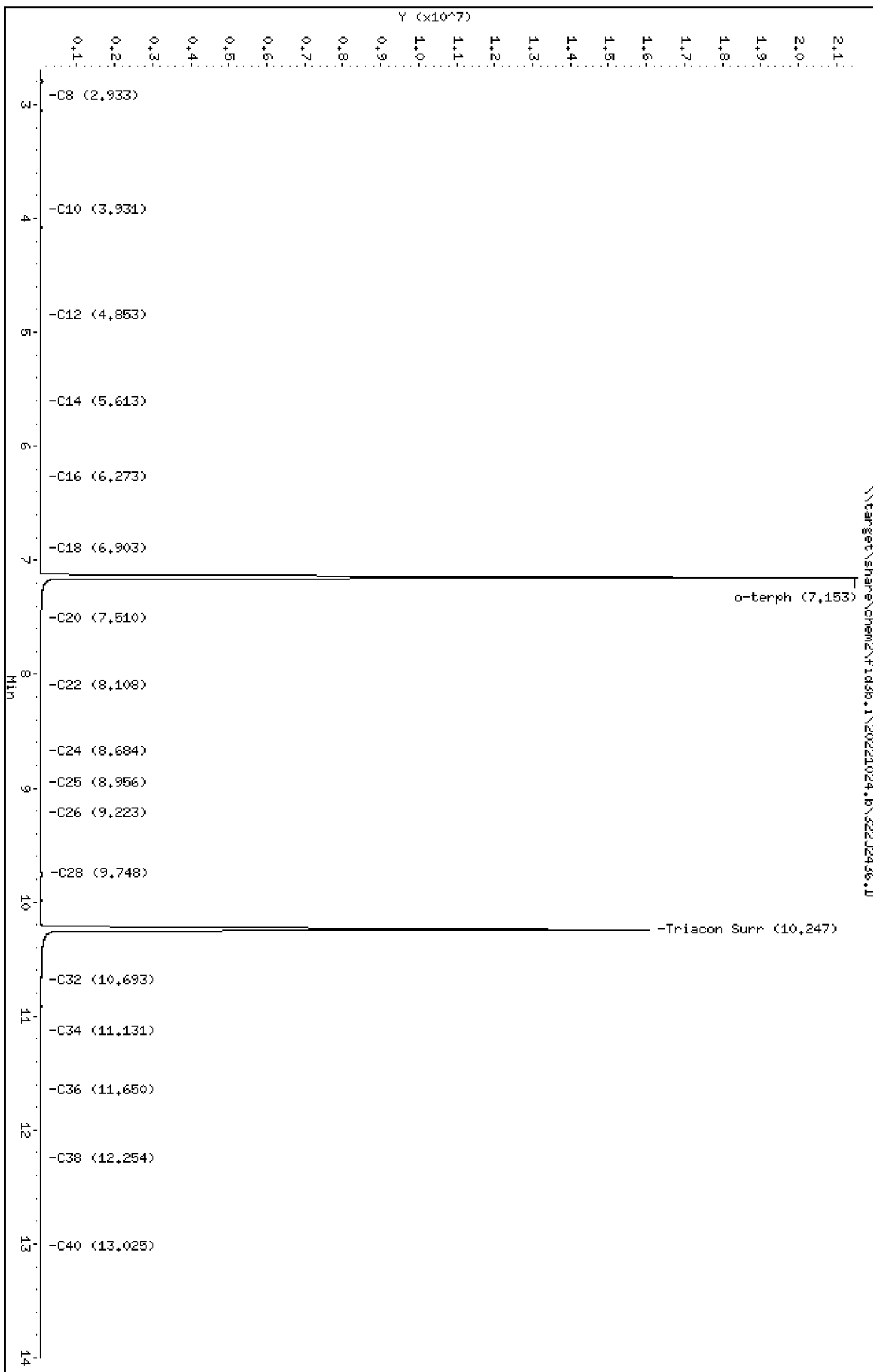
Column phase: RTX-1

Instrument: fid3b.1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2436.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-03RE1  
Client ID:  
Injection: 24-OCT-2022 20:10  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.760	-0.014	14555	16451	WATPHG	(Tol-C12)	490469	2.7
C8	2.933	0.005	8227	4890	WATPHD	(C12-C24)	952255	5.5
C10	3.931	-0.001	3119	1504	WATPHM	(C24-C38)	1904755	12.8
C12	4.853	0.004	433	184	AK102	(C10-C25)	1122892	5.5
C14	5.613	0.004	2850	2202	AK103	(C25-C36)	1525272	16.1
C16	6.273	-0.005	2728	1207	OR.DIES	(C10-C28)	1492353	7.3
C18	6.903	-0.005	3294	3100				
C20	7.510	-0.005	14876	12336				
C22	8.108	0.000	4672	1625				
C24	8.684	0.004	3759	1845				
C25	8.956	0.000	5455	2162				
C26	9.223	0.000	4996	1237				
C28	9.748	0.009	30406	32755	IT.DIES	(C10-C24)	1082128	5.3
C32	10.693	0.012	17229	17806				
C34	11.131	-0.011	12284	20454	CREOSOT	(C12-C22)	837124	33.8
Filter Peak	13.985	-0.002	10053	5520				
C36	11.650	-0.004	11366	3962	BUNKERC	(C10-C38)	2986883	31.2
o-terph	7.153	0.004	21501665	26213689	JET-A	(C10-C18)	424218	2.0
Triacon Surr	10.247	-0.001	16034594	22080381				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

Surrogate	Area	Amount
o-Terphenyl	26213689	108.9
Triacontane	22080381	128.5

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-01S-20220916**  
**2210247-04 (Water)**

**Semivolatiles Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/16/2022 08:09  
Analyzed: 23-Sep-2022 16:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BK10381 Sample Size: 500 mL  
Prepared: 21-Sep-2022 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	3.0	1890	ug/L	D, E
Acenaphthylene	208-96-8	3	3.0	3.5	ug/L	D
Acenaphthene	83-32-9	3	3.0	208	ug/L	D
2-Methylnaphthalene	91-57-6	3	3.0	277	ug/L	D, E
Dibenzofuran	132-64-9	3	3.0	72.5	ug/L	D
Fluorene	86-73-7	3	3.0	63.4	ug/L	D
Pentachlorophenol	87-86-5	3	30.0	918	ug/L	D, E
Phenanthrene	85-01-8	3	3.0	73.5	ug/L	D
Anthracene	120-12-7	3	3.0	11.2	ug/L	D
Carbazole	86-74-8	3	3.0	29.8	ug/L	D
Fluoranthene	206-44-0	3	3.0	10.9	ug/L	D
Pyrene	129-00-0	3	3.0	7.2	ug/L	D
Benzo(a)anthracene	56-55-3	3	3.0	ND	ug/L	U
Chrysene	218-01-9	3	3.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	3	3.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	3	3.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	3	3.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	3	3.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	3	3.0	186	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>				54.4-120 %	85.2 %	
<i>Surrogate: 2,4,6-Tribromophenol</i>				49.3-128 %	99.4 %	
<i>Surrogate: p-Terphenyl-d14</i>				60-120 %	82.1 %	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-01S-20220916**  
**2210247-04 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/16/2022 08:09  
Analyzed: 26-Sep-2022 17:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	300	30.0	ND	ug/L	U
Chrysene	218-01-9	300	30.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		300	60.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	300	30.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	300	30.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	300	30.0	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %		D1	D1
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %		D1	D1



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-01S-20220916**  
**2210247-04 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 09/16/2022 08:09  
Analyzed: 16-Sep-2022 17:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 0.4 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	2500	<b>33100</b>	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	100	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	94.2	%	

Data File: \\target\share\chend\nt3.1\20220916s.1b\309162217G.D

Date: 16-SEP-2022 17:36

Client ID:

Sample Info: 2210247-04,25X

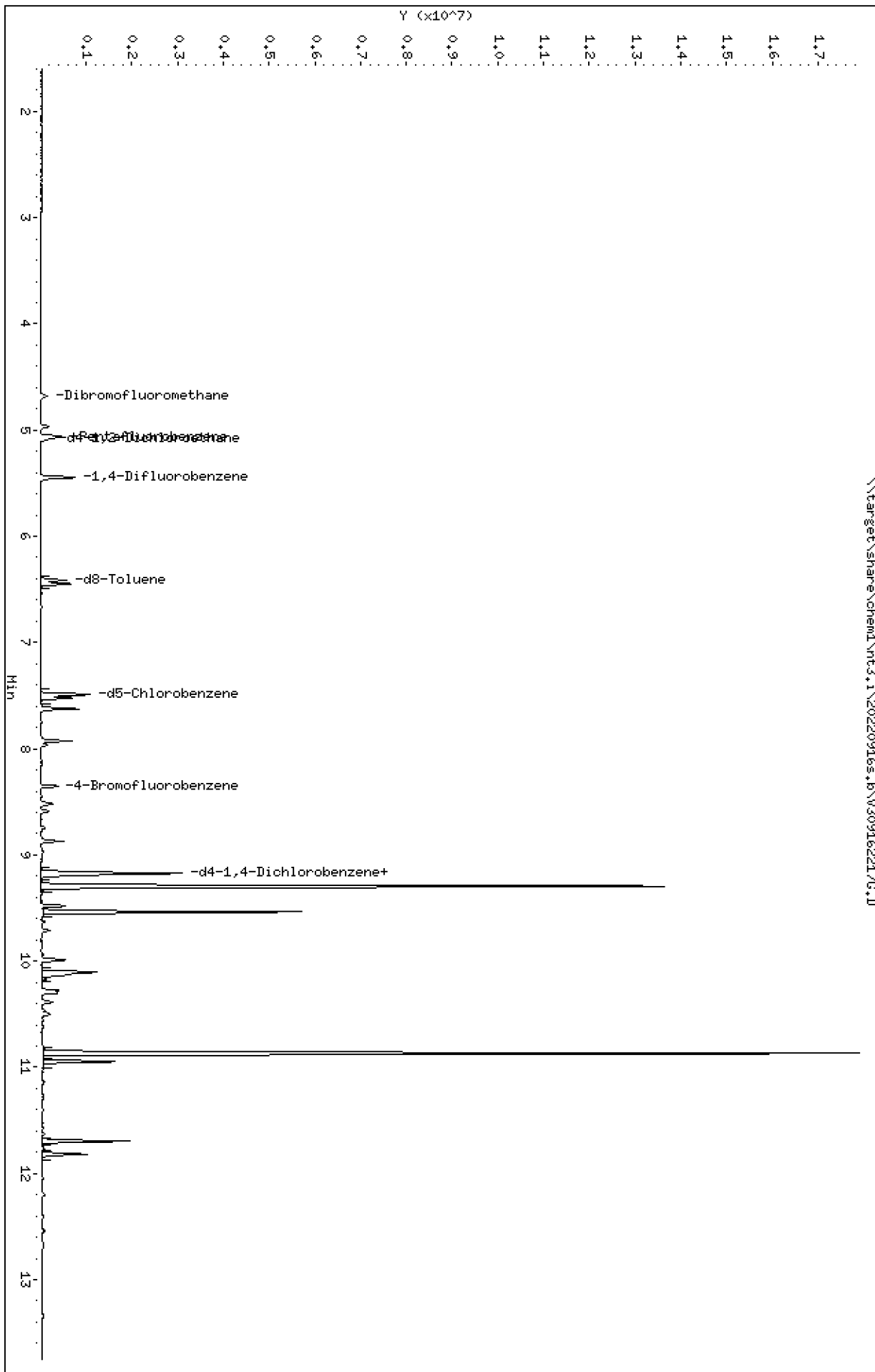
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20220916s.1b\309162217G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162217G.D  
 Lab Smp Id: 22I0247-04  
 Inj Date : 16-SEP-2022 17:36  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 22I0247-04,25X  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 64  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	25.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.680	4.675	(0.924)	72029	5.16152	12.904
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	241600	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.084	5.084	(1.004)	45964	5.35340	13.384
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	457773	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	272319	5.02077	12.552
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	426104	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.357	8.357	(1.116)	73452	4.71008	11.775
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	220883	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.164	9.483	(1.000)	219001	10.8336	27.084 (R)

QC Flag Legend

R - Spike/Surrogate failed recovery limits.



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162217G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-04  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	207659	103830	415318	241600	16.34
37 1,4-Difluorobenze	387680	193840	775360	457773	18.08
53 d5-Chlorobenzene	359638	179819	719276	426104	18.48
76 d4-1,4-Dichlorobe	189756	94878	379512	220883	16.40

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	5.06	4.56	5.56	5.06	0.11
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.00
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.00
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 22I0247-04  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.162	103.23	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.353	107.07	80-128
\$ 43 d8-Toluene	5.000	5.021	100.42	80-120
\$ 62 4-Bromofluorobenze	5.000	4.710	94.20	80-120
\$ 79 d4-1,2-Dichloroben	5.000	10.834	216.67*	80-120

REVIEW SUMMARY FOR FILE - V309162217G.D

Lab ID: 22I0247-04

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 17:36

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\W309162217G.D

Date: 16-SEP-2022 17:36

Client ID:

Sample Info: 2210247-04,25X

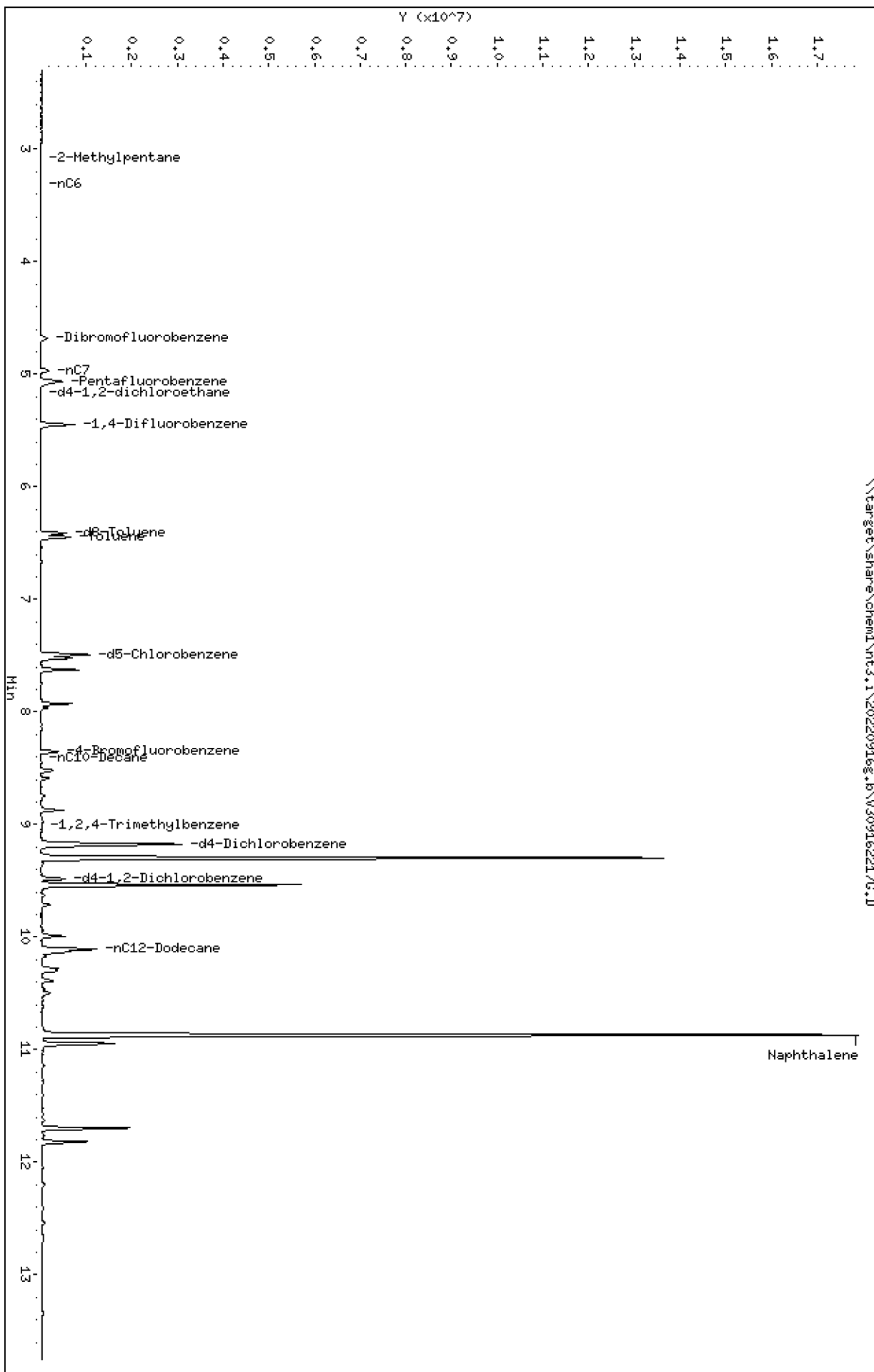
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

\\target\share\chend\nt3.1\20220916g.b\W309162217G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162217G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 17:36

ARI ID: 22I0247-04  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	34905153	0.769
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	6563698	0.072
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	4855003	0.067
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	63706441	1.324
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	35335174	0.476

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.491	1387593	d5-Chlorobenzene
6.413	715007	d8-Toluene
9.176	5042944	d4-Dichlorobenzene
8.352	503351	4-Bromofluorobenzene
9.484	691462	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-01S-20220916**  
**22I0247-04RE1 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/16/2022 08:09  
Analyzed: 26-Sep-2022 12:48

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	50	50.0	5510	ug/L	D, E
Acenaphthylene	208-96-8	50	50.0	ND	ug/L	U
Acenaphthene	83-32-9	50	50.0	255	ug/L	D
2-Methylnaphthalene	91-57-6	50	50.0	437	ug/L	D
Dibenzofuran	132-64-9	50	50.0	88.9	ug/L	D
Fluorene	86-73-7	50	50.0	84.5	ug/L	D
Pentachlorophenol	87-86-5	50	500	1400	ug/L	D
Phenanthrene	85-01-8	50	50.0	97.6	ug/L	D
Anthracene	120-12-7	50	50.0	ND	ug/L	U
Carbazole	86-74-8	50	50.0	ND	ug/L	U
Fluoranthene	206-44-0	50	50.0	ND	ug/L	U
Pyrene	129-00-0	50	50.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	50	50.0	ND	ug/L	U
Chrysene	218-01-9	50	50.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	50	50.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	50	50.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	50	50.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	50	50.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	50	50.0	292	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	110	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	94.1	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	119	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-01S-20220916**  
**22I0247-04RE2 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/16/2022 08:09  
Analyzed: 26-Sep-2022 13:56

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	100	100	5810	ug/L	D
Acenaphthylene	208-96-8	100	100	ND	ug/L	U
Acenaphthene	83-32-9	100	100	258	ug/L	D
2-Methylnaphthalene	91-57-6	100	100	455	ug/L	D
Dibenzofuran	132-64-9	100	100	ND	ug/L	U
Fluorene	86-73-7	100	100	ND	ug/L	U
Pentachlorophenol	87-86-5	100	1000	1380	ug/L	D
Phenanthrene	85-01-8	100	100	102	ug/L	D
Anthracene	120-12-7	100	100	ND	ug/L	U
Carbazole	86-74-8	100	100	ND	ug/L	U
Fluoranthene	206-44-0	100	100	ND	ug/L	U
Pyrene	129-00-0	100	100	ND	ug/L	U
Benzo(a)anthracene	56-55-3	100	100	ND	ug/L	U
Chrysene	218-01-9	100	100	ND	ug/L	U
Benzo(a)pyrene	50-32-8	100	100	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	100	100	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	100	100	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	100	100	ND	ug/L	U
1-Methylnaphthalene	90-12-0	100	100	318	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	119	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	77.5	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	118	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-01S-20220916**  
**22I0247-04RE2 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/16/2022 08:09  
Analyzed: 24-Oct-2022 20:31

**Analysis by: Analytical Resources, LLC**

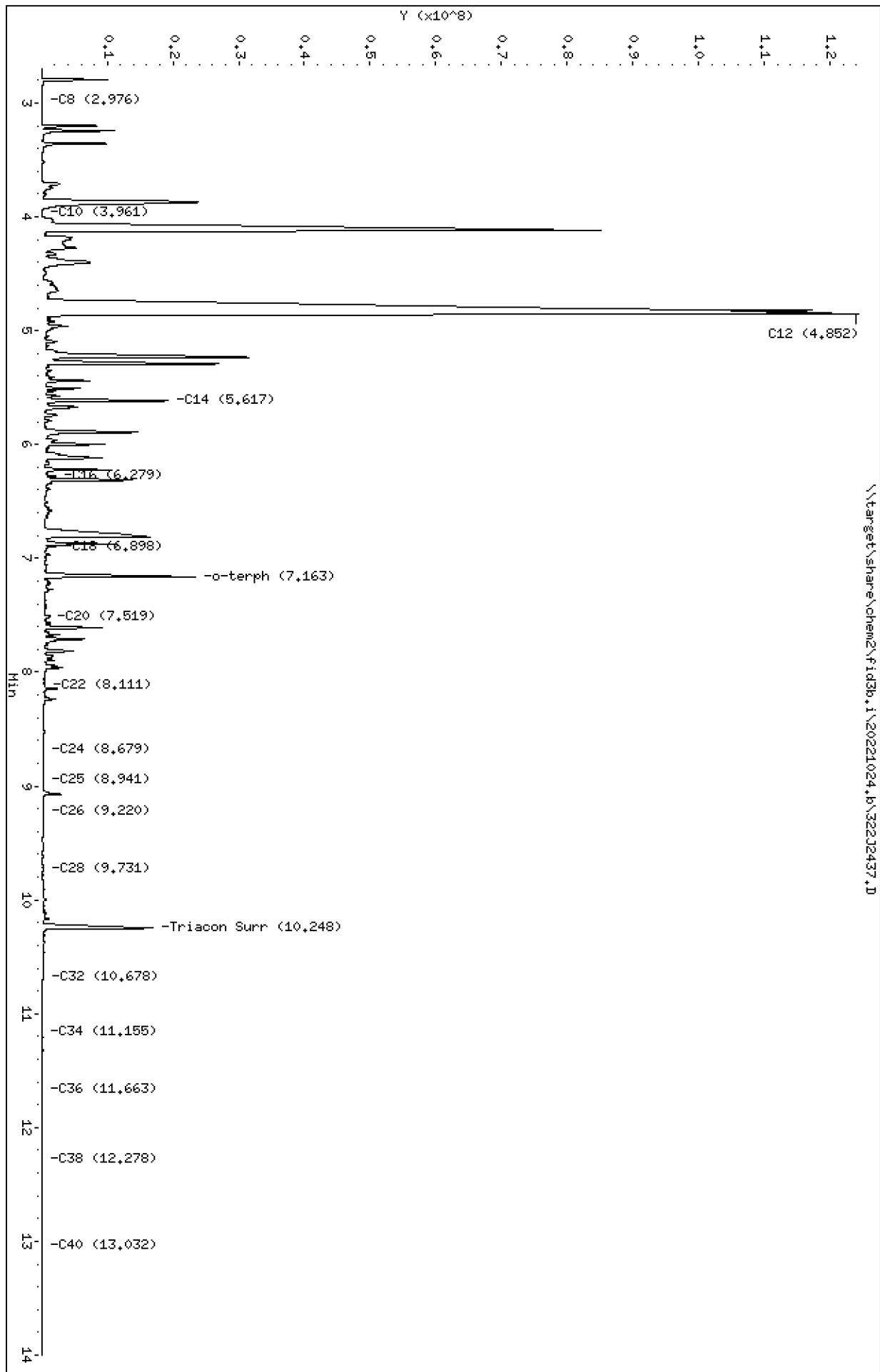
Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	<b>4740</b>	ug/L	H
Motor Oil Range Organics (C24-C38)	RRO	1	200	<b>381</b>	ug/L	H
HC ID: RRO						
Creosote Range Organics (C12-C22)	8001-58-9	1	200	<b>32100</b>	ug/L	H, E
HC ID: CREOSOTE						
Surrogate: o-Terphenyl			50-150 %	106	%	H



Data File: \\target\share\chem2\FID3b,1\20221024,8\32202437.D  
Date: 24-OCT-2022 20:31  
Client ID:  
Sample Info: 2210247-04RE2  
Column phase: RTX-1

Instrument: FID3b,1  
Operator: AA  
Column diameter: 0.25



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Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2437.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-04RE2  
Client ID:  
Injection: 24-OCT-2022 20:31  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.795	0.021	9948385	8691990	WATPHG	(Tol-C12)	940141013	5239.1
C8	2.976	0.048	13214	20596	WATPHD	(C12-C24)	408262867	2367.7
C10	3.961	0.028	79337	175511	WATPHM	(C24-C38)	28344959	190.5
C12	4.852	0.002	124339967	220136493	AK102	(C10-C25)	1253540145	6151.3 M
C14	5.617	0.008	19286226	22210449	AK103	(C25-C36)	25277016	266.1 M
C16	6.279	0.002	2163606	2019719	OR.DIES	(C10-C28)	1262945307	6182.0 M
C18	6.898	-0.010	2002891	2254857				
C20	7.519	0.004	1051198	1127699				
C22	8.111	0.003	343579	396726				
C24	8.679	-0.001	210246	403039				
C25	8.941	-0.015	161665	289544				
C26	9.220	-0.003	121319	196182				
C28	9.731	-0.008	161398	186099	IT.DIES	(C10-C24)	1251591462	6154.4
C32	10.678	-0.003	129333	489557				
C34	11.155	0.013	58167	151213	CREOSOT	(C12-C22)	398050095	16055.1
Filter Peak	13.988	0.001	13704	6848				
C36	11.663	0.008	34997	56352	BUNKERC	(C10-C38)	1279936421	13378.2
o-terph	7.163	0.013	22947746	28608790	JET-A	(C10-C18)	1171954767	5618.9
Triacon Surr	10.248	0.000	16662249	23281671				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

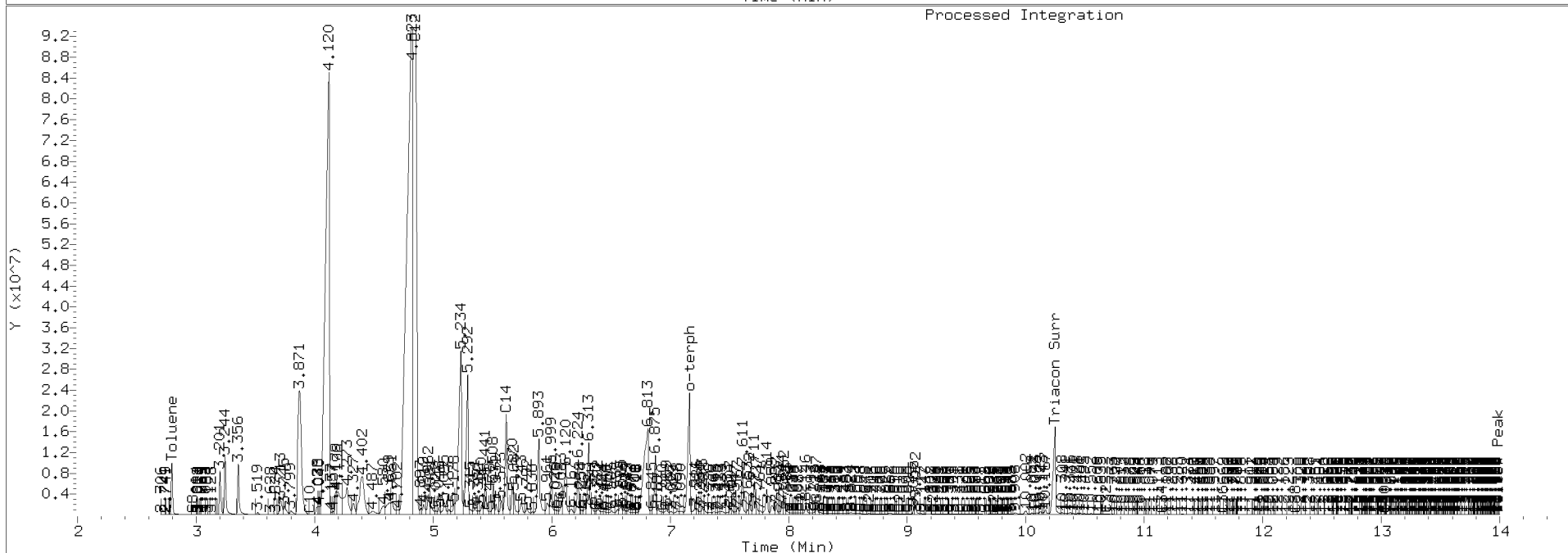
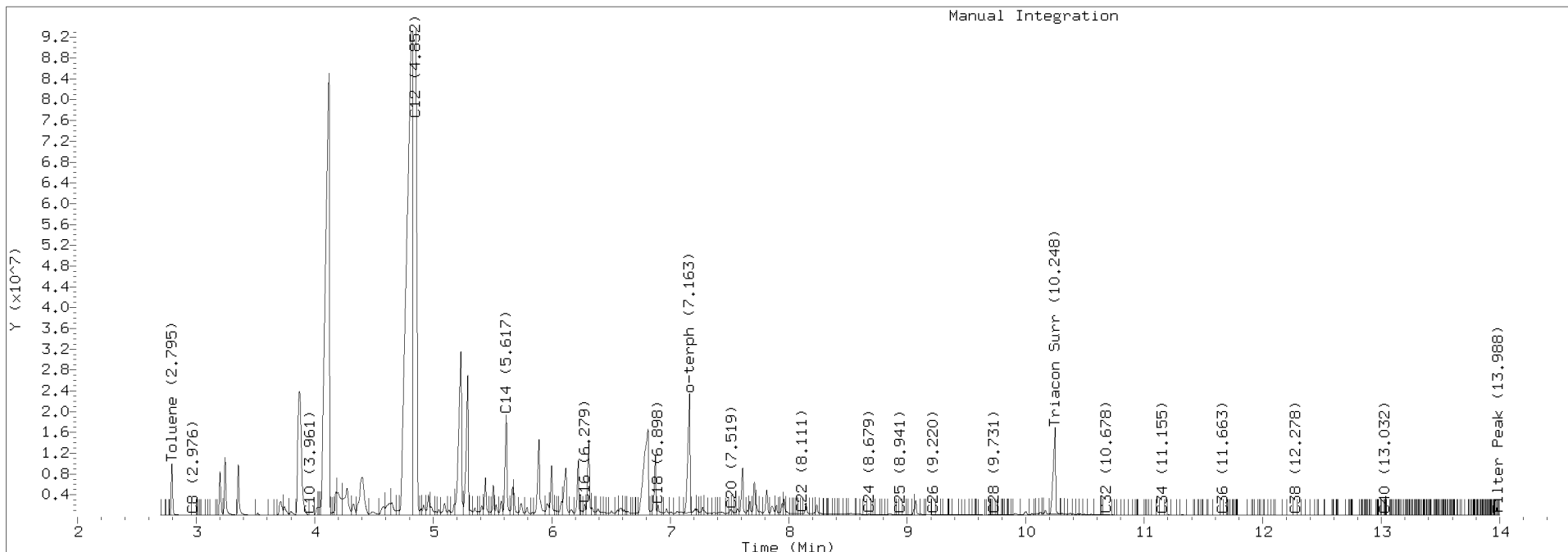
Surrogate	Area	Amount
o-Terphenyl	28608790	118.9
Triacontane	23281671	135.5

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221024.b/322J2437.D Injection: 24-OCT-2022 20:31

Lab ID:22I0247-04RE2





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-01S-20220916**  
**22I0247-04RE3 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/16/2022 08:09  
Analyzed: 24-Oct-2022 20:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKJ0488 Sample Size: 500 mL  
Prepared: 20-Oct-2022 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid  
Cleanup Batch: CKJ0132 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	5	500	4630	ug/L	H, D
Motor Oil Range Organics (C24-C38)	RRO	5	1000	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	5	1000	31500	ug/L	H, D
HC ID: CREOSOTE						
Surrogate: o-Terphenyl			50-150 %	101	%	H

Data File: \\target\share\chem2\FID3b,1\20221024,8\32232438.D

Date: 24-OCT-2022 20:52

Client ID:

Sample Info: 2210247-04RE3,5

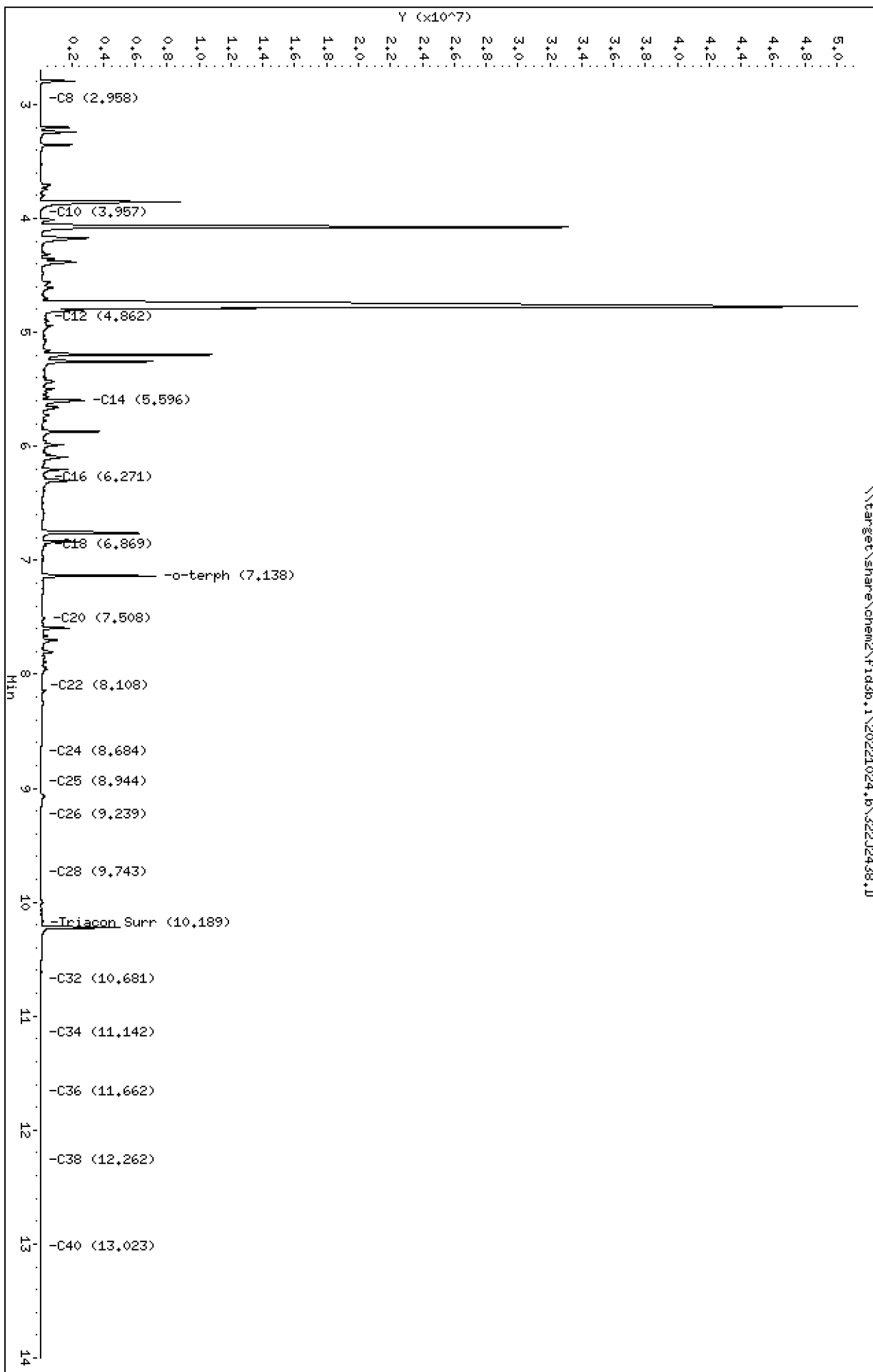
Column phase: RTX-1

Instrument: FID3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2438.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-04RE3  
Client ID:  
Injection: 24-OCT-2022 20:52  
Dilution Factor: 5  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.794	0.020	2150832	1708608	WATPHG	(Tol-C12)	183530335	1022.8
C8	2.958	0.030	5296	1054	WATPHD	(C12-C24)	79845635	463.1
C10	3.957	0.025	26833	23673	WATPHM	(C24-C38)	6491881	43.6
C12	4.862	0.012	316029	325196	AK102	(C10-C25)	244917999	1201.9 M
C14	5.596	-0.012	2714980	4026839	AK103	(C25-C36)	5712597	60.1 M
C16	6.271	-0.006	309474	435214	OR.DIES	(C10-C28)	246835098	1208.2 M
C18	6.869	-0.038	313053	806286				
C20	7.508	-0.007	239811	405810				
C22	8.108	0.000	74941	33459				
C24	8.684	0.005	40753	96870				
C25	8.944	-0.011	34108	64591				
C26	9.239	0.015	27559	34310				
C28	9.743	0.004	25118	76754	IT.DIES	(C10-C24)	244621290	1202.9
C32	10.681	-0.000	29912	20872				
C34	11.142	0.000	18401	3674	CREOSOT	(C12-C22)	78008138	3146.4
Filter Peak	13.989	0.001	10233	6603				
C36	11.662	0.008	15808	7104	BUNKERC	(C10-C38)	251113171	2624.7
o-terph	7.138	-0.012	7127019	5453589	JET-A	(C10-C18)	229431754	1100.0
Triacon Surr	10.224	-0.025	4911980	4272077				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

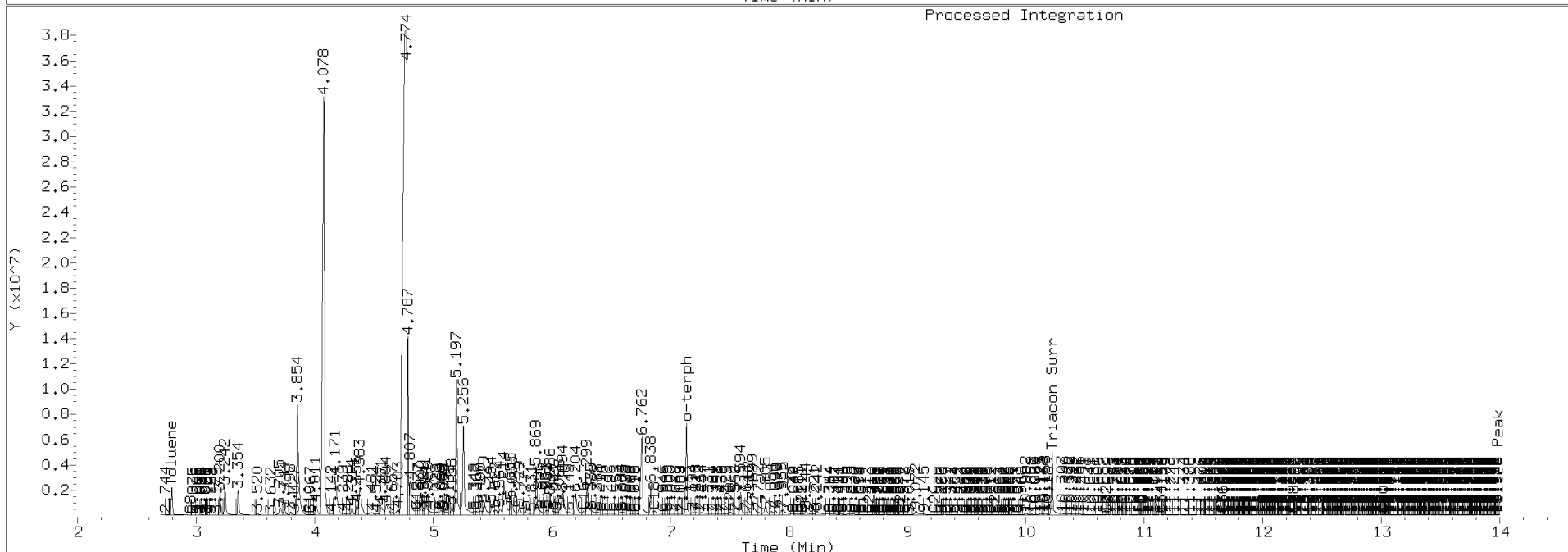
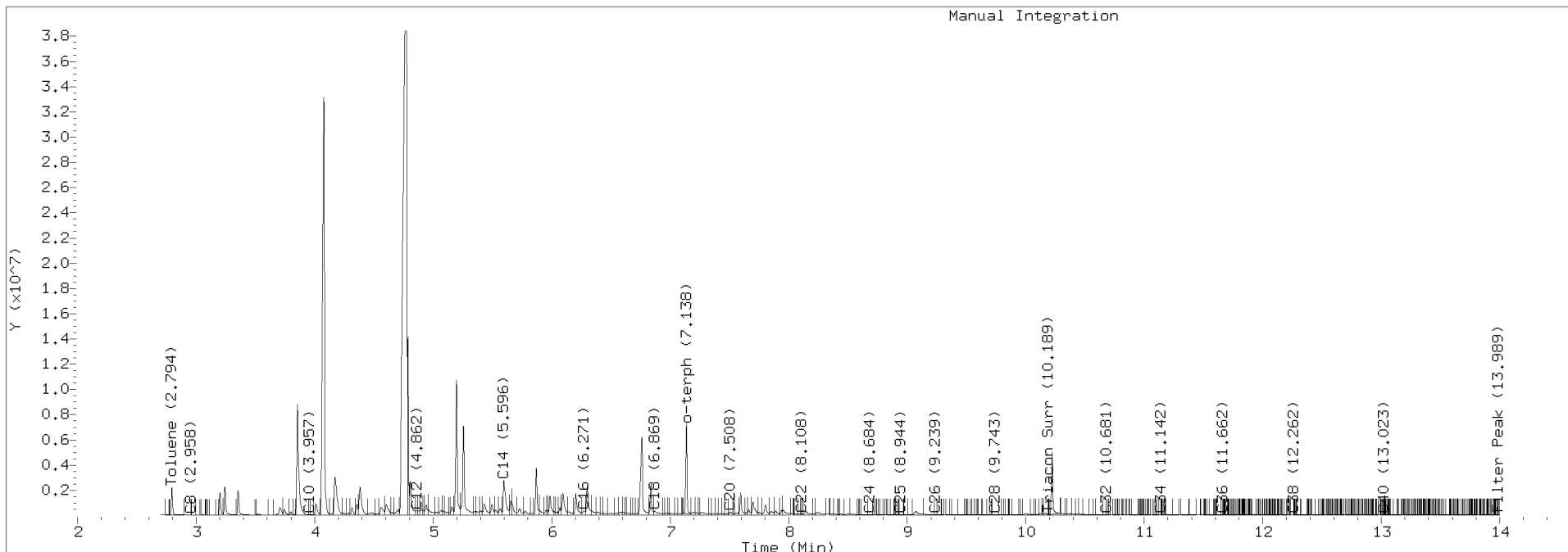
Surrogate	Area	Amount
o-Terphenyl	5453589	22.7
Triacontane	4272077	24.9

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221024.b/322J2438.D Injection: 24-OCT-2022 20:52

Lab ID:22I0247-04RE3





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-05D-20220915**  
**2210247-05 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2022 09:56  
Instrument: ECD8 Analyzed: 07-Oct-2022 15:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	<b>1.31</b>	ug/L	B
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	97.5	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	79.8	%	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-05D-20220915**  
**2210247-05 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E

Sampled: 09/15/2022 09:56

Instrument: NT6

Analyzed: 28-Sep-2022 13:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	5.7	ug/L	
Acenaphthene	83-32-9	1	1.0	16.8	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	5.5	ug/L	
Fluorene	86-73-7	1	1.0	5.3	ug/L	
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	17.7	ug/L	
Fluoranthene	206-44-0	1	1.0	4.1	ug/L	
Pyrene	129-00-0	1	1.0	2.9	ug/L	
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	86.4	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	101	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	105	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-05D-20220915**  
**2210247-05 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/15/2022 09:56  
Instrument: NT8 Analyzed: 26-Sep-2022 19:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Sample Size: 500 mL
	Preparation Batch: BKI0384	Final Volume: 0.5 mL
	Prepared: 22-Sep-2022	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 500 uL
	Cleanup Batch: CKI0184	Final Volume: 500 uL
	Cleaned: 26-Sep-2022	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>22.3</i>	<i>%</i>	<i>*</i>
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>118</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-05D-20220915**  
**2210247-05 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 09/15/2022 09:56  
Analyzed: 16-Sep-2022 17:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	3950	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	99.5	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	102	%	

Data File: \\target\share\chend\nt3.1\20220916s.1b\309162218G.D

Date: 16-SEP-2022 17:58

Client ID:

Sample Info: 2210247-05

Page 1

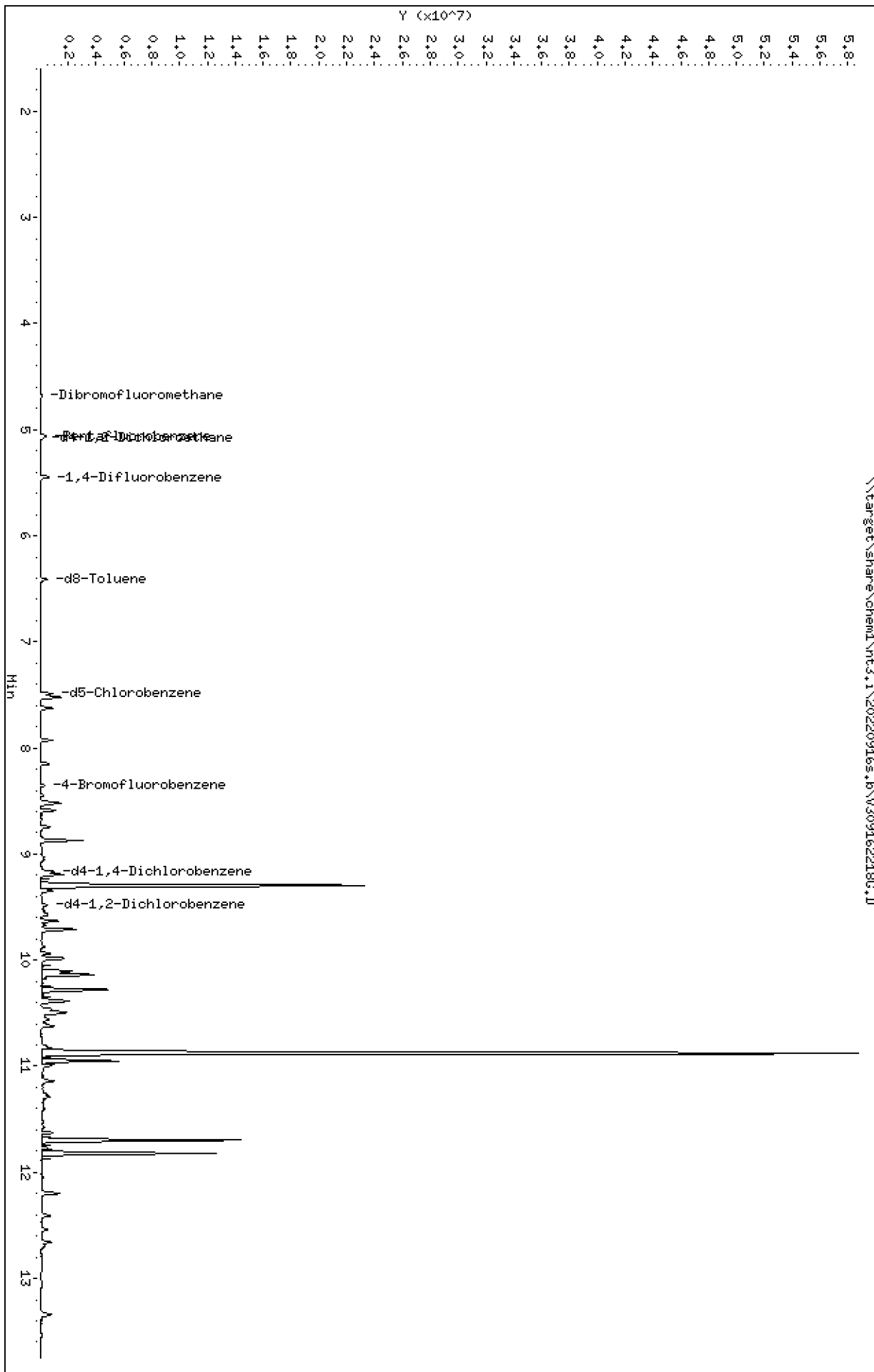
Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS

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ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162218G.D  
 Lab Smp Id: 22I0247-05  
 Inj Date : 16-SEP-2022 17:58  
 Operator : PKC  
 Smp Info : 22I0247-05  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i  
 Cal Date : 12-SEP-2022 13:39  
 Als bottle: 65  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309122211.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.679	4.675	(0.924)	58158	4.93031	4.930
* 32 Pentafluorobenzene	168		5.062	5.057	(1.000)	204222	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.083	5.084	(1.004)	35777	4.92959	4.930
* 37 1,4-Difluorobenzene	114		5.450	5.445	(1.000)	377320	10.0000	
\$ 43 d8-Toluene	98		6.411	6.412	(1.176)	222478	4.97645	4.976
* 53 d5-Chlorobenzene	117		7.490	7.491	(1.000)	345315	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.356	8.357	(1.116)	64237	5.08288	5.083
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	184160	10.0000	(M)
\$ 79 d4-1,2-Dichlorobenzene	152		9.483	9.483	(1.035)	92144	5.46715	5.467 (M)

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162218G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-05  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	204222	-1.66
37 1,4-Difluorobenze	387680	193840	775360	377320	-2.67
53 d5-Chlorobenzene	359638	179819	719276	345315	-3.98
76 d4-1,4-Dichlorobe	189756	94878	379512	184160	-2.95

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.09
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.09
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	-0.01
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	-0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 22I0247-05  
 Level: LOW Operator: PKC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.930	98.61	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	4.930	98.59	80-128
\$ 43 d8-Toluene	5.000	4.976	99.53	80-120
\$ 62 4-Bromofluorobenze	5.000	5.083	101.66	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.467	109.34	80-120

REVIEW SUMMARY FOR FILE - V309162218G.D

Lab ID: 22I0247-05

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 17:58

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162218G.D

Date: 16-SEP-2022 17:58

Client ID:

Sample Info: 2210247-05

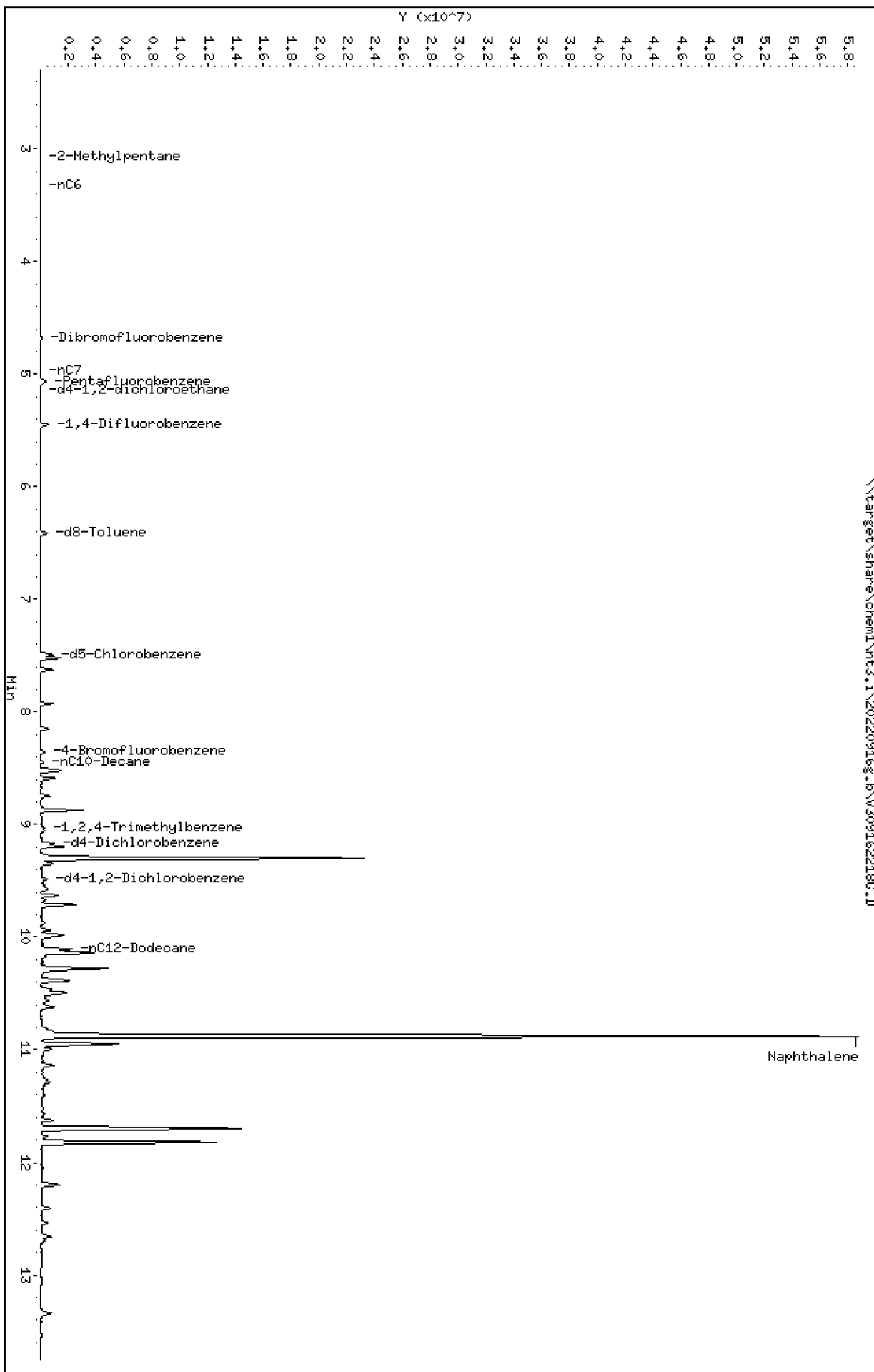
Instrument: nt3.1

Column phase: RTXWMS

Operator: PKC

Column diameter: 0.18

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Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162218G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 17:58

ARI ID: 22I0247-05  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
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WAGas Tol-C12 ( 6.34 to 10.20)	45366423	73265232	1.615 M
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	16010517	0.175
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	5597023	0.077
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	190107724	3.950 M
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	73403572	0.990 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

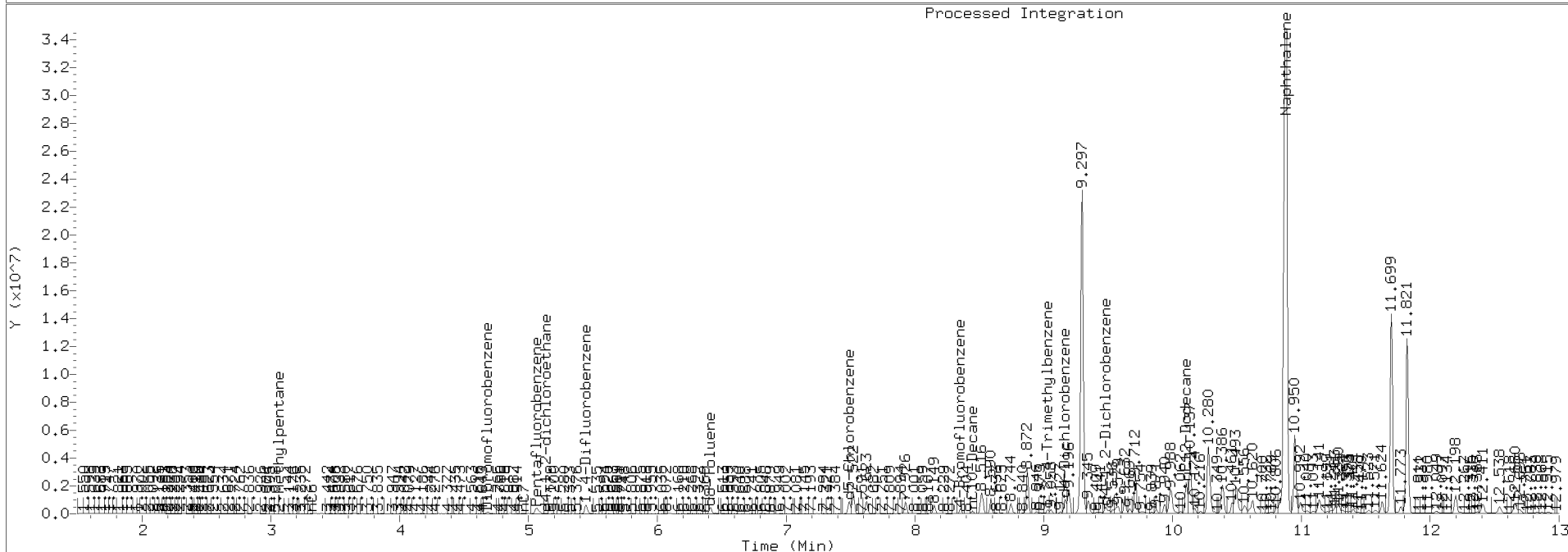
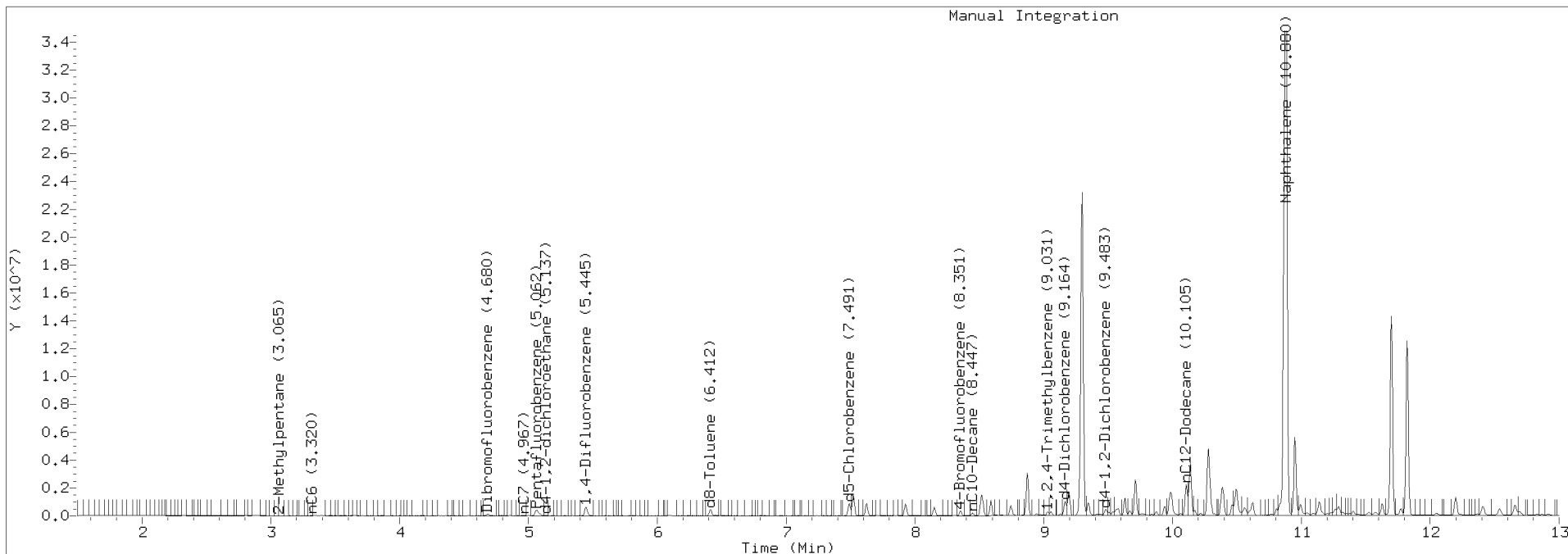
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7.491	1222964	d5-Chlorobenzene
6.412	672504	d8-Toluene
9.164	1519900	d4-Dichlorobenzene
8.351	432908	4-Bromofluorobenzene
9.483	680871	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20220916g.b/V309162218G.D Injection: 16-SEP-2022 17:58

Lab ID:22I0247-05





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-05D-20220915**  
**22I0247-05RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 09:56  
Analyzed: 24-Oct-2022 21:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
<i>Surrogate: o-Terphenyl</i>			50-150 %	96.0	%	H

Data File: \\target\share\chem2\fid3b,1\20221024,8\32232439.D

Date: 24-OCT-2022 21:14

Client ID:

Sample Info: 2210247-05RE1

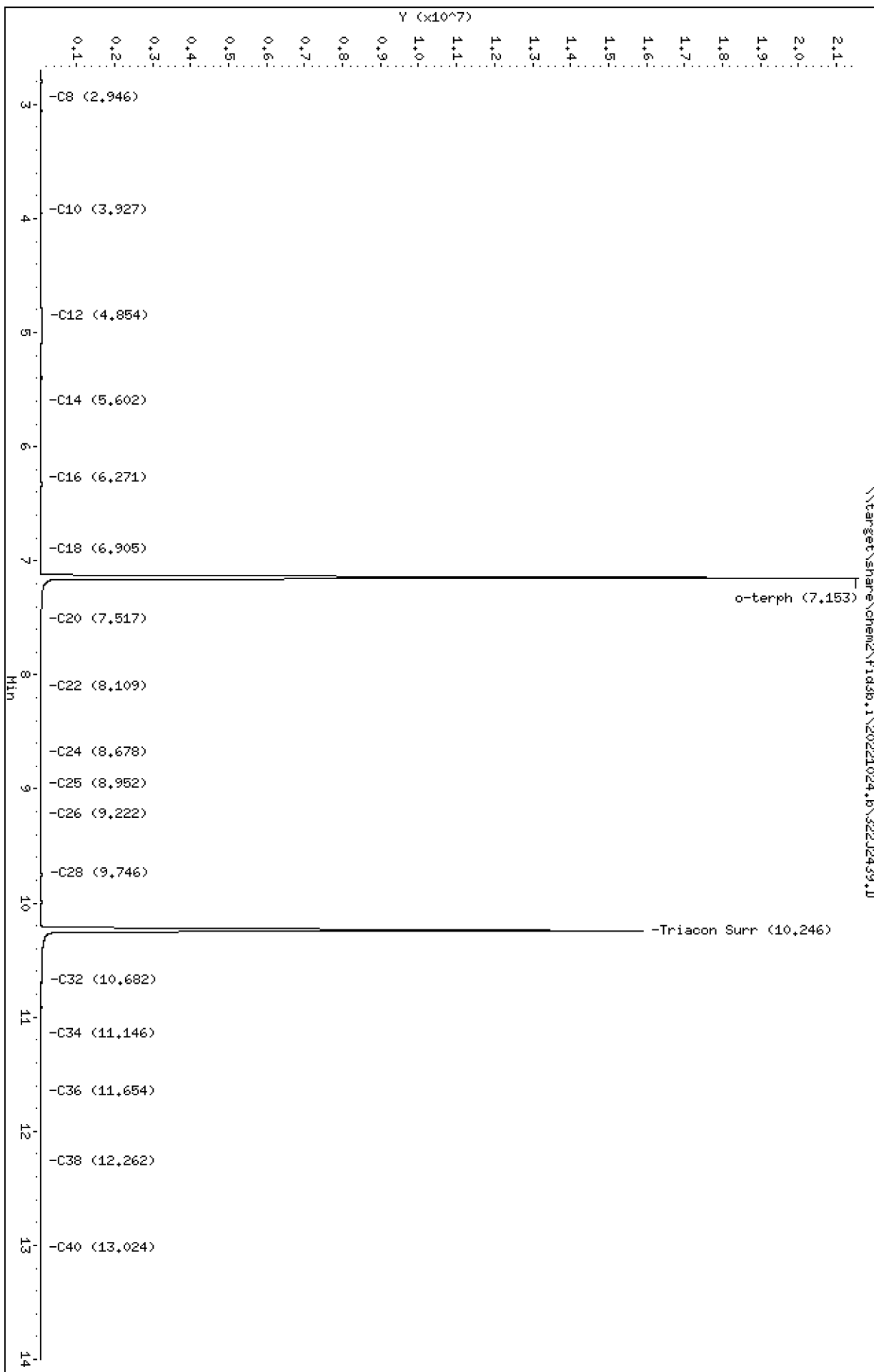
Column phase: RTX-1

Instrument: fid3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2439.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-05RE1  
Client ID:  
Injection: 24-OCT-2022 21:14  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.796	0.022	37949	54990	WATPHG	(Tol-C12)	703822	3.9
C8	2.946	0.018	6762	5645	WATPHD	(C12-C24)	1927831	11.2
C10	3.927	-0.006	3327	2668	WATPHM	(C24-C38)	2579065	17.3
C12	4.854	0.004	42951	19251	AK102	(C10-C25)	2526912	12.4
C14	5.602	-0.006	17352	30436	AK103	(C25-C36)	2089990	22.0
C16	6.271	-0.007	9895	23507	OR.DIES	(C10-C28)	3049684	14.9
C18	6.905	-0.002	6089	3281				
C20	7.517	0.002	13987	6258				
C22	8.109	0.002	5403	2963				
C24	8.678	-0.002	6092	1211				
C25	8.952	-0.003	7186	3566				
C26	9.222	-0.001	8585	2564				
C28	9.746	0.007	41333	88941	IT.DIES	(C10-C24)	2394003	11.8
C32	10.682	0.001	18856	14465				
C34	11.146	0.004	14388	9314	CREOSOT	(C12-C22)	1737484	70.1
Filter Peak	13.992	0.005	10600	6333				
C36	11.654	0.000	13167	1970	BUNKERC	(C10-C38)	4973068	52.0
o-terph	7.153	0.003	21526451	25986525	JET-A	(C10-C18)	1723153	8.3
Triacon Surr	10.246	-0.002	15856471	21688602				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

Surrogate	Area	Amount
o-Terphenyl	25986525	108.0
Triacontane	21688602	126.2

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-05S-20220915**  
**2210247-06 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2022 10:00  
Instrument: ECD8 Analyzed: 07-Oct-2022 15:40

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	65.1	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	73.0	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-05S-20220915**

**2210247-06 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E

Sampled: 09/15/2022 10:00

Instrument: NT6

Analyzed: 28-Sep-2022 14:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	<b>8.6</b>	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	<b>2.9</b>	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	74.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	89.2	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	93.8	%	





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-05S-20220915**  
**2210247-06 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/15/2022 10:00  
Instrument: NT8 Analyzed: 26-Sep-2022 19:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Sample Size: 500 mL
	Preparation Batch: BKI0384	Final Volume: 0.5 mL
	Prepared: 22-Sep-2022	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 500 uL
	Cleanup Batch: CKI0184	Final Volume: 500 uL
	Cleaned: 26-Sep-2022	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>48.0</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>89.3</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
05-Sep-2023 12:20

**MW-05S-20220915**  
**2210247-06 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/15/2022 10:00  
Analyzed: 16-Sep-2022 18:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.9	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	96.3	%	

Data File: \\target\share\chend\nt3.1\20220916s.1b\309162219G.D

Date: 16-SEP-2022 18:20

Client ID:

Sample Info: 2210247-06

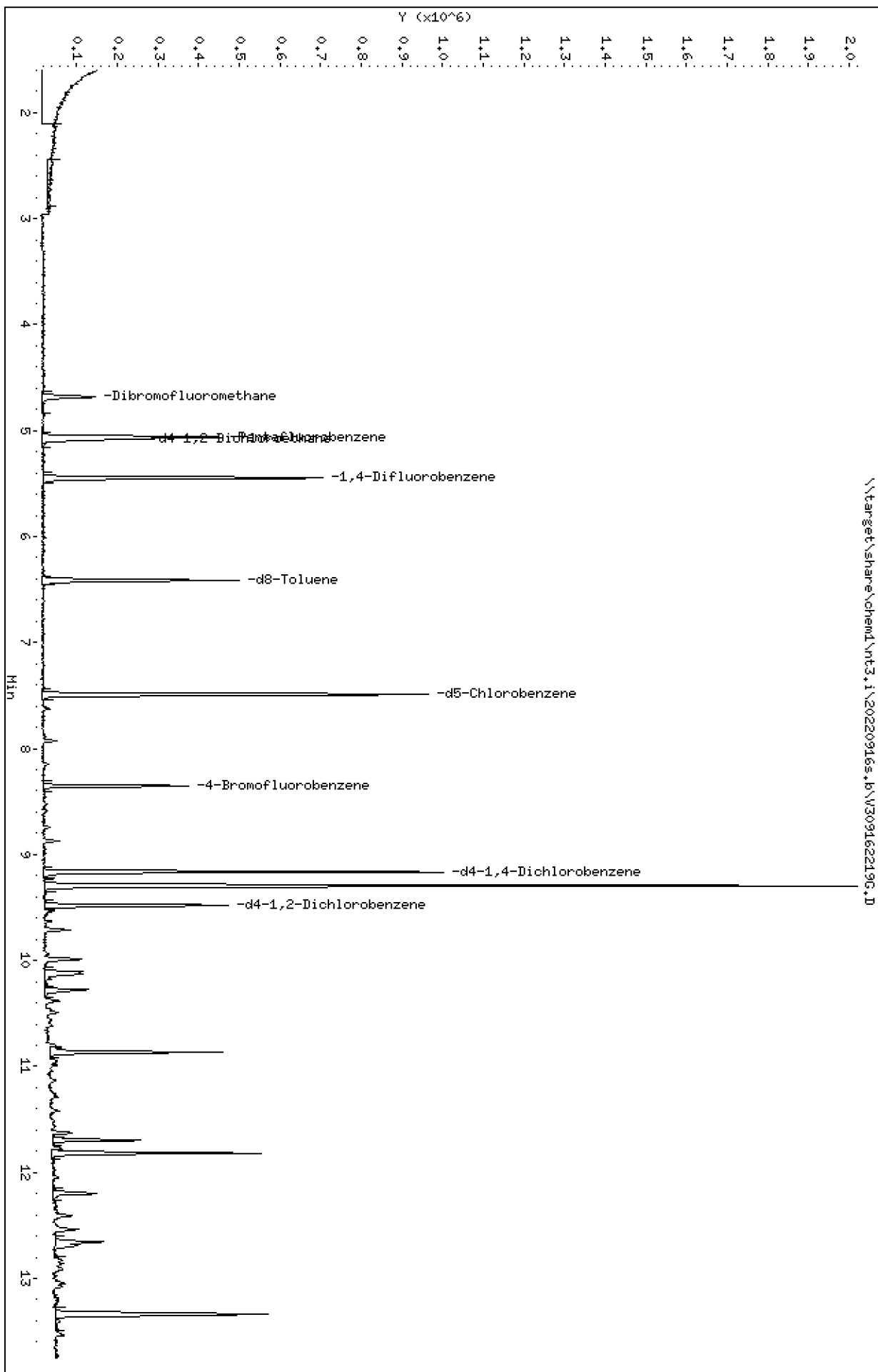
Page 1

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162219G.D  
 Lab Smp Id: 22I0247-06  
 Inj Date : 16-SEP-2022 18:20  
 Operator : PKC  
 Smp Info : 22I0247-06  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i  
 Cal Date : 12-SEP-2022 13:39  
 Als bottle: 66  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309122211.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.681	4.675	(0.924)	67797	5.34814	5.348
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	219470	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.079	5.084	(1.003)	42353	5.43023	5.430
* 37 1,4-Difluorobenzene	114		5.446	5.445	(1.000)	424580	10.0000	
\$ 43 d8-Toluene	98		6.413	6.412	(1.178)	246330	4.89666	4.897
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	382364	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.352	8.357	(1.115)	67410	4.81712	4.817
* 76 d4-1,4-Dichlorobenzene	152		9.165	9.164	(1.000)	187455	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.479	9.483	(1.034)	87508	5.10082	5.101

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162219G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-06  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	219470	5.69
37 1,4-Difluorobenze	387680	193840	775360	424580	9.52
53 d5-Chlorobenzene	359638	179819	719276	382364	6.32
76 d4-1,4-Dichlorobe	189756	94878	379512	187455	-1.21

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.12
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.01
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.01
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.17	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 22I0247-06  
 Level: LOW Operator: PKC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.348	106.96	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.430	108.60	80-128
\$ 43 d8-Toluene	5.000	4.897	97.93	80-120
\$ 62 4-Bromofluorobenze	5.000	4.817	96.34	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.101	102.02	80-120

REVIEW SUMMARY FOR FILE - V309162219G.D

Lab ID: 22I0247-06

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 18:20

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162219G.D

Date: 16-SEP-2022 18:20

Client ID:

Sample Info: 2210247-06

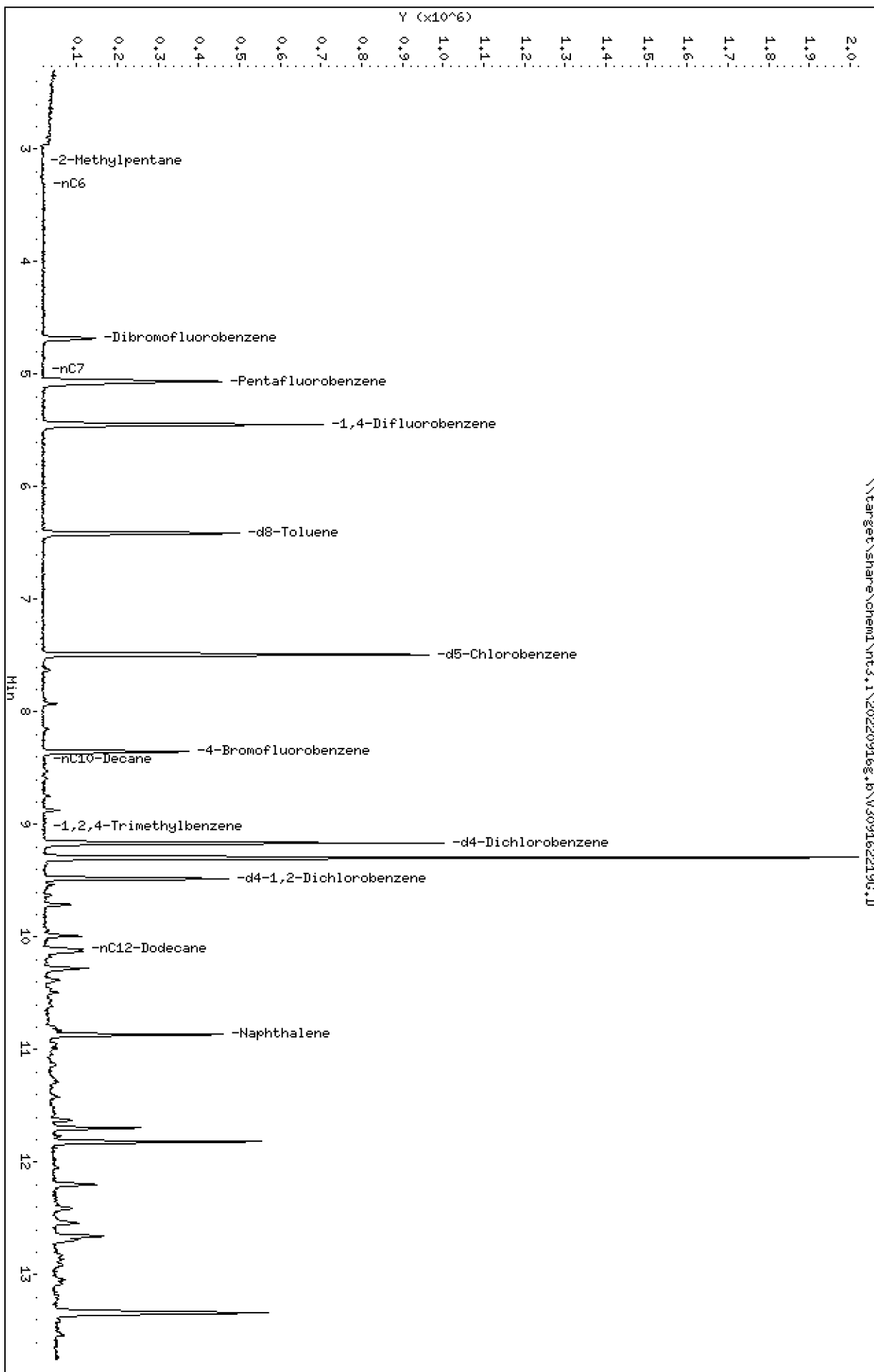
Page 1

Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18





Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162219G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 18:20

ARI ID: 22I0247-06  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	3511197	0.077
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	784317	0.009
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	564739	0.008
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	4569922	0.095
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	3653625	0.049

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.492	1265534	d5-Chlorobenzene
6.413	704441	d8-Toluene
9.166	1232816	d4-Dichlorobenzene
8.353	453683	4-Bromofluorobenzene
9.479	585589	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-05S-20220915**  
**22I0247-06RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 10:00  
Analyzed: 24-Oct-2022 21:35

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKJ0488 Sample Size: 500 mL  
Prepared: 20-Oct-2022 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKJ0133 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Sample Cleanup: Cleanup Method: Sulfuric Acid  
Cleanup Batch: CKJ0132 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
Surrogate: o-Terphenyl			50-150 %	99.4	%	H

Data File: \\target\share\chem2\FID3b,1\20221024,8\322J2440.D

Date: 24-OCT-2022 21:35

Client ID:

Sample Info: 2210247-06RE1

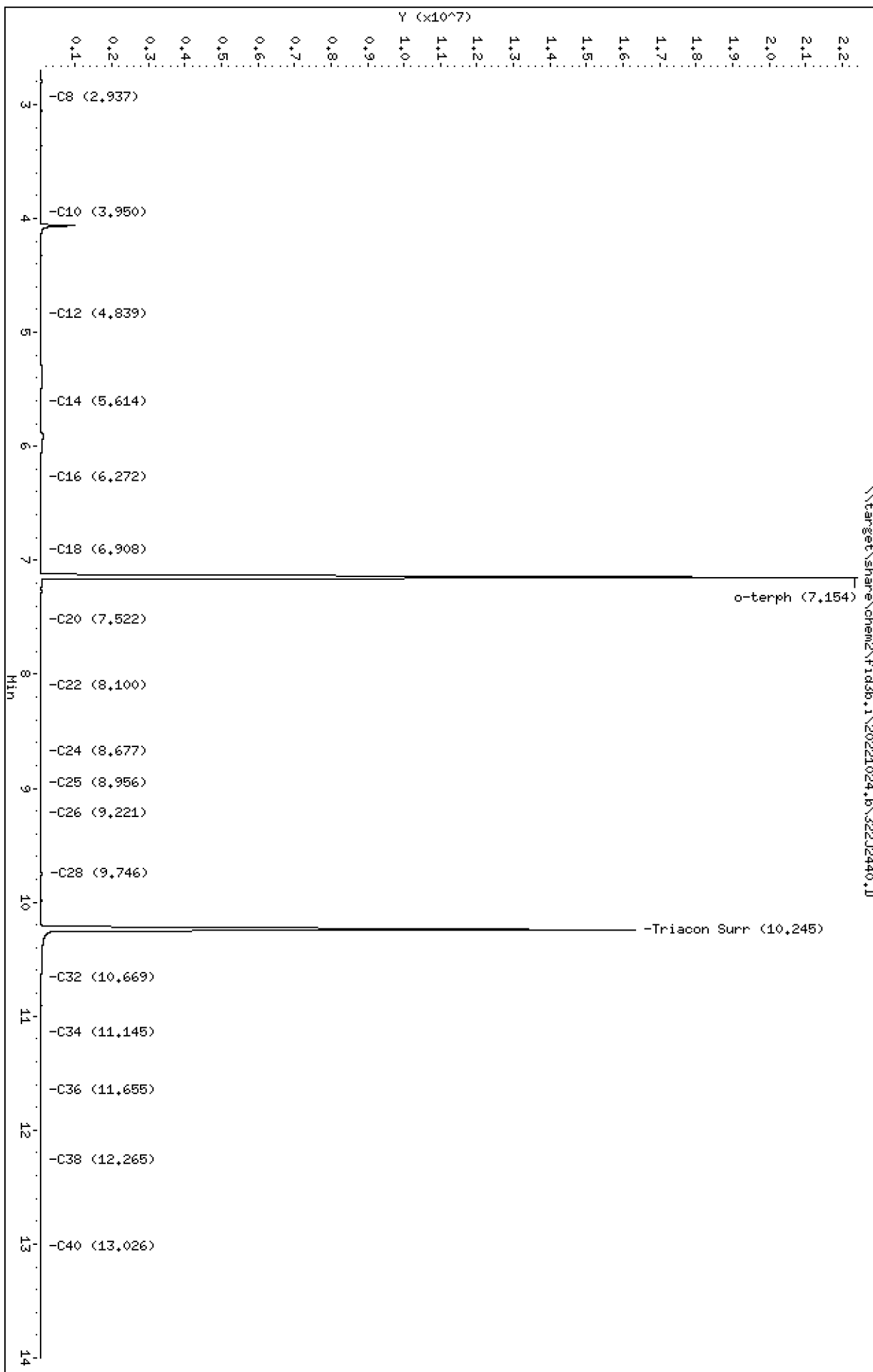
Column phase: RTX-1

Instrument: FID3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2440.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-06RE1  
Client ID:  
Injection: 24-OCT-2022 21:35  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.795	0.021	44071	60570	WATPHG	(Tol-C12)	1667393	9.3
C8	2.937	0.009	6513	1297	WATPHD	(C12-C24)	2463510	14.3
C10	3.950	0.018	11571	17746	WATPHM	(C24-C38)	1969802	13.2
C12	4.839	-0.011	4112	5183	AK102	(C10-C25)	3871935	19.0
C14	5.614	0.006	13999	7649	AK103	(C25-C36)	1548932	16.3
C16	6.272	-0.005	18617	43296	OR.DIES	(C10-C28)	4189014	20.5
C18	6.908	0.001	11631	33824				
C20	7.522	0.007	9873	8617				
C22	8.100	-0.008	8123	2429				
C24	8.677	-0.003	5696	2821				
C25	8.956	0.001	5256	3134				
C26	9.221	-0.002	4971	3170				
C28	9.746	0.007	30326	56018	IT.DIES	(C10-C24)	3813692	18.8
C32	10.669	-0.013	17061	18391				
C34	11.145	0.004	12196	5469	CREOSOT	(C12-C22)	2278308	91.9
Filter Peak	13.991	0.004	10221	4584				
C36	11.655	0.001	12014	3593	BUNKERC	(C10-C38)	5783494	60.5
o-terph	7.154	0.004	22363142	26926128	JET-A	(C10-C18)	3105177	14.9
Triacon Surr	10.245	-0.003	16267278	22164620				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

Surrogate	Area	Amount
o-Terphenyl	26926128	111.9
Triacontane	22164620	129.0

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**MW-02D-20220915**  
**2210247-07 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2022 14:33  
Instrument: ECD8 Analyzed: 07-Oct-2022 15:58

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	53.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	58.2	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-02D-20220915**  
**2210247-07 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2022 14:33  
Analyzed: 26-Sep-2022 16:46

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381 Sample Size: 500 mL  
Prepared: 21-Sep-2022 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	25.4	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	13.3	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	4.3	ug/L	
Dibenzofuran	132-64-9	1	1.0	4.3	ug/L	
Fluorene	86-73-7	1	1.0	4.6	ug/L	
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	3.9	ug/L	
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	3.5	ug/L	
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	7.1	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	76.7	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	86.0	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	84.8	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-02D-20220915**  
**2210247-07 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/15/2022 14:33  
Instrument: NT8 Analyzed: 26-Sep-2022 20:25

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Sample Size: 500 mL
	Preparation Batch: BKI0384	Final Volume: 0.5 mL
	Prepared: 22-Sep-2022	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 500 uL
	Cleanup Batch: CKI0184	Final Volume: 500 uL
	Cleaned: 26-Sep-2022	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>36.4</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>104</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
05-Sep-2023 12:20

**MW-02D-20220915**  
**2210247-07 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 09/15/2022 14:33  
Analyzed: 16-Sep-2022 18:42

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	227	ug/L	
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	99.4	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	96.3	%	



Data File: \\target\share\chend\nt3.1\20220916s.16\3091622200.D

Date: 16-SEP-2022 18:42

Client ID:

Sample Info: 2210247-07

Page 1

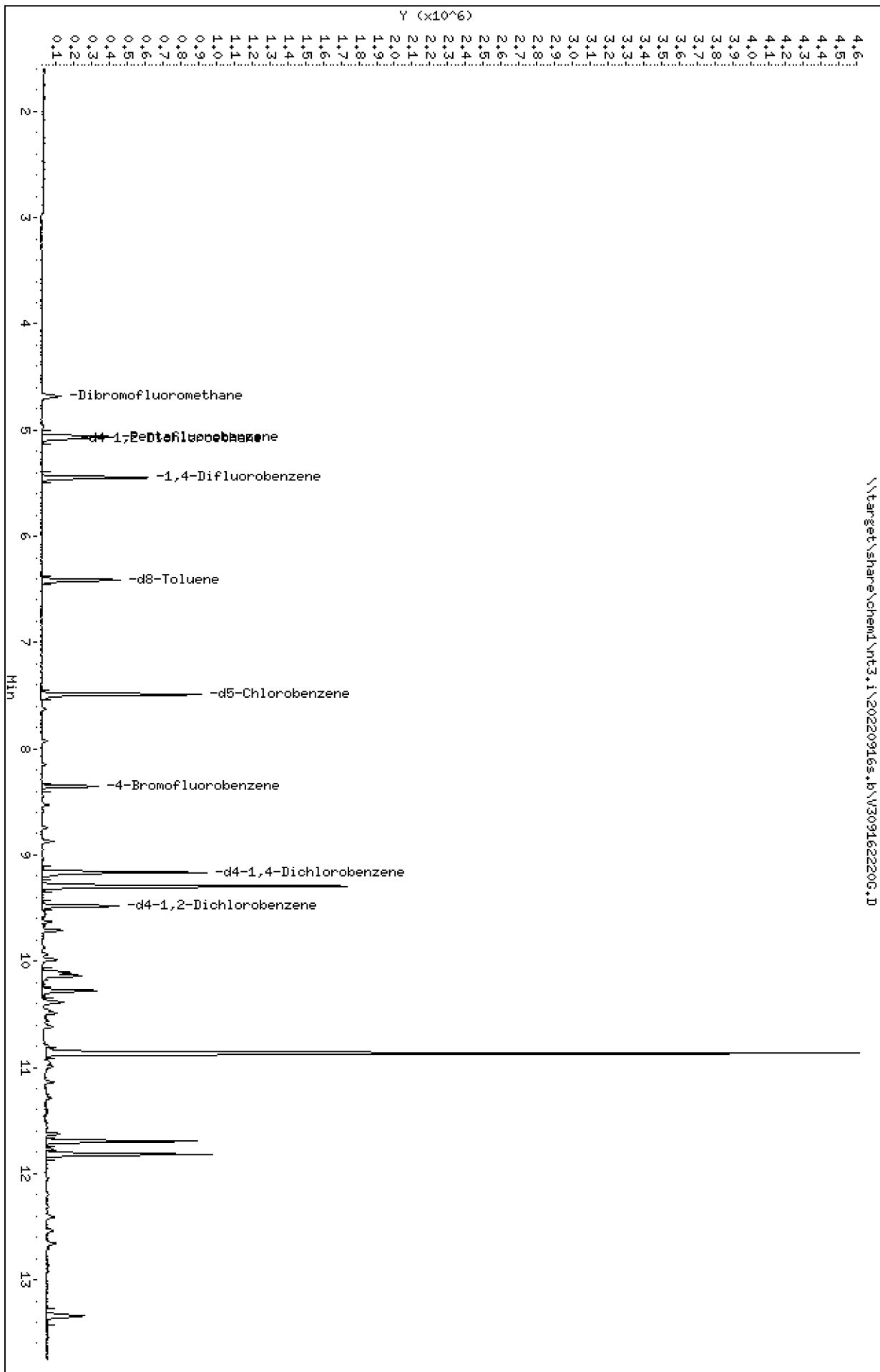
Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS

\\target\share\chend\nt3.1\20220916s.16\3091622200.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162220G.D  
 Lab Smp Id: 22I0247-07  
 Inj Date : 16-SEP-2022 18:42  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 22I0247-07  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 67  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.679	4.675	(0.924)	60628	5.26444	5.264
* 32 Pentafluorobenzene	168		5.062	5.057	(1.000)	199383	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.083	5.084	(1.004)	36575	5.16185	5.162
* 37 1,4-Difluorobenzene	114		5.449	5.445	(1.000)	377711	10.0000	
\$ 43 d8-Toluene	98		6.411	6.412	(1.176)	222365	4.96877	4.969
* 53 d5-Chlorobenzene	117		7.490	7.491	(1.000)	351085	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.356	8.357	(1.116)	61881	4.81599	4.816
* 76 d4-1,4-Dichlorobenzene	152		9.163	9.164	(1.000)	184152	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.482	9.483	(1.035)	86104	5.10901	5.109

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162220G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-07  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	199383	-3.99
37 1,4-Difluorobenze	387680	193840	775360	377711	-2.57
53 d5-Chlorobenzene	359638	179819	719276	351085	-2.38
76 d4-1,4-Dichlorobe	189756	94878	379512	184152	-2.95

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.09
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.08
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	-0.01
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	-0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 22I0247-07  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.264	105.29	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.162	103.24	80-128
\$ 43 d8-Toluene	5.000	4.969	99.38	80-120
\$ 62 4-Bromofluorobenze	5.000	4.816	96.32	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.109	102.18	80-120

REVIEW SUMMARY FOR FILE - V309162220G.D

Lab ID: 22I0247-07

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 18:42

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162220g.D

Date: 16-SEP-2022 18:42

Client ID:

Sample Info: 2210247-07

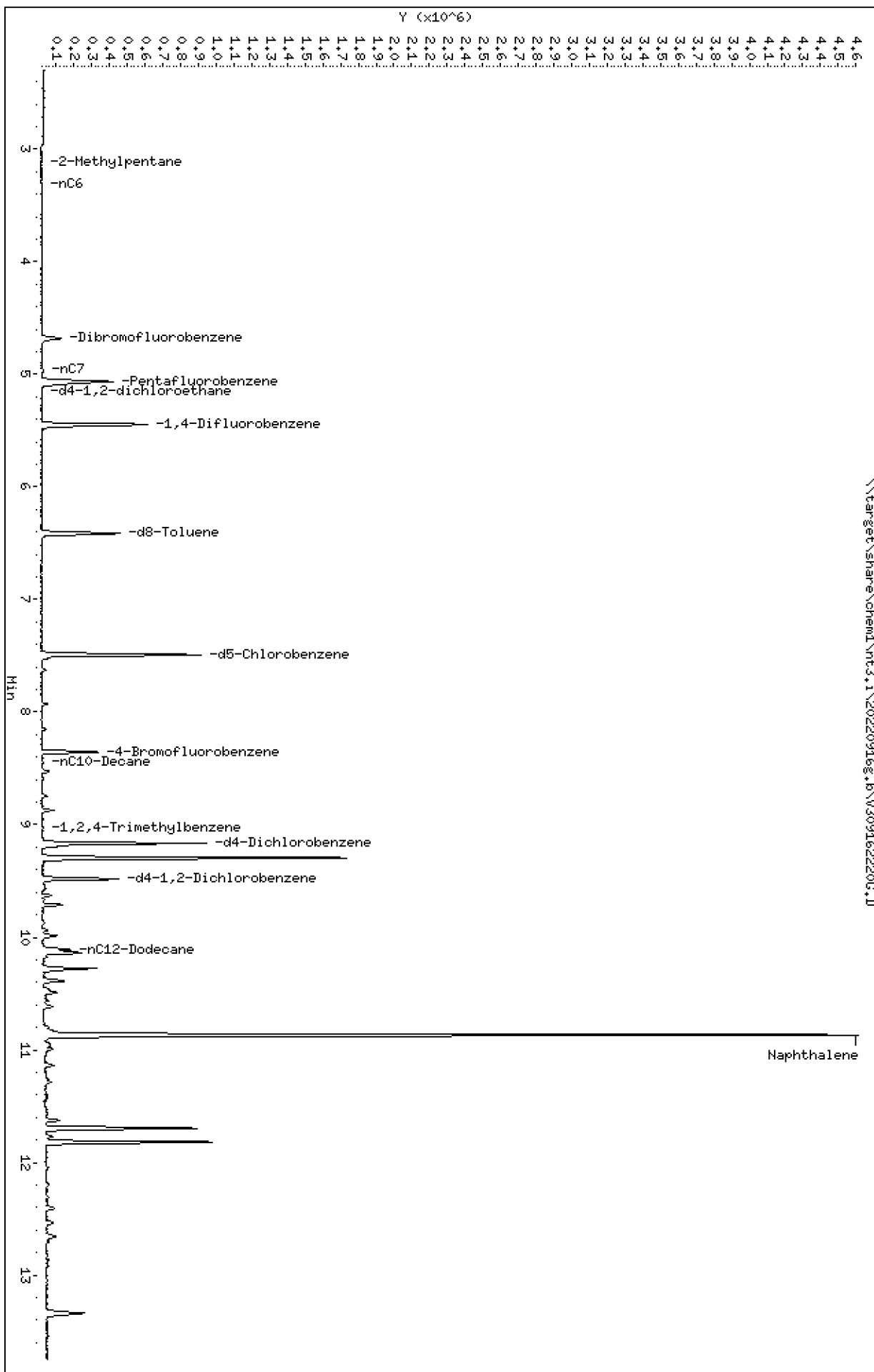
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162220G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 18:42

ARI ID: 22I0247-07  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	3913499	0.086
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	945809	0.010
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	600362	0.008
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	10933185	0.227
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	4050933	0.055

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.490	1192337	d5-Chlorobenzene
6.412	647530	d8-Toluene
9.164	1262869	d4-Dichlorobenzene
8.356	418449	4-Bromofluorobenzene
9.483	566736	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-02D-20220915**  
**22I0247-07RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 14:33  
Analyzed: 24-Oct-2022 21:56

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	<b>305</b>	ug/L	H
HC ID: CREOSOTE						
Surrogate: o-Terphenyl			50-150 %	99.2	%	H



Data File: \\target\share\chem2\fid3b,1\20221024,8\32202441.D

Date: 24-OCT-2022 21:56

Client ID:

Sample Info: 2210247-07RE1

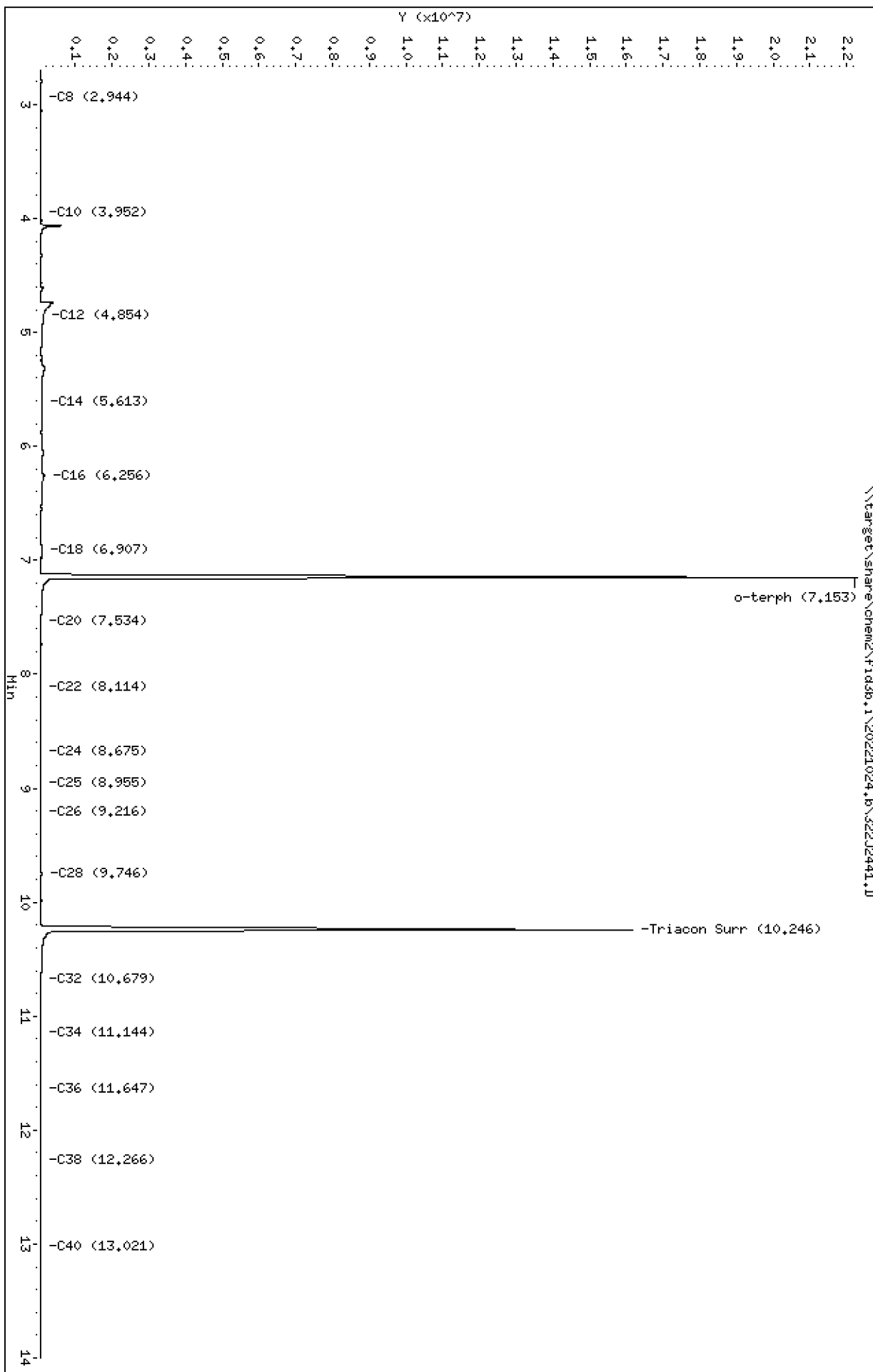
Column phase: RTX-1

Instrument: fid3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2441.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-07RE1  
Client ID:  
Injection: 24-OCT-2022 21:56  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.759	-0.016	11870	6441	WATPHG	(Tol-C12)	3317146	18.5
C8	2.944	0.015	6183	3682	WATPHD	(C12-C24)	3860731	22.4
C10	3.952	0.019	7696	16822	WATPHM	(C24-C38)	1710348	11.5
C12	4.854	0.004	88029	651041	AK102	(C10-C25)	6900243	33.9
C14	5.613	0.004	22952	49080	AK103	(C25-C36)	1340076	14.1
C16	6.256	-0.021	95325	520445	OR.DIES	(C10-C28)	7150923	35.0
C18	6.907	-0.001	22330	39946				
C20	7.534	0.019	18166	29165				
C22	8.114	0.006	3829	1515				
C24	8.675	-0.005	2234	661				
C25	8.955	-0.001	2905	4403				
C26	9.216	-0.007	3578	4290				
C28	9.746	0.007	27415	27293	IT.DIES	(C10-C24)	6877163	33.8
C32	10.679	-0.003	15841	31247				
C34	11.144	0.003	10986	8723	CREOSOT	(C12-C22)	3782534	152.6
Filter Peak	13.991	0.004	9283	3235				
C36	11.647	-0.007	10614	7896	BUNKERC	(C10-C38)	8587512	89.8
o-terph	7.153	0.003	22242200	26862351	JET-A	(C10-C18)	6218284	29.8
Triacon Surr	10.246	-0.002	16114862	22067763				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

Surrogate	Area	Amount
o-Terphenyl	26862351	111.6
Triacontane	22067763	128.4

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**MW-02S-20220915**  
**2210247-08 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2022 14:24  
Instrument: ECD8 Analyzed: 07-Oct-2022 16:16

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	70.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	82.5	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**MW-02S-20220915**  
**2210247-08 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E

Sampled: 09/15/2022 14:24

Instrument: NT6

Analyzed: 26-Sep-2022 17:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	4.7	ug/L	
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	1.1	ug/L	
Fluorene	86-73-7	1	1.0	1.3	ug/L	
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	2.0	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	66.0	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	75.0	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	77.0	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-02S-20220915**  
**2210247-08 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/15/2022 14:24  
Instrument: NT8 Analyzed: 26-Sep-2022 20:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Sample Size: 500 mL
	Preparation Batch: BKI0384	Final Volume: 0.5 mL
	Prepared: 22-Sep-2022	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 500 uL
	Cleanup Batch: CKI0184	Final Volume: 500 uL
	Cleaned: 26-Sep-2022	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>33.8</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>88.8</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**MW-02S-20220915**  
**2210247-08 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/15/2022 14:24  
Instrument: NT3 Analyzed: 16-Sep-2022 19:04

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.7	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	94.6	%	

Data File: \\target\share\chend\nt3.1\20220916s.1b\309162221G.D

Date: 16-SEP-2022 19:04

Client ID:

Sample Info: 2210247-08

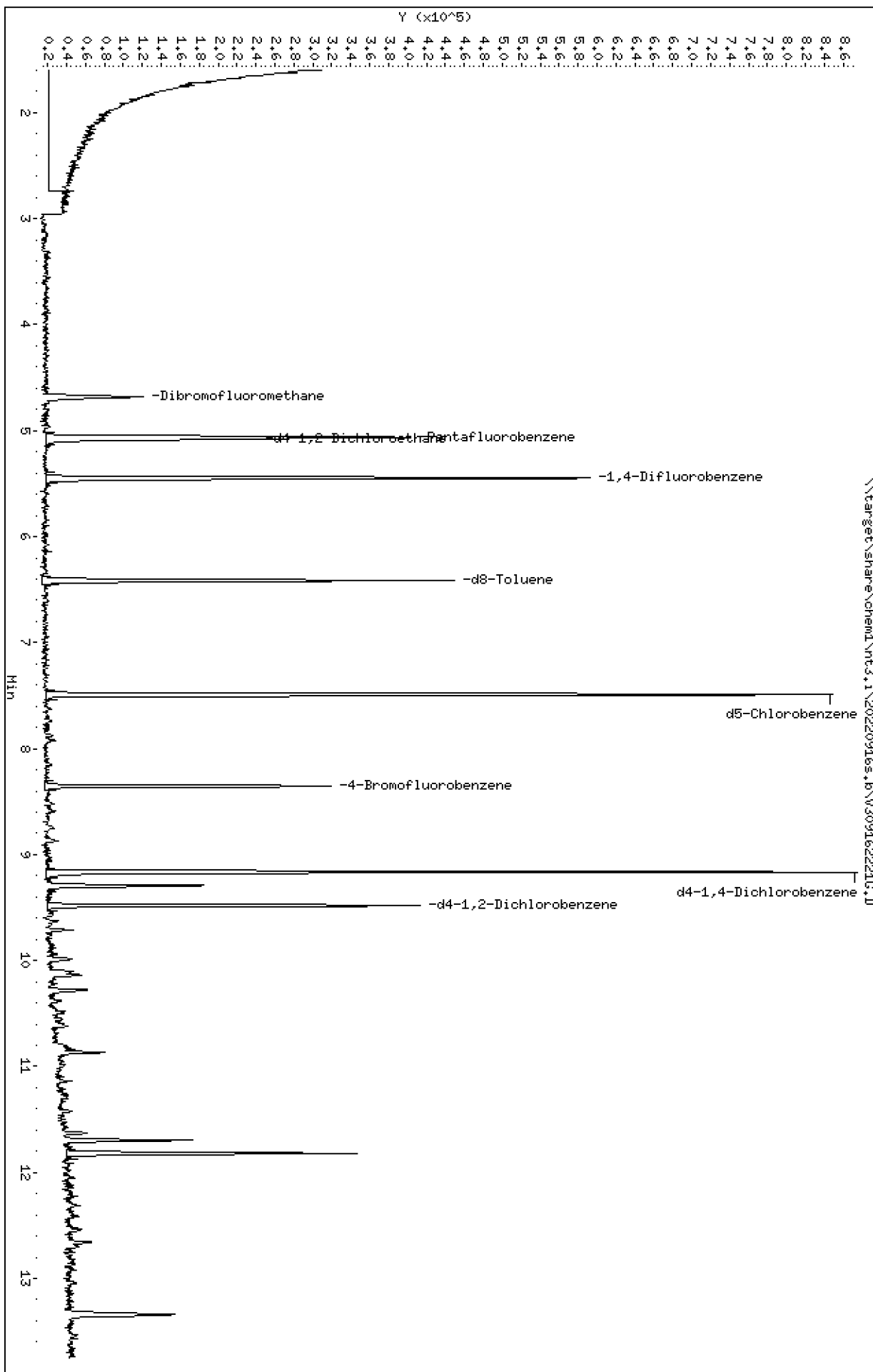
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162221G.D  
 Lab Smp Id: 22I0247-08  
 Inj Date : 16-SEP-2022 19:04  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 22I0247-08  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 68  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.680	4.675	(0.924)	57321	5.26764	5.268
* 32 Pentafluorobenzene	168		5.062	5.057	(1.000)	188393	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.078	5.084	(1.003)	35370	5.28299	5.283
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	366177	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	211833	4.88253	4.883
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	335290	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.357	8.357	(1.116)	58041	4.72993	4.730
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	165166	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.483	9.483	(1.035)	75735	5.01032	5.010



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162221G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-08  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	188393	-9.28
37 1,4-Difluorobenze	387680	193840	775360	366177	-5.55
53 d5-Chlorobenzene	359638	179819	719276	335290	-6.77
76 d4-1,4-Dichlorobe	189756	94878	379512	165166	-12.96

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.10
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	-0.00
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	-0.00
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 22I0247-08  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.268	105.35	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.283	105.66	80-128
\$ 43 d8-Toluene	5.000	4.883	97.65	80-120
\$ 62 4-Bromofluorobenze	5.000	4.730	94.60	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.010	100.21	80-120

REVIEW SUMMARY FOR FILE - V309162221G.D

Lab ID: 22I0247-08

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 19:04

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162221G.D

Date: 16-SEP-2022 19:04

Client ID:

Sample Info: 2210247-08

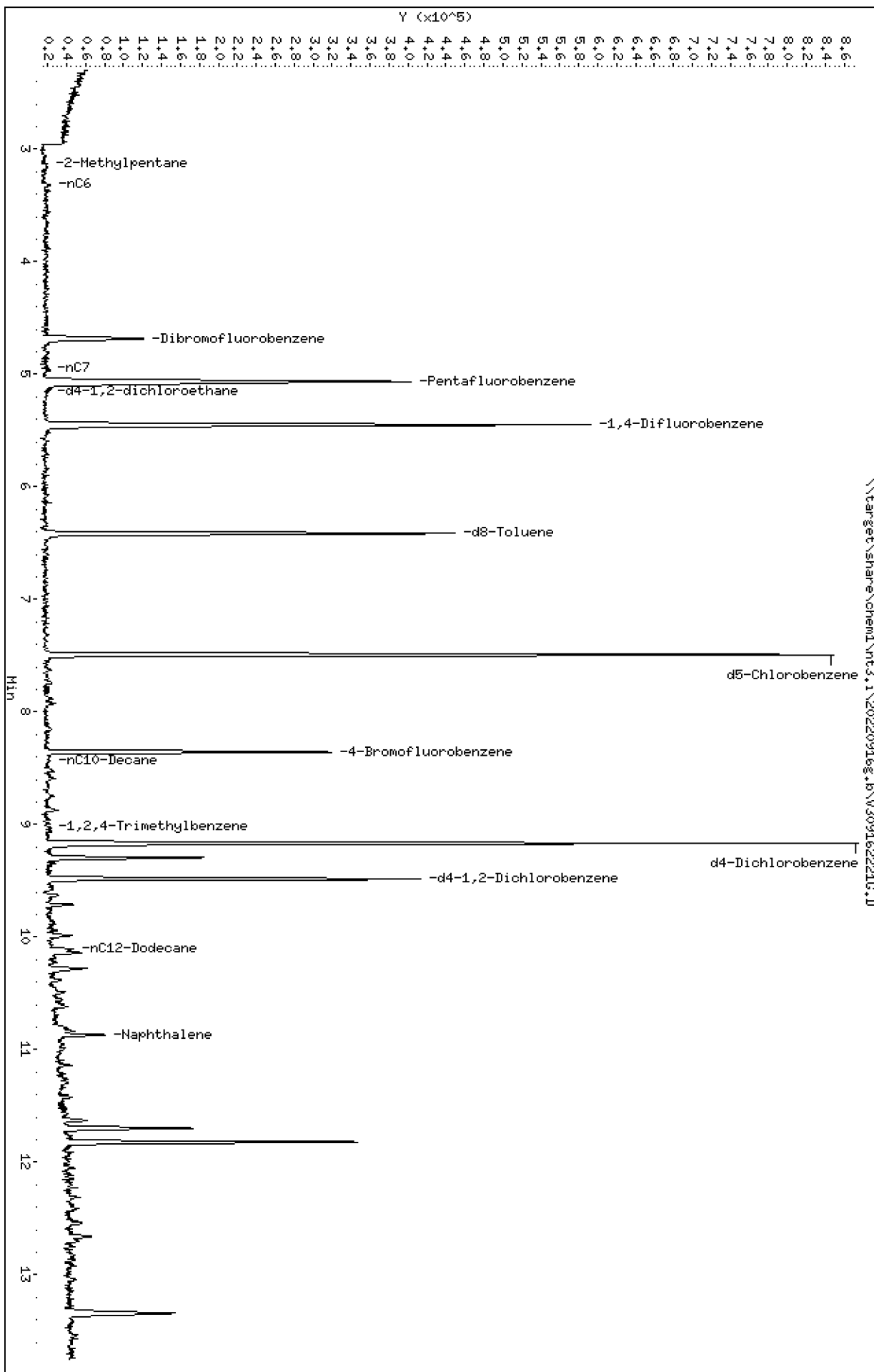
Page 1

Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162221G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 19:04

ARI ID: 22I0247-08  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	850176	0.019
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	718204	0.008
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	559867	0.008
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	1211045	0.025
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	1010842	0.014

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.491	1102662	d5-Chlorobenzene
6.412	610081	d8-Toluene
9.165	1094714	d4-Dichlorobenzene
8.357	391687	4-Bromofluorobenzene
9.484	511268	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**MW-02S-20220915**  
**22I0247-08RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 14:24  
Analyzed: 24-Oct-2022 22:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
Surrogate: <i>o</i> -Terphenyl			50-150 %	97.8	%	H

Data File: \\target\share\chem2\fid3b,1\20221024,8\32202442.D

Date: 24-OCT-2022 22:17

Client ID:

Sample Info: 2210247-08RE1

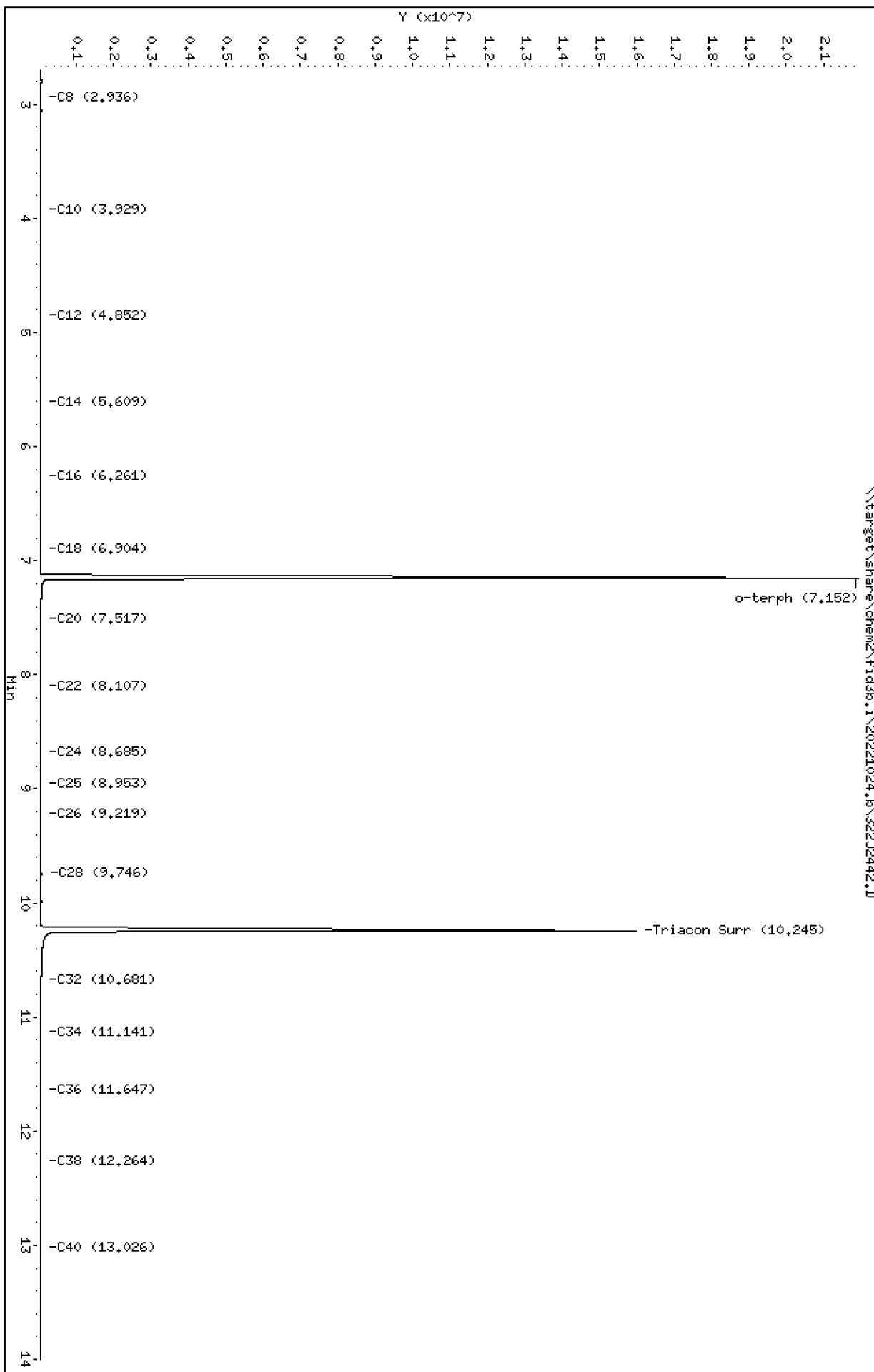
Column phase: RTX-1

Instrument: fid3b,1

Operator: AH

Column diameter: 0.25

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Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2442.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-08RE1  
Client ID:  
Injection: 24-OCT-2022 22:17  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.775	0.001	13024	5169	WATPHG	(Tol-C12)	425447	2.4
C8	2.936	0.008	7433	2592	WATPHD	(C12-C24)	1269541	7.4
C10	3.929	-0.003	2553	2498	WATPHM	(C24-C38)	1868426	12.6
C12	4.852	0.002	555	364	AK102	(C10-C25)	1423443	7.0
C14	5.609	0.001	4042	1594	AK103	(C25-C36)	1456877	15.3
C16	6.261	-0.017	5261	2352	OR.DIES	(C10-C28)	1750170	8.6
C18	6.904	-0.003	6096	1205				
C20	7.517	0.003	11702	1750				
C22	8.107	-0.001	8066	1207				
C24	8.685	0.005	6815	4553				
C25	8.953	-0.002	5641	3640				
C26	9.219	-0.004	5125	1020				
C28	9.746	0.007	27211	89366	IT.DIES	(C10-C24)	1350557	6.6
C32	10.681	-0.001	16663	18656				
C34	11.141	-0.001	11658	2906	CREOSOT	(C12-C22)	1064444	42.9
Filter Peak	13.988	0.001	10356	2579				
C36	11.647	-0.007	11513	9159	BUNKERC	(C10-C38)	3218983	33.6
o-terph	7.152	0.003	21877145	26466543	JET-A	(C10-C18)	561610	2.7
Triacon Surr	10.245	-0.003	15946529	21890192				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

Surrogate	Area	Amount
o-Terphenyl	26466543	110.0
Triacontane	21890192	127.4

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**LW-3-20220915**  
**2210247-09 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2022 11:01  
Instrument: ECD8 Analyzed: 07-Oct-2022 16:34

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	77.2	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	91.2	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**LW-3-20220915**  
**2210247-09 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2022 11:01  
Analyzed: 26-Sep-2022 17:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BK10381 Sample Size: 500 mL  
Prepared: 21-Sep-2022 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	1.6	ug/L	
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	91.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	109	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	71.4	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**LW-3-20220915**  
**2210247-09 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/15/2022 11:01  
Instrument: NT8 Analyzed: 26-Sep-2022 21:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	28.2	%	*
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	57.7	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**LW-3-20220915**  
**2210247-09 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/15/2022 11:01  
Analyzed: 16-Sep-2022 19:26

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	<b>350</b>	ug/L	
HC ID: GAS						
Surrogate: Toluene-d8			80-120 %	98.3	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	88.3	%	

Data File: \\target\share\chend\nt3.1\20220916s.16\309162222G.D

Date: 16-SEP-2022 19:26

Client ID:

Sample Info: 2210247-09

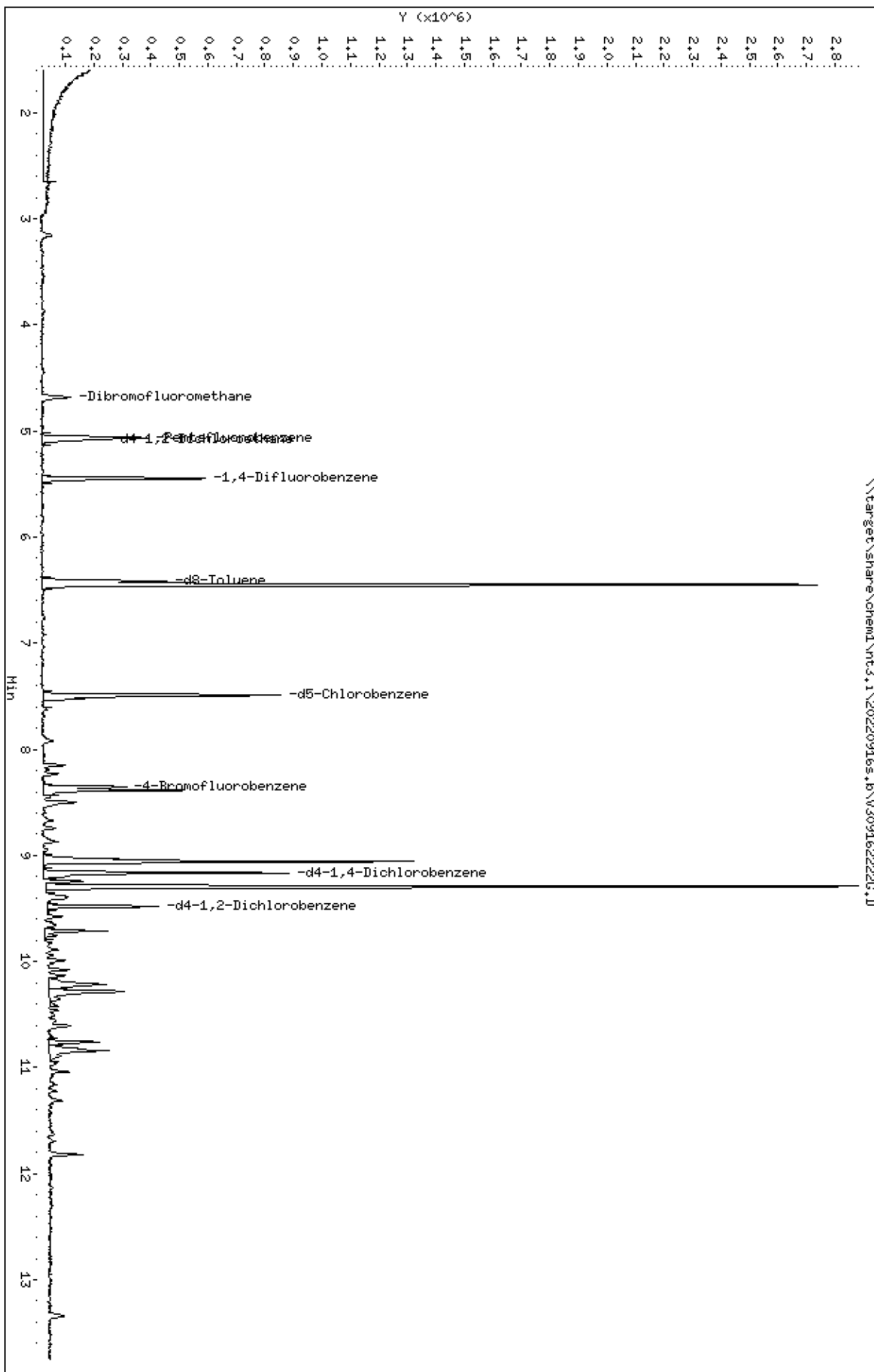
Page 1

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162222G.D  
 Lab Smp Id: 22I0247-09  
 Inj Date : 16-SEP-2022 19:26  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 22I0247-09  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 69  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.685	4.675	(0.925)	55628	5.10315	5.103
* 32 Pentafluorobenzene	168		5.062	5.057	(1.000)	188722	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.078	5.084	(1.003)	33711	5.02641	5.026
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	356702	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	207658	4.91344	4.913
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	331115	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.357	8.357	(1.116)	53522	4.41666	4.417
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	168079	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.483	9.483	(1.035)	77033	5.00787	5.008

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162222G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-09  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	207659	103830	415318	188722	-9.12
37 1,4-Difluorobenze	387680	193840	775360	356702	-7.99
53 d5-Chlorobenzene	359638	179819	719276	331115	-7.93
76 d4-1,4-Dichlorobe	189756	94878	379512	168079	-11.42

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzen	5.06	4.56	5.56	5.06	0.11
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.00
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.00
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 22I0247-09  
 Level: LOW Operator: PKC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.103	102.06	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.026	100.53	80-128
\$ 43 d8-Toluene	5.000	4.913	98.27	80-120
\$ 62 4-Bromofluorobenze	5.000	4.417	88.33	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.008	100.16	80-120



REVIEW SUMMARY FOR FILE - V309162222G.D

Lab ID: 22I0247-09

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 19:26

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\W309162222G.D

Date: 16-SEP-2022 19:26

Client ID:

Sample Info: 2210247-09

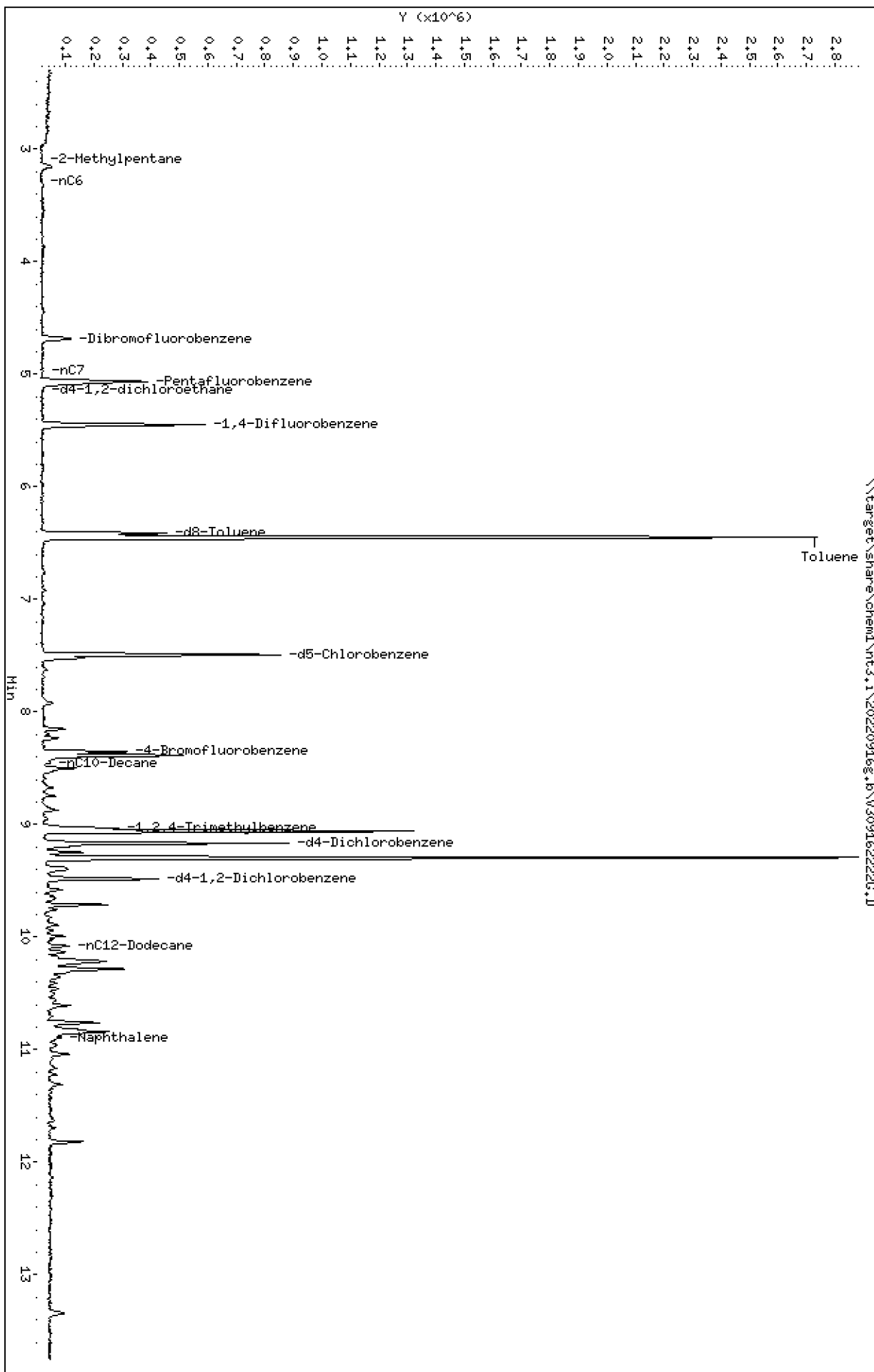
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162222G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 19:26

ARI ID: 22I0247-09  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
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WAGas Tol-C12 ( 6.34 to 10.20)	45366423	13806107	0.304
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	8608473	0.094
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	5025123	0.069
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	16834422	0.350
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	13995074	0.189

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.491	1100556	d5-Chlorobenzene
6.413	509943	d8-Toluene
9.165	1227186	d4-Dichlorobenzene
8.352	401209	4-Bromofluorobenzene
9.484	575242	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**LW-3-20220915**  
**22I0247-09RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 11:01  
Analyzed: 24-Oct-2022 22:38

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 50 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24) HC ID: DRO	DRO	1	1000	<b>32500</b>	ug/L	H
Motor Oil Range Organics (C24-C38) HC ID: MOTOR OIL	RRO	1	2000	<b>10400</b>	ug/L	H
Creosote Range Organics (C12-C22)	8001-58-9	1	2000	<b>215000</b>	ug/L	H, E
Surrogate: o-Terphenyl			50-150 %	99.3	%	H

Data File: \\target\share\chem2\fid3b.1\20221024.8\32202443.D

Date: 24-OCT-2022 22:38

Client ID:

Sample Info: 2210247-09RE1

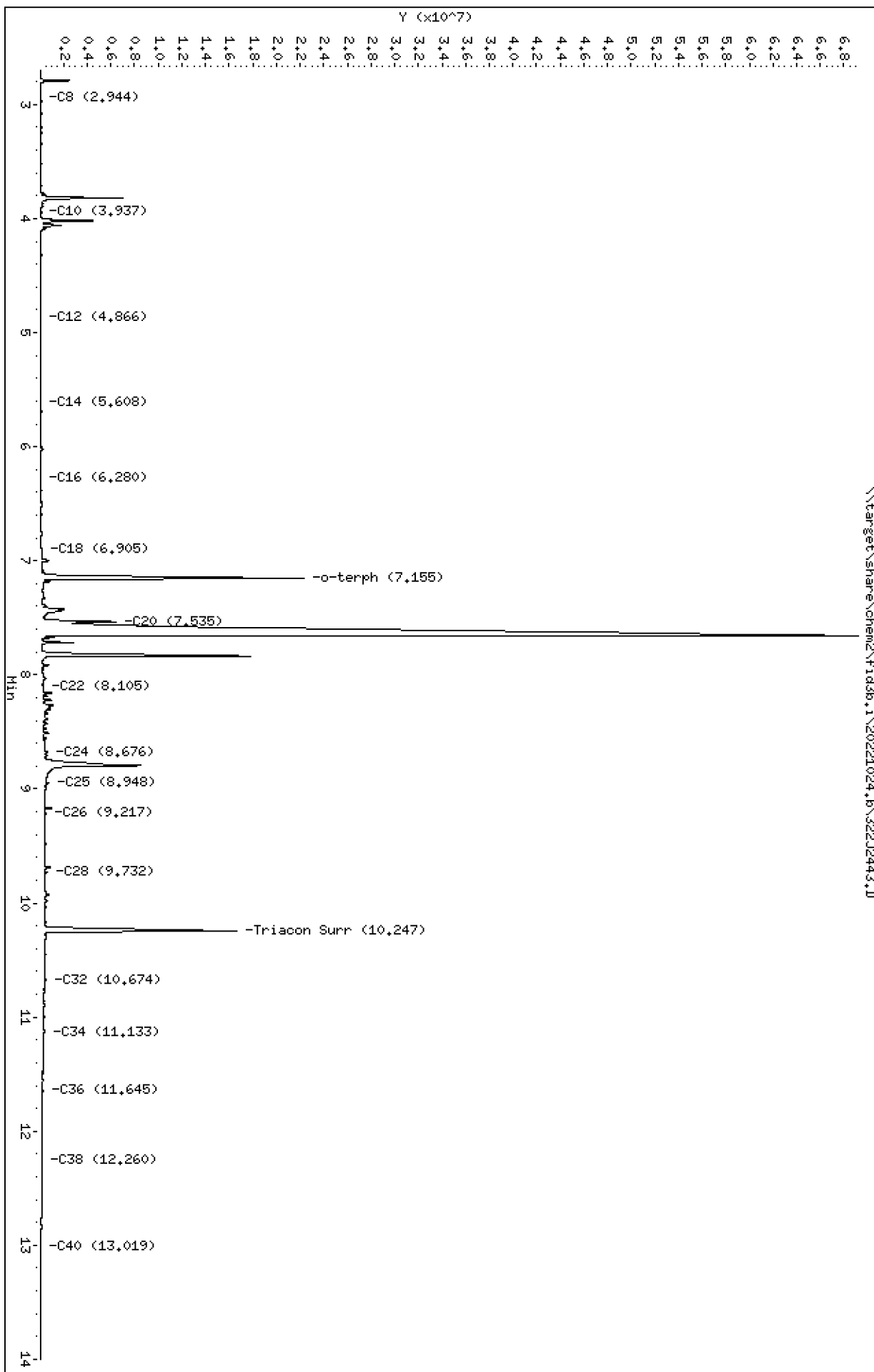
Column phase: RTX-1

Instrument: fid3b.1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2443.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-09RE1  
Client ID:  
Injection: 24-OCT-2022 22:38  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.790	0.016	2395429	1962062	WATPHG	(Tol-C12)	16993882	94.7
C8	2.944	0.016	26109	28222	WATPHD	(C12-C24)	280494532	1626.7
C10	3.937	0.005	53429	47980	WATPHM	(C24-C38)	77305671	519.6
C12	4.866	0.016	27374	53503	AK102	(C10-C25)	308433940	1513.5 M
C14	5.608	0.000	34960	70034	AK103	(C25-C36)	52644980	554.1 M
C16	6.280	0.003	33510	56410	OR.DIES	(C10-C28)	327526585	1603.2 M
C18	6.905	-0.002	136008	182514				
C20	7.535	0.020	6336204	7283671				
C22	8.105	-0.002	259644	263970				
C24	8.676	-0.004	587464	857799				
C25	8.948	-0.007	665097	1425229				
C26	9.217	-0.007	453864	829249				
C28	9.732	-0.007	533865	1104569	IT.DIES	(C10-C24)	287786335	1415.1
C32	10.674	-0.007	429116	654479				
C34	11.133	-0.008	327704	779578	CREOSOT	(C12-C22)	265994840	10728.7
Filter Peak	13.990	0.003	29887	19371				
C36	11.645	-0.009	179287	655059	BUNKERC	(C10-C38)	365092005	3816.0
o-terph	7.155	0.005	22039828	26875945	JET-A	(C10-C18)	11825787	56.7
Triacon Surr	10.247	-0.001	16262697	22404509				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

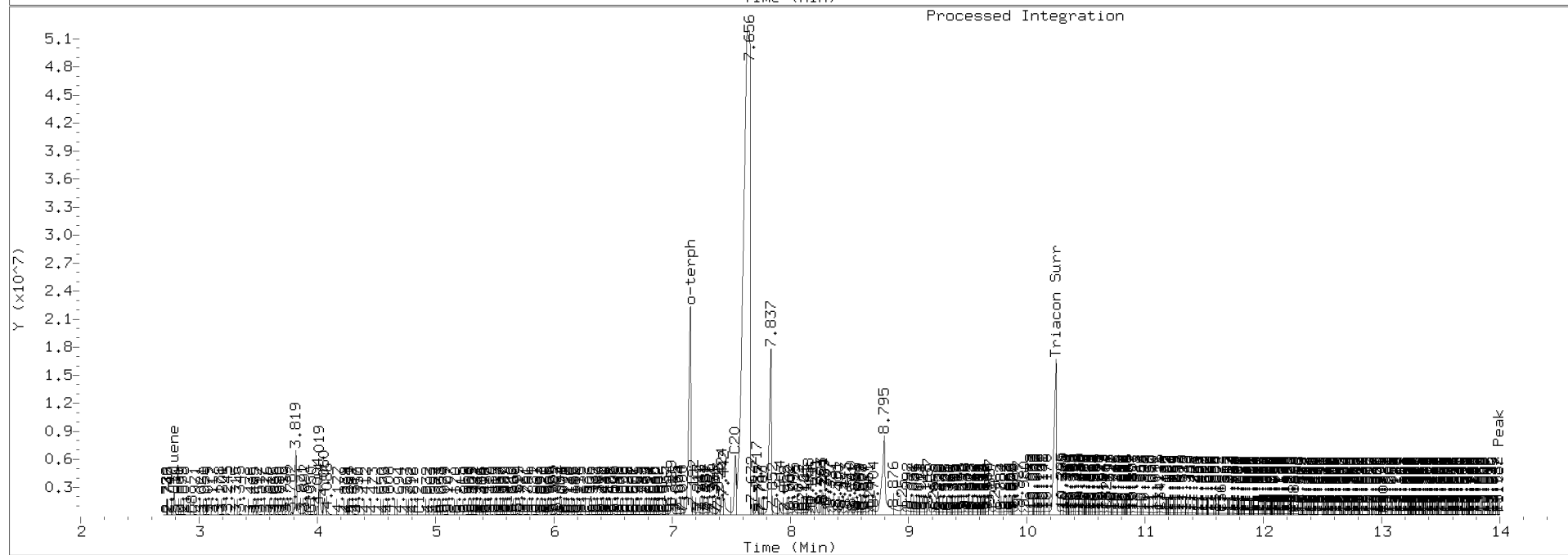
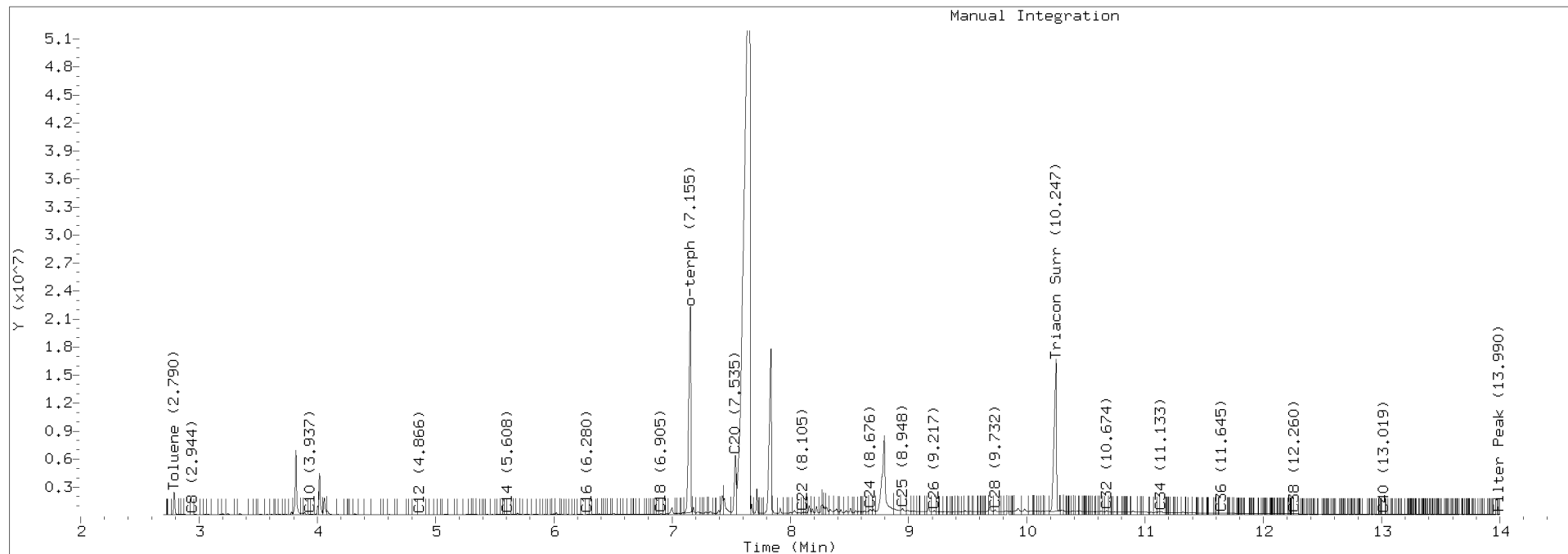
Surrogate	Area	Amount
o-Terphenyl	26875945	111.7
Triacontane	22404509	130.4

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221024.b/322J2443.D Injection: 24-OCT-2022 22:38

Lab ID:22I0247-09RE1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**LW-3-20220915**  
**22I0247-09RE2 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 11:01  
Analyzed: 24-Oct-2022 22:59

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 50 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	5	5000	<b>30900</b>	ug/L	H, D
HC ID: DRO						
Motor Oil Range Organics (C24-C38)	RRO	5	10000	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	5	10000	<b>206000</b>	ug/L	H, D
<i>Surrogate: o-Terphenyl</i>			<i>50-150 %</i>	<i>90.5</i>	<i>%</i>	<i>H</i>



Data File: \\target\share\chem2\fid3b.1\20221024.8\32232444.D

Date: 24-OCT-2022 22:59

Client ID:

Sample Info: 2210247-09RE2.5

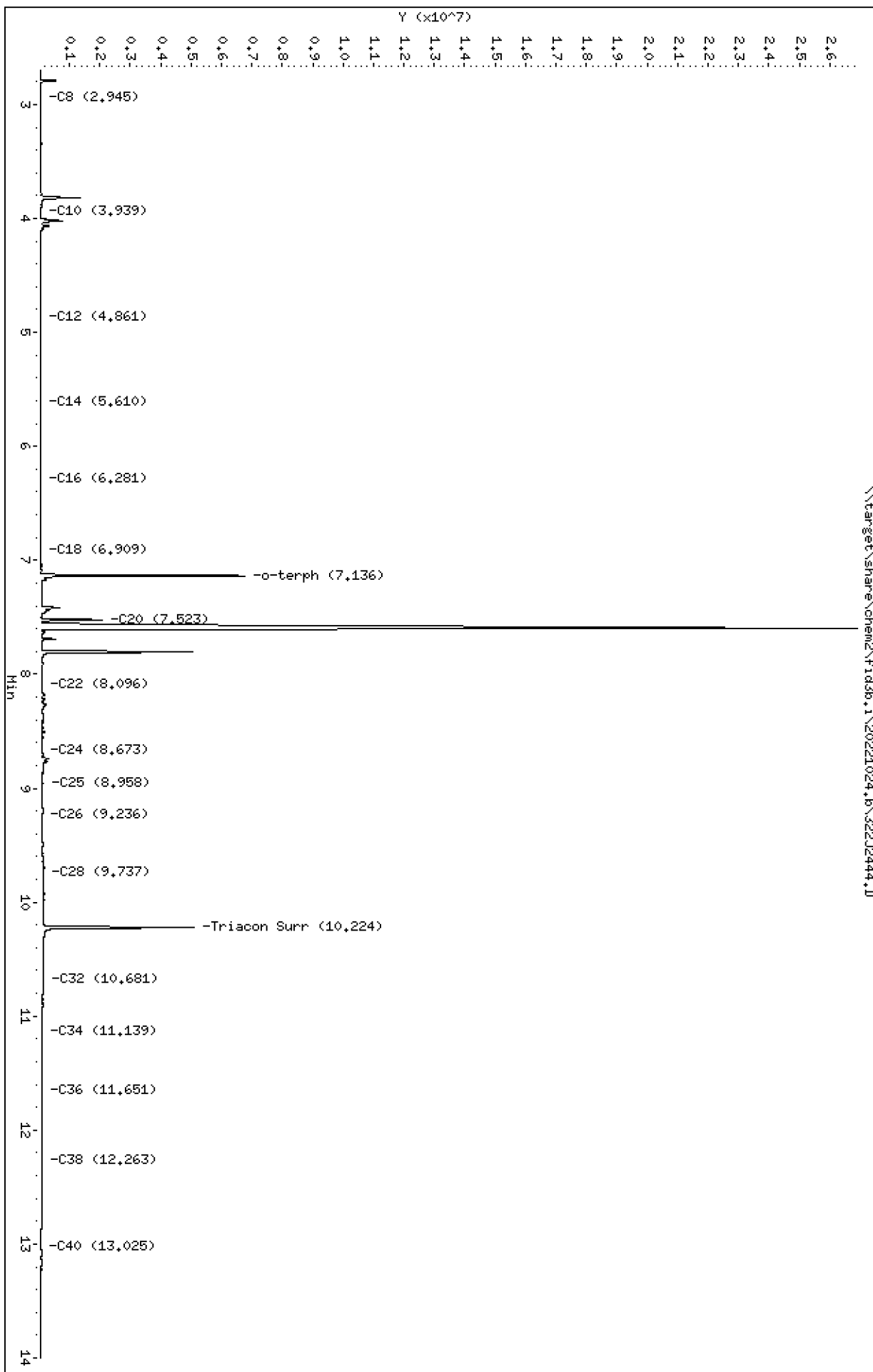
Column phase: RTX-1

Instrument: fid3b.1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2444.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-09RE2  
Client ID:  
Injection: 24-OCT-2022 22:59  
Dilution Factor: 5  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.791	0.017	511080	408339	WATPHG	(Tol-C12)	3356223	18.7
C8	2.945	0.016	10229	12449	WATPHD	(C12-C24)	53355662	309.4
C10	3.939	0.006	10689	14517	WATPHM	(C24-C38)	13030882	87.6
C12	4.861	0.011	341	193	AK102	(C10-C25)	55857167	274.1 M
C14	5.610	0.002	5846	3699	AK103	(C25-C36)	10890533	114.6 M
C16	6.281	0.003	4653	2932	OR.DIES	(C10-C28)	59037344	289.0 M
C18	6.909	0.002	11212	19528				
C20	7.523	0.008	2033224	1491814				
C22	8.096	-0.011	33043	6588				
C24	8.673	-0.007	54371	63786				
C25	8.958	0.002	68440	179312				
C26	9.236	0.012	66123	138397				
C28	9.737	-0.002	94156	196096	IT.DIES	(C10-C24)	54693514	268.9
C32	10.681	-0.000	76585	146112				
C34	11.139	-0.003	63099	192337	CREOSOT	(C12-C22)	50974516	2056.0
Filter Peak	13.989	0.002	17424	7818				
C36	11.651	-0.003	42344	27367	BUNKERC	(C10-C38)	67724396	707.9
o-terph	7.136	-0.013	6645110	4903174	JET-A	(C10-C18)	1932666	9.3
Triacon Surr	10.224	-0.024	4951025	4207990				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

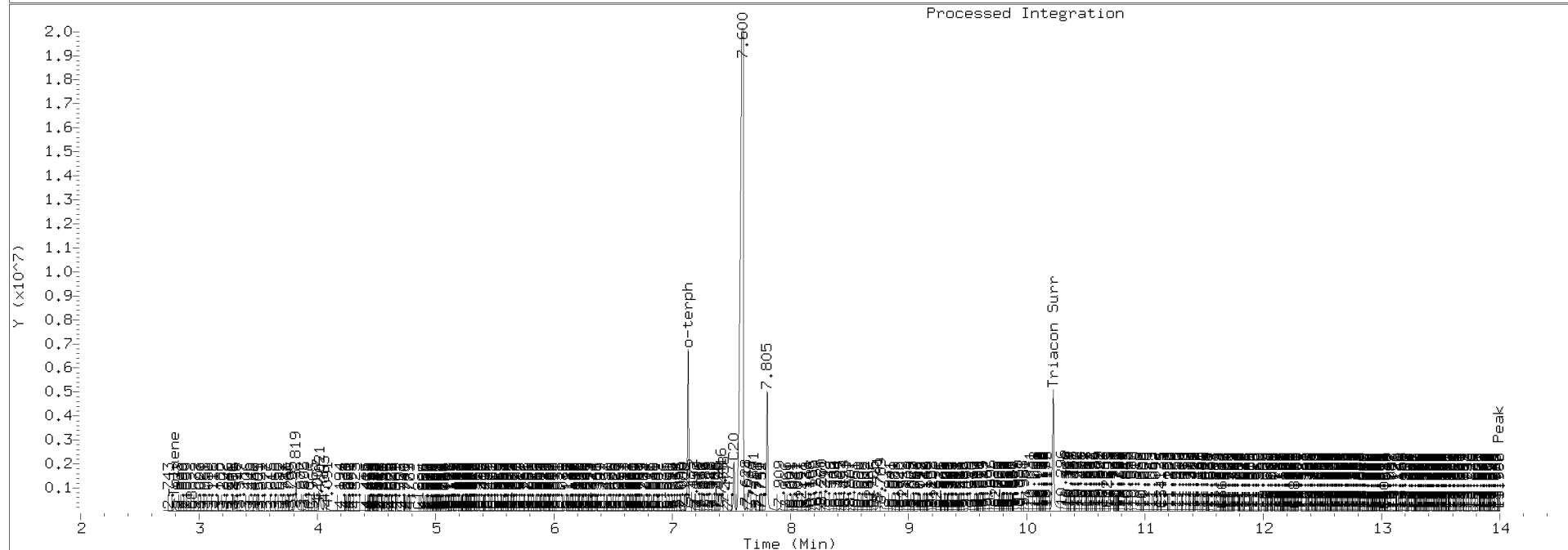
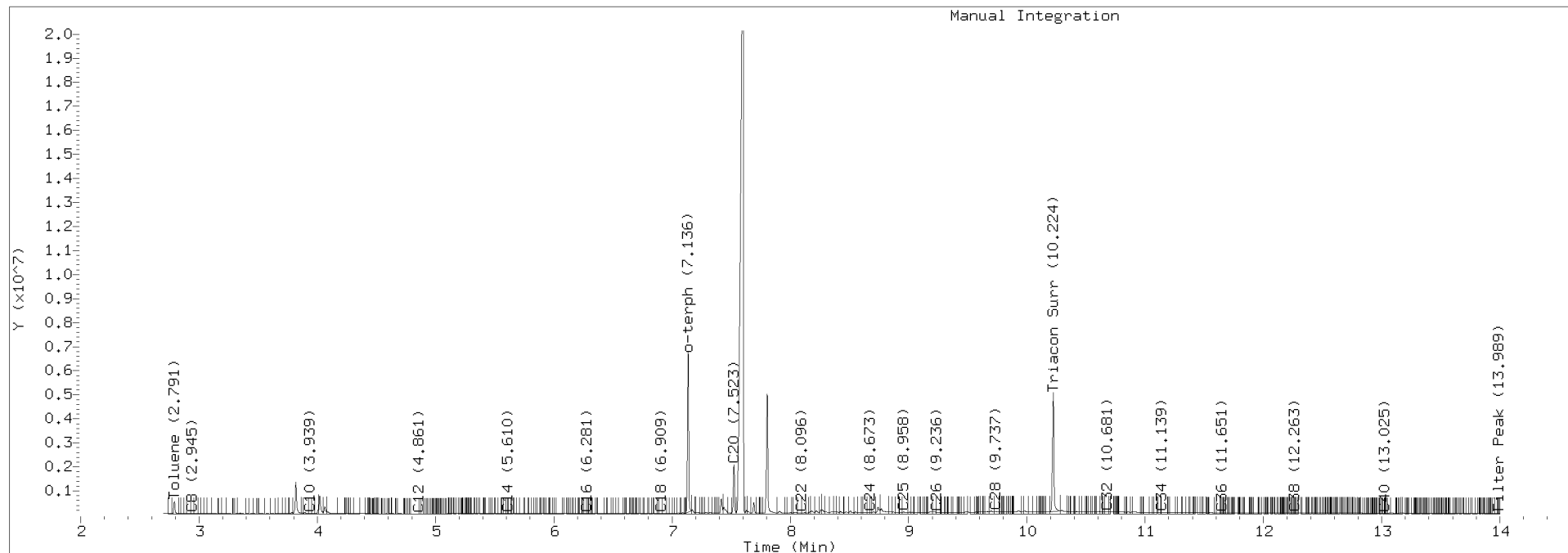
Surrogate	Area	Amount
o-Terphenyl	4903174	20.4
Triacontane	4207990	24.5

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221024.b/322J2444.D Injection: 24-OCT-2022 22:59

Lab ID:22I0247-09RE2





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**LW-4R-20220915**  
**2210247-10 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2022 12:03  
Instrument: ECD8 Analyzed: 07-Oct-2022 16:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	54.4	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	68.0	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**LW-4R-20220915**  
**2210247-10 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2022 12:03  
Analyzed: 26-Sep-2022 18:29

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381 Sample Size: 500 mL  
Prepared: 21-Sep-2022 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	77.6	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	85.5	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	78.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**LW-4R-20220915**  
**2210247-10 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/15/2022 12:03  
Analyzed: 26-Sep-2022 21:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	36.1	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	107	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**LW-4R-20220915**  
**2210247-10 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/15/2022 12:03  
Instrument: NT3 Analyzed: 16-Sep-2022 19:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	100	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	100	%	

Data File: \\target\share\chend\nt3.1\20220916s.16\3091622230.D

Date: 16-SEP-2022 19:49

Client ID:

Sample Info: 2210247-10

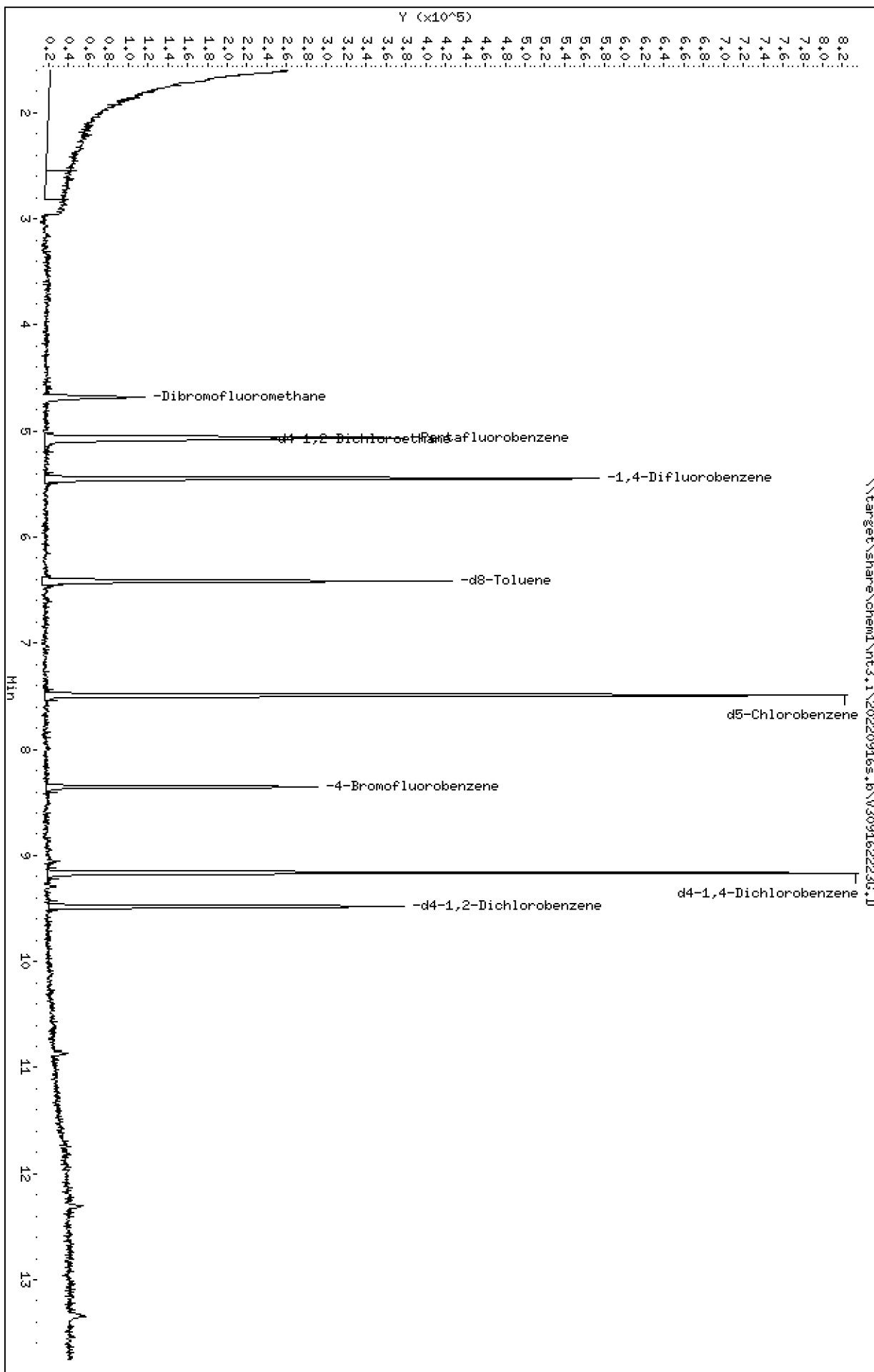
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162223G.D  
 Lab Smp Id: 22I0247-10  
 Inj Date : 16-SEP-2022 19:49  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 22I0247-10  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 70  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.680	4.675	(0.924)	55073	5.14534	5.145
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	185307	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.078	5.084	(1.003)	34743	5.27576	5.276
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	339499	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	202075	5.02362	5.024
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	314874	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.357	8.357	(1.116)	57723	5.00901	5.009
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	159306	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.483	9.483	(1.035)	73076	5.01224	5.012

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162223G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-10  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	185307	-10.76
37 1,4-Difluorobenze	387680	193840	775360	339499	-12.43
53 d5-Chlorobenzene	359638	179819	719276	314874	-12.45
76 d4-1,4-Dichlorobe	189756	94878	379512	159306	-16.05

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.11
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.00
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.00
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 22I0247-10  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.145	102.91	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.276	105.52	80-128
\$ 43 d8-Toluene	5.000	5.024	100.47	80-120
\$ 62 4-Bromofluorobenze	5.000	5.009	100.18	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.012	100.24	80-120

REVIEW SUMMARY FOR FILE - V309162223G.D

Lab ID: 22I0247-10

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 19:49

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162223G.D

Date: 16-SEP-2022 19:49

Client ID:

Sample Info: 2210247-10

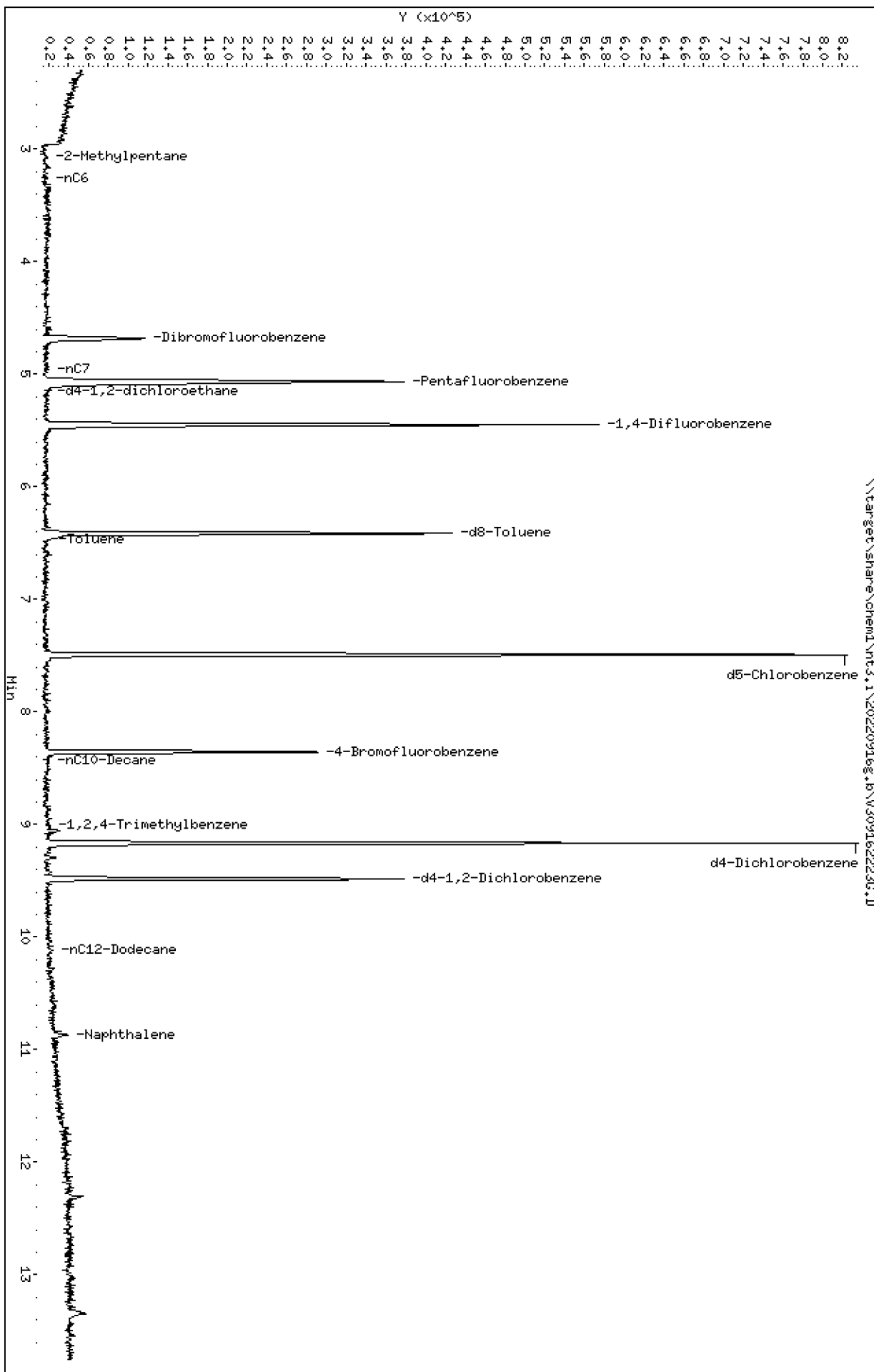
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162223G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 19:49

ARI ID: 22I0247-10  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	403431	0.009
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	585606	0.006
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	449784	0.006
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	514497	0.011
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	518853	0.007

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.491	1047627	d5-Chlorobenzene
6.413	593200	d8-Toluene
9.165	1020175	d4-Dichlorobenzene
8.357	388903	4-Bromofluorobenzene
9.484	490477	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**LW-4R-20220915**  
**22I0247-10RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 12:03  
Analyzed: 25-Oct-2022 16:28

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
<i>Surrogate: o-Terphenyl</i>			50-150 %	104	%	H

Data File: \\target\share\chem2\fid3b.1\20221025.8\32212508.D

Date: 25-OCT-2022 16:28

Client ID:

Sample Info: 2210247-10RE1

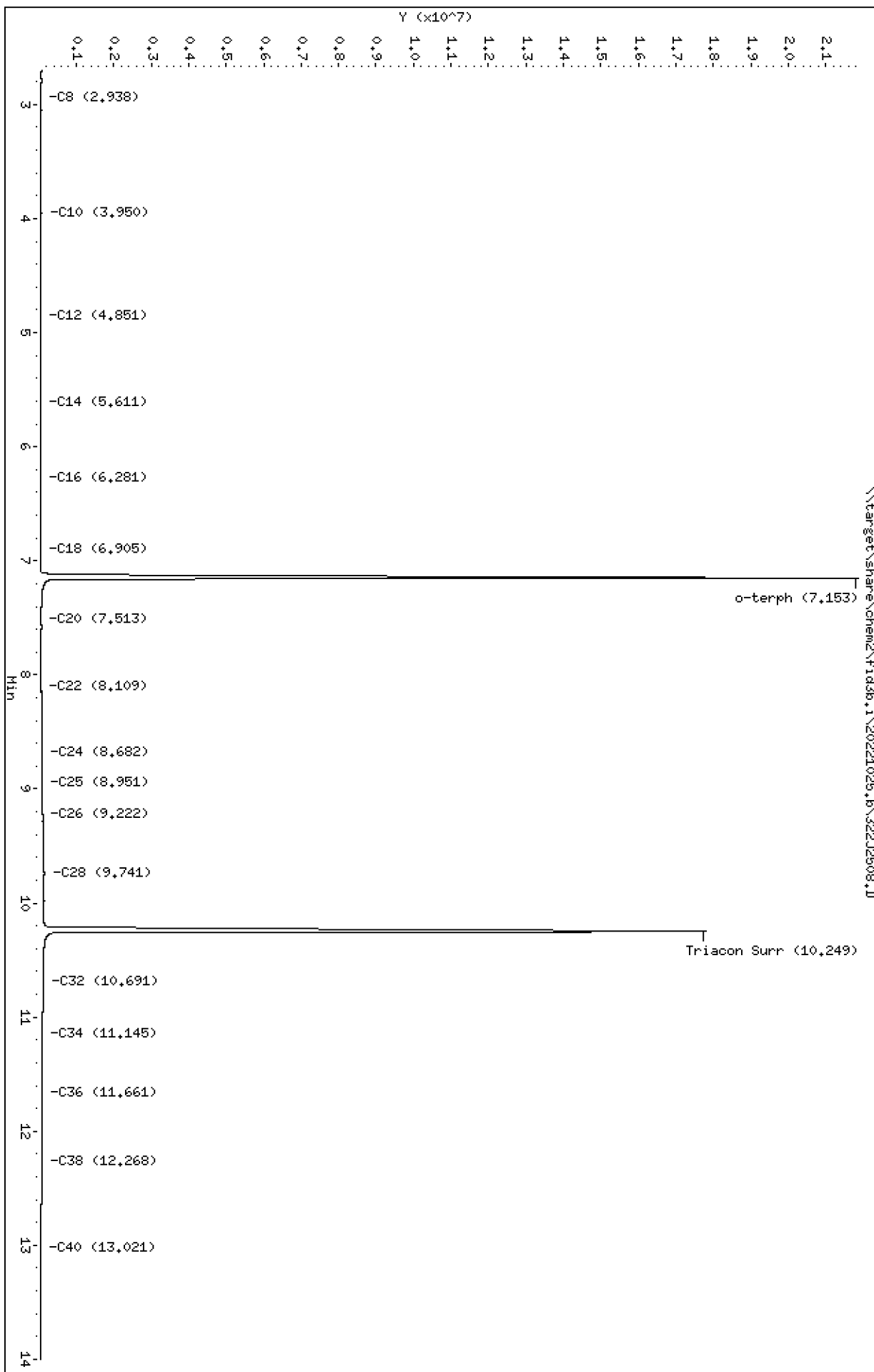
Column phase: RTX-1

Instrument: fid3b.1

Operator: AH

Column diameter: 0.25

Page 1





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221025.b/322J2508.D  
Method: 20221025.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-10RE1  
Client ID:  
Injection: 25-OCT-2022 16:28  
Dilution Factor: 1  
RT Std: 322J2503.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.788	-0.001	47783	70837	WATPHG	(Tol-C12)	560873	3.1
C8	2.938	-0.004	9780	14023	WATPHD	(C12-C24)	1907910	11.1
C10	3.950	0.011	20136	21711	WATPHM	(C24-C38)	11008223	74.0
C12	4.851	0.001	812	157	AK102	(C10-C25)	2456677	12.1
C14	5.611	0.004	2065	2501	AK103	(C25-C36)	9695002	102.0 M
C16	6.281	0.003	1234	360	OR.DIES	(C10-C28)	5431361	26.6
C18	6.905	-0.003	1917	740				
C20	7.513	-0.003	14234	2840				
C22	8.109	0.001	17396	8594				
C24	8.682	0.003	35790	16036				
C25	8.951	-0.005	45270	11297				
C26	9.222	-0.002	54660	16334				
C28	9.741	0.002	109472	282136	IT.DIES	(C10-C24)	2021386	9.9
C32	10.691	0.008	77996	141074				
C34	11.145	0.003	50904	42768	CREOSOT	(C12-C22)	950453	38.3
Filter Peak	13.990	0.003	12048	4797				
C36	11.661	0.004	35087	21018	BUNKERC	(C10-C38)	13029609	136.2
o-terph	7.153	0.003	21816597	28106037	JET-A	(C10-C18)	242934	1.2
Triacon Surr	10.249	-0.002	17642655	25345324				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.740 - 4.900) NW M.Oil(8.730 - 12.318)  
AK102(3.889 - 8.905) AK103(8.905 - 11.707) Jet A(3.889 - 6.958)

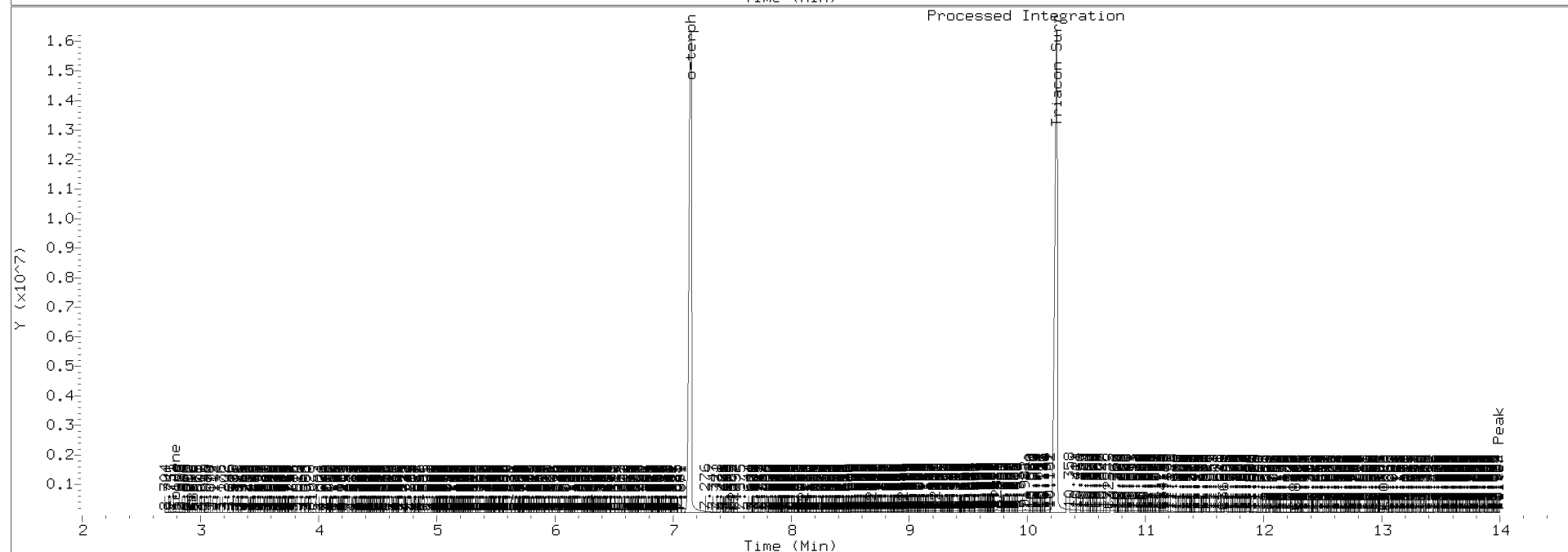
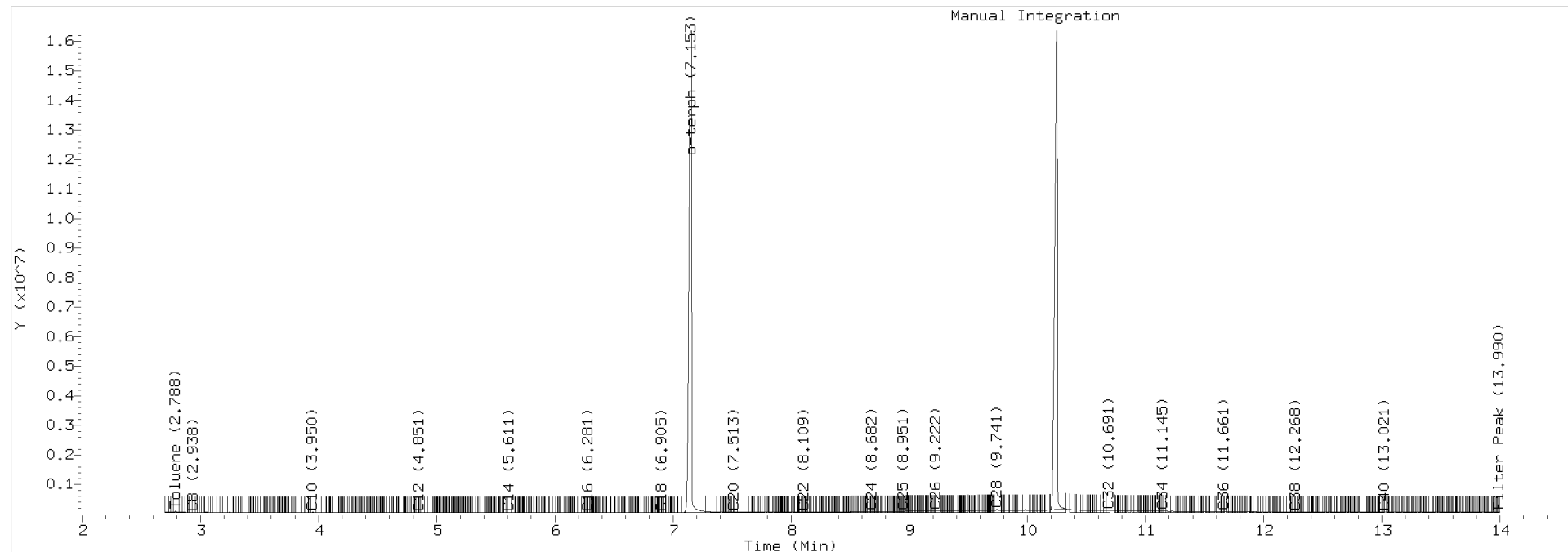
Surrogate	Area	Amount
o-Terphenyl	28106037	116.8
Triacontane	25345324	147.5

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221025.b/322J2508.D Injection: 25-OCT-2022 16:28

Lab ID:22I0247-10RE1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**PZ-12-20220915**  
**2210247-11 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2022 13:07  
Instrument: ECD8 Analyzed: 07-Oct-2022 17:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	53.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	59.4	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-12-20220915**  
**2210247-11 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E

Sampled: 09/15/2022 13:07

Instrument: NT6

Analyzed: 26-Sep-2022 19:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	78.9	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	88.7	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	82.1	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-12-20220915**  
**2210247-11 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/15/2022 13:07  
Analyzed: 26-Sep-2022 22:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	40.0	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	105	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**PZ-12-20220915**  
**2210247-11 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/15/2022 13:07  
Analyzed: 16-Sep-2022 20:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	102	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	91.1	%	

Data File: \\target\share\chend\nt3.1\20220916s.16\309162224G.D

Date: 16-SEP-2022 20:11

Client ID:

Sample Info: 2210247-11

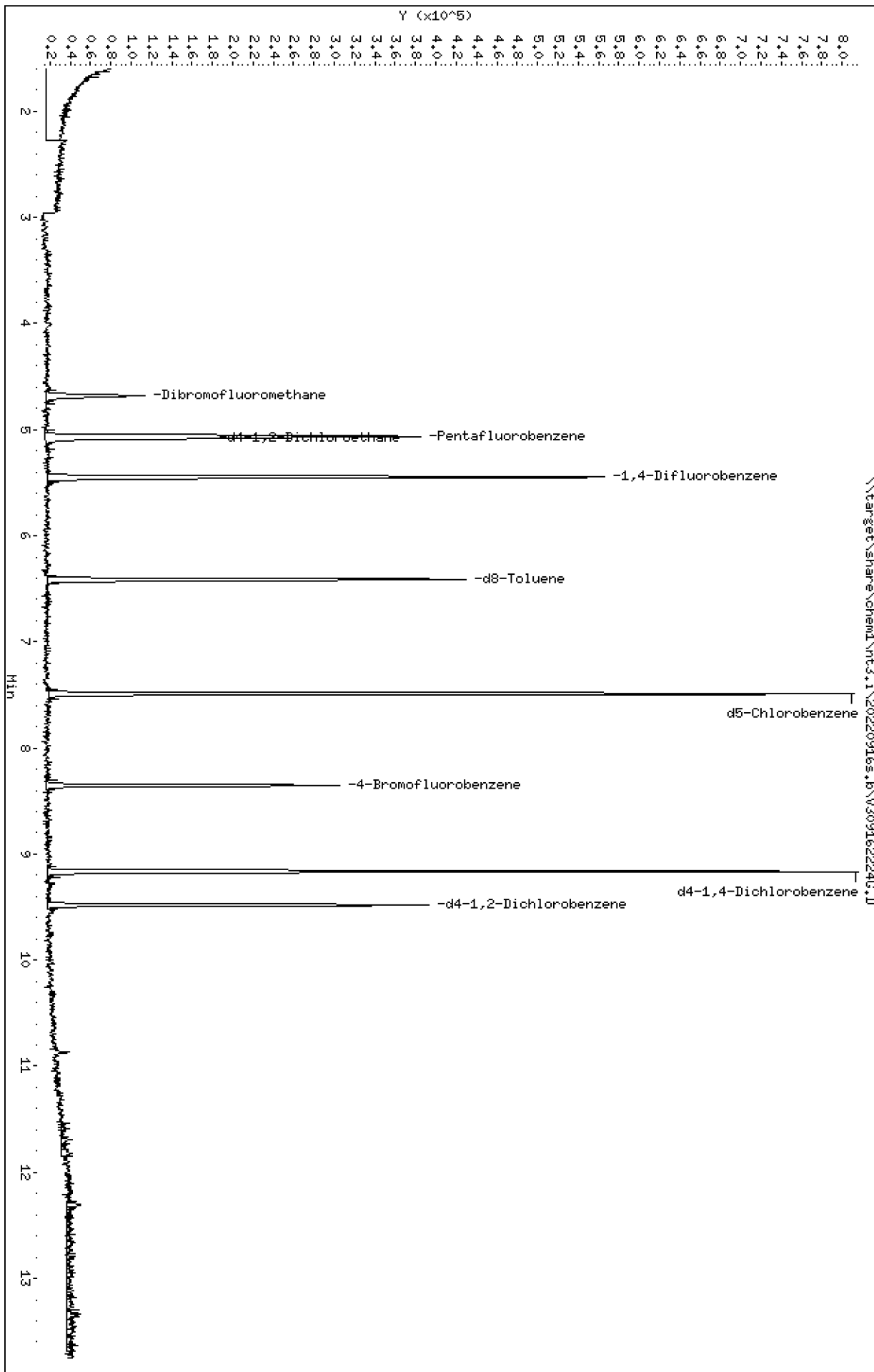
Page 1

Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162224G.D  
 Lab Smp Id: 22I0247-11  
 Inj Date : 16-SEP-2022 20:11  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 22I0247-11  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 71  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.680	4.675	(0.924)	52143	4.96713	4.967
* 32 Pentafluorobenzene	168		5.062	5.057	(1.000)	181743	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.083	5.084	(1.004)	34298	5.31031	5.310
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	340161	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	205851	5.10753	5.108
* 53 d5-Chlorobenzene	117		7.490	7.491	(1.000)	317288	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.356	8.357	(1.116)	52900	4.55556	4.556
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	156797	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.483	9.483	(1.035)	72158	5.02847	5.028



ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162224G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-11  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	181743	-12.48
37 1,4-Difluorobenze	387680	193840	775360	340161	-12.26
53 d5-Chlorobenzene	359638	179819	719276	317288	-11.78
76 d4-1,4-Dichlorobe	189756	94878	379512	156797	-17.37

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.10
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	-0.01
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	-0.00
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	-0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 22I0247-11  
 Level: LOW Operator: PKC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.967	99.34	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.310	106.21	80-128
\$ 43 d8-Toluene	5.000	5.108	102.15	80-120
\$ 62 4-Bromofluorobenze	5.000	4.556	91.11	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.028	100.57	80-120

REVIEW SUMMARY FOR FILE - V309162224G.D

Lab ID: 22I0247-11  
nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 20:11

RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chend\nt3.1\20220916g.b\309162224G.D

Date: 16-SEP-2022 20:11

Client ID:

Sample Info: 2210247-11

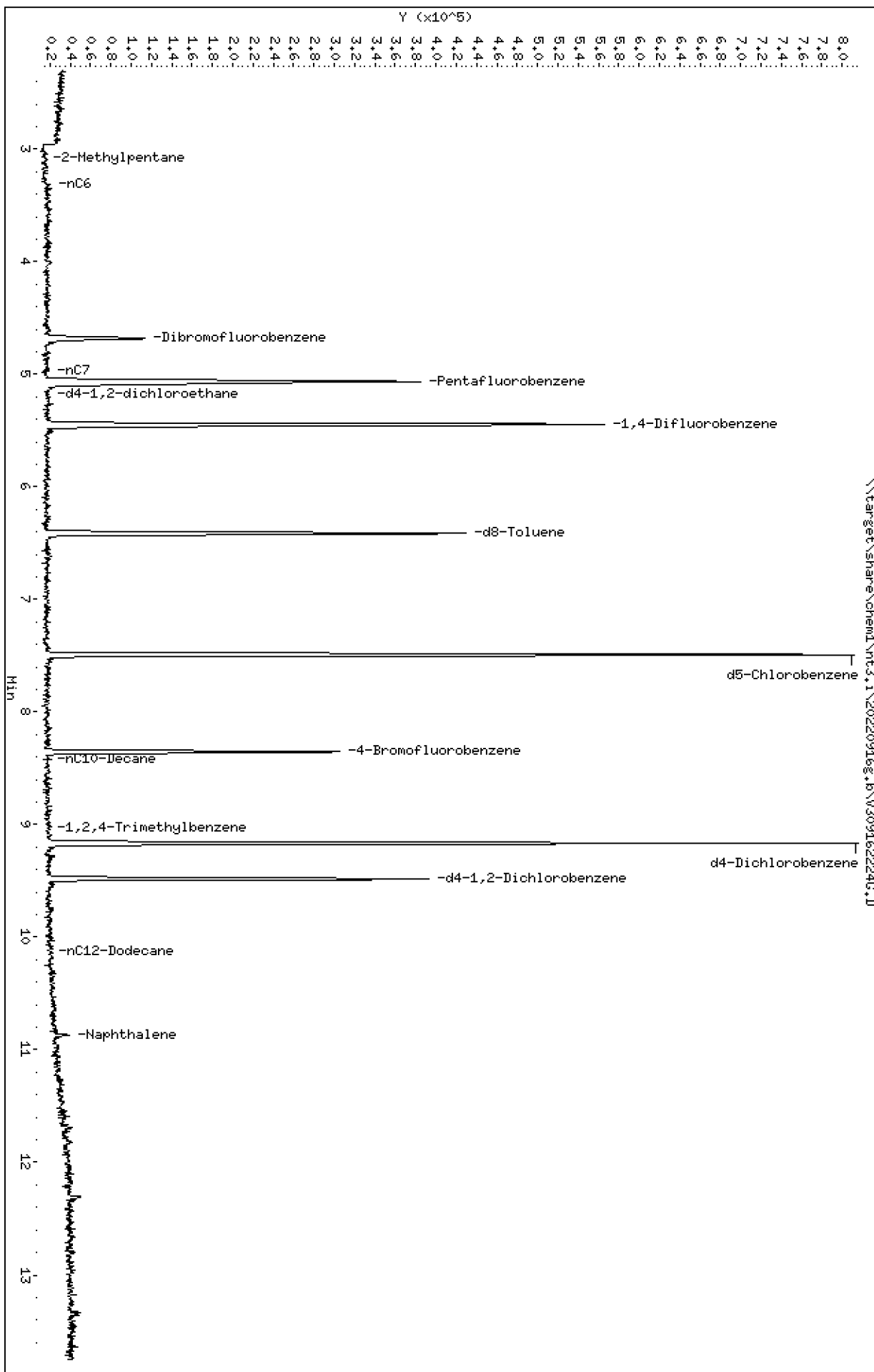
Page 1

Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162224G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 20:11

ARI ID: 22I0247-11  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	482160	0.011
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	710309	0.008
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	593836	0.008
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	602550	0.013
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	643525	0.009

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.491	1044346	d5-Chlorobenzene
6.412	567891	d8-Toluene
9.164	1023421	d4-Dichlorobenzene
8.352	386577	4-Bromofluorobenzene
9.483	486131	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-12-20220915**  
**22I0247-11RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 13:07  
Analyzed: 25-Oct-2022 16:49

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKJ0488 Sample Size: 500 mL  
Prepared: 20-Oct-2022 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKJ0133 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Sample Cleanup: Cleanup Method: Sulfuric Acid  
Cleanup Batch: CKJ0132 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
<i>Surrogate: o-Terphenyl</i>			50-150 %	102	%	H

Data File: \\target\share\chem2\FID3b,1\20221025,6\322J2509.D

Date: 25-OCT-2022 16:49

Client ID:

Sample Info: 2210247-11RE1

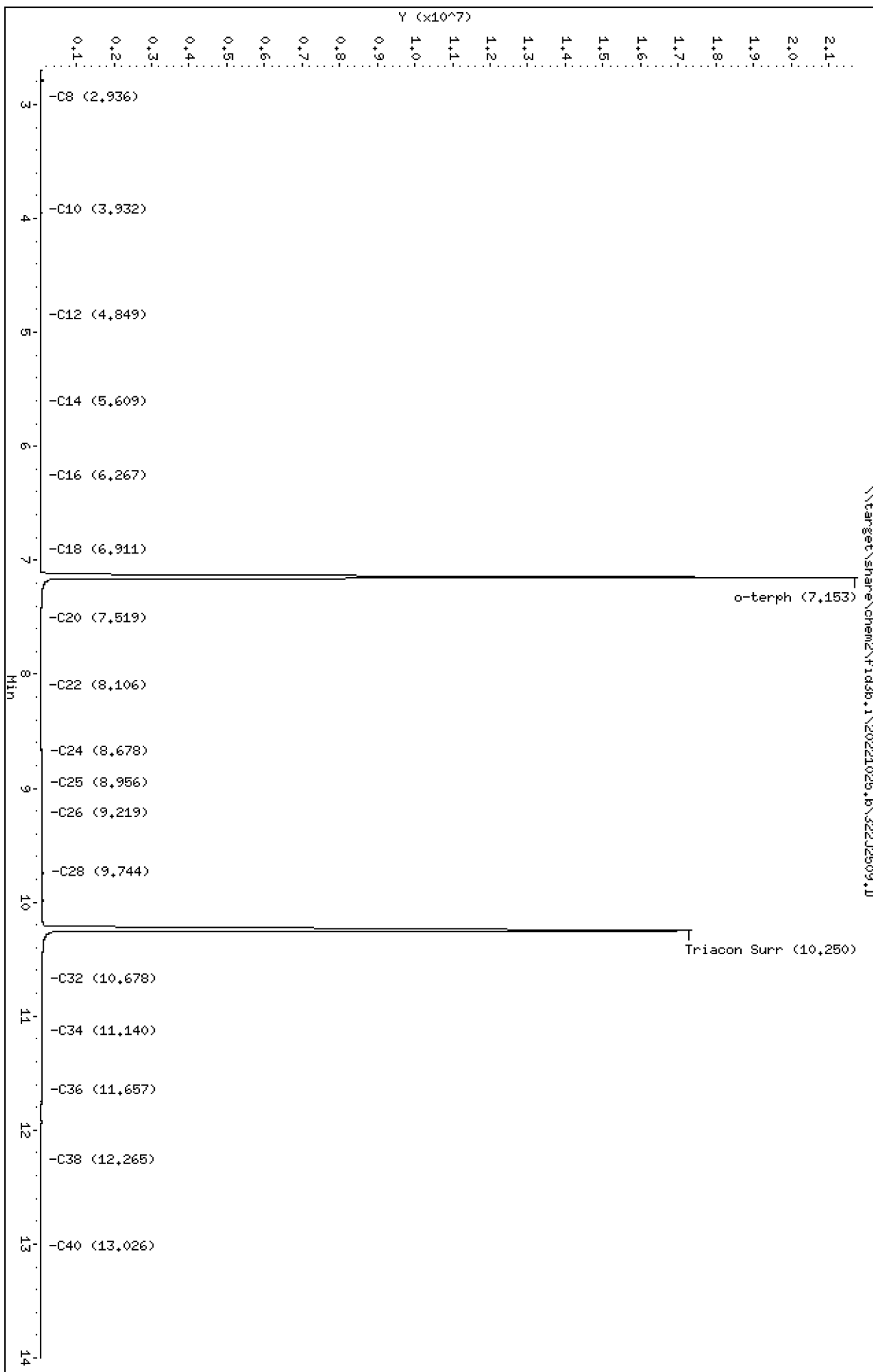
Column phase: RTX-1

Instrument: FID3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221025.b/322J2509.D  
Method: 20221025.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-11RE1  
Client ID:  
Injection: 25-OCT-2022 16:49  
Dilution Factor: 1  
RT Std: 322J2503.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.790	0.000	60443	79227	WATPHG	(Tol-C12)	498633	2.8
C8	2.936	-0.006	9015	4917	WATPHD	(C12-C24)	1098963	6.4
C10	3.932	-0.006	3075	1675	WATPHM	(C24-C38)	6536254	43.9
C12	4.849	-0.001	777	523	AK102	(C10-C25)	1390574	6.8
C14	5.609	0.001	1406	546	AK103	(C25-C36)	5813095	61.2 M
C16	6.267	-0.011	1904	1037	OR.DIES	(C10-C28)	2986708	14.6
C18	6.911	0.003	3091	2532				
C20	7.519	0.003	13934	6902				
C22	8.106	-0.001	10664	9953				
C24	8.678	-0.001	18480	4606				
C25	8.956	0.001	22628	5647				
C26	9.219	-0.006	26777	16007				
C28	9.744	0.005	72484	172066	IT.DIES	(C10-C24)	1192088	5.9
C32	10.678	-0.005	37498	14953				
C34	11.140	-0.002	31586	18887	CREOSOT	(C12-C22)	610554	24.6
Filter Peak	13.985	-0.002	10140	6050				
C36	11.657	0.000	19614	14628	BUNKERC	(C10-C38)	7728342	80.8
o-terph	7.153	0.003	21712598	27671181	JET-A	(C10-C18)	260555	1.2
Triacon Surr	10.250	-0.001	17230004	24860482				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.740 - 4.900) NW M.Oil(8.730 - 12.318)  
AK102(3.889 - 8.905) AK103(8.905 - 11.707) Jet A(3.889 - 6.958)

Surrogate	Area	Amount
o-Terphenyl	27671181	115.0
Triacontane	24860482	144.6

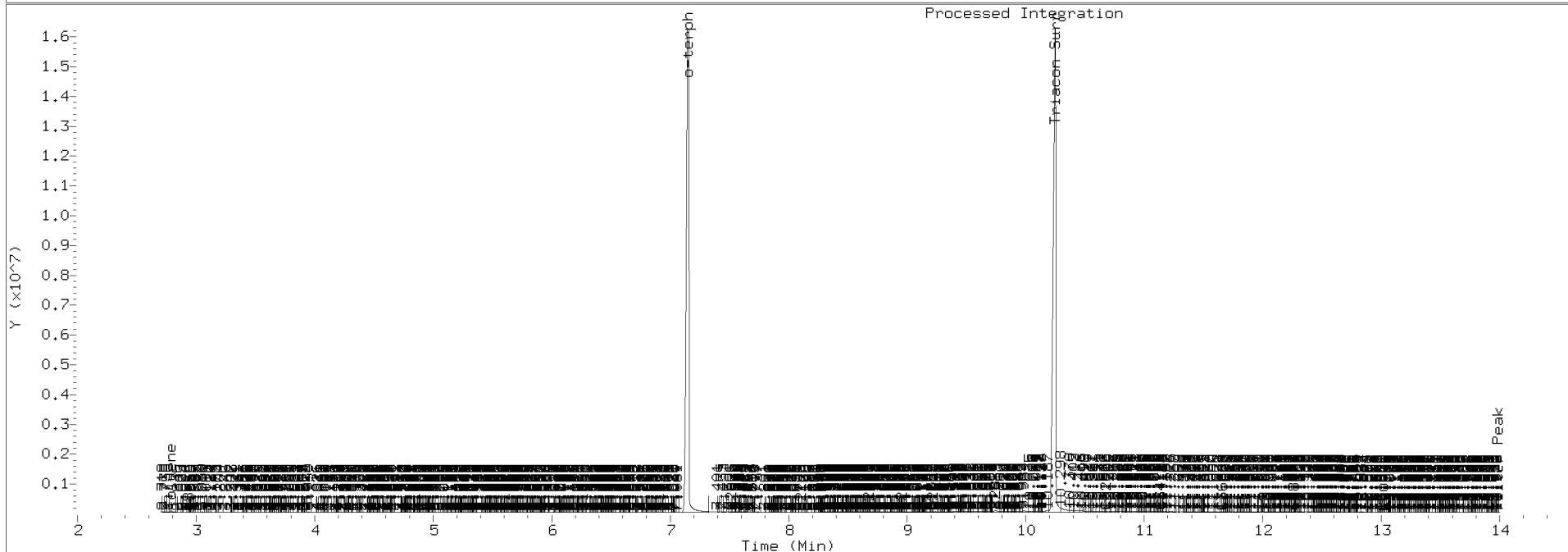
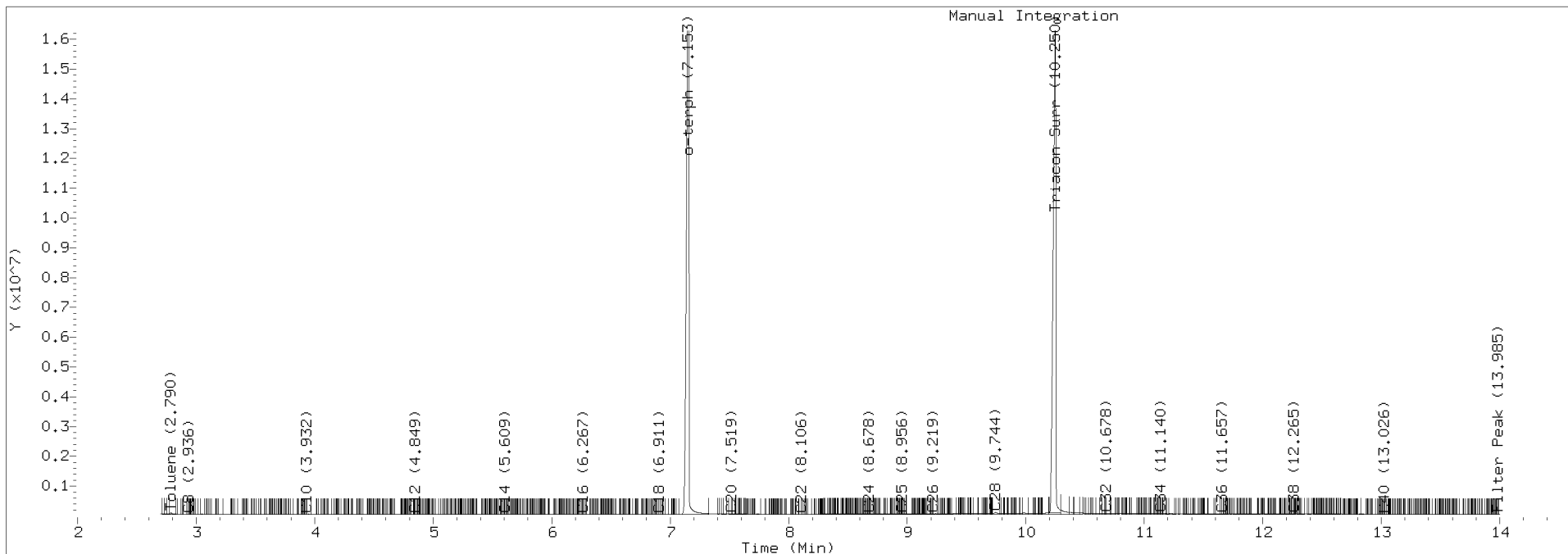
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



TPH Manual Integrations Report

Datafile: FID3B, 20221025.b/322J2509.D Injection: 25-OCT-2022 16:49

Lab ID:22I0247-11RE1





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-13-20220915**  
**2210247-12 (Water)**

**Phenols**

Method: EPA 8041A  
Instrument: ECD8

Sampled: 09/15/2022 13:08  
Analyzed: 07-Oct-2022 17:45

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	57.6	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	66.6	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-13-20220915**  
**2210247-12 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E

Sampled: 09/15/2022 13:08

Instrument: NT6

Analyzed: 26-Sep-2022 19:37

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BK10381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	78.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	92.9	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	84.6	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-13-20220915**  
**2210247-12 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/15/2022 13:08  
Analyzed: 26-Sep-2022 22:42

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	34.0	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	99.4	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

**Reported:**  
05-Sep-2023 12:20

**PZ-13-20220915**  
**2210247-12 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/15/2022 13:08  
Analyzed: 16-Sep-2022 20:33

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	99.8	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	99.3	%	

Data File: \\target\share\chend\nt3.1\20220916s.16\309162225G.D

Date: 16-SEP-2022 20:33

Client ID:

Sample Info: 2210247-12

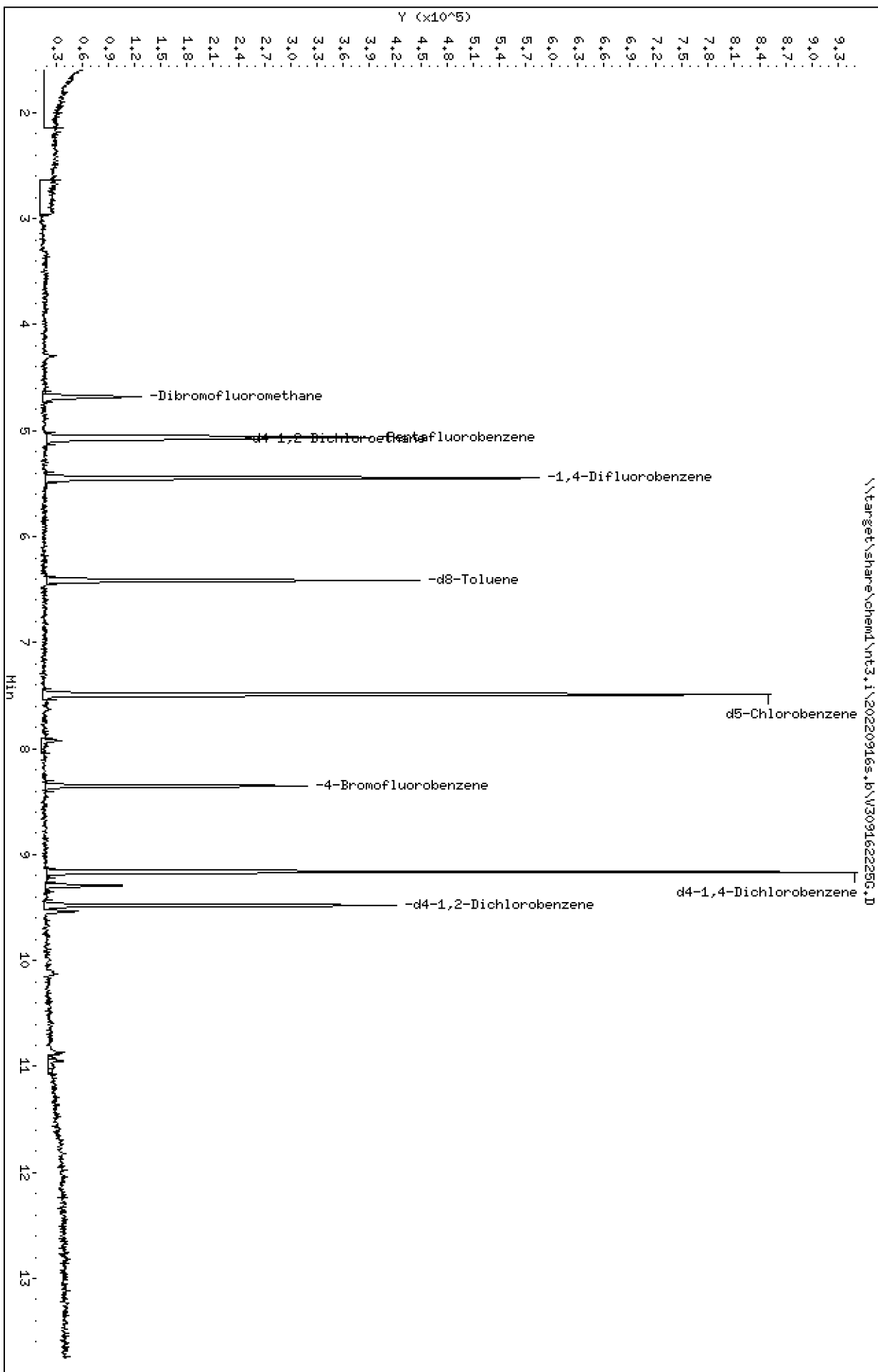
Page 1

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162225G.D  
 Lab Smp Id: 22I0247-12  
 Inj Date : 16-SEP-2022 20:33  
 Operator : PKC  
 Smp Info : 22I0247-12  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i  
 Cal Date : 12-SEP-2022 13:39  
 Als bottle: 72  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309122211.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.680	4.675	(0.924)	57552	5.21163	5.212
* 32 Pentafluorobenzene	168		5.062	5.057	(1.000)	191185	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.078	5.084	(1.003)	36327	5.34669	5.347
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	355948	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	210479	4.99074	4.991
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	335662	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.357	8.357	(1.116)	60992	4.96490	4.965
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	181422	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.478	9.483	(1.034)	81085	4.88360	4.884

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162225G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-12  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	191185	-7.93
37 1,4-Difluorobenze	387680	193840	775360	355948	-8.19
53 d5-Chlorobenzene	359638	179819	719276	335662	-6.67
76 d4-1,4-Dichlorobe	189756	94878	379512	181422	-4.39

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.11
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.00
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.00
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 22I0247-12  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.212	104.23	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.347	106.93	80-128
\$ 43 d8-Toluene	5.000	4.991	99.81	80-120
\$ 62 4-Bromofluorobenze	5.000	4.965	99.30	80-120
\$ 79 d4-1,2-Dichloroben	5.000	4.884	97.67	80-120

REVIEW SUMMARY FOR FILE - V309162225G.D

Lab ID: 22I0247-12

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 20:33

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162225G.D

Date: 16-SEP-2022 20:33

Client ID:

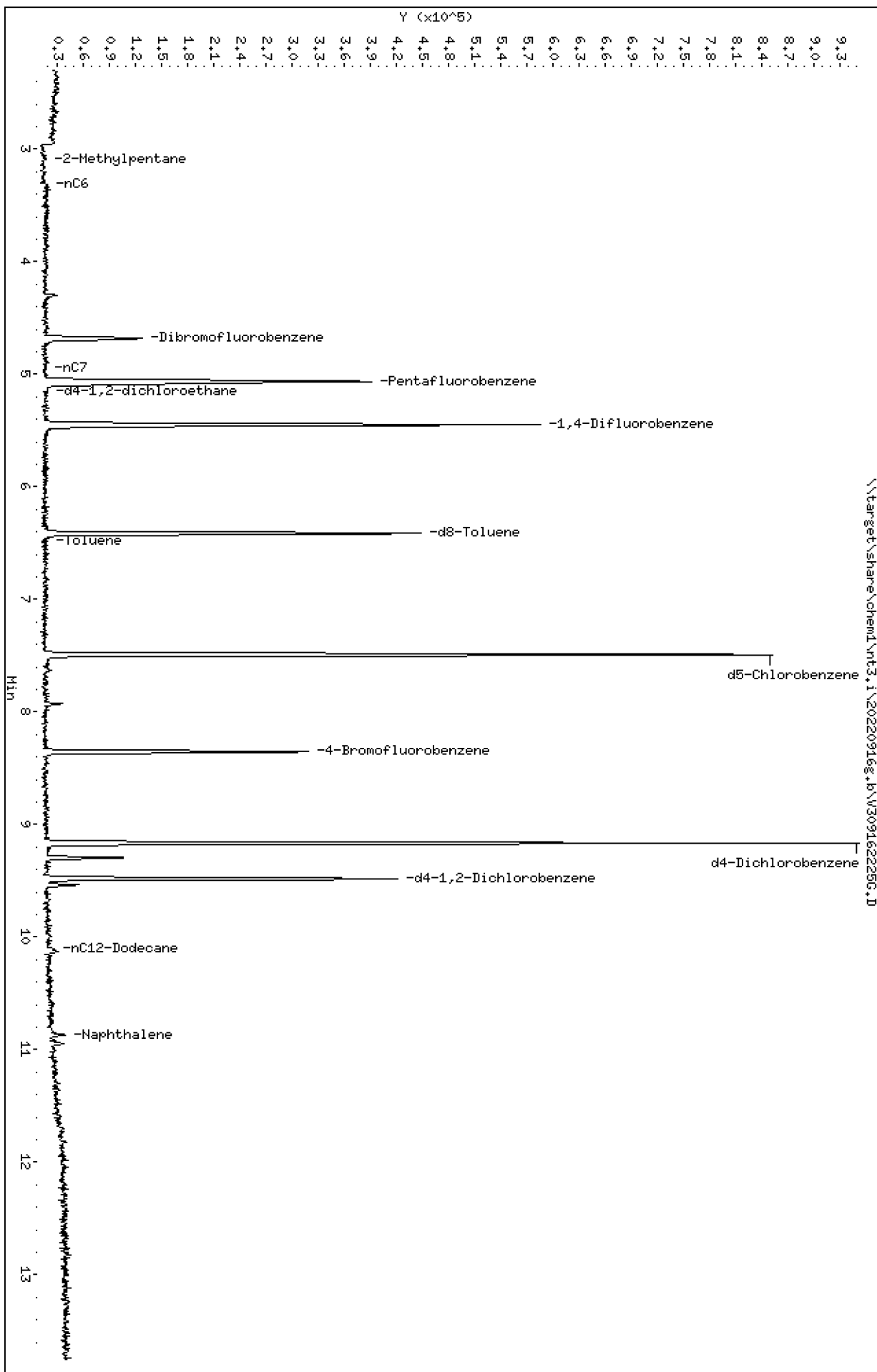
Sample Info: 2210247-12

Instrument: nt3.1

Page 1

Column phase: RTXWMS

Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162225G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 20:33

ARI ID: 22I0247-12  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	582159	0.013
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	676586	0.007
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	604830	0.008
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	694505	0.014
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	725285	0.010

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.491	1116261	d5-Chlorobenzene
6.413	602002	d8-Toluene
9.165	1154023	d4-Dichlorobenzene
8.352	406505	4-Bromofluorobenzene
9.478	543522	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-13-20220915**  
**22I0247-12RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 13:08  
Analyzed: 25-Oct-2022 17:10

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKJ0488 Sample Size: 500 mL  
Prepared: 20-Oct-2022 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKJ0133 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Sample Cleanup: Cleanup Method: Sulfuric Acid  
Cleanup Batch: CKJ0132 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
Surrogate: o-Terphenyl			50-150 %	93.5	%	H

Data File: \\target\share\chem2\fid3b,1\20221025,8\32232510.D

Date: 25-OCT-2022 17:10

Client ID:

Sample Info: 2210247-12RE1

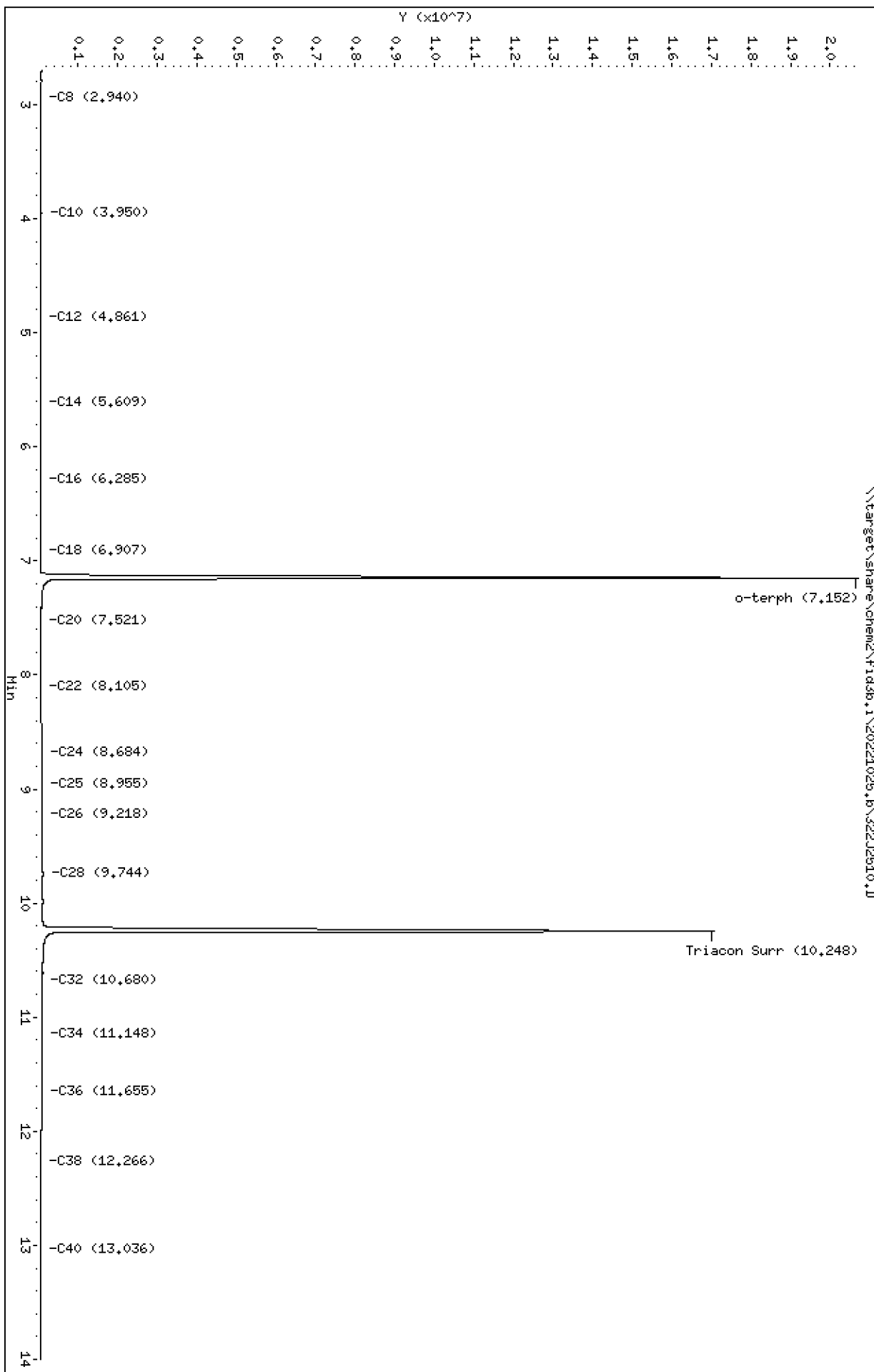
Column phase: RTX-1

Instrument: fid3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221025.b/322J2510.D  
Method: 20221025.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-12RE1  
Client ID:  
Injection: 25-OCT-2022 17:10  
Dilution Factor: 1  
RT Std: 322J2503.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.791	0.002	40680	61321	WATPHG	(Tol-C12)	488290	2.7
C8	2.940	-0.002	8805	6546	WATPHD	(C12-C24)	1163056	6.7
C10	3.950	0.011	23745	25233	WATPHM	(C24-C38)	7371982	49.5
C12	4.861	0.011	920	1078	AK102	(C10-C25)	1530582	7.5
C14	5.609	0.001	1045	610	AK103	(C25-C36)	6586021	69.3 M
C16	6.285	0.007	1779	998	OR.DIES	(C10-C28)	3669703	18.0
C18	6.907	-0.001	1675	1206				
C20	7.521	0.005	13607	10790				
C22	8.105	-0.003	11056	4947				
C24	8.684	0.004	23653	9408				
C25	8.955	-0.001	30734	9189				
C26	9.218	-0.006	36961	20250				
C28	9.744	0.005	82766	212396	IT.DIES	(C10-C24)	1261759	6.2
C32	10.680	-0.003	45545	11374				
C34	11.148	0.006	32624	25601	CREOSOT	(C12-C22)	558276	22.5
Filter Peak	13.989	0.002	9444	4233				
C36	11.655	-0.002	21995	13141	BUNKERC	(C10-C38)	8633741	90.2
o-terph	7.152	0.002	20666441	25314358	JET-A	(C10-C18)	225671	1.1
Triacon Surr	10.248	-0.003	16963535	23072051				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.740 - 4.900) NW M.Oil(8.730 - 12.318)  
AK102(3.889 - 8.905) AK103(8.905 - 11.707) Jet A(3.889 - 6.958)

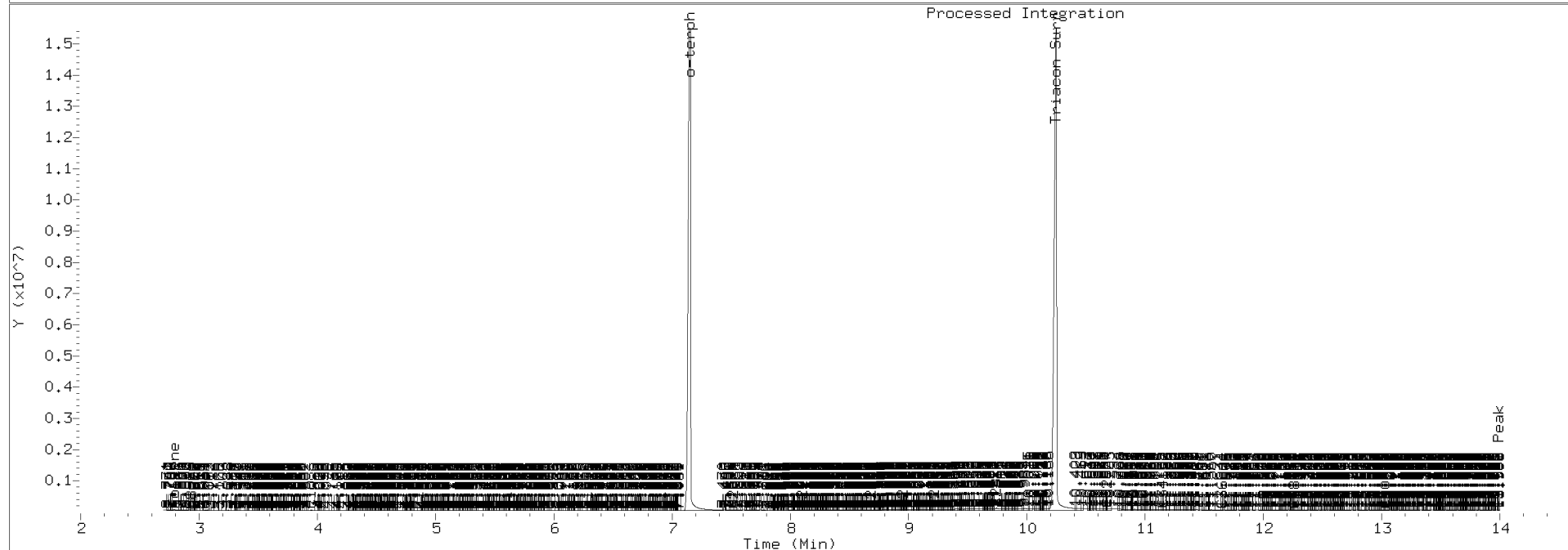
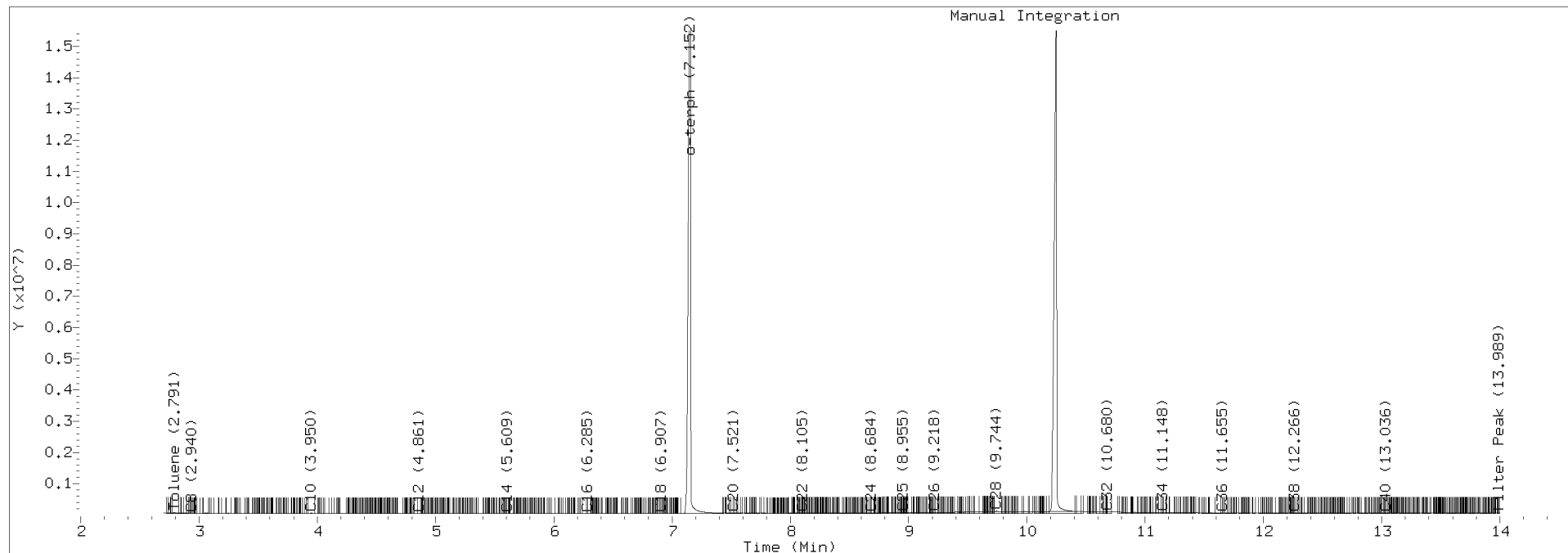
Surrogate	Area	Amount
o-Terphenyl	25314358	105.2
Triacontane	23072051	134.2

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221025.b/322J2510.D Injection: 25-OCT-2022 17:10

Lab ID:22I0247-12RE1







Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**PZ-17-20220915**  
**2210247-13 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2022 11:12  
Instrument: ECD8 Analyzed: 07-Oct-2022 18:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	64.7	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	77.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-17-20220915**  
**2210247-13 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2022 11:12  
Analyzed: 26-Sep-2022 20:11

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381 Sample Size: 500 mL  
Prepared: 21-Sep-2022 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	86.1	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	93.4	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	84.3	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-17-20220915**  
**2210247-13 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/15/2022 11:12  
Analyzed: 26-Sep-2022 23:09

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	45.4	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	102	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-17-20220915**  
**2210247-13 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/15/2022 11:12  
Analyzed: 16-Sep-2022 20:55

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	96.8	%	

Data File: \\target\share\chend\nt3.1\20220916s.1b\309162226G.D

Date: 16-SEP-2022 20:55

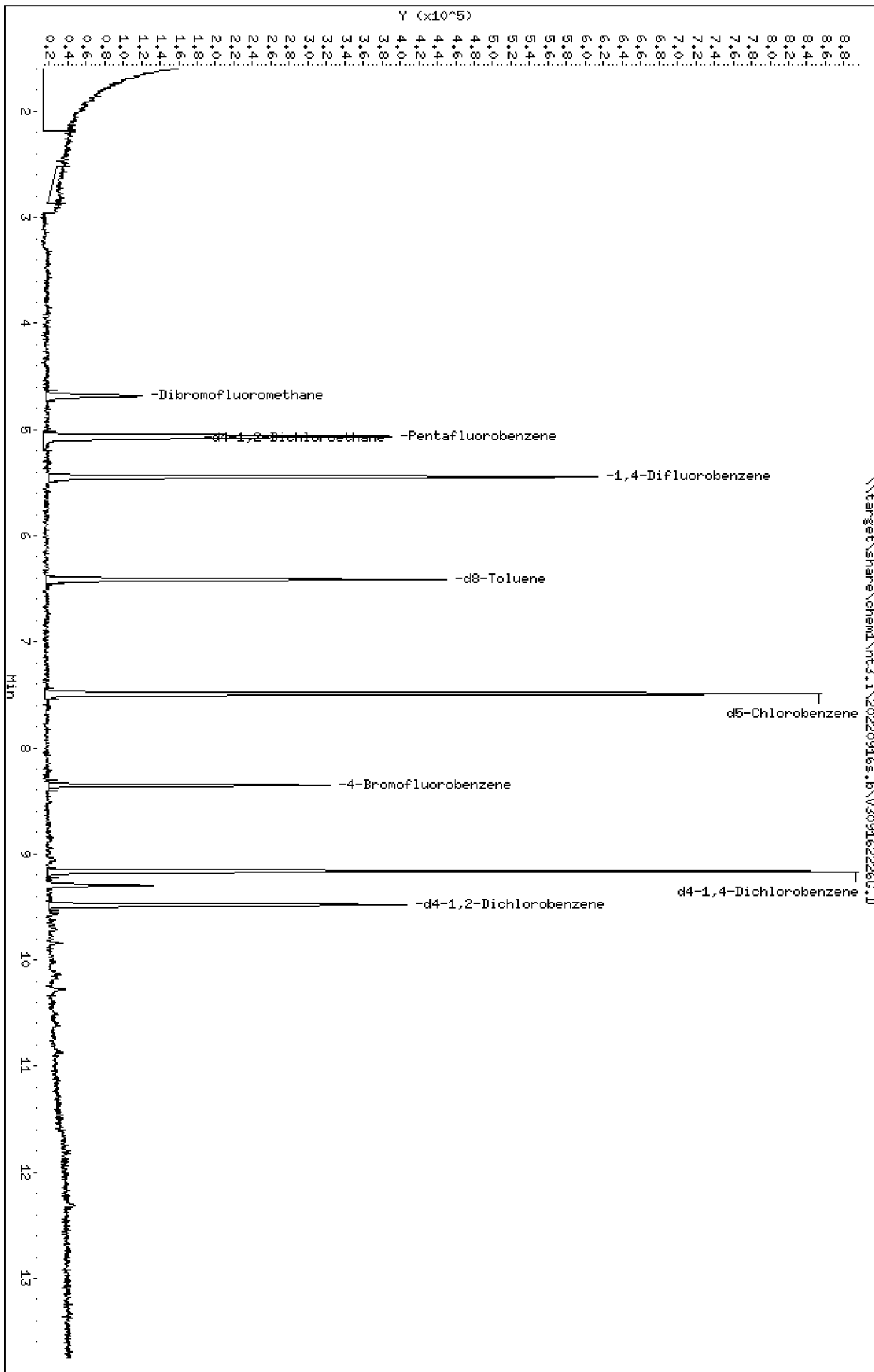
Client ID:

Sample Info: 2210247-13

Page 1

Column phase: RTXWMS

Instrument: nt3.1  
Operator: PKC  
Column diameter: 0.18



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162226G.D  
 Lab Smp Id: 22I0247-13  
 Inj Date : 16-SEP-2022 20:55  
 Operator : PKC  
 Smp Info : 22I0247-13  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i  
 Cal Date : 12-SEP-2022 13:39  
 Als bottle: 73  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309122211.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.681	4.675	(0.924)	59022	5.44224	5.442
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	187760	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.085	5.084	(1.004)	34469	5.16577	5.166
* 37 1,4-Difluorobenzene	114		5.446	5.445	(1.000)	360110	10.0000	
\$ 43 d8-Toluene	98		6.413	6.412	(1.178)	215995	5.06234	5.062
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	334224	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.352	8.357	(1.115)	59175	4.83772	4.838
* 76 d4-1,4-Dichlorobenzene	152		9.165	9.164	(1.000)	167575	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.479	9.483	(1.034)	77683	5.06531	5.065

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162226G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-13  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	187760	-9.58
37 1,4-Difluorobenze	387680	193840	775360	360110	-7.11
53 d5-Chlorobenzene	359638	179819	719276	334224	-7.07
76 d4-1,4-Dichlorobe	189756	94878	379512	167575	-11.69

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.12
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.02
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.01
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.17	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 22I0247-13  
 Level: LOW Operator: PKC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.442	108.84	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.166	103.32	80-128
\$ 43 d8-Toluene	5.000	5.062	101.25	80-120
\$ 62 4-Bromofluorobenze	5.000	4.838	96.75	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.065	101.31	80-120



REVIEW SUMMARY FOR FILE - V309162226G.D

Lab ID: 22I0247-13

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 20:55

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162226g.D

Date: 16-SEP-2022 20:55

Client ID:

Sample Info: 2210247-13

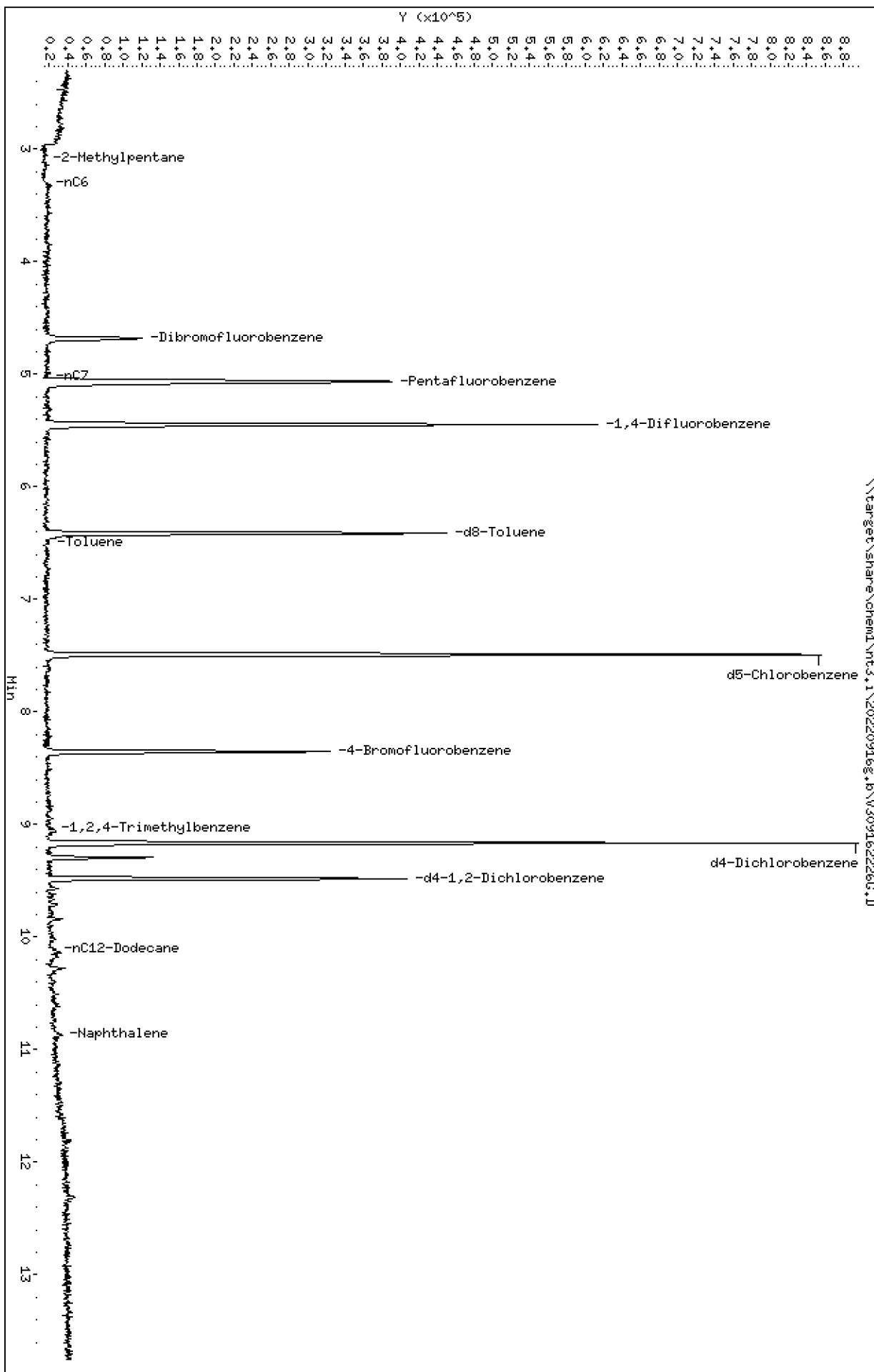
Page 1

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162226G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 20:55

ARI ID: 22I0247-13  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	657482	0.014
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	666785	0.007
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	531719	0.007
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	809608	0.017
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	795343	0.011

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.492	1116466	d5-Chlorobenzene
6.413	614599	d8-Toluene
9.166	1092768	d4-Dichlorobenzene
8.353	403138	4-Bromofluorobenzene
9.479	520684	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-17-20220915**  
**22I0247-13RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 11:12  
Analyzed: 25-Oct-2022 17:31

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKJ0488 Sample Size: 500 mL  
Prepared: 20-Oct-2022 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKJ0133 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Sample Cleanup: Cleanup Method: Sulfuric Acid  
Cleanup Batch: CKJ0132 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
Surrogate: <i>o</i> -Terphenyl			50-150 %	98.6	%	H

Data File: \\target\share\chem2\fid3b,1\20221025,6\32202511.D

Date: 25-OCT-2022 17:31

Client ID:

Sample Info: 2210247-13RE1

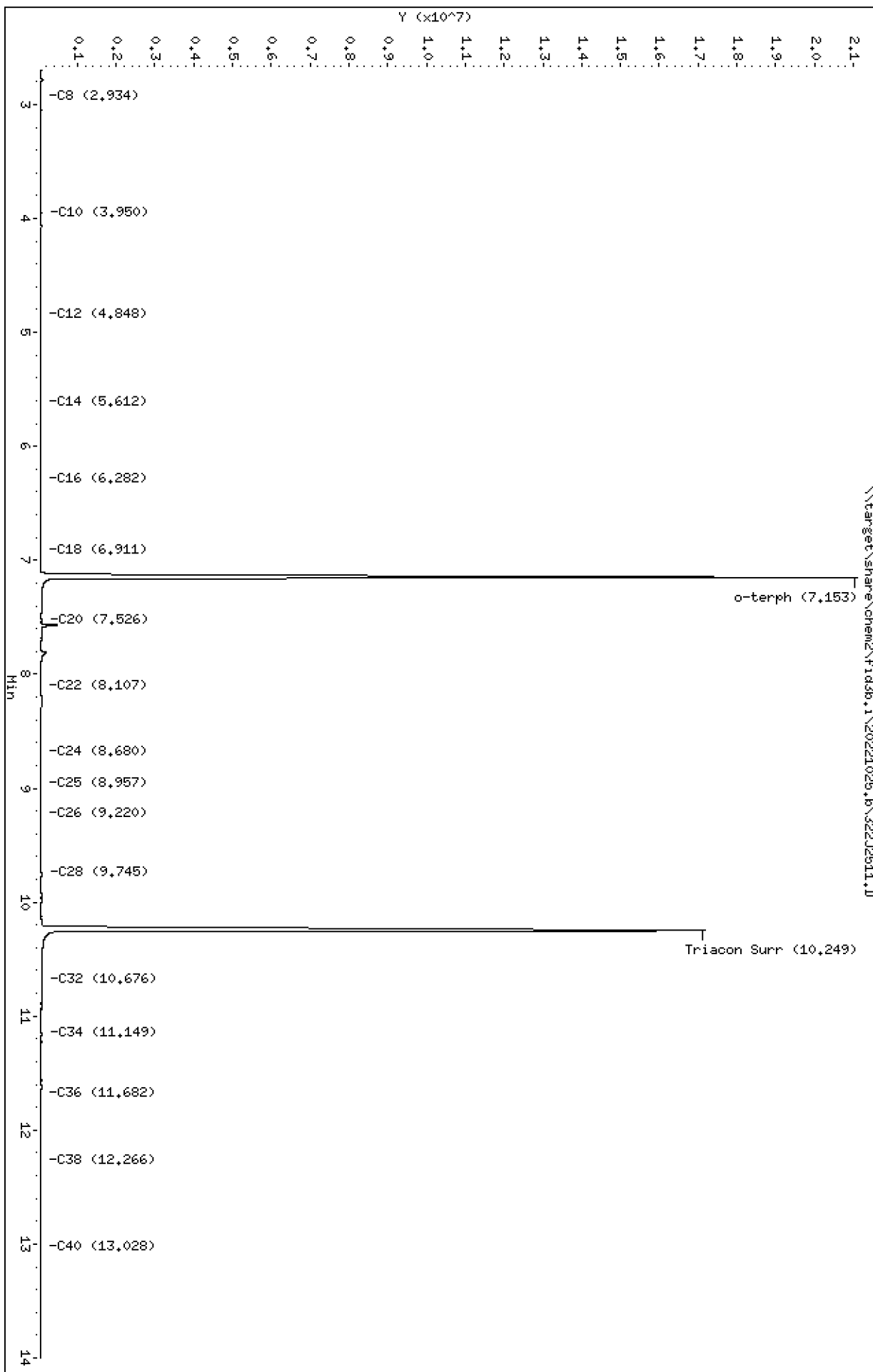
Column phase: RTX-1

Instrument: fid3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221025.b/322J2511.D  
Method: 20221025.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-13RE1  
Client ID:  
Injection: 25-OCT-2022 17:31  
Dilution Factor: 1  
RT Std: 322J2503.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.787	-0.002	53607	68813	WATPHG	(Tol-C12)	577631	3.2
C8	2.934	-0.008	8300	4556	WATPHD	(C12-C24)	2230056	12.9
C10	3.950	0.011	21289	21624	WATPHM	(C24-C38)	2716918	18.3
C12	4.848	-0.002	1096	668	AK102	(C10-C25)	2493878	12.2
C14	5.612	0.004	2571	1754	AK103	(C25-C36)	2236519	23.5
C16	6.282	0.004	3921	976	OR.DIES	(C10-C28)	3056638	15.0
C18	6.911	0.003	7184	11474				
C20	7.526	0.010	27775	47389				
C22	8.107	-0.001	8833	3074				
C24	8.680	0.000	8634	4713				
C25	8.957	0.002	7885	3131				
C26	9.220	-0.005	9203	1836				
C28	9.745	0.007	51706	92799	IT.DIES	(C10-C24)	2427971	11.9
C32	10.676	-0.007	20569	25121				
C34	11.149	0.007	17741	19732	CREOSOT	(C12-C22)	1833384	73.9
Filter Peak	13.991	0.003	7608	1896				
C36	11.682	0.025	14281	9186	BUNKERC	(C10-C38)	5144888	53.8
o-terph	7.153	0.003	21057944	26703866	JET-A	(C10-C18)	584953	2.8
Triacon Surr	10.249	-0.002	17143367	24868452				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.740 - 4.900) NW M.Oil(8.730 - 12.318)  
AK102(3.889 - 8.905) AK103(8.905 - 11.707) Jet A(3.889 - 6.958)

Surrogate	Area	Amount
o-Terphenyl	26703866	111.0
Triacontane	24868452	144.7

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**PZ-18-20220915**  
**2210247-14 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/15/2022 12:00  
Instrument: ECD8 Analyzed: 07-Oct-2022 18:21

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	59.0	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	69.8	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-18-20220915**  
**2210247-14 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/15/2022 12:00  
Analyzed: 26-Sep-2022 20:44

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381 Sample Size: 500 mL  
Prepared: 21-Sep-2022 Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	ND	ug/L	U
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	78.3	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	88.5	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	81.6	%	





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-18-20220915**  
**2210247-14 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/15/2022 12:00  
Analyzed: 26-Sep-2022 23:36

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	38.6	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	104	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**PZ-18-20220915**  
**2210247-14 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg Sampled: 09/15/2022 12:00  
Instrument: NT3 Analyzed: 16-Sep-2022 21:17

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
<i>Surrogate: Toluene-d8</i>			80-120 %	97.1	%	
<i>Surrogate: 4-Bromofluorobenzene</i>			80-120 %	97.1	%	

Data File: \\target\share\chend\nt3.1\20220916s.16\309162227G.D

Date: 16-SEP-2022 21:17

Client ID:

Sample Info: 2210247-14

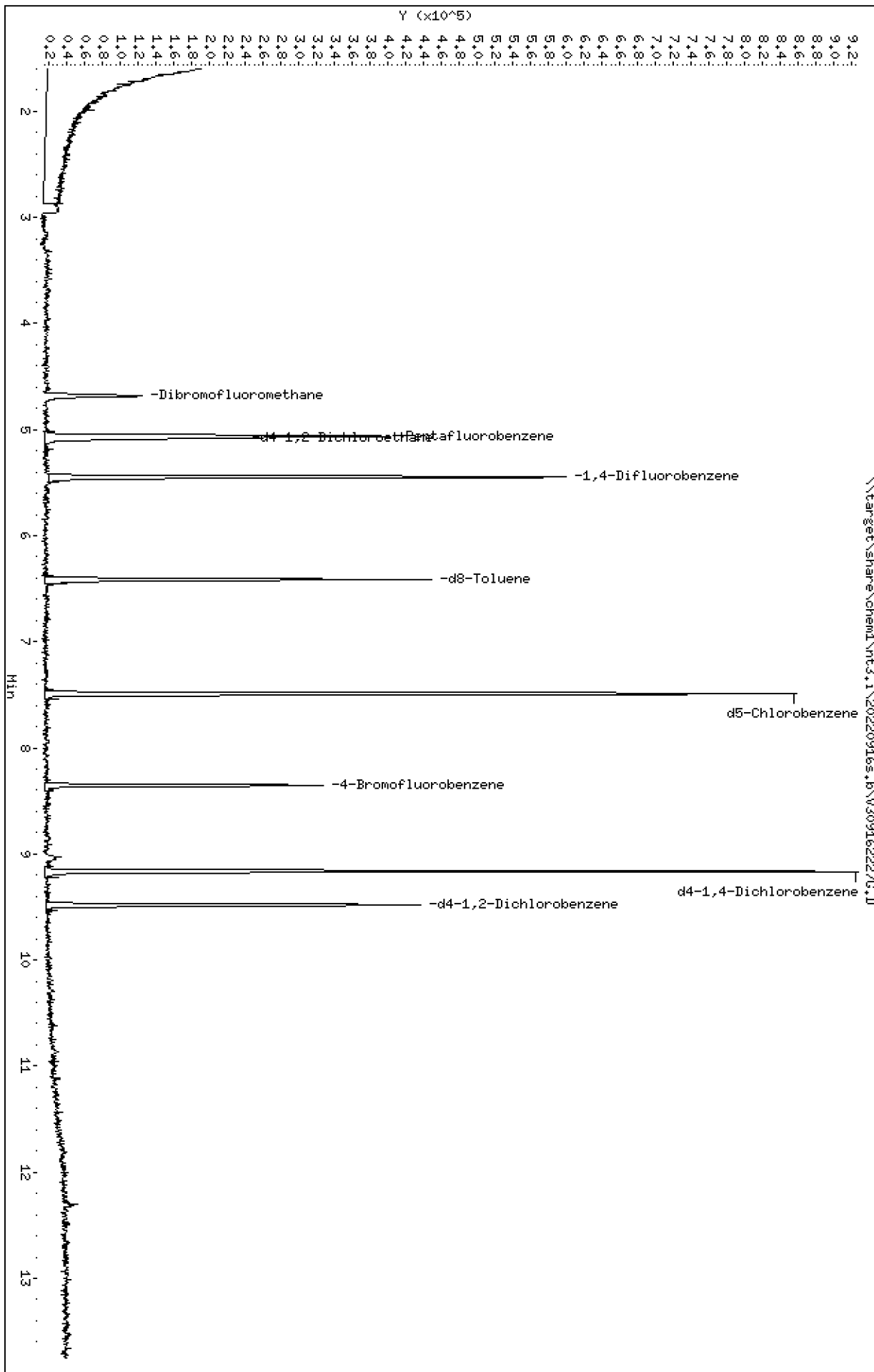
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162227G.D  
 Lab Smp Id: 22I0247-14  
 Inj Date : 16-SEP-2022 21:17  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : 22I0247-14  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 74  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.681	4.675	(0.924)	57286	5.34780	5.348
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	185456	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.079	5.084	(1.003)	35878	5.44373	5.444
* 37 1,4-Difluorobenzene	114		5.446	5.445	(1.000)	366127	10.0000	
\$ 43 d8-Toluene	98		6.413	6.412	(1.178)	210633	4.85554	4.856
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	331147	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.357	8.357	(1.116)	58856	4.85635	4.856
* 76 d4-1,4-Dichlorobenzene	152		9.165	9.164	(1.000)	175278	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.484	9.483	(1.035)	81837	5.10166	5.102

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162227G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-14  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	185456	-10.69
37 1,4-Difluorobenze	387680	193840	775360	366127	-5.56
53 d5-Chlorobenzene	359638	179819	719276	331147	-7.92
76 d4-1,4-Dichlorobe	189756	94878	379512	175278	-7.63

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.12
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.01
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.01
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.17	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 22I0247-14  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.348	106.96	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.444	108.87	80-128
\$ 43 d8-Toluene	5.000	4.856	97.11	80-120
\$ 62 4-Bromofluorobenze	5.000	4.856	97.13	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.102	102.03	80-120

REVIEW SUMMARY FOR FILE - V309162227G.D

Lab ID: 22I0247-14

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 21:17

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162227G.D

Date: 16-SEP-2022 21:17

Client ID:

Sample Info: 2210247-14

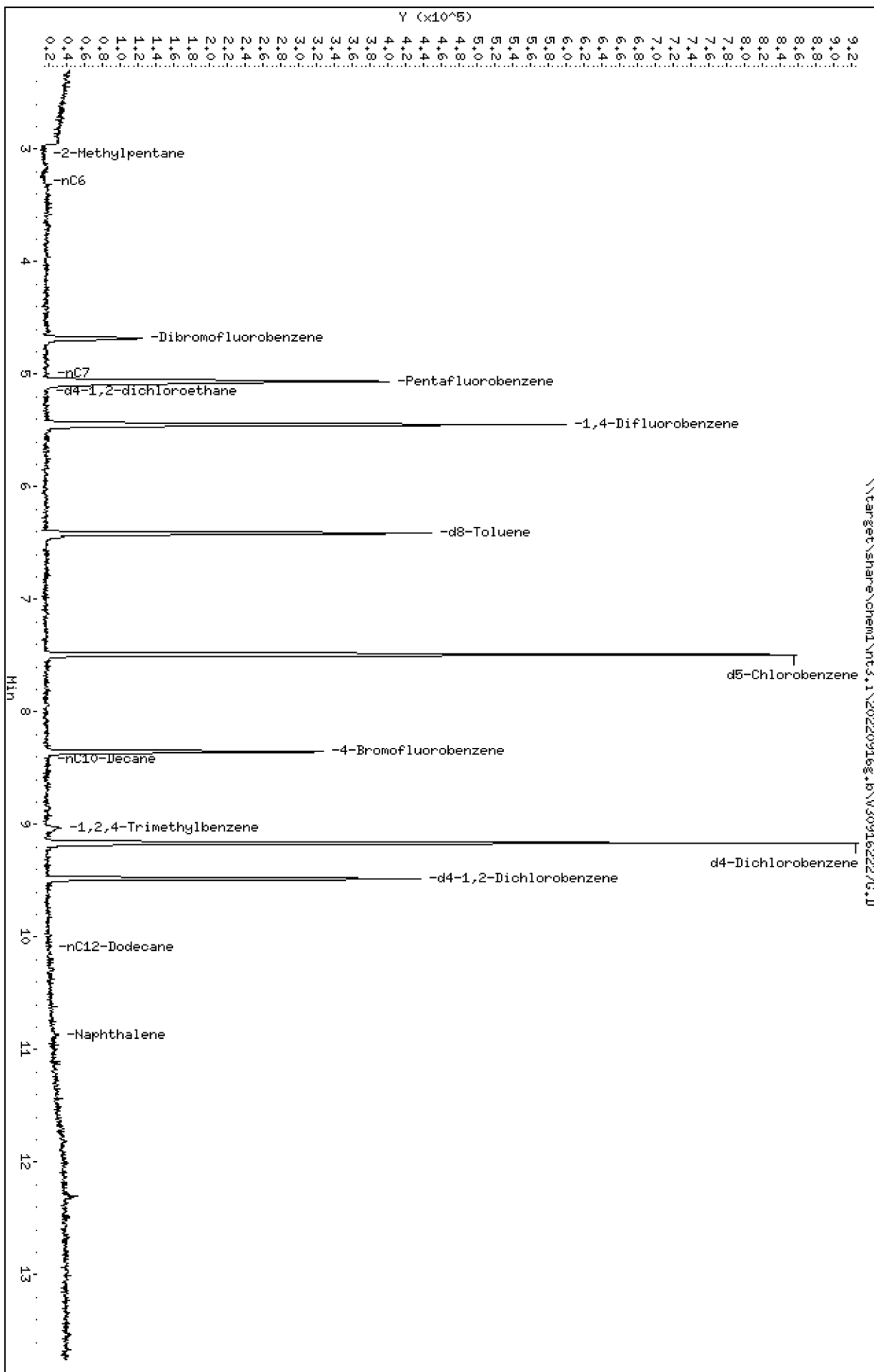
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1





Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162227G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 21:17

ARI ID: 22I0247-14  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	431455	0.010
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	683460	0.007
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	503601	0.007
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	535016	0.011
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	554361	0.007

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.492	1105095	d5-Chlorobenzene
6.413	616057	d8-Toluene
9.166	1145625	d4-Dichlorobenzene
8.353	432710	4-Bromofluorobenzene
9.479	556494	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**PZ-18-20220915**  
**22I0247-14RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/15/2022 12:00  
Analyzed: 25-Oct-2022 17:52

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
<i>Surrogate: o-Terphenyl</i>			50-150 %	102	%	H

Data File: \\target\share\chem2\fid3b,1\20221025,8\32202512.D

Date: 25-OCT-2022 17:52

Client ID:

Sample Info: 2210247-14RE1

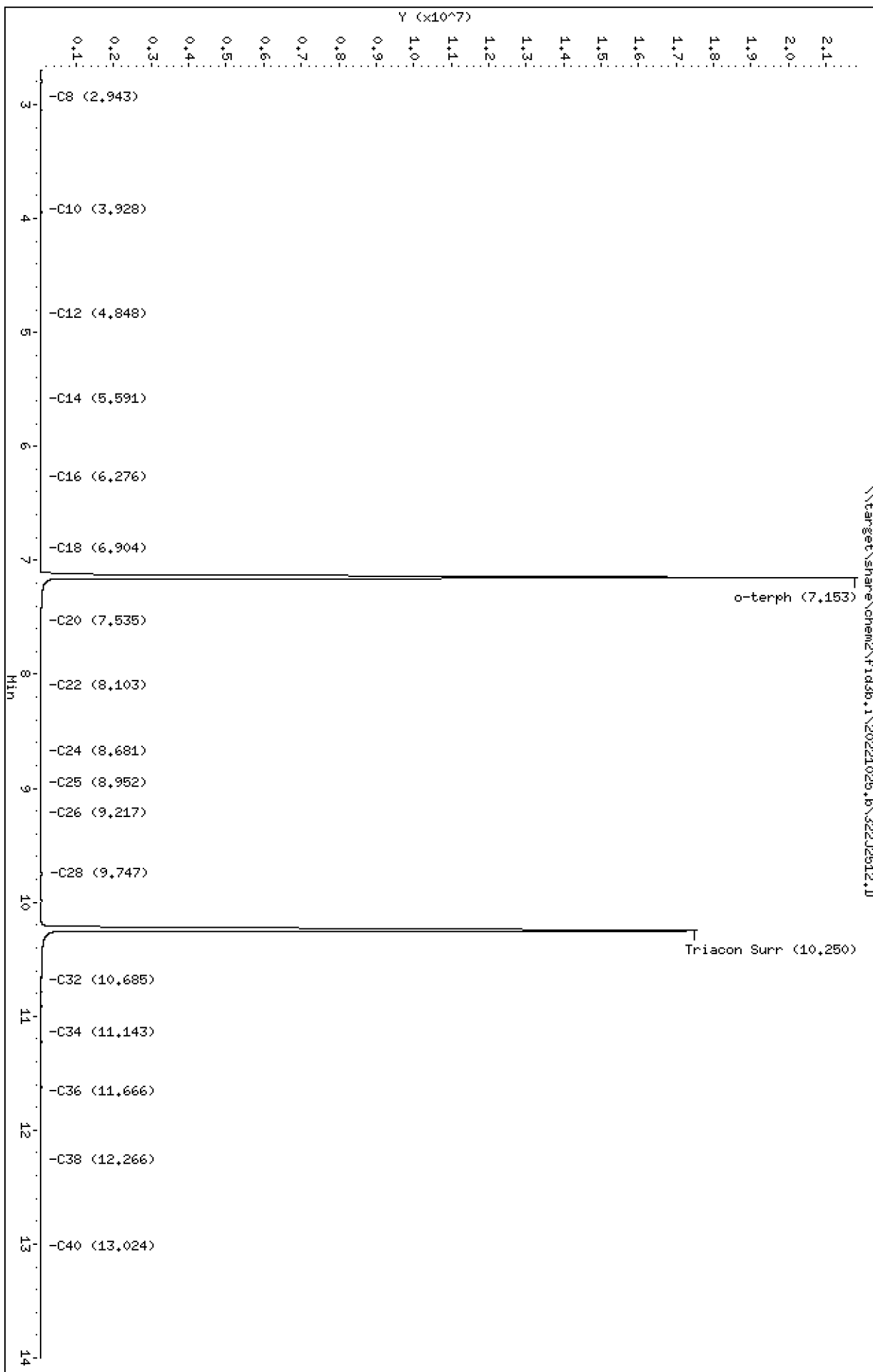
Column phase: RTX-1

Instrument: fid3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221025.b/322J2512.D  
Method: 20221025.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-14RE1  
Client ID:  
Injection: 25-OCT-2022 17:52  
Dilution Factor: 1  
RT Std: 322J2503.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.791	0.001	52869	71624	WATPHG	(Tol-C12)	542315	3.0
C8	2.943	0.001	8617	10077	WATPHD	(C12-C24)	760571	4.4
C10	3.928	-0.010	3040	1045	WATPHM	(C24-C38)	2209098	14.8
C12	4.848	-0.002	1000	527	AK102	(C10-C25)	955188	4.7
C14	5.591	-0.017	3003	6401	AK103	(C25-C36)	1771271	18.6
C16	6.276	-0.002	2750	2255	OR.DIES	(C10-C28)	1280247	6.3
C18	6.904	-0.004	1964	387				
C20	7.535	0.019	14082	29565				
C22	8.103	-0.005	5869	3501				
C24	8.681	0.001	4500	1551				
C25	8.952	-0.004	4424	2394				
C26	9.217	-0.008	4950	1719				
C28	9.747	0.008	46738	74869	IT.DIES	(C10-C24)	907894	4.5
C32	10.685	0.002	18118	19121				
C34	11.143	0.001	12868	7069	CREOSOT	(C12-C22)	625558	25.2
Filter Peak	13.986	-0.001	9032	7644				
C36	11.666	0.009	13106	2614	BUNKERC	(C10-C38)	3116992	32.6
o-terph	7.153	0.003	21786895	27752772	JET-A	(C10-C18)	341997	1.6
Triacon Surr	10.250	-0.001	17516639	25635688				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.740 - 4.900) NW M.Oil(8.730 - 12.318)  
AK102(3.889 - 8.905) AK103(8.905 - 11.707) Jet A(3.889 - 6.958)

Surrogate	Area	Amount
o-Terphenyl	27752772	115.3
Triacontane	25635688	149.2

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**PZ-19-20220916**  
**2210247-15 (Water)**

**Phenols**

Method: EPA 8041A Sampled: 09/16/2022 09:29  
Instrument: ECD8 Analyzed: 07-Oct-2022 18:39

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0380 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 50 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Pentachlorophenol	87-86-5	1	0.25	ND	ug/L	U
<i>Surrogate: 2,4,6-Tribromophenol</i>			26-120 %	59.8	%	
<i>Surrogate: 2,4,6-Tribromophenol [2C]</i>			26-120 %	71.5	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-19-20220916**

**2210247-15 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E

Sampled: 09/16/2022 09:29

Instrument: NT6

Analyzed: 26-Sep-2022 21:18

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	1	1.0	<b>1.8</b>	ug/L	
Acenaphthylene	208-96-8	1	1.0	ND	ug/L	U
Acenaphthene	83-32-9	1	1.0	ND	ug/L	U
2-Methylnaphthalene	91-57-6	1	1.0	ND	ug/L	U
Dibenzofuran	132-64-9	1	1.0	ND	ug/L	U
Fluorene	86-73-7	1	1.0	ND	ug/L	U
Pentachlorophenol	87-86-5	1	10.0	ND	ug/L	U
Phenanthrene	85-01-8	1	1.0	ND	ug/L	U
Anthracene	120-12-7	1	1.0	ND	ug/L	U
Carbazole	86-74-8	1	1.0	ND	ug/L	U
Fluoranthene	206-44-0	1	1.0	ND	ug/L	U
Pyrene	129-00-0	1	1.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	1	1.0	ND	ug/L	U
Chrysene	218-01-9	1	1.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	1.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	1.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	1.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	1	1.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	1	1.0	ND	ug/L	U
<i>Surrogate: 2-Fluorobiphenyl</i>			<i>54.4-120 %</i>	<i>75.0</i>	<i>%</i>	
<i>Surrogate: 2,4,6-Tribromophenol</i>			<i>49.3-128 %</i>	<i>89.1</i>	<i>%</i>	
<i>Surrogate: p-Terphenyl-d14</i>			<i>60-120 %</i>	<i>80.7</i>	<i>%</i>	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**PZ-19-20220916**  
**2210247-15 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM Sampled: 09/16/2022 09:29  
Instrument: NT8 Analyzed: 27-Sep-2022 00:03

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3520C (Liq Liq)	Sample Size: 500 mL
	Preparation Batch: BKI0384	Final Volume: 0.5 mL
	Prepared: 22-Sep-2022	
Sample Cleanup:	Cleanup Method: Silica Gel	Initial Volume: 500 uL
	Cleanup Batch: CKI0184	Final Volume: 500 uL
	Cleaned: 26-Sep-2022	

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	1	0.10	ND	ug/L	U
Chrysene	218-01-9	1	0.10	ND	ug/L	U
Benzo(a)fluoranthene, Total		1	0.20	ND	ug/L	U
Benzo(a)pyrene	50-32-8	1	0.10	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	1	0.10	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	1	0.10	ND	ug/L	U
<i>Surrogate: 2-Methylnaphthalene-d10</i>			<i>31-120 %</i>	<i>46.0</i>	<i>%</i>	
<i>Surrogate: Dibenzo[a,h]anthracene-d14</i>			<i>10-125 %</i>	<i>109</i>	<i>%</i>	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-19-20220916**  
**2210247-15 (Water)**

**Volatile Organic Compounds**

Method: NWTPHg  
Instrument: NT3

Sampled: 09/16/2022 09:29  
Analyzed: 16-Sep-2022 21:39

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	ND	ug/L	U
Surrogate: Toluene-d8			80-120 %	101	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	97.3	%	



Data File: \\target\share\chend\nt3.1\20220916s.1b\3091622286.D

Date: 16-SEP-2022 21:39

Client ID:

Sample Info: 2210247-15

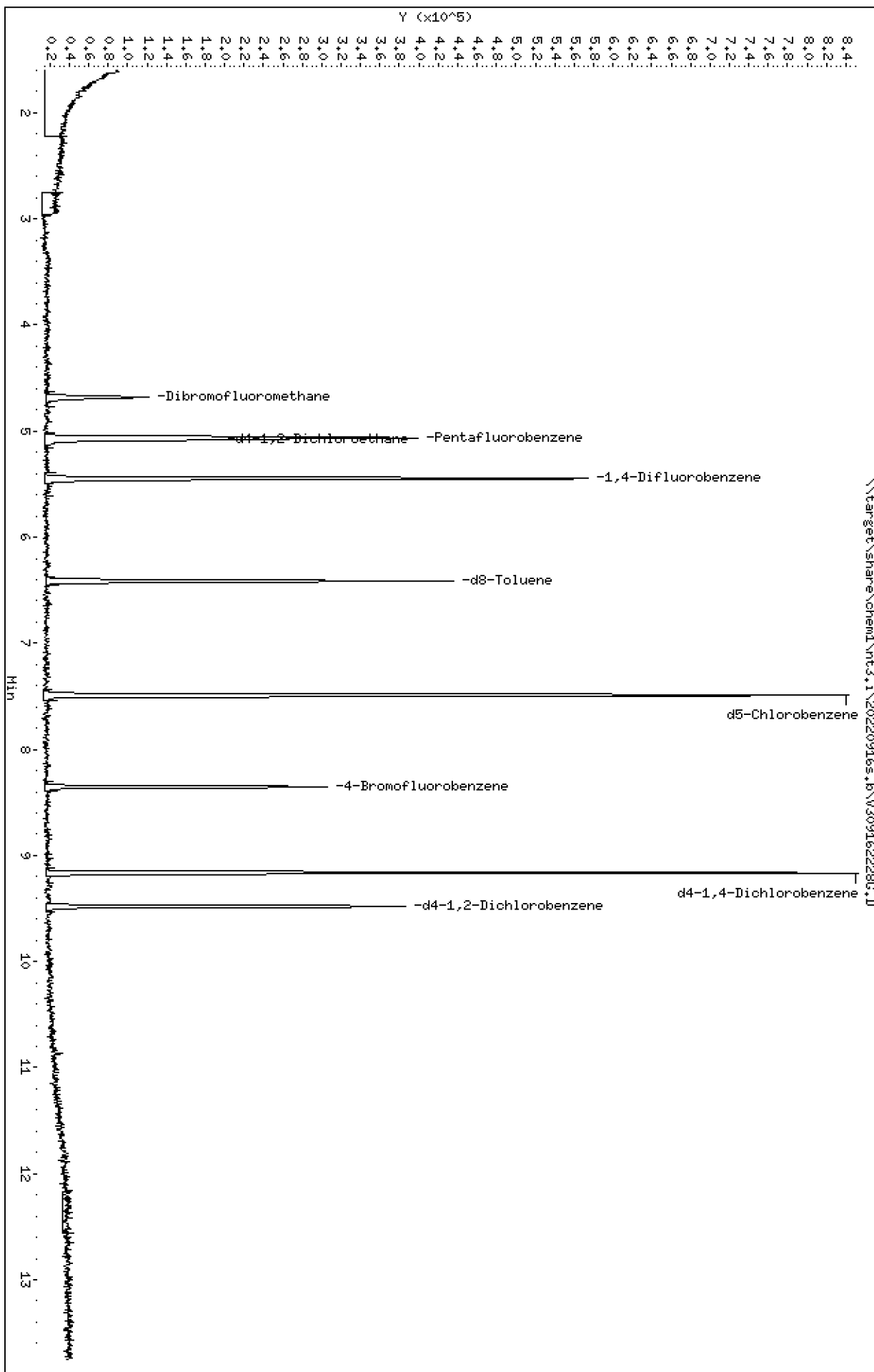
Page 1

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162228G.D  
 Lab Smp Id: 22I0247-15  
 Inj Date : 16-SEP-2022 21:39  
 Operator : PKC  
 Smp Info : 22I0247-15  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i  
 Cal Date : 12-SEP-2022 13:39  
 Als bottle: 75  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309122211.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.680	4.675	(0.924)	55750	5.17913	5.179
* 32 Pentafluorobenzene	168		5.062	5.057	(1.000)	186361	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.084	5.084	(1.004)	35618	5.37804	5.378
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	351291	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	209587	5.03547	5.035
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	325182	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.357	8.357	(1.116)	57895	4.86468	4.865
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	160480	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.483	9.483	(1.035)	77476	5.27516	5.275

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162228G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-15  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	186361	-10.26
37 1,4-Difluorobenze	387680	193840	775360	351291	-9.39
53 d5-Chlorobenzene	359638	179819	719276	325182	-9.58
76 d4-1,4-Dichlorobe	189756	94878	379512	160480	-15.43

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.11
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.00
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.00
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: 22I0247-15  
 Level: LOW Operator: PKC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.179	103.58	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.378	107.56	80-128
\$ 43 d8-Toluene	5.000	5.035	100.71	80-120
\$ 62 4-Bromofluorobenze	5.000	4.865	97.29	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.275	105.50	80-120

REVIEW SUMMARY FOR FILE - V309162228G.D

Lab ID: 22I0247-15

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 21:39

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\3091622289G.D

Date: 16-SEP-2022 21:39

Client ID:

Sample Info: 2210247-15

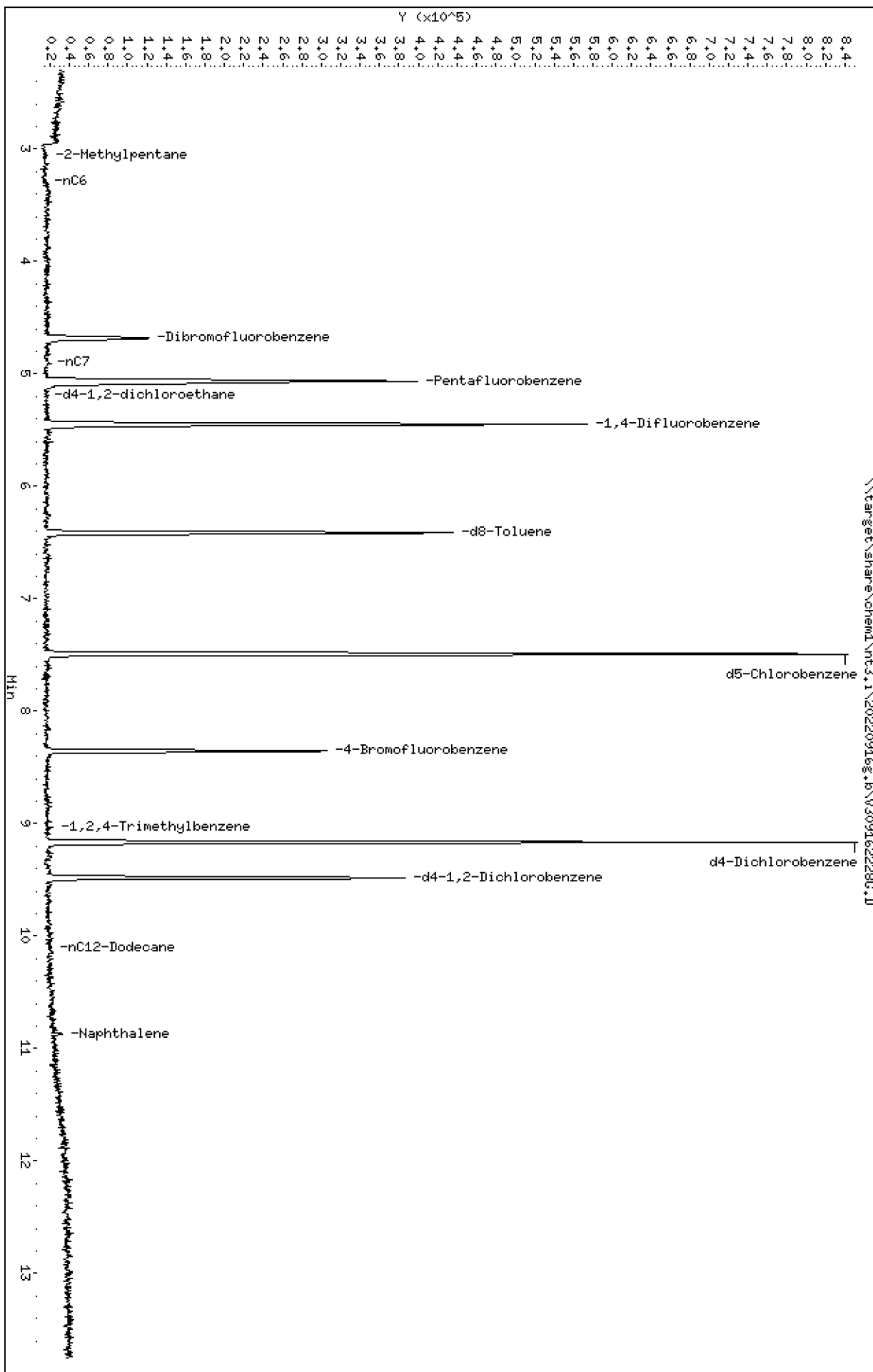
Page 1

Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162228G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 21:39

ARI ID: 22I0247-15  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	366653	0.008
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	577032	0.006
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	477739	0.007
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	475447	0.010
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	496861	0.007

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.491	1088467	d5-Chlorobenzene
6.412	594838	d8-Toluene
9.165	1047140	d4-Dichlorobenzene
8.352	386811	4-Bromofluorobenzene
9.484	522442	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**PZ-19-20220916**  
**22I0247-15RE1 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/16/2022 09:29  
Analyzed: 25-Oct-2022 18:14

**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	ND	ug/L	H, U
Motor Oil Range Organics (C24-C38)	RRO	1	200	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	1	200	ND	ug/L	H, U
<i>Surrogate: o-Terphenyl</i>			50-150 %	106	%	H



Data File: \\target\share\chem2\fid3b,1\20221025,6\32202513.D

Date: 25-OCT-2022 18:14

Client ID:

Sample Info: 2210247-15RE1

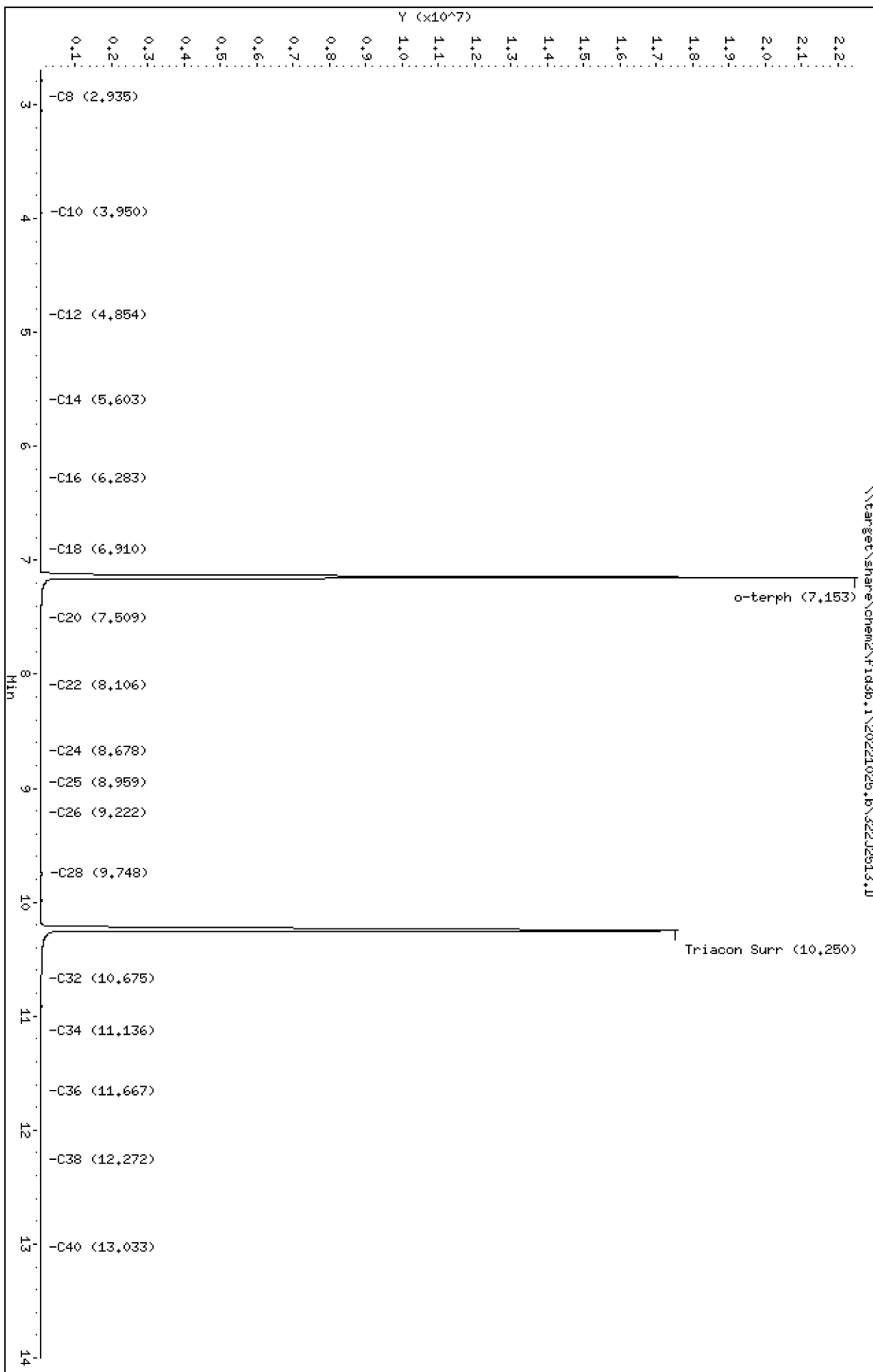
Column phase: RTX-1

Instrument: fid3b,1

Operator: AA

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221025.b/322J2513.D  
Method: 20221025.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-15RE1  
Client ID:  
Injection: 25-OCT-2022 18:14  
Dilution Factor: 1  
RT Std: 322J2503.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.792	0.002	39664	61837	WATPHG	(Tol-C12)	456994	2.5
C8	2.935	-0.007	8659	14929	WATPHD	(C12-C24)	486958	2.8
C10	3.950	0.011	26176	31701	WATPHM	(C24-C38)	1695147	11.4
C12	4.854	0.005	351	107	AK102	(C10-C25)	621224	3.0
C14	5.603	-0.005	1073	106	AK103	(C25-C36)	1369825	14.4
C16	6.283	0.005	920	440	OR.DIES	(C10-C28)	796932	3.9
C18	6.910	0.002	568	135				
C20	7.509	-0.007	13062	13987				
C22	8.106	-0.002	1659	731				
C24	8.678	-0.001	1426	412				
C25	8.959	0.004	1319	261				
C26	9.222	-0.003	1749	341				
C28	9.748	0.009	37387	70378	IT.DIES	(C10-C24)	605400	3.0
C32	10.675	-0.008	17602	19387				
C34	11.136	-0.006	11816	12799	CREOSOT	(C12-C22)	434614	17.5
Filter Peak	13.988	0.001	8129	4021				
C36	11.667	0.010	10850	7021	BUNKERC	(C10-C38)	2300547	24.0
o-terph	7.153	0.003	22495808	28572854	JET-A	(C10-C18)	234023	1.1
Triacon Surr	10.250	-0.001	17554893	26534364				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.740 - 4.900) NW M.Oil(8.730 - 12.318)  
AK102(3.889 - 8.905) AK103(8.905 - 11.707) Jet A(3.889 - 6.958)

Surrogate	Area	Amount
o-Terphenyl	28572854	118.7
Triacontane	26534364	154.4

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-30-20220916**

**2210247-16 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E

Sampled: 09/16/2022 08:11

Instrument: NT6

Analyzed: 23-Sep-2022 23:20

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	3	3.0	1740	ug/L	D, E
Acenaphthylene	208-96-8	3	3.0	4.2	ug/L	D
Acenaphthene	83-32-9	3	3.0	207	ug/L	D
2-Methylnaphthalene	91-57-6	3	3.0	263	ug/L	D, E
Dibenzofuran	132-64-9	3	3.0	70.6	ug/L	D
Fluorene	86-73-7	3	3.0	63.6	ug/L	D
Pentachlorophenol	87-86-5	3	30.0	891	ug/L	D, E
Phenanthrene	85-01-8	3	3.0	80.7	ug/L	D
Anthracene	120-12-7	3	3.0	12.7	ug/L	D
Carbazole	86-74-8	3	3.0	27.5	ug/L	D
Fluoranthene	206-44-0	3	3.0	15.7	ug/L	D
Pyrene	129-00-0	3	3.0	11.8	ug/L	D
Benzo(a)anthracene	56-55-3	3	3.0	ND	ug/L	U
Chrysene	218-01-9	3	3.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	3	3.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	3	3.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	3	3.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	3	3.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	3	3.0	174	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	77.5	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	95.0	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	79.7	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-30-20220916**  
**2210247-16 (Water)**

**Semivolatile Organic Compounds - SIM**

Method: EPA 8270E-SIM  
Instrument: NT8

Sampled: 09/16/2022 08:11  
Analyzed: 26-Sep-2022 16:47

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3520C (Liq Liq)  
Preparation Batch: BKI0384 Sample Size: 500 mL  
Prepared: 22-Sep-2022 Final Volume: 0.5 mL

Sample Cleanup: Cleanup Method: Silica Gel  
Cleanup Batch: CKI0184 Initial Volume: 500 uL  
Cleaned: 26-Sep-2022 Final Volume: 500 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Benzo(a)anthracene	56-55-3	100	10.0	ND	ug/L	U
Chrysene	218-01-9	100	10.0	ND	ug/L	U
Benzo(a)fluoranthene, Total		100	20.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	100	10.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	100	10.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	100	10.0	ND	ug/L	U
Surrogate: 2-Methylnaphthalene-d10			31-120 %	36.8	%	
Surrogate: Dibenzo[a,h]anthracene-d14			10-125 %	50.7	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-30-20220916**  
**2210247-16 (Water)**

**Volatile Organic Compounds**

Method: NWTPhg  
Instrument: NT3

Sampled: 09/16/2022 08:11  
Analyzed: 16-Sep-2022 22:02

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 5030C (Purge and Trap)  
Preparation Batch: BKI0365 Sample Size: 10 mL  
Prepared: 16-Sep-2022 Final Volume: 10 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Gasoline Range Organics (Tol-Nap)	GRO	1	100	19300	ug/L	E
HC ID: GRO						
Surrogate: Toluene-d8			80-120 %	98.2	%	
Surrogate: 4-Bromofluorobenzene			80-120 %	113	%	

Data File: \\target\share\chend\nt3.1\20220916s.16\309162229G.D

Date: 16-SEP-2022 22:02

Client ID:

Sample Info: 2210247-16

Page 1

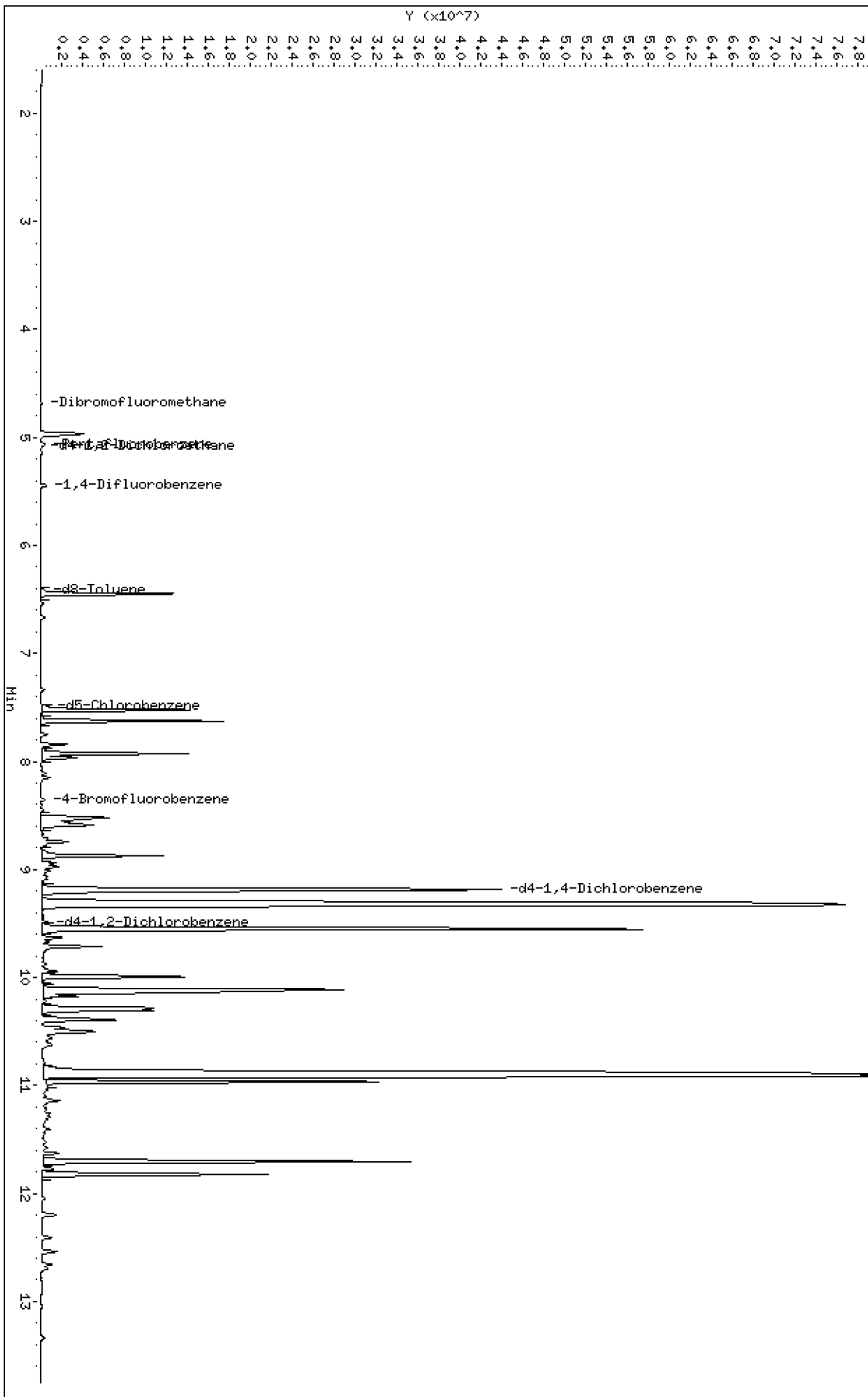
Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS

\\target\share\chend\nt3.1\20220916s.16\309162229G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162229G.D  
 Lab Smp Id: 22I0247-16  
 Inj Date : 16-SEP-2022 22:02  
 Operator : PKC  
 Smp Info : 22I0247-16  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i  
 Cal Date : 12-SEP-2022 13:39  
 Als bottle: 76  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309122211.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.681	4.675	(0.924)	52485	4.87993	4.880
* 32 Pentafluorobenzene	168		5.064	5.057	(1.000)	186204	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.085	5.084	(1.004)	33542	5.06885	5.069
* 37 1,4-Difluorobenzene	114		5.446	5.445	(1.000)	350173	10.0000	
\$ 43 d8-Toluene	98		6.413	6.412	(1.178)	203660	4.90869	4.909
* 53 d5-Chlorobenzene	117		7.492	7.491	(1.000)	332867	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.352	8.357	(1.115)	69018	5.66542	5.665
* 76 d4-1,4-Dichlorobenzene	152		9.176	9.164	(1.000)	216672	10.0000	(M)
\$ 79 d4-1,2-Dichlorobenzene	152		9.490	9.483	(1.034)	105830	5.33698	5.337 (M)

QC Flag Legend

M - Compound response manually integrated.

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162229G.D Calibration Time: 12:30  
 Lab Smp Id: 22I0247-16  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	186204	-10.33
37 1,4-Difluorobenze	387680	193840	775360	350173	-9.67
53 d5-Chlorobenzene	359638	179819	719276	332867	-7.44
76 d4-1,4-Dichlorobe	189756	94878	379512	216672	14.18

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.13
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.02
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.02
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.18	0.13

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.



ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: 22I0247-16  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	4.880	97.60	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	5.069	101.38	80-128
\$ 43 d8-Toluene	5.000	4.909	98.17	80-120
\$ 62 4-Bromofluorobenze	5.000	5.665	113.31	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.337	106.74	80-120

REVIEW SUMMARY FOR FILE - V309162229G.D

Lab ID: 22I0247-16

nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 22:02

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.1b\309162229G.D

Date: 16-SEP-2022 22:02

Client ID:

Sample Info: 2210247-16

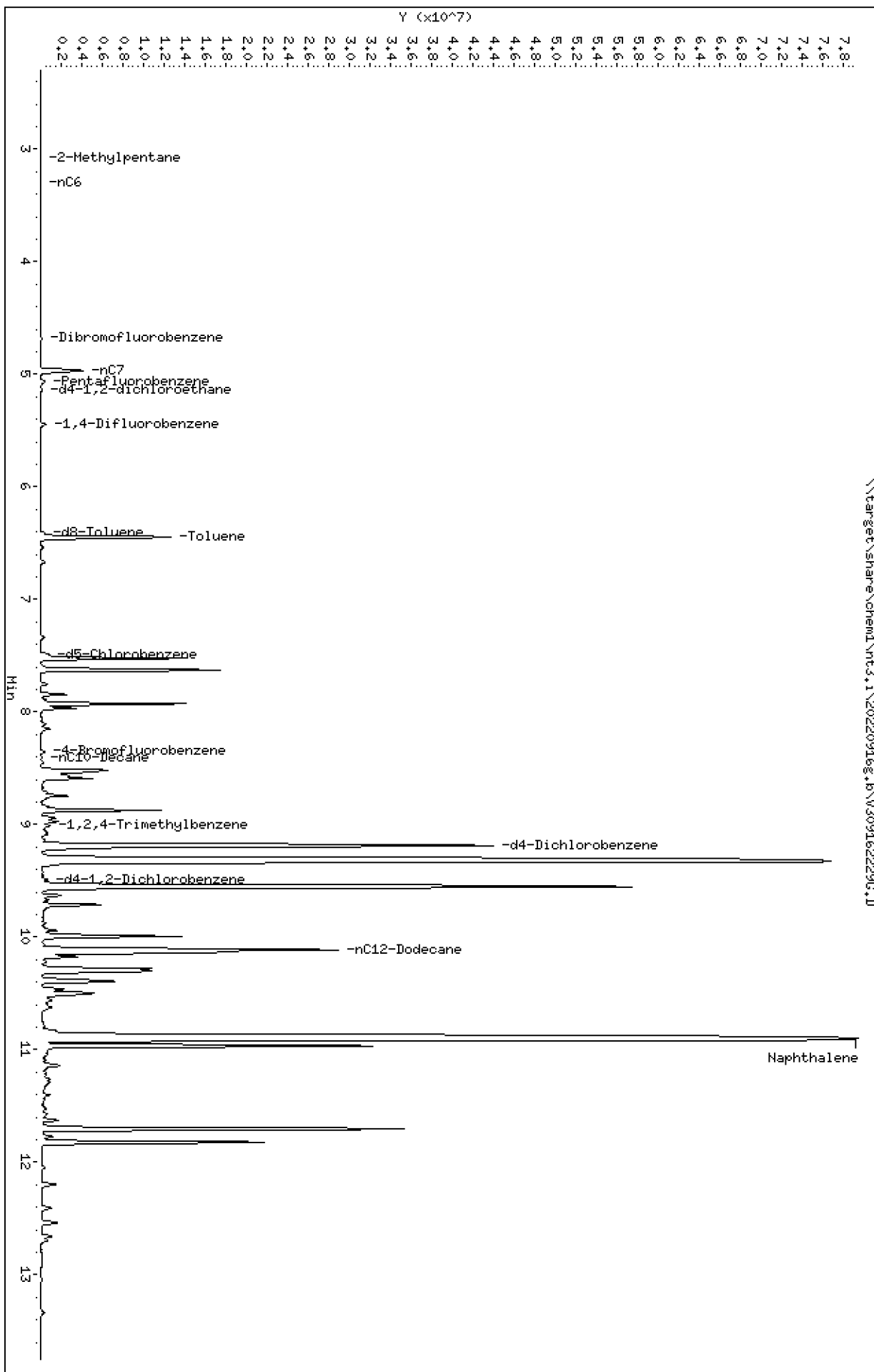
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162229G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 22:02

ARI ID: 22I0247-16  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	564881965	12.452
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	151088777	1.655
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	98842343	1.355
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	927208815	19.264
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	571898496	7.710

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

-----

7.492	890006	d5-Chlorobenzene
6.414	427677	d8-Toluene
9.187	75931048	d4-Dichlorobenzene
8.353	476234	4-Bromofluorobenzene
9.490	697986	d4-1,2-Dichlorobenzene



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-30-20220916**  
**22I0247-16RE1 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/16/2022 08:11  
Analyzed: 26-Sep-2022 13:22

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	50	50.0	5030	ug/L	D, E
Acenaphthylene	208-96-8	50	50.0	ND	ug/L	U
Acenaphthene	83-32-9	50	50.0	244	ug/L	D
2-Methylnaphthalene	91-57-6	50	50.0	407	ug/L	D
Dibenzofuran	132-64-9	50	50.0	84.7	ug/L	D
Fluorene	86-73-7	50	50.0	84.2	ug/L	D
Pentachlorophenol	87-86-5	50	500	1310	ug/L	D
Phenanthrene	85-01-8	50	50.0	107	ug/L	D
Anthracene	120-12-7	50	50.0	ND	ug/L	U
Carbazole	86-74-8	50	50.0	ND	ug/L	U
Fluoranthene	206-44-0	50	50.0	ND	ug/L	U
Pyrene	129-00-0	50	50.0	ND	ug/L	U
Benzo(a)anthracene	56-55-3	50	50.0	ND	ug/L	U
Chrysene	218-01-9	50	50.0	ND	ug/L	U
Benzo(a)pyrene	50-32-8	50	50.0	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	50	50.0	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	50	50.0	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	50	50.0	ND	ug/L	U
1-Methylnaphthalene	90-12-0	50	50.0	276	ug/L	D
Surrogate: 2-Fluorobiphenyl			54.4-120 %	100	%	
Surrogate: 2,4,6-Tribromophenol			49.3-128 %	92.8	%	
Surrogate: p-Terphenyl-d14			60-120 %	110	%	



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

**PZ-30-20220916**  
**22I0247-16RE2 (Water)**

**Semivolatile Organic Compounds**

Method: EPA 8270E  
Instrument: NT6

Sampled: 09/16/2022 08:11  
Analyzed: 26-Sep-2022 14:30

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKI0381  
Prepared: 21-Sep-2022

Sample Size: 500 mL  
Final Volume: 0.5 mL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Naphthalene	91-20-3	100	100	5000	ug/L	D
Acenaphthylene	208-96-8	100	100	ND	ug/L	U
Acenaphthene	83-32-9	100	100	240	ug/L	D
2-Methylnaphthalene	91-57-6	100	100	408	ug/L	D
Dibenzofuran	132-64-9	100	100	ND	ug/L	U
Fluorene	86-73-7	100	100	ND	ug/L	U
Pentachlorophenol	87-86-5	100	1000	1240	ug/L	D
Phenanthrene	85-01-8	100	100	106	ug/L	D
Anthracene	120-12-7	100	100	ND	ug/L	U
Carbazole	86-74-8	100	100	ND	ug/L	U
Fluoranthene	206-44-0	100	100	ND	ug/L	U
Pyrene	129-00-0	100	100	ND	ug/L	U
Benzo(a)anthracene	56-55-3	100	100	ND	ug/L	U
Chrysene	218-01-9	100	100	ND	ug/L	U
Benzo(a)pyrene	50-32-8	100	100	ND	ug/L	U
Indeno(1,2,3-cd)pyrene	193-39-5	100	100	ND	ug/L	U
Dibenzo(a,h)anthracene	53-70-3	100	100	ND	ug/L	U
Benzo(g,h,i)perylene	191-24-2	100	100	ND	ug/L	U
1-Methylnaphthalene	90-12-0	100	100	277	ug/L	D
<i>Surrogate: 2-Fluorobiphenyl</i>			54.4-120 %	107	%	
<i>Surrogate: 2,4,6-Tribromophenol</i>			49.3-128 %	61.2	%	
<i>Surrogate: p-Terphenyl-d14</i>			60-120 %	117	%	



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**PZ-30-20220916**  
**22I0247-16RE2 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/16/2022 08:11  
Analyzed: 25-Oct-2022 18:35

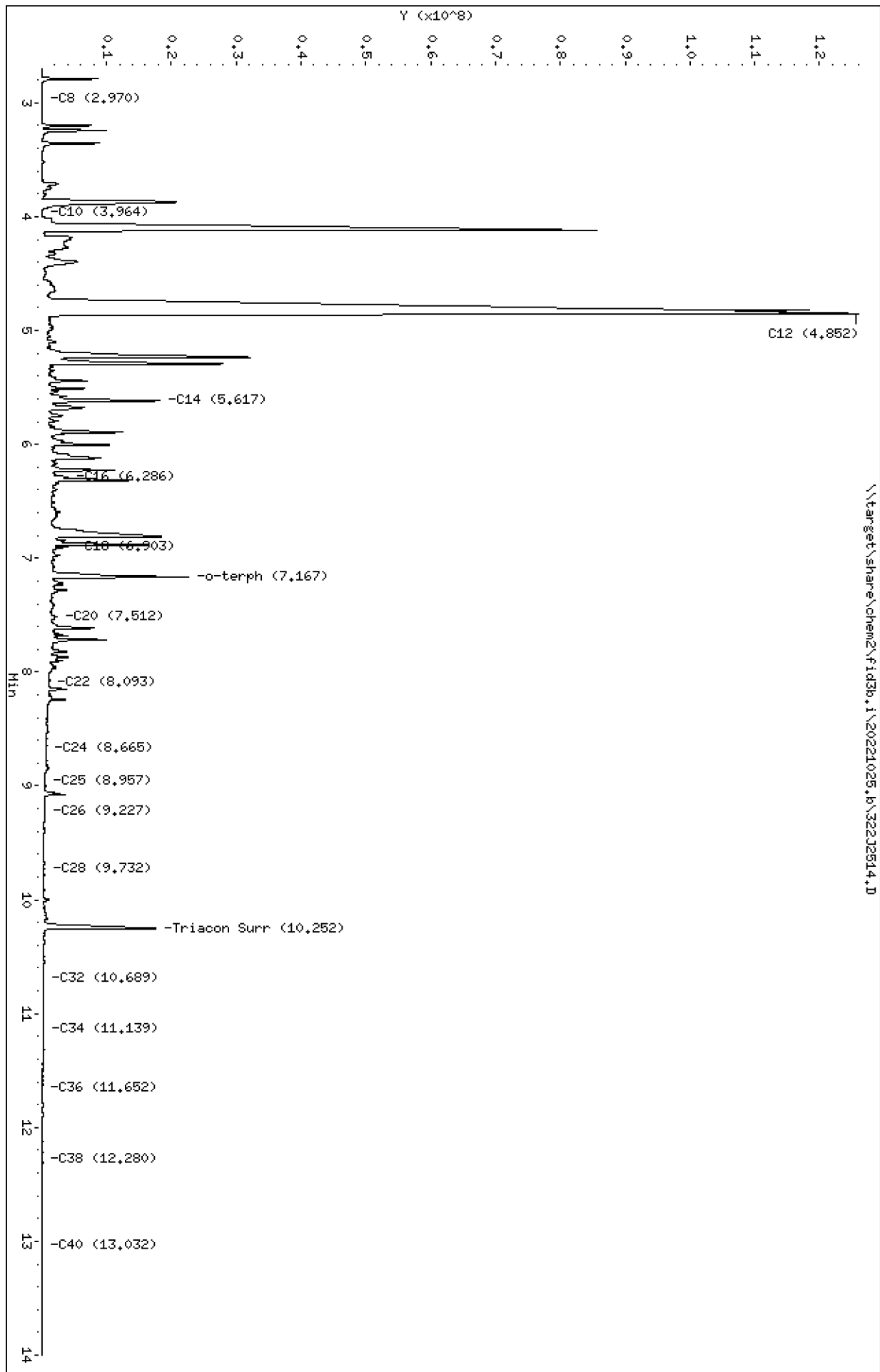
**Analysis by: Analytical Resources, LLC**

Sample Preparation:	Preparation Method: EPA 3510C SepF Preparation Batch: BKJ0488 Prepared: 20-Oct-2022	Sample Size: 500 mL Final Volume: 1 mL
Sample Cleanup:	Cleanup Method: Silica Gel Cleanup Batch: CKJ0133 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL
Sample Cleanup:	Cleanup Method: Sulfuric Acid Cleanup Batch: CKJ0132 Cleaned: 24-Oct-2022	Initial Volume: 1 uL Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	1	100	<b>7130</b>	ug/L	H, E
Motor Oil Range Organics (C24-C38)	RRO	1	200	<b>793</b>	ug/L	H
HC ID: RRO						
Creosote Range Organics (C12-C22)	8001-58-9	1	200	<b>47300</b>	ug/L	H, E
HC ID: CREOSOTE						
Surrogate: o-Terphenyl			50-150 %	103	%	H

Data File: \\target\share\chem2\fid3b,1\20221025,6\322J2514.D  
Date: 25-OCT-2022 18:35  
Client ID:  
Sample Info: 2210247-16RE2  
Column phase: RTX-1

Instrument: fid3b,1  
Operator: AA  
Column diameter: 0.25



\\target\share\chem2\fid3b,1\20221025,6\322J2514.D



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221025.b/322J2514.D  
Method: 20221025.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-16RE2  
Client ID:  
Injection: 25-OCT-2022 18:35  
Dilution Factor: 1  
RT Std: 322J2503.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.789	-0.001	8708138	7664969	WATPHG	(Tol-C12)	943144535	5255.9
C8	2.970	0.028	12036	24219	WATPHD	(C12-C24)	614638639	3564.6
C10	3.964	0.025	77772	165724	WATPHM	(C24-C38)	58971106	396.3
C12	4.852	0.002	125979874	236230228	AK102	(C10-C25)	1480442139	7264.8 M
C14	5.617	0.010	18158680	25111323	AK103	(C25-C36)	48116663	506.5 M
C16	6.286	0.008	4086101	4457747	OR.DIES	(C10-C28)	1502404571	7354.1 M
C18	6.903	-0.005	3940891	3714277				
C20	7.512	-0.004	2334627	2521263				
C22	8.093	-0.015	1104489	1540223				
C24	8.665	-0.015	692529	1109419				
C25	8.957	0.002	472726	328076				
C26	9.227	0.003	349458	52367				
C28	9.732	-0.007	329655	385407	IT.DIES	(C10-C24)	1472914189	7242.7
C32	10.689	0.006	256154	495359				
C34	11.139	-0.003	128794	70575	CREOSOT	(C12-C22)	586425996	23653.1
Filter Peak	13.994	0.007	27908	11078				
C36	11.652	-0.005	98675	194878	BUNKERC	(C10-C38)	1531885296	16011.6
o-terph	7.167	0.016	20809334	27902010	JET-A	(C10-C18)	1299511054	6230.4
Triacon Surr	10.252	0.000	17289269	25763042				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.740 - 4.900) NW M.Oil(8.730 - 12.318)  
AK102(3.889 - 8.905) AK103(8.905 - 11.707) Jet A(3.889 - 6.958)

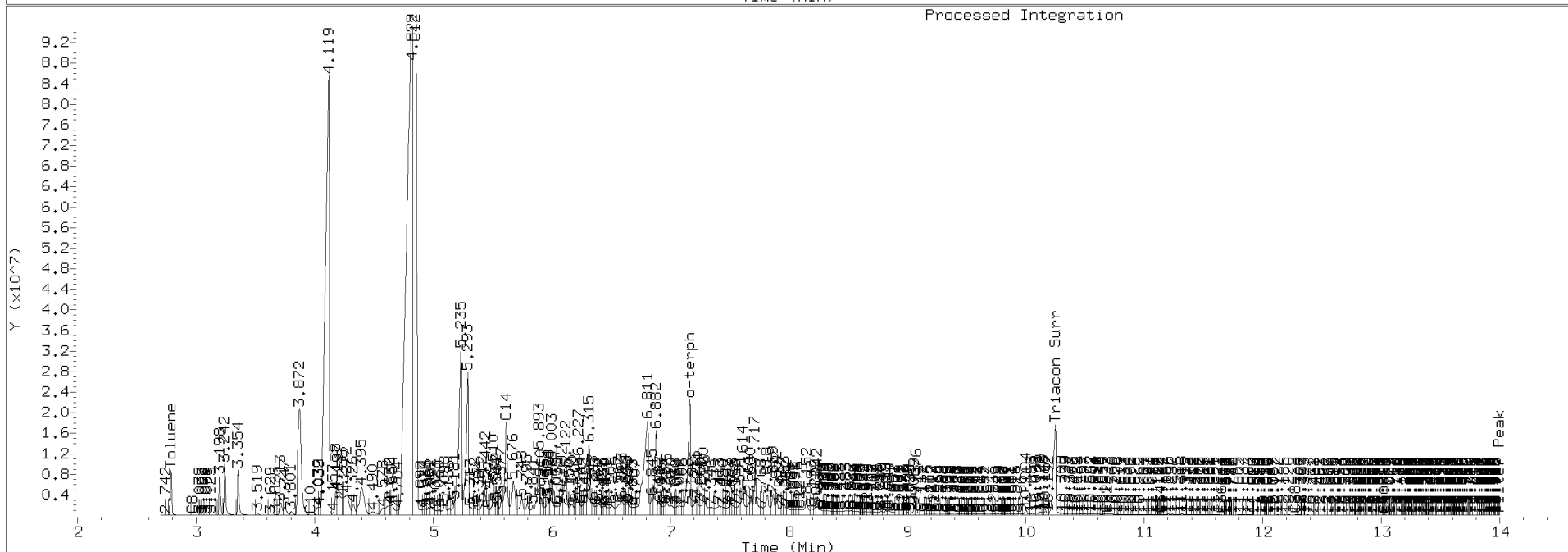
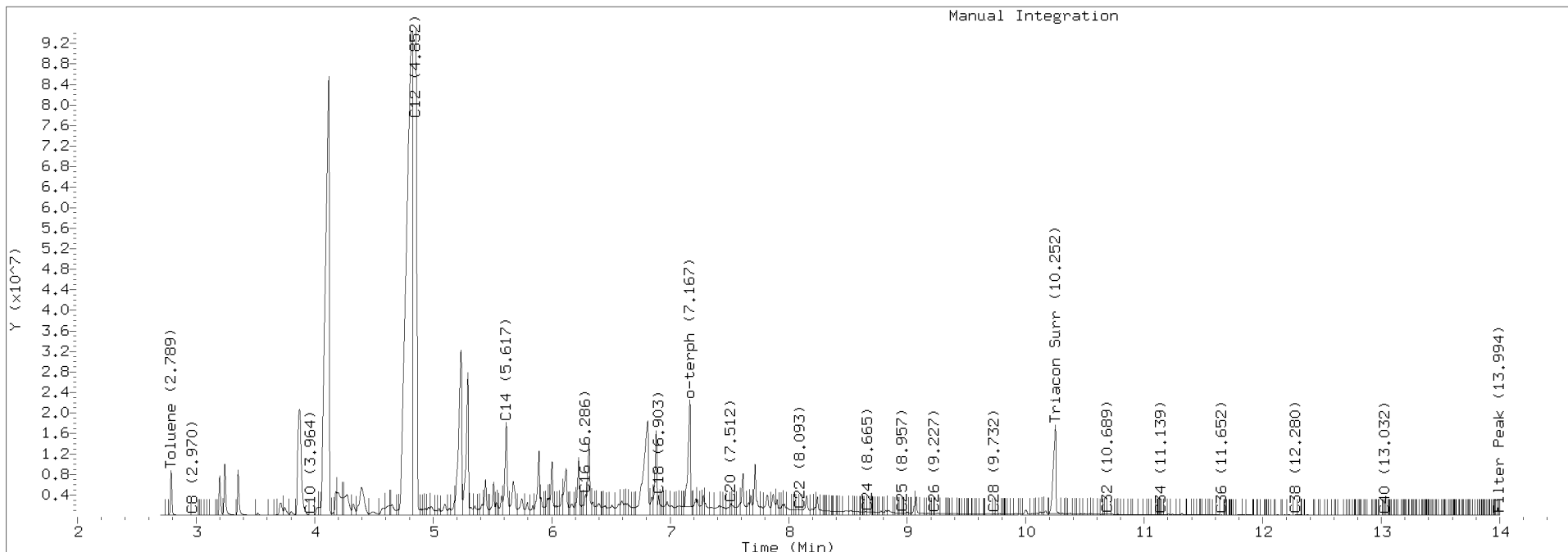
Surrogate	Area	Amount
o-Terphenyl	27902010	115.9
Triacontane	25763042	149.9

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221025.b/322J2514.D Injection: 25-OCT-2022 18:35

Lab ID:22I0247-16RE2





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**PZ-30-20220916**  
**22I0247-16RE3 (Water)**

**Petroleum Hydrocarbons**

Method: NWTPH-Dx  
Instrument: FID3

Sampled: 09/16/2022 08:11  
Analyzed: 25-Oct-2022 18:56

**Analysis by: Analytical Resources, LLC**

Sample Preparation: Preparation Method: EPA 3510C SepF  
Preparation Batch: BKJ0488 Sample Size: 500 mL  
Prepared: 20-Oct-2022 Final Volume: 1 mL

Sample Cleanup: Cleanup Method: Sulfuric Acid  
Cleanup Batch: CKJ0132 Initial Volume: 1 uL  
Cleaned: 24-Oct-2022 Final Volume: 1 uL

Analyte	CAS Number	Dilution	Reporting Limit	Result	Units	Notes
Diesel Range Organics (C12-C24)	DRO	10	1000	<b>7460</b>	ug/L	H, D
Motor Oil Range Organics (C24-C38)	RRO	10	2000	ND	ug/L	H, U
Creosote Range Organics (C12-C22)	8001-58-9	10	2000	<b>49700</b>	ug/L	H, D
HC ID: CREOSOTE						
Surrogate: <i>o</i> -Terphenyl			50-150 %	107	%	H

Data File: \\target\share\chem2\fid3b.1\20221025.1\32232515.D

Date: 25-OCT-2022 18:56

Client ID:

Sample Info: 2210247-16RE3.10

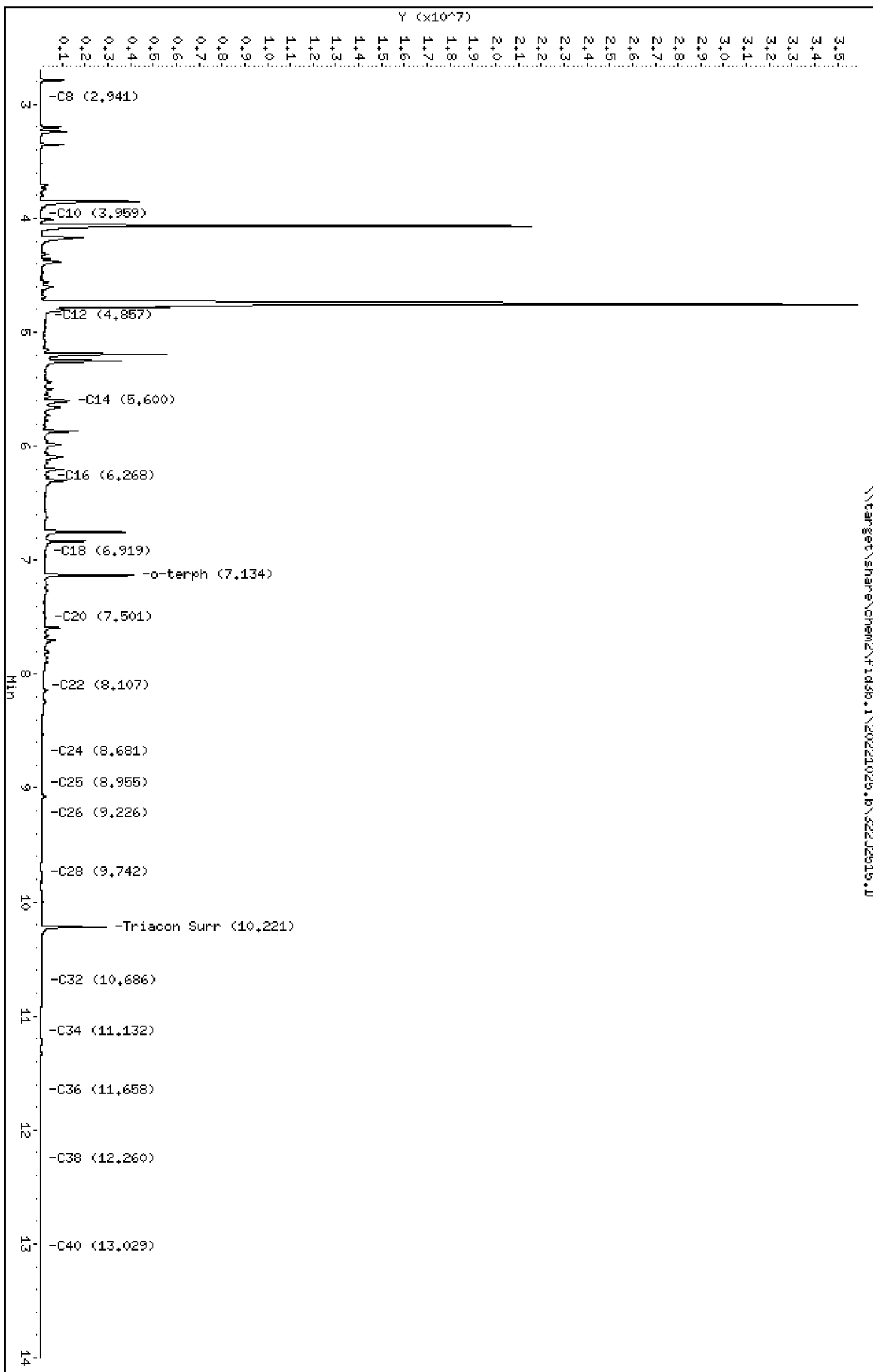
Column phase: RTX-1

Instrument: fid3b.1

Operator: AA

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221025.b/322J2515.D  
Method: 20221025.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: 22I0247-16RE3  
Client ID:  
Injection: 25-OCT-2022 18:56  
Dilution Factor: 10  
RT Std: 322J2503.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.789	-0.001	1022068	855503	WATPHG	(Tol-C12)	98262605	547.6
C8	2.941	-0.001	5490	7597	WATPHD	(C12-C24)	64306300	372.9
C10	3.959	0.020	23982	44721	WATPHM	(C24-C38)	7495360	50.4
C12	4.857	0.008	256825	584043	AK102	(C10-C25)	154225025	756.8 M
C14	5.600	-0.008	1248041	2332386	AK103	(C25-C36)	6163941	64.9 M
C16	6.268	-0.010	341755	554917	OR.DIES	(C10-C28)	156521764	766.2 M
C18	6.919	0.011	197442	182697				
C20	7.501	-0.015	233115	488870				
C22	8.107	-0.001	117127	64118				
C24	8.681	0.002	72149	17968				
C25	8.955	-0.001	60265	47676				
C26	9.226	0.002	40666	10141				
C28	9.742	0.004	34043	105290	IT.DIES	(C10-C24)	153598805	755.3
C32	10.686	0.004	36414	67773				
C34	11.132	-0.010	25643	17816	CREOSOT	(C12-C22)	61557913	2482.9
Filter Peak	13.985	-0.002	9392	4667				
C36	11.658	0.001	23327	22070	BUNKERC	(C10-C38)	161094165	1683.8
o-terph	7.134	-0.016	3900764	2909420	JET-A	(C10-C18)	135883000	651.5
Triacon Surr	10.221	-0.031	2824430	2421380				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.740 - 4.900) NW M.Oil(8.730 - 12.318)  
AK102(3.889 - 8.905) AK103(8.905 - 11.707) Jet A(3.889 - 6.958)

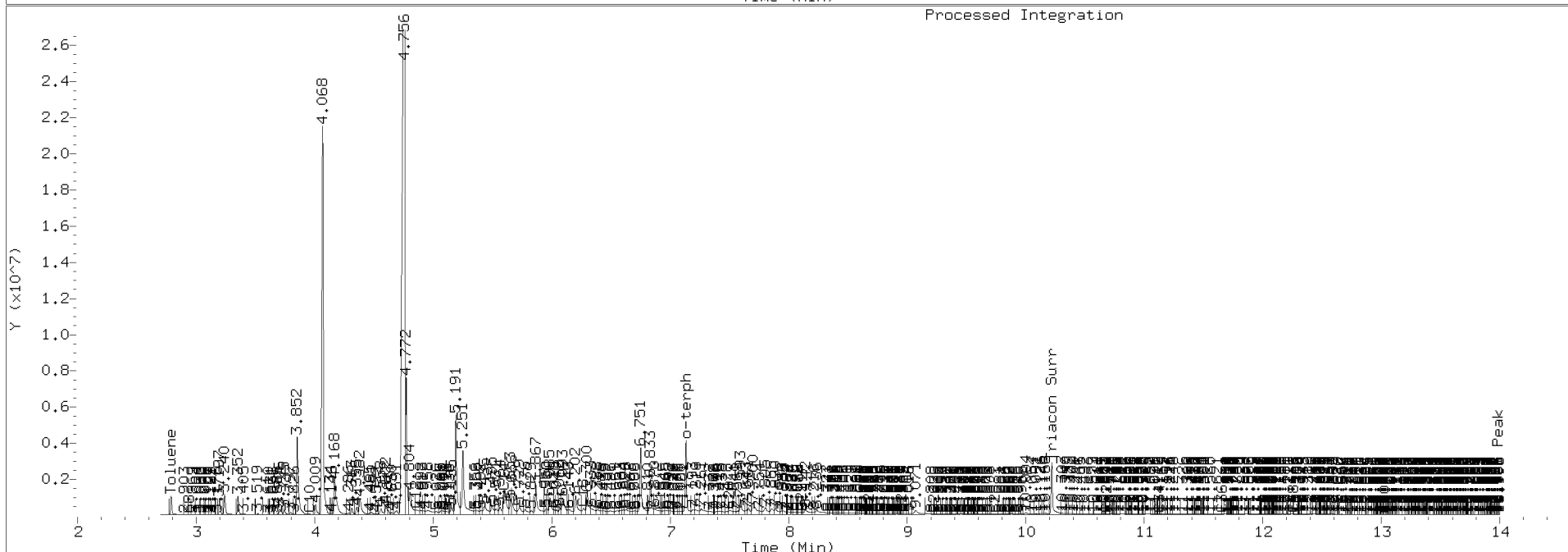
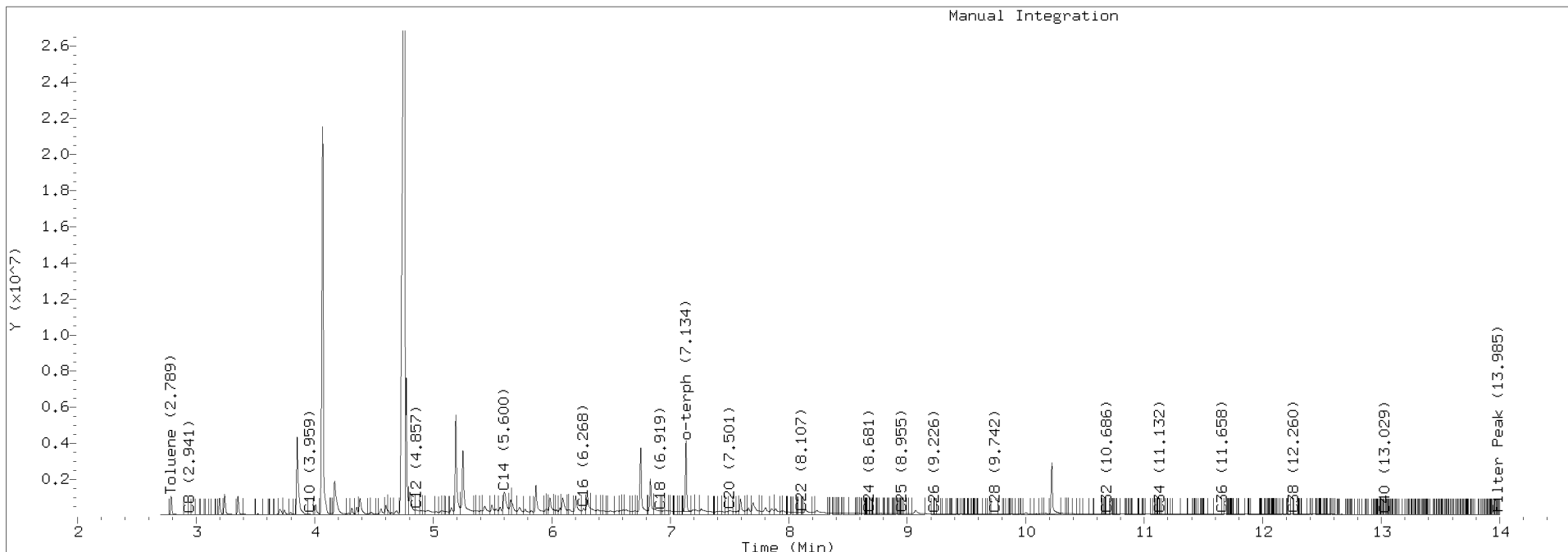
Surrogate	Area	Amount
o-Terphenyl	2909420	12.1
Triacontane	2421380	14.1

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221025.b/322J2515.D Injection: 25-OCT-2022 18:56

Lab ID:22I0247-16RE3





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BKI0365 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0365-BLK1)</b>				Prepared: 16-Sep-2022 Analyzed: 16-Sep-2022 13:58						
Gasoline Range Organics (Tol-Nap)	ND	100	ug/L							U
Surrogate: Toluene-d8	4.93		ug/L	5.0000		98.5	80-120			
Surrogate: 4-Bromofluorobenzene	4.93		ug/L	5.0000		98.7	80-120			

Data File: \\target\share\chend\nt3.1\20220916s.16\309162208G.D

Date: 16-SEP-2022 13:58

Client ID:

Sample Info: BK10365-BLK1

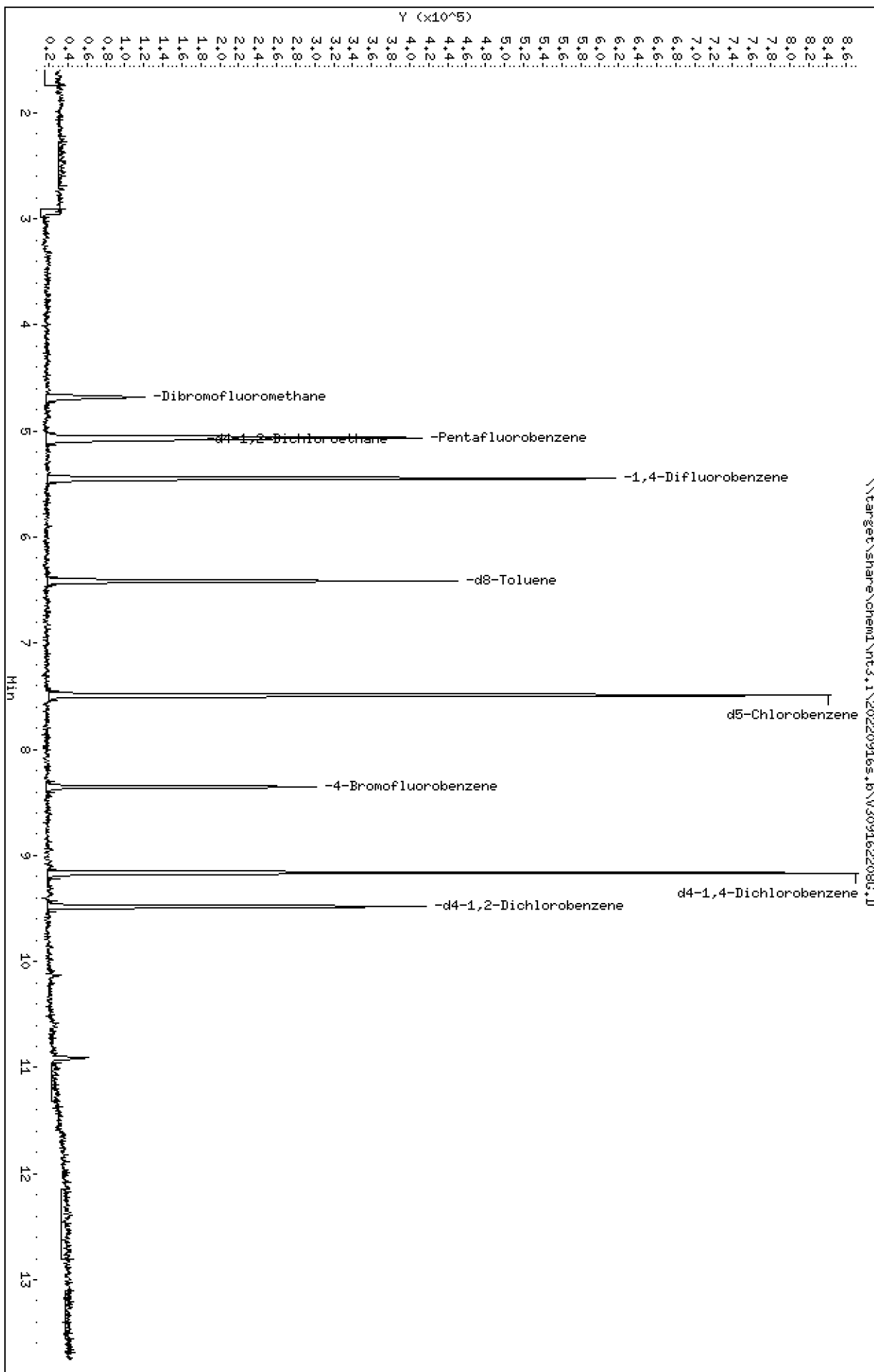
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162208G.D  
 Lab Smp Id: BKI0365-BLK1  
 Inj Date : 16-SEP-2022 13:58  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : BKI0365-BLK1  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 61  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.680	4.675	(0.924)	58975	5.24675	5.247
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	194601	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.084	5.084	(1.004)	33788	4.88570	4.886
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	364006	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	212454	4.92605	4.926
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	326915	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.357	8.357	(1.116)	59016	4.93259	4.933
* 76 d4-1,4-Dichlorobenzene	152		9.164	9.164	(1.000)	165510	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.483	9.483	(1.035)	77894	5.14244	5.142

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162208G.D Calibration Time: 12:30  
 Lab Smp Id: BKI0365-BLK1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	194601	-6.29
37 1,4-Difluorobenze	387680	193840	775360	364006	-6.11
53 d5-Chlorobenzene	359638	179819	719276	326915	-9.10
76 d4-1,4-Dichlorobe	189756	94878	379512	165510	-12.78

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.11
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.00
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.00
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.16	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BKI0365-BLK1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.247	104.93	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	4.886	97.71	80-128
\$ 43 d8-Toluene	5.000	4.926	98.52	80-120
\$ 62 4-Bromofluorobenze	5.000	4.933	98.65	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.142	102.85	80-120

REVIEW SUMMARY FOR FILE - V309162208G.D

Lab ID: BKI0365-BLK1  
nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 13:58

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chend\nt3.1\20220916g.b\309162208G.D

Date: 16-SEP-2022 13:58

Client ID:

Sample Info: BK10365-BLK1

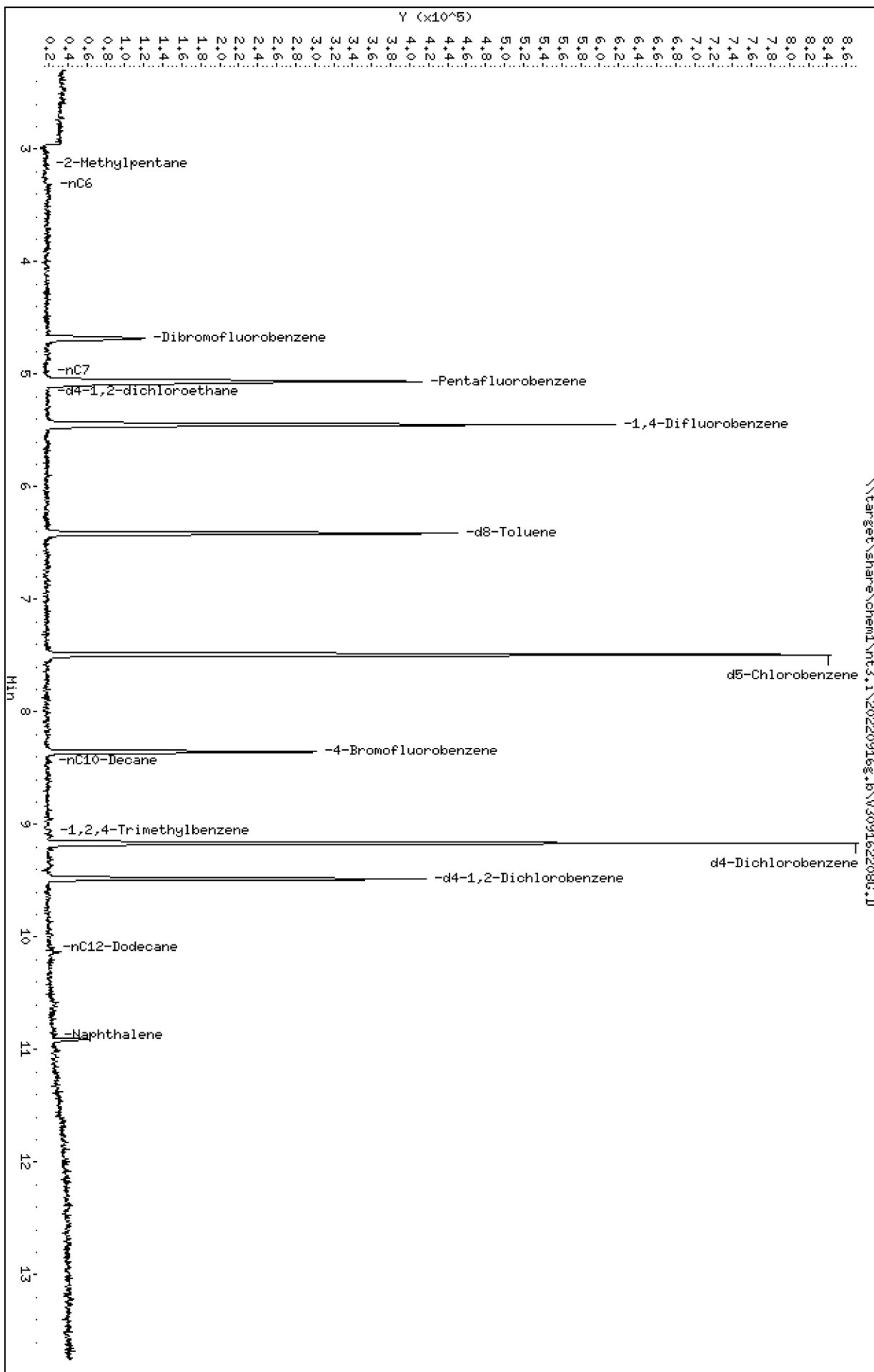
Column phase: RTXWMS

Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Page 1



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162208G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 13:58

ARI ID: BKI0365-BLK1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	478519	0.011
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	729810	0.008
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	572340	0.008
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	635955	0.013
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	612095	0.008

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

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7.491	1094249	d5-Chlorobenzene
6.413	605763	d8-Toluene
9.165	1070342	d4-Dichlorobenzene
8.352	399253	4-Bromofluorobenzene
9.484	531306	d4-1,2-Dichlorobenzene



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BKI0365 - EPA 5030C (Purge and Trap)**

Instrument: NT3

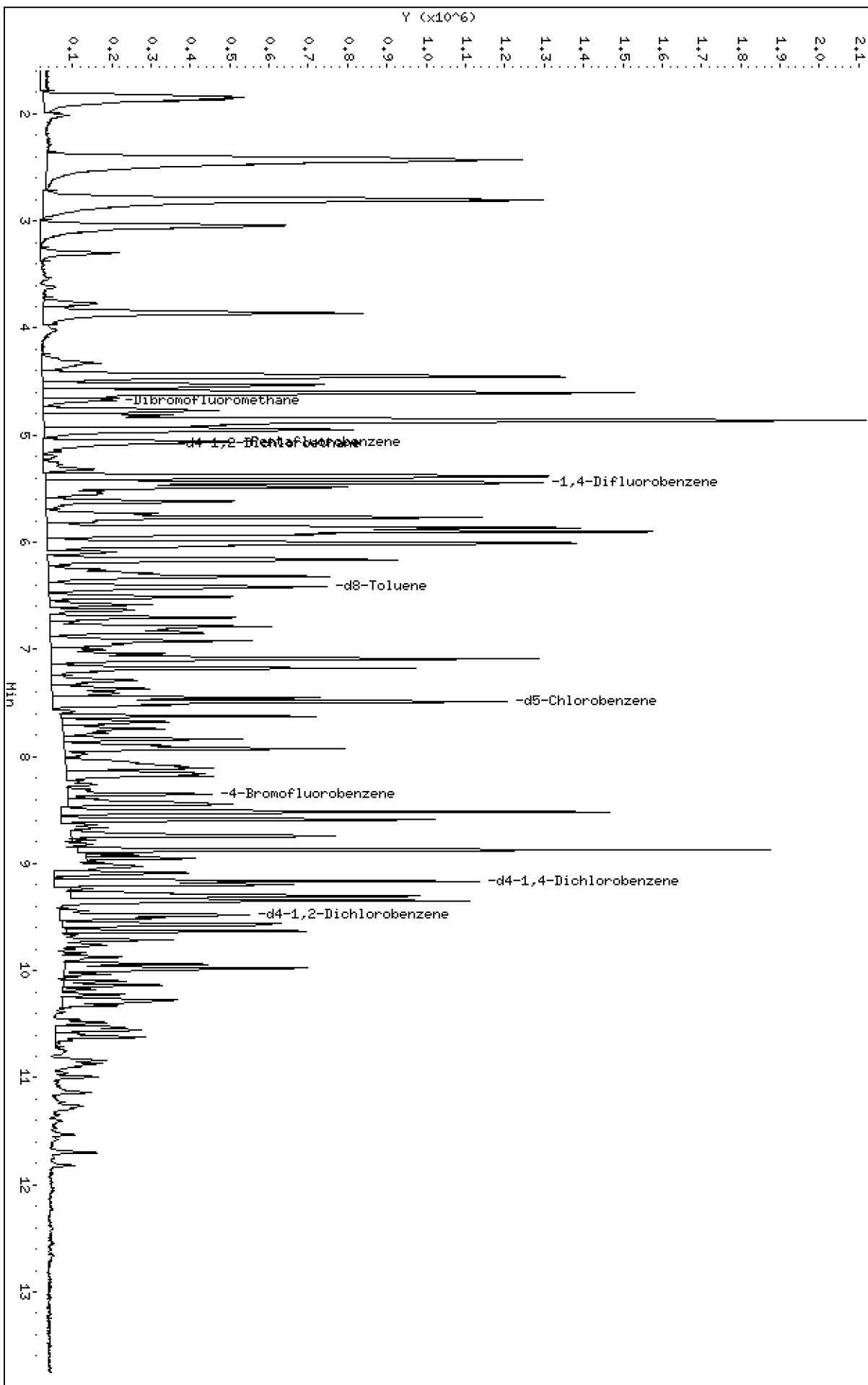
QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKI0365-BS1)</b>				Prepared: 16-Sep-2022 Analyzed: 16-Sep-2022 12:07						
Gasoline Range Organics (Tol-Nap)	1080	100	ug/L	1000.0		108	72-128			
Surrogate: Toluene-d8	5.05		ug/L	5.0000		101	80-120			
Surrogate: 4-Bromofluorobenzene	4.78		ug/L	5.0000		95.6	80-120			

Data File: \\target\share\chemd\nt3,1\20220916s,b\309162203GLCS.D  
Date: 16-SEP-2022 12:07  
Client ID:  
Sample Info: BK10365-BS1

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18

\\target\share\chemd\nt3,1\20220916s,b\309162203GLCS.D





ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162203GLCS.D  
 Lab Smp Id: BKI0365-BS1  
 Inj Date : 16-SEP-2022 12:07  
 Operator : PKC  
 Smp Info : BKI0365-BS1  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i  
 Cal Date : 12-SEP-2022 13:39  
 Als bottle: 61  
 Dil Factor: 1.00000  
 Integrator: HP RTE  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Inst ID: nt3.i

Quant Type: ISTD

Cal File: V309122211.D

Compound Sublist: gsurr.sub

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	10.000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.680	4.675	(0.924)	67676	5.04691	5.047
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	232154	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.079	5.084	(1.003)	50440	6.11376	6.114
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	438765	10.0000	
\$ 43 d8-Toluene	98		6.412	6.412	(1.178)	262662	5.05252	5.053
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	409860	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.352	8.357	(1.115)	71685	4.77895	4.779
* 76 d4-1,4-Dichlorobenzene	152		9.165	9.164	(1.000)	209238	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.483	9.483	(1.035)	93364	4.87560	4.876

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162203GLCS.D Calibration Time: 12:30  
 Lab Smp Id: BKI0365-BS1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	232154	11.80
37 1,4-Difluorobenze	387680	193840	775360	438765	13.18
53 d5-Chlorobenzene	359638	179819	719276	409860	13.96
76 d4-1,4-Dichlorobe	189756	94878	379512	209238	10.27

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.11
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.00
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.00
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.17	0.00

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
Sample Matrix: LIQUID Fraction: VOA  
Lab Smp Id: BKI0365-BS1  
Level: LOW Operator: PKC  
Data Type: MS DATA SampleType: SAMPLE  
SpikeList File: allspike.spk Quant Type: ISTD  
Sublist File: gsurr.sub  
Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.047	100.94	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.114	122.28	80-128
\$ 43 d8-Toluene	5.000	5.053	101.05	80-120
\$ 62 4-Bromofluorobenze	5.000	4.779	95.58	80-120
\$ 79 d4-1,2-Dichloroben	5.000	4.876	97.51	80-120

REVIEW SUMMARY FOR FILE - V309162203GLCS.D

Lab ID: BKI0365-BS1  
nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 12:07

RT CO-ELUTION COMPOUNDS

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Data File: \\target\share\chemd\nt3,1\20220916g.b\309162203GLCS.D

Date: 16-SEP-2022 12:07

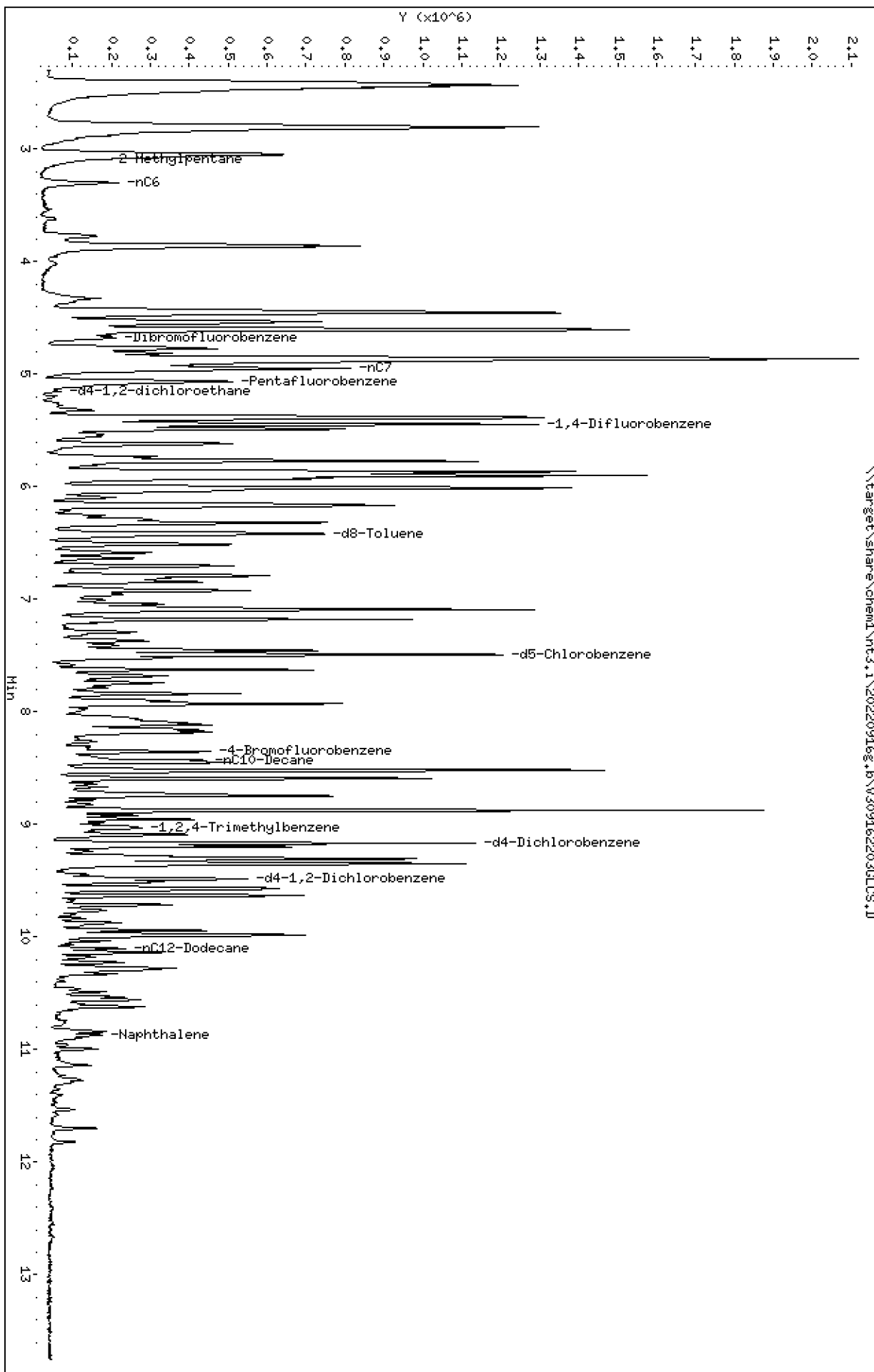
Client ID:

Sample Info: BK10365-BS1

Page 1

Column phase: RTXWMS

Instrument: nt3,1  
Operator: PKC  
Column diameter: 0.18



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162203GLCS.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 12:07

ARI ID: BKI0365-BS1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

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GASOLINE HYDROCARBONS

-----

Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	47775912	1.053 M
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	80683678	0.884 M
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	66069624	0.906 M
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	51996801	1.080 M
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	71743626	0.967 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

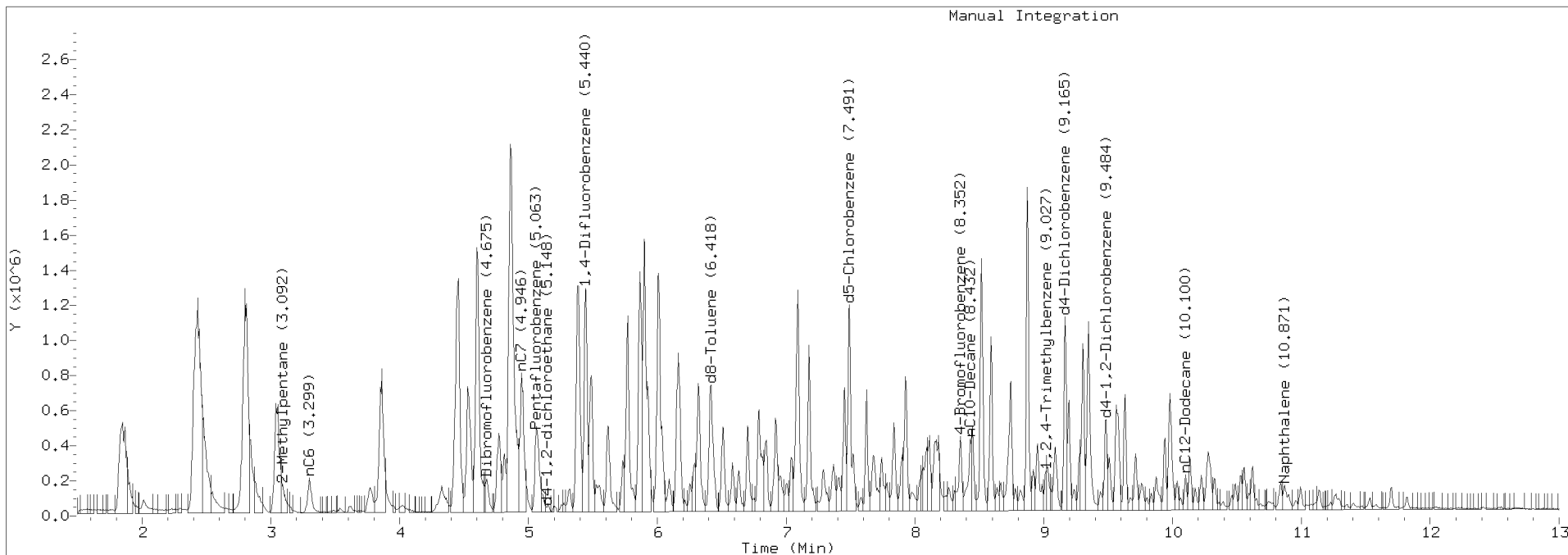
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7.491	2128649	d5-Chlorobenzene
6.418	1647016	d8-Toluene
9.165	1433755	d4-Dichlorobenzene
8.352	744326	4-Bromofluorobenzene
9.484	821331	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20220916g.b/V309162203GLCS.D Injection: 16-SEP-2022 12:07

Lab ID: BKI0365-BS1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**  
**Volatile Organic Compounds - Quality Control**

**Batch BKI0365 - EPA 5030C (Purge and Trap)**

Instrument: NT3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKI0365-BSD1)</b>				Prepared: 16-Sep-2022 Analyzed: 16-Sep-2022 12:52						
Gasoline Range Organics (Tol-Nap)	1030	100	ug/L	1000.0		103	72-128	4.40	30	
Surrogate: Toluene-d8	5.02		ug/L	5.0000		100	80-120			
Surrogate: 4-Bromofluorobenzene	5.19		ug/L	5.0000		104	80-120			



Data File: \\target\share\chend\nt3.1\20220916s.16\309162205G.D

Date: 16-SEP-2022 12:52

Client ID:

Sample Info: BK10365-BSM1.GAS

Page 1

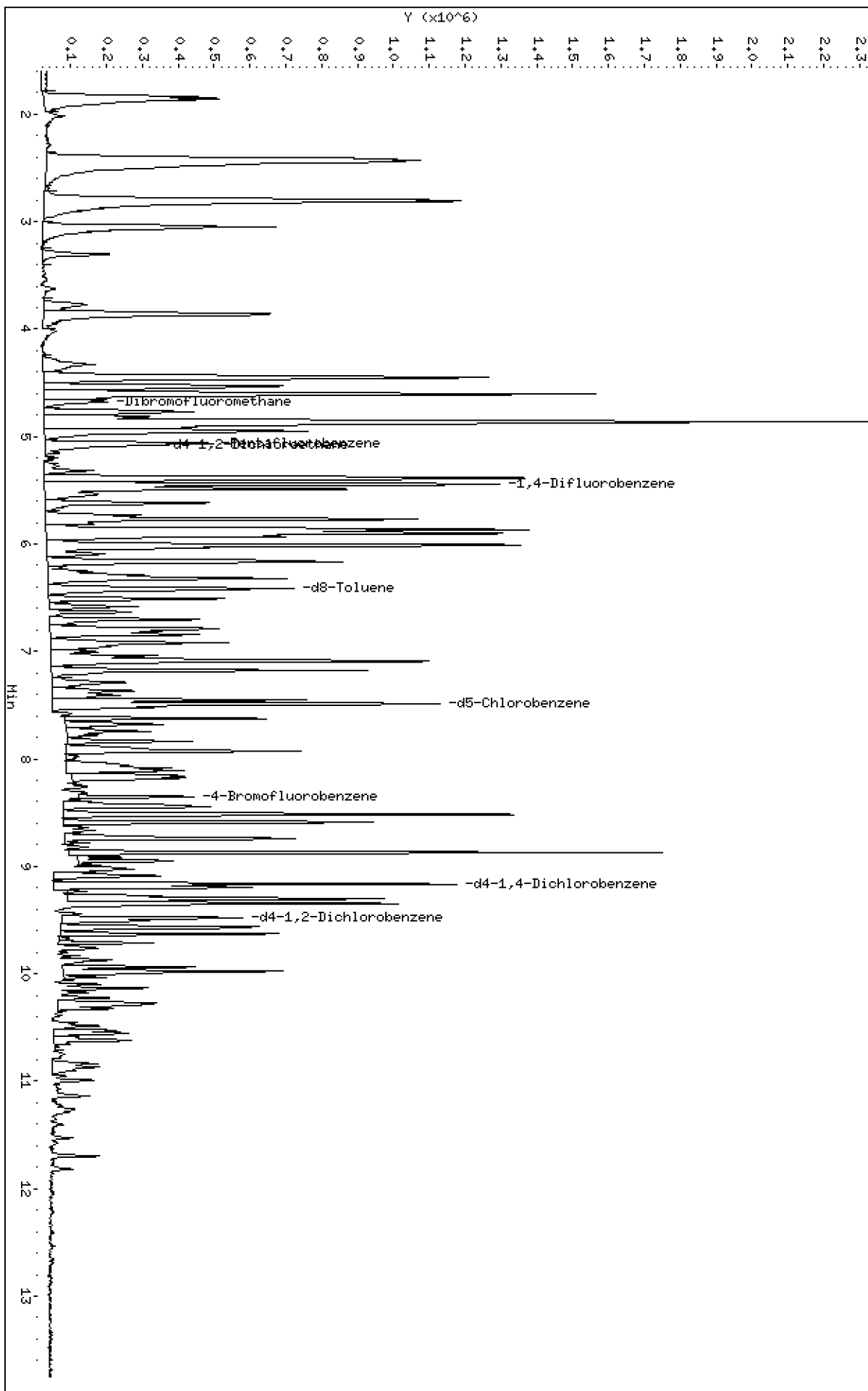
Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS

\\target\share\chend\nt3.1\20220916s.16\309162205G.D



ARI Labs, Inc.

8260C 10 ml purge

Data file : \\target\share\chem1\nt3.i\20220916s.b\V309162205G.D  
 Lab Smp Id: BKI0365-BSD1  
 Inj Date : 16-SEP-2022 12:52  
 Operator : PKC Inst ID: nt3.i  
 Smp Info : BKI0365-BSD1,GAS  
 Misc Info : 15-  
 Comment :  
 Method : \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Meth Date : 19-Sep-2022 13:48 nt3.i Quant Type: ISTD  
 Cal Date : 12-SEP-2022 13:39 Cal File: V309122211.D  
 Als bottle: 62  
 Dil Factor: 1.00000  
 Integrator: HP RTE Compound Sublist: gsurr.sub  
 Target Version: 4.14  
 Processing Host: PAULC-201202

Concentration Formula: Amt \* DF \* Pv / Sa \* CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Pv	0.00000	Purge Volume (mL)
Sa	10.000	Sample Amount (mL)
Cpnd Variable		Local Compound Variable

Compounds	QUANT	SIG	RT	EXP RT	REL RT	RESPONSE	CONCENTRATIONS	
							ON-COLUMN ( ug/L)	FINAL ( ug/L)
\$ 27 Dibromofluoromethane	111		4.680	4.675	(0.924)	66141	5.14992	5.150
* 32 Pentafluorobenzene	168		5.063	5.057	(1.000)	222350	10.0000	
\$ 33 d4-1,2-Dichloroethane	67		5.079	5.084	(1.003)	49301	6.23918	6.239
* 37 1,4-Difluorobenzene	114		5.445	5.445	(1.000)	434963	10.0000	
\$ 43 d8-Toluene	98		6.413	6.412	(1.178)	258908	5.02384	5.024
* 53 d5-Chlorobenzene	117		7.491	7.491	(1.000)	398656	10.0000	
\$ 62 4-Bromofluorobenzene	174		8.352	8.357	(1.115)	75728	5.19037	5.190
* 76 d4-1,4-Dichlorobenzene	152		9.165	9.164	(1.000)	217491	10.0000	
\$ 79 d4-1,2-Dichlorobenzene	152		9.478	9.483	(1.034)	100710	5.05965	5.060

ARI Labs, Inc.

INTERNAL STANDARD COMPOUNDS  
 AREA AND RT SUMMARY

Instrument ID: nt3.i Calibration Date: 16-SEP-2022  
 Lab File ID: V309162205G.D Calibration Time: 12:30  
 Lab Smp Id: BKI0365-BSD1  
 Analysis Type: VOA Level: LOW  
 Quant Type: ISTD Sample Type: WATER  
 Operator: PKC  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

Test Mode:

Use Last Continuing Calibrator.  
 If Continuing Cal. use Initial Cal. Level 5

COMPOUND	STANDARD	AREA LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	207659	103830	415318	222350	7.07
37 1,4-Difluorobenze	387680	193840	775360	434963	12.20
53 d5-Chlorobenzene	359638	179819	719276	398656	10.85
76 d4-1,4-Dichlorobe	189756	94878	379512	217491	14.62

COMPOUND	STANDARD	RT LIMIT		SAMPLE	%DIFF
		LOWER	UPPER		
32 Pentafluorobenzon	5.06	4.56	5.56	5.06	0.12
37 1,4-Difluorobenze	5.45	4.95	5.95	5.45	0.01
53 d5-Chlorobenzene	7.49	6.99	7.99	7.49	0.01
76 d4-1,4-Dichlorobe	9.16	8.66	9.66	9.17	0.01

AREA UPPER LIMIT = +100% of internal standard area.  
 AREA LOWER LIMIT = - 50% of internal standard area.  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT.  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT.

ARI Labs, Inc.

RECOVERY REPORT

Client Name: Client SDG: 20151005  
 Sample Matrix: LIQUID Fraction: VOA  
 Lab Smp Id: BKI0365-BSD1  
 Level: LOW Operator: PKC  
 Data Type: MS DATA SampleType: SAMPLE  
 SpikeList File: allspike.spk Quant Type: ISTD  
 Sublist File: gsurr.sub  
 Method File: \\target\share\chem1\nt3.i\20220916s.b\8260D091222.m  
 Misc Info: 15-

SURROGATE COMPOUND	AMOUNT ADDED ug/L	AMOUNT RECOVERED ug/L	% RECOVERED	LIMITS
\$ 27 Dibromofluorometha	5.000	5.150	103.00	80-120
\$ 33 d4-1,2-Dichloroeth	5.000	6.239	124.78	80-128
\$ 43 d8-Toluene	5.000	5.024	100.48	80-120
\$ 62 4-Bromofluorobenze	5.000	5.190	103.81	80-120
\$ 79 d4-1,2-Dichloroben	5.000	5.060	101.19	80-120

REVIEW SUMMARY FOR FILE - V309162205G.D

Lab ID: BKI0365-BSD1  
nt3.i, 20220916s.b\8260D091222.m, 16-SEP-2022 12:52

RT CO-ELUTION COMPOUNDS

---

Data File: \\target\share\chend\nt3.1\20220916g.b\W309162205G.D

Date: 16-SEP-2022 12:52

Client ID:

Sample Info: BK10365-BSM1.GAS

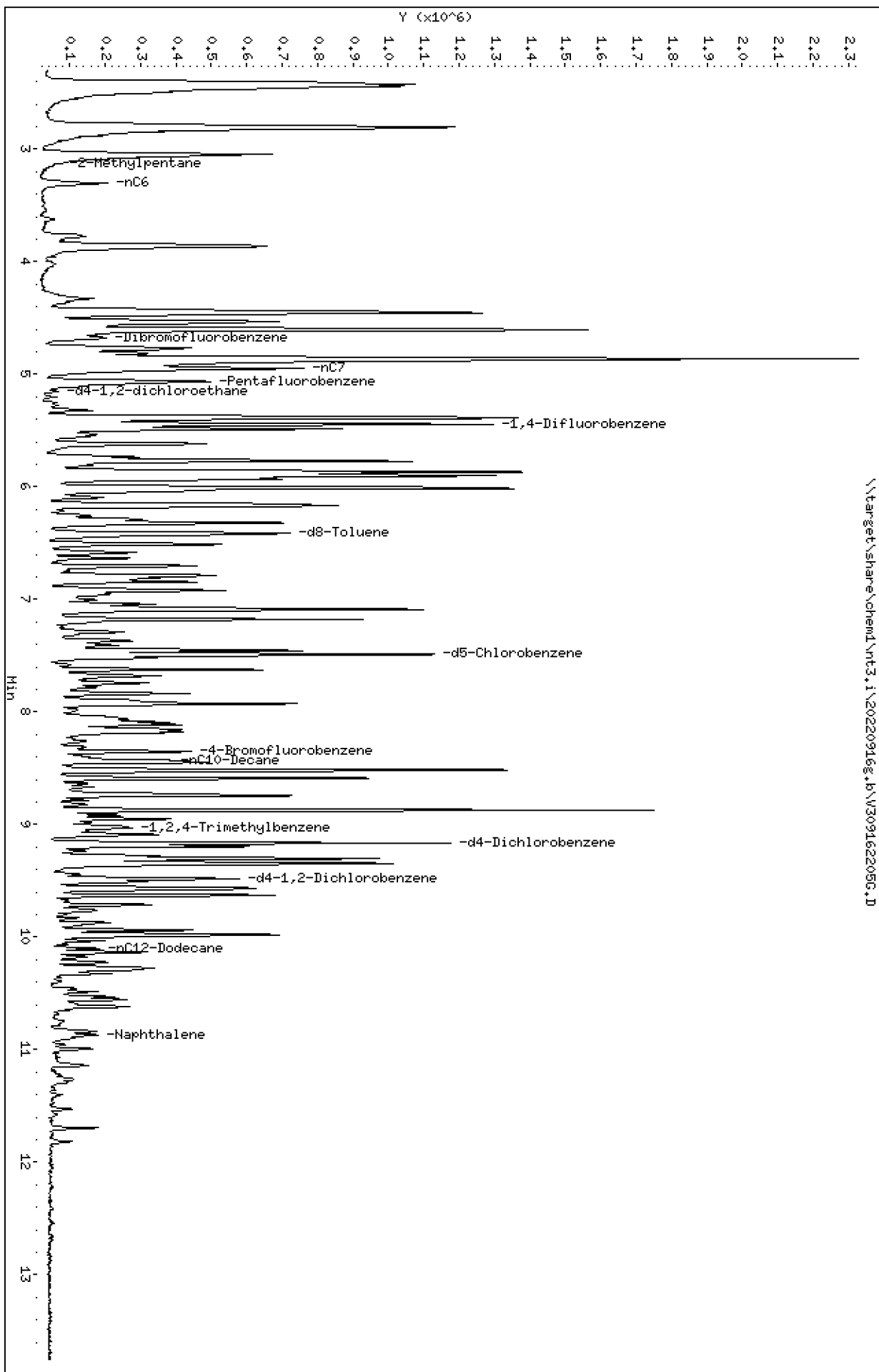
Instrument: nt3.1

Operator: PKC

Column diameter: 0.18

Column phase: RTXWMS

\\target\share\chend\nt3.1\20220916g.b\W309162205G.D



Analytical Resources Inc.  
GC/MS Gas Quantitation Report

Data file: 20220916g.b/V309162205G.D  
Method: \20220916g.b\NWTPHG052422.m  
Instrument: nt3.i  
Gas Ical Date: 24-MAY-2022  
Injection Date: 16-SEP-2022 12:52

ARI ID: BKI0365-BSD1  
Client ID:  
Matrix: WATER  
Dilution Factor: 1.000  
Operator: PKC

=====

GASOLINE HYDROCARBONS

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Range	RF	Total Area*	Amount (ug/mL)
-----	----	-----	-----
WAGas Tol-C12 ( 6.34 to 10.20)	45366423	45635352	1.006 M
8015C 2MP-TMB ( 2.99 to 9.13)	91269715	77866676	0.853 M
AK101 nC6-nC10 ( 3.20 to 8.33)	72933296	64069107	0.878 M
NWTPHG Tol-Nap ( 6.34 to 10.97)	48132589	49759543	1.034 M
mod8015 nC7-nC12 ( 4.86 to 10.20)	74175333	69152012	0.932 M

M Indicates manual integration within range

\* Surrogate areas are subtracted from Total Area

NW Gas Range Subtracted Peaks

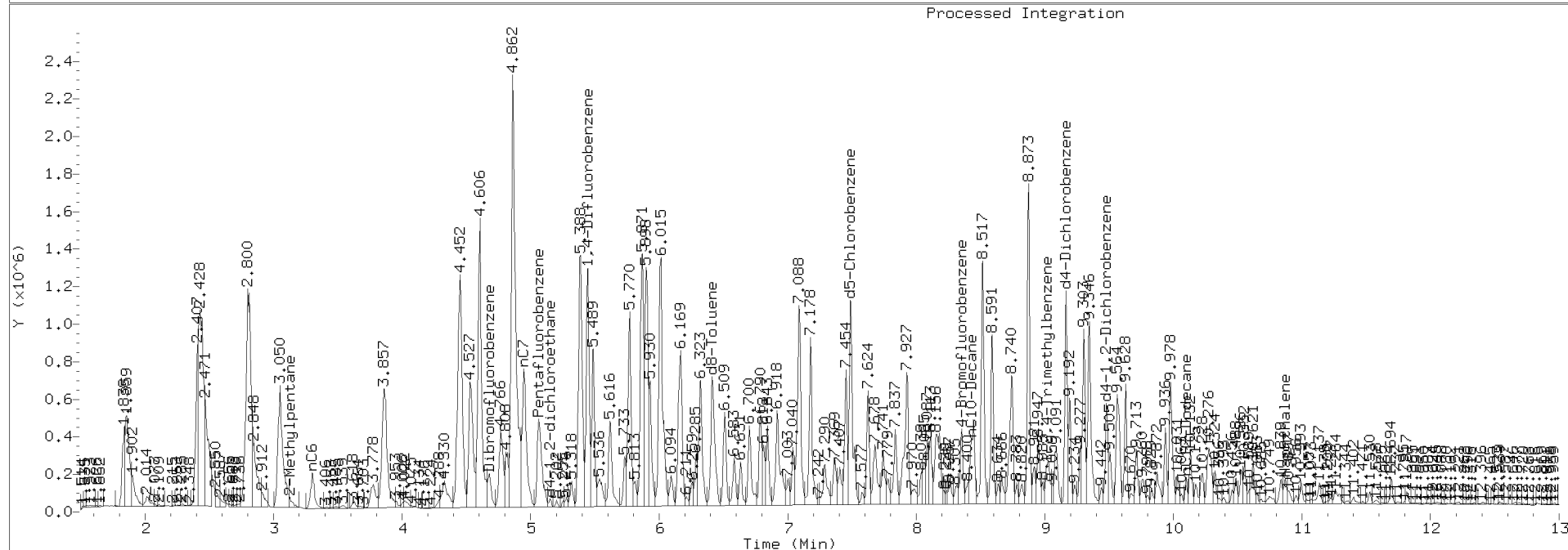
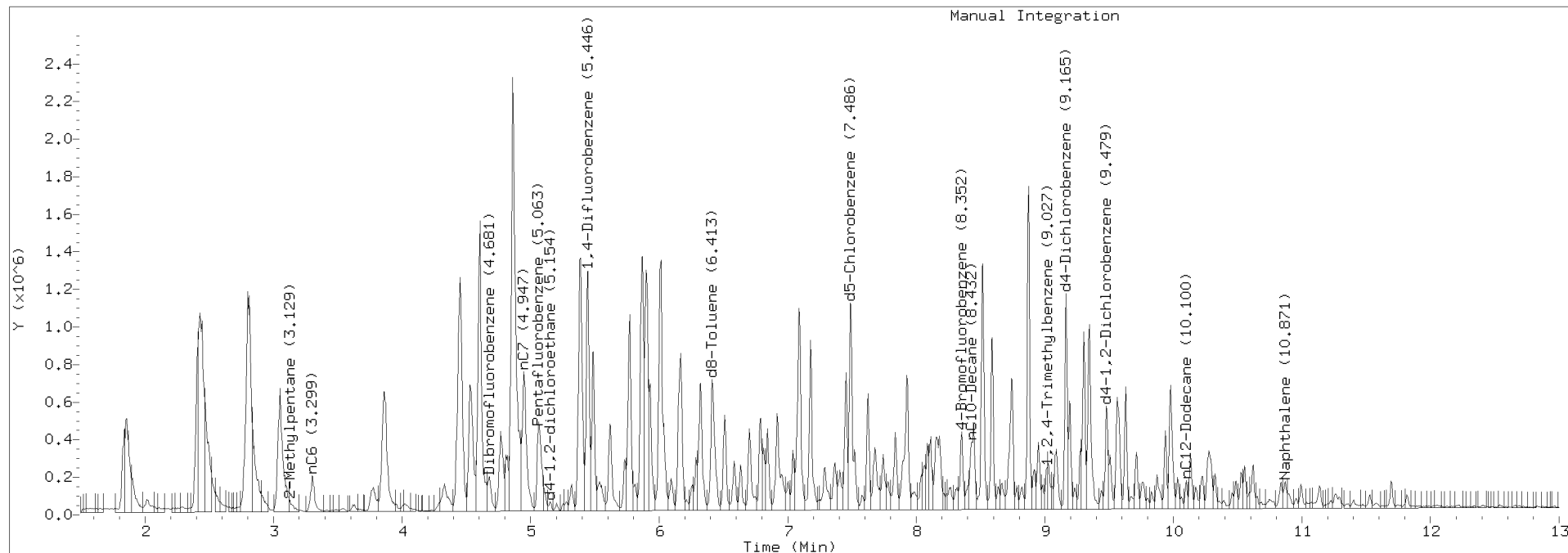
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7.486	2062093	d5-Chlorobenzene
6.413	1562108	d8-Toluene
9.165	1502435	d4-Dichlorobenzene
8.352	689048	4-Bromofluorobenzene
9.479	797463	d4-1,2-Dichlorobenzene

TPHG Manual Integrations Report

Datafile: NT3, 20220916g.b/V309162205G.D Injection: 16-SEP-2022 12:52

Lab ID: BKI0365-BSD1







Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

Analysis by: Analytical Resources, LLC

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - Quality Control

Batch BKI0381 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0381-BLK1)</b>				Prepared: 21-Sep-2022 Analyzed: 23-Sep-2022 13:49						
Naphthalene	ND	1.0	ug/L							U
Acenaphthylene	ND	1.0	ug/L							U
Acenaphthene	ND	1.0	ug/L							U
2-Methylnaphthalene	ND	1.0	ug/L							U
Dibenzofuran	ND	1.0	ug/L							U
Fluorene	ND	1.0	ug/L							U
Pentachlorophenol	ND	10.0	ug/L							U
Phenanthrene	ND	1.0	ug/L							U
Anthracene	ND	1.0	ug/L							U
Carbazole	ND	1.0	ug/L							U
Fluoranthene	ND	1.0	ug/L							U
Pyrene	ND	1.0	ug/L							U
Benzo(a)anthracene	ND	1.0	ug/L							U
Chrysene	ND	1.0	ug/L							U
Benzo(a)pyrene	ND	1.0	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	1.0	ug/L							U
Dibenzo(a,h)anthracene	ND	1.0	ug/L							U
Benzo(g,h,i)perylene	ND	1.0	ug/L							U
1-Methylnaphthalene	ND	1.0	ug/L							U
Surrogate: 2-Fluorobiphenyl	22.9		ug/L	25.000		91.7	54.4-120			
Surrogate: 2,4,6-Tribromophenol	40.5		ug/L	37.500		108	49.3-128			
Surrogate: p-Terphenyl-d14	27.8		ug/L	25.000		111	60-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

Analysis by: Analytical Resources, LLC  
Semivolatile Organic Compounds - Quality Control

Batch BKI0381 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKI0381-BS1)</b>				Prepared: 21-Sep-2022 Analyzed: 23-Sep-2022 14:22						
Naphthalene	19.4	1.0	ug/L	25.000		77.4	51.9-120			
Acenaphthylene	20.7	1.0	ug/L	25.000		83.0	56.5-120			
Acenaphthene	20.2	1.0	ug/L	25.000		81.0	60.9-120			
2-Methylnaphthalene	19.5	1.0	ug/L	25.000		77.8	56.5-120			
Dibenzofuran	22.4	1.0	ug/L	25.000		89.5	61.9-120			
Fluorene	21.5	1.0	ug/L	25.000		86.1	62.3-120			
Pentachlorophenol	71.6	10.0	ug/L	65.000		110	40.7-124			
Phenanthrene	22.8	1.0	ug/L	25.000		91.3	61-120			
Anthracene	22.1	1.0	ug/L	25.000		88.6	64.6-120			
Carbazole	23.5	1.0	ug/L	25.000		93.8	42-177			
Fluoranthene	23.2	1.0	ug/L	25.000		92.9	67.9-120			
Pyrene	21.8	1.0	ug/L	25.000		87.2	69-135			
Benzo(a)anthracene	23.1	1.0	ug/L	25.000		92.3	65-133			
Chrysene	21.7	1.0	ug/L	25.000		86.9	61.5-120			
Benzo(a)pyrene	23.9	1.0	ug/L	25.000		95.6	74-121			
Indeno(1,2,3-cd)pyrene	25.2	1.0	ug/L	25.000		101	40-147			
Dibenzo(a,h)anthracene	25.7	1.0	ug/L	25.000		103	37-148			
Benzo(g,h,i)perylene	25.1	1.0	ug/L	25.000		100	42-168			
1-Methylnaphthalene	20.9	1.0	ug/L	25.000		83.4	54.4-120			
Surrogate: 2-Fluorobiphenyl	22.6		ug/L	25.000		90.5	54.4-120			
Surrogate: 2,4,6-Tribromophenol	40.1		ug/L	37.500		107	49.3-128			
Surrogate: p-Terphenyl-d14	24.1		ug/L	25.000		96.6	60-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

Analysis by: Analytical Resources, LLC  
Semivolatile Organic Compounds - Quality Control

Batch BKI0381 - EPA 3510C SepF

Instrument: NT6

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKI0381-BSD1)</b>				Prepared: 21-Sep-2022 Analyzed: 23-Sep-2022 14:56						
Naphthalene	20.1	1.0	ug/L	25.000		80.3	51.9-120	3.67	30	
Acenaphthylene	20.4	1.0	ug/L	25.000		81.7	56.5-120	1.57	30	
Acenaphthene	19.9	1.0	ug/L	25.000		79.5	60.9-120	1.77	30	
2-Methylnaphthalene	19.5	1.0	ug/L	25.000		78.0	56.5-120	0.19	30	
Dibenzofuran	21.8	1.0	ug/L	25.000		87.4	61.9-120	2.38	30	
Fluorene	22.0	1.0	ug/L	25.000		88.0	62.3-120	2.09	30	
Pentachlorophenol	71.4	10.0	ug/L	65.000		110	40.7-124	0.37	30	
Phenanthrene	22.8	1.0	ug/L	25.000		91.3	61-120	0.09	30	
Anthracene	22.3	1.0	ug/L	25.000		89.3	64.6-120	0.81	30	
Carbazole	22.7	1.0	ug/L	25.000		90.9	42-177	3.19	30	
Fluoranthene	22.5	1.0	ug/L	25.000		90.1	67.9-120	3.06	30	
Pyrene	21.6	1.0	ug/L	25.000		86.4	69-135	0.95	30	
Benzo(a)anthracene	22.6	1.0	ug/L	25.000		90.4	65-133	2.06	30	
Chrysene	21.1	1.0	ug/L	25.000		84.3	61.5-120	3.06	30	
Benzo(a)pyrene	23.5	1.0	ug/L	25.000		94.1	74-121	1.60	30	
Indeno(1,2,3-cd)pyrene	24.1	1.0	ug/L	25.000		96.4	40-147	4.29	30	
Dibenzo(a,h)anthracene	24.3	1.0	ug/L	25.000		97.1	37-148	5.56	30	
Benzo(g,h,i)perylene	23.8	1.0	ug/L	25.000		95.4	42-168	5.00	30	
1-Methylnaphthalene	20.9	1.0	ug/L	25.000		83.4	54.4-120	0.01	30	
Surrogate: 2-Fluorobiphenyl	21.3		ug/L	25.000		85.3	54.4-120			
Surrogate: 2,4,6-Tribromophenol	37.3		ug/L	37.500		99.5	49.3-128			
Surrogate: p-Terphenyl-d14	23.6		ug/L	25.000		94.4	60-120			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

Analysis by: Analytical Resources, LLC

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BKI0384 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0384-BLK1)</b>				Prepared: 22-Sep-2022 Analyzed: 26-Sep-2022 18:08						
Benzo(a)anthracene	ND	0.10	ug/L							U
Chrysene	ND	0.10	ug/L							U
Benzo(a)fluoranthene, Total	ND	0.20	ug/L							U
Benzo(a)pyrene	ND	0.10	ug/L							U
Indeno(1,2,3-cd)pyrene	ND	0.10	ug/L							U
Dibenzo(a,h)anthracene	ND	0.10	ug/L							U
Surrogate: 2-Methylnaphthalene-d10	2.06		ug/L	3.0000		68.7	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	3.14		ug/L	3.0000		105	10-125			



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BKI0384 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKI0384-BS1)</b>				Prepared: 22-Sep-2022 Analyzed: 26-Sep-2022 14:52						
Benzo(a)anthracene	2.35	0.10	ug/L	3.0000		78.2	37-120			
Chrysene	2.59	0.10	ug/L	3.0000		86.2	48-120			
Benzo(a)fluoranthene, Total	11.2	0.20	ug/L	9.0000		125	46-120			*
Benzo(a)pyrene	2.43	0.10	ug/L	3.0000		80.9	25-120			
Indeno(1,2,3-cd)pyrene	3.26	0.10	ug/L	3.0000		109	32-120			
Dibenzo(a,h)anthracene	3.67	0.10	ug/L	3.0000		122	21-120			*
Surrogate: 2-Methylnaphthalene-d10	1.65		ug/L	3.0000		54.9	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	3.74		ug/L	3.0000		125	10-125			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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Analysis by: Analytical Resources, LLC

Semivolatile Organic Compounds - SIM - Quality Control

Batch BKI0384 - EPA 3520C (Liq Liq)

Instrument: NT8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKI0384-BSD1)</b>				Prepared: 22-Sep-2022 Analyzed: 26-Sep-2022 15:20						
Benzo(a)anthracene	2.42	0.10	ug/L	3.0000		80.6	37-120	2.97	30	
Chrysene	2.73	0.10	ug/L	3.0000		91.0	48-120	5.46	30	
Benzo(a)fluoranthene, Total	13.3	0.20	ug/L	9.0000		147	46-120	16.80	30	*
Benzo(a)pyrene	2.62	0.10	ug/L	3.0000		87.4	25-120	7.76	30	
Indeno(1,2,3-cd)pyrene	3.86	0.10	ug/L	3.0000		129	32-120	16.70	30	*
Dibenzo(a,h)anthracene	4.45	0.10	ug/L	3.0000		148	21-120	19.20	30	*
Surrogate: 2-Methylnaphthalene-d10	1.75		ug/L	3.0000		58.3	31-120			
Surrogate: Dibenzo[a,h]anthracene-d14	4.11		ug/L	3.0000		137	10-125			*



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**

**Analysis by: Analytical Resources, LLC**

**Petroleum Hydrocarbons - Quality Control**

**Batch BKI0385 - EPA 3510C SepF**

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0385-BLK1)</b>				Prepared: 20-Sep-2022 Analyzed: 11-Oct-2022 19:49						
Diesel Range Organics (C12-C24)	ND	100	ug/L							U
Motor Oil Range Organics (C24-C38)	ND	200	ug/L							U
Creosote Range Organics (C12-C22)	498	200	ug/L							
<i>Surrogate: o-Terphenyl</i>	206		ug/L	225.00		91.4	50-150			

Data File: \\target\share\chem2\FID3b,1\20221011,6\32201114.D

Date: 11-OCT-2022 19:49

Client ID:

Sample Info: BK10385-BLK1

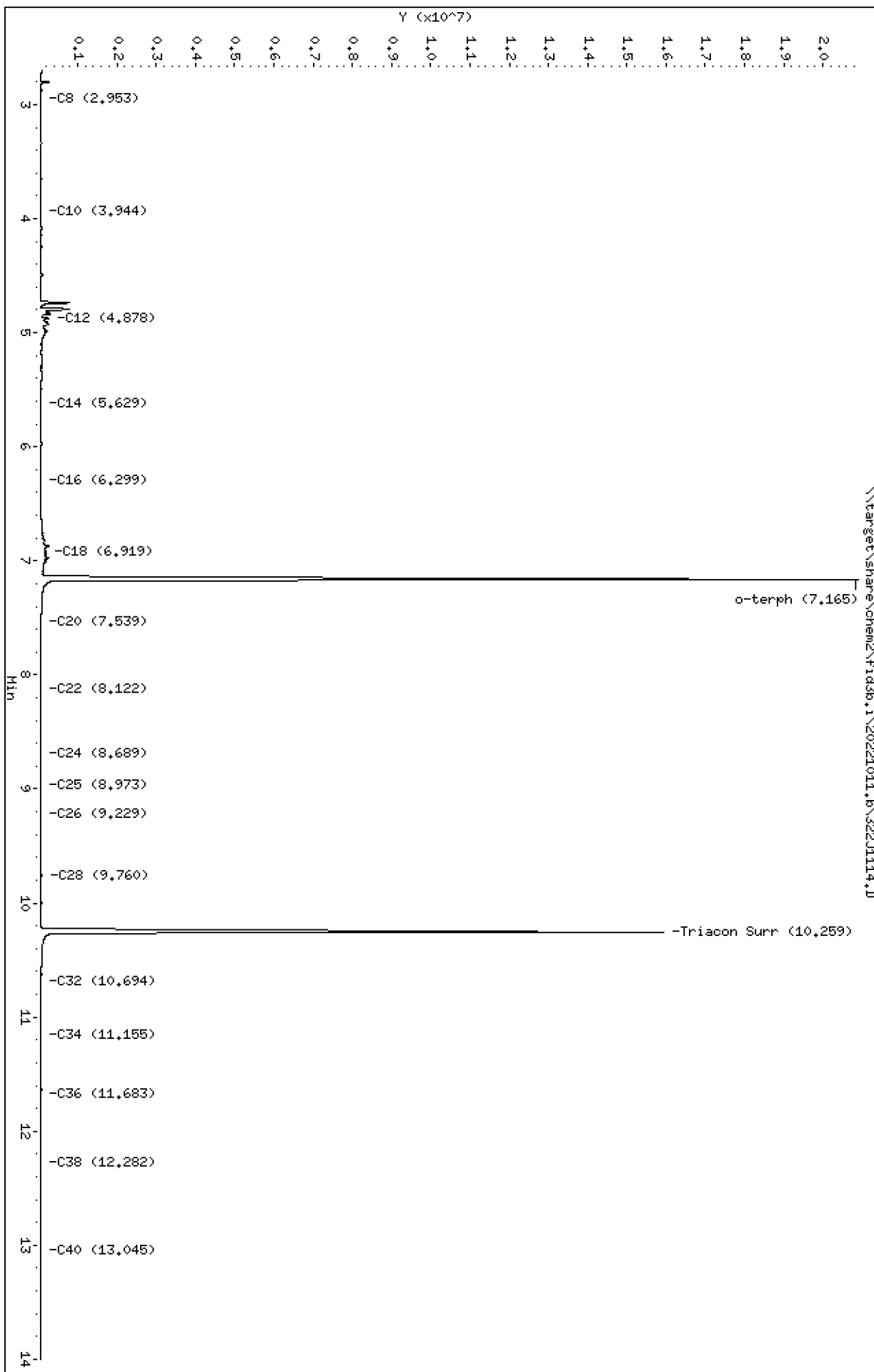
Column phase: RTX-1

Instrument: FID3b,1

Operator: AH

Column diameter: 0.25

Page 1





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221011.b/322J1114.D  
Method: 20221011.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/28/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: BKI0385-BLK1  
Client ID:  
Injection: 11-OCT-2022 19:49  
Dilution Factor: 1  
RT Std: 322J1103.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.803	0.004	204536	170982	WATPHG	(Tol-C12)	3309822	18.4
C8	2.953	0.002	8842	11832	WATPHD	(C12-C24)	5781436	33.5
C10	3.944	-0.006	9078	8990	WATPHM	(C24-C38)	1941435	13.0
C12	4.878	0.014	206152	238290	AK102	(C10-C25)	8678145	42.6 M
C14	5.629	0.008	12553	12336	AK103	(C25-C36)	1445582	15.2
C16	6.299	0.009	16624	30987	OR.DIES	(C10-C28)	8905493	43.6 M
C18	6.919	-0.001	156326	198665				
C20	7.539	0.011	14035	6945				
C22	8.122	0.002	4112	3329				
C24	8.689	-0.001	12492	3728				
C25	8.973	0.007	10348	3615				
C26	9.229	-0.007	4452	2560				
C28	9.760	0.011	24373	50340	IT.DIES	(C10-C24)	8523218	41.9
C32	10.694	0.001	13727	8190				
C34	11.155	0.001	10666	5837	CREOSOT	(C12-C22)	5554084	224.0
Filter Peak	13.992	0.002	9990	3486				
C36	11.683	0.012	11902	4747	BUNKERC	(C10-C38)	10464653	109.4
o-terph	7.165	0.002	20796506	24746132	JET-A	(C10-C18)	6302482	30.2
Triacon Surr	10.259	-0.001	15882707	20950937				

Range Times: NW Diesel(4.914 - 8.740) NW Gas(2.749 - 4.914) NW M.Oil(8.740 - 12.334)  
AK102(3.900 - 8.916) AK103(8.916 - 11.721) Jet A(3.900 - 6.970)

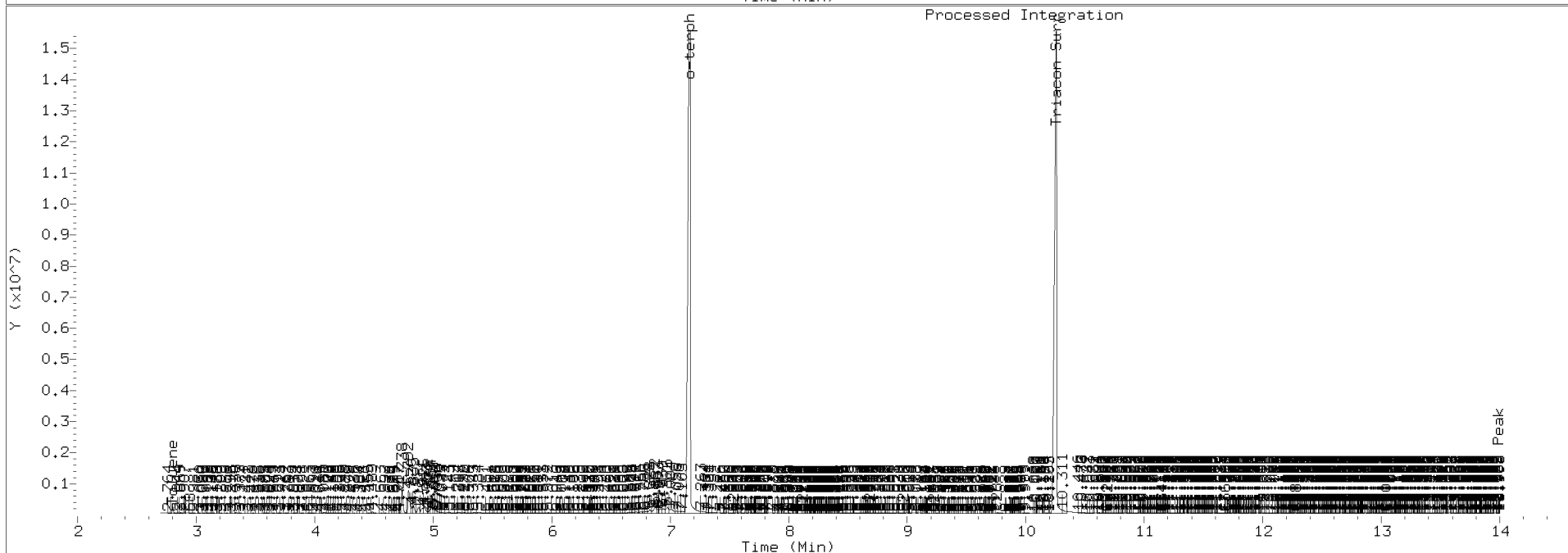
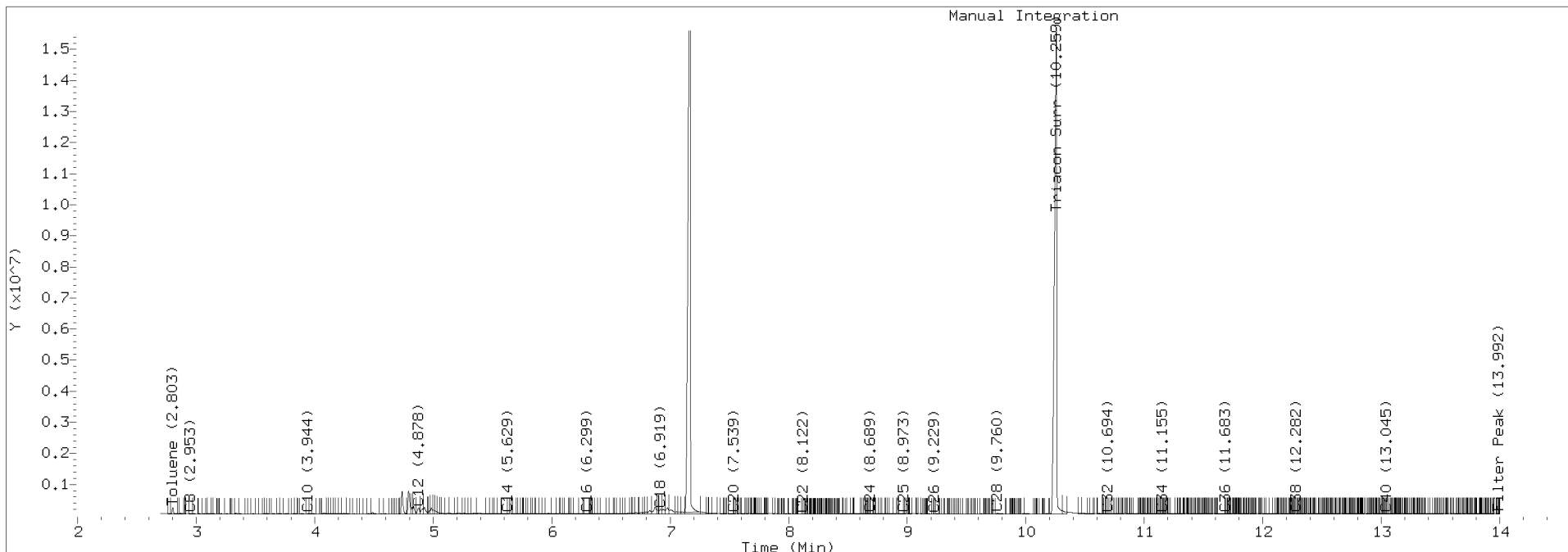
Surrogate	Area	Amount
o-Terphenyl	24746132	102.8
Triacontane	20950937	121.9

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221011.b/322J1114.D Injection: 11-OCT-2022 19:49

Lab ID: BKI0385-BLK1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BKI0385 - EPA 3510C SepF**

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKI0385-BS1)</b>				Prepared: 20-Sep-2022 Analyzed: 11-Oct-2022 20:10						
Diesel Range Organics (C12-C24)	2770	100	ug/L	3000.0		92.4	56-120			
Surrogate: <i>o</i> -Terphenyl	212		ug/L	225.00		94.1	50-150			

Data File: \\target\share\chem2\fid3b,1\20221011,6\32201115.D

Date: 11-OCT-2022 20:10

Client ID:

Sample Info: BK10385-BS1

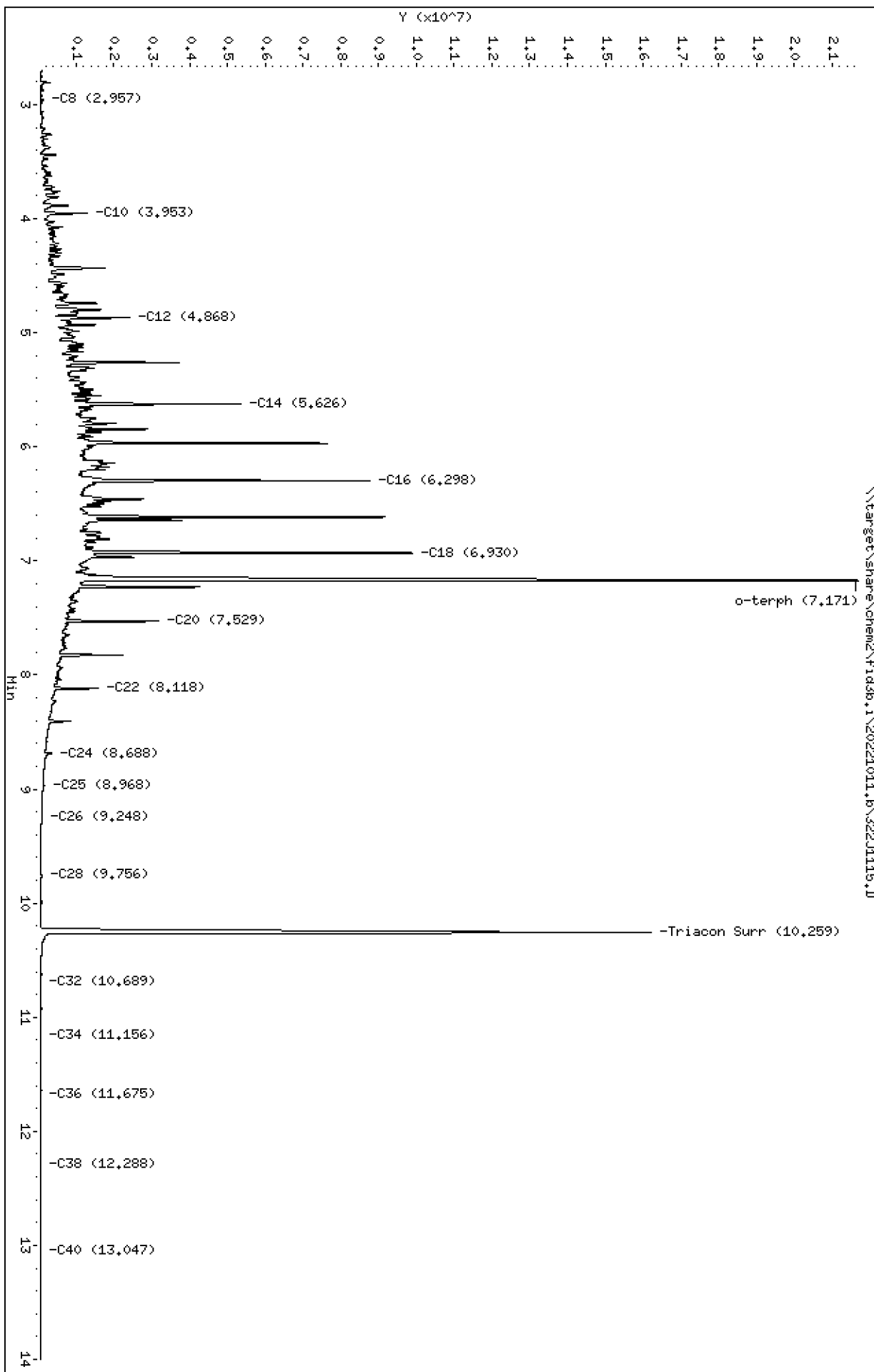
Column phase: RTX-1

Instrument: fid3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221011.b/322J1115.D  
Method: 20221011.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/28/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: BKI0385-BS1  
Client ID:  
Injection: 11-OCT-2022 20:10  
Dilution Factor: 1  
RT Std: 322J1103.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.806	0.007	238255	200417	WATPHG	(Tol-C12)	36908298	205.7
C8	2.957	0.005	69313	50486	WATPHD	(C12-C24)	238986963	1386.0
C10	3.953	0.002	1228468	1531141	WATPHM	(C24-C38)	3081182	20.7
C12	4.868	0.004	2361293	2822790	AK102	(C10-C25)	269502556	1322.5 M
C14	5.626	0.005	5295572	4716010	AK103	(C25-C36)	1965573	20.7
C16	6.298	0.008	8699509	10958001	OR.DIES	(C10-C28)	270578353	1324.4 M
C18	6.930	0.010	9824661	10963281				
C20	7.529	0.001	3105852	3344125				
C22	8.118	-0.001	1509454	1985038				
C24	8.688	-0.001	299347	648077				
C25	8.968	0.001	105694	277884				
C26	9.248	0.012	38278	142377				
C28	9.756	0.006	38153	66261	IT.DIES	(C10-C24)	268474680	1320.2
C32	10.689	-0.004	6579	8338				
C34	11.156	0.001	2840	838	CREOSOT	(C12-C22)	231034652	9318.6
Filter Peak	13.989	-0.001	1370	1100				
C36	11.675	0.004	3598	2107	BUNKERC	(C10-C38)	271555863	2838.4
o-terph	7.171	0.008	20506412	25473674	JET-A	(C10-C18)	203825869	977.2
Triacon Surr	10.259	-0.000	16159439	21826663				

Range Times: NW Diesel(4.914 - 8.740) NW Gas(2.749 - 4.914) NW M.Oil(8.740 - 12.334)  
AK102(3.900 - 8.916) AK103(8.916 - 11.721) Jet A(3.900 - 6.970)

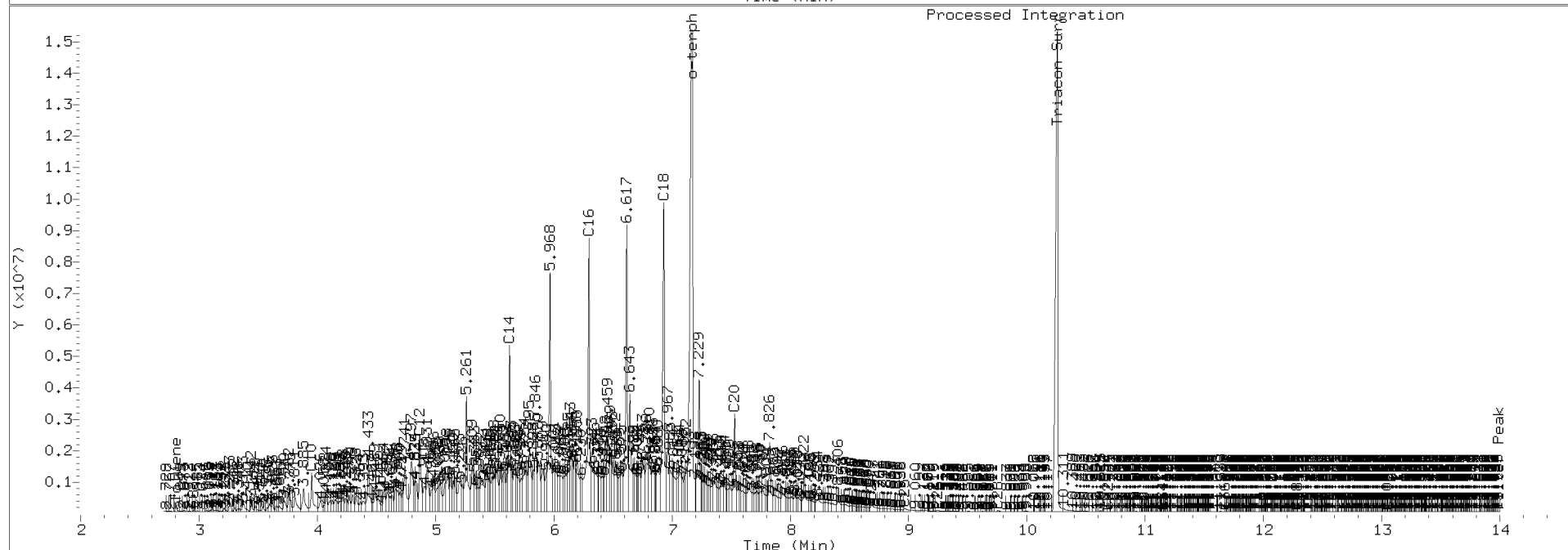
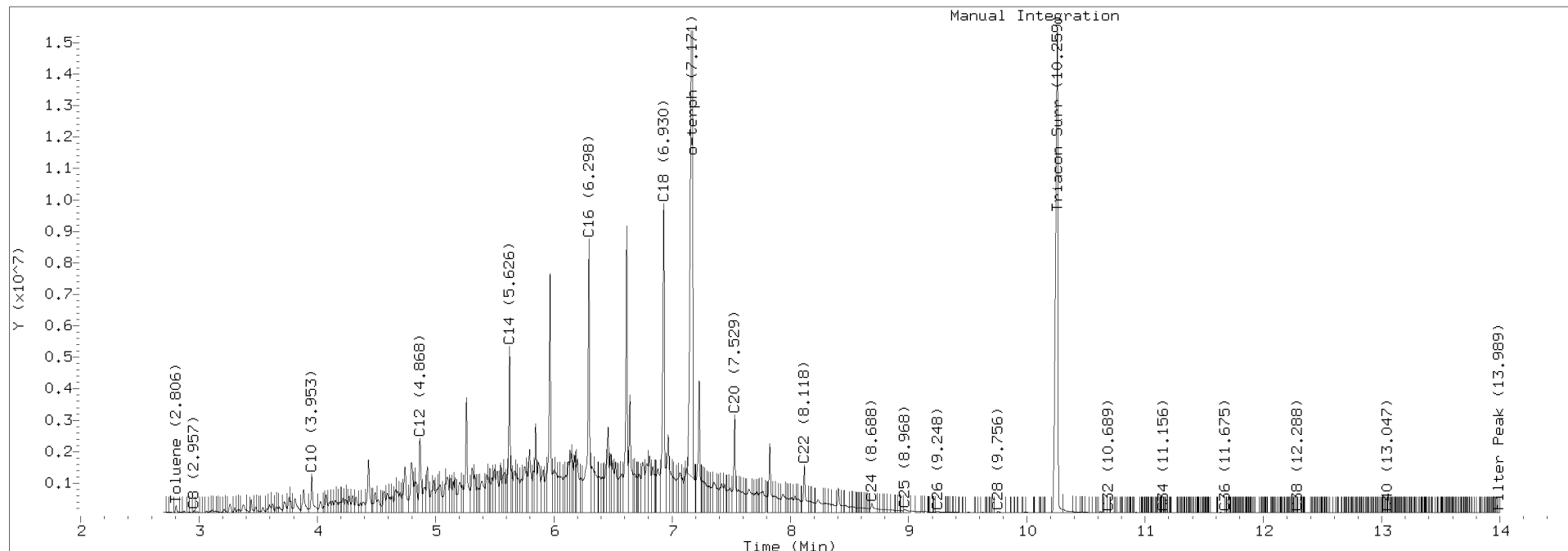
Surrogate	Area	Amount
o-Terphenyl	25473674	105.8
Triacontane	21826663	127.0

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221011.b/322J1115.D Injection: 11-OCT-2022 20:10

Lab ID: BKI0385-BS1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BKI0385 - EPA 3510C SepF**

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKI0385-BSD1)</b>				Prepared: 20-Sep-2022 Analyzed: 11-Oct-2022 20:31						
Diesel Range Organics (C12-C24)	2810	100	ug/L	3000.0		93.6	56-120	1.28	30	
Surrogate: <i>o</i> -Terphenyl	211		ug/L	225.00		93.9	50-150			

Data File: \\target\share\chem2\fid3b,1\20221011,6\32201116.D

Date: 11-OCT-2022 20:31

Client ID:

Sample Info: BK10385-BSM1

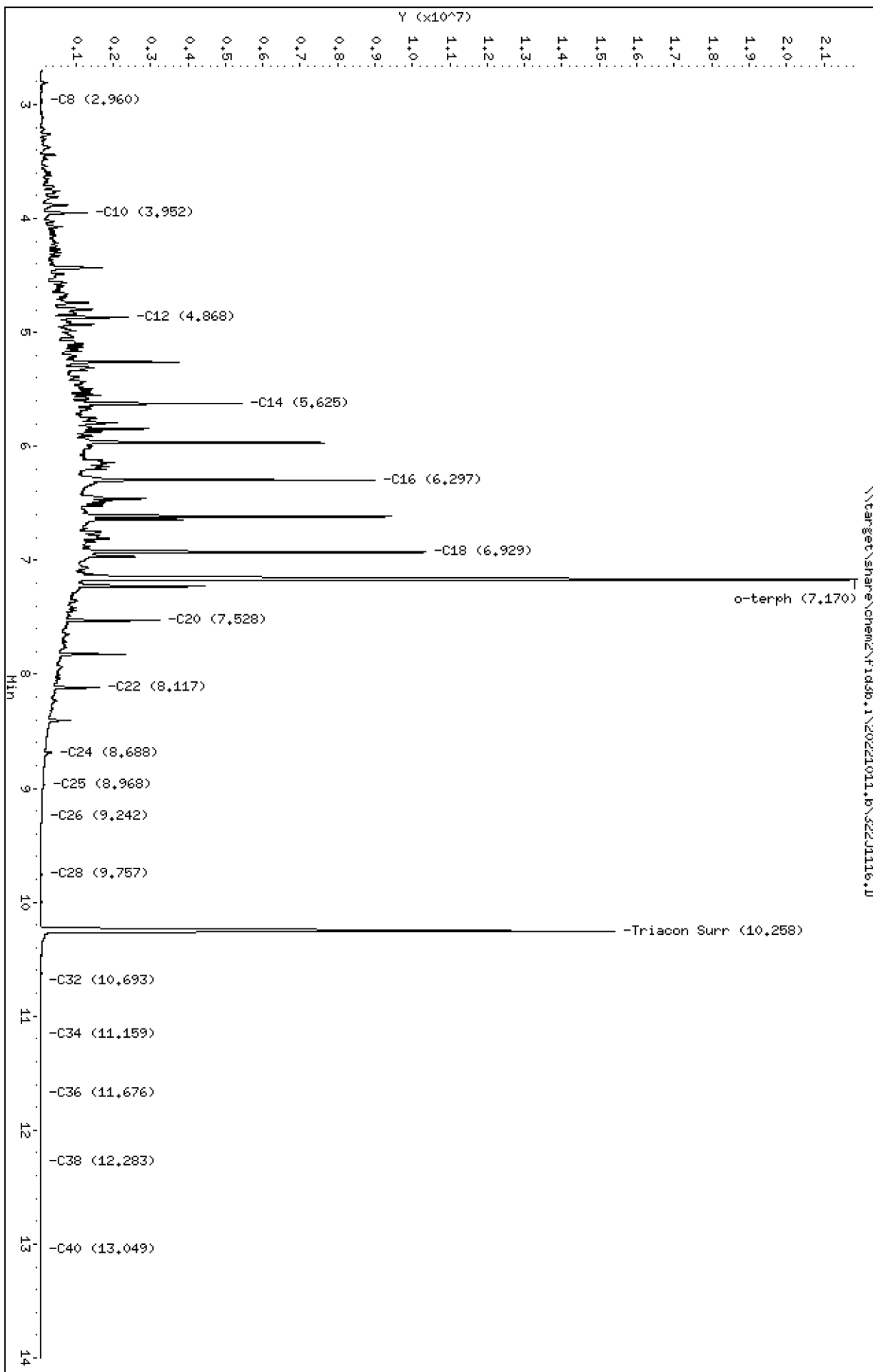
Column phase: RTX-1

Instrument: fid3b,1

Operator: AH

Column diameter: 0.25

Page 1





Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221011.b/322J1116.D  
Method: 20221011.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/28/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: BKI0385-BSD1  
Client ID:  
Injection: 11-OCT-2022 20:31  
Dilution Factor: 1  
RT Std: 322J1103.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.809	0.010	199741	185908	WATPHG	(Tol-C12)	36791141	205.0
C8	2.960	0.009	54862	48767	WATPHD	(C12-C24)	242044765	1403.8
C10	3.952	0.001	1253338	1482891	WATPHM	(C24-C38)	2768418	18.6
C12	4.868	0.004	2352697	2785538	AK102	(C10-C25)	272125016	1335.4 M
C14	5.625	0.005	5376651	4775987	AK103	(C25-C36)	1886153	19.9
C16	6.297	0.007	8936534	8756802	OR.DIES	(C10-C28)	273152861	1337.1 M
C18	6.929	0.010	10297887	10992030				
C20	7.528	0.000	3198168	3492417				
C22	8.117	-0.002	1582551	1998200				
C24	8.688	-0.002	284453	654248				
C25	8.968	0.001	97860	258325				
C26	9.242	0.007	36328	40726				
C28	9.757	0.007	37145	65499	IT.DIES	(C10-C24)	271367555	1334.4
C32	10.693	-0.000	6150	917				
C34	11.159	0.005	4136	3445	CREOSOT	(C12-C22)	234095962	9442.1
Filter Peak	13.997	0.006	920	359				
C36	11.676	0.005	4676	5441	BUNKERC	(C10-C38)	274135973	2865.3
o-terph	7.170	0.007	20738570	25438396	JET-A	(C10-C18)	205318384	984.4
Triacon Surr	10.258	-0.001	15349258	20974062				

Range Times: NW Diesel(4.914 - 8.740) NW Gas(2.749 - 4.914) NW M.Oil(8.740 - 12.334)  
AK102(3.900 - 8.916) AK103(8.916 - 11.721) Jet A(3.900 - 6.970)

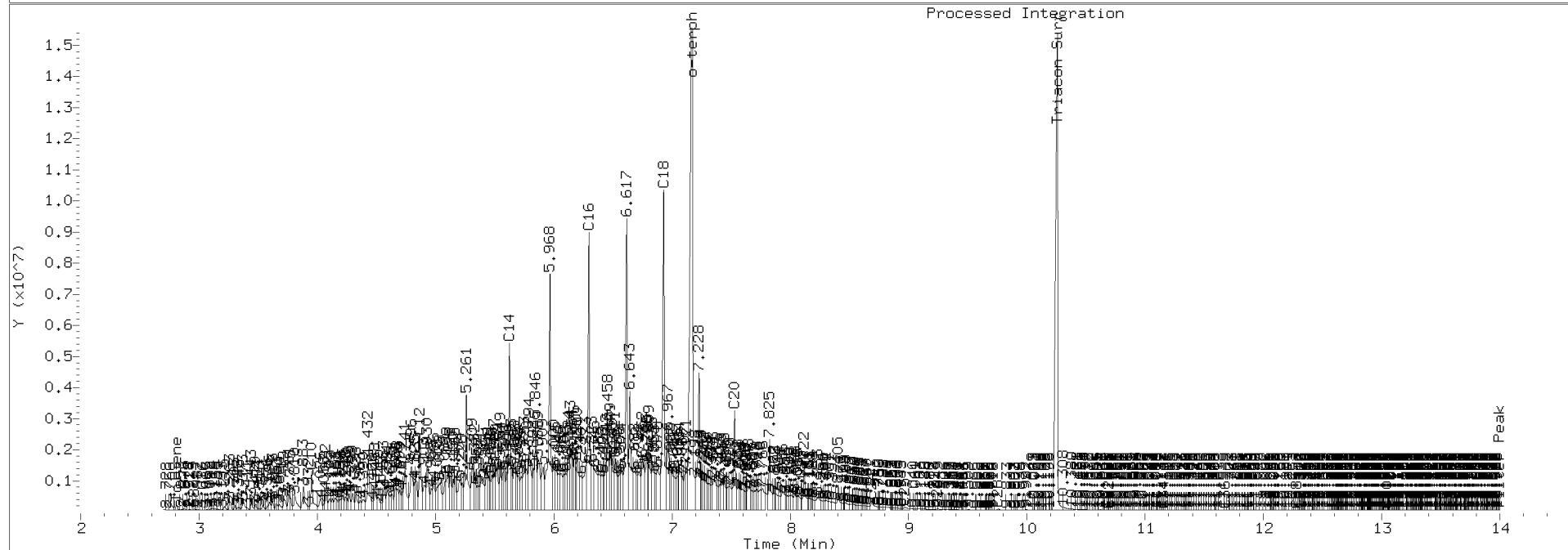
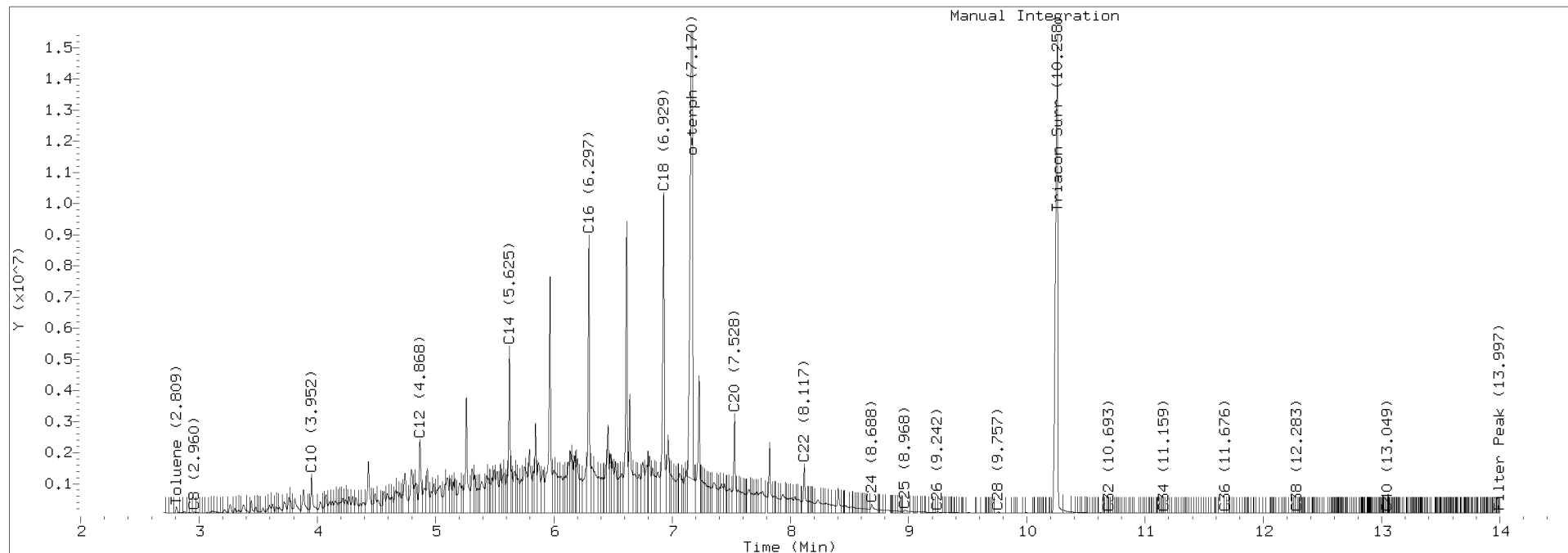
Surrogate	Area	Amount
o-Terphenyl	25438396	105.7
Triacontane	20974062	122.0

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221011.b/322J1116.D Injection: 11-OCT-2022 20:31

Lab ID: BKI0385-BSD1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	Reported: 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BKJ0488 - EPA 3510C SepF**

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKJ0488-BLK1)</b>				Prepared: 20-Oct-2022 Analyzed: 24-Oct-2022 18:46						
Diesel Range Organics (C12-C24)	ND	100	ug/L							U
Motor Oil Range Organics (C24-C38)	ND	200	ug/L							U
Creosote Range Organics (C12-C22)	ND	200	ug/L							U
Surrogate: <i>o</i> -Terphenyl	203		ug/L	225.00		90.3	50-150			

Data File: \\target\share\chem2\FID3b,1\20221024,8\32232432.D

Date: 24-OCT-2022 18:46

Client ID:

Sample Info: BKJ0488-BLK1

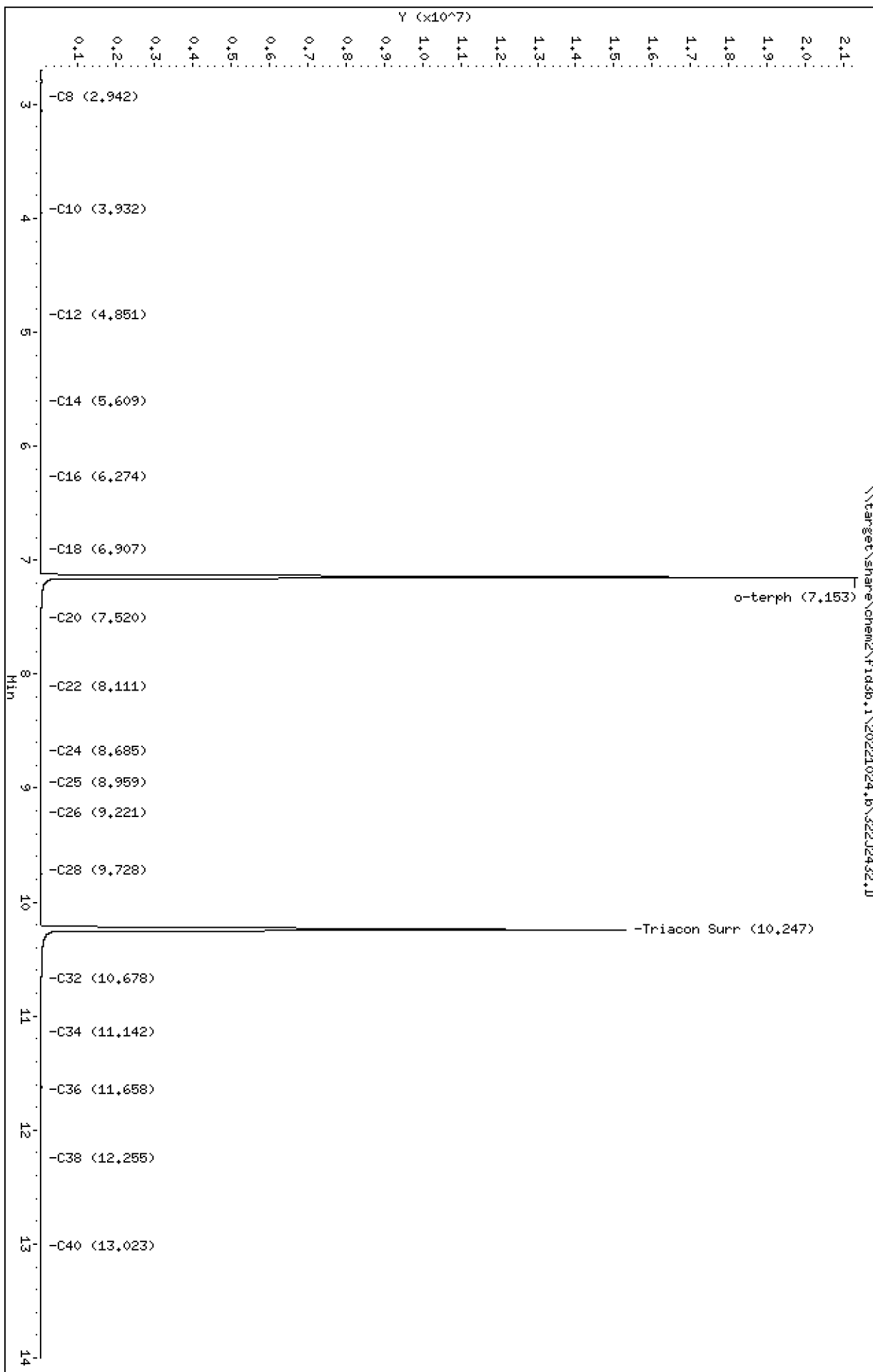
Column phase: RTX-1

Instrument: FID3b,1

Operator: AH

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2432.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: BKJ0488-BLK1  
Client ID:  
Injection: 24-OCT-2022 18:46  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.777	0.003	13453	4660	WATPHG	(Tol-C12)	416043	2.3
C8	2.942	0.014	8461	1684	WATPHD	(C12-C24)	570254	3.3
C10	3.932	-0.001	2145	627	WATPHM	(C24-C38)	1729926	11.6
C12	4.851	0.001	501	168	AK102	(C10-C25)	678687	3.3
C14	5.609	0.001	925	574	AK103	(C25-C36)	1293388	13.6
C16	6.274	-0.003	1020	920	OR.DIES	(C10-C28)	881584	4.3
C18	6.907	0.000	857	376				
C20	7.520	0.005	13080	4549				
C22	8.111	0.003	3383	2317				
C24	8.685	0.005	3330	5626				
C25	8.959	0.003	2582	1286				
C26	9.221	-0.002	2515	725				
C28	9.728	-0.011	4020	1579	IT.DIES	(C10-C24)	652089	3.2
C32	10.678	-0.003	17714	31659				
C34	11.142	0.001	12980	9627	CREOSOT	(C12-C22)	487990	19.7
Filter Peak	13.988	0.001	11519	3439				
C36	11.658	0.004	13651	12266	BUNKERC	(C10-C38)	2382015	24.9
o-terph	7.153	0.003	21294084	24462210	JET-A	(C10-C18)	166005	0.8
Triacon Surr	10.247	-0.002	15247120	20834344				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

Surrogate	Area	Amount
o-Terphenyl	24462210	101.6
Triacontane	20834344	121.2

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BKJ0488 - EPA 3510C SepF**

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKJ0488-BS1)</b>				Prepared: 20-Oct-2022 Analyzed: 24-Oct-2022 19:07						
Diesel Range Organics (C12-C24)	2620	100	ug/L	3000.0		87.3	56-120			
Surrogate: o-Terphenyl	209		ug/L	225.00		92.8	50-150			

Data File: \\target\share\chem2\FID3b,1\20221024,8\32232433.D

Date: 24-OCT-2022 19:07

Client ID:

Sample Info: BKJ0488-BS1

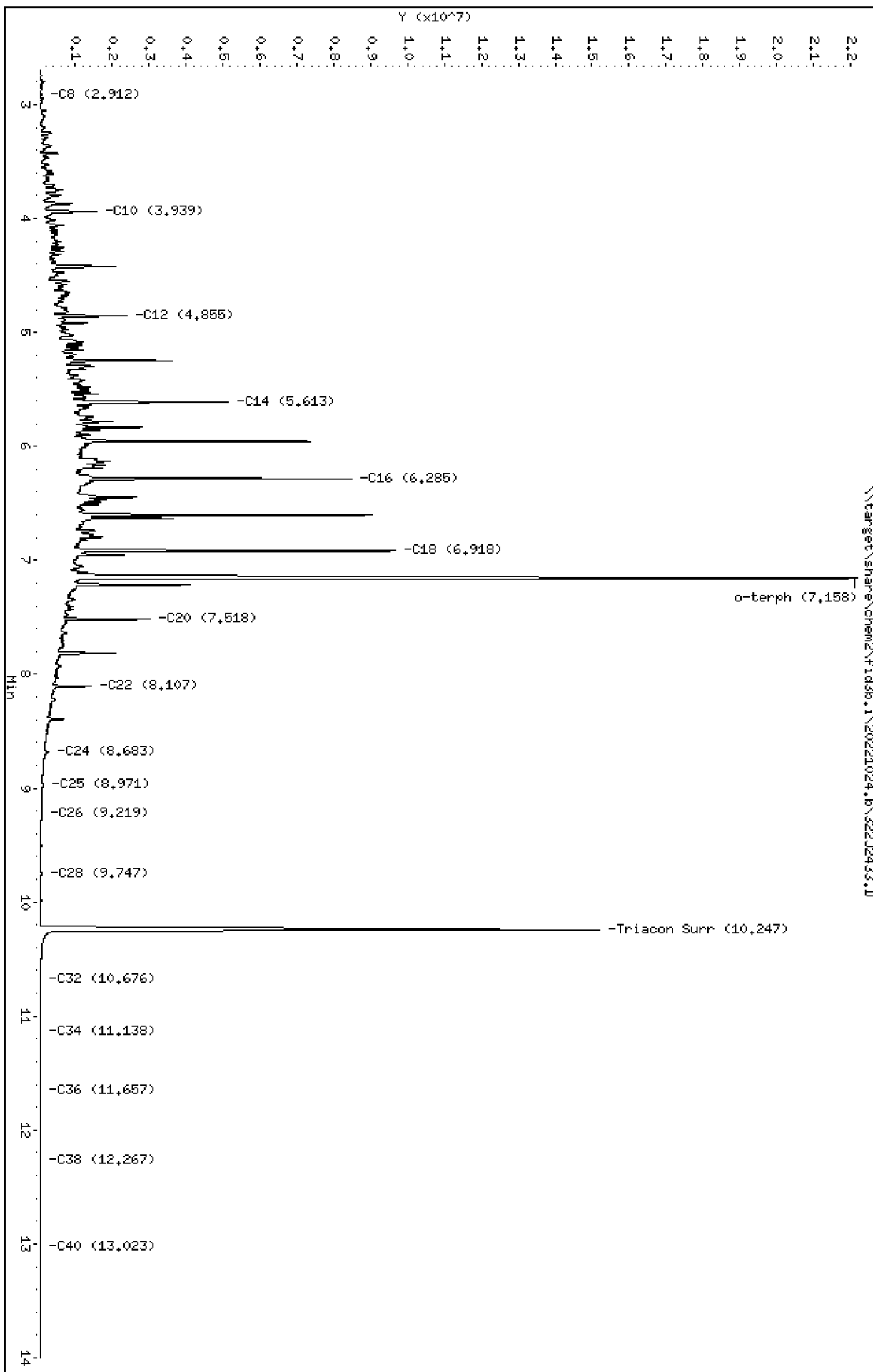
Column phase: RTX-1

Instrument: FID3b,1

Operator: AA

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2433.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: BKJ0488-BS1  
Client ID:  
Injection: 24-OCT-2022 19:07  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.798	0.023	93276	119555	WATPHG	(Tol-C12)	38440501	214.2
C8	2.912	-0.017	22503	38592	WATPHD	(C12-C24)	225792585	1309.5
C10	3.939	0.007	1516052	1946380	WATPHM	(C24-C38)	2081069	14.0
C12	4.855	0.005	2325104	2606271	AK102	(C10-C25)	255843462	1255.5 M
C14	5.613	0.004	5103846	4582147	AK103	(C25-C36)	1431320	15.1
C16	6.285	0.008	8429546	8138760	OR.DIES	(C10-C28)	256830147	1257.2 M
C18	6.918	0.010	9603399	9904333				
C20	7.518	0.003	2976235	3203481				
C22	8.107	-0.001	1358550	1823057				
C24	8.683	0.003	205899	600456				
C25	8.971	0.015	68115	302302				
C26	9.219	-0.004	20603	6160				
C28	9.747	0.008	43590	71150	IT.DIES	(C10-C24)	255243093	1255.1
C32	10.676	-0.006	6989	6084				
C34	11.138	-0.004	2553	1991	CREOSOT	(C12-C22)	218487504	8812.5
Filter Peak	13.983	-0.004	607	322				
C36	11.657	0.003	2082	912	BUNKERC	(C10-C38)	257324162	2689.6
o-terph	7.158	0.008	21148135	25115248	JET-A	(C10-C18)	194415662	932.1
Triacon Surr	10.247	-0.002	15143141	20622901				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

Surrogate	Area	Amount
o-Terphenyl	25115248	104.4
Triacontane	20622901	120.0

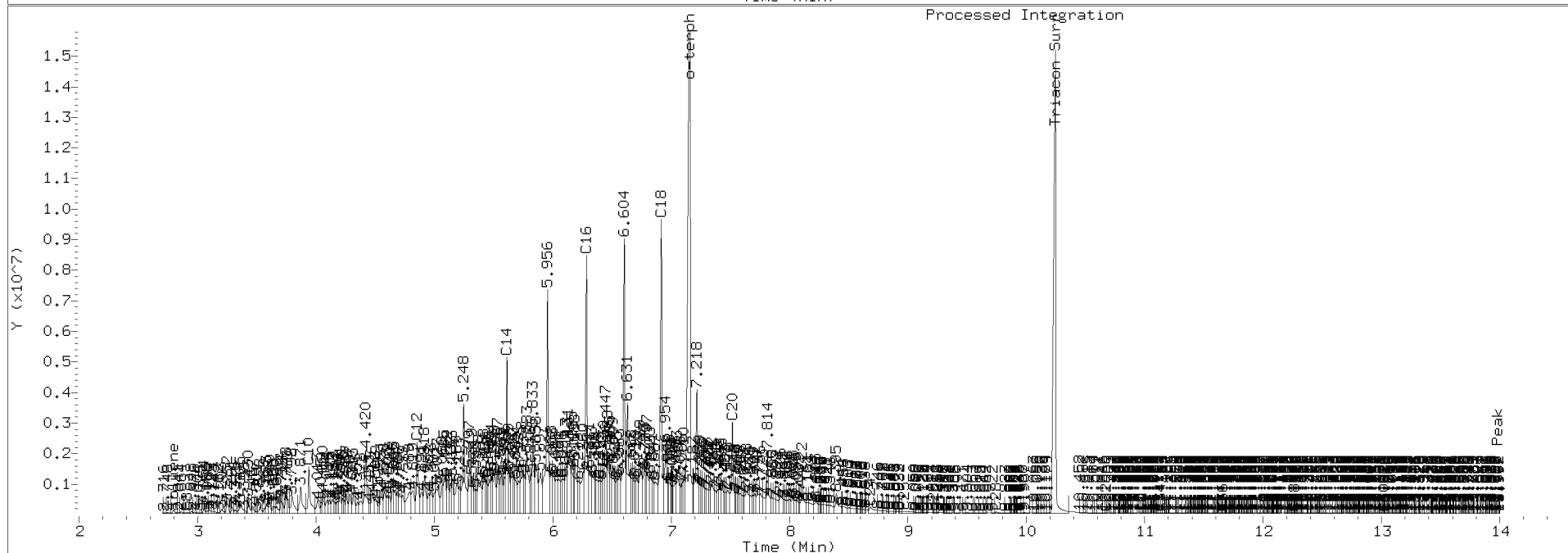
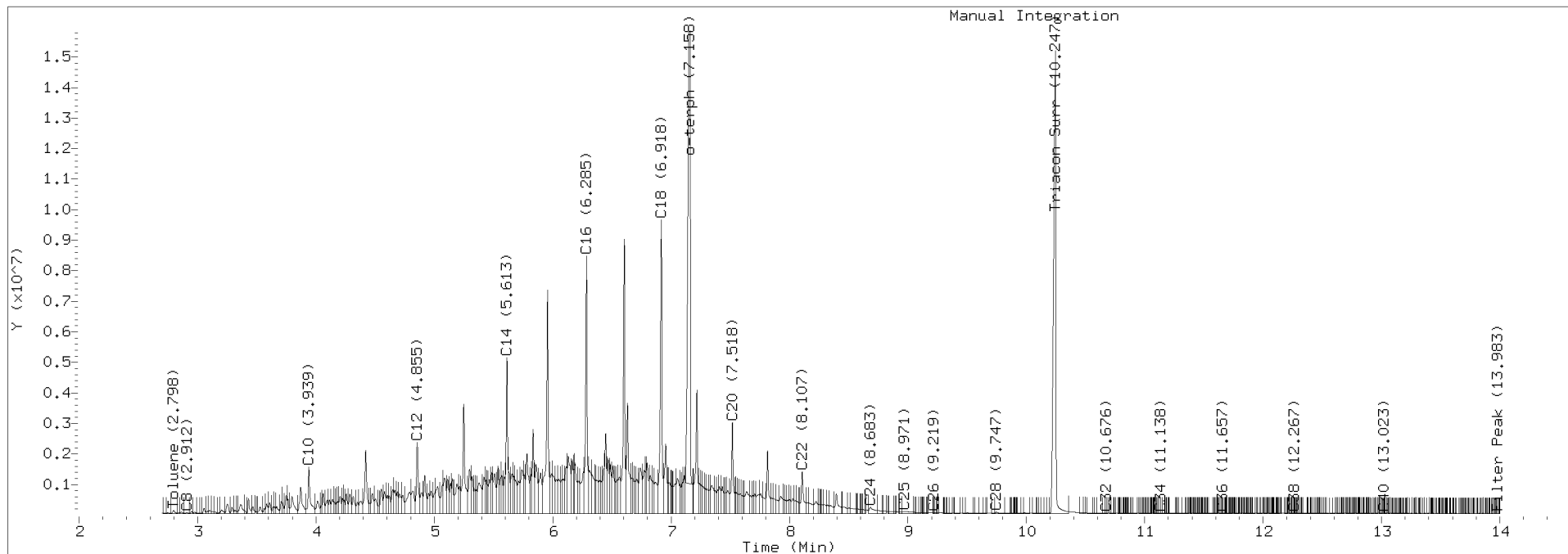
Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019



TPH Manual Integrations Report

Datafile: FID3B, 20221024.b/322J2433.D Injection: 24-OCT-2022 19:07

Lab ID: BKJ0488-BS1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**  
**Petroleum Hydrocarbons - Quality Control**

**Batch BKJ0488 - EPA 3510C SepF**

Instrument: FID3

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKJ0488-BSD1)</b>				Prepared: 20-Oct-2022 Analyzed: 24-Oct-2022 19:28						
Diesel Range Organics (C12-C24)	2660	100	ug/L	3000.0		88.8	56-120	1.73	30	
Surrogate: <i>o</i> -Terphenyl	199		ug/L	225.00		88.6	50-150			

Data File: \\target\share\chem2\fid3b,1\20221024,8\32232434.D

Date: 24-OCT-2022 19:28

Client ID:

Sample Info: BKJ0488-BSM1

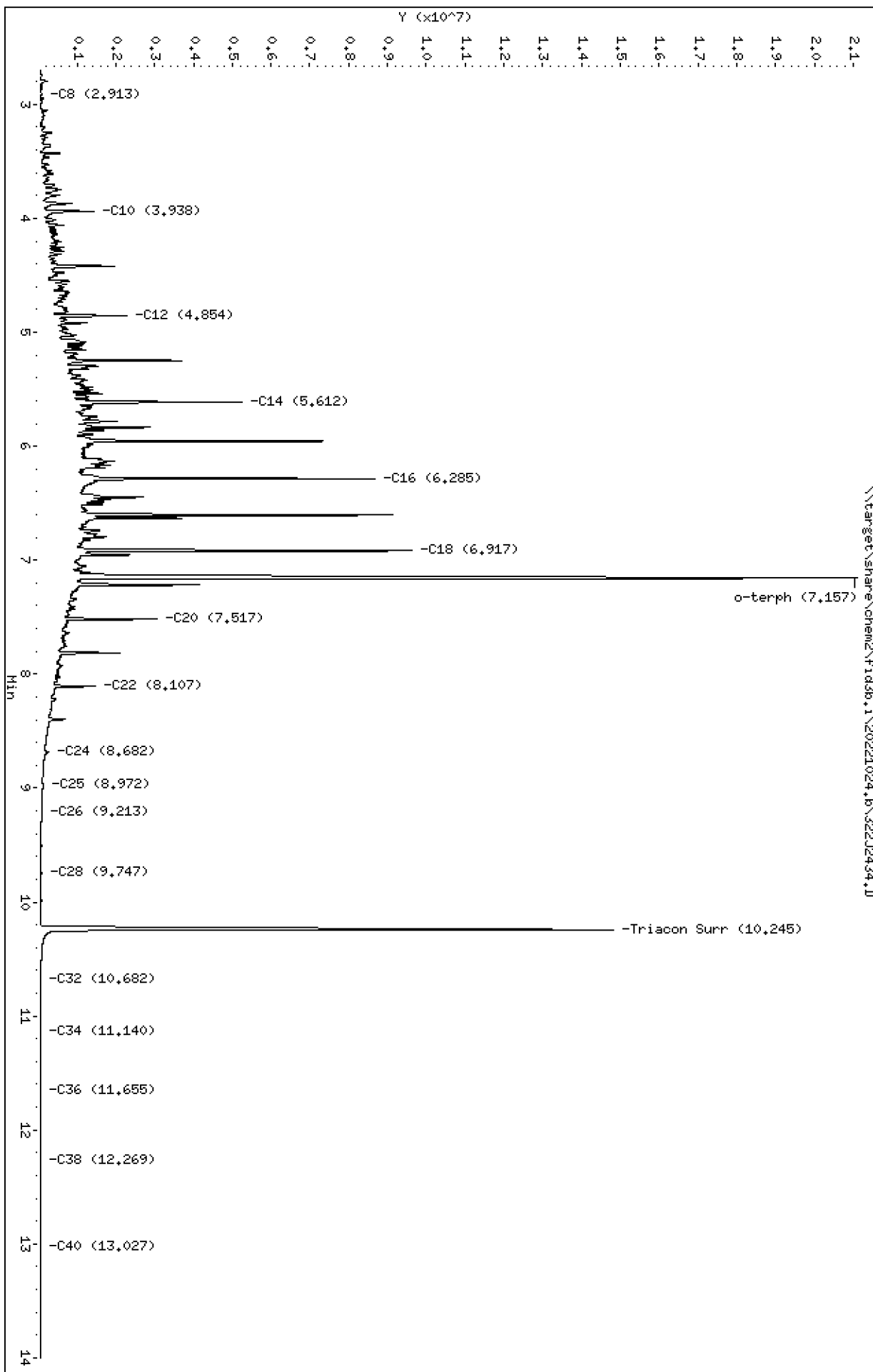
Column phase: RTX-1

Instrument: fid3b,1

Operator: AA

Column diameter: 0.25

Page 1



Analytical Resources Inc.  
TPH Quantitation Report

Data file: 20221024.b/322J2434.D  
Method: 20221024.b\FID3TPH.m  
Instrument: fid3b.i, AA  
Report Date: 10/25/2022  
Macro: FID3\_05052022  
Calibration Dates: Gas:xx-xx-xxxx Diesel:10-JAN-2022 M.Oil:21-OCT-2022

ARI ID: BKJ0488-BSD1  
Client ID:  
Injection: 24-OCT-2022 19:28  
Dilution Factor: 1  
RT Std: 322J2403.D

FID:3B RESULTS

Compound	RT	Shift	Height	Area	Method	Range	Total Area	Conc (mg per L)
Toluene	2.796	0.022	191216	180579	WATPHG	(Tol-C12)	35902928	200.1
C8	2.913	-0.015	21483	19556	WATPHD	(C12-C24)	229737830	1332.4
C10	3.938	0.006	1376200	1772480	WATPHM	(C24-C38)	2231297	15.0
C12	4.854	0.004	2238176	2516439	AK102	(C10-C25)	258019791	1266.1 M
C14	5.612	0.004	5198899	4635393	AK103	(C25-C36)	1523315	16.0
C16	6.285	0.008	8626048	8256407	OR.DIES	(C10-C28)	259069537	1268.1 M
C18	6.917	0.009	9577122	9918522				
C20	7.517	0.003	2997346	3248574				
C22	8.107	-0.001	1408167	1852496				
C24	8.682	0.003	209968	619423				
C25	8.972	0.017	67745	378977				
C26	9.213	-0.010	21044	15469				
C28	9.747	0.008	41149	58135	IT.DIES	(C10-C24)	257376670	1265.6
C32	10.682	0.001	7545	7633				
C34	11.140	-0.002	2982	2458	CREOSOT	(C12-C22)	222318769	8967.1
Filter Peak	13.982	-0.006	1158	1521				
C36	11.655	0.001	2575	1355	BUNKERC	(C10-C38)	259607966	2713.5
o-terph	7.157	0.008	20068620	23989545	JET-A	(C10-C18)	195332192	936.5
Triacon Surr	10.245	-0.003	14775562	19472998				

Range Times: NW Diesel(4.900 - 8.730) NW Gas(2.724 - 4.900) NW M.Oil(8.730 - 12.312)  
AK102(3.882 - 8.906) AK103(8.906 - 11.704) Jet A(3.882 - 6.957)

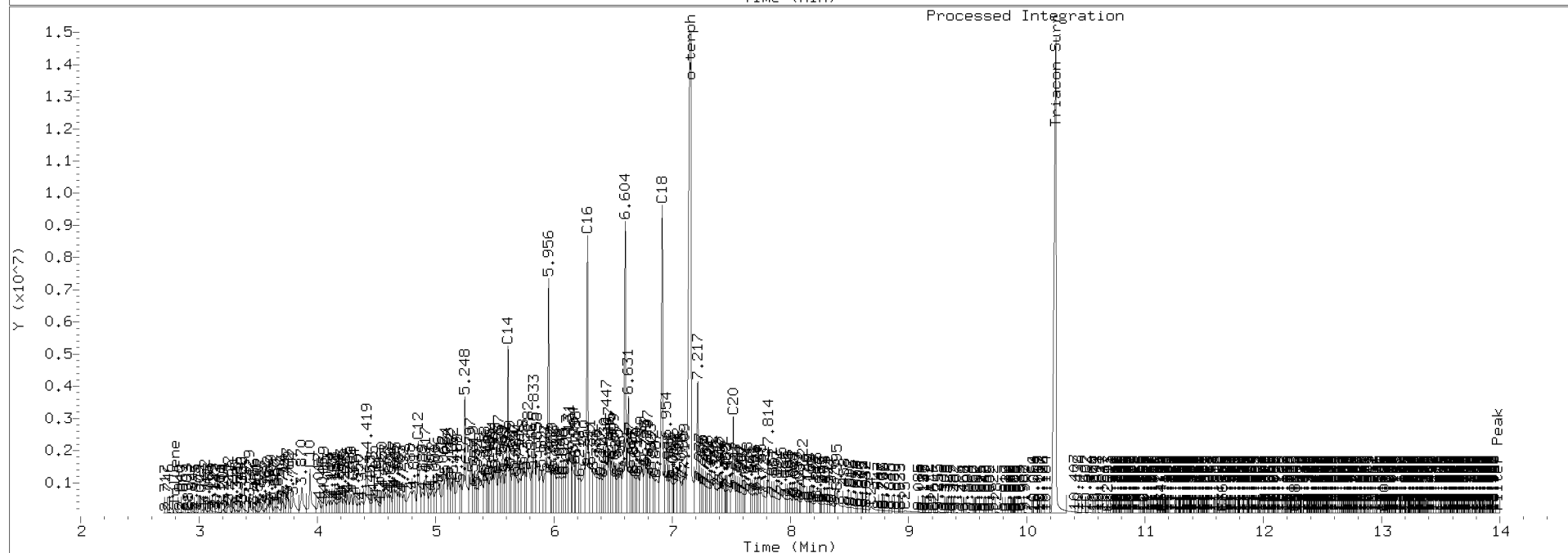
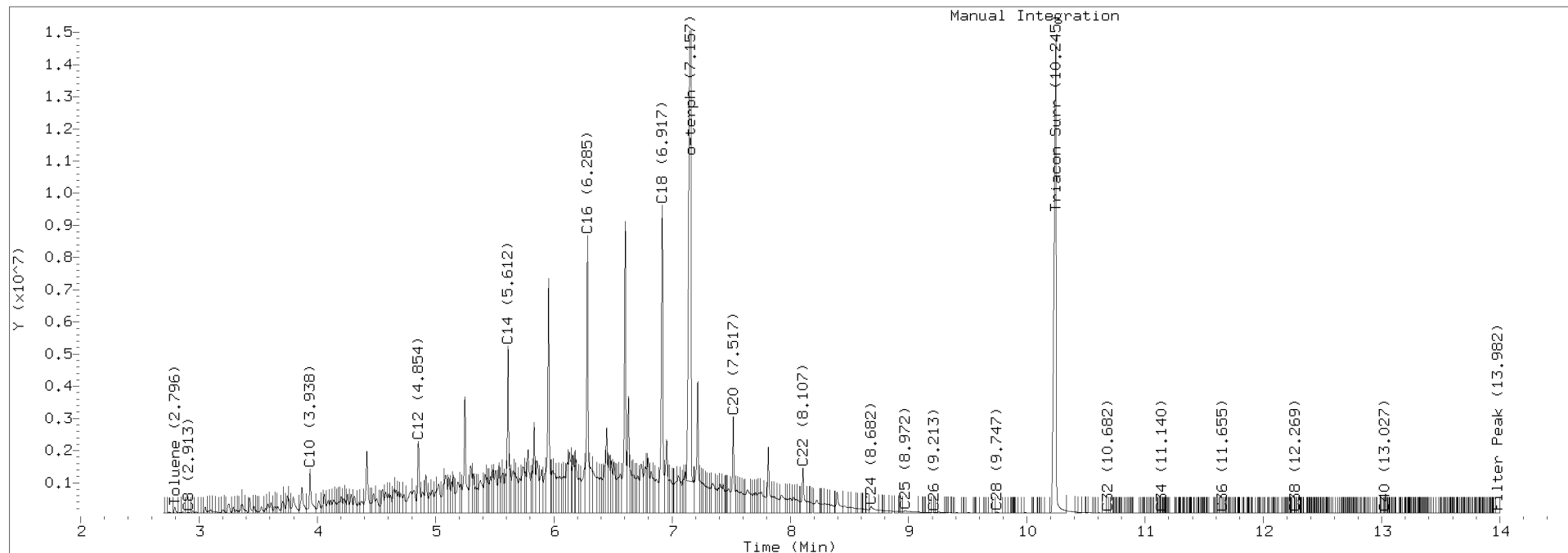
Surrogate	Area	Amount
o-Terphenyl	23989545	99.7
Triacontane	19472998	113.3

Analyte	RF	Curve Date
Gas	179445.5	xx-xx-xxxx
Diesel	172426.7	10-JAN-2022
Motor Oil	148788.4	21-OCT-2022
AK102	203784.0	10-JAN-2022
AK103	95006.4	17-NOV-2021
JetA	208574.9	03-OCT-2018
OR Diesel	204295.0	10-JAN-2022
IT Diesel	203365.7	10-JAN-2022
Bunker C	95673.2	03-OCT-2018
Creosote	24792.8	07-FEB-2019

TPH Manual Integrations Report

Datafile: FID3B, 20221024.b/322J2434.D Injection: 24-OCT-2022 19:28

Lab ID: BKJ0488-BSD1





Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**

**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BKI0380 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Blank (BKI0380-BLK1)</b>				Prepared: 22-Sep-2022 Analyzed: 07-Oct-2022 13:35						
Pentachlorophenol [2C]	0.85	0.25	ug/L							
Surrogate: 2,4,6-Tribromophenol	0.812		ug/L	2.5000		32.5	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	0.871		ug/L	2.5000		34.8	26-120			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**

**Phenols - Quality Control**

**Batch BKI0380 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS (BKI0380-BS1)</b>				Prepared: 22-Sep-2022 Analyzed: 07-Oct-2022 13:53						
Pentachlorophenol [2C]	1.29	0.25	ug/L	2.5000		51.5	48-120			B
Surrogate: 2,4,6-Tribromophenol	1.10		ug/L	2.5000		43.9	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.24		ug/L	2.5000		49.5	26-120			



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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**Analysis by: Analytical Resources, LLC**  
**Phenols - Quality Control**

**Batch BKI0380 - EPA 3510C SepF**

Instrument: ECD8

QC Sample/Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>LCS Dup (BKI0380-BSD1)</b>				Prepared: 22-Sep-2022 Analyzed: 07-Oct-2022 14:11						
Pentachlorophenol [2C]	1.30	0.25	ug/L	2.5000		52.0	48-120	0.94	30	B
Surrogate: 2,4,6-Tribromophenol	1.24		ug/L	2.5000		49.7	26-120			
Surrogate: 2,4,6-Tribromophenol [2C]	1.41		ug/L	2.5000		56.2	26-120			





Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
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**Certified Analyses included in this Report**

Analyte	Certifications
<b>EPA 8270E in Water</b>	
Phenol	WADOE,DoD-ELAP,NELAP
bis(2-chloroethyl) ether	WADOE,DoD-ELAP,NELAP
2-Chlorophenol	WADOE,DoD-ELAP,NELAP
1,3-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,4-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
1,2-Dichlorobenzene	WADOE,DoD-ELAP,NELAP
Benzyl alcohol	WADOE,DoD-ELAP,NELAP
2,2'-Oxybis(1-chloropropane)	WADOE,DoD-ELAP,NELAP
2-Methylphenol	WADOE,DoD-ELAP,NELAP
Hexachloroethane	WADOE,DoD-ELAP,NELAP
N-Nitroso-di-n-Propylamine	WADOE,DoD-ELAP,NELAP
4-Methylphenol	WADOE,DoD-ELAP,NELAP
Nitrobenzene	WADOE,DoD-ELAP,NELAP
Isophorone	WADOE,DoD-ELAP,NELAP
2-Nitrophenol	WADOE,DoD-ELAP,NELAP
2,4-Dimethylphenol	WADOE,DoD-ELAP,NELAP
Bis(2-Chloroethoxy)methane	WADOE,DoD-ELAP,NELAP
2,4-Dichlorophenol	WADOE,DoD-ELAP,NELAP
1,2,4-Trichlorobenzene	WADOE,DoD-ELAP,NELAP
Naphthalene	WADOE,DoD-ELAP,NELAP,ADEC
Benzoic acid	WADOE,DoD-ELAP,NELAP
4-Chloroaniline	WADOE,DoD-ELAP,NELAP
2,6-Dinitrotoluene	WADOE,DoD-ELAP,NELAP
Hexachlorobutadiene	WADOE,DoD-ELAP,NELAP
4-Chloro-3-Methylphenol	WADOE,DoD-ELAP,NELAP
Hexachlorocyclopentadiene	WADOE,DoD-ELAP,NELAP
2,4,6-Trichlorophenol	WADOE,DoD-ELAP,NELAP
2,4,5-Trichlorophenol	WADOE,DoD-ELAP,NELAP
2-Chloronaphthalene	WADOE,DoD-ELAP,NELAP
2-Nitroaniline	WADOE,DoD-ELAP,NELAP
Acenaphthylene	WADOE,DoD-ELAP,NELAP,ADEC
Dimethylphthalate	WADOE,DoD-ELAP,NELAP
Acenaphthene	WADOE,DoD-ELAP,NELAP,ADEC
3-Nitroaniline	WADOE,DoD-ELAP,NELAP
2-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,ADEC



Landau Associates, Inc.  
130 2nd Avenue S.  
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2,4-Dinitrophenol	WADOE,DoD-ELAP,NELAP
Dibenzofuran	WADOE,DoD-ELAP,NELAP
4-Nitrophenol	WADOE,DoD-ELAP,NELAP
2,4-Dinitrotoluene	WADOE,DoD-ELAP,NELAP
Fluorene	WADOE,DoD-ELAP,NELAP,ADEC
4-Chlorophenylphenyl ether	WADOE,DoD-ELAP,NELAP
Diethyl phthalate	WADOE,DoD-ELAP,NELAP
4-Nitroaniline	WADOE,DoD-ELAP,NELAP
4,6-Dinitro-2-methylphenol	WADOE,DoD-ELAP,NELAP
N-Nitrosodiphenylamine	WADOE,DoD-ELAP,NELAP
4-Bromophenyl phenyl ether	WADOE,DoD-ELAP,NELAP
Hexachlorobenzene	WADOE,DoD-ELAP,NELAP
Pentachlorophenol	WADOE,DoD-ELAP,NELAP
Phenanthrene	WADOE,DoD-ELAP,NELAP,ADEC
Anthracene	WADOE,DoD-ELAP,NELAP,ADEC
Carbazole	WADOE,DoD-ELAP,NELAP,ADEC
Di-n-butylphthalate	WADOE,DoD-ELAP,NELAP
Fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Butylbenzylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(a)anthracene	WADOE,DoD-ELAP,NELAP,ADEC
3,3'-Dichlorobenzidine	WADOE,DoD-ELAP,NELAP
Chrysene	WADOE,DoD-ELAP,NELAP,ADEC
bis(2-Ethylhexyl)phthalate	WADOE,DoD-ELAP,NELAP
Di-n-Octylphthalate	WADOE,DoD-ELAP,NELAP
Benzo(b)fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(k)fluoranthene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(a)pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Indeno(1,2,3-cd)pyrene	WADOE,DoD-ELAP,NELAP,ADEC
Dibenzo(a,h)anthracene	WADOE,DoD-ELAP,NELAP,ADEC
Benzo(g,h,i)perylene	WADOE,DoD-ELAP,NELAP,ADEC
Benzofluoranthenes, Total	WADOE,DoD-ELAP,NELAP,ADEC
N-Nitrosodimethylamine	WADOE,DoD-ELAP,NELAP
Aniline	WADOE,DoD-ELAP,NELAP
1-Methylnaphthalene	WADOE,DoD-ELAP,NELAP,ADEC
Azobenzene (1,2-DP-Hydrazine)	WADOE,NELAP
Benzidine	WADOE,DoD-ELAP
Retene	WADOE,DoD-ELAP
Pyridine	WADOE,DoD-ELAP



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
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Reported:  
05-Sep-2023 12:20

2,6-Dichlorophenol	WADOE
alpha-Terpineol	WADOE,DoD-ELAP
1,4-Dioxane	WADOE,DoD-ELAP
2,3,4,6-Tetrachlorophenol	WADOE,DoD-ELAP
Triphenyl Phosphate	WADOE,DoD-ELAP
Butyl Diphenyl Phosphate	WADOE,DoD-ELAP
Dibutyl Phenyl Phosphate	WADOE,DoD-ELAP
Tributyl Phosphate	WADOE,DoD-ELAP
Butylated Hydroxytoluene	WADOE,DoD-ELAP
Tetrachloroguaiacol	WADOE,DoD-ELAP
3,4,5-Trichloroguaiacol	WADOE
3,4,6-Trichloroguaiacol	WADOE
4,5,6-Trichloroguaiacol	WADOE
Guaiacol	WADOE
1,2,4,5-Tetrachlorobenzene	WADOE

**EPA 8270E-SIM in Water**

Naphthalene	DoD-ELAP
2-Methylnaphthalene	DoD-ELAP
1-Methylnaphthalene	DoD-ELAP
2-Chloronaphthalene	DoD-ELAP
Biphenyl	DoD-ELAP
2,6-Dimethylnaphthalene	DoD-ELAP
Acenaphthylene	DoD-ELAP
Acenaphthene	DoD-ELAP
Dibenzofuran	DoD-ELAP
2,3,5-Trimethylnaphthalene	DoD-ELAP
Fluorene	DoD-ELAP
Dibenzothiophene	DoD-ELAP
Phenanthrene	DoD-ELAP
Anthracene	DoD-ELAP
Carbazole	DoD-ELAP
1-Methylphenanthrene	DoD-ELAP
Fluoranthene	DoD-ELAP
Pyrene	DoD-ELAP
Benzo(a)anthracene	DoD-ELAP
Chrysene	DoD-ELAP
Benzo(b)fluoranthene	DoD-ELAP
Benzo(k)fluoranthene	DoD-ELAP
Benzo(j)fluoranthene	DoD-ELAP



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

Benzofluoranthenes, Total	DoD-ELAP
Benzo(e)pyrene	DoD-ELAP
Benzo(a)pyrene	DoD-ELAP
Perylene	DoD-ELAP
Indeno(1,2,3-cd)pyrene	DoD-ELAP
Dibenzo(a,h)anthracene	DoD-ELAP
Benzo(g,h,i)perylene	DoD-ELAP
Benzo(b)thiophene	DoD-ELAP

**NWTPH-Dx in Water**

Diesel Range Organics (C12-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C25)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C24)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C10-C28)	DoD-ELAP,NELAP,WADOE
Diesel Range Organics (C12-C22)	DoD-ELAP
Diesel Range Organics (C12-C25)	DoD-ELAP
Motor Oil Range Organics (C24-C38)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C25-C36)	DoD-ELAP,NELAP,WADOE
Motor Oil Range Organics (C24-C40)	DoD-ELAP,NELAP,WADOE
Residual Range Organics (C23-C32)	DoD-ELAP
Mineral Spirits Range Organics (Tol-C12)	DoD-ELAP,NELAP,WADOE
Mineral Oil Range Organics (C16-C28)	DoD-ELAP,NELAP,WADOE
Kerosene Range Organics (Tol-C18)	DoD-ELAP,NELAP,WADOE
JP8 Range Organics (C8-C18)	DoD-ELAP,NELAP,WADOE
JP5 Range Organics (C10-C16)	DoD-ELAP,NELAP,WADOE
JP4 Range Organics (Tol-C14)	DoD-ELAP,NELAP,WADOE
Jet-A Range Organics (C10-C18)	DoD-ELAP,NELAP,WADOE
Creosote Range Organics (C12-C22)	DoD-ELAP,NELAP,WADOE
Bunker C Range Organics (C10-C38)	DoD-ELAP,NELAP,WADOE
Stoddard Range Organics (C8-C12)	DoD-ELAP,NELAP,WADOE
Transformer Oil Range Organics (C12-C28)	DoD-ELAP,NELAP,WADOE

**NWTPHg in Water**

Gasoline Range Organics (Tol-Nap)	WADOE,DoD-ELAP
Gasoline Range Organics (2MP-TMB)	WADOE,DoD-ELAP
Gasoline Range Organics (Tol-C12)	WADOE,DoD-ELAP
Gasoline Range Organics (C6-C10)	WADOE,ADEC,DoD-ELAP
Gasoline Range Organics (C5-C12)	WADOE,DoD-ELAP



Landau Associates, Inc. 130 2nd Avenue S. Edmonds WA, 98020	Project: Cascade Pole Project Number: Cascade Pole Project Manager: Christine Kimmel	<b>Reported:</b> 05-Sep-2023 12:20
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Code	Description	Number	Expires
ADEC	Alaska Dept of Environmental Conservation	17-015	03/28/2025
DoD-ELAP	DoD-Environmental Laboratory Accreditation Program, PJLA Testing	66169	02/28/2025
NELAP	ORELAP - Oregon Laboratory Accreditation Program	WA100006-012	05/12/2024
WADOE	WA Dept of Ecology	C558	06/30/2023
WA-DW	Ecology - Drinking Water	C558	06/30/2023



Landau Associates, Inc.  
130 2nd Avenue S.  
Edmonds WA, 98020

Project: Cascade Pole  
Project Number: Cascade Pole  
Project Manager: Christine Kimmel

Reported:  
05-Sep-2023 12:20

### Notes and Definitions

- U This analyte is not detected above the reporting limit (RL) or if noted, not detected above the limit of detection (LOD).
- Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20% RSD, <20% drift or minimum RRF)
- M Estimated value for a GC/MS analyte detected and confirmed by an analyst but with low spectral match parameters.
- H Hold time violation - Hold time was exceeded.
- E The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL)
- D1 Surrogate was not detected due to sample extract dilution
- D The reported value is from a dilution
- B This analyte was detected in the method blank.
- \* Flagged value is not within established control limits.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference
- [2C] Indicates this result was quantified on the second column on a dual column analysis.

# Monthly Groundwater Discharge Monitoring Reports



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 01/01/2023 - 01/31/2023

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Minute Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-Su	1/1/23	10515				
1-M	1/2/23	8157				
1-T	1/3/23	8222				
1-W	1/4/23	8547				
1-Th	1/5/23	8798				
1-F	1/6/23	6600				
1-Sa	1/7/23	6445				
2-Su	1/8/23	6964				
2-M	1/9/23	5031				
2-T	1/10/23	5101				
2-W	1/11/23	5073				
2-Th	1/12/23	4753				
2-F	1/13/23	7851				
2-Sa	1/14/23	3874				
3-Su	1/15/23	6405				
3-M	1/16/23	7209				
3-T	1/17/23	7550				
3-W	1/18/23	7808				
3-Th	1/19/23	5534				
3-F	1/20/23	7006				
3-Sa	1/21/23	3093				
4-Su	1/22/23	0				
4-M	1/23/23	0				
4-T	1/24/23	0				
4-W	1/25/23	8944				
4-Th	1/26/23	7006	7.77	<0.09	<0.09	<3.0
4-F	1/27/23	3655				
4-Sa	1/28/23	3472				
5-Su	1/29/23	3570				
5-M	1/30/23	4207				
5-T	1/31/23	4299				
<b>Minimum</b>			7.77			
			>= 6.0 (RO)			
<b>Average</b>					<0.09	
					<= 1	
<b>Average Monthly</b>	6275					
	Report Only					
<b>Maximum</b>			7.77			
			<= 9.0 (RO)			
<b>Daily Maximum</b>	10515			<0.09	<0.09	<3.0
	Report Only			Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection





*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Don Bache

2/9/2023 1:14:08 PM

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**Signature**

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**Date**



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 02/01/2023 - 02/28/2023

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Minute Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
1-W	2/1/23	4236				
1-Th	2/2/23	4488				
1-F	2/3/23	4204				
1-Sa	2/4/23	4101				
2-Su	2/5/23	3973				
2-M	2/6/23	3927				
2-T	2/7/23	4234				
2-W	2/8/23	4083				
2-Th	2/9/23	4247				
2-F	2/10/23	4479				
2-Sa	2/11/23	2815				
3-Su	2/12/23	2800				
3-M	2/13/23	3615				
3-T	2/14/23	4703	7.02	<0.1	<0.1	<5.0
3-W	2/15/23	4756				
3-Th	2/16/23	4302				
3-F	2/17/23	4243				
3-Sa	2/18/23	4152				
4-Su	2/19/23	4414				
4-M	2/20/23	4409				
4-T	2/21/23	4098				
4-W	2/22/23	4316				
4-Th	2/23/23	4344				
4-F	2/24/23	4202				
4-Sa	2/25/23	4159				
5-Su	2/26/23	4115				
5-M	2/27/23	3978				
5-T	2/28/23	4629				
Minimum			7.02			
			>= 6.0 (RO)			
Average				<0.1		
				<= 1		
Average Monthly		4144				
		Report Only				
Maximum			7.02			
			<= 9.0 (RO)			
Daily Maximum		4756		<0.1	<0.1	<5.0
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Don Bache

3/7/2023 11:04:45 AM

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**Signature**

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**Date**



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 03/01/2023 - 03/31/2023

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Minute Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-W	3/1/23	4009				
1-Th	3/2/23	3886				
1-F	3/3/23	4300				
1-Sa	3/4/23	4205				
2-Su	3/5/23	4104				
2-M	3/6/23	4100				
2-T	3/7/23	4323				
2-W	3/8/23	4310				
2-Th	3/9/23	4138				
2-F	3/10/23	1044				
2-Sa	3/11/23	2735				
3-Su	3/12/23	2395				
3-M	3/13/23	2695				
3-T	3/14/23	2701				
3-W	3/15/23	2599				
3-Th	3/16/23	2635				
3-F	3/17/23	2799				
3-Sa	3/18/23	2843				
4-Su	3/19/23	2887				
4-M	3/20/23	4757				
4-T	3/21/23	4297	7.07	<0.09	<0.09	5.0
4-W	3/22/23	4340				
4-Th	3/23/23	4036				
4-F	3/24/23	4641				
4-Sa	3/25/23	4048				
5-Su	3/26/23	4328				
5-M	3/27/23	4367				
5-T	3/28/23	4322				
5-W	3/29/23	4088				
5-Th	3/30/23	3900				
5-F	3/31/23	3861				
<b>Minimum</b>			7.07			
			>= 6.0 (RO)			
<b>Average</b>					<0.09	
					<= 1	
<b>Average Monthly</b>		3668				
		Report Only				
<b>Maximum</b>			7.07			
			<= 9.0 (RO)			
<b>Daily Maximum</b>		4757		<0.09	<0.09	5.0
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Don Bache

4/7/2023 12:17:43 PM

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**Signature**

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**Date**



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 04/01/2023 - 04/30/2023

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Month Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-Sa	4/1/23	4019				
2-Su	4/2/23	4325				
2-M	4/3/23	4991				
2-T	4/4/23	4324				
2-W	4/5/23	4452				
2-Th	4/6/23	4178				
2-F	4/7/23	5731				
2-Sa	4/8/23	4469				
3-Su	4/9/23	4402				
3-M	4/10/23	4356				
3-T	4/11/23	4460				
3-W	4/12/23	4397				
3-Th	4/13/23	4271				
3-F	4/14/23	6048				
3-Sa	4/15/23	1011				
4-Su	4/16/23	1620				
4-M	4/17/23	3803				
4-T	4/18/23	3753				
4-W	4/19/23	4225	6.95	<0.1	<0.1	17*
4-Th	4/20/23	4336				
4-F	4/21/23	4447				
4-Sa	4/22/23	6554				
5-Su	4/23/23	3871				
5-M	4/24/23	3693				
5-T	4/25/23	4383				
5-W	4/26/23	4341				
5-Th	4/27/23	4437				
5-F	4/28/23	4698				
5-Sa	4/29/23	4826				
6-Su	4/30/23	4291				
Minimum		6.95				
		>= 6.0 (RO)				
Average				<0.1		
				<= 1		
Average Monthly		4290				
		Report Only				
Maximum		6.95				
		<= 9.0 (RO)				
Daily Maximum		6554		<0.1	<0.1	17*
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



Outfall: 001 - Inner Budd Inlet

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
001	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L)	Daily Maximum	17	Exceeds benchmark of 15 mg/L
001	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L)	4/19/2023	17	Exceeds benchmark of 15 mg/L

*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Don Bache

Signature

5/4/2023 9:34:23 AM

Date



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 05/01/2023 - 05/31/2023

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Minute Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-M	5/1/23	4215				
1-T	5/2/23	4504				
1-W	5/3/23	4352				
1-Th	5/4/23	4543				
1-F	5/5/23	4407				
1-Sa	5/6/23	4458				
2-Su	5/7/23	4240				
2-M	5/8/23	4305				
2-T	5/9/23	4195				
2-W	5/10/23	3200				
2-Th	5/11/23	5419				
2-F	5/12/23	4024				
2-Sa	5/13/23	4499				
3-Su	5/14/23	4097				
3-M	5/15/23	4115				
3-T	5/16/23	4345				
3-W	5/17/23	4296				
3-Th	5/18/23	3210				
3-F	5/19/23	3300				
3-Sa	5/20/23	3121				
4-Su	5/21/23	1114				
4-M	5/22/23	4516	6.95	<0.09	<0.09	12
4-T	5/23/23	4007				
4-W	5/24/23	4326				
4-Th	5/25/23	4461				
4-F	5/26/23	5900				
4-Sa	5/27/23	1060				
5-Su	5/28/23	4289				
5-M	5/29/23	4229				
5-T	5/30/23	4184				
5-W	5/31/23	4528				
<b>Minimum</b>			6.95			
			>= 6.0 (RO)			
<b>Average</b>					<0.09	
					<= 1	
<b>Average Monthly</b>		4047				
	Report Only					
<b>Maximum</b>			6.95			
			<= 9.0 (RO)			
<b>Daily Maximum</b>		5900		<0.09	<0.09	12
	Report Only			Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection





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Don Bache

6/12/2023 3:59:35 PM

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**Signature**

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**Date**



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 06/01/2023 - 06/30/2023

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Month Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-Th	6/1/23	4528				
1-F	6/2/23	5730				
1-Sa	6/3/23	5099				
2-Su	6/4/23	6361				
2-M	6/5/23	3870				
2-T	6/6/23	4101				
2-W	6/7/23	4161				
2-Th	6/8/23	4169				
2-F	6/9/23	1365				
2-Sa	6/10/23	4590				
3-Su	6/11/23	4423				
3-M	6/12/23	4261				
3-T	6/13/23	6189				
3-W	6/14/23	4111				
3-Th	6/15/23	1907				
3-F	6/16/23	5522	7.14	<0.09	<0.09	16*
3-Sa	6/17/23	3636				
4-Su	6/18/23	4254				
4-M	6/19/23	3361				
4-T	6/20/23	4920				
4-W	6/21/23	4683				
4-Th	6/22/23	4621				
4-F	6/23/23	2987				
4-Sa	6/24/23	198				
5-Su	6/25/23	3981				
5-M	6/26/23	4156				
5-T	6/27/23	4253				
5-W	6/28/23	4234				
5-Th	6/29/23	4564				
5-F	6/30/23	4095				
Minimum			7.14			
			>= 6.0 (RO)			
Average					<0.09	
					<= 1	
Average Monthly		4144				
		Report Only				
Maximum			7.14			
			<= 9.0 (RO)			
Daily Maximum		6361		<0.09	<0.09	16*
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



## Outfall: 001 - Inner Budd Inlet

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
001	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L)	Daily Maximum	16	Sample analysis results show effluent above benchmark of 15 ppm.
001	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L)	6/16/2023	16	Sample analysis indicated TSS over benchmark of 15 ppm.

I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Don Bache

Signature

7/12/2023 1:10:13 PM

Date



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 07/01/2023 - 07/31/2023

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Month Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-Sa	7/1/23	3883				
2-Su	7/2/23	2962				
2-M	7/3/23	6026				
2-T	7/4/23	416				
2-W	7/5/23	3576	8.42	<0.1	<0.1	14
2-Th	7/6/23	3994				
2-F	7/7/23	4208				
2-Sa	7/8/23	4128				
3-Su	7/9/23	4117				
3-M	7/10/23	4060				
3-T	7/11/23	3837				
3-W	7/12/23	4291				
3-Th	7/13/23	4103				
3-F	7/14/23	3957				
3-Sa	7/15/23	4054				
4-Su	7/16/23	4000				
4-M	7/17/23	4089				
4-T	7/18/23	4139				
4-W	7/19/23	4139				
4-Th	7/20/23	4154				
4-F	7/21/23	3833				
4-Sa	7/22/23	4106				
5-Su	7/23/23	3636				
5-M	7/24/23	7744				
5-T	7/25/23	1795				
5-W	7/26/23	1807				
5-Th	7/27/23	3257				
5-F	7/28/23	3752				
5-Sa	7/29/23	3881				
6-Su	7/30/23	4117				
6-M	7/31/23	3585				
Minimum			8.42			
			>= 6.0 (RO)			
Average					<0.1	
					<= 1	
Average Monthly		3860				
		Report Only				
Maximum			8.42			
			<= 9.0 (RO)			
Daily Maximum		7744		<0.1	<0.1	14
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



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Don Bache

8/14/2023 7:58:07 PM

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**Signature**

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**Date**



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 08/01/2023 - 08/31/2023

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Month Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-T	8/1/23	3868				
1-W	8/2/23	3495				
1-Th	8/3/23	3259				
1-F	8/4/23	3237				
1-Sa	8/5/23	4899				
2-Su	8/6/23	400				
2-M	8/7/23	3617				
2-T	8/8/23	3526	6.93	<0.1	<0.1	13
2-W	8/9/23	3436				
2-Th	8/10/23	3605				
2-F	8/11/23	3477				
2-Sa	8/12/23	3223				
3-Su	8/13/23	3960				
3-M	8/14/23	3820				
3-T	8/15/23	4036				
3-W	8/16/23	4055				
3-Th	8/17/23	4381				
3-F	8/18/23	4476				
3-Sa	8/19/23	6668				
4-Su	8/20/23	4271				
4-M	8/21/23	3059				
4-T	8/22/23	4843				
4-W	8/23/23	4131				
4-Th	8/24/23	4308				
4-F	8/25/23	3971				
4-Sa	8/26/23	3900				
5-Su	8/27/23	3924				
5-M	8/28/23	3658				
5-T	8/29/23	3771				
5-W	8/30/23	3820				
5-Th	8/31/23	3694				
<b>Minimum</b>			6.93 >= 6.0 (RO)			
<b>Average</b>					<0.1 <= 1	
<b>Average Monthly</b>	3832 Report Only					
<b>Maximum</b>			6.93 <= 9.0 (RO)			
<b>Daily Maximum</b>	6668 Report Only			<0.1 Report Only	<0.1 <= 2.3 (RO)	13 <= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Don Bache

9/11/2023 3:43:10 PM

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**Signature**

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**Date**



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 09/01/2023 - 09/30/2023

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Minute Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-F	9/1/23	4919				
1-Sa	9/2/23	3960				
2-Su	9/3/23	4402				
2-M	9/4/23	4002				
2-T	9/5/23	3995				
2-W	9/6/23	3963				
2-Th	9/7/23	4073				
2-F	9/8/23	4213				
2-Sa	9/9/23	4114				
3-Su	9/10/23	3987				
3-M	9/11/23	3820				
3-T	9/12/23	4115				
3-W	9/13/23	3535				
3-Th	9/14/23	4743				
3-F	9/15/23	3555				
3-Sa	9/16/23	2983				
4-Su	9/17/23	3124				
4-M	9/18/23	3942				
4-T	9/19/23	4864				
4-W	9/20/23	8304				
4-Th	9/21/23	3882				
4-F	9/22/23	1843				
4-Sa	9/23/23	1809				
5-Su	9/24/23	1892				
5-M	9/25/23	4007	7.08	<0.09	0.12	14.0
5-T	9/26/23	4092				
5-W	9/27/23	4163				
5-Th	9/28/23	1632				
5-F	9/29/23	1638				
5-Sa	9/30/23	3368				
<b>Minimum</b>			7.08			
			>= 6.0 (RO)			
<b>Average</b>					0.12	
					<= 1	
<b>Average Monthly</b>		3765				
		Report Only				
<b>Maximum</b>			7.08			
			<= 9.0 (RO)			
<b>Daily Maximum</b>		8304		<0.09	0.12	14.0
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection





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Don Bache

10/10/2023 3:19:41 PM

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Signature

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Date



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 04/01/2022 - 04/30/2022

Outfall: 001 - Inner Budd Inlet

Version: 2

Week	Monitoring Point	Flow Gallons/Month Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-F	4/1/22	4786				
1-Sa	4/2/22	3959				
2-Su	4/3/22	5163				
2-M	4/4/22	4462				
2-T	4/5/22	4832	6.93	<0.05*	B 0.177*	14.9
2-W	4/6/22	5802				
2-Th	4/7/22	5433				
2-F	4/8/22	3613				
2-Sa	4/9/22	4801				
3-Su	4/10/22	4793				
3-M	4/11/22	5718				
3-T	4/12/22	6214				
3-W	4/13/22	5103				
3-Th	4/14/22	5348				
3-F	4/15/22	5399				
3-Sa	4/16/22	5001				
4-Su	4/17/22	5803				
4-M	4/18/22	4295				
4-T	4/19/22	5121				
4-W	4/20/22	5283				
4-Th	4/21/22	5937				
4-F	4/22/22	5090				
4-Sa	4/23/22	5567				
5-Su	4/24/22	5542				
5-M	4/25/22	5667				
5-T	4/26/22	5467				
5-W	4/27/22	5191				
5-Th	4/28/22	5237				
5-F	4/29/22	5109				
5-Sa	4/30/22	5398				
Minimum			6.93			
			>= 6.0 (RO)			
Average					B 0.177*	
					<= 1	
Average Monthly		5171				
		Report Only				
Maximum			6.93			
			<= 9.0 (RO)			
Daily Maximum		6214		<0.05*	B 0.177	14.9
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



## Outfall: 001 - Inner Budd Inlet

Monitoring Point	Parameter	Sample Date/ Statistical Base	Value	Notes/Comment
001	Benzo(a)pyrene Micrograms/L (ug/L)	Daily Maximum	B <0.05	Sample reported as ND. Sample analyzed using SCAN method instead of SIMS due ot issues at lab.
001	Benzo(a)pyrene Micrograms/L (ug/L)	4/5/2022	B <0.05	Sample reported as ND. Sample analyzed using SCAN method instead of SIMS due ot issues at lab.
001	Pentachlorophenol Micrograms/L (ug/L)	Average	B 0.177	Sample reported as ND. Sample analyzed using SCAN method instead of SIMS due ot issues at lab.
001	Pentachlorophenol Micrograms/L (ug/L)	4/5/2022	B 0.177	Sample reported as ND. Sample analyzed using SCAN method instead of SIMS due ot issues at lab.

*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Don Bache

5/13/2022 3:26:14 PM

**Signature****Date**



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 05/01/2022 - 05/31/2022

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow	pH	Benz(a)pyrene	Pentachlorophenol	Solids (Residue)
		Gallons/Minute Continuous #detected/Recorded				
		001	001	001	001	001
1-Su	5/1/22	4957				
1-M	5/2/22	4992				
1-T	5/3/22	5122				
1-W	5/4/22	5095				
1-Th	5/5/22	5011				
1-F	5/6/22	5311				
1-Sa	5/7/22	3399				
2-Su	5/8/22	5160				
2-M	5/9/22	5037				
2-T	5/10/22	5179				
2-W	5/11/22	5249				
2-Th	5/12/22	5719				
2-F	5/13/22	4378				
2-Sa	5/14/22	5261				
3-Su	5/15/22	4634				
3-M	5/16/22	5201				
3-T	5/17/22	5188				
3-W	5/18/22	5252				
3-Th	5/19/22	4795				
3-F	5/20/22	4947				
3-Sa	5/21/22	5004				
4-Su	5/22/22	4090				
4-M	5/23/22	5176				
4-T	5/24/22	5522	7.37	<0.05	<0.1	4.0
4-W	5/25/22	5262				
4-Th	5/26/22	4929				
4-F	5/27/22	5098				
4-Sa	5/28/22	4993				
5-Su	5/29/22	4611				
5-M	5/30/22	5092				
5-T	5/31/22	4997				
Minimum			7.37			
			>= 6.0 (RO)			
Average					<0.1	
					<= 1	
Average Monthly		4989				
		Report Only				
Maximum			7.37			
			<= 9.0 (RO)			
Daily Maximum		5719		<0.05	<0.1	4.0
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Don Bache

6/10/2022 11:33:28 AM

Signature

Date



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 06/01/2022 - 06/30/2022

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Month Continuous Watered/Recorded	pH Standard Units Monthly Grab	Benzof Pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Perchlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-W	6/1/22	4638				
1-Th	6/2/22	5213				
1-F	6/3/22	4985				
1-Sa	6/4/22	2159				
2-Su	6/5/22	2336				
2-M	6/6/22	5213				
2-T	6/7/22	5028	6.90	<0.05	<0.1	4.40
2-W	6/8/22	5170				
2-Th	6/9/22	5230				
2-F	6/10/22	5148				
2-Sa	6/11/22	1070				
3-Su	6/12/22	2670				
3-M	6/13/22	5915				
3-T	6/14/22	5186				
3-W	6/15/22	5204				
3-Th	6/16/22	5121				
3-F	6/17/22	5199				
3-Sa	6/18/22	4974				
4-Su	6/19/22	5207				
4-M	6/20/22	4678				
4-T	6/21/22	4980				
4-W	6/22/22	4803				
4-Th	6/23/22	5009				
4-F	6/24/22	5131				
4-Sa	6/25/22	4005				
5-Su	6/26/22	3950				
5-M	6/27/22	5004				
5-T	6/28/22	5162				
5-W	6/29/22	4759				
5-Th	6/30/22	4842				
Minimum		6.90				
		>= 6.0 (RO)				
Average					<0.1	
					<= 1	
Average Monthly		4445				
		Report Only				
Maximum		6.90				
		<= 9.0 (RO)				
Daily Maximum		5230		<0.05	<0.1	4.40
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



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Don Bache

7/13/2022 1:37:34 PM

Signature

Date



Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 07/01/2022 - 07/31/2022

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Minute Continuous Waters/Recorded	pH Standard Units Monthly Grab	Benzofluorene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
1-F	7/1/22	4784				
1-Sa	7/2/22	3742				
2-Su	7/3/22	3745				
2-M	7/4/22	4633				
2-T	7/5/22	3807				
2-W	7/6/22	3723	6.89	<0.05	<0.05	2.00
2-Th	7/7/22	3682				
2-F	7/8/22	3779				
2-Sa	7/9/22	4297				
3-Su	7/10/22	4612				
3-M	7/11/22	4685				
3-T	7/12/22	5007				
3-W	7/13/22	4828				
3-Th	7/14/22	5249				
3-F	7/15/22	4218				
3-Sa	7/16/22	4919				
4-Su	7/17/22	4101				
4-M	7/18/22	4281				
4-T	7/19/22	4603				
4-W	7/20/22	4523				
4-Th	7/21/22	4800				
4-F	7/22/22	6604				
4-Sa	7/23/22	5298				
5-Su	7/24/22	5523				
5-M	7/25/22	5620				
5-T	7/26/22	4540				
5-W	7/27/22	4747				
5-Th	7/28/22	4609				
5-F	7/29/22	3396				
5-Sa	7/30/22	5537				
6-Su	7/31/22	8609				
Minimum		6.89				
		>= 6.0 (RO)				
Average				<0,05		
				<= 1		
Average Monthly		4726				
		Report Only				
Maximum		6.89				
		<= 9.0 (RO)				
Daily Maximum		8609		<0.05	<0.05	2.0
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection





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Don Bache

8/15/2022 2:25:39 PM

Signature

Date



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 08/01/2022 - 08/31/2022

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Month Continuous Meter/Recorded	pH Standard Units Monthly Grab	Benzol's Pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-M	8/1/22	4329				
1-T	8/2/22	4486				
1-W	8/3/22	4250				
1-Th	8/4/22	4190				
1-F	8/5/22	4100				
1-Sa	8/6/22	4880				
2-Su	8/7/22	4599				
2-M	8/8/22	4379				
2-T	8/9/22	4378				
2-W	8/10/22	4430				
2-Th	8/11/22	4348				
2-F	8/12/22	4409				
2-Sa	8/13/22	4489				
3-Su	8/14/22	4569				
3-M	8/15/22	4140				
3-T	8/16/22	4126				
3-W	8/17/22	4505				
3-Th	8/18/22	4281				
3-F	8/19/22	3975				
3-Sa	8/20/22	3732				
4-Su	8/21/22	4432				
4-M	8/22/22	6205	7.24	<0.09	<0.49	33
4-T	8/23/22	6128				
4-W	8/24/22	4691				
4-Th	8/25/22	5085				
4-F	8/26/22	4419				
4-Sa	8/27/22	4002				
5-Su	8/28/22	4400				
5-M	8/29/22	6116				
5-T	8/30/22	166				
5-W	8/31/22	2021				
Minimum			7.24			
			>= 6.0 (RO)			
Average					<0.49	
					<= 1	
Average Monthly		4331				
		Report Only				
Maximum			7.24			
			<= 9.0 (RO)			
Daily Maximum		6205		<0.09	<0.49	33
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



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Don Bache

9/14/2022 3:57:05 PM

Signature

Date



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 09/01/2022 - 09/30/2022

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Day Continuous Metered/Recorded	PH Standard Units Grab	Benzo(a)pyrene Micrograms/L (ug/L) Grab Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Grab Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Grab Composite sample (24 hour)
		001	001	001	001	001
1-Th	9/1/22	4426				
1-F	9/2/22	3955				
1-Sa	9/3/22	2517				
2-Su	9/4/22	4209				
2-M	9/5/22	4336				
2-T	9/6/22	4684	7.61	<0.1	<0.5	19.0
2-W	9/7/22	4084				
2-Th	9/8/22	4520				
2-F	9/9/22	4509				
2-Sa	9/10/22	4503				
3-Su	9/11/22	4479				
3-M	9/12/22	4532				
3-T	9/13/22	4420				
3-W	9/14/22	4060				
3-Th	9/15/22	5159				
3-F	9/16/22	5672				
3-Sa	9/17/22	1538				
4-Su	9/18/22	2774				
4-M	9/19/22	3257				
4-T	9/20/22	2505				
4-W	9/21/22	2546				
4-Th	9/22/22	5135				
4-F	9/23/22	4617				
4-Sa	9/24/22	4223				
5-Su	9/25/22	4240				
5-M	9/26/22	4246				
5-T	9/27/22	4210				
5-W	9/28/22	4160				
5-Th	9/29/22	3982				
5-F	9/30/22	4269				
Minimum			7.61			
			>= 6.0 (RO)			
Average					<0.5	
					<= 1	
Average Monthly		4058				
		Report Only				
Maximum			7.61			
			<= 9.0 (RO)			
Daily Maximum		5672		<0.1	<0.5	19.0
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



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Don Bache

10/12/2022 3:48:31 PM

Signature

Date



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 10/01/2022 - 10/31/2022

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Minute Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-Sa	10/1/22	4215				
2-Su	10/2/22	4200	7.15	<0.09	<0.49	14.0
2-M	10/3/22	4170				
2-T	10/4/22	4167				
2-W	10/5/22	4027				
2-Th	10/6/22	4185				
2-F	10/7/22	5204				
2-Sa	10/8/22	1089				
3-Su	10/9/22	3602				
3-M	10/10/22	3660				
3-T	10/11/22	4046				
3-W	10/12/22	4081				
3-Th	10/13/22	3906				
3-F	10/14/22	3813				
3-Sa	10/15/22	4003				
4-Su	10/16/22	4107				
4-M	10/17/22	4143				
4-T	10/18/22	3944				
4-W	10/19/22	4029				
4-Th	10/20/22	3865				
4-F	10/21/22	3807				
4-Sa	10/22/22	4039				
5-Su	10/23/22	4146				
5-M	10/24/22	3945				
5-T	10/25/22	4131				
5-W	10/26/22	4007				
5-Th	10/27/22	4168				
5-F	10/28/22	4515				
5-Sa	10/29/22	4457				
6-Su	10/30/22	112				
6-M	10/31/22	2462				
Minimum			7.15			
			>= 6.0 (RO)			
Average					<0.49	
					<= 1	
Average Monthly		3814				
		Report Only				
Maximum			7.15			
			<= 9.0 (RO)			
Daily Maximum		5204		<0.09	<0.49	14.0
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



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Don Bache

11/15/2022 8:28:56 AM

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**Signature**

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**Date**



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 11/01/2022 - 11/30/2022

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Minute Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-T	11/1/22	3168				
1-W	11/2/22	3381	7.15	<0.09	<0.49	14
1-Th	11/3/22	4626				
1-F	11/4/22	4134				
1-Sa	11/5/22	3367				
2-Su	11/6/22	3627				
2-M	11/7/22	3107				
2-T	11/8/22	4601				
2-W	11/9/22	4471				
2-Th	11/10/22	4160				
2-F	11/11/22	4391				
2-Sa	11/12/22	4037				
3-Su	11/13/22	4054				
3-M	11/14/22	3887				
3-T	11/15/22	4104				
3-W	11/16/22	4366				
3-Th	11/17/22	4473				
3-F	11/18/22	4208				
3-Sa	11/19/22	4281				
4-Su	11/20/22	5117				
4-M	11/21/22	4713				
4-T	11/22/22	4484				
4-W	11/23/22	4105				
4-Th	11/24/22	4080				
4-F	11/25/22	4075				
4-Sa	11/26/22	4062				
5-Su	11/27/22	4746				
5-M	11/28/22	4745				
5-T	11/29/22	4325				
5-W	11/30/22	2001				
<b>Minimum</b>			7.15			
			>= 6.0 (RO)			
<b>Average</b>					<0.49	
					<= 1	
<b>Average Monthly</b>		4096				
		Report Only				
<b>Maximum</b>			7.15			
			<= 9.0 (RO)			
<b>Daily Maximum</b>		5117		<0.09	<0.49	14
		Report Only		Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection





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Don Bache

12/13/2022 10:21:53 AM

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**Signature**

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**Date**



# Washington State Department of Ecology Discharge Monitoring Report (DMR)

Permit Number: WA0040533

Permittee: Port of Olympia - Cascade Pole Site

Facility County: Thurston

Receiving Waterbody: Budd Inlet (Inner)

Monitoring Period: 12/01/2022 - 12/31/2022

Outfall: 001 - Inner Budd Inlet

Version: 1

Week	Monitoring Point	Flow Gallons/Minute Continuous Metered/Recorded	pH Standard Units Monthly Grab	Benz(a)pyrene Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Pentachlorophenol Micrograms/L (ug/L) Monthly Composite sample (24 hour)	Solids (Residue) Total suspended (TSS) Milligrams/L (mg/L) Monthly Composite sample (24 hour)
		001	001	001	001	001
1-Th	12/1/22	3802				
1-F	12/2/22	3902				
1-Sa	12/3/22	4813				
2-Su	12/4/22	1117				
2-M	12/5/22	4052				
2-T	12/6/22	4364	7.96	<0.1	<0.1	14.0
2-W	12/7/22	4570				
2-Th	12/8/22	4384				
2-F	12/9/22	4450				
2-Sa	12/10/22	4499				
3-Su	12/11/22	4013				
3-M	12/12/22	4642				
3-T	12/13/22	4421				
3-W	12/14/22	4042				
3-Th	12/15/22	4799				
3-F	12/16/22	4667				
3-Sa	12/17/22	4678				
4-Su	12/18/22	4924				
4-M	12/19/22	5359				
4-T	12/20/22	4696				
4-W	12/21/22	4296				
4-Th	12/22/22	4786				
4-F	12/23/22	2177				
4-Sa	12/24/22	2057				
5-Su	12/25/22	1973				
5-M	12/26/22	1973				
5-T	12/27/22	2696				
5-W	12/28/22	5225				
5-Th	12/29/22	5009				
5-F	12/30/22	5031				
5-Sa	12/31/22	7756				
<b>Minimum</b>			7.96			
			>= 6.0 (RO)			
<b>Average</b>					<0.1	
					<= 1	
<b>Average Monthly</b>	4167					
	Report Only					
<b>Maximum</b>			7.96			
			<= 9.0 (RO)			
<b>Daily Maximum</b>	7756			<0.1	<0.1	14.4
	Report Only			Report Only	<= 2.3 (RO)	<= 15 (RO)

Reporting Codes Used: B - Below Detection Limit/No Detection



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Don Bache

1/12/2023 4:18:27 PM

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**Signature**

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**Date**

## **MW-05D March 2022 Additional Evaluation Results**



ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

Tuesday, April 12, 2022

Sierra Mott  
Landau Associates, Inc. (Tacoma)  
2107 South C Street  
Tacoma, WA 98402

RE: A2C1154 - Port of Olympia---Cascade Pole - Wet Season

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A2C1154, which was received by the laboratory on 3/28/2022 at 10:47:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: [DAuvil@apex-labs.com](mailto:DAuvil@apex-labs.com), or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

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Cooler Receipt Information

(See Cooler Receipt Form for details)

Cooler #1	6.0 degC
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This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.

All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.

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Darrell Auvil, Client Services Manager



**ANALYTICAL REPORT**

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<u>Landau Associates, Inc. (Tacoma)</u> 2107 South C Street Tacoma, WA 98402	Project: <u>Port of Olympia--Cascade Pole</u> Project Number: Wet Season Project Manager: Sierra Mott	<b>Report ID:</b> A2C1154 - 04 12 22 1432
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**ANALYTICAL REPORT FOR SAMPLES**

**SAMPLE INFORMATION**

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-05D-20220324-SP	A2C1154-02	Water	03/24/22 13:31	03/28/22 10:47
Tripblank-SP-20220324	A2C1154-03	Water	03/24/22 00:00	03/28/22 10:47

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<b>Landau Associates, Inc. (Tacoma)</b> 2107 South C Street Tacoma, WA 98402	Project: <b>Port of Olympia--Cascade Pole</b> Project Number: <b>Wet Season</b> Project Manager: <b>Sierra Mott</b>	<b>Report ID:</b> <b>A2C1154 - 04 12 22 1432</b>
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**ANALYTICAL SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
<b>MW-05D-20220324-SP (A2C1154-02RE1)</b>			<b>Matrix: Water</b>			<b>Batch: 22C1248</b>		
<b>Gasoline Range Organics</b>	<b>1.19</b>	---	0.100	mg/L	1	04/01/22 01:19	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>04/01/22 01:19</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>98 %</i>		<i>50-150 %</i>		<i>1</i>	<i>04/01/22 01:19</i>	<i>NWTPH-Gx (MS)</i>
<b>Tripblank-SP-20220324 (A2C1154-03)</b>			<b>Matrix: Water</b>			<b>Batch: 22C1188</b>		
<b>Gasoline Range Organics</b>	<b>ND</b>	---	0.100	mg/L	1	03/30/22 14:49	NWTPH-Gx (MS)	
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>03/30/22 14:49</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>98 %</i>		<i>50-150 %</i>		<i>1</i>	<i>03/30/22 14:49</i>	<i>NWTPH-Gx (MS)</i>

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Darrell Auvil, Client Services Manager

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ANALYTICAL REPORT

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503-718-2323  
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<b>Landau Associates, Inc. (Tacoma)</b> 2107 South C Street Tacoma, WA 98402	Project: <b>Port of Olympia---Cascade Pole</b> Project Number: <b>Wet Season</b> Project Manager: <b>Sierra Mott</b>	<b>Report ID:</b> A2C1154 - 04 12 22 1432
--	--	--

**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 22C1188 - EPA 5030B</b>												
<b>Water</b>												
<b>Blank (22C1188-BLK1)</b>			Prepared: 03/30/22 10:12 Analyzed: 03/30/22 13:53									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 94 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			97 %	50-150 %		"						
<b>LCS (22C1188-BS2)</b>			Prepared: 03/30/22 10:12 Analyzed: 03/30/22 13:30									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.488	---	0.100	mg/L	1	0.500	---	98	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 94 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			96 %	50-150 %		"						
<b>Duplicate (22C1188-DUP1)</b>			Prepared: 03/30/22 14:00 Analyzed: 03/30/22 17:27									
<u>QC Source Sample: MW-05D-20220324-SP (A2C1154-02)</u>												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	2.00	mg/L	20	---	1.07	---	---	***	30%	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 92 %	Limits: 50-150 %		Dilution: 20x						
1,4-Difluorobenzene (Sur)			98 %	50-150 %		"						
<b>Batch 22C1248 - EPA 5030B</b>												
<b>Water</b>												
<b>Blank (22C1248-BLK1)</b>			Prepared: 03/31/22 16:45 Analyzed: 04/01/22 00:11									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 96 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			96 %	50-150 %		"						
<b>LCS (22C1248-BS2)</b>			Prepared: 03/31/22 16:45 Analyzed: 03/31/22 23:48									
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	0.423	---	0.100	mg/L	1	0.500	---	85	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			Recovery: 99 %	Limits: 50-150 %		Dilution: 1x						
1,4-Difluorobenzene (Sur)			96 %	50-150 %		"						
<b>Duplicate (22C1248-DUP1)</b>			Prepared: 03/31/22 16:45 Analyzed: 04/01/22 07:22									

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Darrell Auvil, Client Services Manager





ANALYTICAL REPORT

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 503-718-2323  
 ORELAP ID: OR100062

<b>Landau Associates, Inc. (Tacoma)</b> 2107 South C Street Tacoma, WA 98402	Project: <b>Port of Olympia---Cascade Pole</b> Project Number: <b>Wet Season</b> Project Manager: <b>Sierra Mott</b>	<b>Report ID:</b> <b>A2C1154 - 04 12 22 1432</b>
--	--	---

**QUALITY CONTROL (QC) SAMPLE RESULTS**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
<b>Batch 22C1248 - EPA 5030B</b>						<b>Water</b>						
<b>Duplicate (22C1248-DUP1)</b>			Prepared: 03/31/22 16:45 Analyzed: 04/01/22 07:22									
<b>QC Source Sample: Non-SDG (A2C1251-16)</b>												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	ND	---	---	---	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 101 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>		<i>99 %</i>		<i>50-150 %</i>		<i>"</i>						

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--	--	---

**SAMPLE PREPARATION INFORMATION**

**Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx**

Prep: EPA 5030B						Sample	Default	RL Prep
Lab Number	Matrix	Method	Sampled	Prepared	Initial/Final	Initial/Final	Factor	
<u>Batch: 22C1188</u>								
A2C1154-03	Water	NWTPH-Gx (MS)	03/24/22 00:00	03/30/22 14:00	5mL/5mL	5mL/5mL	1.00	
<u>Batch: 22C1248</u>								
A2C1154-02RE1	Water	NWTPH-Gx (MS)	03/24/22 13:31	03/31/22 16:45	5mL/5mL	5mL/5mL	1.00	

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--	---	--

**QUALIFIER DEFINITIONS**

**Client Sample and Quality Control (QC) Sample Qualifier Definitions:**

**There are No Qualifiers on Sample or QC Data for this report**

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--	---	---

**REPORTING NOTES AND CONVENTIONS:**

**Abbreviations:**

- DET Analyte DETECTED at or above the detection or reporting limit.
- ND Analyte NOT DETECTED at or above the detection or reporting limit.
- NR Result Not Reported
- RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

**Detection Limits: Limit of Detection (LOD)**

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).  
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

**Reporting Limits: Limit of Quantitation (LOQ)**

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

**Reporting Conventions:**

- Basis: Results for soil samples are generally reported on a 100% dry weight basis.  
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.
- " dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")  
See Percent Solids section for details of dry weight analysis.
- " wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
- " " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

**QC Source:**

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.  
  
Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

**Miscellaneous Notes:**

- " --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- " \*\*\* " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

**Blanks:**

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to 1/2 the Reporting Limit (RL).  
-For Blank hits falling between 1/2 the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.  
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.  
For further details, please request a copy of this document.

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--	---	---

**REPORTING NOTES AND CONVENTIONS (Cont.):**

**Blanks (Cont.):**

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

**Preparation Notes:**

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

**Sampling and Preservation Notes:**

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.

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ANALYTICAL REPORT

Apex Laboratories, LLC

6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: OR100062

Table with 3 columns: Client (Landau Associates, Inc. (Tacoma)), Project (Port of Olympia--Cascade Pole), and Report ID (A2C1154 - 04 12 22 1432)

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -
EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Table with 6 columns: Matrix, Analysis, TNI\_ID, Analyte, TNI\_ID, Accreditation. Content: All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation. Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

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Handwritten signature of Darrell Auvil

Darrell Auvil, Client Services Manager

<b>Landau Associates, Inc. (Tacoma)</b> 2107 South C Street Tacoma, WA 98402	Project: <b>Port of Olympia---Cascade Pole</b> Project Number: <b>Wet Season</b> Project Manager: <b>Sierra Mott</b>	<b>Report ID:</b> A2C1154 - 04 12 22 1432
--	--	--

**A2C1154**

North Seattle (206) 631-8660  
 Tacoma (253) 926-2493  
 Olympia (360) 791-3178

Spokane (509) 327-9737  
 Portland (503) 542-1080

Turnaround Time: Standard  
 Accelerated

**Chain-of-Custody Record**  
 Project Name: Port of Olympia Project No. \_\_\_\_\_  
 Project Location/Event: Cascade Pole / Wet Season  
 Sampler's Name: SMP/HK  
 Project Contact: Sierra Mott, Chris Kimmel  
 Send Results To: S. Mott, C. Kimmel, D. Joergensen, P. Bauche

Sample I.D.	Date	Time	Matrix	No. of Containers	Testing Parameters	Observations/Comments	
MW-05D-2-2020324-SP	3/24/22	12:55	Aq	3	NORTH-GT HOLD	Allow water samples to settle, collect aliquot from clear portion <input type="checkbox"/> NWTPH-DX - Acid wash cleanup <input type="checkbox"/> - Silica gel cleanup <input type="checkbox"/> Dissolved metal samples were field filtered	
MW-05D-2-2020324-SP	---	1:31	Aq	3			Other: <u>HK1 preserved</u> <u>Please hold MW-05D-2 for analysis</u>
Trip/blank SR-2020324	---	---	Aq	1			

Special Handling Requirements: \_\_\_\_\_

Shipment Method: \_\_\_\_\_

Stored on ice: Yes  No

Received by: \_\_\_\_\_

Signature \_\_\_\_\_ Printed Name \_\_\_\_\_ Company \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Relinquished by: \_\_\_\_\_

Signature \_\_\_\_\_ Printed Name \_\_\_\_\_ Company \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Received by: \_\_\_\_\_

Signature \_\_\_\_\_ Printed Name \_\_\_\_\_ Company \_\_\_\_\_ Date 3/28/22 Time 10-17

Relinquished by: \_\_\_\_\_

Signature \_\_\_\_\_ Printed Name Sierra Mott Company Landau Associates Date 3/25/22 Time 1200





ANALYTICAL REPORT

**Apex Laboratories, LLC**

6700 S.W. Sandburg Street  
Tigard, OR 97223  
503-718-2323  
ORELAP ID: OR100062

<b>Landau Associates, Inc. (Tacoma)</b> 2107 South C Street Tacoma, WA 98402	Project: <b>Port of Olympia--Cascade Pole</b> Project Number: <b>Wet Season</b> Project Manager: <b>Sierra Mott</b>	<b>Report ID:</b> <b>A2C1154 - 04 12 22 1432</b>
--	---	---

**APEX LABS COOLER RECEIPT FORM**

**Client:** Landau Associates Element WO#: A2C1154

**Project/Project #:** Port of Olympia

**Delivery Info:**  
 Date/time received: 3/28/22 @ 10:47 By: JS  
 Delivered by: Apex  Client  ESS  FedEx  UPS  Swift  Senvoy  SDS  Other

**Cooler Inspection** Date/time inspected: 3/28/22 @ 10:49 By: JS  
 Chain of Custody included? Yes  No  Custody seals? Yes  No   
 Signed/dated by client? Yes  No   
 Signed/dated by Apex? Yes  No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>6.0</u>						
Received on ice? (Y/N)	<u>Y</u>						
Temp. blanks? (Y/N)	<u>Y</u>						
Ice type: (Gel/Real/Other)	<u>Real</u>						
Condition:	<u>good</u>						

Cooler out of temp? (Y/N)  Possible reason why: \_\_\_\_\_  
 Green dots applied to out of temperature samples? Yes/No   
 Out of temperature samples form initiated? Yes/No   
**Sample Inspection:** Date/time inspected: 3/28/22 @ 11:20 By: RAM  
 All samples intact? Yes  No  Comments: \_\_\_\_\_

Bottle labels/COCs agree? Yes  No  Comments: \_\_\_\_\_

COC/container discrepancies form initiated? Yes  No

Containers/volumes received appropriate for analysis? Yes  No  Comments: \_\_\_\_\_

Do VOA vials have visible headspace? Yes  No  NA

Comments: \_\_\_\_\_

Water samples: pH checked: Yes  No  NA  pH appropriate? Yes  No  NA

Comments: \_\_\_\_\_

**Additional information:** 12 X4720R 90 9958 9164  
TB# 3059

Labeled by: RAM                      Witness: RAM                      Cooler Inspected by: JS

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Darrell Auvil, Client Services Manager



**TABLE F-1**  
**MW-05D MARCH 2022 ANALYTICAL RESULTS**  
**GROUNDWATER COMPLIANCE MONITORING**  
**CASCADE POLE SITE**  
**PORT OF OLYMPIA, WASHINGTON**

	Laboratory	ARI	Apex	ARI	Apex
	Purge Volume	After 5 gal	After 5 gal	After 2 gallons	No purge
	Cleanup Screening Levels (a)	MW-05D 22C0440-16 3/24/2022	MW-05D-SP A2C1154-02 3/24/2022	MW-05D-2 22C0440-15 3/24/2022	MW-05D-BC 22C0440-14 3/24/2022
<b>POLYCYCLIC AROMATIC HYDROCARBONS (PAHs) (µg/L)</b>					
<b>EPA Method SW8270D,E / SW8270D,E-SIM</b>					
Naphthalene	4,900	157	NA	NA	NA
2-Methylnaphthalene		37.0	NA	NA	NA
Acenaphthylene		1.0 U	NA	NA	NA
Acenaphthene		41.9	NA	NA	NA
Dibenzofuran		16.0	NA	NA	NA
Fluorene		18.0	NA	NA	NA
Pentachlorophenol	3	10.0 U	NA	NA	NA
Phenanthrene		19.7	NA	NA	NA
Anthracene		2.2	NA	NA	NA
Fluoranthene		3.4	NA	NA	NA
Pyrene	2,600	1.8 J	NA	NA	NA
Benzo(a)Anthracene		0.10 UJ	NA	NA	NA
Chrysene		0.10 UJ	NA	NA	NA
Benzo(a)Pyrene		0.10 UJ	NA	NA	NA
Indeno(1,2,3-cd)Pyrene		0.10 UJ	NA	NA	NA
Dibenz(a,h)Anthracene		0.10 UJ	NA	NA	NA
Benzo(g,h,i)Perylene		1.0 U	NA	NA	NA
1-Methylnaphthalene		31.1	NA	NA	NA
Total Benzofluoranthenes		0.20 UJ	NA	NA	NA
cPAH TEQ (b)	0.1 (c)	ND	NA	NA	NA
cPAH TEQ (b) (Using 1/2 RL for ND)	0.1 (c)	0.076	NA	NA	NA
<b>PENTACHLOROPHENOL (µg/L)</b>					
<b>EPA Method SW8041A</b>					
Pentachlorophenol	3	0.25 U	NA	NA	NA
<b>PETROLEUM HYDROCARBONS</b>					
<b>Method NWTPH-Gx (µg/L)</b>					
Gasoline Range Organics	1,000	1,090	1,190	1,060	951
<b>Method NWTPH-Dx (µg/L)</b>					
Diesel Range Organics	500	412	NA	NA	NA
Motor Oil Range Organics	500	200 U	NA	NA	NA
Creosote Oil Range Organics	500	2,460	NA	NA	NA

**Notes and Abbreviations**

cPAH = carcinogenic polycyclic aromatic hydrocarbon

µg/L = micrograms per liter

EPA = US Environmental Protection Agency

MTCA = Model Toxics Control Act

NA = not analyzed

ND = Not Detected.

NWTPH-Dx = total petroleum hydrocarbons diesel range

NWTPH-Gx = TPH gasoline range

PCP = pentachlorophenol

RL = reporting limit

SIM = select ion monitoring

WAC = Washington Administrative Code

U = Indicates the compound was undetected at the given reporting limit.

J = Indicates the analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

UJ = The analyte was not detected in the sample; the reported sample reporting limit is an estimate.

Bold indicates detected compound. Box indicates exceedance of screening levels.

Box indicates exceedance of screening level.

(a) Groundwater screening levels are MTCA Method B for marine surface water for cPAHs and PCP; MTCA Method A for TPH-Gx/TPH-Dx.

(b) Toxicity equivalency factor (TEQ) as described in WAC 173-340-708 (8).

(c) cPAH cleanup screening levels based on practical quantitation limit (PQL) for individual cPAHs.

(d) Verification sample analyzed using SW8270-SIM.

(e) Follow up data review of laboratory chromatograms by ARI analysts identified the peak in the gasoline range as naphthalene.